

Creating an app to measure decision-making in volleyball

إنشاء تطبيق لقياس اتخاذ القرار في الكرة الطائرة

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Received: 2024-08-08

Accepted: 2024-11-09

Published: 2025-02-22

Abstract:

The main research axes that have to contain the following elements: (aim of the research, the adopted methodology, the sample, the tools used to achieve and the principal results. The study aimed to design a tool "for measure decision-making in volleyball ", it's a descriptive study conducted on Elbayadh town volleyball players « seniors ».

The research community includes the registered volleyball players among the championship of the second national sports season 2022-2023 with 55 players. The research sample was 20 players who were selected randomly.

The tool was initially designed then presented to a group of adjudicators (Doctors volleyball specialists). Thus, the student researcher applied the tool's final form on the sample survey after that the main sample. One of the most significant findings of the research is that there are high stability and honesty parameters for the scale tactical thinking in the Attack tool by using an application. To conclude, the researchers recommended the use of the suggested tool to determine the decision-making in volleyball level of the different clubs and teams. as well as seeking to develop it either by adding videos, And why not move it to another level, and apply this tool in other sports disciplines.

Keywords: Measurement tool; decision-making; Volleyball.

Introduction:

Under the present circumstances and racing to control digital data and the technological progress that the modern world witnessed in the majority of fields including the sports field, in which the evolution of performance has become strongly linked with the use of technological means that impose training field workers to use it in order to achieve the desired goals. This is what Professor Dong Yang reviewed in his vision about the role of technology for sport development emphasizing that its main role is to work on developing athletes' performance and harnessing it to serve them, during the first session of the fifth conference of the international council of health, physical education, entertainment and sport and the kinetic expression of the middle east under the slogan "Talking about sports science-sport technology". (Redha Selim 2013)

With the rapid development that most sports have known including volleyball which is a game that differs from other collective games in terms of rules, playing way, skills and plans. In terms of performance level on a short timeline in different aspects, physical, skill and tactical. The individual tactical thinking of players has witnessed a remarkable leap which led most of trainers to focus on that aspect. One of the obstacles that face trainers is the assessment of the tactical aspect unlike other aspects (physical and skill) which are available and on their disposal.

That's what led sports field researchers trying to suggest various kinds of tools to see players' tactical aspect level, similar to (Mohammed Chawki Kechk, Madjid Khedda Yakhech Assed, Abd Elwahed Hussein Kader, 2016) study. Through which they tried to assess the tactical thinking of football players. The study of (Errawi, Mekki Mahmoud Hussein, 2006) that aimed to build a measurement of the tactical thinking in the attacking third of football excellent clubs' players, the study of (Ben Lakhel Mansour, 2006) which is entitled "Analyzing the effectiveness of attack skill performance and its relationship with lower football players' tactical thinking, that aimed to investigate the relationship between the tactical thinking and the effectiveness of skill performance of football players.

As well as knowing volleyball players' abilities and their tactical thinking level help trainers a lot to design programs and training sessions that make the difference in matches scores via tactical aspect, the importance of determining players attack tactical thinking level with the existence of disparity in possession and mastery degree of these abilities. Thus, identifying the tactical thinking aspect is worthwhile to study, as (Mohammed Chawki Kechk, Madjid Khedda Yakhech Assed, Abd Elwahed Hussein Kader, 2016) shows that the identification process of tactical thinking level from complex processes which require trainers to find tools that could help.

Within the limits of researchers' knowledge and the literature review of the previous studies, the researchers consider to search and investigate in order to suggest a tool to measure volleyball attack tactical thinking, this is because this kind of activities lacks measurement on this side.

We can formulate the research problem as follows:

Does the attack tactical thinking measurement tool through internet sites has acceptable psychometric properties?

1. Field procedures of the study:

1.1 The followed method: the researchers relied on the descriptive survey method due to its relevance for the study's purposes

1.2 population of the study: the population of the study are 55 second regional level activist elder volleyball players of the city of El Bayedh

1.3 Sample of the study: the study included 20 players except Libiro center players and 6 players of the survey sample (two players from each club)

1.4 Research fields:

Spatial field: the study was conducted in Boufala Elbachir sport hall El Bayedh

Temporal field: from February 2022 until April 2022. It is divided in two:

Time area of the survey study: the survey research was held from February to march 2022

Time Area of the main study: from March to April the same year.

