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Skill performance in relation to attention focus and response speed in futsal for female students

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Abstract

The research aims to predict skill performance based on two cognitive variables: attention focus and response speed in futsal for female students. The researcher used a descriptive approach with survey methods and correlational and predictive relationships. The research population consisted of fourth-year students from the College of Physical Education and Sports Sciences at the University of Babylon for the academic year 2022-2023, totalling 38 students. The researcher selected all of them to represent the research sample; subsequently, tests for cognitive processes were conducted at the University of Babylon using an electronic device (Saeed-Haitham device). Skill performance tests (passing, dribbling, shooting) in futsal were also conducted. The Statistical Package for Social Sciences (SPSS) version 24 was used for statistical analysis to process the results. Among the findings of the research was the derivation of a predictive equation for skill performance in futsal based on cognitive processes (attention focus, response speed) among female students. The recommendations from the research emphasized the necessity of focusing on higher cognitive processes during the learning and performance of futsal skills across different age groups, including both genders, particularly female students, as these processes help to define specific movement pathways for performance based on the nature of the skills.

Keywords: Attention focus; response speed; futsal; female students.

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1. Research Introduction

1-1. Introduction

In order to achieve the best results in various sports competitions, including futsal, it is essential to predict the nature of skill performance. Prediction is one of the objectives of sports psychology, allowing us to understand the nature of performance in the future.

Due to continuous development and modern technology, which are fundamental in various sports sciences, it possesses unique methods, techniques, and advanced theories. Particularly, the higher cognitive processes such as (attention focus and reaction speed) have enabled sports to make significant progress and development. This progress did not occur without planning or by chance, but rather as a result of genuine, logical, and advanced studies conducted by the researcher, in addition to the diligent efforts of those involved in sports activities, including teachers and coaches.

Futsal is characterized by its diverse situations and rapid skill performance during matches. There can be overlaps in many skill situations while performing complex skills, which requires mental presence to determine the best and most optimal approach to execute the skill tasks.

We all know the significant role that higher cognitive processes play, particularly attention focus and response speed, which cannot be overlooked in the performance of skills in futsal. This is especially true when dealing with female players, as these processes are a crucial factor in controlling various forms of behavior. Any motor or cognitive activity cannot be performed without them. Each duty or task in futsal during play requires one or more of the important cognitive abilities. These abilities are essential for futsal practitioners, acquired through interaction with learning, training, and competitive conditions.

One of the important technical aspects for female students is skill abilities, without which the distinctive character of the practised sports activity would not emerge. Futsal is characterized by diversity and distinction in its fundamental skills. It is noticeable that the level of performance has significantly increased, aligning with the development of playing methods or styles.

Futsal requires numerous scientific studies that contribute to understanding the actual reality in order to predict skill performance through certain cognitive abilities, in addition to charting a specific path for each variable individually. The research problem is defined by the following question:

• Is there a correlation between skill performance and higher cognitive processes (attention focus and response speed) in futsal for female students?

• Is it possible to find a predictive equation for the skill performance in futsal based on higher cognitive processes, including (attention focus and response speed) for female students?

1-2 Research Objectives:

• To identify the nature of the relationship between higher cognitive processes (attention focus and response speed) and skill performance in futsal for female students.

• To find a predictive equation for skill performance based on attention focus and response speed in futsal for female students.

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2. Research Methodology and Field Procedures:

2-1 Research Methodology:

The researcher used the descriptive methodology with a survey approach and correlational and predictive relationships.

2-2 Research Community and Sample:

The research community consisted of fourth-year female students in the College of Physical Education and Sports Sciences at the University of Babylon for the academic year 2023-2024, totaling (38) students, all of whom were chosen to represent the research sample.

2-3 Selection of the Mental Process Testing Device:

The researcher selected the (Saeed - Haitham) device, which is designed to measure mental processes in futsal and assess (field intelligence, attention concentration, response speed). It is an accurate electronic device with specific scientific specifications that mimic the nature of performance and testing of mental processes.

