

Consideration comparative the value engineering between public and private girl guidance schools

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ABSTRACT

This study aimed to compare the value engineering situation between governmental and private girls schools - in one area Tabriz at academic year 89-90 was conducted using a descriptive method .The sample size was 237 persons who were selected through stratified random sampling. The measure tool was a researcher produced questionnaire that its reliability was confirmed by calculating Cronbach's alpha ($\alpha= 0.9$).data was Analyzed with statistical software spss and t-test , Results showed significant differences is between value engineering situation in government and private schools. private schools were better than governmental schools, in Average " information step", "function analysis step", "creative step "& " development. Evaluation . Provide step."

Key words: value engineering, governmental schools, private schools, guidance

INTRODUCTION

Value engineering process is a systematic and rational method in which the use of a group composed of different specialties or an interdisciplinary team is used for the following purposes:

- Choosing a proper project for analyzing according of the time spent;
- A study of calculation of current value with explaining functions, needs and goals;
- Developing and evaluating new options for estimating or improving quality and reducing costs for low-value components;
- Adapting new options along with the best way to operate them.

In the current market, and in industrialized countries, the use of value engineering methodology for bold action is approved. Executive reports, the man is impressed. Its executive reports, influence the man. Implementing value engineering saves 10% to 35% of the project budget, and compares it to the final consumer, and offers the best effective solutions. Value engineering process has significant growth and is one of the pillars of the project (Jebelameli, Sadeghi, 2001). Value is used for different concepts and may be confused by the price or cost of money. If a product doesn't meet the complete needs of a buyer in relation to that product, its price is not commensurate with the value of that product. Value is used for different concepts and may be confused by the price or cost of money. If a product needs to complete a buyer is not satisfied with the product, its price is not commensurate with the value of that product. The value of a product is different from the perspective of the seller and buyer and it may even be a controversial concept for different users, for example value of a screwdriver in terms of a mechanic is different from a housewife. Typically, when discussing value there are seven different levels:

1 – Economical, 2 Ethical, - 3- social, - 4 - Religious 5 - Judicial 6 - aesthetic.

Value engineering is usually associated with economic value that is defined as:

The lowest cost to provide required service in desired time and space and with desired quality in the simplest form of value is equal to the value of the share price over the cost.

From the perspective of American Value Engineering Association (SAVE), value engineering is a systematic way with specific techniques that identify the product or service functions and create financial value for its operation. So that it functions at the lowest cost while maintaining the desired reliability and quality; in other words value engineering is an organized effort to analyze the performance of engineering systems, equipment, services and institutions to achieve the actual performance with the lowest cost over the life of the project consistent with safety and quality is desired.

Value engineering is a coherent manner to achieve the highest value per current spent, but the quality, safety, reliability and ability to sustain is saved or improved (Dell sola, 1997).

- Value Engineering is an organized effort which analyzes the functions of goods and services. In this effort, ways and methods are searched which can provide essential functions and features necessary for a product with its production profitability (Kaufman, 1998).

Value engineering is a set of technical methods to review, analyze and using creativities and system components analysis for optimization the plan (National Planning and Administration Organization, 2000).

Value Engineering was considered in industries during World War II when it was difficult to obtain critical materials industries. This strategy led to the replacement of materials and designs. In 1947 Lawrence D. Miles, one of America's General Electric engineers evaluated possible cases.

He designed different ways and methods to deal with the upcoming changes and provided an appropriate method for determining the value of a proposed project. Using the theory in industry quickly became popular in the industry and a great return on investment along. He called this motion "value analysis". Value engineered make his way in the industry with "value analysis", " value method" " value development", "Value Methodology" or any other names (Jebel Ameli; Mir Mohammad Sadeghi, 2001).

Analysis of post-industrial value at industrial stage created many strong contradictions. Like anything else, which has features of modernization, this methodology faced the spirit to reduce the cost and other tradition that were common.

Functional Situation: in which the necessary needs are presented in form of functions are presented.

Economic conditions: research in order to have mastery over costs and their impacts on various functions of the product

Multi-functional situation: with simultaneous involvement of professionals responsible for the design, implementation and efficacy of the products, mastering value of the products is simultaneous mastery over the following components;

- ☐ Costs, development, research, testing, sampling, production, equipment, maintenance, purchasing, contract labor management, financial costs, administrative expenses
- ☐ Times, cycle development, industrialization, preparations, construction
- ☐ Quality

Value engineering methodology based on various working programs of the professionals appeared to be different. Mailz performed it over seven phases and later five phases, Kampter over five phases and Hanan during 8 phases, Maj over seven phases and Atwood in seven phases, Fallon in 6 phases, Dell sola with 4 phases and even in some cases the value engineering during 9 phases. Although the differences are more in form and formal in nature, they are not significantly different in nature of the work (Karimi, 2005). American Society of Value Engineering developed methodology for standardizing the six-stage model for value researches. Value engineering before presenting as a technique is based on a culture of professionalism. Creativity can not only be applied with law but also for the embedment of creativity real value of creativity as a cultural value should be identified. We can establish creativity with value engineering techniques (portal of management articles, 2011).