1.5 Research tools

1.5.1 decision-making Measurement tool: It was through an application

The used tool was an application designed by us to measure the volleyball decision-making. It was programmed with the help of computer science programmer. In order to record players' answers automatically and recording each player's answer time with part of a second which is able to save answers and answering time in a database then order them upward or downward, alphabetically or depending on the club, age or training period or name in addition to graphic stands that clarify players according to the club, age and training period.

The informant has to answer to the attack situation in less than 10 seconds. In case he exceeded the appointed time the page moves automatically to the following situation and counting it as zero via one single try.

The site has 14 attack situations from positions (02) and (04), each situation is given three attack zones A, B and C. Thus, less responsive to the survey is 14 and the largest response is 42.

2. Recherche tools:

2.1 Designing application:

Figure.1. choosing sport page



Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

Figure.2. choosing type of situation page



Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

Figure.3. Registration page

الطول : الطول ب سم	الاسم و اللقب : الاسم و اللقب
الوزن : الوزن ب كغ	المستوى الدراسي : المستوى الدراسي
العمر : العمر	اسم النادي : اسم النادي
العمر التدريبي : العمر التدريبي	مستوى المنافسة : مستوى المنافسة

ابدأ الاختبار

Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

Figure.4. situation video number 14



Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

Figure.5. controlling board (informants list)

[illegible]

Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

Figure.6. controlling board (results tool)

لوحة نتائج الإختبار

أشهر 10 | مدخلات | Excel |

النتيجة

النتيجة	الاسم	الوقت 1	الوقت 2	الوقت 3	الوقت 4	الوقت 5	الوقت 6	الوقت 7
أحمد أبوب	3	3s 0ms	1	3s 110ms	2	2s 210ms	1	2s 600ms
ياسمين أحمد	3	3s 480ms	2	3s 990ms	1	3s 70ms	2	3s 200ms
عبد القادر	2	3s 70ms	1	3s 940ms	2	3s 990ms	2	2s 740ms
فاطمة الحق	1	2s 560ms	3	3s 60ms	1	3s 500ms	2	2s 400ms
ياسمين عبد	2	3s 480ms	1	3s 120ms	2	2s 960ms	1	2s 780ms
ياسمين عبد	2	2s 870ms	2	2s 990ms	2	2s 990ms	1	2s 940ms
ياسمين عبد	3	3s 380ms	1	4s 0ms	2	3s 750ms	2	3s 380ms
ياسمين عبد	2	3s 521ms	2	3s 150ms	3	3s 990ms	3	3s 940ms
ياسمين عبد	1	2s 600ms	1	2s 200ms	1	2s 400ms	3	3s 100ms

Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

Figure.6. charts



Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

2.1. Equivalent image of the tool: it is a structured form from volleyball field specialists. It is a hard copy of the suggested research tool. It contains 14 pictures of volleyball attack situations from positions (02) and (04) with the same first tool degrees and the same situations (stopping the videos on the last attack moment).

2.2 Laptop: i3 CPU / 8 Go RAM / System Exploitation 64 Bit «windows 10»

2.3 Adobe premiere Pro cc 2015 program: to select and edit the videos and situations.

3.4 Adobe XD cc 2018 program: to make a preliminary design for the website Proto Type design

3. Steps of preparing decision-making tool: the two researchers selected an international volleyball match. They chose the final match of 2016 between Italy and Brazil that was held in Rio De Janiro.

They have selected 20 attack videos within researcher's ability from positions (04-02) starting from Brazilian study results (Costa, Gustavo de Conti Teixeira, 2018) which mention that the highest attack average happens in parties: 44% in zone (04) and 32% in zone (02) top two ratios comparing to other playing positions (1-3-5-6)

Those videos have been treated by Adobe Premier program, revising the lighting and adding areas (attack surfaces). The two researchers have designed a proto type" Proto Typ Design" for a web site via Adobe XD cc 2018 program and starting programming it by PHP programming language with the assistance of a computer science programmer.

4. The survey: the 20 (twenty) situations were presented to 07 doctors from Mostaganem Oum El Bouaghi and Constantine Universities for arbitration and nomination. As an expression of ostensible honesty existence. Thus, all the arbitrators agreed on 14 situations out of 20 videos and the tool measures what is put for, in addition to giving the tool marks.

Table 1. represents arbitrators' opinion (degrees) on each situation and agreement percentage and correction key.

