

Original Article



Designing a Model of Key Success Factors in the Sport of Taekwondo with Emphasis on the Dimensions of Continuous Support

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Citation G.R. Goodarzi, **Designing a Model of Key Success Factors in the Sport of Taekwondo with Emphasis on the Dimensions of Continuous Support**. *Eurasian J. Sci. Tech.*, 2022, 2(4), 282-292.

<https://doi.org/10.22034/ejst.2022.3.6>



Article info:

Received: 12 1-09- 2022

Accepted: 19 -10- 2022

Available Online: 30 -11- 2022

ID: EJST-2109-1074

Checked for Plagiarism: Yes

Checked Language: Yes

Keywords:

Taekwondo sport, Key success factors, Demetel technique, Model design

ABSTRACT

The purpose of this paper was to design a model of key success factors in Taekwondo sport with emphasis on the dimensions of continuous support. The research method was a combination of quantitative and qualitative methods considering the qualitative method of data collection in the first stage and its validation in the next stage that was of the exploratory mixed type. The statistical population of the study was all executive and academic level experts. The sampling method in the qualitative part was initially purposeful and judgmental and then in order to collect information, the snowball sampling method was used. In this study, theoretical saturation was achieved by interviewing 21 of the samples. The data collection tool was in the first stage of the interview and after coding and identifying the themes and indicators, a questionnaire was developed and used to design and validate the model. Data analysis was performed qualitatively using thematic analysis and quantitatively using Demetel technique. The results of content analysis showed that the key factors of success in Taekwondo sport with emphasis on the dimensions of continuous support include four sections: Implementation of support programs, grounding in education, supply of hardware, optimization of nutrition. The results of Demetel analysis showed the appropriate fit of the research model. Also, the quantitative results of the research showed that the identified factors from the perspective of experts for the development of Taekwondo are in a favorable condition. According to the research results, emphasis on continuous support for the development of Taekwondo is necessary.

Introduction

Exercise refers to all types of physical activity that participants can participate in on a regular and organized basis or occasionally and use it to improve their fitness or to provide

entertainment and recreation. Considering individual and group sports, there are hundreds of sports that martial arts are a branch of such sports with fighting techniques and techniques that are high for various reasons, including self-defense, interest and motivation [1]. Practicing endurance is rehearsed, which has been

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transformed from a form of entertainment to a profession and activity for many years [2].

Iranian martial arts, which were not so popular before the revolution, but after the revolution, different styles of martial arts developed. One of the problems that professional athletes face is not having and not knowing their success factors. There are athletes who have been trying for years and wishing for great success, but there are issues that stand in their way that consciously or unconsciously hinder this success. We should know that success and professionalism in this field requires a series of resources and facilities [3].

Sports development takes place continuously in the right environment with the right conditions over a considerable period of time and is critical to the success of this process. Organized sport can grow and succeed in both the public and private sectors. Sports clubs play a key role in promoting this phenomenon. Principled sports are strongly related to a long-term training program and should be planned and implemented to play a key role in the development of future generations of athletes [7]. One of the main challenges regarding the key factors of success is identifying and extracting these factors, which according to the type of key factors can rely on different methods.

To identify these factors, a two-step study is needed: Factors that are external and the organization has little control over them, and factors that are called internal and are mostly under the control of the organization [4]. The prerequisite for the success of the country's major sports programs is that these programs should be distributed at the level of the federations and sports departments of the provinces. In fact, in order to achieve success in the field of sports, the provinces must also adjust their programs in line with the major sports programs in the country [5]. The sport of Taekwondo, due to its psychological dimensions and excitement, has attracted many enthusiasts in the world of sports, so about 75 to 125 million people around the world participate in martial arts. It is also one of the most important sports in Iran. Despite the popularity of Taekwondo in the country and the possibility of winning many

medals at the international level, it seems that scientific research can help the further growth of this sport in the country [14]. In recent years, evaluating and managing the performance of the country's sports federations and determining their success in achieving the predetermined goals has been one of the main concerns of the Ministry of Sports and Youth and the presidents of sports federations. Given the goals and tasks that have been designated as the main body in charge of each sport for sports federations, their correct and efficient use of allocated resources is of great importance.

