EXPERIENTIAL LEARNING: IMPACT OF TWO INSTRUCTIONAL METHODS ON STUDENT – INSTRUCTOR INTERACTION, STUDENT CRITICAL THINKING, AND STUDENT COURSE EVALUATIONS

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ABSTRACT

The objective of this study is to examine whether a Problem-Based Learning pedagogy will produce greater student – instructor interaction and more critical thinking than a Project-based Learning pedagogy in an undergraduate introductory marketing class. Using student surveys, student comments, and instructor evaluations, the researcher concludes: (1) there is a significant difference in student – instructor interaction and critical thinking between the two pedagogies; (2) student's thoughts and feelings are different for the two methods; (3) and, course evaluations remain relatively unchanged. Discussion and concluding remarks focus on the appropriateness of incorporating a Problem-Based Leaning method in an undergraduate introductory marketing class, opportunities for future research, and if student knowledge gains are sufficient to offset the increased instructional effort.

INTRODUCTION

Experiential Learning (EL) is a method of education. This type of learning occurs when students participate, reflect, and use analytical skills to gain useful insights from an activity, and then incorporate these experiences into their daily lives (Luckner and Nader 1997). Experiential learning is a topic that has received considerable research attention in recent years with this one educational journal publishing nineteen articles on this subject in a five-year period.

Two methods of experiential learning receiving less attention are Project-Based Learning (PJL) and Problem-Based Learning (PBL). While these two techniques share many characteristics, they are different. This study explores these two instructional techniques. A comparison is made between these two methods in teaching introductory marketing courses. The elements compared are: (1) level of student – instructor-interaction; (2) level of student critical thinking; (3) student comments on their feeling and thoughts about the course; (4) and student course evaluations. Student evaluations were a post hoc addition to the study design.

PROJECT-BASED LEARNING AND PROBLEM-BASED LEARNING

Project-Based Learning

One of the most popular instructional methods used at the undergraduate level by marketing educators is Project-Based Learning (PJL). With this method, a project is normally assigned to students or student groups. PJL emphasizes information search and retrieval, knowledge application, and critical thinking. A primary objective of this method is to engage students in a lengthy, collaborative investigation (Bransford et al. 1993; Thomas 2000). The projects assigned are complex and based on commonly encountered real-world problems and situations. The students' activities center on design, problem solving, decision-making, and investigation. Students conduct these activities in small groups of six to eight, with their efforts typically ending with the delivery of a realistic project plan and formal presentation (Jones, Rassmussen, and Moffitt 1997; Thomas, Mergendoller, and Michaelson 1999). In undergraduate introductory marketing classes, these assignments often involve developing a marketing plan for an organization assigned by the instructor or one selected independently by the student groups.

Problem-Based Learning

According to Duch, Problem-Based Learning is "an instructional method that challenges students to 'learn to learn,' working cooperatively in groups to seek solutions to real world problems" (2001). Similar to PJL, PBL is small group oriented. Students meet regularly to investigate, explain and resolve multiple, real-world problems (Barrows 2000; Hmelo-Silver 2004). PBL assignments often describe a situation requiring an explanation and resolution. Business cases are a popular device for learning and are often assigned in PBL classes. Popularized by

Harvard Business School faculty, the case method is common in most graduate business and professional schools (Harrison-Walker 2005), but cases are not often assigned in undergraduate introductory marketing classes.

PJL and PBL Similarities and Differences

The following question often comes up when discussing PJL and PBL. "They sound so much alike, how is PJL different than PLB?" In answering this question, it is easier to discuss the similarities and then move to the differences.

Both of the methods are teaching strategies that engage the student in "real world" tasks to increase learning. Students groups address the task for an extended period. These tasks generally have more than one answer or approach. Both methods are student-centered, and the students assume a greater involvement and responsibility for their own learning (Savery 2006).

There are two major differences between PJL and PBL. The first difference deals with the nature and focus of the task assigned, and the second concerns the role of the teacher. PJL utilizes a production model. The model starts and stops with an end product in mind. The end product produced for the two PJL classes in this study was a marketing plan. The process for developing the marketing plan has a structure. The structure is linear and the processes are sequential. It begins with an analysis, and ends with a presentation of the completed plan at the end of the term. Timelines and milestones are important in managing this process. "It is the content knowledge and skills acquired during the production process that are important to the approach" (Roisin and Fitzmaurice 2005).

PBL uses an inquiry model. The model begins with a problem for students to solve. The problems are "ill-structured, open-ended and complex" (Barrows 2000; Hmelo-Silver 2004). In the PBL class, the groups focused on four case-based problems. After the initial assignment of a problem, the groups determine what they know about the subject. Next, they develop additional questions, and finally, they identify what they need to know to solve the problem (Roisin and Fitzmaurice 2005). The PBL approach emphasizes gains in knowledge and skills by solving the problems.

As you would expect, the primary responsibilities of a teacher in a PJL class revolves around development of the project. According to Roisin and Fitzmaurice (2005) the following are important teacher roles in a PJL class: (1) guidance on project selection; (2) providing a project guide detailing all aspects of the activity; (3) providing sample projects; (4) and, alerting students on the extra time required for projects. According to Savery (2006), teachers are guides and providers of information, and they assist the student with development of the project.

