

Performance Evaluation in Higher Education Institutes with the Use of Combinative Model AHP and BSC

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ABSTRACT

Education causes improvement in nation scientific fundamental so this plays an important role in their future. On the other hand, organization strategic performance evaluation is always one the first and most basic prerequisites for compiling improvement programs in organizations and it has a high importance. One of the strategic efficient models in this aspect is BSC that equally analyses all aspects of organization. The statistical population in this research consists of four superior humanities colleges in Khorasan province. For collecting data, haphazard sampling procedure was used. Study tool is questionnaire whose reliability was measured by consistency ratio and whose validity was measured by content-construct method by acquiring the opinions of experts and some managers in this field of study; and the results showed appropriate reliability and validity. In analysis data section, the group integrative procedures AHP and BSC were used. The results showed that the A college had the higher final score than the other colleges. After that the C, B and D colleges were respectively.

KEYWORDS: BSC, AHP, Higher Education institutes.

1. INTRODUCTION

The most important society's development and improvement determinate factor in condition of this changing world is the amount of benefiting by efficient and innovator manpower that depends on the amount of benefiting the society from education, training and investigation. The superiority of a country depends on the higher education system dynamism rather than its natural resources and its existence industrial capacity [13]. For this reason, in many countries university education instead of begin restrictive services that applied by a few elites, becomes a widespread service [20]. So, nowadays university education is changing to a competitive service for gaining the best students or more students. The desire to survival in this competitive environment, they compel to refer to the management and strategic planning to increase correspondence capability with the current changeable environment, despondency ability and customers' satisfaction [7]. Therefore the strategic planning in these institutes has an especial importance [14] and directs them in correspondence with an environment and with education major politics in order to access a better future [12]. Meanwhile, one of the efficient strategic models is BSC that equally analyzes all financial aspects of organization. In this research with considering to the potency points of BSC in strategic performance evaluation with combination to AHP technique was used to evaluate and grad in some superior accounting college in Khorasan province.

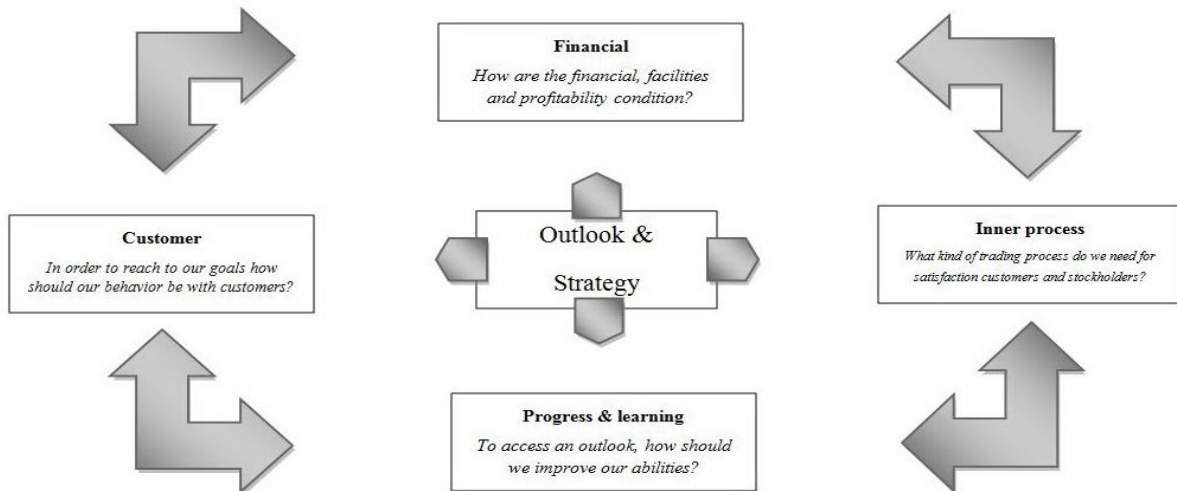
Research theological principals

BSC

The need for a requirement to a performance evaluation system in different levels of decision making is not a new subject in both services and industry [4]. Ho et al. (2002) believe that BSC is one of the most dominant approaches in performance evaluation. The traditional methods mainly based on financial measures are not constructive in describing the success factors. They are not also able to create a causal relationship between accomplishment factors and its consequences. That's why they are unable in supporting management plans especially strategic plans of the organization. BSC was first introduced by Kaplan and Norton in 1992 and in a verified magazine titled Business Review Harvard. They found this approach to be helpful for management systems to define the visions and strategies and also interpreting their specific performance [16]. BSC's purpose is preparation of the trading key successful elements for managers and making connection between general performance and strategy in organization Norton and Kaplan claimed that BSC provides an organization guidance factor for competition [2].

The organizations that use BSC, should coordinate it with their special situation and their internal procedures. This aspects are show in Figures1.

Figures1: Aspects of BSC



Source: Kaplan & Norton (1996)

BSC is used in productive organizations and services, governmental and nonprofit organizations. Although BSC is well applied in industry and there are many documents in this case but a few researches were done for applying and correspondence BSC in education section [11].