Situations	Attack zone						Correction key
	A		B		C		
	%	R	%	R	%	R	
Situation 01	0	0	85.71	6	14.29	0	A=01/B=03/C=02
Situation 02	0	2	71.43	5	0	0	A=02/B=03/C=01
Situation 03	0	0	57.14	4	42.86	3	A=01/B=03/C=02
Situation 04	0	0	71.43	5	28.57	2	A=01/B=03/C=02
Situation 05	0	0	57.14	4	42.86	3	A=01/B=03/C=02
Situation 06	0	0	85.71	6	14.29	1	A=01/B=03/C=02
Situation 07	0	0	42.86	3	57.14	4	A=01/B=02/C=03
Situation 08	0	0	85.71	6	14.29	1	A=01/B=03/C=02
Situation 09	28.57	2	71.43	5	0	0	A=02/B=03/C=01
Situation 10	0	0	57.14	4	42.86	3	A=01/B=03/C=02
Situation 11	57.14	4	28.57	2	14.29	1	A=03/B=01/C=02
Situation 12	0	0	71.43	5	28.57	2	A=01/B=03/C=02
Situation 13	0	0	71.43	5	14.29	1	A=02/B=03/C=01
Situation 14	71.43	5	28.57	2	0	0	A=03/B=02/C=01
Situation 15	-	-	-	-	-	-	-
Situation 16	-	-	-	-	-	-	-
Situation 17	-	-	-	-	-	-	-
Situation 18	-	-	-	-	-	-	-
Situation 19	-	-	-	-	-	-	-
Situation 20	-	-	-	-	-	-	-

Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

The tool was applied on the survey sample which was six players (two players from each club the same level of competition) on February 19th 2022 and repeating the process after 10 days, then extract reliability and validity coefficient through Pearson correlation coefficient

Studying the extraneous variables via calculating sample parity in terms of age, academic level and training period.

4.1 Calculating the main sample coherence and parity in terms of age, academic level and training period

Table 2. skewness and kurtosis coefficients

Variable	sample	Freedom score	Sig level	Skewness coefficient	Kurtosis coefficient	Parities coefficients limits	Result
age	20	n-1=13	0.05	+1.03	+0.46	-3/+3	equal
Academic level				-1.52	+0.93		equal
Training period				0.00	-1.18		equal

Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

We notice from the table above that Skewness coefficient for age, academic level and training period is (+1.03), (-1.52) and (0.00) respectively and Kurtosis coefficient is (+0.46), (+0.93) and (-1.18) respectively and confined between -3/+3. Thus, we achieve parity and coherence in the sample desired to apply the measurement tool on in terms of age, academic level and training period.

4.2 Scientific basis of the used tests:

4.2.1 reliability and validity: In order to investigate the validity and relying on the previous survey results, through applying the test and re-applying it on the same survey sample in 10-day interval, the following results were extracted and calculated for Pearson correlation coefficient of decision-making measurement which is (0.85) for answering degrees that were more than the values in the table is (0.75) extracted from values table on the freedom degree ($n = 5-1$) and significance level is (0.05), so the result was statistically significant which insures the tool stability. In order to extract the tool's validity, we rooted subjective validity value and we got (0.92) and so from that we can use the tool as it is shown on the following table:

Table 3. decision-making measuring tool validity and reliability through the survey

The tool	Survey sample number	Freedom degree	Significance level	R Tabular	Tool stability	Subjective validity	Statistical significance
Decision making	06	5	0.05	0.75	0.85	0.92	significant

Source : A. kheddoum, M. Larbi, K. Messaoudi 2022

From the previous table results we notice that (Pearson) correlation of the decision-making measurement is (0.85) for the answering degrees that was greater than tabular value which was (0.75) extracted from the table on the freedom degree ($n=5-1$) and significance level is (0.05). thus, the result was statistically significant which insures the tool stability. In order to extract the tool's validity, we rooted subjective validity value and we got (0.92) and so from that we can use the tool to measure the decision-making.

4.2.2 Objectivity: One of the main factors that should be included in decision-making measurement tool is to be impartial or intolerant and do not insert researcher's personal factors in the tool objectivity like his orientations or subjective whims. It means to describe one's capacities as it is not as we want it to be.

