



EFFECT OF ACTIVE TEACHING IN A PROJECT BASED CLASS

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Introduction

Graduates entering the work force today working for manufacturers and distributors need to, not only be aware of, but understand the importance of working with other companies within their marketing channels and supply chains. Steve Church with Avnet (an electronics distributor) stated that, “We are in an environment today where supply chains compete, not individual organizations. The survivors will be determined by which supply chain you belong to.” As educators in the Industrial Distribution Program in the College of Engineering at Texas A&M University the authors of this paper have discovered that information gained from reading assignments, and listening to lectures, and problem solving activities creates awareness, but often falls short of helping students to fully understand the importance of relationships among member of supply chains.

Buck Institute for Education (BIE) defines project-based learning as “a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks” (Coffey, 2008). After employing project-based learning methodologies in their undergraduate class, IDIS 340- Manufacturer Distributor Relations in the fall of 2011, the authors wrote a paper that included a course description, how project-based learning was used, and an assessment of the effectiveness of the course based on the comments of students and industry representatives who participated in the project (Natarajarathinam & Clark, 2012.) Based on the course assessment changes were made to the course that was taught again in the spring of 2012 and another effectiveness assessment was made based on the comments of students and industry representatives who participated in the project during the spring semester. This paper outlines the changes made to the course and how the learning experience improved.

Course Description

The objectives of IDIS 340-Manufacturer Distributor Relations are:

- To develop an understanding of the basic concepts and issues in distribution channels.
- To develop an understanding of the interaction between manufacturers and distributors.
- To challenge students to think creatively and critically about the manufacturer/distributor relationship.

The course consists of these five units:

- Unit I: Definition of Strategic Relationships
- Unit II: Strategic Relationships and Trust
- Unit III: Strategic Relationships and Market Growth
- Unit IV: Strategic Relationships and Accountability

- Unit V: Strategic Relationships and Channel Compensation

Each unit of the course included lecture and class discussion, exercises designed to help the students better understand applications for the concepts being taught, and assignments in which students, working in groups, applied these concepts to their assigned project topics.

Project Design

The table below reflects the activities into which the project was divided and the points associated with each activity.

<u>Due Date</u>	<u>Project Activity</u>	<u>Points</u>
09-Feb	Best Practices Assignment	25
21-Feb	Possible solutions Assignment	25
08-Mar	Project Update Report	50
20-Apr	Final Report	75
20-Apr	Presentations	75
	Total	250

Table 1 Project Activities/Milestones

Student Difficulties during Fall 2011

The assessment of the course taught in the fall of 2011 revealed that students experience confusion and frustration for these reasons:

- Many students were unsure what was expected of them throughout the project
- They struggled with applying the concepts that they were learning to their specific project topics
- Communication and feedback from instructors and industry representatives was not sufficient to answer their questions in a timely manner.

