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**Dr. Ghassan Mohammed Abdul Sada**

Assistant Professor, Faculty of Physical Education and Sports Science, University of Kufa, Iraq

**Humam Fadhil Kurdi**

Faculty of Physical Education and Sports Science, University of Kufa, Iraq

## Building scale of management by objectives according to the (Sigma Six) methodology in the athletics sub-confederations from the players' point

**Dr. Ghassan Mohammed Abdul Sada and Humam Fadhil Kurdi**

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### Abstract

In order to achieve the objectives of the research, building a measure of management by objectives according to the (sigma six) methodology for the athletics sub-associations from the players' point of view, the researchers had to take the necessary procedures and measures to achieve this matter. This was done for them through the use of the descriptive approach and defining the research community with the specificity of the (100) advanced players for athletics. As research procedures and scientific contexts were taken in building a scale specialized in the statement of management by objectives in its supposed fields among the group of players represented by the research community, through statistical and analytical applications that enabled the two researchers to reach satisfactory and acceptable results. Some of them came with the following conclusions: The measure of management by objectives that was built is honest and capable of measuring what it was designed to measure. And that there is a weakness in management by objectives in the athletics sub-confederations indicated by the value of the hypothetical mean, which was greater than the arithmetic mean of the sample responses. The two researchers recommended: The necessity of adopting the scale based on management by objectives in order to know the levels of the athletics sub-associations. As well as activating the work of the sub-confederations administratively by associating the players with them and not with the clubs when nominating for national teams or participating in tournaments. What the researchers also recommend is the involvement of the administrative bodies of the athletics subsidiary federations in administrative development courses on a regular basis.

**Keywords:** Badminton, smash skill, motor ability, boys, girls

### Introduction

The method of management by objectives depends on setting goals in which the boss and the subordinate share, and this results in raising the morale of the subordinates and increasing cooperation between them, and thus achieving the goals of the institution.

“Sports federations are game federations, not club federations, whose mission is to take care and interest in sports in order to raise the heroic level of the game” (Al-Antblim Hamada Eid, 2022, p. 51) [1]. It is the link between the player and the achievement of his competitive goals to achieve sporting achievement. All that the federations provide contributes to the development of the player's level in the activity that pertains to it. Among these federations is the Athletics Federation because of its great importance emanating from the activities it sponsors, as it depends on the player himself without the help of other players, and this is what makes caring for him and developing him the focus of attention and the goal of the work of the administrative bodies in the subsidiary federations.

The development of administrative work in the local sports federations must keep pace with the administrative work in the Arab and international federations, so that the player can compete in the light of those levels, and this is what the (sigma six) methodology has adopted because it depends on reducing risks to the lowest level, and therefore management by objectives according to this methodology affects the improvement of the organizational work of the federations and increases their effectiveness since organizational effectiveness refers to

**Corresponding Author:**

**Dr. Ghassan Mohammed Abdul Sada**

Assistant Professor, Faculty of Physical Education and Sports Science, University of Kufa, Iraq

the optimal use of resources and the creation of a state of balance between internal factors and external influences, and therefore it will increase the motivation of players to participate in sports races not only for the purpose of racing, but also To achieve records because the player will feel that he is an integral part of the Sports Federation that supports him and provides him with the requirements for his success.

### Research problem

The fact that the researchers are athletics and discus throwers who have had several experiences in races and direct contact with the federations, this idea crystallized and the following questions knocked on the doors of their thinking in an effort to find the appropriate climate for the players to achieve achievement, and these questions are:

1. Is there a tool for measuring management by objectives according to international and Arab standards to measure the quality of administrative performance?
2. Do the subsidiary federations operate according to pre-established goals and seek to achieve them successively in the light of Arab and international approaches?

### Research objectives

1. Building a measure of management by objectives according to the (sigma six) methodology for the athletics sub-confederations from the players' point of view.
2. Knowing the relationship between the areas of the management scale by objectives according to the (sigma six) methodology of the athletics sub-confederations from the players' point of view.

### Research field

#### The human field

The administrative bodies of the subsidiary federations for athletics in Iraq (except for the Kurdistan region).

**Time field:** From 15/10/2022 to 15/6/2023.

#### The spatial field

The headquarters of the athletics federations and the training and racing grounds for players.

### Research methodology and field procedures

#### Research methodology

The descriptive approach was used in its correlative style due to its suitability to the nature of the research.