The two researchers tried to work on the research rationale objectively except in explaining how to use the application that was via giving instructions to the players in terms of recording and answering the situations except for this, the work was done objectively by virtue of that application does not give access to the researcher to control or direct the answers by any means whatsoever or modifying the tool results neither the scores nor in the answering time during and after the application.

In addition to that, we exposed five random videos without any arbitration to the main sample through the application as a first preview to apply the instruction to use the research original tool for the sake of mental and psychological preparation and test the website first to avoid mistakes in the website use either during the initial registration or during answering.

5. Application of the tool procedures:

The tool was applied on the sample members as follows:

- 1- Selecting the seized sample (eliminating the survey sample and Libero defense players).
- 2- Explaining how to use the application (registration, filling in the data, answering way, how to move to the next situation).
- 3- Calling the players individually.
- 4- Applying the application simulation of the main study tool via 05 random videos.

5.1 The application protocol:

- 1- The experimented player is sitting comfortably in front of the lab top in a quiet place in order to guarantee the lack attention and distraction and unifying the procedure circumstances.
- 2- Open the programmed application.
- 3- Choosing the sport type (volleyball) among the other presented sports (handball, football, basketball and volleyball).
- 4- Selecting the situation type (individual situations) from the two presented options (individual situations, collective situations).
- 5- Check in: this is through entering the personal information of the experimented player which include (full name/academic level/the club's name/ the competition level / age / training period / height / weight).
- 6- Starting the test.
- 7- Answering the situations (within 10 seconds for each situation).
- 8- Finishing and calling the next player.
- 9- Log in to the database with the user's name and a password of the researchers to inspect the app database and the sample results and download them and save them as xlsx Microsoft and PDF.

6. Analyzing and presenting the results:

6.1 Analyzing and presenting the first hypothesis results: the decision-making measuring tool of the volleyball players has a high stability coefficient.

Table 4. the tool stability coefficient through replication

	N	Arithmetic average	Standard deviation	R calculated	R Tabular	Significance level	sig	Freedom degree	Statistical significance
Applying tool 1	20	1.92	0.13	0,94**	0.503	0.05	0.000	19	significant
Applying tool 2		1.90	0.17						

From the previous table results we notice that the arithmetic average and the standard deviation to apply initial performance research sample was (0.13 ± 1.92) , however, applying the second performance was (0.17 ± 1.90) and by using Pearson correlation coefficient we found R calculated (0.94) which was bigger than R tabular this latter was (0.503) at the significance level (0.05) and freedom degree ($N - 1 = 19$), in addition to the significance level which was (0.000) smaller than the statistical significance level (0.05). Thus, there is a strong correlational relationship between the two tests.

The two researchers saw that the answers of volleyball players under consideration are static between the first and the second application of the decision-making measuring tool of the volleyball players and hence the reliability coefficient is high within the research sample applied on.

Table 5. the tool stability coefficient through replication

	N	Arithmetic average	Standard deviation	R calculated	R Tabular	Significance level	sig	Freedom degree	Statistical significance
Applying tool 1	20	1.80	0.20	0.85**	0.503	0.05	0.00**	19	significant
Equivalent image		1.75	0.25						

On the basis of the previous table results we see that arithmetic average and the standard deviation to apply initial performance research sample was (1.80 ± 0.20) , however, applying the equivalent image tool it was (1.75 ± 0.25) and by using Pearson correlation coefficient we found R calculated (0.85) which was bigger than R tabular this latter was (0.503) at the significance level (0.05) and freedom degree ($N - 1 = 19$), in addition to the significance level which was (0.000) smaller than the statistical significance level (0.05). thus, we prove that the reliability coefficient is high which was (0.85) within the research sample.

6.2 Present and analyze the second hypothesis's results:

decision-making measuring tool of volleyball players has a high degree of authenticity.

Table 6. the tool stability coefficient through replication

	N	Stability with re-applying	Stability with the successive equivalent image	authenticity		Level of significance	sig	Freedom degree	Statistical significance
decision-making tool	20	0,94**	0.85**	0.92	0.96	0.05	0.00	19	significant

On the basis of the previous table, we notice that the tool stability with re-application and Stability with the successive equivalent image methods is (0.94) and (0.85) respectively and by using authenticity calculation “authenticity = $\sqrt{\text{stability}}$ ” we found that the authenticity is approximately (0.92, 0.96) and hence we prove that the subjective authenticity level is high, within the research sample.