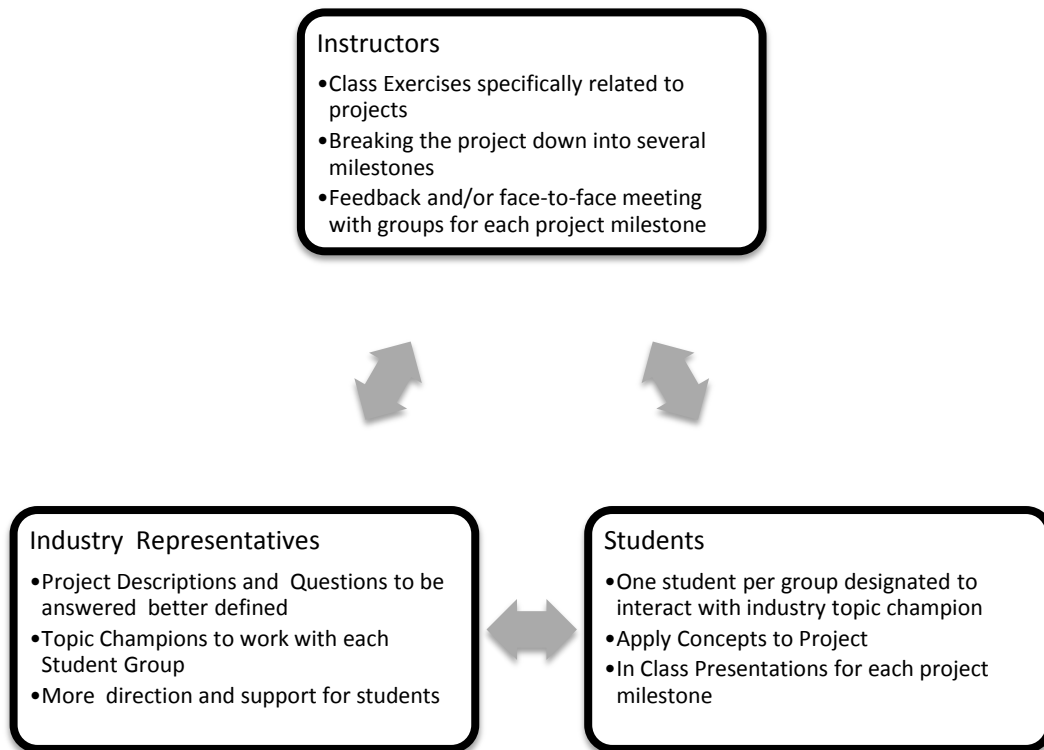
Course Changes for Spring 2012

In today's dynamic business environment understanding a concept with limited knowledge of how the concept can be applied in real world situations is not sufficient. Understanding of concepts must be sufficient that tools and knowledge can be applied in varied and practical situations (Grabinger and Rich, 1995). This concept of active learning loses its effectiveness when assignments and expectations of students and industry representatives are unclear. Less time is focused on understanding concepts and the practical applications of these concepts due to the time spent trying to understand and comply with the assignment. To reduce the confusion

experienced by students and help the students to better apply the concepts being learned to their project topics the following changes to the course were made:

- Industry topics descriptions and questions to be answered by students were more clearly defined
- Industry topic champions were assigned for each of the five topics being researched by the student groups
- Industry representatives had more responsibility for providing direction and support for the students
- Each student group selected one representative to communicate with their industry project champion
- Class exercises were made specific to the project
- Projects were broken down into well defined milestones
- Presentations were made to the class by each group during the semester at the completion of each of the project milestones. This allowed the instructors to better monitor and support student progress, plus allowed students more exposure to topics other than their own.

The diagram below depicts the improved responsibilities and interaction among students, industry representatives and the instructors.



Project Topics Spring 2012

Here are brief descriptions of the topics and the titles of the project champions provided by the sponsoring company for the spring 2012 class:

Topic 1 - Vertical Marketing Approach to Selling and Distributor-Manufacturer Alignment

Project Champion: VP Corporate Product Management

There is a lot of data being collected concerning market segments being sold into by both manufacturers and distributors, but not a lot of sharing and collaboration being done by the two sides. In addition, the target market segments, and sub-segments that the manufacturers and the distributors select rarely completely overlap. This is a new, highly focused way of selling (think rifle hunting versus shotgun hunting) that has plenty of room for optimization and further collaboration. What criteria should manufacturers and distributors use to select segments that could be focused on jointly, and how can the two sides best work together to leverage each other's investment in this activity to improve their mutual results?

Topic 2 - The Usefulness of Business-to-Consumer (B-to C) Techniques in what is Almost Exclusively a Business-to-Business (B-to-B) Environment

Project Champions: Senior VP Americas and Director of Marketing

Traditionally, distributors and manufacturers have practiced B-to-B marketing techniques to build and maintain their brands, introduce new products and services to the market, and attract the attention of potential new customers. This was largely done through print based advertising in trade publications, some public relations work, and participation in industry tradeshows. As the internet and social networking have become more common place this has paved the way for a more B-to-C approach to marketing where the brand, new product message, and services to market can be tailored and delivered to the desk of the person who is actually making the purchases. How can this B-to-C approach be developed to cost effectively deliver our message to persons making these buying decisions?

Topic 3 - The Total Cost Model for Selling through a Distributor versus Selling Direct

Project Champion: Director Supply Chain Services

It is widely believed that the best price for a part can be gotten by directly buying that part from a manufacturer, especially if the customer is a major user of the part (e.g. Hewlett Packard or Cisco). As a result, customers big and small try and establish direct commerce relationships with electronic component manufacturers rather than use the manufacturers' authorized distributor channel. Manufacturer themselves often believe that more net margin can be gained from direct sales than indirect sales through their distributors. How can it be demonstrated to manufacturers that they can reduce redundancies and their total cost of sales by selling through distribution?

Topic 4 - SWOT Analysis Based on Customer and Supplier Survey Results

Project Champion: Director of Quality

Every year our company conducts two external surveys, one for manufacturers' rep sales forces and one for customers. In the surveys, respondents are asked to rank a variety of attributes and then to rate our company versus the competition. The result is a lot of data for which the challenge is to turn it into information that our sales team can use to identify trends and evaluate their strengths and weaknesses relative to competitors and what is valued by the manufacturers

and customers. What is the best way to use the results of these surveys to help manufacturers see benefits of doing business with us and choose us over our competitors?

Topic 5 - Winning the Design

Project Champion: VP Sales Development

For an electronic component manufacturer, the name of the game is to get ones parts selected and designed into a customer's new product. After years of outsourcing and downsizing, many customers don't invest in qualifying multiple sources for each of the part requirements, which means that now more than ever the component manufacturer has the chance to virtually lock up the business early in the sales cycle. Unfortunately for them, this trend coincides with work force reductions on the part of the component manufacturer that leave many of them unable to adequately drive design wins on their own. This gap creates a need for distributors to more actively engage in the design-in of the manufacturer's components into the distributor's customer base. What can we do to demonstrate to manufacturers that we can effectively perform this function?

