DEVELOPMENT OF AN INTEGRATED E-LEARNING CENTRE FOR CONSTRUCTION VALUE MANAGEMENT

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BIOGRAPHY

Dr. Leung, PhD, MCIOB, MRICS, MHKIS, MKIVM, CVS, has more than fifteen years of practical/teaching experience in the construction industry/education and has participated in a number of prestigious construction projects in Hong Kong. She received a Tony Toy Memorial Award (i.e. the first prize) in 2002 issued by The Hong Kong Institute of Value Management, H.K. for her PhD thesis and an international award (Thomas D. Snodgrass Value Teaching Award) in June 2005 issued by the Miles Value Foundation in the U.S.A. for her outstanding VM performance in HK and Mainland China. Dr. Leung is also a Certified Value Specialist of the SAVE International ‘The Value Society’ in USA, and a Qualified Facilitator (list A) of HKIVM in HK. She is a vice-president and a director for VM training in the HKIVM. Dr. Leung conducted a number of VM workshops for various large construction projects in HK and US. She has attracted over HK$ 9 million as investigator in professional and research grants. Over ninety refereed journal and conference papers in construction engineering and management have been published or accepted for publishing.

Abstract

To enhance the innovative management techniques for the construction students who will become professionals in the industry, Value Management (VM) course has been incorporating in the BSc(Hons) in Surveying programme at the City University of Hong Kong since 2003. In order to allow VM students to get acquainted with the rules at a pace suited to the level of professional knowledge, an integrated e-Learning Construction Value Management (CVM) Centre has been established since 2003 with the support of a number of organizations such as City University of Hong Kong, Hong Kong Institute of Value Management and LEARNNet at the University of Hong Kong.

Apart from the basic VM information such as the history, the development and the terminologies, the e-Learning CVM Centre also includes over 30 self-explanatory slideshows and live videos of VM techniques in the 6-phase job plan and 4 scenarios with the application of VM in real construction projects. Students, thus, can learn how to apply various VM techniques to solve the practical construction problem during VM workshop. This
constructive e-Learning Centre creates an excellent environment for students in the VM education, as it establishes a self-learning platform to them for acquiring both theoretical and practical VM knowledge without the limitation of time and venue in their learning process. Finally, it is further expected that students will contribute their professional knowledge to the construction industry by applying the VM techniques in the future.

Keywords: Construction, Education, E-learning, Value Management

INTRODUCTION

VM is popularly adopted in Hong Kong construction industry for both private and public sectors. Applying VM can efficiently achieve the purpose of value for money and bring a various creative ideas for proposed projects. The application of VM for construction industry is greatly demanded. However, a survey indicated that most of the practitioners in the construction industry in Hong Kong misunderstood and had false perceptions of VM (Fong and Shen 2000). Although both the City University of Hong Kong and the Polytechnic University of Hong Kong include Value Management course in the undergraduate and post-graduate programme, there is still only a limited number of professionals have acquired VM knowledge and skills through professional training or undergraduate study in Hong Kong. In order to ensure adequate number of professionals acquired VM knowledge, it is needed to provide a series of VM training for undergraduates who would become professionals in the future.

Since Value Management is a new topic in Hong Kong, a web-based Value Management Technique Centre for Construction Undergraduates (www.bcm.cityu.edu.hk) has been constructed supported by the LEARNet production fund at the University of Hong Kong and Teaching Development Grant at the City University of Hong Kong. The web-site seeks to enhance the teaching method and improve/enrich individualized learning with free of time limitations. The purpose of the e-Centre is to train undergraduates with initiative, motivation and active participation in solving dynamic practical problems of construction project by applying VM.

AIMS

VM is a tool involving a series of steps and a method of analysis, e.g., functional analysis, FAST diagram, cost analysis, paired comparison, etc. (see attached Diagram). The purpose of systematic processes and analyzing methods are to assist/support the creative thinking and ensure the buildability and transferability of building product in the workshop. However, the application of systematic processes is less straightforward since each VM workshop is dependent upon the task, the participants/team and the environment.