1-2-3 Attention Concentration Test:

It consists of the appearance of a light flash, which serves as a stimulus for the subject; a diagonal right flash means kicking to the right, a diagonal left flash means kicking to the left, and a straight flash in the form of a square means kicking in the middle during a maximum time of (3 seconds). Each student has (3 attempts), and after completing any attempt at the attention concentration test, it is measured by the correctness or incorrectness of the attention concentration test. A successful attempt at attention concentration shows the word GREAT and is recorded with a time, while an incorrect attempt is automatically disregarded by the device (ignored) and does not have a time indicating the students' performance on the attention concentration test on the designed device.

2-2-3: Motor response speed test:

Measure the time between when the stimulus appears (the light flash) and the speed of the student's kicking in the kicking zones within a maximum of three seconds. Each student has three attempts. In the case that the infrared path is interrupted. During kicking, the sensors work and send a signal to the microcontroller (Arduino) indicating if the effort was correct or incorrect. Therefore, the right attempt and time acquired are saved.

2-4 Skill Performance Tests in Futsal:

The skill performance tests in futsal were determined based on the curriculum, which includes (passing, dribbling, shooting).

First Test: Passing Accuracy: (Assad: 2015, 145)

- Test Name: Passing along the sideline in (4) seconds:
- Purpose of the test: To measure passing accuracy.
- Tools used: 5 futsal balls, whistle, stopwatch, measuring tape, 12 markers, adhesive tape.
- Performance Description: The tester stands behind the sideline and places the ball on a mark indicating where to pass the ball. In front of this mark, there are (3) stations, each station consists of (4) markers, two large ones with a height of (60 cm) and two small ones with a height of (40 cm). The distance between the large markers is (1.5 m), while the distance between the small markers and the large ones is (0.5 m). The distance between the first and third stations and the passing mark is (6 m), as shown

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in the figure below. The tester is given a command, for example, (1) or (2) or (3), and within (4) seconds, the tester must pass the ball to the required station, noting that the command is not sequential but random.

- Test Instructions:
- The attempt is considered unsuccessful if it exceeds (4) seconds.
- If the ball touches the marker and enters the station, the score is counted based on its entry.
- No score is given to the tester if the ball rises above the markers.
- The tester is given (5) attempts.
- If the ball enters between the large markers, the tester receives (1) point, and if the ball enters between a large and a small marker, (2) points are awarded, and no points are given if the ball does not enter between the markers.
- Scoring: The number of points obtained by the tester in (5) attempts is counted, knowing that the final score for the test is (10) points.

Second Test: Dribbling Test: (Mohsen, Naji: 1980, 29)

- Test Name: Opponent's Dribbling to Reach the Goal.
- Purpose of the Test: To measure the player's dribbling proficiency.
- Tools Used: Soccer ball, adhesive tape, soccer goal.
- Performance Description: The tester stands in front of the penalty area with the ball, and the opposing player stands on the penalty area line. The tester advances by rolling the ball toward the goal to score, while the opposing player attempts to obstruct and prevent the goal, trying to gain possession of the ball or clear it away from the tester.
- Scoring: If the tester legally passes the defender and scores, he receives two points. If the defender touches the ball but it remains in the tester's possession and he scores, he receives one point. If the ball is taken away by the defender, no points are awarded. The tester is given three attempts, and the best attempt is recorded.

Third Test: Shooting Accuracy: (Ahmed: 2013, 74-75)

- Test Name: Shooting at a Goal Divided into Numbered Squares from Both Sides.
- Purpose of the Test: To measure shooting accuracy toward the goal.
- Tools Used: Five futsal balls, tape to designate the shooting area for the test, futsal goal, futsal field.
- Performance Description: Five balls are placed in different specified locations at a distance of 6 meters from the goal. The tester shoots at the indicated areas in the test according to their importance and difficulty, sequentially one after the other, with a distance of 50 cm between each ball.
- Test instructions: The test starts with ball number (1) and ends with ball number (5).
- Scoring: The number of hits that enter the goals or touch their sides is calculated as follows:

- (4) points for scoring in area number (4).
- (3) points for scoring in area number (3).
- (2) points for scoring in area number (2).
- (1) point for scoring in area number (1).
- (0) points for being outside the goal boundaries.