In a PBL class, the teacher focuses on the problem and acts as a facilitator and coach. Teachers question the group's logic and supporting arguments in a Socratic style (Thomas 2000). They steer students away from invalid conclusions, and direct them toward helpful resources (Roisin and Fitzmaurice 2005). As Savery (2006) concludes, the PBL teacher, "supports the process and expects the learners to make their own thinking clear, but the tutor does not provide information related to the problem – that is the responsibility of the learners."

Student – Instructor Interaction

Two course goals often mentioned in Experiential Learning theory are: (1) to increase student - instructor interaction; (2) and, to increase student critical thinking. Most agree the level of student – instructor interaction increases when an instructor moves from a standard lecture "sage on stage" course to an EL method course. This is an important concept in education. There is a great amount of educational literature supporting the idea that higher levels of educational behavior occur with increases in student – instructor interaction (Bloom 1956; Bullock et al. 2002). Said another way, students learn more when student – instructor interaction levels are high.

Critical Thinking

Critical thinking is generally thought of as the intellectual process of conceptualizing, applying, analyzing and evaluating of information from observation, experience, reflection, reasoning and communication, and then used in recommending or initiating a course of action (Scriven and Paul 2004). There is ample educational literature supporting the concept that a greater mastery of a discipline occurs when students work at higher, more complex educational behavior levels (Bloom 1956; Barrows 1986). As Barrows states, "critical thinking is one of the most important learning outcomes of problem-based learning" (1986).

Recent marketing education studies support the concept that EL generates higher levels of learning behavior than does a traditional lecture method (Hamer 2000; Hernandez 2002; Hunt and Madhavaram 2006; Gillentine and Schulz 2001; Li, Greenberg, and Nicholls 2007; Woodbridge 2006). If that is the case, the next question is, "Which of the two learning methods, PJL or PBL, will generate higher levels of learning behavior in an introductory marketing class?" Current marketing education literature does not address this question. Consequently, this study will fill gaps in marketing education literature and enhance our understanding of PJL and PBL instruction in an undergraduate introductory marketing class. This study asks four questions: (1) Do students perceive a greater level of student – instructor interaction in a PBL class or in a PJL class? (2) Do students perceive a greater level of critical thinking is required in a PBL class or in a PJL

class? (3) What are the students' thoughts and feelings about the two teaching methods? (4) Which of the two methods generates higher summative instructor ratings?

The remainder of this study follows in this order: experiential learning background, student course evaluations, instructional differences, methodology, results, discussion, limitations and future research, and conclusions.

EXPERIENTIAL LEARNING BACKGROUND

John Dewey is the "modern father of experiential education" (Neill 2005). Dewey's "theory of experience" states that experience comes from the interaction of two principles – the principle of continuity and the principle of interaction (Dewey 1938). By continuity, Dewey means that each experience a person has will have an influence on today's experience, and in turn, will affect future experiences. Situational experience is the basis for Dewey's principle of interaction. Interaction between the individual's previous experiences and the present circumstances shape a person's present experience (Dewey 1938). Dewey argues, "We learn from every experience, and if we are to educate, we must learn to educate from an experiential perspective. [We need to] turn education into valued experiences that have positive impacts on individuals so he/she in turn will make a positive contribution in the future" (Dewey 1938).

There are two experiential learning frameworks (Brookfield 1983). The first learning framework deals with situations where individuals have the opportunity to gain and apply knowledge and skills by immersing themselves in a relevant setting. Professional training programs such as teaching, social work and engineering are characteristic of this framework. In the second learning framework, individuals do not have the opportunity to learn in a proper setting, but learn by reflecting on everyday experiences. The second experiential learning framework captures the character of the two pedagogies that are the focus of this study.

Pioneered by Barrows in the 1980s, PBL focuses on investigation, explanation and resolution of real, meaningful, "driving" problems (Hmelo-Silver 2000). Most current PJL and PBL instructional methodologies are the result of Barrows' early work on curriculum change in medical schools. Barrows discovered that medical students learned and retained more with problem-based instruction than with traditional lecture classes (Barrows 1980). This style of learning is similar to Kolb's experiential learning cycle: (1) concrete experience; (2) observation and reflection; (3) forming abstract concepts; (4) and testing in new situations (Kolb 1984).

Some scholars believe PBL holds the promise to be as important to undergraduates in introductory courses as it is in the graduate schools of medicine, science and business (Duch 1995; Gallow 2000). Two important advantages of PBL are: (1) it helps students build the reasoning and communication skills necessary for success today (Duch 2000); (2) . . . [students take] more responsibility for their own education and become increasingly independent of the teacher for their education (Barrows 1986).

If PBL is as potent a teaching instructional method as scholars say it is, then why have marketing educators been so slow in adopting this technique of instruction for undergraduate introductory marketing classes? The principal arguments often mentioned for not adopting PBL are: (1) students have too little real world experience; (2) it is difficult for student to change learning styles; (3) it adds to the faculty workload (Aspy, Aspy, and Quimby 1993); (4) it takes longer to cover the same material (Albanese and Mitchell 1993); (5) there is no reward or incentive for instructors to change curriculum (Bridges 1992); (6) and faculty lack facilitator skills (Bridges 1992).