To allow students to get acquainted with the basic knowledge at a pace suited to their level of proficiency, an integrated e-Learning Construction Value Management (CVM) Centre has been established for undergraduates in the University. The e-Learning CVM Centre aims at:

1. Introducing a flexible internet learning environment in the management courses for the encouragement of proactive learning.
2. Encouraging a web-based learning environment within the BC Department.
3. Increasing the learning interest in the construction management topic.
4. Stimulating the management problems for construction projects.
5. Simulating the problem-solving exercises/techniques for construction projects.

THE E-LEARNING CENTRE

The e-Learning Centre for CVM is presented in the web-based format under the existing departmental server. Technologies including PowerPoint, Adobe Photoshop and flash for the presentation, chat room for communication and team discussion, flash for VM exercises, and PHP for self-assessment are applied to design and construct the database for this particular project. In specific, the e-Learning Centre includes the following main sections (see Figure 1).

1. VM Background - Development
   - Terminology
   - Procedure
2. VM Techniques in Job Plan: - Information
   - Analysis
   - Creativity
   - Evaluation
   - Development
   - Presentation
3. VM scenarios
4. Preparation of VM report
5. References
6. Self-assessment quizzes and exercises
7. Psychological test
8. Useful linkages

Basic knowledge of VM such as history, development, terminology, procedure and VM cases were all presented in the e-Learning CVM Centre, in order to allow self-learning of VM by undergraduates without teacher-student contact. There are hundred VM techniques in job plan. The e-Learning Centre, up to the present, includes 39 VM techniques in form of slideshows in the six phases (e.g., workflow, function identification, function cost, input-out,
attributes, risk analysis, etc.; see Figure 2). Moreover, six live videos (e.g., problem reversal, Pareto and benefit-risk) were further conducted to demonstrate the application of VM techniques for solving practical problems in detail.

All real VM workshops concentrate on critical decision points of real construction project. It is impossible to expose any workshop report widely to students in the university education. Therefore, we uploaded four scenarios with the application of systematic team decision VM approach (see Figure 3) to the e-Learning Centre. Students can then understand how to apply various VM techniques for solving real problems in the industry.

Having sought approval from Mr. Donald E. Parker (representative of Lawrence D. Miles Value Foundation), a series of self-assessment quizzes and exercises (Parker 1977; see Figure 4) is uploaded to the e-Learning Centre. Students can then self-assess and evaluate their VM knowledge after the class.
In order to monitor the performance of each VM team in the whole VM class, students have to send minutes to all team members and me after each class. I shall then add my comment on their minutes via the chat room of the e-Learning CVM Centre (see Figure 5). It introduces an interactive dialogue among their team members and me.
Therefore, psychological commitment test is useful for them to understand their workshop behavior and improve their team spirit. In the e-Learning Centre, students can also evaluate their workshop behaviours via the psychological test (see Figure 5).

![Figure 5 Psychological Test for Teamwork in Workshop](image)

The e-Learning CVM Centre emphasizes to train the students with initiative, motivation and active participation in solving the dynamic practical problems of construction projects. To maintain up-to-date VM knowledge and skills in the VM course, the e-Learning CVM Centre will be updated regularly in the University, e.g., to add innovative VM techniques and new VM cases.

CONCLUSION

The focus of the centre is toward proactive learning and development of critical thinking skills, including understanding the integrated VM content, applying analytical and evaluation techniques for problem-solving. Students can learn VM concepts (background), procedures (job plan), techniques (5-phases) from a series of slideshows and videos. Self-assessment exercises and psychological test are available for the evaluation of basic knowledge and abilities of students in a teamwork decision making process. Hence, the e-Learning CVM Centre provides a comprehensive training to our undergraduates by their self-learning approach and actively participation in the teamwork freely. It definitely increases students’ interest in the VM learning process and enhance their final learning outcomes.

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REFERENCES