7. Discussing the results with hypotheses:

7.1 discussing the results related to the first hypothesis that provides for:

“decision-making measuring tool of volleyball players has a high level of stability”

Out of table (04) results, which clarifies the stability results by re-applying the tool we see that the arithmetic average and the standard deviation of the research sample to apply the first performance was (1.90 ± 0.17) and by using the Pearson correlation coefficient we found R calculated (0.94) which was bigger than R tabular this latter was (0.514) at the significance level (0.05) and freedom degree ($N - 1 = 13$), in addition to the significance level which was (0.000) smaller than the statistical significance level (0.05). thus, we deduce that there is a strong correlational relationship between the two tests. Hence the decision-making test of the volleyball players is characterized with high stability coefficient.

(El Rawi, Mekki Mahmoud Hussein, 2006) study which was entitled “structure of the tactical thinking measurement in the volleyball attacking third of football premium class clubs’ players” which ended up to an existence of tactical thinking stability measurement through calculating the correlation coefficient between applying and re-applying two weeks apart from the first date of application, the result was $R = 0.84$ which supports the hypothesis and the current study results because of the nature of the studied field “tactical thinking” which is linked to the player’s expertise and his back ground knowledge as it is mentioned in (Gusta, Gustavo De Conti Teixeira, 2018) study entitled “visual search and taking decision by volleyball trainers”

On the basis of this explanation and through studying the sample characteristics in terms of period of training, we attribute this result to the training period with arithmetic average of 6.5 years of the study sample which shows that the study sample has experience and tactical achievements in volleyball.

This study aligns with PhD thesis of (Hebbal Yacine, 2017) entitled “legalization Kettel intelligence test- the third measure” on the first- year secondary students which apply the re-application test and calculating the correlational coefficient to extract the stability coefficient which equals $R = 0.60$ for males and 0.52 for females for the whole sample at the statistical significance 0.01, we attribute the high level of stability of the tool to insulate the guessing assumption of the players during the application which affect the tool stability, this is via programming the application on the answering time which requires not exceeding 10 seconds to answer on one situation, in case the player exceeded the required time it will be counted 0

hence the answering time on situations by research sample with mean and standard deviation (3.32 ± 0.15) seconds.

So broad that the examined answers were exposed to coincidence factor and chance, which is called guessing factor that may lead to a decrease in stability coefficients, which results lack of resemblance in the examined answers between the first and the second application, thereby, the results' stability will be affected negatively this latter leads to a decrease in stability coefficients. (Hebbal Yacine, 2017, p109).

On the basis of the table (05) results which represents the tool stability with the successive equivalent image procedure, and starting from the following analysis results that the arithmetic average and the standard deviation of the research sample members to apply the initial performance was (1.92 ± 0.13) as for the second performance it was (1.90 ± 0.17) and by using Pearson correlation coefficient we found "R" calculated (0.85) which was higher than "R" tabular that was (0.514) at the level of significance (0.05) and level of freedom ($n-1=13$) in addition to the significance level which was (0.000) smaller than the statistical significance level (0.05). thus, we prove that the tool has a high level of stability 0.94.

These results contradict with the PhD thesis of (Hebbal Yacine, 2017) who used the same way to calculate the stability coefficient with the equivalent image and he concluded his research with two formats of Kettel intelligence test on males and female sample. The stability coefficients were ranged from (-0.02, 0.41) and (0.16, 0.17) successively, as he clarified in his study that the cause behind these results is the exhaustion of the examined players this is because he adopted the immediate equivalent image stability contrary to what we worked on in our study, since we apply the successive equivalent image for the sake of disappearance the effect of learning on the study sample, moreover maintaining the sample in a good state to apply the tool and avoid exhaustion and lack of concentration in responding.

The researchers attribute the high stability values of the designed decision-making tool to the high reliability of the tool (apparent and objective reliability) (look table 06). (Roaa Sadek Mohammed Akkam, 2014) has mentioned that every reliable test is inevitably static. However, we cannot say that every static test is necessarily reliable because the reliable test that really measures what is designed for so that its degree will express the real performance and the actual capacity of the individual as long as the reliable measurement expresses this function precisely. Hence, it is static simultaneously.

We can also attribute these results to the way we design the application (the tool) which includes similarity in test conditions in terms of videos quality presentation so that it attracts the examined attention in terms of the design and the new innovative way of measuring, thus

the examiner puts himself in a cognitive state that makes him think about the situation directly and automatically because the situations are prior occurrence or exposure either in the training sessions or competitive matches which makes him answering expressing his decision as a result of tactical thinking and his level.

