Original Article: Designing a Talent Search Model in Taekwondo

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ABSTRACT

The research method was a combination of quantitative and qualitative methods. The data were collected qualitatively in the first stage and its validation in the next stage was of the exploratory mixed type. The statistical population of the study was all executive and academic. The sampling method in the qualitative part was initially purposeful and judgmental and then in order to collect data, the snowball sampling method was used. In this study, theoretical saturation was achieved by interviewing 21 of the samples. The data collection in the first stage was through interview and after coding and identifying the themes and indicators, a questionnaire was developed and used to design and validate the model. The results of content analysis showed that the grouping of codes was 58 components. The results revealed that emphasis on the dimensions of talent identification is necessary for the development of Taekwondo. One of the effective factors in this regard is paying attention to the talent search model that officials and those in charge of developing the sport of Taekwondo in the country can use to succeed in competitions. The proposed framework can be used as an analytical tool for the sport of Taekwondo in order to solve the problems of this field of sport in a scientific and principled way.

Introduction

Exercise refers to all types of physical activity that one can participate in on a regular and organized basis or from time to time and use it to improve their fitness or to provide entertainment and recreation. The sport can be held competitively, in which one or more winners must be selected based on a set of rules agreed upon by all, and also participants must have a degree of competence related to that discipline. Especially in the higher categories, there are now hundreds of sports, including individual and group sports, and martial arts is a branch of such sports that has fighting techniques that are practiced for various reasons, such as self-defense, interest and motivation, increasing the endurance of the body, etc. It has been transformed from a form of entertainment to a profession and activity for many years. It has gained a lot of social, political and economic importance for the participants and today it has gained a lot of

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power and countless professional athletes around the world have become rich through this, which is another feature of martial arts. Iranian martial arts, which were not so popular before the Revolution, have been developed in different styles. One of the problems that professional athletes have 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 obstacles that consciously or unconsciously hinder this success. We should know that success and professionalism in this field requires a series of resources and facilities [1].

Sporting progress occurs continuously in the right environment with the right conditions over a considerable period of time, and this process is critical to success. Organized sport can grow and succeed in both the public and private sectors. Sports clubs have a key role to play in promoting this phenomenon. Principled exercise is strongly associated with a long-term training program and must be planned and implemented to play a key role in the development of future generations of athletes.

The sport of Taekwondo, due to its psychological dimensions and excitement, has attracted many enthusiasts in the world of sports, so that about 75 to 125 million people around the world participate in martial arts. This sport 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 we need scientific research to help further development of this sport in the country [2].

Talent identification is currently one of the main challenges of sports (Abbott *et al*., 2005). 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 [3].

In the world of sports, identifying talent is not a new concept. Talent identification in sport means discovering and realizing one's potential abilities. Since the late 1960 s, in most Eastern European countries, special methods have been introduced to identify athletes with high potential, and scientists have sought to train coaches to select talented athletes for a specific sport to be aware of the abilities required for that sport. Most of the people who won medals at the 1972Olympics, especially those from East Germany, were the result of a talent identification process. Therefore, the main goal of sports talent identification is to identify and select the athletes who have the highest chance of success for a particular sport. Student sports, due to the volume and breadth of people, is full of sports talents and capabilities that, if properly managed and channeled, will play an important role in the dynamism and vitality of society and will be a strong support for championship sports. Today, if the developed countries have achieved significant progress and success in all levels of sports, its roots should be sought in recognizing the importance of school sports and proper bedding. The General Directorate of Sports and Youth of the provinces should also know that success in public sports, championships and professional sports goes beyond school sports, because the smallest measures and investments in this field will lead to the most results.

The main problem is that the inflexible education system in most countries can not nurture potential talent even if it is identified, while the reason for the former Soviet Union's success in talent identification was that the education system had been fully coordinated in the field of talent identification.