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- The test taker is given one attempt.

2-5 Pilot study:

The pilot study was conducted on a sample of the research community consisting of (4) female students on Thursday, January 6, 2023, in the sports hall of the College of Physical Education and Sports Science at the University of Babylon.

2-6 Main study:

The tests related to mental processes (attention, concentration, and response speed) and skill performance in futsal were applied to a sample of (38) female students from the fourth stage at the College of Physical Education and Sports Science at the University of Babylon in the sports hall over two days, January 16-17, 2023.

2-7 Statistical methods:

The Statistical Package for the Social Sciences (SPSS) version (24) was used for statistical methods to process the results.

3 - Presentation, Analysis, and Discussion of Results:

3-1 Presentation and Analysis of the Means and Standard Deviations of Variables:

Table (1) Values of Means, Standard Deviations, Median, and Skewness of Variables

No.	Variables	unit scaling	Arithmetic mean	Standard deviation	mediator	Torsion coefficient
1	Attention concentration	**degree**	1.921	0.818	2	0.150
2	Responsiveness	**second**	2.091	0.082	2.075	0.628
3	Scroll	degree	5.737	1.639	6	-0.252
4	Shuffle	degree	1.184	0.766	1	-0.332

From the data in Table 1, the values of the arithmetic means, standard deviations, medians, and skewness coefficients for the variables identified by the researcher in the current study are presented. The standard deviation values for the variables, after applying the tests and processing the results, were less than their averages. This indicates that the goal of this procedure was achieved, which is to ensure the integrity of the relationship and to verify the nature of the normal distribution of the research sample. The curved or non-linear correlation indicates the presence of areas with different levels or degrees of correlation between the distributions of two variables. Thus, a linear correlation does not accurately express the true variance, as the results would be inconsistent. When the standard deviation is greater than or equal to the mean, we must examine the integrity of the relationship between the two variables (Faraj, 1980, p. 70).

The table also indicated that all values were under the normal distribution curve. The skewness values reflected the normal distribution of the sample individuals for each variable. The variables were normally distributed as the skewness values were confined within ±1. This means we can assess the normality of the distribution and its symmetry, confirming that

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there is no skewness to the right or left. This further affirms that there is no dispersion of the data concerning the investigated variables.

3-2 Correlational Relationship Between Attention Concentration and Response Speed in Skill Performance

Table 2 shows the obtained correlational relationships between attention concentration and response speed in skill performance

Table (2) Correlation Coefficient Between Mental Variables and Skill Performance

No	Variables	Passing		Dribbling		Scoring	
		Correlation coefficient	Level of significance	Correlation coefficient	Level of significance	Correlation coefficient	Level of significance
1	Attention concentration	0.912	0.000	0.610	0.000	0.473	0.003
2	Responsiveness	0,786	0,000	0,876	0,000	0,643	0,001

Table 2 shows the correlation values between attention concentration, response speed, and skill performance (passing, dribbling, shooting) in futsal for female students. All correlations were significant, as the level of significance was less than 0.05.

Returning to the same table and noting the significance of the correlational relationship between attention concentration and skill performance (passing, shooting, dribbling) in futsal, it is evident that attention concentration is a fundamental pillar for performing futsal skills, in addition to its main role in developing skill performance levels. The ability to concentrate while performing skills or sports movements is one of the most important processes for the learner to commit to their limited duties in order to exhibit control over their skill performance. The researcher emphasized that the development of performance, which is an important foundation for the success of motor skills, is linked to the athlete's ability to concentrate their attention, which in turn affects the accuracy, clarity, and mastery of the technical aspects of the motor skill components, as solving the motor task significantly requires the athlete to maintain focused attention.