Therefore, in order to achieve efficiency, the managers of sports federations need to make maximum use of all available resources and facilities and evaluate how to use them [17]. Today, the situation of sustainable medal-winning countries in championship sports (Olympic Games, Asian Games and World Championships) is one of the important indicators of countries' development and while providing the basis for building and promoting national identity, countries play a very important role in providing public vitality. Plays. Accordingly, the investment of countries in the field of championship sports is a very important and an accepted issue that reminds policymakers of the need to design development models in this field. Relying on financial resources alone is not enough to succeed in the Olympics [6].

Almost all successful countries (except Brazil) invest in all factors and have a plan. Continuation of the current trend of national championship sports can not pave the way for a serious change. Intellectual and human investment on all factors that can provide the basis for more sustainable success of the country by spending fewer financial resources. The path needs to be considered due to lack of financial resources (18). Participation in international competitions is important for athletes and coaches and creates a strong motivation for them to participate in these competitions. In addition to competing and gaining new experiences, participating in international arenas is an opportunity to evaluate a country's athletic performance. Iran also emphasizes individual disciplines based on individual abilities (such as wrestling and

weightlifting). Further, the competitive advantage of Iranian athletes in the Olympic Games should be considered. For example, at the 2008 Beijing Olympics, Iran won a gold and a bronze medal, scoring the weakest result in all Olympics, ranking 51st. In the sport of Taekwondo, 128 athletes from 63 countries competed in eight weights. Iran was also present in four weights (three men's weights and one women's weight) [7]. This research is based on previous studies, reviewing the disadvantages and advantages of current tools, reviewing the best global examples, using documentary information and interviewing taekwondo experts, to finally achieve a model that can succeed in taekwondo with emphasis on support dimensions. We have looked at the issue from a scientific and practical perspective to touch upon current needs.

Sports equipment and infrastructure, including all sports tools, devices and facilities required for various sports, as well as spaces and all facilities, sports welfare and health services that perform sports activities at the level of training, practice and competition, facilitate detailed document of the comprehensive system of physical education development and. Every system needs resources to survive. Although different organizations and institutions are identified and recognized by human resources, the role of other resources in its formation is very important. An organization's resources can include human, financial, physical, facilities, management, and information and technology resources. Meanwhile, the role of financial, physical and human resources in the sports system seems more important than other sources. Early research into the key factors of success can be traced back to 1961 when Daniel (1961) introduced the issue of "success factors" in the management literature. In 1972, Anthony and others took a step forward, emphasizing the need to tailor key success factors to the strategic goals of the organization and its managers. In 1979, Rockart combined the views of Daniel and Anthony to study three organizations that demonstrated that organizations operating in an industry may have different key factors for success. The reason for this was attributed to the geographical and strategic location among other

factors. However, Rockart was able to identify similarities between the list of key success factors of the three organizations. It is worth noting that the four key factors of initial success that had reached organizational maturity in one organization were also on the list of the other two organizations. As a result, it can be said that these factors are industry factors that include all organizations. Other cases are specific to an organization and arise from environmental conditions, temporary factors, geographical location, or strategic circumstances [8].

Sports clubs have a very effective role in sports on the one hand and the promotion of championship and professional sports on the other hand. Clubs motivate and attract young people to sports and train athletes in various fields, as well as cause enthusiasm in communities by holding sports competitions. The role of clubs as economic enterprises in creating jobs, reducing government ownership, attracting investments and public participation and thus generating income at the national, provincial, urban and even neighborhood levels is very important [9]. In the sport of Taekwondo, so far, no serious attention has been paid to the key factors of success and the real position it can have in the Olympics and the world.