AHP

Analytic Hierarchical Process is one of the most used methods in decision making when decision makers come across quality measures. This method was introduced in 1980's [3]. In this process, problem is analyzed into smaller parts understandable for decision maker and alternatives are compared by pair-wise comparison matrix and numbers between 1/9 to 9 are attributed to them according to individual preferences [22].

Analytic Hierarchical Process has three steps as follow:

First step: Defining hierarchy structure. A complicated problem can be stated by dividing it to hierarchically considered subsets. The highest level is goal and the elements of the lowest level are alternatives. The elements of middle levels are criteria or sub-criteria related to assessing alternatives.

Second step: Measuring weight. In this step, elements of each step are compared pair wisely with their related elements in the higher level and their weights are established. Then, the final weight of every alternative is established by aggregating relative weights.

Third step: Consistency test. Calculations of analytic hierarchical process are done by primary judgment of decision maker which is presented in the form of pair wise comparative matrix. Every error in comparing or defining the priorities of alternatives can be detrimental to the final result. Consistency rate is a tool which shows how much the priorities resulted from pair wise comparisons can be relied on. Experience has shown that if consistency rate is less than 0.10, consistency of comparisons is acceptable; unless, those comparisons should be revised [19]. As it was said in first step, the highest level is goal and the elements of the lowest level are alternatives. The elements of the middle levels are criteria or sub-criteria. Although, it should be considered that this study aims at establishing the weight of every criterion in relation to its criterion in the higher level. We don't aim at selecting one alternative among all, so we don't assess the alternatives. In this study, using group AHP approach to prioritization of the various aspects of BSC.

LITERATURE REVIEW

In Yeo, (2008) study as "serving qualified services in university education: attempting for superiority" discussed about the importance of university education services quality as a factor for access to competitive preference in a long time [25]. In Sohail, et al (2003) study as "quality management in university education" pointed to the competitive business environment and harder controls in university education and this result will obtain that this organization should achieve the access possibility to the competitive performance by quality development and improvement [24]. A lot of researchers like Chen et al (2006), Munteanu et al (2010), Adcroft et al (2010) Mourad et al (2011) Mazzarol (2012), Durkin et al (2012) emphasized on the requirement of higher education organizations for collecting data based on student's expectations [5,18,1,17,15,8]. Mazzarol et al and Gallifa et al in their study Criticized the traditional point of view that calculates the performance evaluation based on measuring the inputs levels such as the cost for each student, the number of books in library, the number of college and etc [15,9]. Amaratunga and Baldery used BSC to evaluate higher education performance and by that

they emphasized between performance and quality performance based on BSC framework [2]. Umashankar et al used BSC to evaluate higher education and educational academic plans in India [23]. Papenhausen, et al (2006) used BSC in Massachusetts – Dortmund Management College. Cullen, et al (2003) applied BSC to evaluate U.K management and administrative science college[6].

MATERIALS AND METHODS

In this study, the suitable BSC was developed for every accounting college by analysis the subject. Table 1 represents the applied BSC in this research.

Table1: Analyzed variables in BSC aspects

Aspect	Agnate	Variable
Customer	Custodians, professors and university staffers	College fame and repute in education, scientific and inquiry field among superior college in country. Providing professors scientific improvement field and their personal aptitude progress. Producing improved science and earning superior ranks in a country Increasing the number of inquiry magazines appropriate to every scientific group potency Increasing scientific and inquiry conferences and meetings. Custodians, professors and staffers satisfaction from total and general college performance.
	University students	Student’s satisfaction from education and training quality. Student’s satisfaction from total and general college performance. Increasing in scientific and inquiry temperament and group working. Inspiring the students for aptitude progress. Making occupation opportunity in a country.
	community	Educating and training of talented graduates with a high scientific level. Producing progress and spreading and promoting the scientific level in a country. Compiling programs for obtain scientific and economical requirement in a society. Representing research and inquiry for enforcement infrastructures of technology
Inner process	Educational process improvement and earning knowledge	Using the new method in technologies and teaching procedures. Holding educational courses and using superior experiences for promoting professors’ scientific level. The existence of compiled and accurate educational programs Improvement in evaluation system and educational process performance and its contained improvement. Students’ encouragement and motivation for scientific compelling.
	Improvement in inquiry, scientific inventions and innovations achievements	Holding scientific and inquiry conferences and meetings. Establishing scientific magazines (scientific, inquiry,popularizing) appropriate with each educational group. Holding exhibition to represent achievement and share superior experience. Preparing students for Olympiads and scientific contests. Encouraging and motivating talented and studious students to do research.
	Administrative and consultative services to students	Using easy maker technologies and accelerating administrative science process. (registration, graduation, etc) Establishing a system to connect with graduated college students and receive a feedback from them. Representing process for consulting by professors and experienced persons to students for talents florescence.
Progress and learning	Organizational resource (Organizational capital)	Being parallel: targets and motivations compatibility with strategy in all organization level. Leadership capability: organization mobilization capability and motivating for access to outlook and management in alteration. In formed and being internal of commission, outlook and basic values in organization levels.
	Informational resource (Informational capital)	Improvement in infrastructure technology. Improvement in Informational bank and designing united and flexible software system. Access to scientific and inquiry sites and electronically connection with superior colleges. Professors’, staffers and students’ quickness access to internet. Sharing knowledge with making electronically folder from professors and students experiences and activities.
	Human resource	Absorption efficient faculty and manpower, export and experience for appropriate situation and keeping it. Motivating college professors, staffers and students. Motivating and encouraging talented and studious students for doing inquiry. Appropriate environmental education for absorption new ideas and progress talents. Representing good morals model and improving team work culture.
Financial	Budgeting	Increasing in inquiry and research budget. Financial protection from progress in infrastructures information technology. Increasing in educational budget to improve students’ educational level. Allocating wage to admirable professors and staffer for work motivation.
	Facilities	Improvement in educational modern technologies and equipments appropriate with nowadays facilities. Improvement and accomplished the library (physical and electronical). Improvement and equipped the laboratory and workshops and access to high speed internet. Protection and representation of facilities in order to connect with industrial, inquiry centers and college

