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Investigating the Strengths and Weaknesses of Bojnurd Islamic Azad University in Order to Strategic Planning by Fuzzy Hierarchy Analysis (Analytic Hierarchy Process)

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Abstract

A large part of country's economy in the new era is based on knowledge and intellectual activities produced in universities. In recent years, the concepts related to strategic management have been issued in the universities of our country and some of them have attempted to exploit strategic management benefits in order to manage their activities more efficiently. Nowadays, increasing growth of organizations and competition for gaining more market share has doubled the necessity of appropriate strategic plans. Generally, grand strategies are threefold: aggressive strategies, defensive strategies and stability strategies. This research investigate inner environment (strengths and weaknesses) of Bojnourd Islamic Azad University, using SWOT analysis. In rating inner factors Fuzzy hierarchy analysis was used in which factor's weight was calculated by hierarchy analysis and using QSB software. The results showed that in strategic planning strengths were more important that weaknesses. In weaknesses set, lack of scientific - research in most training departments and in strengths set the existence of rather young and efficient faculty had the first priority and rank.

Keywords: planning, strategy development, SWOT analysis, Fuzzy hierarchy analysis, Strengths, Weaknesses, Islamic Azad University

Introduction

Nowadays, changes and developments have changed business environment and have increased competition in global markets staggeringly. These changes are not limited only to organizations

but modern societies are faced with them too. In order for countries to survive, maintaining independence and superiority among other countries have to use credit programs and grand goals. Among them, it is vital to use tools like strategic planning for achieving these long-term goals. Countries, by identifying strategic advantages, attempt to select appropriate strategies for their internal and external factors. This strategic selection is only possible by identifying internal factors of the concerned region such as organization's strengths and weaknesses and identifying external factors like environmental opportunities and threats. SWOT matrix is a means for not only investigating these factors and clarifying strengths and weaknesses and opportunities and threats, but also for achieving grand goals considering internal and external circumstances.

Nejad Javadi Poor (2002) has carried out a research titled "Strategies for Developing Electronic Municipalities' services based on SWOT analysis" in order to complete and gain success in a study program. Investigating assessment matrix of external factors it can be concluded that policies, support and attention of institutions and Tehran's urban management senior authorities (Islamic council, Municipality and Mayor), together with increasing need and increased citizens' welcome and desires based on developing electronic services, are the most important impellent factors of external environment of municipalities. On the other hand, lack of sufficient and public access of citizens to required facilities such as access to computer and Internet (whether personal or through public sector facilities) and existence of ambiguity and limitation in options and responsibilities of regions' municipalities and unavailability of required financial sources, are among the most important inhibitor factors. As such, studying assessment matrix of external factors indicates that attention and support of senior authorities of regions' municipalities, taking advantage of required technical infrastructures in order to develop electronic services (specially, optical fiber lines and wireless communication network) and lunching municipalities' sub-portals, while triggering municipality electronic services offices in regions, are among the most important strengths of regions' municipalities. From the performance collection of strategic factors, it can be concluded that generally the region's municipality is located strategically in the position of opportunities' dominance over threats and weaknesses' dominance over strengths. So, by implementing "opportunity-weakness strategy" we can use the latent advantages in opportunities, toward compensating organization's weaknesses.

Dastmardi (2005) carried out a research titled "Application of Hierarchy Analysis Method, the Process in Fuzzy State for Prioritizing Strategies". In this algorithm Adamo Method has been used for rating Fuzzy numbers. Also, the designed algorithm was used for strategic planning of Ports and Shipping Department Training Office and the results are stable in two section level of $\alpha = 1.0$ and $\alpha = 0.40$.

Parizadi and Sehat (2009) in a research, applying network analysis technique, they tend to analyze strengths, weaknesses opportunities and threats (Iran Insurance Company case study). In this research systematic approach is used to assess the utilized factors and a newer approach called network analysis process was proposed an example of which is described in strategic planning in an insurance company. And by comparing the approaches' results it was concluded

that the second approach produces a more accurate answer. This is because the importance weights in the two approaches are different and this is due to considered SWOT factors and the dependencies among ANP factors. (Strengths, weaknesses, opportunity and threat) SWOT was merely considered the internal dependencies among intended groups. Future attempts in this regard can tend to investigate mutual dependencies and relationships among inner-group factors. Additionally, combining Fuzzy approaches with this approach, in high uncertain situations, can result in more accurate answers.