Identifying the key success factors for any organization or project is essential to success in achieving its goals. Success factors are limited factors that play a vital role in the success of the organization and if the organization wants to continue its life, it must provide them. In other words, every vital factor of success is the context in which the work must be done in the best way for the organization to succeed. Taekwondo sport should be analyzed for the Olympics and a new classification should be achieved, which is based on Taekwondo sport models in other countries and the opinions of Iranian experts, and a macro and comprehensive cognition based on identifying key factors affecting Taekwondo sport, and the structure and behavior of Taekwondo by providing the required information [1]. Taekwondo is one of the sports that requires special physical characteristics, body and physiological abilities and is one of the most popular sports in Iran. Despite the attractiveness of Taekwondo in the country and

the possibility of winning medals at international levels, scientific research contributes greatly to the further development of this sport in the country [8]. Insufficient support for taekwondo athletes to perform and run competitions has a great impact on the desired outcome. Scientific support and planning in a scientific way and achieving the key factors of success can pave the way for Taekwondo sport to gain superiority among other competitors from different countries, so research on how the dimensions of continuous support seems necessary. The purpose of this study was to investigate the key success factors in Taekwondo with emphasis on the dimensions of continuous support. Assuming that these factors apply to most martial arts, they are the same for men and women, and that the statistical population includes sports heroes, sports fans, veterans, and sports officials, the main question is what these factors are and how they can be addressed and categorized.

Methodology

Given that the purpose of this study was to design a model of key success factors in the sport of Taekwondo with emphasis on the dimensions of continuous support, we required to apply mixed method research. In this study, in the first stage, with an interpretive approach of content analysis, the main and secondary themes of research in the field of key success factors in Taekwondo were identified, followed by using the quantitative method of Demetel analysis technique to validate it. So, the exploratory mixed research method was used. The statistical population in the qualitative part of this research consisted of Taekwondo experts in the country, both in academic and executive bodies. In this study, theoretical saturation was reached

with 21 interviews. For the validity of the present study, we used techniques of comparing evidence with existing literature. Also, we ensured that concepts were systematically related and internally coherent, and multiple sources of evidence, rich description of data sets during its collection, limit definition and the frontier of research and having a key draft as well as the study of documents were used to increase the validity of the resulting data. Also, in the interview method, validity should be considered for each of the seven stages of the research so that the obtained results are reliable and reliable. The validity of all seven stages in subject selection, design, interview, copying, analysis and validation were considered in this study. Using Demetel technique, which is one of the multi-criteria decision-making methods, the pattern of causal relationships between variables was identified and eleven experts were asked to use their experience to schematically show the effect of factors on each other. A total of 21 experts were interviewed, whose data are shown in Table 1 below.

Results

In the past studies, qualitative findings have been made in two stages of open and axial coding and the general results indicate that the following items presented in the table are the key factors of success in continuous support of Taekwondo.

Quantitative findings

In this section, research findings are presented in the form of tables and figures. Table 3 below shows the main steps and frequency extracted from all the interviews and the contents are summarized.

Table 1 Information table of interviewed experts

Positions	Education	Row
Full professor at Tarbiat Modares University, former chairman of the National Olympic Committee, member of the National Olympic Committee	PhD in Exercise Physiology	1
University of Applied Sciences	PhD in Motor Behavior	2
Chairman of the National Olympic Committee, Associate Professor	PhD in Physical Education and Sports Science	3