#### Research community and sample

The research sample was identified with arena and field players in Iraq (except for the Kurdistan region), as the total sample number was (140) individuals, who represented the community of origin. The sample was randomly divided into the survey sample of (20) players at a rate of (14.28%), and the construction sample of (100) players at a rate of (71.42%), and the application sample was (140) players.

#### Field research procedures

##### Constructing a measurement tool (management by objectives) for athletics players, the study sample

In order to construct a measuring tool (management by objectives) for the athletics players, the study sample, the researchers must nominate the elements (axes) of the management by objectives measure for use in the factor analysis processes. For this reason, it was relied on to survey many theoretical references and relevant sources. From all of this, and in the light of the theoretical definition of management by objectives, the following axes were proposed: (Defining strategic plans, evaluating administrative performance, analyzing performance results, improving and developing performance, following up the implementation of strategic plans).

##### The validity of the candidate axes for the scale

To demonstrate the validity of the axes nominated for the (management by objectives) scale, a questionnaire was prepared for some experts and specialists, as well as an indication of the relative importance of each of them, and all of them came with valid results of equal relative importance. It resulted in the placement of some phrases for each of them, so the phrases came with (7) phrases for each axis, with a total of (35 phrases) or single for the scale. As shown in the following table:

**Table 1:** Shows the validity of the areas of the management by objectives scale, according to the experts' answers:

N	Field	Validity	Non validity	Ki <sup>2</sup> Calculated	Ki <sup>2</sup> Tabular	Result
1	Defining strategic plans	15	0	15	3.84	Acceptable
2	Management performance appraisal	15	0	15		Acceptable
3	Analyze performance results	15	0	15		Acceptable
4	Performance improvement and development	15	0	15		Acceptable
5	Pursuit the implementation of strategic plans	15	0	15		Acceptable

From the aforementioned, it becomes clear to us the degree of approval obtained by the domains from the experts and specialists for their validity in identifying management by goals in the sub-federations of athletics, and these domains appeared at which the calculated ( $Ca_2$ ) values were greater than their tabular value of (3.84) at a degree (1) and a significance level (0.05) and in favor of responding to the alternative (valid). As the researcher relied on the approval of (12) experts or more out of (15) experts for the validity of the

field, which constitutes (85%) of the total experts. All areas have been accepted and obtained the full approval of expert opinions.

The initial formula for the expressions of the management scale by objectives was developed in a manner in which the researchers adopted the (Lickert) method in response and on alternatives with a range of (0-10). As shown in the following table:

**Table 2:** Shows the validity of the expressions of the management by objectives scale and the score of (Ki<sup>2</sup>) calculated and extracted based on the answers of the experts

N	Field	Number	Paragraphs	Validity	Non validity	Ki <sup>2</sup> Calculated	Result
1	Defining strategic plans	1	The sub-federation puts its previous performance statistics for the purpose of developing future plans according to those data.	15	0	15	Acceptable
		2	To developing its plans, the federation relies on the experiences of other federations	15	0	15	Acceptable
		3	The sub-union determines the expected results of the administrative development process in advance.	15	0	15	Acceptable
		4	There are in-depth studies of the various administrative elements and their improvement is included in future plans	13	2	8.06	Acceptable
		5	The departments of the subsidiary federations determine their development priorities based on developments in the competitive environment	12	3	5.4	Acceptable
		6	The sub-unions define the administrative development process in stages and within a specific time frame	13	2	8.06	Acceptable
		7	The departments of the subsidiary federations form teams or committees to study the reality and determine the priority requirements for work	13	2	8.06	Acceptable
2	Management performance evaluation	1	The subsidiary federation encourages continuous scientific studies to determine its level of performance.	15	0	15	Acceptable
		2	The sub-union diagnoses the factors causing its decline.	14	1	11.26	Acceptable
		3	The sub-union works to study the work environment and its role in improving the performance of the players.	15	0	15	Acceptable
		4	The federation forms specialized committees to study the training methods used by the trainers.	14	1	11.26	Acceptable
		5	The sub-union identifies the expected results from the application of administrative development curricula.	15	0	15	Acceptable
		6	The subsidiary union accurately divides the responsibilities of all its employees at the various administrative levels to ensure the centralization of work.	12	3	5.4	Acceptable
		7	The Sub-Federation forms committees concerned with evaluating the work periodically after the end of each sports season.	15	0	15	Acceptable
3	Analyze performance results	1	The sub-confederation studies the reasons for the difference between players' levels and their racing performance.	15	0	15	Acceptable
		2	The sub-union analyzes the current and expected level of performance of the players.	15	0	15	Acceptable
		3	The sub-union diagnoses the causes of poor performance and develops plans to reduce them.	14	2	11.26	Acceptable
		4	The sub-union puts more than one alternative plan to face the obstacles it might face.	12	3	5.4	Acceptable
		5	The sub-union, when developing future plans, must be flexible, balanced and applicable.	15	0	15	Acceptable
		6	Analyze the impact of applying the plans developed to raise the administrative level in the federation.	12	3	5.4	Acceptable
		7	The sub-union relies on electronic administrative information systems in drawing up policies and future plans.	14	1	11.26	Acceptable
4	Performance improvement and development	1	The Sub-Union is interested in the aspirations and ambitions of the players after investigating them and tries to help achieve them.	15	0	15	Acceptable
		2	The sub-confederation develops the performance of the players through the use of specialized advisors.	15	0	15	Acceptable
		3	Administrative decisions are taken in the sub-association based on suggestions and opinions of players and coaches.	14	1	11.26	Acceptable
		4	The sub-confederation gives powers to the coaches in determining the strengths and weaknesses of the players.	15	0	15	Acceptable
		5	The sub-union sets trial stages for the implementation of plans and decisions before adopting them.	15	0	15	Acceptable
		6	The management of the subsidiary union thinks about solutions to the problems it faces after studying the available data.	15	0	15	Acceptable
		7	The sub-union tests the results of its decisions and then seeks to develop future plans.	15	0	15	Acceptable
5	Pursuit the implementation of strategic plans	1	The subsidiary union relies on a cumulative database that enables them to continue working.	15	0	15	Acceptable
		2	The sub-union studies the periodic reports by the coaches to follow up on the progress of work.	15	0	15	Acceptable
		3	The subsidiary union shall form a specialized committee to study the plans and follow up on their implementation.	15	0	15	Acceptable