Masaki Ogasawara after developing educational standards in Japan conducted a study concerning postgraduate programs. New courses focused on special programs of each group and resulted in weakness of Hokaydo university public training programs and it was decided for general courses to ne reinforced in continual relation to special programs. This research offered a model to be used by research-oriented universities in Japan. According to this method the central core of the course, in other words the fundamental part of undergraduate trainings, is supported by this cross-field system. This model is called university in university. In this research is also designed for graduate students in each course group and flexible programs in order for t hem to be able to respond to competitive environment of research world (Ogasawara, 2002). One of the researches, which has more common features in terms of goals is one that was conducted by Rabert J. Dayson in Varoik University. In this research, which was conducted in 2002, the aforementioned person tends to identify their strengths, weaknesses, opportunities and environmental threats. According to this research, the most important identified strengths are: productivity capacity, Varoik university credit, research capacities, and existing physical facilities and the weaknesses were: library weakness, sporting facilities, and tradition educational system for bachelor courses; environmental opportunities were: technological development, partnership atmosphere, and appliance for training. As such environmental threats were: decreased government financial support, intense competition between universities, virtual universities, new models for training, and record (Dayson, 2004).

This research is also seeking an answer to the following questions:

1. What are the universities' opportunities and threats (environmental challenges)?
2. What is the weight and relative importance of every double factor in developing university strategies?
3. What is the weight and relative importance of every component in developing university strategies?
4. Given the opportunities and environmental challenges, what strategies we can take?

Necessity of Applying Strategic Planning in Universities

Strategic planning, which is one of the basic necessities in universities, is a systematic attempt to implement the main strategies and applying them in order to realize the goals. This planning, determines organization objectives considering its mission and through environmental studies, opportunities and threats, and identifies strengths and weaknesses, in order to determine and implement more realistic objectives. The main objective of strategy is that it links university's future to the predicted changes, analyzes environmental dangerous basic factors and offers some suggestions which have a higher possibility for attaining the objective. So, applying

strategic planning by university managers may have positive results in long-term (Rahman Seresht, 2005:50).

Strategic planning basis is to predict the future of environment (opportunities and threats) and where there is a huge difference between prediction (when planning) and reality (when implementing) its effectiveness will be destroyed (Longly, 1988:40).
Strategic planning needs a stable and fixed environment, balanced environmental factors with continuous changes, and apprehensible and predictable interaction and won't be effective in case of their absence (Gordon, 2000: 850-841).

Application of strategic planning in educational systems allows planners to welcome to future proactively, rather than actively, and consider human, technology and environment as a complex. Comparing the desired and existing status specify educational system needs (educational results or objectives and performance measures) concerning results (product, output and outcomes) and also semi-needs (sources, methods, techniques and processes) concerning inputs and processes and after recognizing the needs and semi-needs, operational program will be produced and implemented (Bazargan, 1995:31).

So it can be said that in assessing strategic planning, compatibility of different parts of the program is significant (Pazargadi, 2010:15).

Statistical Population

The first **statistical population** includes the university president, (student, research, administrative-financial) assistants, educational directors and university faculty members. This statistical population completed the questionnaire of identifying strengths, weaknesses, opportunities and threats.

The second **statistical population** consists of university president, (student, research, administrative-financial) assistants and educational directors who contribute to some extent in university planning. This group completed the factor weighting questionnaires.

Information gathering tools

The required information of this research was gathered using three researcher-made questionnaires. Questionnaire number one which was distributed among the first statistical population resulted in indentifying effective internal and external environmental factors on university strategic decisions. Questionnaire number two is designed based on time scale and paired comparisons and was provided for decision-maker group in order to calculate the relative weights of weakness and strength. Questionnaire number three is also developed based on paired comparisons and time scale in order to identify the relative weight of components and the identified factors in each group by decision-maker group.

Research Methodology (Model Applying Process)

Present research implementation required steps as the followings:

First Step: Identifying Strengths and Weaknesses

In this step statistical population was provided with the questionnaire number one. This questionnaire was produced and distributed openly. After gathering questionnaires and integrating the similar cases, the identified factors were classified in SWOT analysis format.

Second Step: Calculating the Measures' Weight (Level One)

In this step the second questionnaire was designed based on paired comparisons in order to calculate the measures' weights (double groups).

Third Step: Calculating the Elements' Local Weight (Level Two)

The third step was distribution and gathering the questionnaire number three. Given that in the first step for every group 5 cases of strategic factors were identified, calculating weights in this step is also carried out through simple algorithm.

Forth Step: Calculating Elements' Weight

The final weight of each group elements is equal to the elements' local weight multiplied by the weight of their captain (measure).

Analysis of Findings and Results

After distribution and gathering the questionnaire number one, the most important strategic factors in each group were determined and the next step questionnaire was designed and developed based on these factors. Questionnaire number two and three, as was stated in the information gathering tools section, were analyzed using QSB software. The result of this analyses lead to identifying environmental factors in two groups: strength and weakness weight of each group as well as each group's components and elements weight.

Strength and weakness analysis, given the weights in table 1, shows that in the main measures, SWOT, environmental opportunities have the most and weaknesses have the least weight. In other words university planners and authorities, while planning, focus on strengths.