World Champion in Kyurgi and Pumseh Styles, Black Belt Don Eight Cookies On Korea, Lecturer at Taekwondo University of Applied Sciences, International Taekwondo Coach and Referee	PhD in Sports Management	4
World Pumice Champion, Black Belt Don Eight Cookies One Korea Taekwondo Federation Lecturer, International Taekwondo Instructor and Referee, Taekwondo University of Applied Sciences Lecturer, Taekwondo Federation Technical Committee Member	PhD in Sports Management	5
Olympic and World Taekwondo Champion, Chairman of the Technical Committee of the Taekwondo Federation, International Taekwondo Instructor and Referee, Lecturer at the University of Applied Taekwondo, Former Coach of the National Taekwondo Team	Master of Management	6
Chairman of the Taekwondo Federation Exam Committee, International Taekwondo Coach and Referee, National Champion Han Madang	Master of Defense Management	7
International Taekwondo Instructor and Referee, Black Belt Don Haft, Asian Taekwondo Champion	Master of Exercise Physiology	8
International Taekwondo Instructor and Referee, Black Belt Dan Eight, World Taekwondo Champion	Master of Motor Behavior	9
Veteran and Founder of Taekwondo in Iran, Black Belt 9, International Taekwondo Coach and Referee, Taekwondo Federation Lecturer, Chairman of the Taekwondo Federation Veterans Committee, Researcher and Author of Taekwondo Books and Articles, Member of the Technical Committee, Former Coach of the National Taekwondo Team, Chairman of the Veterans Committee of the Taekwondo Board	Management skills	10
International Taekwondo Instructor and Referee, Black Belt Seven Dan, Chairman of the Taekwondo Board Referees Committee	Bachelor of Physical Education and Sports Science	11
International Taekwondo Instructor and Referee, Member of the Taekwondo Federation Refereeing Committee	Master of Management	12
Correctional Movements Dan Belt Black Belt, International Taekwondo Instructor and Referee, Member of the Refereeing Committee of Tehran Province Taekwondo Board, Lecturer of Taekwondo Federation	Master of Physical Education and Sports Science	13
World Champion Han Madang, Black Belt Dan Eight, Taekwondo Federation Instructor, International Taekwondo Coach and Referee	Master of Physiology of Physical Education and Sports Science	14
Black Belt Dan Six, Taekwondo Federation Lecturer, Taekwondo Federation Research Committee Member, International Taekwondo Instructor and Referee	Master of Management	15
Black Belt Dan Seven, International Taekwondo Instructor and Referee	Master of Management	16
International Taekwondo Instructor and Referee, Asian Taekwondo Champion, Black Belt Dan Six	Physical education expert	17
Taekwondo Champion and Tehran Province League Competition, Black Belt Dan Five, Taekwondo Instructor	Master of Management	18
Member of the research committee of the provincial taekwondo board, former world taekwondo champion, Taekwondo instructor	Expert in physical education and sports sciences	19
Taekwondo Veteran, Black Belt Dan 8, International Taekwondo Instructor and Referee	Political Science Expert	20
Member of the Research Committee of the Provincial Taekwondo Board, International Taekwondo Instructor, Referee, Han Madang World Champion	Physical education expert	21

Table 2. Subgroups and core codes extracted from all interviews in continuous support

Category	Concept	Code	Row	
continuous support	Implement support programs	Supporting champions through the government system and physical education and the Taekwondo Federation and delegations	1	
		Psychological support to solve the family problems of educators	2	
		Efforts to solve athletes' family problems	3	
		Siding with sports stars and elites	4	
		Providing livelihood for coaches	5	
		Paying cash and non-cash to heroes	6	
		Payment of pension after the championship	7	
		Comprehensive efforts to empathize families with players	8	
		Grounding in education	Interaction with education to lay the groundwork for competitions	9
			Benefit from the important role of education in the development of Taekwondo	10
		Hardware supply (facilities and equipment)	Use of the highest technical indicators of Taekwondo equipment and supplies	11
			Physical structure	12
		Nutrition optimization	Creating space for growth and prosperity in training	13
			Adaptation of athletes' nutrition	14
			Using the nutrition doctor's instructions	15
			Benefit from the highest nutrition indicators	16

Table 3. Main steps and frequency extracted from all interviews

Percentage Abundance	Confirmation based on the final codes obtained from the interview	Statistics of experts in the interview	The main steps	Row
100	21	21	Implementing support programs	1
90	19	21	Grounding in education	2
85	18	21	Hardware supply (Facilities and equipment)	3
76	16	21	Nutrition optimization	4

Selective coding does not start after the open coding is completed, but the process is performed simultaneously. In open coding, data is eaten and broken to identify the meanings of its features and dimensions. In selective coding, the same data is re-linked by creating relationships between each class and its subclass in a new format.

Dematel Technique

The Dematel technique was generally developed to study very complex global problems. In order to guide the Dematel method, after gathering potential factors, the opinion of experts about these factors should be used. The statistical sample of most studies based on Dematel method is 10 to 12 selected experts. It should be noted that in this process, the most important factor is the quality of the experts

[24]. Based on the effects shown by the experts, we need to obtain the matrix. For this purpose, a table of how to answer the questions and a scoring pattern is provided to the experts and they are asked to examine the extent to which

each of the factors affects each other. Eleven experts were initially asked to use their experience to schematically show the effect of factors on each other.