We see that in one period of the Olympics, athletes have a great chance of winning a medal, and in another period, such a thing is not observed. The system that supports these talents is also flawed. So, our athletes rarely win medals in several Olympics and only once they win a medal in one Olympic period, they are completely removed from the domestic and international competitions [4].

Talent acquisition is a topic that is of particular importance in the world of sports. Identifying the factors of success paves the way to reach the peak of pride. Determining what distinguishes ordinary athletes from elite athletes is a very difficult task

that has made it difficult to address the issue of talent identification. Documentary information and interviews with taekwondo experts are done in order to finally reach a model that can find talent in taekwondo from a scientific and practical perspective and meet current needs. Identifying talent and determining its extent and distinguishing individual differences in different talents is one of the most important tasks of sports professionals, coaches and consultants, because many young athletes have the opportunity to increase their ability, growth and reach the desired level due to ignorance of their specific characteristics. They shake hands and are not directed to the sport in which they can flourish. Sports talent detection prevents this and leads young athletes to the right sport.

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 disciplines, as well as by holding sports competitions cause enthusiasm in communities. 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.

Among the important indicators in talent search, body composition including components such as body fat, fat mass and body mass index have been frequently mentioned.

Talent search is the discovery of potential athletes who are not involved in a particular sport. Talent identification programs to identify Talented athletes as well as their success are applied globally. Most coaches informally selected athletes based on their specific characteristics, but almost from the 1970s onwards, many countries, especially in Eastern Europe, have begun a regular program called talent identification and official championship sports.

Finding the talent of people who have the logical potential and chance to become an elite athlete and are currently active in the same sport by evaluating physical (anthropometric), physiological, skill, mental and psychological, environmental characteristics is done during different stages.

In the literature, the general results indicate that the following items are the key factors for success in the Taekwondo talent search system:

a) Interaction of provincial sports with the education system;

b) Holding sports competitions and festivals along with talent identification tests;

c) Running school competitions;

d) Identifying students in schools; and

e) Execution of special sports tests on students.

One of the important factors in the development of championship sports and winning medals in sports fields is the existence of a talent identification system in sports. Organizational talent search has a national or national system that is closely related to education programs. Sports talent in China, for example, is based on the interaction of provincial sports with the education system. Holding sports competitions and festivals along with talent identification tests is one of the common methods of talent identification in China.

Young sports talent in Australia is also identified through school competitions. There are three basic steps in the Australian Sports Talent Program, which are to identify students in schools, perform special sports tests on them, and develop the identified talents. In other words, in Australia, the path of educating athletes starts from schools and eventually reaches the level of international competitions.

Taekwondo, as the most scientific martial sport and due to its fitness and popularity among the general public, has attracted many athletes of all ages. Kyurogi (fight) and Pumseh (form) are the two main parts of Taekwondo competitions that have differences with each other, so in finding taekwondo talent, both of these areas and their specific needs should be considered. A visual observation and coaching expertise should be the first step in talent identification, and subsequent tests will only develop the potential for athletic talent that has already been identified. Experienced taekwondo instructors consider several factors important in identifying taekwondo talent. These include physical, physical, mental and skill characteristics. Inheritance is also one of the factors that should be considered. Relatively tall height, legs longer than the trunk, wide legs, high thigh

index and backward knees are among the body factors that are very important for choosing a taekwondo talent, especially in the combat section. In pumice, factors such as average body height and length and proportionate muscle mass are also important.

In the physical realm, high responsiveness, flexibility, short- and medium-term muscular endurance, anaerobic power, and fatigue tolerance, along with agility and agility, are the factors that distinguish a talented taekwondo practitioner from others. In pumice, these factors, especially high flexibility and explosive power of the muscle along with coordination, are of great importance. Courage, aspiration for superiority, positive attitude, inner motivation and controlling arousal and stress are some of the psychological traits that will help a Taekwondo athlete to succeed.

