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**DESIGN AND STANDARDIZATION OF A COMPUTER PROGRAM TO MEASURE
ATTENTION CONCENTRATION AND REACTION SPEED OF WHEELCHAIR
BASKETBALL PLAYERS**

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Abstract

The performance of the basketball game at the present time requires a lot of distinctive motor duties for the individual and collective performance of the players, and because of the extreme accuracy of this game in the use of plans and skills by coaches in order to develop methods of playing, all of these have necessarily imposed that changing the means of numbers of basketball players in proportion to With the speed of performance during the match, as well as making appropriate decisions to the requirements and changing situations that occur on the field.

The problem of the research lies in that the problems facing specialists in the training process is how to measure mental abilities and give them digital values that help the specialist to employ them, and the lack of accurate objective tests that depend on measuring them on electronic devices, as well as “that if these tests are found, they do not have standards The coach was able to assess the player's immediate condition. In addition, the process of giving a value to the mental process is an important process that helps the coach to choose the player during the match and the nature of the competition.

抽象的

目前篮球比赛的表现需要球员的个人和集体表现有很多独特的运动职责，并且由于这种比赛在教练员使用计划和技能以制定方法方面极其准确在比赛中，所有这些都必然要求根据比赛中的表现速度成比例地改变篮球运动员人数的手段，以及根据场上发生的要求和变化的情况做出适当的决定。

研究的问题在于，专家在培训过程中面临的问题是如何测量心理能力并赋予他们数字值以帮助专家使用它们，缺乏依赖于在电子设备上进行测量的准确客观的测试。 ，以及“如果发现

这些测试，他们没有标准教练能够评估球员的即时状况。此外，给心理过程赋予价值的过程是帮助教练在比赛中选择球员和比赛性质的重要过程。

Study objective:

- 1- Designing a computer program to measure attention concentration and reaction speed of wheelchair basketball players
- 2- Finding standards (grades and levels) for the designed program.

Fields of study: It included the human sphere, namely basketball players on wheelchairs, and the temporal domain of the sports season (2020-2021) was determined, while the temporal domain was the period from 5/3/2021 to 20/4/2021, and the spatial domain was the closed hall of the club free sports.

Research Methodology and Procedures: The researchers used the descriptive survey method for its suitability and the nature of the study problem. The research sample was represented by basketball players on wheelchairs, and the size of the current study amounted to (49) players, which constituted a percentage of (37.98) of the total research community of (129) player.

The researchers concluded:

- 1- Designing a computer program to measure attention concentration and reaction speed of wheelchair basketball players
- 2- Finding the criteria (degrees and levels) for the designed program.

Introduction and importance of the research:

The development in all areas of life made sports in general and physical educations in particular have a special, prominent and important place in the lives of nations. This development made

physical education linked to other sciences such as biomechanical psychology, physiology and other sciences.

The science of sports training is one of the modern sciences, which aims to reach the individual to achieve high sports achievements. And motor learning has a clear impact on human life in general and for sports in particular. Sports training and motor learning aim to achieve high sports achievements. Through sports training, the athlete obtains a set of physical, skill, and tactical exercises as well as psychological, which are linked to each other to reach a great degree in Mastering the type of game, and among these games is the basketball game, which is considered one of the games that have its basic principles and which basically depend and are based on proper planning through the link between training and kinesthetic learning, which is one of the modern methods of various coaches, including basketball coaches, where physical exercises are linked to technical skills, especially exercises Which improves the accuracy of scoring by developing some physical attributes, and these attributes are strength and speed.

Where the mental processes in general and the process of focusing attention and speed of reaction in particular are of great importance and specificity in performing the basic skills in basketball, especially the skill of scoring, which is one of the important skills that all players seek to master, as the individual and collective effort during the match and the positive result is what It is the result of achieving the desired goal.

Since scoring is of clear importance, continuous training is required in order for the player to be able to finish the attack in the correct

way and score the largest possible number of points during the match.

The importance of research in designing a computer program to measure attention concentration and reaction speed of basketball players, from this clean entrance a new study of studies and research that deals with the use of modern and advanced techniques in measuring mental processes.