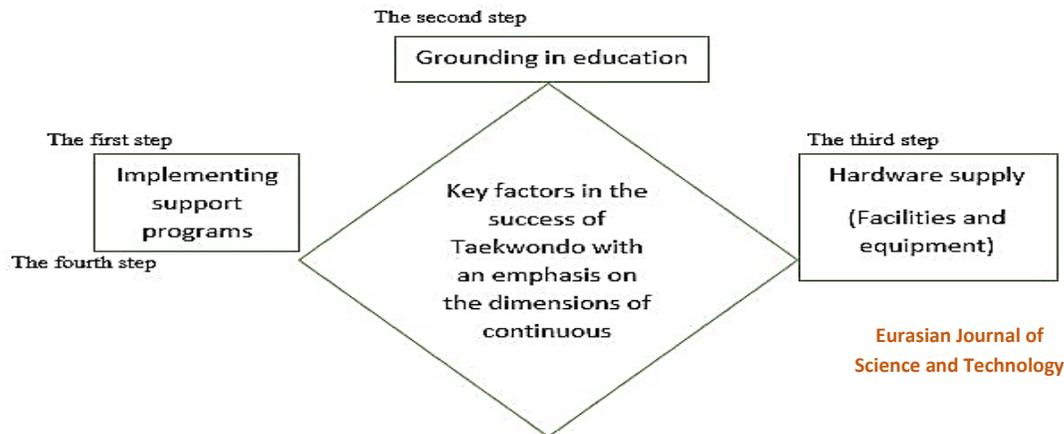


Figure 1 Taekwondo sports model with emphasis on continuous support

Calculation of Demetel Technique

When using the perspective of several experts, a simple arithmetic mean of the comments was

used and we formed the direct correlation matrix M.

Table 4 Direct connection matrix table

Nutrition optimization	Hardware supply (Facilities and equipment)	Grounding in education	Implementing support programs	
3.73	3.82	3.90	0	Implementing support programs
3.11	3.12	0	3.14	Grounding in education
2.65	0	2.57	2.93	Hardware supply (Facilities and equipment)
0	2.73	2.54	2.96	Nutrition optimization

First, the research criteria were named and tabulated so that it could be easily traced and studied during the research.

Table 5 Research criteria symbols

Criterion	Symbol
C1	Implementing support programs
C2	Grounding in education
C3	Supply of hardware (facilities and equipment)
C4	Nutrition optimization

Calculation

According to the formula, which is the inverse of the largest sum of rows, the value of α is obtained. Then we multiply the obtained value

by all the elements of the matrix to get the N matrix. This operation is called matrix normalization. Normalization coefficient was 0.087336245.

Table 6 Matrix table the effect of unmeasured direct relations of matrix D

C4	C3	C2	C1	relative to
0.325764192	0.333624454	0.340611354	0	C1
0.271615721	0.272489083	0	0.274235808	C2
0.231441048	0	0.224454148	0.255895197	C3
0	0.238427948	0.221834061	0.258515284	C4

Table 7 I M matrix

C4	C3	C2	C1	Relative to
-0.325764192	-0.333624454	-0.340611354	1	C1
-0.271615721	-0.272489083	1	-0.274235808	C2
-0.231441048	1	-0.224454148	-0.255895197	C3
1	-0.238427948	-0.221834061	-0.258515284	C4

At this stage, the direct relationship matrices (effects) were prepared according to the relationships and mean scores obtained in the

previous steps, and the direct effects matrix normalized at the level of approaches was calculated.

Table 8 Inverse matrix table I - D

C4	C3	C2	C1	Relative to
1.331762259	1.353297229	1.296079168	2.046014477	C1
1.144705716	1.1596394	1.89290268	1.111771771	C2
1.024131868	1.849133894	0.985650738	1.008238948	C3
1.842397276	1.047980734	0.989973245	1.015947203	C4

General relational matrices T show the relative strength of direct and indirect relationships between approaches, criteria and sub-criteria.

Table 9 shows the general relationship matrices for the approaches.