In particular, it is believed that aggressive or less daring and less fearful non-athletes have a better chance of success in Kyurogi Taekwondo. Therefore, the evaluation of these factors needs to be considered by educators. Athlete's willingness to fight athletes with a high level and age is more than the criteria that can be used in this field. As mentioned earlier, the differences between Pumseh and Kyurogi are effective in identifying Taekwondo talent and need to be explored. Due to the difference in scoring in these two sections, in Pumseh, the individual score is deducted from the standard score (10) and the athlete has only one chance to evaluate, but in the fight, the athlete tries to get points, and at any time can Make up for arrears; The hours of training and experience in Pumice are much more decisive than in Kyuruki, so that experienced athletes perform better than less experienced ones. Parents have a very important role to play in sports talent. The influence of parents in encouraging children to physical activity is one of the most important reasons that has caused attention to this case.

They are also the greatest role models for their children, and since children better understand issues through examples, they should be justified in being role models for their children. Another thing that should be paid special attention to in sports talent search is the coach. Interest and perseverance, high technical and moral level, especially the ability to transfer sports skills are essential to achieving the discovered talents. In addition, instructors must have received specialized training for different levels. For example, some coaches are coaches who are only able to perform tasks up to the provincial, national, or national or international level, or some are productive only for a certain age group. This means that in improving the technical level of coaches, their audiences should be considered and in other words, this work should be done professionally.

Talent identification

It is a process through which children and adolescents are encouraged to participate in sports that have the highest chance of success based on the results of tests and selected parameters. These parameters are designed to predict a person's executive capacity based on maturity, physical fitness and genetic history.

The sport of Taekwondo should be analyzed for the Olympics and a new classification should be achieved, which is based on models of Taekwondo in other countries and the opinions of Iranian experts. Creates who interact with each other by providing the required information, explain the situation, and finally the structure and behavior of Taekwondo [4].

Taekwondo is one of the sports that requires special physical characteristics, body and physiological abilities and is also one of the most important sports in Iran. Despite the attractiveness of Taekwondo in the country and the possibility of winning medals at international levels, scientific research contributes to the further development of this sport in the country [5].

Genes have an important effect on a person's athletic performance and physical strength, and individuals have innate talents in a particular area of sport based on their unique genetic makeup. Although the success of athletes at high levels is the result of continuous and difficult training, but the genetics of athletes also play an important role in their success. These people can also change this process by changing their lifestyle and doing their favorite activities and have a positive effect on the function of their genes.

Success in championship sports depends on three factors: appropriate innate talent techniques, optimal mental condition, and mastery of skills.

Holding free sports talent training courses for Taekwondo coaches with the cooperation of qualified and specialized forces motivated by the federation in universities and using and introducing virtual communication channels and networks related to sports talent among taekwondo coaches in the country, as well as developing hosting Taekwondo competitions and olympiads in Provincial level seems necessary [6].

Anyone can learn painting, calligraphy or singing, but there are few people who have the expertise and mastery. In sports as well as in art, discovering the most talented people and selecting them in the first years of life and then constantly monitoring and helping them reach the highest level of skill is a very important point. Sports organizations act as trustees and sports planners of the country.

They have an important role in the development of sports in the country at all levels. They should appear in the role of leading organizations in designing and establishing an appropriate talent search system, which requires identifying talent search factors and practical action based on these influential factors in different stages of system design and deployment. Talent management is essential. At the basic and general level, the method of relying on versatile people is essential. But such a thing does not work for the best athletes in non-team sports. Finding the talent of Taekwondo athletes to perform competitions has a great impact on the desired conclusion. Principled support and planning in a scientific way and achieving the key factors of success can pave the way for Taekwondo to gain superiority among other competitors from different countries, so research on how to measure the dimensions of talent identification seems necessary.

The purpose of this study was to design a talent search model in Taekwondo. 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, so the main question is what are the talent-finding factors and how? Can they be categorized and presented as a model?

Methodology

Given that the purpose of this study is to design a talent search model in the sport of Taekwondo, it requires the use of combined research methods. In this research, in the first stage, with an interpretive approach of content analysis, the main and secondary themes of research in the field of talent identification factors in Taekwondo sport were identified and after identifying the indicators, using quantitative method of Demtel analysis technique for validation, it was used, so the exploratory mixed research method was used [7].