But given the final weights of each component and factor related to the above double groups, in should be noted that in strength group the existence of rather young and efficient faculty, in weaknesses group, lack of scientific - research in most training departments has gain the first rate, which is an indicative of their necessity. Measure ratings are illustrated in table 2:

Table 1 – Analysis of groups and factor weights of Bojnourd Islamic Azad University

group	Group weights	factors	Compatibility rate	Factor weights	Final score of factors
Strength 1	0.3105	the existence of important and applied fields of study in university 2	0.7432	0.2100	0.0609
		potential capacity for cooperation with environment 3		0.1461	0.0423
		existence of rather young and efficient faculty 3		0.2805	0.0813
		graduate students who are interested in association in research plans 5		0.1232	0.0357
Weakness 2	0.0724	lack of faculty with professor and associate rank 2	0.8506	0.4168	0.1208
		lack of scientific - research in most of the university's training 1		0.5832	0.2411

Table 2 – the ratings of the four measures

Group rating	measure
1	strength
2	weakness

On the other hand, research results also identified the factor ratings related to opportunity and weakness.

The results of the first secondary question - What are the strengths and weaknesses (investigating internal environment) of Bojnourd Islamic Azad University?

According to table three lack of scientific - research in most of the university's training departments has the first rating of weaknesses followed by lack of faculty with professor and associate rank.

As such, Table 4 shows the strengths of Bojnourd Islamic Azad University, in which the existence of rather young and efficient faculty is in the first rank followed by the existence of important and applied fields of study in university, potential capacity for cooperation with environment and graduate students who are interested in association in research plans.

Table 3 – rating of each factor concerning weaknesses of the university

rating	weaknesses
1	lack of scientific - research in most of the university's training departments
2	lack of faculty with professor and associate rank

Table 4– rating of each factor concerning strengths of the university

rating	strengths
1	existence of rather young and efficient faculty
2	the existence of important and applied fields of study in university
3	potential capacity for cooperation with environment
4	graduate students who are interested in association in research plans

The results of the third secondary question – What is the weight and relative importance of every double factor in developing university strategies?

According to table 5 among strength and weakness factors, factors including lack of scientific - research in most of the university's training departments, weight = 0.5832, and lack of faculty with professor and associate rank, weight = 0.4168, both of which are in weaknesses group, are in the first and second rank.

Table 5 - the weight and relative importance of every multi factor and group of each factor

Factor weight	group	Factor name
0.5832	weakness	lack of scientific - research in most of the university's training departments
0.4168	weakness	lack of faculty with professor and associate rank
0.2805	Strength	existence of rather young and efficient faculty

The results of the forth secondary question - What is the weight and relative importance of every component in developing university strategies?

According to table 6 among the two stated groups, strengths with a weight of 0.3105 have the highest weight followed by weaknesses with a weight of 0.0724.

Table 6 - the weight and relative importance of every component

Group weight	group
0.3105	strength
0.0724	weakness

Conclusion

The results showed that in Bojnourd Islamic Azad University, strengths are: existence of rather young and efficient faculty is in the first rank followed by the existence of important and applied fields of study in university, potential capacity for cooperation with environment and graduate students who are interested in association in research plans. Whereas based on Robert J. Daison's results in Varoik University the most important identified strengths are: productivity capacity, Varoik university credit, research capacities, and existing physical facilities. Comparing these results shows that research capacities are among common strengths of the two universities which have almost the same priority, but in Bojnourd Islamic Azad University one has to pay attention to factors that reinforce university's productivity and increase university credit. Also, this university should pay more attention to these factors and reinforce them due to the high weight of strengths.

Also, the results showed that in Bojnourd Islamic Azad University, weaknesses are: lack of scientific - research in most of the university's training and lack of faculty with professor and associate rank, while in Varoik University weaknesses are: Library weakness, sport facilities, and tradition educational system for bachelor courses. Comparing these results shows that almost there is no common feature between the weaknesses if the tow universities. As such, in the perspective of the authorities of Bojnourd Islamic Azad University the highest attention is given to academic weaknesses while in the perspective of assessed persons of Varoik University most of the weaknesses are facility-related.

Based on research's results it is suggested to planners of Bojnourd Islamic Azad University to have the following programs in order to neutralize weaknesses and reinforce strengths:

- Using students' capabilities in research plans by young and efficient teachers
- Using the teachers of important and applied fields of study in implementing important projects in the city and region
- Attaining the privilege of different research-scientific magazines or scientific-propagation magazines in university and teachers' participation in journals in order to make students more eager to scientific works and to continue their studies in graduate levels.
- Recruiting faculty with assistant and professor degrees in field which students are more interested in to continue them

- Recruiting faculty with assistant and professor degrees in parallel field with other universities.

Acknowledgement

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