Table 9 Matrix Relationships T. The matrix sets of the direct effects

C4	C3	C2	C1	Relative to
1.331762259	1.353297229	1.296079168	1.046014477	C1
1.144705716	1.1596394	0.89290268	1.111771771	C2
1.024131868	0.849133894	0.985650738	1.008238948	C3
0.842397276	1.047980734	0.989973245	1.015947203	C4

Table 10 Analysis of Demitel indices

Analysis of demitel indices Factors					
Di-Ri	Di+Ri	Ri	Di	Factors	
0.845180734	9.209125532	4.181972399	5.027153133	C1	
0.144413736	8.473625398	4.164605831	4.309019567	C2	
-0.54289581	8.277206705	4.410051257	3.867155448	C3	
-0.44669866	8.239295577	4.342997119	3.896298458	C4	

The output of Dematel method includes four criteria R , D , $R + D$ and $R - D$. Criterion R is the sum of lines and indicates the effect of one factor on other factors, this is the effect of a variable. Based on the analysis of Dematel indicators, hardware supply (facilities and equipment) and nutrition optimization and groundwork in education and implementation of support programs have an impact on each other, which means the degree of effectiveness is variable. In the table of elements of each row (D), the column sum of numbers and indicates the effect of that criterion on other criteria of the model. Accordingly, the criterion for the implementation of support programs is the most effective and lays the groundwork for education in the next stage. The horizontal vector ($D + R$) is the intensity of the effect of each variable and the degree of influence of the desired factor in the system. In other words, the higher the $D + R$ factor, the more it interacts with other system factors. Accordingly, the criteria for implementing support programs have the most interaction with other criteria studied. The horizontal axis vector $R + D$ represents the

degree of importance of the variables, known as their degree of penetration; the vertical vector $D - R$ indicates the effectiveness or influence of the variable and the influence of each factor. In general, if $D - R$ is positive, the variable is a causal variable, and if it is negative, it is a disability. The group of causal factors is based on the analysis of Dematel indicators, the implementation of support programs and groundwork in education, and the group of causal factors is based on the analysis of Dematel indicators, hardware supply (facilities and equipment) and nutrition optimization. The vertical axis vector $R - D$ classifies the factors into two groups of causal and disabled, so that the factors that have a positive value are assigned to the group of causal factors and the factors that have a negative value are assigned to the group of causal factors. Also, if this value is zero for a factor, it can be considered both causal and causal (25). Finally, a Cartesian coordinate system was drawn. In this device, the longitudinal axis is $D + R$ and the transverse axis is based on $D - R$. The position of each factor was determined by a point with coordinates $D + R$, $D - R$ in the device.