In this study, two classes received a PJL method of instructional, and one class the PBL method. The PJL classes were assigned a marketing plan due at the end of the term. In the PJL classes, students were taught the marketing process, chapter by chapter. During the course, the instructor acted as a guide and led the student groups through the processes of how to prepare and present a marketing plan. In contrast, the PBL class was assigned four individual cases due at various points throughout the term. The cases required the student groups to employ iterative cycles of experiences gained from each case and carry them forward to the next. Case delivery was timed with the chapters in the text. The first case emphasized situation and market analysis. The second case focused on product development and management. The third case featured a pricing dilemma, and the fourth case concentrated on a promotion program. Table 1 highlights the characteristics of these two instructional methods and the approach the instructor took in teaching the classes.

The size of the groups in each of the classes was five to seven students. There were fourteen groups in each of the two PJL classes and eighteen groups in the PBL class. The instructor was assigned a teaching assistant (TA) for each class. The TA in all three classes was the same. The instructor lectured, mentored the groups, and graded the cases and marketing plans for each group. The TA read essays, scored exams, and posted grades.

STUDENT COURSE EVALUATIONS

Many studies in education point out the value of student course evaluations. Because retention, tenure, and promotion (RTP) is so important, most of these studies focus on student summative evaluation of instructors and their courses (Cashin 1988; Feldman, 1998; Nuhfer 2005; Paswan and Young 2003). There is agreement among some scholars who research this topic that student evaluations are generally reliable and valid (Mintu-Wimsatt and Ingram 2006; Peltier et al. 2003; Paswan and Young

Item	PJL Characteristics	PBL Characteristics
Pedagogy	♦ Project-Based Learning (PJL)	♦ Problem-Based Learning (PBL)
Problem	♦ Development of a marketing plan for company ♦ Structured, stepped process	♦ Four case studies centered on important elements of the marketing process ♦ Ill-structured, complex, open-ended
Role of the problem	♦ Focuses students on marketing plan ♦ Follows a development process resulting in creation of a marketing plan	♦ Focuses students on collecting and analyzing information that forces reasoned thinking to drive higher-order learning processes
Process	♦ Scientific inquiry cycles to predict, observe, and explain	♦ Investigate, fact gather, generate ideas and hypotheses, initiate self-directed learning, reflection, and revisit
Role of the Instructor	♦ Introduces marketing concepts before marketing plan development ♦ Guides the process	♦ Facilitator and interpreter in each of the four cases ♦ Coaches student learning
Student Collaboration	♦ Negotiating with group peers ♦ Active collaboration of instructor and students in sharing and circulating information to the entire learning community	♦ Negotiating with group peers ♦ Actively constructing knowledge in groups
Tools	♦ Computer-based tools to support collection of information gathered for creation and presentation of the plan	♦ Computer-based tools to support collection of information gathered ♦ Student identified learning resources
Student Assessment	♦ Mixture of traditional assessment methods – multiple choice, short essay, and essay ♦ Final assessment of the plan and presentation based on predetermined rubrics	♦ Mixture of traditional assessment methods – multiple choice, short essay, and essay ♦ Periodic assessment of knowledge learned and delivered in the case analyses
Advantages	♦ Goal oriented ♦ Projects are direct and straight forward ♦ Easier to assess ♦ Less time consuming for both student and instructor	♦ Central to the curriculum ♦ Focused on questions or problems associated with the four cases ♦ Construction of real knowledge building and resolution
Disadvantages	♦ Much of the learning gains occur at end of the term ♦ Focused on process and less on central problems and concepts of the discipline	♦ Time consuming for both students and instructor ♦ May not cover the same material in the same time ♦ Some students very uncomfortable with the vagueness and ill-defined problems· ♦ More difficult to assess

Source: Adapted from Hmelo-Silver 2004.

2003; Seldin 1993). On the other hand, there is a good amount of literature that questions the validity and reliability of student course evaluations (Nerger, Adye, and Riedel 1995; Williams and Ceci 1997; Trout 1997; Wilson 1998). Even though student evaluations are a controversial subject, it only makes sense that educators understand how different teaching methods will affect their own student course evaluations.

INSTRUCTIONAL DIFFERENCES

The classes were similarly designed. They met twice a week for one hour and twenty minutes. Each instructional method incorporated the same course material – the same text, same number of chapters and articles to read, the same number of individual essays, and the same number of exams. The instructor gave short lectures each class. They generally lasted no longer than 15 minutes. A group discussion period followed lectures (Table 2).

In the PJL classes, the group discussion centered on an issue relating to the material covered in the lecture and the readings for that week. The instructor visited each group during this time to answer any questions and provide direction. At the end of the discussion, each group wrote their answers on the white boards and one member presented the group's findings. At the end of the term, the major group deliverable was a marketing plan and presentation. Students were encouraged to pick a subject that was relevant to them as a college student, such as the cost of textbooks, lack of parking spaces, eating at near by fast food restaurants.

For the PBL class, discussion was driven by the lecture and readings, but focused on the case they were assigned to analyze. The groups did not present any findings at the end of the discussion. They feared that they would give away valuable information, and that could give the other groups an advantage. As the instructor did in the PJL classes, the instructor visited each group during the group discussion time. The instructor's objective during this visit was to question and challenge the members on points of the case, and to motivate them to search for the information necessary for the case analysis.