Comparing these topics to the ones that were described in our original paper (Natarajarathinam & Clark, 2012) these topics provide students with a better understanding of what is being asked of them. There was less confusion concerning what the industry sponsor was asking the students to provide.

Results of Course Changes

Having industry champions assigned for each of the topics and one student from each group designated to communicate with the industry champion improved exchanges significantly. Industry representatives were not inundated with student questions like they were the previous semester. In addition to creating a manageable workload for the industry representatives who were responding to the questions, they were able to establish a rapport and meaningful dialog with the student representing the group. One point of contact allowed the students to get their questions answered in a timely manner. One point of contact greatly reduced student confusion and frustration, as well.

Making class exercises specific to student project topics made more effective use of the students time. This also reduced the confusion that was involved with trying to transfer what they were learning from an unrelated exercise to their project. The project became the focus of the class rather than an assignment in addition to the class material and exercises. As material was presented in class, students could make determinations as to how the information related to their project topics.

Having the student groups make presentations to the class at the completion of each of the milestones throughout the semester helped the instructors to monitor student progress and make timely recommendations for corrections or adjustments that needed to be made. This reduced confusion and gave students much more confidence concerning what was expected of them. As a result, the level of work that the students were able to produce significantly improved because their efforts were focused on their project topics rather than spending their time trying to figure out what they should be doing.

Collectively these changes provided the students much greater direction throughout the semester and allowed much better communication between the students and both the instructors and industry representatives. Prior to the course changes instructors and industry representatives spent time responding to questions from students regarding what was expected of them. After the course changes questions became much more relevant to the research and analysis that the students were engaged in during their projects. Students were able to better identify applications for the concepts being taught by relating them directly to their project topics. Based on the students assessment of the course there appears to be an improvement in both the understanding of the material presented and the learning experience.

Student and Industry Assessment of Spring 2012 Class

	2011	2012
Project		
Has working on this project helped you understand the basic concepts and issues in distribution channels?	3.68	4.24
Has working on this project helped you understand the interaction between manufacturers and distributors?	3.81	4.41
Has working on this project helped you think creatively and critically about the manufacturer/distributor relationship?	3.79	4.32
Support to work on the project		
How useful was the field trip to the distributor's facilities?	2.84	4.01
How useful was the support from the distributor?	2.38	3.56
How useful was the support from faculty?	3.35	4.29
Class		
Has this class helped you understand the basic concepts and issues in distribution channels?	3.88	4.36
Has this class helped you understand the interaction between manufacturers and distributors?	4.00	4.40
Has this class helped you think creatively and critically about the manufacturer/distributor relationship?	3.85	4.29
General		
Would you recommend a similar project for future IDIS 340 classes?	3.40	4.18
Did this project help with communicating/engaging with your peers better?	4.14	4.47

Table 1: Feedback from students about the project



Figure 1 Change in Students’ feeling about working on the project from 2011 - 2012

Assessments by students at the conclusion of the course to which the changes were made were much more positive and indicated that while the students were still challenged they found the project experience more rewarding and less confusing. Average ratings on a Five Point Likert Scale are shown in table 1. The scores for all the questions are higher than last year. This shows that the changes that were made to the course have been helpful to the students. All these new measures have definitely aided student learning.

	2011	2012
Do the students have an understanding of basic concepts and issues in distribution channels?	3.85	3.82
Do the students have an understanding of the interaction between manufacturers and distributors?	3.70	3.79
Have the students thought creatively and critically about the manufacturer/distributor relationship?	3.91	3.66
Are the students ready to make an immediate contribution to the industry?	3.62	3.42

Table 2 Feedback from industry executives about the solutions proposed

Assessments by industry representatives regarding students’ understanding and learning decrease from 3.8 to 3.6 a reduction of .05 percent. Some of the difference could be attributed to the fact that a different company sponsored the project. Another consideration is the amount of help provided the students. When students receive more help, they can become more dependent on those providing the help, thus stifling their creativity and critical thinking. There is a fine balance between assisting students as they learn and letting them figure things out on their own.

Conclusion

As instructors, we are confident that the changes made to this course reduced confusion for everyone involved. In addition, it also reduced the time and effort that the industry representatives and the instructors had to spend providing clarification to the students. Time was spent answering questions specific to the development and completion of the project instead of dealing with questions concerning clarification of the assignments. Now that issues concerning the mechanics of the course have been improved instructors can turn their attention to looking for ways to help students better understand the concepts being taught as they relate to their project topics. This should enhance the students' abilities to provide industry representatives with information that can practically be considered for the improvement of their operations.

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