The researcher attributes that attention concentration in futsal skills is one of the important factors that help in executing skill tasks in futsal, as it plays a significant role in fulfilling the requirements of appropriate skill performance. The transition from one place to another in a skill requires high concentration and awareness of the spatial division of movement. It also leads to linking various independent movement elements in the overall unit of skill performance. The great importance of attention and concentration provides a suitable environment for performing basic skills better. The researcher believes that the speed of motor response in futsal is very important and crucial for many different situations, as it is characterized by the element of surprise and frequent changes of positions from one state to another, such as switching from an attacking position to a defensive position and vice versa, as quickly as possible and within moments. Additionally, the opponent's movement has become more effective and surprising in terms of the nature of the game and the speed of performance, with diverse learning methods. Furthermore, deceptive movements performed

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during skill execution are used to bypass defenders. Therefore, a futsal player needs to master the speed of response to what the opponent is doing, meaning being ready to perform quick movements that prevent the opponent from achieving their goals and thus achieving the best possible performance. If the student or player does not possess the ability to distinguish herself from her opponent in defense, as well as in attack and confrontation, and respond to their movements, it becomes impossible to achieve victory.

3-3 Presentation of the Contribution Ratio of Attention Concentration and Response Speed to Skill Performance in Futsal:

Multiple regression was used to extract the contribution ratio of higher mental processes (attention concentration, response speed) to skill performance in futsal, as shown in Table (3).

Table (3) Significance of the Correlation Coefficient and Contribution Ratio of Attention Concentration and Response Speed

Skill	Nature of the correlation coefficient	Value of the correlation coefficient	Ratio of contribution	Degrees of freedom	Standard error	F value	Level of significance	Result
Passing	Multi	0.940	0.877	35-2	0.576	132.497	0.00	Moral
Dribbling	Multi	0.629	0.361	35-2	0.612	11.474	0.00	Moral
scoring	Multi	0.730	0.507	35-2	2.359	20.006	0.00	Moral

Table (3) demonstrates the correlation coefficients between attention focus, response speed, and indoor soccer skills (passing, dribbling, scoring), in addition to their percentage contribution. All correlations appeared significant since (f) had a high value and the significance level was smaller than 0.05.

3-4 Presentation, Analysis, and Discussion of Results for Predicting Passing Skill Based on Attention Concentration and Motor Response Speed

It is evident from the Table 4, which contains the values of regression equations and the predictive equation, that it is possible to determine the expected value of passing skill in futsal for any student (research sample). The following example illustrates this:

If the student's score (S) in attention concentration is (21) and response speed is (19), then the expected score in passing skill is:

Passing = (9.012 -) + (0.491 X 19) + (17 X 0.301) = 5.434

This score is close to the mean of the sample in passing skill, knowing that the mean was (5.737), which indicates that there is a possibility of prediction.

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Table (4) Predictive Equation for Passing Skill Through Higher Mental Abilities

Variables	Transactions		T value Calculated	Significance level
	Nature of the constant coefficient	Constant coefficient value		
The constant	A	-9.123	8.029	0.000
Attention focus	B1	0.491	5.185	0.000
Response speed	B2	0.301	6.632	0.000
Predictive equation	Passing = Constant coefficient value + (Constant coefficient value (B1) × Attention focus degree) + (Constant coefficient value (B2) × Response speed degree)			

3-5 Presentation, Analysis, and Discussion of Results for Predicting Dribbling Skill Based on Attention Concentration and Motor Response Speed

It is evident from the Table 5, which contains the values of the regression equations and the predictive equation, that it is possible to know the expected value of dribbling skill in futsal for any student (research sample). The following example illustrates this:

If the student's (S) score in attention concentration is (19) and the motor response speed is (17), then the expected score in dribbling skill is:

Dribbling = (5.531 -) + (0.152 × 0.214) + 17 + (19) = 1.119

This score is close to the mean of the sample in dribbling skill, knowing that the mean was (1.148), which indicates that there is a possibility of prediction.