The statistical population in the qualitative part of this research consisted of Taekwondo experts in the country, both in academic and in the executive and executive bodies. In this study, theoretical saturation was attained with 21 interviews. For the validity of the present study, techniques of comparing evidence with existing literature was applied, ensuring that concepts were systematically related and internally coherent, using 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 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 results obtained are reliable and reliable. The validity of all seven stages in subject selection, design, interview, copying, analysis and validation that were considered in this study. Using the DEMATEL 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 show the effect of factors on each other schematically. A total of 21experts were interviewed, whose names are shown in Table 1.

Table 1. A total of 21experts were interviewed

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
Assistant Professor, 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 Cookie One Korea, Lecturer at Taekwondo University of Applied Sciences, International Taekwondo Coach and Referee, Former National Taekwondo Team Coach	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, Han Madang Country Champion	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 of the Taekwondo Federation, 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 Dan 7 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
Dan Belt Black Belt, International Taekwondo Instructor and Referee, Member of the Refereeing Committee of Tehran Taekwondo Board, Lecturer of Taekwondo Federation	Master of Physical Education and Sports Science Correctional Movements	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

Don Six Black Belt, Taekwondo Federation Lecturer, Taekwondo Federation Research Committee Member, International Taekwondo Instructor and Referee	Master of Management	15
Black Belt Don 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 competitions, black belt of Dan Panj, taekwondo coach	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 Provincial Taekwondo Board Research Committee, International Taekwondo Instructor and Referee, World Han Madang Champion	Physical education expert	21

Research Findings

Qualitative findings are usually made in two stages of open and axial coding and the general results indicate that the following items in the table are among the factors for finding talent in Taekwondo.

Table 2. General, subgroups and core codes extracted from all interviews in sports talents

Category	Concept	Code	Raw
Sports talent management	Surveying	Height	1
		Measure the width of the shoulders	2
		Consider the length of the arms	3
		Measuring lean body mass	4
		Body mass index	5
		Shorter trunk to height ratio	6
		Consider the width of the pelvis	7
		It has long legs relative to the trunk	8
		Having a wide leg	9
		Low body fat percentage	10
	Physiological capabilities	Lactic acid tolerance	11
		Cardiorespiratory function	12
		Fatigue resistance	13
		Consider anaerobic power	14
		Determination of anaerobic capacity	15
		Measurement of maximum oxygen consumption	16
	Psychological characteristics	The spirit of cooperation and emotional balance	17
		Ability to overcome stress	18
		Having the power to focus	19
		Ability to focus on the goal	20
		Have the courage	21
		Being motivated	22
	Biomotor abilities	Power measurement	23
		Consider speed	24
		Power measurement	25

		Determining the level of endurance	26
		Measuring flexibility	27
		Balance rate	28
		Consider agility	29
		Consider reaction time	30
		Neuromuscular coordination	31
		Motor vision coordination	32
	Related tests	Use of computer talent search software	33
		General fitness test	34
		Technical and tactical testing	35
		Using special tools and instruments for measuring and measuring	36
		Holding sports competitions and festivals along with talent identification tests	37
		Identify talents from the Federation Belt Promotion Test	38
		Implementation of special sports tests on students in schools	39
		Running school competitions	40
		Post-training skills performance test for elitism	41
		Evaluate a person's predictive power of moving objects in space	42
		Consideration of biomechanical parameters	43
		Test and select taekwondo work from nonhali up	44
		Select Taekwondo talented work in competitions	45
		Correct selection in the Federation Belt Test	46
		Testing and attracting intelligent people in Taekwondo	47
		Consider genetic and hereditary traits	48
	Careful support	Supporting sports clubs to create space for the growth and flourishing of talents	49
		Create an elite database	50
		Long-term plans to grow and develop the abilities of athletes from an early age	51
		Interaction of provincial sports with the education system	52
		The importance of the role of parents as a supporter of the athlete	53
		Holding sports talent training courses for coaches	54
		Encourage community and friends to guide the athlete	55
		Attention to geographical area and provinces prone to talent search	56
		Study on athlete records	57
		Continuous support for student sports	58

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 which are summarized.