Research problem

The performance of the basketball game at the present time requires a lot of distinctive motor duties for the individual and collective performance of the players, and because of the extreme accuracy of this game in the use of plans and skills by coaches in order to develop methods of playing, all of these have necessarily imposed that changing the means of numbers of basketball players in proportion to With the speed of performance during the match, as well as making appropriate decisions to the requirements and changing situations that occur on the field.

The problem of the research lies in that the problems facing specialists in the training process is how to measure mental abilities and give them digital values that help the specialist to employ them, and the lack of accurate objective tests that depend on measuring them on electronic devices. The coach was able to assess the player's immediate condition. In addition, the process of giving a value to the mental process is an important process that helps the coach to choose the player during the match and the nature of the competition.

Research aims

- 1- Design a computer program to measure attention concentration and reaction speed of wheelchair basketball players.

- 2- Finding criteria (grades and levels) for the designed program.

Research areas

- 1- The human field: basketball players on wheelchairs, and the temporal field is determined for the sports season (2020-2021).
- 2- Time domain: the period from 3/5/2021 to 04/20/2021.
- 3- Spatial area: the closed hall of Al-Hur Sports Club

Research Methodology and Procedures:

Research method used:

The researchers used the descriptive approach in the survey method for its suitability and the nature of the study problem.

The research sample

The research sample consisted of wheelchair basketball players and the size of the current study was (49) players, which constituted a percentage of (37.98) out of the total research community of 129 players.

Table (1) shows the preparation and details of the research sample on which the tests were conducted

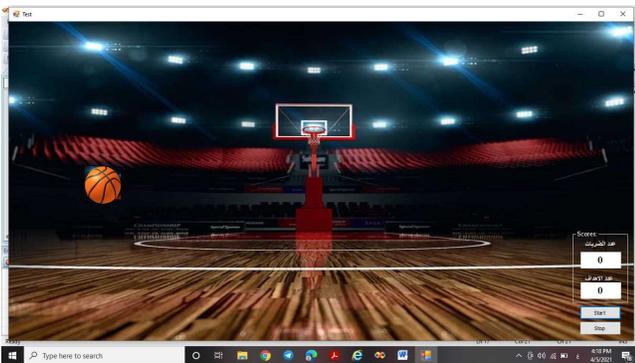
Sample details	original search	A sample to confirm the scientific bases of the tests		rationing sample		The grand total of the sample	
		honesty	constancy	number	ratio	number	ratio
Effectiveness	community						
Basketball players (in wheelchairs)	129	6	6	49	%37.98	55	%42.63

Research tools

- 1- Laptop computers:
- 2- HP PAVILION type. Korean origin. Specifications: (RAM 4.00G-3000 CORI PINTUM IV).
- 3- A Lenovo computer (RAM 8.00G - 3000 CORI PINTUM IIV).
- 4- Computer Dell INSPIRON N5110 (Intel® core™ i5-2450M, RAM 4.00G).

System design

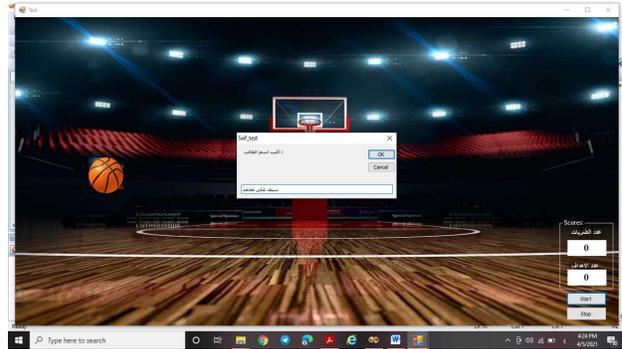
The program performs a test of the focus of attention and the speed of reaction of any category in general. The program is a screen in which an image of a ball appears in random places on the screen in a specific period of time, and the tester has to click on it with the left mouse button in order to score a point and not lose the target. One of the features of the program is that the coach has the ability to control the time period that represents the speed of the ball appearing on the screen from a second or more, according to what the coach deems appropriate the interface is as follows:



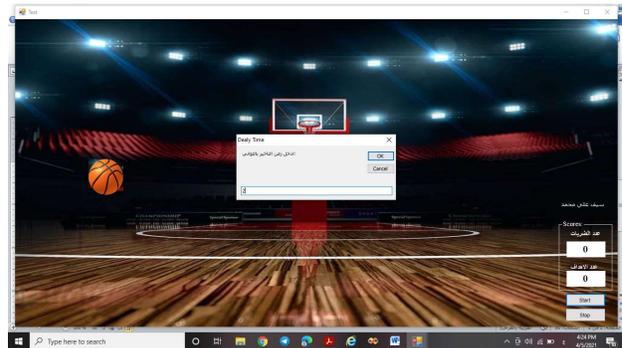
Program work steps:

When you click on the program icon, the main window opens for it in the form above, consisting of several buttons, including Start and used to start the test and the other stop to stop the test. When you click on the Start button, a pop-up window appears (input box) asking the user to

write the name of the examined person, which will then appear on the test screen, as shown in the following figure:



After writing the name and clicking on the (OK) button, the name of the laboratory is written on the interface, then another window appears (input box) asking for the time and this time, as mentioned above, represents the time period during which the location of the image on the screen changes for the laboratory to track, as in the figure below:



When the time period is specified, which is determined by the trainer himself or the tester according to the nature of the test, the (OK) button is clicked, after which the test begins with the following steps:

- ✓ The image appears in a random place on the screen and the number 1 is added to the number of strokes.
- ✓ If the tester succeeds by clicking on the image with the left mouse button, point 1 is added to the number of targets, and the data appears on the screen during the training.

- ✓ The timer continues to show the image according to an equation to generate numbers (random locations) for the image to appear, and the tester must click on it and not lose points.
- ✓ To stop the test and calculate the final result, click on the Stop button at the bottom of the screen to stop the test.
- ✓ The screen appears in its final form containing the name of the laboratory, the number of strikes and the number of targets, as shown in the following figure:



Program Advantages

The designed program is a simplified and flexible idea to measure the attention, concentration and reaction speed of the people examined, and it can be controlled to include different age groups due to the ability to control time, simplicity in design, and accuracy in results. The method of calculating the degree of concentration of attention is done by determining the time of the test and the time of the appearance of the ball, measured in seconds, and the test of the reaction speed by determining the time of the test and the duration of the appearance of the ball, and the number of final rounds is calculated for each player.

The main experience:

The researchers applied the computer program to the research sample, which are wheelchair basketball players for the 2020-2021 season, during the period from 3/15/2021 to 4/15/2021. Statistical means:

The researchers used the Statistical Bag 2021 Edition.

Presentation and discussion of the results:

Table (2) shows the statistical description of the research variables

No	statistics	measuring unit	Arithmetic mean	standard deviation	standard error	highest score	lowest	degree
	Variables							
1	focus attention	Sec.	66.5	3.21	0.45	80	55	66.5
2	reaction speed	number of scores	51.5	3.55	0.51	60	45	51.5

Table (3) shows the raw scores and standard scores by sequential method of attention concentration test (constant value = 0.321)

Degrees							
normative	raw	normative	raw	normative	raw	normative	raw
58.154	76	66.179	51	74.204	26	82.229	1
57.833	77	65.858	52	73.883	27	81.908	2
57.512	78	65.537	53	73.562	28	81.587	3
57.191	79	65.216	54	73.241	29	81.266	4
56.87	80	64.895	55	72.92	30	80.945	5
56.549	81	64.574	56	72.599	31	80.624	6
56.228	82	64.253	57	72.278	32	80.303	7
55.907	83	63.932	58	71.957	33	79.982	8
55.586	84	63.611	59	71.636	34	79.661	9
55.265	85	63.29	60	71.315	35	79.34	10
54.944	86	62.969	61	70.994	36	79.019	11
54.623	87	62.648	62	70.673	37	78.698	12