Table (5) Predictive Equation for Dribbling Skill Through Attention Concentration and Motor Response Speed

Variables	Transactions		T value Calculated	Significance level
	Nature of the constant coefficient	Constant coefficient value		
The constant	A	-4.531	3.121	0.004
Attention focus	B1	0.152	2.099	0.043
Response speed	B2	0,214	3,430	0.013
Predictive equation	Dodging = constant coefficient value + (constant coefficient value (b1) × degree of response speed) + (constant coefficient value b2×attention concentration value			

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3-6 Presentation, Analysis, and Discussion of Results for Predicting Shooting Skill Based on Attention Concentration and Motor Response Speed

It is clear from the Table 6, which contains the values of the regression equations and the predictive equation, that it is possible to know the expected value of the goal-scoring skill in futsal for any student (research sample). The following example illustrates this:

If the student's score (S) in attention concentration is (17) and in reaction speed is (19), then the expected score in goal-scoring skill is:

Goal-scoring = (16.987-) + (0.114- × 17) + (0.244 × 19) = 10.413

This score is close to the mean of the sample in goal-scoring skill, knowing that the mean was (11.447), which indicates that there is a possibility of prediction.

Table (6) Predictive Equation for Shooting Skill Through Attention Concentration and Motor Response Speed

Variables	**Transactions**		**T value Calculated**	**Significance level**
	Nature of the constant coefficient	**Constant coefficient value**		
The constant	A	-16.987	2.235	0.032
Attention focus	B1	-0.114	1.051	0.301
Response speed	B2	0.244	3.321	0.003
Predictive equation	Scoring = value of the constant coefficient + (value of the constant coefficient (B1) × degree of concentration of attention) + (value of the constant coefficient (B2) × degree of motor response speed			

4 Conclusions and recommendations:

4-1 Conclusions:

1. There are significant correlations between attention concentration, motor response speed, and skills (passing, dribbling, shooting) in futsal among female students.
2. The investigated cognitive variables contributed significantly to the skills (passing, dribbling, shooting) in futsal among female students.
3. A predictive equation for skill performance in futsal was derived based on several higher cognitive processes (attention concentration/motor response speed) among female students.

4-2 Recommendations:

1. It is essential to focus on higher cognitive processes (attention concentration/motor response speed) during the learning process of futsal skills.
2. Create various environmental conditions for skill performance, which can enhance skill performance levels.
3. Adopt the predictive equation for skill performance as an objective guide to assess the skill level of female students.

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Reference

1. Faraj, Safwat: Factor Analysis in Behavioral Sciences, Cairo, Arab Thought House, 1980.
2. Mohsen, Thamar, Naji, Wathiq: 100 Exercises and Tests in Football, Baghdad, Dar Al-Hikma for Printing and Publishing, 1980.
3. Assad, Majid Khodaykhash: Construction of Two Battery Tests for Physical and Skill Assessments in Five-a-Side Football for Primary School Players (9-12 years), Amman, Ghaidaa Publishing and Distribution, 2015.
4. Abdul-Radha, Said Salim: Designing a Device to Test Attention Concentration, Reaction Speed, and Field Intelligence, and Standardizing it for Futsal Players, Master's Thesis, University of Babylon, College of Physical Education and Sports Sciences, 2018.
5. Ali, Ayman Hussein: The Relationship of Some Body Measurements and Elements of Physical Fitness and Skills to Actual Performance in Handball, Doctoral Thesis, University of Baghdad, College of Physical Education, 1999.
6. Ahmad, Saddam Mohammed: The Effect of Special Exercises on Small Playing Areas in Developing Motor Abilities and Basic Skills for Indoor Football Players, Master's Thesis, University of Diyala, College of Basic Education, 2013.
7. Saadallah, Furat Jabar, Al-Zahawi, Haval Khorshid: Cognitive and Mental Training for Football Players, Amman, Dar Dijla Publishers and Distributors, 2011.
8. Alawi, Mohammed Hassan, Nasruddin, Ahmed: Motor Performance Tests, Cairo, Dar Al-Fikr Al-Arabi, 1982.
9. Ismail, Kamal Abdul Hamid: Tests for Measuring and Evaluating Performance Associated with Human Motion Science, Cairo, Center for Publishing Books, 2016.

DOI: 10.33687/jhssr.003.05.000392