The cases used in this class were developed the previous summer as part of a grant for this study. Two management minor students (one English major and one economics major) were recruited to write the four cases over the summer break. They were encouraged to write cases on topics that students would understand and appreciate, and they did. The first case, "*Make that a Double-Double, Fries and Chocolate Shake, Dude!*" required the student groups to develop a detailed market analysis for a local fast-food restaurant that was losing market share. The second case, "*(name omitted)-lot Valet Parking,*" addressed the student parking problem. The case highlighted problems in managing and modifying a student targeted valet parking service. In the third case, "*The*

Price is Right: Playing the Game at the Text Store," the objective was to develop a pricing and distribution strategy for an off-campus bookstore to defeat the much-hated university sponsored "campus bookstore." The fourth case, "*Not Another Student Service,*" looked at the problems many campus groups face when trying to promote a student service that is not that different from other student services at the university.

METHODOLOGY

The subjects in this study consisted of undergraduate students in three sections of a principles of marketing course in the winter and spring terms at a large research focused western public university with 20, 000 undergraduates. Two winter sections of the class received PJL curriculum. The third class, taught in the spring term, received the PBL curriculum. These classes were the only undergraduate introductory marketing classes taught during these two terms. These classes were taught in the school of business. The business school enrollment was approximately 600 students in the undergraduate business minor program and around 1000 students in the MBA and Ph.D. programs.

One week before the end of the term a survey was administered to all consenting students meeting study qualification requirements. Standard quantitative and qualitative research measures were use to collect and analyze the students' attitudes and feelings in each class on each instructional method. Three types of questions were used: (1) demographic, (2) scaled attitude, (3) open-ended. In the two PJL classes, there were 94 and 99 registered students, and in the one PBL class, there were 105 registered students. The survey was completed while the instructor was out of the classroom. Eighty-eight percent of the 170 (83 students in one class and 87 in the other class) of the 193 students in the two winter PJL classes, and 78 (74%) of the 105 students in the PBL class completed the survey. To avoid potential problems, the department administrator held the surveys until all final grades were submitted, at which time the surveys were released to the principle researcher.

The scaled attitude questions used in the questionnaire came from three sources. Questions "D" through "Q" were similar to those of Bobbitt, Inks, Kemp, and Mayo (2000). In the Bobbit et al. study, three groups of survey items were designed to measure the students' perception of the tasks assigned in the courses: (1) their effectiveness as a learning tool; (2) how they compared with more traditional instructional methods; (3) and general attitudes toward the instructional approach. Additional questions, which were sourced from past experiential learning projects within the university community (Gallow 2000), compared similar teaching methods, adopted for this study and compared them to other pedagogies. Finally, two questions were developed by the researcher

TABLE 2
COMPARISON OF PJL AND PBL CLASS STRUCTURE AND ACTIVITIES

	PJL	PBL
Week 1	◆ Introduction ◆ Chapters 1, 2 ◆ 1 article ◆ Group formation	◆ Introduction ◆ Chapters 1, 2 ◆ 1 article ◆ Group formation
Week 2	◆ Chapters 3, 6 ◆ 2 articles ◆ Individual Essay #1 ◆ Groups discussion	◆ Chapters 3, 6 ◆ 2 articles ◆ Individual Essay #1 ◆ Group discussion
Week 3	◆ Chapter 7 ◆ Group discussion ◆ Exam #1	◆ Chapter 7 ◆ Group discussion ◆ Exam #1
Week 4	◆ Chapters 8, 10 ◆ One article ◆ Individual Essay#2 ◆ Group discussion	◆ Chapters 8, 10 ◆ One article ◆ Individual Essay #2 ◆ Case #1 – market/situation analysis ◆ Group case presentations
Week 5	◆ Chapters 11, 12 ◆ 2 articles ◆ Group discussion	◆ Chapters 11, 12 ◆ 2 articles ◆ Group discussion
Week 6	◆ Chapters 20, 21 ◆ Individual Essay #3 ◆ Exam #2 ◆ Group discussion	◆ Chapters 20, 21 ◆ Individual Essay #3 ◆ Exam #2 ◆ Case #2 - Product Dev./Mgmt. ◆ Group case presentations
Week 7	◆ Chapter 14, 16 ◆ Group discussion	◆ Chapters 14, 16 ◆ Group discussion
Week 8	◆ Chapter 17 ◆ 1 article ◆ Individual Essay #4 ◆ Group discussion	◆ Chapter 17 ◆ 1 article ◆ Individual Essay #4 ◆ Group discussion ◆ Case #3 – Pricing ◆ Group case presentations
Week 9	◆ Chapter 18 ◆ 2 articles ◆ Group discussion	◆ Chapter 18 ◆ 2 articles ◆ Group discussion
Week 10	◆ Chapter 19 ◆ Mktg. Plan group presentations	◆ Chapter 19 ◆ Case # 4 – Promotion ◆ Group case presentation
Week 11	◆ Final Exam	◆ Final Exam

to examine student – instructor interaction and critical thinking. All scaled questions were built on a seven-point Likert-type scale (1 = Strongly Disagree, 7 = Strongly Agree). The questionnaires were modified slightly to reflect the difference between PJL and PBL assignments. In the spring term, the descriptor "marketing cases" were substituted for "marketing plan."

A single open-ended question asked the student to, "Think back through the entire course, and tell us of some of your most relevant thoughts, questions or feelings experienced during the [term]." This question was designed to gain information in two areas. The first area dealt with the total number of comments and the valence of each (positive, neutral, negative). Evaluating students' comments qualitatively is a method of making sense of what the students are saying (Lewis 2001). Thematically coded information from student comments comprised the second area. The objective in coding the comments was to develop themes in students' own language describing the instructional method (Fereday and Muir-Cochrane 2006; Daly 2001; Daly, Kellehear, and Gliksman 1997).