54.302	88	62.327	63	70.352	38	78.377	13
53.981	89	62.006	64	70.031	39	78.056	14
53.66	90	61.685	65	69.71	40	77.735	15
53.339	91	61.364	66	69.389	41	77.414	16
53.018	92	61.043	67	69.068	42	77.093	17
52.697	93	60.722	68	68.747	43	76.772	18
52.376	94	60.401	69	68.426	44	76.451	19
52.055	95	60.08	70	68.105	45	76.13	20
51.734	96	59.759	71	67.784	46	75.809	21
51.413	97	59.438	72	67.463	47	75.488	22
51.092	98	59.117	73	67.142	48	75.167	23
50.771	99	58.796	74	66.821	49	74.846	24
50.45	100	58.475	75	66.5	50	74.525	25

Table (4) shows the standard levels and the percentages assigned to them in the normal distribution curve, the raw scores, the modified standard scores, the number of players and the percentages for each level in the attention concentration test.

Standard levels and their proportions in the normal distribution curve	raw scores	Standard grades modified by sequence method	Number of Players	Percentages
weak (4.86)	-76.13 and below	1 – 20	—	—
acceptable (24.52)	75.809-69.71	21 – 40	9	%18.36
Medium (40.96)	69.389-63.29	41 – 60	32	%65.30
Good (24.52)	62.969-56.37	61 – 80	8	%16.32
very good (4.86)	-56,549 and over	81 – 100	—	—

Table (5) shows the raw scores and standard scores by sequential method for the reaction speed test (constant value = 0.355))

Degrees							
normat ive	ra w	normat ive	ra w	normat ive	ra w	normat ive	ra w
60.73	76	51.855	51	42.98	26	34.105	1
61.085	77	52.21	52	43.335	27	34.46	2
61.44	78	52.565	53	43.69	28	34.815	3
61.795	79	52.92	54	44.045	29	35.17	4
62.15	80	53.275	55	44.4	30	35.525	5
62.505	81	53.63	56	44.755	31	35.88	6
62.86	82	53.985	57	45.11	32	36.235	7
63.215	83	54.34	58	45.465	33	36.59	8
63.57	84	54.695	59	45.82	34	36.945	9
63.925	85	55.05	60	46.175	35	37.3	10
64.28	86	55.405	61	46.53	36	37.655	11
64.635	87	55.76	62	46.885	37	38.01	12
64.99	88	56.115	63	47.24	38	38.365	13
65.345	89	56.47	64	47.595	39	38.72	14
65.7	90	56.825	65	47.95	40	39.075	15
66.055	91	57.18	66	48.305	41	39.43	16
66.41	92	57.535	67	48.66	42	39.785	17
66.765	93	57.89	68	49.015	43	40.14	18
67.12	94	58.245	69	49.37	44	40.495	19
67.475	95	58.6	70	49.725	45	40.85	20
67.83	96	58.955	71	50.08	46	41.205	21
68.185	97	59.31	72	50.435	47	41.56	22
68.54	98	59.665	73	50.79	48	41.915	23
68.895	99	60.02	74	51.145	49	42.27	24
69.25	100	60.375	75	51.5	50	42.625	25

Table (5) shows the standard levels and the percentages assigned to them in the normal distribution curve, the raw scores, the modified

standard scores, the number of players and the percentages for each level in the reaction speed test

Standard levels and their proportions in the normal distribution curve	raw scores	Standard grades modified by sequence method	Number of Players	Percentages
weak (4.86)	and below - 40.85	20 – 1	—	—
acceptable (24.52)	41.205- 47.95	40 – 21	9	%18.36
Medium (40.96)	48.305- 55.05	60 – 41	32	%65.30
Good (24.52)	55.405- 62.15	80 – 61	8	%16.32
very good (4.86)	- 62.505 and over	100 – 81	—	—

Researcher Wen believes that the process of attention and reaction speed is based on the most obvious and highest intensity characteristics and neglects the rest of the characteristics related to stimuli not related to performance, and that the increase in the amount of similarity between the target stimulus and other similar and non-conforming stimuli causes them to be classified and selected as matching, which leads to a generalization This leads to selection errors and inaccuracies.