7.2 discussing the results related to the second hypothesis:

“The decision-making measuring tool of volleyball players has a high level of reliability”.

Starting from the results of table (01) which represents the arbitrators agreement percentage on the decision-making measuring tool which represents 100 % on 14 videos “attack situation” out of 20 situations that expresses the whole percentage and the total agreement on the tool and the complete and high subjective reliability of the tool, these results agree with the study of (Dr. Ben Kowa Ali, Dr. Hedjar Mohammed Kherfan, Senoussi Abd El Karim, 2017). The descriptive study entitled “Designing skilled test designed to measure the complex skilled performance of football players junior which aims to legalize a complex test designed to measure the skilled performance of juniors according to principles and tests designing phases, and identifying the scientific basis of the designed test, and detect reliability and stability values that ended up to the existence of a high apparent stability value after a total agreement by the arbitrators that the test can measure the complex skilled performance of football players junior and this is after calculating Chi-square value which is 10 bigger than the tabular value (6.63, 3.83) at error rate (0.05, 0.01) respectively.

It also agrees with the study of (Ben Haffef Soumia, 2017) entitled “building psychological directions measurement towards practicing elite sport addressed to select sport classes students and study its efficiency on minor football players in sports academies” that aims to design a measurement that has psychometric significance (reliability and stability) addressed to detect directions towards practicing elite sport, and she concluded her study with the existence of an apparent reliability of the measurement after exposing it to 19 specialists from her field of study.

This study also aligns with the study of (Hannan Debbar, 2017) entitled “Building a tool to measure test anxiety of secondary students, which aims to build a measurement that examines test anxiety level of third year secondary students and extract the psychometric characteristics of the measurement; as a result, my current study kept up with hers in terms of arbitrators’ honesty (they were 08 out of 13) 80 % as an agreement percentage on measuring the research phenomenon.

The researchers attribute the study results to the nature of the tool situations which were directly projected on the game characteristics, therefore, assessing the apparent reliability

requires logical evidences more than statistical ones, so that it is revised and selected accurately in which it guarantees the requirements and the characteristics of the studied phenomenon “the decision-making”.

Starting from the results of table 07, we notice that the stability of the tool with re-application and the equivalent successive image methods of the study sample are (0.94) and (0.85) respectively and by using the reliability calculation we find that the reliability is ranging from (0.92, 0.96); consequently, we prove the high subjective reliability degree.

This study aligns with the study of (El Rawi, Mahmoud Mekki Hussein, 2006) entitled “Building the measurement of the tactical thinking in the attacking third of football excellent clubs’ so that the result of his study was the existence of high subjective reliability (0.91).

In addition to the study of (Ben Haffef Soumia 2017) which concluded in her study to accept her second hypothesis which aims to investigate the measure psychometric. The results were statistically significant which is equal to 0.88 by calculating the square root of the stability coefficient with mid-term fragmentation, and 0.91 through calculating the square root of the stability coefficient alpha Krumbach.

8. Conclusion:

The field of designing sports measuring tools is a fertile domain that requires further research and dig deeper and specialization due to its importance in supporting the sports training process, since this process requires data and information as a source to make training programs and as a result of presenting it.

The study was aiming to current research in order to make an decision-making measuring tool using an application for senior volleyball players of El Baydh, Algeria. The study starts from series of questions about the scientific ballast of the tool (reliability and validity) reaching the results that prove the tool psychometric.

Finally, the researchers recommended to seek to use the suggested tool in order to determine the decision-making level of different clubs and teams, and strive to improve it either by adding videos and new situations from various playing positions. Why not going to another phase of other kinds of sports.

9. Suggestions:

- The ability to use the executive decision-making measurement (attack tactical situations) by volleyball trainers in order to know degrees and their players’ attack levels.
- Make sure to improve volleyball players’ experience by theoretical and practical training, the background that the player has and the explanation and the analysis of the

tactical situations and assimilating them theoretically and apply it practically which contribute in giving players experiences and good tactical knowledge which qualify them to play successfully.

- Making a regional or national website or an application includes overall database of the activist players in different levels and sports. It also includes personal information and sporting tests results in order to facilitate and unify the database source of the scientific research in the sports field.

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