Instructor course evaluations were included as an information source in evaluating the question about the two instructional methods, specifically, which method generated the highest summative evaluation? The initial study design did not include this question. Only after the term was complete did the researcher determine that including summative information on the instructor drawn from student course evaluations would be valuable. Student course evaluations were completed one week after the course methodology information was collected and were not provided to the instructor until final grades had been assigned.

RESULTS

Demographic Information

Gender and class-year demographic information collected was analyzed using the Mann-Whitney independent sample test (Levin 1999). The analysis indicates that there are no significant differences in gender and class-

year between the PJL and PBL classes (Table 3), All students in the classes were business management minors, and the introductory marketing class was a required core course for the management minor.

Instructional Methods Questionnaire

Table 4 presents means, standard deviations and mean differences for the items on instructional methods questionnaire (PJL, n = 170; PBL, n = 78). Each question was analyzed using the independent t-test procedure. The results indicated that there were significant differences on Questions "L" and "O" with PBL having significantly higher scores on "student – instruction (Question L) and critical thinking than does PJL.

Qualitative Open-ended Attitude Question (Themes)

After a short training period on thematic coding procedures, the researcher and a research assistant parsed the student comments into valence and thematic categories (Neale and Nichols 2001). This style of thematic analysis is "broadly described as a research method that uses a set of procedures to make valid inferences from text" (Weber 1990).

Six themes emerged: (1) comments about the marketing plan or case project; (2) group interaction comments; (3) course structure comments; (4) real world/experience comments; (5) references to critical thinking; (6) and, comments on specific materials used during the course. The results are reported in Table 5. These findings indicate a significant difference exists between PJL and PBL in five of the six thematic categories. PBL was significantly higher in class structure, real world experience, and critical thinking. PJL was significantly higher on group assignments (plans or cases) and group interaction.

PJL Theme Findings

For the PJL classes the marketing plan project was the most often mentioned theme. The majority of students commented on the effectiveness of the marketing plan

TABLE 3 STUDENT DEMOGRAPHIC INFORMATION							
Item	**PJL**			**PBL**			**Mann-Whitney Test**
Gender	Male	Female		Male	Female		Z	Asynp. Sig
n =	84	86		29	49		1.624	.105
Class year	Soph.	Jr.	Sr.	Soph.	Jr.	Sr.	Z	Asynp. Sig
n =	13	84	86	13	24	41	1.00	.317

TABLE 4
STUDENT SURVEY QUESTION MEANS, MEAN DIFFERENCES, T-VALUES, AND P-VALUES

Question	PJL	PBL	Mean Diff.	t-value	p-value
A. The marketing cases encouraged me to think about and apply marketing concepts in the course.	6.25	6.23	0.02	-.020	.984
B. The marketing cases provided peer and group interactions useful to me in completing the assignments.	6.12	6.21	-0.09	-.672	.502
C. The marketing cases enabled me to develop a deeper understanding of the marketing process.	6.18	6.13	0.05	.296	.767
D. As a learning experience, the marketing cases are more productive than listening to a lecture.	6.01	5.97	0.03	.082	.935
E. As a learning experience, the marketing cases are more enjoyable than listening to a lecture.	5.70	5.90	-0.19	1.248	.213
F. The marketing cases should be assigned to future classes.	6.51	6.35	0.16	1.244	.215
G. The learning experience provided by the marketing cases were worth the effort.	6.20	6.05	0.15	.906	.386
H. I put a great deal of effort into this course.	5.98	5.86	0.12	.732	.465
I. Having completed the marketing cases, I feel confident that I could complete this type of work for a company.	5.78	5.84	-0.07	-.460	.646
J. Compared to group projects in other courses the marketing case experiences were more productive.	6.01	5.86	0.15	.881	.379
K. Compared to group projects in other course the marketing case experiences were more enjoyable.	6.02	5.95	0.08	.377	.707
L. Compared to group projects in other courses I had more interactive instructional contact with the professor.	5.32	5.70	-0.39	2.375	.018*
M. Compared to other courses I was better able to apply knowledge from other business courses and disciplines.	5.63	5.57	0.06	.233	.816
N. Compared to other courses I felt that there was a greater involvement and participation on the part of all students.	5.72	5.74	-0.02	-.286	.775
O. Compared to other courses I felt that this course required more critical thinking.	5.26	5.60	-0.34	2.533	.012*
P. Compared to other courses I was engaged at deeper levels with concepts and issues in this course.	5.32	5.49	-0.18	1.371	.172
Q. This course gave me a stronger motivation to work hard at learning than listening to lecture.	5.73	5.71	0.02	-.050	.960

* Statistically significant at $p < .05$.