The reason for this is that prediction in the field of basketball works to anticipate the levels of play and the progress of the players resulting from the training process, which are at different levels of intensity and cognitive load, as well as determining the quality of determinants of the cognitive burden that must be relied upon and

included when training and the determinants of skill, technical and technical performance associated with The training process and tracks the extent of development in training and the level of benefit from training programs in close periods to reach the required level .Basketball is characterized as a sporting activity characterized by the diversity of motor performance and its multiplicity and the presence of different skills such as moving the ball with the drum, holding the ball, handling between players, peaceful scoring and how to perform those skills and moving from one skill to another as required by setting the game and mastering the performance to hit the goal, score points and defend the basket against The opponent and all these skills are closely related to the skill of the players and their mastery of basic skills and their ability to achieve various achievements on the field, which are reinforced by training.

The Wen scholar Wen said what affects and determines the outcome of basketball games is the large number of successful corrections achieved in the opposing team's basket and the ability of defenders to thwart the attacks, so the researcher sees Wen as the players and coaches spend a long time in training on different individual skills Kalmhaorh scrolling and other skills It will create appropriate opportunities for a healthy shooting process that ends with scoring goals in the opponent's basket, training in repelling attacks, and a quick transition from a defense position to an attack to keep the danger away from the team's basket and protect it.

Agree researcher Wen with Watha (Khaled Mahmoud, 1991) as the basic principle and the most important among the other basic skills as the result of the game combine a number of successful corrections that were acquired one of the two teams in the team basket opponent (1).

Researcher Wen also believes that coaches must intensively train their players to master this skill because of its importance among the offensive skills in basketball, and all players alike should rehearse it regardless of the player's height. Falls in the offense of walking as it enables him to search for an opportunity and an appropriate angle to score. The drum is in second place of importance after the skill of handling and is necessary for the players and works as an effective tool in moving towards the opponent's basket by following a specific tactic process for a quick attack as well as its importance in changing places and getting rid of defensive pressure and moving or handling during the drum to create better opportunities for the team.

This is what the researcher agrees and n with Resan Kahribt (1990) that (clapotement create the best conditions for correction and to overcome the difficult conditions as they help to gain time by extension) (2).

J Izzo n researcher Wen reason for the differences and variation in the sample results to the great importance of mental processes and plays a very significant role and at different stages of life in general and the stage of primary school , in particular , where you see the researcher that the most important mental processes affecting is the attention which is one of the optional processes of mental Attention is a process through which internal and external sensory stimuli are selected, through which a particular situation is treated or a particular situation is dealt with without others. Listening and looking at the mobile phone or unintentionally when paying attention to the doorbell, and as the researcher believes that the process of attention can become an unconscious process if the process of selection for certain stimuli or situations are intensively trained.

And the consistent researcher Wen with what he referred to both (Mahmoud Abdel - Halim forgotten Afaf Mohamed Abdel - Moneim) (3), as confirmed by (Adnan Youssef Al-Atoum) (4).

That attention to a stimulus goes through several stages, starting with its detection by one or some of the senses, such as sight or hearing, and then enters the stage of identifying the nature of the stimulus based on previous experiences, memory and guesswork for the corresponding treatment.

As the attribution of n researcher Wen reason for the difference and contrast that the selection of sexy particular process is subject to several classifications either by visual memory, which includes naming the different processes and the order of which is true or false "depending on the experience of knowledge of the individual and intuition or guesswork sometimes, has been classified depending on visual analysis Which may be (early or late), meaning that the response is done early and also depending on the ability of individuals or if the stimulus or event appears using prediction or the validity of this stimulus for a particular situation, or the selection time is late as the individual waits for the completion of the event or obtaining sensory information or more knowledge about the stimulus before selecting it for the purpose of obtaining a correct selection, and also depends on visual discrimination in terms of matching and classification processes.

As and the attribution of n researcher wen differences in the level of answers for several reasons, including that the level of motivation for the continuation of operations of cognition and attention was uneven among students, as it did not appear more students desire and interest in "great in achieving answers best for response speed compared to the health response is due this

possibility to Age and experience factor in this category.