As is seen in this model to evaluate the four aspects of BSC has been focused on the improvement in variables and structures in every direction. These variables are represented according to the past researches that became correction and localization, according to the exports ideas. Gathering data has been made of four separate sections: 1.students opinion polling questionnaire, 2.staffers opinion polling questionnaire, 3.colleges information and

statistics, 4. specialists opinion polling questionnaire. Students and staffs questionnaires have been collected data by Likert pentad spectrum and specialists questionnaires by comparing duality. For specialists' permanency evaluation, Consistency rate was calculated by Expert Choice software and because 0.05 was obtained (less than 0.1) so it is consistency. For students and staffs permanency evaluation, Kronbakh Alfa coefficient was calculated by SPSS software that 0.83 and 0.75 was obtained respectively. Statistical community in this research consists of four superior humanities colleges in accounting major in Khorasan province. For collecting data accidental sampling model was used. According to the community qualities in this research, accidental tiered sampling model was used. The results are represented in table 2.

Table2: Staffers and students sampling

College	Staffers community	Staffers sampling	Students community	Students sampling
A	56	38	420	92
B	28	23	278	83
C	66	42	390	91
D	18	16	84	49
TOTAL	168	119	1172	315

Therefore totally 318 questionnaires from students and 123 questionnaires from staffs and 32 questionnaires from specialists were analyzed. According to be unequal the accumulate data scale (as pointed some variables were calculated by actual data), for adaptability, different data was normalized. So the scores were distributed from 1 to 100 proportionally. And also in order to determine the importance of each aspect, AHP technique was used. Data was analyzed by Expert Choice software.

Research Findings

In order to determine the importance of each aspect, AHP technique was used. According to this, a questionnaire was designed that consisted of 6 duality comparing questions in 4 aspects. This questionnaire was completed by 32 specialists in study field. In this method, duality comparison matrix elements were obtained from geometrical mean of elements corresponding to every decision-makers duality comparisons matrix. Data analysis was done by Expert Choice software. The importance amount of every aspect was represented in table 3.

Table3: The important amount of every aspect of BSC according to specialists' opinion

Aspect	Financial	customer	Inner process	Progress and learning
Importance	0.2732	0.2102	0.1849	0.3317

Variables average amount related to every BSC aspect made its score. The scores that related to every aspect after normalization has been represented in table 4.

Table4: The score related to every aspect of BSC for every college

BSC aspect	College score A	College score B	College score C	College score D
Financial	74.38	55.34	54.78	59.12
Customer	88.65	71.56	82.68	64.92
Inner process	93.38	82.03	85.38	81.33
Progress and learning	87.12	55.49	79.24	53.70

The college total score has been obtained from the sum of scores product of every aspect in its weight. Also, the rank of every college according to its performance, based on AHP and BSC integration model has been shown in table 5.

Table5: Total score in every college

College	A	B	C	D
Total score	85.12	63.73	74.42	62.65
Rank	1	3	2	4

Conclusion

Evaluation performance is always one of the important subjects that give the business managers attention to itself and in superior education institutes that are the progress foundation in a society appeals more. According to the data in table 3, observed that learning and progress aspect the field study specialists' point of view has more important in evaluation performance and after that financial, customer and finally inner processes are important respectively. According to the data in table 4 and 5 observed that college A in four aspects of BSC model has considerable relative performance the causes this college places higher than the other colleges in total score. Although college B in both aspects of inner processes and customer has relative preference but these preferences cannot make more success in total score according to specialist point of view because of severe weakness in financial, progress and learning aspects with their more importance. College C is weak just in financial aspect so has a better status than college Band D.

college D in comparing with its other competitors has weaker performance. Table 5 shows that college A has higher total score than the other college, and that are college B, C, and D respectively.

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