TABLE 5
STUDENT COMMENTS BY THEMATIC CATEGORY

Comment Categories	PJL Comments = 196		PBL Comments = 68		t-value	*p*-value
	Students	%	Students	%		
Project Plan or Cases	65	33.1%	15	22.0%	2.474	0.015*
Group Interaction	57	29.1%	14	20.6%	2.616	0.010*
Class Structure	22	11.2%	14	20.6%	4.238	0.000**
Real World Experience	20	10.2%	14	20.6%	3.049	0.003**
Critical Thinking	12	6.1%	8	11.8%	2.763	0.007**
Course Material	20	10.2%	3	4.4%	0.240	0.881

* Statistical Significance at $p < .05$.
** Statistical Significance at $p < .01$.

used as the central focus of the class. Tied closely to the marketing plan project theme was a group interaction theme. Here students emphasized the importance of the group for the completion of the plan. This topic has not gone unnoticed by marketing education researchers and is the focus of a number of studies (Amato and Amato 2004; Benbunan-Fich et al. 2001; Huff, Cooper, and Jones 2002). Most of the student comments highlighted the social nature of the group, and the importance of getting along with each other. The adjectives and phrases used to describe this group interaction theme were: fun; enjoyable; best part of the class; learned the importance of interpersonal skills; and cooperate with one another.

Comments on the class structure theme focused on the relationship of the weekly course topics and the development of the marketing plan. The following student comment captures the essence of this theme: "The marketing group plan was very insightful and helpful with the application of what we learned throughout the [course]."

The importance of connecting the various marketing concepts with the marketing plan came through in the real world – future theme. Students commented on how relevant the marketing plan became when it was attached to a real-world issue. Good examples of this theme were captured in the following comments: "[The] course relates well to the real world. [It] pertains to practical issues"; ". . . stimulate thinking to the real marketing world"; "interesting and helpful for the future."

Supplemental materials supporting the marketing concepts were often mentioned as a relevant element of the course. These comments were made in connection to the publisher-supplied videos (3 to 10 minutes) that emphasized important chapter concepts. Additional classroom materials included TV commercials purchased from a national organization. These 30 to 60 second domestic and international TV ads were shown in blocks of 10 to 20 at the end of class when the integrated marketing communications advertising, and promotional areas were covered.

Many of the students commented on the structure of the course. The class routine followed a similar pattern from week to week. The session started with a short lecture on a marketing concept or chapter, followed by a video. Next came a group discussion question relevant to the chapter and to the marketing plan, followed by a presentation of the group's answer from one of the group members. If time permitted a few TV and radio ads were run.

PBL Theme Findings

Fewer themes emerged from the PBL class than the PJB classes. The three themes that did emerge were: (1) interaction within groups; (2) real world – future; (3) and course structure. The most mentioned theme concerned the value of the group interaction in working on the cases. The following student quotes are typically of the comments on this theme: "I enjoyed the group work more than traditional lecture. Although it was more work at times"; and "working in groups enhances the learning experience

since it requires collaboration." Many real world comments were made in reference to the student relevant PBL cases. Typical of these comments were: "the group work really makes you think and they are especially effective since they are relevant to our daily lives," and "the fast food case was very entertaining and made me think about it as if I was experiencing the same problems in real life."

The last major theme identified in the PBL class is similar to comments from the PJL classes on the structure of class. These included: "Too much going on – every week there was a quiz, an essay due, a case due or an exam"; ". . . I think you assigned too many cases with a small amount of pages that we were able to use. I would rather do three cases with 6 to 10 pages each."

Student comments were parsed into valence categories – positive, neutral and negative. The results of the valence analysis indicate that the PJL classes were more willing to provide written comments with a greater percentage being positive than the PBL class. The PJL 1.15 comments per student with 67% positive. This is compared to the PBL class with 0.87 comments per student with only 48% positive (Table 6).

Student Course Evaluations

Table 7 provides a comparison of mean differences in instructor course evaluations questions between the PJL classes (n = 171) and the PBL class (n = 74). Access to individual Scantron question forms was not allowed. Summaries by instructional method were provided by the course evaluation administrator for each assessment item mean, standard deviation and sample size. The results of independent sample t-tests indicated that three PBL formative assessment items were significantly different: Item 6, "Emphasizes conceptual understanding"; and Item 7, "Has students apply concepts to demonstrate understanding."

Two summative questions were part of the student course evaluation questionnaire: "All things considered how would you rate the overall effectiveness of the instructor?" and "Would you recommend the course to your fellow students?" There was no significant difference between PJL and PBL on these two questions. The analysis of this post-hoc element seems to imply that the teaching the PBL class did not "help" or "harm" the instructor's course evaluations.

DISCUSSION

Student – Instructor Interaction and Critical Thinking

This study is centered on investigating the student perceived differences between a PJL pedagogy and a PBL pedagogy for undergraduate introductory marketing classes in two areas: (1) student – instructor interaction; (2) and critical thinking. The findings of this study support the proposition that a PBL method does generate greater perceived student – instructor interaction and increased critical thinking than a PJL pedagogy, but when combined with other items comprising a more robust construct of EL dimensions, no significant difference between the two pedagogies is evident.

These findings were unexpected. Educational literature supports the proposition that PBL requires higher levels of learning behavior. Using Bloom's (1956) fifty-year-old educational taxonomy along with popular current educational models (Anderson and Krathwhol 2001; Marzano, Pickering, and Pollock 2001) as a guide for a comparison of the two instructional methods, it is apparent that PBL requires higher levels of cognition, analysis, synthesis and evaluation in addressing the four cases, than does PJL using a single marketing plan project.

TABLE 6
STUDENT COMMENTS: POSITIVE, NEGATIVE, AND NEUTRAL

Nature of Student Comment	PJL N = 170 Students		PBL n = 78 Students		t-value	p-value
	Students	%	Students	%		
Positive	114	67%	38	48%	-3.321	0.001**
Neutral	31	18%	7	9%	0.220	0.827
Negative	37	22%	13	16%	1.443	0.151

* Statistical Significance at $p < .05$.
** Statistical Significance at $p < .01$.