	4	The sub-union works to detect weaknesses in the plans and how to avoid them.	13	2	8.06	Acceptable
	5	Adoption of global administrative development mechanisms by the Federation in developing strategic plans.	15	0	15	Acceptable
	6	The sub-union uses multiple measures to evaluate and develop performance and follow up on its implementation.	15	0	15	Acceptable
	7	The subsidiary union implements the administrative control system on all its work units.	15	0	15	Acceptable

(\*) The tabular value of ( $K_i^2$ ) at the degree of freedom (1) and the level of significance (0.05) is equal to (3.84).

### Exploratory experience

The exploratory experiment was conducted on (20) players after completing the initial formulas of the scale with the degree of instructions regarding its application with the evaluation scale (estimation scale). The players were asked to write down their notes in writing on the phrases (paragraphs) that are not understood, and after their discussion it was discovered that they understand the majority of the paragraphs with a statement of clarification for some of them and there is n. The experiment was run from Sunday, August 1, 2023, through Sunday, January 15, 2023, and the average response time for each participant was twenty minutes.

### Analyze the answers statistically

In order to achieve the purpose of the process of applying the scale with its paragraphs (35) on the building sample of (100) players, the answers must be analyzed statistically, and the valid ones must be selected with the dimensions of the invalid ones, according to many indicators, including the discriminatory ability and the scientific bases of the scale paragraphs for the purpose of preparing for the final version of the scale. The scale was applied to a group of (75) players from (4/1/2023) to (5/15/2023). The application process resulted in the following data:

**Table 3:** Shows the value (discrimination coefficient) calculated for the expressions of the management by objectives scale using the end groups of the answers of the study sample:

N	Mean		Std. deviation		T value	Sig level	Sig type
	Lower group	Higher group	Lower group	Higher group			
1	4.4063	6.6875	3.28102	2.30620	6.718	0.000	Sig
2	4.9688	6.6875	3.02126	2.97774	7.659	0.000	Sig
3	4.8438	7.2813	3.45580	2.14377	6.040	0.000	Sig
4	5.4688	7.7813	2.96196	1.86192	6.000	0.000	Sig
5	5.1563	6.1250	2.96332	3.39592	6.255	0.000	Sig
6	4.9375	7.0313	2.66322	2.44269	7.021	0.000	Sig
7	5.1250	5.9688	3.21037	3.66751	6.670	0.000	Sig
8	4.5313	7.0938	2.89587	2.14565	6.432	0.000	Sig
9	4.6250	7.3750	3.41486	2.09069	6.662	0.000	Sig
10	4.6250	6.9688	3.22040	2.03968	5.811	0.000	Sig
11	4.4375	6.9063	3.51896	2.41446	6.065	0.000	Sig
12	5.0938	6.0313	3.40170	3.39339	5.648	0.000	Sig
13	4.8750	6.9688	3.33844	2.25022	6.184	0.000	Sig
14	5.1250	7.0000	3.79941	2.22884	7.542	0.000	Sig
15	4.6333	8.2500	3.55725	1.48106	5.207	0.000	Sig
16	4.7188	8.0313	3.57622	2.32079	6.314	0.000	Sig
17	4.9063	7.3125	3.57734	2.44207	8.769	0.000	Sig
18	5.2813	7.5938	3.82044	2.04560	7.270	0.000	Sig
19	5.2188	7.3750	3.53539	2.51126	6.531	0.000	Sig
20	5.0625	7.7188	2.77009	1.98761	15.103	0.000	Sig
21	4.7500	7.6250	3.38879	1.58114	19.963	0.000	Sig
22	4.5625	6.7500	3.21225	2.44949	18.474	0.000	Sig
23	5.0000	7.0625	3.67204	2.44867	21.281	0.000	Sig
24	4.2188	6.5938	4.07775	2.66227	27.257	0.000	Sig
25	5.1250	7.3125	3.12895	2.48138	25.515	0.000	Sig
26	4.9063	7.1563	3.43942	2.70137	16.515	0.000	Sig
27	4.5313	7.4063	3.29207	1.82914	15.861	0.000	Sig
28	4.8438	7.1875	3.51136	2.17667	19.131	0.000	Sig
29	4.6250	6.1875	2.93752	3.10502	21.113	0.000	Sig
30	4.3438	6.3125	3.81516	3.54180	18.605	0.000	Sig
31	4.0938	7.6250	3.13523	2.41968	24.514	0.000	Sig
32	4.6875	7.9688	3.52354	2.53345	20.140	0.000	Sig
33	4.2500	6.0938	3.52868	3.37313	17.331	0.000	Sig
34	4.2500	5.8750	2.91824	3.63200	18.784	0.000	Sig
35	5.1875	5.5161	3.14630	3.58986	15.911	0.000	Sig

**Table 4:** Shows the correlation coefficients of the phrases with the total score of the management-by-goals scale for the sample's answers.

Phrase number	Correlation coefficient	Phrase number	Correlation coefficient	Phrase number	Correlation coefficient
1	0.813	13	0.792	25	0.645
2	0.852	14	0.552	26	0.636
3	0.830	15	0.630	27	0.517
4	0.859	16	0.624	28	0.565
5	0.801	17	0.554	29	0.792
6	0.791	18	0.509	30	0.817
7	0.811	19	0.875	31	0.506
8	0.767	20	0.615	32	0.740
9	0.673	21	0.638	33	0.516
10	0.653	22	0.580	34	0.524
11	0.672	23	0.520	35	0.546
12	0.724	24	0.782		

Significantly significant at the level of significance (0.05).

**Table 5:** Shows the correlation coefficients for the expressions with the total score of the domain of the management by objectives scale for the sample's answers.

Phrase number	Correlation coefficient	Sig type	Phrase number	Correlation coefficient	Sig type
<b>The first Field : defining strategic plans</b>			<b>The third Field: analysis of performance results</b>		
1	.880**	Sig	15	.875**	Sig
2	.813**	Sig	16	.898**	Sig
3	.859**	Sig	17	.584**	Sig
4	.801**	Sig	18	.580**	Sig
5	.791**	Sig	19	.615**	Sig
6	.811**	Sig	20	.697**	Sig
7	.837**	Sig	21	.853**	Sig
<b>The second field : evaluation of administrative performance</b>			<b>The fourth Field: improving and developing performance</b>		
8	.774**	Sig	22	.849**	Sig
9	.764**	Sig	23	.887**	Sig
10	.760**	Sig	24	.896**	Sig
11	.822**	Sig	25	.754**	Sig
12	.838**	Sig	26	.794**	Sig
13	.829**	Sig	27	.853**	Sig
14	.736**	Sig	28	.775**	Sig
<b>The fifth Field: Pursuit the implementation of strategic plans</b>					
29				.822**	Sig
30				.804**	Sig
31				.817**	Sig
32				.842**	Sig
33				.799**	Sig
34				.817**	Sig
35				.852**	Sig

(\*\*) Significantly significant at the level of significance (0.05).