Value methodology consists of three main stages: preliminary studies, value studies (Planning Value Engineering) and complementary studies. All the stages and steps need to be taken one followed by the other. During the development of value engineering studies, new information and data may lead the group to come back to the previous stages, but a step can never be omitted.

Preliminary research phase

In this phase, the engineering team will perform the following activities:

- A) Collecting and defining the needs of employers, purchasers, consumers
- B) Completion of data collection

After completion of the initial stages, value methodology study is performed. Studying value consisted of six phases: data, functional analysis, creativity, evaluation, development, and presentation.

Complementary Studies:

Complementary studies' aim is to further ensure the implementation of recommendations arising from changes in value. At this stage, the client and senior management of the necessary reforms are imposed on final ideas, then these ideas are implemented and audit. While the engineering team leader may follow the performance development, consultant designer is responsible for implementation of the project.

Each item must be designed and approved individually and changes are mentioned in contract requirements before implementing them in production, project, process or procedure. Further financial sectors of evaluation in order to confirm and verify management should provide all the benefits of the value study. Steps in this phase include:

A) Completion of ideas: in this stage management team apply value reforms and changes of senior management of the company to the selected ideas and make them final.

B) Performing final ideas: In this phase, the project team applies the final project recommendations resulting from value studies in the project.

C) Audit: in Audit phase the results of the application of value engineering proposals, is applied in the project (FarajiNia, 2007). The value of the study is summarized in the following four steps.

Information phase:

In this phase, a valuable component of the value engineering process is critical to project success. These steps include setting goals, defining the functions, analytical methods, Argos system and FAST graph is costing and evaluation of performances. Completing the information stage as clearly and completely "accurate, defines the problem and illustrates the potential of the project goals (Richard, 2010).

In brief, this phase includes:

1. Collecting and classification of related data
2. Determining the function of each component of the project
3. Assessment of basic functions (O. Brien, 1982)

Identify Function:

Identification of essential functions, identifying and eliminating unnecessary functions would be ideal, but in many cases unnecessary secondary operations can not be avoided; so their discount will be given where possible. Reducing expenses of main and necessary secondary necessary functions are of interest. We are trying to consider the achievements and the pre-phase study to identify the functions needed and expected. Analyzing functions will follow followings steps:

To determine the scope and functions of the study and functions along with noun and verb in the study area - list of constituent parts, and author of the study area - list of product functions, systems, subsystems, and components of the project and its sub-projects, identifying the essential and unnecessary functions, specifying each function's cost, estimating cost or minimal cost to perform any function (Qulipour and Beyraghi, 2004).

In fact, 1. Assessment, criticism and evaluation of the ideas presented in the second stage of creativity. 2. Estimating a value for each option 3. Estimating options that have the greatest potential of savings related to operational definition phase of value engineering analysis.

Creative phase:

Creative phase should be started and performed with completely open ideas assuming infinite sky as border restrictions. Brainstorming is a very good technique; preparation of a list of functions defined and identified in the data stage as the targets of opportunity or creativity grounds. These functions are those functions that had the greatest difference between cost and price. Every function should be brainstorming so the team fails to provide any new ideas.

At this stage, no evaluation or discussion is permitted, to ensure that no idea is ignored; all ideas are written in a large paper and installed in sight of others so all of the people see it at the evaluation stage. In fact this phase includes:

1. Consisting professional groups. Setting various ideas. Without evaluating ideas. Through brainstorming techniques related to Gordon stands for operational definition of creativity phase of value engineering (Dell Sola, 1982).

Evaluation Planning reporting Phase:

The first step in the evaluation process is reading over the list and eliminating each instance that absolutely no potential. Referring again to the list of ideas we look for that ideas that can create the core concept for the future. In order to ensure void cycle, they look for more than one concept (ibid, p. 227).

Design and Planning Stage (Development): in fact they should begin to organize various ideas for practical solutions for the project. At designing and planning stage, it is necessary that the proposal focus the product and organization. Project costs are predicted and it is made clear that who will by these changes and what should people do to conduct the project successfully? It is also necessary that the cost of any required or necessary new organization or any other possibility determined. To help prepare a complete and effective proposal and ensure that nothing is ignored, worksheets and spreadsheets are designed. In fact, this phase includes activities such as: 1. Scrutiny of proposed options 2. Providing full reports for presentation to management 3. Presenting a recommended plan for the implementation phase which stands for the assessment, development, value engineering. Value engineering studies conducted in Iran are mostly in fields of construction, transportation companies, water, electrics, gas and industry. In all of the researches carried out about the "use of value engineering" reducing costs of large projects while maintaining quality and removing unnecessary costs are mentioned. Of course if the "value engineering" is used in the early stages of project implementation it will have more savings. One of the most efficient approaches and new perspectives which help the organization and administration of educational systems in the field of engineering is using value engineering technique which is known as one of the useful economic methods in the field of human activity, for its innovation and practical aspects, which made distinction between traditional and conventional methods of cost reduction.