One possible explanation for this finding is that the classes were not pedagogically different. Both incorporated many attributes of EL, as well as the same instructor, and while student – instructor interaction and critical thinking were significantly different, these items did not outweigh the other items in the experiential factor construct.

Another possible explanation is that the students were different. All of the students taking the classes were in the management minor program in the school of business. The mean GPA for students admitted to this program is between 3.4 and 3.5 (four-point scale). This alone may account for their ability to cope with and adjust to the complex and ill-structured nature of the case problems assigned.

PJL and PBL Limitations

Because many introductory marketing classes of this size are taught in a straight lecture arrangement, some changes were made to accommodate the PJL and PBL teaching methods. First, not all chapter material was cover in lecture. Students were alerted that they were responsible for all material assigned, whether or not it was covered in class. In straight lecture classes, student groups are part of the design. Second, student groups in the study were self-selected. As a result, some of the groups were extremely efficient and some were less functional. Breaking into their groups for questions and then presenting became problematic: therefore, managing time in large classes with a group orientation in a quarter-system is difficult.

Practical Value

The practical value of this study for marketing educators is that both instructional methods seem to work well in undergraduate introductory marketing classes. If this inference is correct, then the next question should be, "which of the two methods is the 'better one' for undergraduate introductory marketing classes?" Many would argue that PBL taught to undergraduates with little or no

TABLE 7
INSTRUCTOR COURSE EVALUATIONS - QUESTION MEAN DIFFERENCES,
T-VALUES AND P VALUES FOR PJL AND PBL METHODS

Question		Mean Diff.	t-value	*p*-value
1	Communicates effectively and explains material clearly?	0.11	0.894	.394
2	Is well prepared?	-0.09	0.982	.328
3	Encourages class discussion?	0.03	0.174	.863
4	Is accessible to students out of class?	-0.05	0.180	.857
5	Keeps students informed of their progress?	0.04	0.364	.717
6	Emphasizes conceptual understanding?	0.24	2.180*	.015*
7	Has students apply concepts to demonstrate understanding?	0.30	3.274*	.0012**
8	Provides rigorous and demanding course?	0.09	0.068	.946
9	What is your rating of the overall value of the course?	0.16	1.484	.139
10	All things considered how would you rate the overall effectiveness of the instructor?	0.15	1.468	.144
11	Would you recommend the course to your fellow students?	0.00	NaN	NaN

* Statistical Significance at $p < .05$.
** Statistical Significance at $p < .01$.
Questions 1 thru 10: Likert scaled questions: 1 = very poor thru 7 = outstanding. Question 11: "Yes" or "No."

experience in business or marketing is too advanced and requires a significant change in learning style. A counter argument is that PBL prepares students for the future by pushing them to take responsibility for their own education. Why or why not use case study for undergraduate introductory marketing courses would be an interesting topic for future research.

Learning Outcome

Unfortunately, a learning outcome question was not asked. Asking a question about how much the student learned in the class would add considerable value. Perception of how much was learned from the perspective of both students and instructor would be an interesting topic. Future research on this topic should include questions that probe learning outcome.

Some may wonder why this research focuses on two very similar teaching methods rather than on a lecture method versus a less passive method. Studies in marketing education over the past few years unquestionably support the proposition that the advantages of EL outweigh those of a passive lecture style but do not distinguish between closely related EL styles (Celsi and Wolfinbarger 2002; Hunt and Madhavaram 2006; Li, Greenberg, and Nicholls 2007). Additionally, marketing educators are under fire from students, administration, and marketing practitioners to create marketing education curricula reflecting current technology and the real world (Kennedy, Lawton, and Walker 2001; Wright, Bitner, and Zeithamel 1994). EL and other less passive instructional methods are the response to these demands.

Finally, the value of the research devices used in comparison of the two EL methods in this study are twofold: (1) they can be used to assess the differences between EL and other pedagogies, (2) and they can be used to assess differences within various EL pedagogies.

Thematic Coding

The second research question asked students what thoughts, questions and feelings they experienced during the course. Coding of the comments into thematic categories offered valuable insights for marketing educators in both distribution and tone of the comments between the two instructional methods. Over 60 percent of the comments from the PJL classes were directed toward two themes: (1) the marketing plan (33%), (2) and group interaction (29%). The PBL class had a better balance among more categories. Their comments were evenly distributed between five of the six categories: focus on the cases (22%), group interaction (20%), class structure (20%) and real world-future (20%).

The PJL students seemed fixated on the group experience and the relationships built in the preparation of the marketing plan project. No other categories received the emphasis that these two groupings did. At the same time for the PBL group, the large number of real world – future comments support the position that PBL builds on a personal experience, and values the real over the abstract or fictional (Kolodner 1993). The relevance of the case problems to the students also found its way into the comments – fast food, parking, buying books and student services are subjects most students readily understand. The concept of relevance is one of the primary tenets supporting the PBL method because it provides the students with a much more realistic framework against which to apply marketing concepts than does the single marketing plan project (Harrison-Walker 2005; Hernandez 2002; Smith and Van Doren 2004).