Table 3. Main steps and frequency extracted from all interviews

Percent Abundance	Confirmation based on the final codes obtained from the interview	Expert statistics in the interview	The main steps	Raw
100	21	21	Surveying	1
85	18	21	Psychological characteristics	2
80	17	21	Physiological capabilities	3
71	15	21	Biomotor abilities	4
61	13	21	Related tests	5
57	12	21	Careful support	6

Table 3 shows the main steps and frequency extracted from all the interviews and the contents are summarized.

Selective coding does not start after the open coding is completed, but the process is performed simultaneously. In open coding, data is 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 [3].

Model

A small partial model or small reconstruction of a large object is functionally identical to the real object (Georgian, 2009). The model is the relationship between theoretical design and the task of collecting and analyzing information. In the social sciences, models include signs and symptoms. A model is a representation of facts. Systems constantly have different and sometimes complex behaviors due to the internal interaction of components with each other and their external interaction with the environment.

This variety and complexity of behaviors forces researchers to model and systematize the behavior of a system, based on the variables and parameters, to build a model of it, and by applying and making changes in it, to examine the results. Science is an inevitable necessity because most philosophers, thinkers, and scholars who have discussed human social life have always resorted to similarities or some images so that they can introduce the society to themselves.

The steps of content analysis led to the model

1- Preparation stage
2- Selection of analysis unit
3- Familiarity with the subject and data
4- Open coding
5- Coding tables
6- Classification of codes
7- Categorization
8- Summarization
9- Model, conceptual system, categories or conceptual map

By looking at the table of main steps and frequency extracted from all interviews, prioritization and delay of model steps based on the final interview codes and obtaining frequency percentage were confirmed. One of the important and final principles of the research process is to reach a turning point that uses a kind of research results and interprets these results. In the thematic discussion of the results of this research, a thematic category can be considered so that the components of talent search in Taekwondo sport are fully revealed.

In the early stages of the research, by studying library studies, we reached a concept and generalities about Taekwondo sport. As a result of this stage, questions were selected to ask the experts in the interview process [6].

DEMATEL method in a structural model

One of the most common methods used to find any causal relationships between criteria is the DEMATEL method. To obtain a structural model consisting of causal factors, the DEMATEL method should be used. In the face of the ambiguity of

human judgment, the verbal variable "effect" has been used in conjunction with several other verbal terms, such as very high, high, medium, low, very low, and lack, which are expressed in positive fuzzy numbers. As can be seen from the properties and results of using the DEMATEL technique, this technique, in addition to being able to rank and determine the importance of components, has the ability to identify influences on the behavior of other components or factors [7].

Table 4. Question answering method and scoring pattern

Very high effect	High effect	Low effect	Very low effect	Without effect
4	3	2	1	0

Pattern of relationships between variables

The Demitel technique has been used to reflect the interrelationships between the main criteria. So, experts are able to express their views on the effects (direction and intensity of effects) between factors with more mastery. It should be noted that the matrix obtained from the DEMATEL technique (internal communication matrix) shows both the causal relationship between the factors and the effectiveness of the variables. Based on the collected questionnaires and matrices as well as the maximum law, the relationships between the approaches, criteria and sub-criteria were identified and then the average scores given by the experts to these relationships were calculated [1].

Finally, according to the obtained relationships, a diagram of the relationships between approaches, criteria and sub-criteria were drawn based on weight scores from 0 to 4. Based on the effects shown by the experts, we need to obtain the matrix. For this purpose, the table of answers to the questions and the scoring pattern were provided to the experts and they were asked to examine the effect of each of the factors on each other. 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 [5].