As the irrigation researcher Wen also precision element in the answers plays the role of a great in the processing Olantbaha of visual perception that may be caused by many different factors ,these factors are psychological and physical owned by the individual because of their family environment in which they grew up where the pupils, as well as the school environment ,especially since category tested is a class stage age of primary as the nature of the senses have to grow in terms of motivation and precision developed and this indicates increased efficiency have in relative terms and the ability to recognize visuals and Mahsusat, and my consistent researcher Wen with what referred to by Qasim Hassan Hussein and Iman Shaker.

The first two sources of accuracy are the sense of space (place) and the second is the sense of time, and the eye is the main source for receiving information from the brain, the spatio-temporal relays, in a precise order of performance, "explains (5).

The researcher in origin also said that attention resources have a significant role in influencing performance results in visual perception, and that the tasks of increasing the burden of cognitive target stimuli that were introduced in the test led to the discrepancy in the answers that emerged from the relevant results.

The researcher is consistent on this with Trisman & Gelade (6). Intentional treatments are sensitive to the effect of scale.

Researcher Wen also agreed with the sources of optimism that "resources greatly influence the occurrence of selection. When the goal is to choose one stimulus (the target stimulus), the attention demands must be greater than the requirements for the rest of the stimuli (distracted

stimuli) and thus the success of the selection process (7).

The researcher in the field of irrigation also stressed that giving great consideration to the factors that give the chosen one information about the nature of the test that occurs during the performance test process, as well as the information to be made during the test movements is an effective tool that allows the inclusion of a wide range of stimuli at one time, for example When the student leads the picture test puzzles, he must observe the pictures accurately and take the position of his answer corresponding to the question at the same time, and then the student's ability to make the right decisions and the end result is the success of the response process. With him and make the right decision to put the test.

Researcher Wen agrees with what Mahmoud Abdel-Fattah referred to, "the force leadership to consider an important and effective role and to realize the various kinetic issues through which the information is transmitted to the brain, which it works to translate with orders." It directs specific muscles at the appropriate timing according to each performance situation (11).

The researcher in Al-Rayun also pointed out the important and effective role of the process of receiving information that constitutes the basic base of the guiding attic movement, where the guidance process is implemented by an integrated system of mental processes, which analyzes different situations, an appropriate form of the test designer's response position, which in turn plays a great and effective impact on cognition. Rapid attitude to any understanding of the test lab information process received by looking forward to create a dynamic response.

As the researcher in the field of irrigation, Wayne, said, the process of perception is closely

related to the process of sensation because there can be perception without feeling the fact that sensation is the process by which information is presented about stimuli, but it is possible that there is a sensation without realizing, on For example, when we hear something or see something and cannot know it or find an explanation for it.

Researcher Wayne agrees with what Mufti Ibrahim Hammad pointed out, "It includes the usual perception of information by the senses with information in the interaction of memory (8).

Conclusions and Recommendations:

Conclusions:

- 1- Designing a computer program to measure attention concentration and reaction speed of wheelchair basketball players
- 2- Finding the criteria (grades and levels) for the designed program.

Recommendations:

1. Researchers recommend expanding scientific studies and developing various tests to measure mental processes.
2. The researchers recommend that all mental tests be conducted for all members of the research sample or other samples.
3. Interest in studying new variables affecting the attention of players, especially psychological variables.

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Supplement (1)

It clarifies the names of the experts and specialists about the validity of the tests used

No	The name	The scientific title	Effiliations	Specialization
1	Mustafa Abdel Rahman Mohamed	Prof. Dr.	College of Physical Education/University of Basra	Tests
2	Rahim Attia Jannati	Prof. Dr.	College of Physical Education/University of Misan	Tests
3	Kamal Yassin Latif	Assistant Prof. Dr.	College of Physical Education/University of Misan	Training
4	Mustafa Abdel-Zahra Abboud	Assistant Prof. Dr.	College of Physical Education/University of Misan	Tests