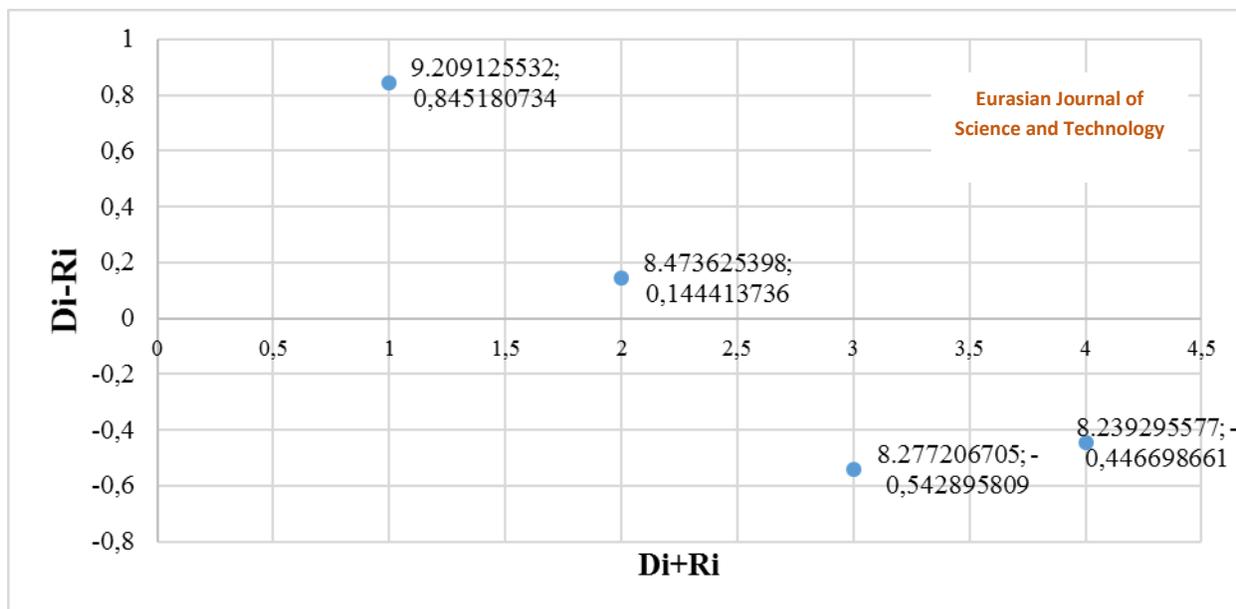


Figure 2 Cartesian coordinate diagram of DEMITEL technique. A summary of the results is displayed graphically in the chart

According to the form of implementation of support programs and groundwork in education, the indicators that are above the

horizontal line, the intensity of their net effect is positive and are classified as causal, stimulus or influential indicators, as well as indicators that

are located below the horizontal line; the intensity of their net effect is negative and they are clustered as dependent indicators. Power optimization and hardware supply (facilities and equipment) are located below the horizontal line and their degree of effectiveness is higher. The higher the indicators, the greater the degree of effectiveness, and the lower the degree of effectiveness. In addition, the more the indicators move to the right of the chart, the more important they become; because their total impact and effectiveness are higher, in other words, the index that interacts more with other indicators is more important. Therefore, the index of implementation of support programs and grounding in education is more important than other indicators. Based on the results, it was found that the most effective component is the implementation of support programs and grounding in education.

Conclusion

The aim of this study was to design a model of key success factors in Taekwondo with emphasis on the dimensions of continuous support. In order to achieve the research goal, Demetel technique was used. The results from the implementation of Demetel technique showed that among the four criteria including the implementation of support programs, grounding in education, supply of hardware (facilities and equipment), optimization of nutrition was the most effective criterion, along with the optimization of power supply and supply of hardware (facilities and equipment). One of the effective factors in this regard is paying attention to the implementation of support programs that officials and those in charge of developing the sport of Taekwondo in the country can use it to succeed in competitions. Azadan *et al.* (2012) reported that student sports, due to the volume and breadth of individuals, are full of sports talents and capabilities that, if properly guided and channeled, will play an important role in the dynamism and vitality of society, and it will be a strong support for championship sports. As the results of Khalili's research (2007), it can be stated that sports clubs have a very effective role in sports on the one hand and the promotion of

championship and professional sports on the other hand. Clubs motivate and attract young people to sports and train athletes in various fields, and also cause enthusiasm in communities by holding sports competitions. The role of clubs as economic enterprises in creating jobs, reducing government ownership, attracting investment and public participation, and thus generating income at the national, provincial, urban and even neighborhood levels is very important. Also, Gaini *et al.* (2008), in their research entitled the relationship between physical, physiological characteristics and body composition of elite male taekwondo fighters, stated that despite the attractiveness of Taekwondo in the country and the possibility of winning medals at the international level, scientific research to further develop this Sport helps a lot. The most important feature of this step is to achieve the goals of Taekwondo by creating a systematic system in the discussion of implementing support programs. The reasons for the applicability of the results of this study can be considered, in the first place, as the key factors for success in Taekwondo sport with emphasis on the dimensions of continuous support as a new topic. Secondly, in order to increase the effectiveness and achieve success in this field, there is a need to identify and optimally allocate resources in these areas. Finally, the submitted proposals were identified and categorized based on these factors. In sum, a) each of these factors can be examined separately and the effect that it has on the success of implementation in the sport of Taekwondo can be measured by different criteria; b) decision makers can plan and extract the strategy by considering the key factors of success extracted from this research and their strengths and weaknesses; and c) a goal should be set for each of these extracted factors and appropriate planning should be developed to achieve it.

Acknowledgments

We would like to thank all the Taekwondo athletes who did not hesitate to share their information during the interview process.

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