The possibility of effective implementation of value engineering techniques in Iran automobile supply chain it is determined that despite the obstacles and limitations of the techniques in saving it includes an equivalent of 30% of the total amount of the project (FarajiNia, 2011).

In a study titled " managerial effects of Value Engineering on mathematics improvement of girl students in second grade elementary school' school in Mashhad" which was aquisi-experimental method to study the managerial effects of value management methods on academic achievement in mathematics, respectively, based on the results of pre-test scores in math achievement test and control groups was 11/8 and 33/8 that these numbers in post test were 48/12 and 07/10.

METHODS

The sample of this study were educational staffs of all girls' elementary schools (both public and private) , of Tabriz (Iran) first district with a total number of 518 out of which 365 people were employed in public schools and 153 in private schools.

Morgan table was used to determine sample size. The sample size was 237 according to Morgan table (manager, educational- training deputies - and teachers). For choosing the sample stratified random sampling method was used. For the measurement of value engineering researcher questionnaire was used based on previous studies. The items of questionnaire were 57 questions with 4 degrees of the scale, on which the two groups of managers, deputies and teachers were designed separately for each group 57 items.

After testing it on teachers and managers the reliability coefficient of the questionnaire was obtained 30 by using alpha of 0.94

RESULTS

The “information phase of value engineering value in private schools is different from public schools.

According to the test, means difference (t-test) were carried out independently, as we can see in Table 1 $t=4/318$ with the significance level of the test and the $p=0/000$ which was below $0/05$. So if the average of information phase of value engineering in private schools is more than public schools.

Table 1: results of means difference for variables of school types and " information phase of value engineering

Standard error	SD	Mean	N	School type	variables
0/58	7/54	43/87	168	Public	Information phase
0/91	7/63	48/55	69	Private	

The phase of “identity function” of value engineering in private schools is different from public schools. Test difference between two means (t-test) were carried out independently, as it can be seen in Table 2, the significant level $761/2- t p= 006/0$ which is below $0/05$, therefore, the average of " functionalizes phase of value engineering among private schools is more than public schools.

Table 2: Average test results for a range of different schools and "function phase" in value engineering

Standard error	SD	Mean	Number	School type	Variable
0/54	7/11	59/72	168	public	Function analysis phase phase
0/80	6/65	62/47	69	Private	

The "creativity phase" in value engineering of private schools is different from public schools;

According to the means difference test, (t-test) were carried out independently, as seen in Table 3, the significant level test $=299/2t p = 0/22$ which is below $0/05$ "creativity phase" in value engineering is more in private schools than in public schools.

Table 3: Average differences in test results for the variables of school types and "creativity" in the Value Engineering

Standard error	SD	Mean	N	School type	Variables
0/51	6/66	32/30	168	Public	Creativity
0/63	5/25	34/37	69	Private	

The “Evaluation Planning reporting Phase " in value engineering in private schools is different from public schools. According to independe means difference test(t-test), as seen in Table 4, the significant level test $=-3/105 p = 0/0002$ which is below $05/0$ " development, evaluation and providing phase " in value engineering is more in private schools than in public schools.

Average differences in test results for "development, evaluation and providing phase" in value engineering

Standard error	SD	Mean	N	School type	variables
0/378	4/904	36/53	168	Public	development, evaluation and providing phase
0/320	2/660	38/47	69	Private	

According to the test, difference between the two means (t-test) were carried out independently, as it was seen in Table 5 $t=105/3-t$ significance level of the test $p= 002/$ which was below $/ 05$, the average of “value engineering" in private schools is more than public schools

Table 5: Average differences in test results for the school type and value engineering variable

Standard error	SD	Mean	N	School type	Variables
0/378	4/904	36/53	168	public	Value engineering
0/320	2/660	38/47	69	Private	

CONCLUSION

Philosophy of value engineering "is quite different from any management system. This method focuses on the customer product rather than" what exists. In today's world, having a variety of advertising products or services leads in a competitive environment between Suppliers and service providers. Variety of services (or products)

caused customers select easier and better, and cheaper. For the customer it is important that the cost of the goods or services is worth it or not? From the perspective of engineers and researchers, such as Sadri (2005), Dehghan (2008), Khodayi (2010), Yazdani (2008), Rokninezhad (2010) value engineering makes an attempt to improve efficiency and reduce costs. From the perspective of engineers and researchers such as Shad mehri (2007), Mehdikhani (2005), Shekari (2007), KhodaKhahamlash (2010), Ven Shiou (2007), Nazari (2008) checking service processes (or production) functions can eliminate unnecessary and costly expenses. So that we lower costs and increase value services, without reducing the quality of values. According to value engineers and researches including, Masoudifar (2006), Karamoz et al (2008), the Ching (2002) Using Group team can reduce costs and increase efficiency.

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