VE IN THE COLLEGE CURRICULUM

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ABSTRACT

VE has recently been incorporated into the graduate curriculum at Pittsburg State University. This course is multi-disciplinary and is aimed at students in the Master of Science in Technology and Master of Business Administration programs. This paper discusses the relevance of such a course in an academic environment as well as the triumphs and problems associated with its development.

INTRODUCTION

With increasing emphasis being placed on cost control in both the public and private sectors, there has been a renewed interest in the concepts of VE or Value Analysis. Although the benefits of VE have long been recognized by a relatively few successful practitioners, it was only recently that federal legislation was introduced mandating the application of VE techniques[1]. With fewer than 300 certified professionals, there will be a growing demand for specialized training and education which will serve to provide a better public and professional understanding of the Value profession.

The notion of an academic course dedicated to the principles of VE is by no means new. A survey of institutions across the nation will reveal that more than 30 schools offer this program. What is unique to the program at Pittsburg State and will become key to the future success of other programs is SAVE recognition and approval.

COURSE OBJECTIVES

The global objectives of the VE course have been established as:

a. Provide an experience in multi-disciplinary problem solving
b. Develop team work
c. Introduce and apply the structured methodology of VE to real world problems

The multi-disciplinary approach is an important element of VE. Some graduate programs tend to be multi-disciplinary, drawing students from a wide variety of backgrounds and majors. These programs have the benefit of ready made project teams. Other schools that are more discipline specific will not have this luxury, in which case, efforts should be made to market the class to other disciplines. The placement of the course in the graduate curriculum as opposed to undergraduate was driven by the desire to provide an imaginative and exploratory opportunity for students.

Problem solving is something that students need to develop throughout their careers. The VE methodology provides a heuristic whereby the students can foster an improved confidence in their abilities. In a survey of the relative importance of different course attributes, the two most important factors as rated by

students were "use of practical examples" and "...material is relevant to my future career"[2]. The development and application of VE techniques to actual problems will clearly satisfy these student concerns.

A comparison of course objectives with those of the SAVE certification program will find them well aligned, in particular the following:

- Clarification of the disciplines, methods and procedures in the application of VE.
- Creation of a better public and professional understanding of the Value profession
- Development of a universal acceptance and application of the Value practices

Due to the commonality of these objectives, it was determined that the academic program could be enhanced through the development of an alliance or partnership with SAVE. The course, has therefore been developed using the syllabus outline from the 40 hour (Module I) workshop as a framework. A three semester hour course is easily developed around the workshop requirements. A minimum requirement of the workshop is 20 hours of in class work on live or actual projects.

The Certification Board has recently developed a procedure for approval of university courses for Module I requirements. By developing the course syllabus in line with prescribed criteria, students will further benefit through the recognition for completion of a professionally required workshop. The course addresses the following topics:

- Introduction to value concepts and theory
- Function, cost, worth
- Conducting a value study
- FAST diagramming
- Being Creative
- Judging Ideas
- VE versus quality, performance and other disciplines
- Cost control theory
- Life cycle cost theory
- Implementation strategies
- Organizing for and performing value work

THE PROJECT

Watching someone else solve a problem does not make students good problem solvers. Group solving of problems however, has been recognized as a good teaching method[3]. The requirement for a real world project has been not only fulfilling for the students, but has also provided increased recognition for the profession. State and local agencies as well as private sector industries have sponsored projects and consequently benefited from the in-class efforts of the students.

Problems addressed to date include the development of a campus transportation system, a construction equipment simulator, and selection of equipment for a printing shop. A 1991 class offered by the University of Florida used projects sponsored by the Florida Department of Transportation. One project dealt with the problems associated with bears crossing highways. The students final presentation was featured on CNN.

ISSUES

The difficulties in developing this course have been minimal due to the support of SAVE, in part-particular the Certification Board. The first major obstacle to overcome was the recognition of the course as an approved Module I Workshop. To meet prescribed criteria, a fairly detailed course schedule had to be developed. The Certification Board provided the minimum required hours for each topic and the syllabus was then built around these requirements.

The second issue was the certification requirement for the instructor. With the limited number of Certified Value Specialists available it was recognized that getting someone to a small rural college for 16 to 18 weeks was really not feasible. Based on status as a professional educator and other credentials, this requirement was waived.

The only other problem faced in the development of the course was what could be considered an identity crisis for VE. As the class was marketed and project sponsors recruited, it became very evident that it would be necessary to clarify the image of VE. Many agencies carry the misconception that it is a means to scrimp on first costs or cut total cost as in the case of the Port Authority of New York where staff reductions eliminated the jobs of the value engineers[4].

Another image related problem arose in the effort to create a multi-disciplinary course. Non-engineering students in the Technology program were terrified by the fact that they were being required to enroll in an "engineering" class. Interestingly however, students in the MBA program recognize the importance of the class and it is expected that it will become a very popular elective course for them.

SUMMARY

The benefits available from a course of this nature are most impressive. Students, industry, and the academic institution stand ready to grow as a result of the knowledge and understanding of the true concepts of value.

Academically the course fulfills many of the guiding principles for engineering education as delineated by Hougen[5]:

- The graduate program is imaginative and exploratory
- Relevant problems are provided to students
- The best available information from modern science is used
- Problems are solved with limited or incomplete data
- Students receive a good grounding in the basic fundamentals

Additionally, students will be better prepared to make the transition into industry and become team members as a result of the multi-disciplinary work required by the course.

The course is satisfying the needs of industry through the development of a cadre of professionals armed with the appropriate standards and knowledge. With this increased awareness of the methods and procedures in the application of VE, an improved public understanding and acceptance is sure to follow.

The benefits to the institution are by no means subtle. As better prepared students enter the work force, the reputation of the institution is enhanced. This will result in more students and increased opportunities to partner with industry.

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