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

Demitel technique calculation formula

$$X = \begin{bmatrix} 0 & \cdots & x_{n1} \\ \vdots & \ddots & \vdots \\ x_{1n} & \cdots & 0 \end{bmatrix}$$ ماتریس ارتباطات

نرمال سازی ماتریس

$$k = max\left\{max\sum_{j=1}^{n} x_{ij}, \sum_{i=1}^{n} x_{ij}\right\};\ N = \frac{1}{k} * X$$

$$T = N \times (I - N)^{-1}$$ ماتریس ارتباط کامل

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

Table 5. Symbols of research criteria

Criterion	A symbol
C1	Surveying
C2	Psychological characteristics
C3	Physiological capabilities
C4	Biomotor abilities
C5	Related tests
C6	Careful support

Calculation of the direct connection matrix

When using the perspective of several experts, we used a simple arithmetic mean of the comments and formed the direct correlation matrix M.

First, the research criteria were named as a table so that it could be easily traced and studied during the research [1].

Table 6. Direct communication matrix

C6	C5	C4	C3	C2	C1	
3.85	3.88	3.91	3.92	3.94	0	C1
3.19	3.21	3.25	3.28	0	3.32	C2
2.73	2.79	2.84	0	2.88	2.91	C3
2.29	2.33	0	2.37	2.82	2.89	C4
2.25	0	2.41	2.47	2.51	2.55	C5
0	2.33	2.36	2.39	2.43	2.48	C6

A calculation

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

Then we multiplied the obtained value by all the elements of the matrix to get the N matrix. (This is called M matrix normalization)

Table 7. Normalizer coefficient 0.051282051 Table 7. Matrix Effect of unmeasured direct relations Matrix D

C6	C5	C4	C3	C2	C1	
0.197435897	0.198974359	0.200512821	0.201025641	0.202051282	0	C1
0.163589744	0.164615385	0.166666667	0.168205128	0	0.17025641	C2
0.14	0.143076923	0.145641026	0	0.147692308	0.149230769	C3
0.117435897	0.1194871779	0	0.121538462	0.144615385	0.148205128	C4
0.115384615	0	0.123589744	0.126666667	0.128717949	0.130769231	C5
0	0.19487179	0.121025641	0.122564103	0.124615385	0.127179487	C6

Matrix table I - M or matrix I - D

At this stage, the matrices of direct relationships (effects) were prepared according to the relationships and mean scores were obtained in the previous steps, and the matrix of direct effects normalized at the level of approaches was calculated [6].

Table 8. Inverse Matrix

C6	C5	C4	C3	C2	C1	
-0.197435897	-0.198974359	-0.200512821	-0.201025641	-0.202051282	1	C1
-0.163589744	-0.164615385	-0.166666667	-0.168205128	1	-0.17025641	C2
-0.14	-0.143076923	-0.145641026	1	-0.147692308	-0.149230769	C3
-0.117435897	-0.1194871779	1	-0.121538462	-0.144615385	-0.148205128	C4
-0.115384615	1	-0.123589744	-0.126666667	-0.128717949	-0.130769231	C5
1	-0.19487179	-0.121025641	-0.122564103	-0.124615385	-0.127179487	C6

General relational matrices show the relative intensity of direct and indirect relationships between approaches, criteria and sub-criteria. The table shows the general relationship matrices for the approaches.

Total Relationship Matrix T Table No.9 Matrix of Direct Impacts.