**Table 6:** Shows the correlation coefficients between the total domain score and the overall scale score for the management by objectives scale:

Fields		Defining strategic plans	Management performance evaluation	Analyze performance results	Performance improvement and development	Pursuit the implementation of strategic plans
Total degree	Correlation coefficient	.865**	.865**	.771**	.858**	.819**
	Sig type	Sig	Sig	Sig	Sig	Sig

(\*\*) Significantly significant at the level of significance (0.05). From the aforementioned, we conclude that the coefficient of internal consistency between the expressions of the management by objectives scale is obtained with a high and acceptable degree, and this confidently expresses the validity of this scale.

**Table 7:** Shows the values obtained from the stability coefficients of the management by objectives scale:

Teachers	
Reliability index	Value
Cronbach's alpha coefficient	.975
Split-half correlation coefficient	.976
Corrected correlation coefficient	.997

It is clear from Table (12) that the obtained values are reassuring stability coefficients, as the Cronbach coefficient values are statistically acceptable when these values are equal to or greater than (0.57). Thus, the scale is ready for the

analytical construction process.

**Statistical means**

(Al-Yasiri, Muhammad Jassim, 2011, pg. 157) [2].

- Mean.
- Standard deviation.
- Standard error.
- Torsion coefficient.
- Simple correlation coefficient.
- Flattening coefficient.
- Hypothetical Mean

## Search results, display and analysis

### Presentation and analysis of the results of the (management by objectives) measure in the athletics sub-federations from the players' point of view

**Table 8:** Shows the mean, standard deviation, hypothetical mean, and t-value for the research sample:

Variables	Sample	Mean	Std. deviation	Median	Skew ness	Hypothetical Mean	T value	Sig level	Sig type
Management by objectives	140	188.6	15.55	172	0.169	192,5	23.3	0.000	Sig

Table (8) shows the reality of the state of the research sample in management by objectives, and in order to achieve this purpose, performance evaluation was applied in the scale (management by objectives), after analyzing the answers of the sample and treating them statistically, it was found that the arithmetic mean of management by objectives was (188.6) with a standard deviation of (15.55), while the hypothetical mean was (192.5), and when conducting the t-test for one sample, it showed that the calculated t-value is (23.3) with a

level of significance (0.000), which is greater than the tabular t-value at a degree of freedom (99), and since the arithmetic mean is smaller than the hypothetical mean and with statistical significance, this indicates that the research sample in administrative performance according to management by objectives is not good, that is, the reality of performance is less than the hypothetical mean, and this is a not good indicator.

### Viewing and analyzing the results of the correlation matrix between management and its objectives and fields

**Table 9:** Shows the matrix of correlation between management by objectives and their fields:

N	Standards	Management by objectives	Defining strategic plans	Management performance evaluation	Analyze performance results	Performance improvement and development	Pursuit the implementation of strategic plans
1	Management by objectives	1	.326**	.321**	.394**	.336**	.341**
2	Defining strategic plans	.326**	1	.865**	.771**	.858**	.819**
3	Management performance evaluation	.321**	.865**	1	.744**	.944**	.736**
4	Analyze performance results	.394**	.771**	.744**	1	.739**	.897**
5	Performance improvement and development	.336**	.858**	.944**	.739**	1	.748**
6	Pursuit the implementation of strategic plans	.341**	.819**	.736**	.897**	.748**	1

#### 4. Discussing the results

The purpose of a correlation study is to determine the strength or degree of the relationship between the variables or domains because a correlation suggests that there is a relationship between those variables. In the current study, the simple correlation coefficient (Pearson) was used to extract the strength of the relationship between the degrees of the variables. That all the correlation values for management by objectives with its domains were greater than the tabular value of (0.196), but in varying proportions. The higher the correlation value between the domain and the variable to which it belongs, the stronger the correlation. The researchers attribute this to not activating the administrative work of the athletics sub-federations and relying on the players' affiliations to their clubs without having strategic plans to support and care for the players they belong to.

#### Conclusions and recommendations

##### Conclusions

1. The measure of management by objectives that was built is honest and capable of measuring what it was designed to measure.
2. There is a weakness in management by goals in the athletics sub-associations indicated by the value of the hypothetical mean, which was greater than the arithmetic mean of the sample responses.
3. There are correlations of varying strength between management with objectives and their fields.

##### Recommendations

1. It is necessary to adopt a measure based on management by objectives in order to know the levels of the athletics sub-federations.
2. Activate the work of the sub-confederations

administratively by associating the players with them and not with the clubs when nominating for national teams or participating in tournaments.

3. Involving the administrative bodies of the athletics subsidiary federations in administrative development courses on a regular basis.
4. Conducting other studies on the study sample related to other administrative variables due to their importance in the success of the work of the athletics sub-federations.

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