An unexpected finding was the difference in tone of the comments between the two pedagogical methods. The following words are typical of those used in the PJL class in shaping the comments made: "a blast, enjoyable, enjoyed, fun, good, great, helpful, insightful, interesting, liked, loved, organized, relevant, useful, well rounded." Here are a few of the words from the PBL class that accompanied the comments: "great, interesting, didn't like, enjoyed, knowledge, understand, wonderful, enriched."

Inferences drawn from this analysis indicate that students in the PJL classes: (1) liked the class more; (2) were comfortable with the marketing plan project because it was similar to other assignments in other classes; (3) and, enjoyed the learning experiences with their groups. On the other hand, in the PBL class the students: (1) were not as comfortable with the instructional method; (2) there were too many cases assigned; (3) although, they felt more connected to the real world; (4) and, they gained knowledge and learned from the class.

There are obvious limitations to thematic coding. In this study, as in most studies based on this type of analysis, much depends on consistently parsing the comments into right thematic categories. The importance of this style of analysis to the instructor cannot be understated. Qualitative questions yield an understanding and perspective on the students' thoughts and feelings that the scaled questions do not provide. Comments included on most instructor evaluations are the closest to this type of feedback, but instructor evaluations do not normally ask students to comment on their feelings, thoughts and experience in the same way.

EVALUATIONS

The last research question asked was, "Will Problem-Based Learning help or harm an instructor's course evaluations?" Based on item analysis from the instructor evaluations for the two pedagogies, the answer is, "No." There were significant differences in the answers on two

formative questions (Questions 6 and 7). This provides support in making the inference that PBL emphasizes greater conceptual understanding and a method to allow students to demonstrate that understanding, but it did not result in a significantly higher summative evaluation of the instructor's effectiveness.

The value of this finding to the marketing educator is that PBL did not harm instructor evaluations, but it did not help them either. This is important when considering how little time most faculty have or have set aside to prepare new and different teaching methods. If that is the case, then why would marketing educators devote significant time and effort to develop new instructional methods if there was little or no difference in student learning or instructor evaluations?

Additional Question

Finally, a question that was not included in the list of research questions, but one that should be addressed is, "Are expected gains in student knowledge, practice and understanding, worth the additional effort to teach a PBL class?" The answer to this question depends on who is doing the asking. For average students, the answer would probably be "No." The skill and knowledge gains for the student are important but there would no doubt be resistance to a new instructional method that is inherently more rigorous. Cases are not as easily parsed and assigned to group members, as are the parts of a marketing plan task. Cases require all group members to read, understand and assess the case. Additionally, casework often requires the groups to meet more often outside of class.

From the instructor's perspective, the answer to the same question would be "Yes, but . . ." The rewards to the student in knowledge, practice and understanding may not be great enough to offset the additional effort required to teach the class. The reason for this answer rests solely on the amount of work required to prepare the curriculum, prep and teach this class. Without course relief or other incentives, changing pedagogies becomes too burdensome for most instructors. If you are a probationary tenure track instructor with a focus on research, then it is out of the question. This is the case in most colleges and universities.

LIMITATIONS AND FUTURE RESEARCH

Limitations

There are a number of potential limitations to the study that should be mentioned. First, the study represents only three classes in one university over two school terms. Because of the competitive nature of the management minor program, the students' overall university GPA, and the nature of the university (large, public and research oriented), the students may not be representative of students at other universities and colleges. Consequently, generalizing the findings to other courses in other schools with different students is problematic. Second, the instructor managed the group-report-out differently for each treatment. The PJL groups wrote answers on the board and presented them to the class, and PBL groups did not because they feared this sharing could give other groups an advantage. The scheme allowed the instructor to spend more time with the PBL groups than with the PJL groups, and this is a potential threat to the results. Third, the instrument used in this study was for the most part a compilation of questions from studies in marketing education and other disciplines and was not extensively pretested and the danger exists that the factor dimensions derived do not accurately capture the EL concept. Last, additional threats include other unintentional biases by the instructor in teaching the courses, and misinterpretation in thematically coding the written thoughts and feelings of the students.

Future Research

Clearly, there is a need to understand more on how and why PBL differs from PJL. There needs to be more work in refining the EL construct presented in this study, as well as in matching student course and instructor evaluations to the two learning methods. Is there a specific style of EL that will maximize student knowledge gains and instructor evaluations at a level of effort for marketing educators that is not oppressive? Probably not, but it is an intriguing question.

Lastly, there are opportunities to increase our knowledge of how students feel and think in relation to different instructional methods. For many instructors teaching classes where the student can gain knowledge and have fun while doing it is a worthy objective, but getting the right balance is difficult. All fun and no knowledge is as much of a problem as preparing a class that is so difficult or boring that class becomes a horrible learning experience forcing students to drop the class. As John Dewey (1938) said, "How many students, for example, were rendered callous to ideas, and how many lost the impetus to learn because of the way in which learning was experienced?"

CONCLUSION

This study starts by asking if a PLB pedagogy will generate increased student – instructor interaction and critical thinking, versus a PJL method. The research presented provides significant findings for marketing educators and others who are considering different methods of EL instruction. Various dimensions of EL are explored. Based on the findings of the research, PBL can be successfully taught in an undergraduate introductory

marketing class. There are gains in student – instructor interaction and critical thinking, and the instructor's student course evaluations remain unchanged. However, when comparing all of the scaled research items gathered for the study, PBL does not appear to be significantly different from PJL. The content analysis of student-written comments sheds light on their likes and dislikes. In the end, a decision on which of the two methods to teach would seem to favor PJL.

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