Table 9. Indirect matrix table 1

C6	C5	C4	C3	C2	C1	
0.637446619	0.645391019	0.653313918	0.64368735	0.648832485	0.4688817742	C1
0.546179573	0.552797987	0.560181466	0.552756299	0.142540907	0.547755963	C2
0.483037139	0.49061637	0.497776487	0.363026943	0.495049588	0.487053894	C3

0.436359612	0.442705917	0.340682951	0.442204303	0.4628683	0.456881176	C4
0.420084363	0.321165659	0.435698538	0.431418964	0.435884834	0.429359385	C5
0.311340923	0.422540713	0.428221907	0.422871034	0.427319402	0.42135491	C6

Table 10. Indirect matrix table 2

C6	C5	C4	C3	C2	C1	
0.440010721	0.4464166	0.452801097	0.442661709	0.446781203	0.468817742	C1
0.38258983	0.388182602	0.3935148	0.384551171	0.412540907	0.377499553	C2
0.343037139	0.347539447	0.352135462	0.363026943	0.34735728	0.337823125	C3
0.3189233714	0.323218738	0.340682951	0.320665842	0.318252916	0.308676048	C4
0.304699748	0.321165659	0.312105595	0.304752297	0.307166885	0.298590154	C5
0.311340923	0.303053534	0.307196266	0.300306932	0.302704017	0.294175423	C6

The output of DEMATEL method includes four criteria R, D, R + D and R - D. The R criterion is the sum of the numbers and indicates the effect of one factor on other factors, which means the effect of a variable. Based on the analysis of dimethyl parameters, physiological capabilities, psychological characteristics, biomotor abilities, related tests and thoughtful support have affected each other, which means the degree of effectiveness is variable. In the table of the sum of the elements of each row (D), the column sum of the numbers indicates the effect of that criterion on the other criteria of the model. Accordingly, the measurement criterion has the most impact and psychological characteristics are 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. Based on this, the measurement criteria have the most interaction with other studied criteria. The horizontal axis vector R + D represents the degree of importance of the variables, known as their degree of influence. 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 based on the analysis of dimethyl indices is body measurement and psychological characteristics and the group of causal factors based on the analysis of dimethyl indices is physiological capabilities, biomotor abilities, related tests and thoughtful support.

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.

Threshold for obtaining meaningful relationships or the mean of the total matrix 0.477089485.

According to the pattern of relationships, the causal diagram can be drawn based on the table: In this way, a graphic diagram was obtained.

Table 11. Matrix of significant relationships between research factors based on threshold

C6	C5	C4	C3	C2	C1	
1	1	1	1	1	0	C1
1	1	1	1	0	1	C2
1	1	1	0	1	1	C3
0	0	0	0	0	0	C4
0	0	0	0	0	0	C5
0	0	0	0	0	0	C6

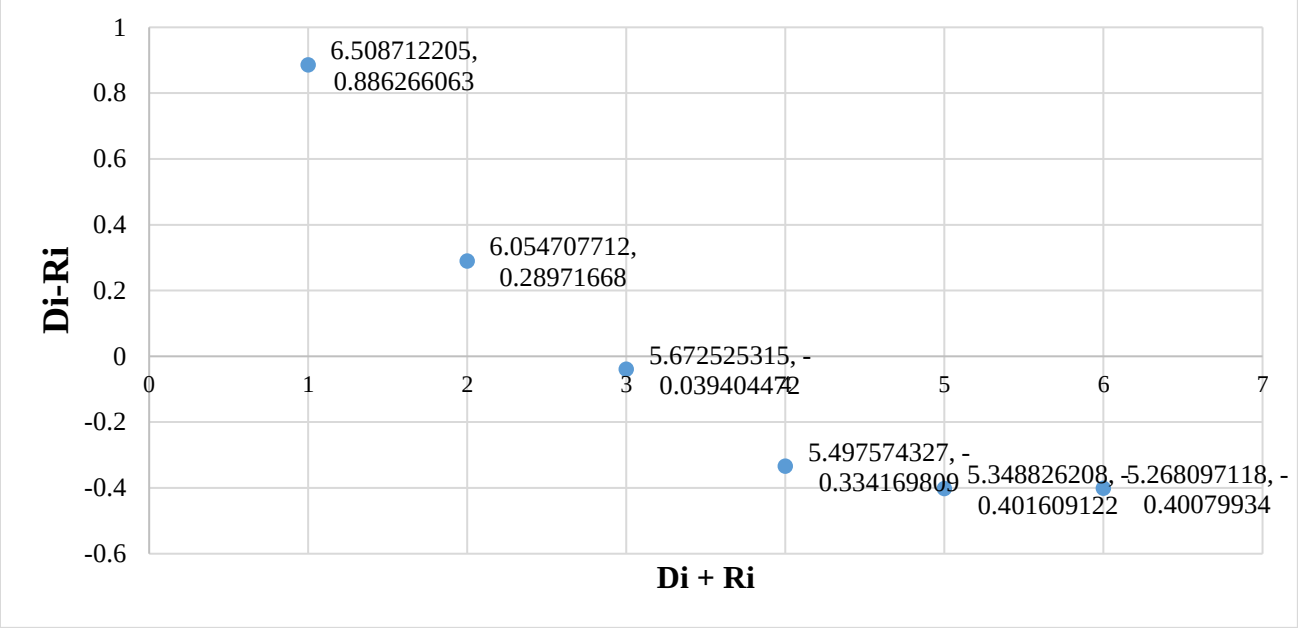

Figure 2. Cartesian diagram of Demeter technique

A summary of the results is displayed graphically in the chart.

According to the Cartesian coordinate diagram of morphometrics and psychological characteristics, the indices that are above the horizontal line are positive and their intensity is positive and are classified as causal, stimulus or influential indices, as well as the indices below the horizontal line. Their net effect intensity is negative and they are clustered as dependent indicators. Physiological capabilities, biomotor abilities, related tests and prudent support are below the horizontal line and their degree of effectiveness is higher. The higher the indicators, the more effective they are, and the lower they are, the more effective they are. 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, body measurement index and psychological characteristics are more important than other indicators. Based on the results, it was found that the most effective component was body measurement and psychological characteristics.

Conclusion

The aim of this study was to design a talent search model in Taekwondo. In order to achieve the research goal, DEMATEL technique was used. Findings from the application of DEMATEL technique showed that among the six criteria, including body measurement and psychological characteristics, is the most effective criterion and the most influential criteria are physiological abilities, biomotor abilities, related tests and prudent support. Nazari (2018) stated that in the physical field, high reaction, flexibility, short and medium muscle endurance, anaerobic ability and fatigue tolerance along with agility and agility are the factors that make a taekwondo athlete talented. Also, Gaini et al. (2008) delved into the relationship between physical, physiological characteristics and body composition of elite male taekwondo fighters, stating 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 in the country and this matter has the same point of view as the first step of the model, which is body measurement.

Siahi et al. (2018) studied the role of genetics on sports talent and physical performance of athletes and found that genes have an important effect on athletic performance and physical strength of

individuals with talents based on their unique genetic composition is inherent in a particular area of sport. Relying on Khalili's (2007) research, 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 create excitement in the community by motivating and attracting young people to sports and training athletes in various fields, as well as 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, and this is the sixth step of the model, which is prudent support. The results of the research are in line with the similar perspective of the talent search model in Taekwondo, and six criteria have been identified that executives can apply in their plans. The most important feature of this model is achieving the goals of Taekwondo by creating a systematic system in the discussion of success in competitions. The reasons for the applicability of the results of this study can be the fact initially the talent identification model in Taekwondo is an issue that many factors are effective in its successful implementation and in the second place, to increase the effectiveness and success of this model, there is an optimal identification and allocation of resources in these areas. Finally, the submitted proposals were identified and categorized based on these factors.

Further research can address the following suggestions:

1. Each of these factors can be examined separately and the effect that it has on the talent identification of Taekwondo sport can be measured by different criteria.
2. Decision makers can plan and extract strategy by taekwondo sport talent identification model and considering their strengths and weaknesses.
3. Talent is a topic that is of special importance in the world of sports, so for each of these factors extracted, goals should be set and appropriate planning should be developed to achieve it. Also, the coaches who are currently serving sports teams, are recommended to use the various proposed in the research model and its results.

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