International Journal of Psychosocial Rehabilitation, Vol. 24, Issue 04, 2020
ISSN: 1475-7192

The Circular Attack in Terms of Cognitive Speed, Creativity Awareness for Fencing Students

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Abstract--- *This study aims to recognize the relation among the circular attack in terms of cognitive speed, creativity awareness of students in fencing. The study will also focus on Devising a predictive equation to predict the circular attack in terms of cognitive speed and creativity awareness for students. The experimental program consisted of 100 fencing students from Anbar University College of Sport and Physical Education Sciences. The researchers used the descriptive approach using the method of standard studies, and the method of relational relationships to achieve the goals of the research through the use of the measure of creativity awareness prepared by Enas Muhammad Mahdi al-Mahdawi (2010), which consists in its final form of (28) items, and the cognitive speed test prepared by Aseel Abdul Hamid Abdul Jabar (2010), which consists in its final form of (29) items, to measure cognitive speed. The researchers used the SPSS program to analyze the research data. The researchers found that there is a direct correlation between the performance of the circular attack from a side and the cognitive speed and creativity awareness on the other side. Thus, there is a good possibility to predict the circular attack accuracy based on the cognitive speed and the creativity awareness of the sample.*

Keywords--- *Circular attack, Cognitive Speed, Creativity Awareness.*

I. INTRODUCTION

Physical education science, in general, has made strides towards development by using the evaluation and its tools represented by tests and measurement, as well as the other sciences related to sports performance. This approach in particular impacted the development of the fencing game which has received high attention from the researchers and stakeholders. The fencing game is one of the games that have many basic and different skills that combine the accuracy of performance and its beauty if it is performed properly. One of these skills is the circular attack. The circular attack(Anwar Fayyad:2016) is a complex attack move, consisting of two or more moves with change in directions. The circular move has the same start as of the normal attack, which is changing the direction of attack. However, the defender move is not horizontal to intercept the opponent's blade but it must be carried out in circular (circular defense) to return the attacker to the same starting point, so the attacker must escape from the blade of the defender with a full circular motion and then make the stab move.

The cognitive speed (Al-Sharqawi: 2003) is a concept that is intended to determine the difference in an individual's awareness of their speed, their interaction with sensory and mental stimuli.

The concept of Creativity awareness (Al-Suroor:2002) refers to an individual's knowledge centered on his processes, cognitive productions, or anything related to them, so he reveals himself through active monitoring of

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DOI: 10.37200/IJPR/V24I4/PR2020497
Received: 14 Mar 2020 | Revised: 28 Mar 2020 | Accepted: 14 Apr 2020

these processes. From the above, we understand the importance of research is about the importance of defining the variables associated with the performance of the circular attack for students and its role in predicting the level of performance of the attack in the future.

Research Problem

One of the main factors for the player's victory in fencing is the accuracy of the attack's performance, particularly the circular attack. The experience of researchers in the field of sports psychology and the game of fencing found that there is clear weakness in the performance of the circular attack. This weakness is related to many variables and in most of it is related to the psychological variables and constitutes the attack. The researcher studied a side of those variables to determine the reality of their role in influencing the performance of that attack.

Research Goals

- Learn about the level of cognitive speed and creativity awareness of students;
- Identify the relationship among the accuracy of the circular attack, the perceptual speed, and the awareness of creativity for students;
- Develop a model to predict the accuracy of the circular attack based on cognitive speed and creativity awareness.

Research Hypotheses

- There is a real correlation among circular attack, cognitive speed, and creativity awareness for students
- There is a possibility to predict a circular attack in terms of cognitive speed and creativity awareness for students

Research Fields

- The human field: Third stage students - College of Physical Education and Sports Science - Anbar University
- Time: 2019-2020
- Location: Fencing hall

II. RESEARCH METHODOLOGY

The researcher used the descriptive method using the standard studies method, and the relational relations method, as it suits the nature of the research problem.

III. RESEARCH SAMPLE AND COMMUNITY

The research community was represented by the third stage students in the College of Physical Education and Sports Science - Anbar University for the academic year 2019-2020. All the students were chosen as a sample in the research.

Research Field Activities

First: The researchers used the creativity awareness scale prepared by Enas Muhammad Mahdi al-Mahdawi (2010), which consists in its final form of (28) items. The scale consists of three personality classification: (the

DOI: 10.37200/IJPR/V24I4/PR2020497
Received: 14 Mar 2020 | Revised: 28 Mar 2020 | Accepted: 14 Apr 2020

personality prepared to provide creative solutions to the problems, the personality with an integrative orientation, the personality that is very original in its creative, self-fulfilling production). The scale includes positive and negative. Each item has five responses (always applies to me, applies to me often, applies to me sometimes, applies to me a little and never applies to me) then a weight from 5 to 1 for the positive items and from 1 to 5 to the negative items. In order to make the scale suitable to the sample, the researchers followed the Scientific fundamentals such as finding psychometric properties, including:

- Virtual honesty: This type of honesty has been verified through the agreement of experts and specialists on the paragraphs of the scale of creativity awareness.
- Structural Validity: This type of validity has been verified by the association of each paragraph with the total of the scale (internal consistency)
- Reliability by the re-test method: The research tool was applied to the stability sample of (10) students and reapplied again after (16) days. The collected data was analyzed statically using the simple correlation coefficient (Pearson) between the two rounds of data collections, the calculated value (r) was (0.82) and this indicates the stability of the scale.
- Fakronbach method: To extract stability by this method, the (Fakronbach) equation was applied to the stability sample student results. The value of the stability factor was (0.85) and this is considered as a good indicator of the stability of the scale.

Second: The researchers used the cognitive speed test prepared by Aseel Abdel Hamid Abdel Jabbar (2010), which consists in its final form of (29) items, to measure cognitive speed, distributed on three sub-tests, namely, (image similarities test, image differences test, length estimate test). In order to make the scale suitable to the sample, the researchers followed the Scientific fundamentals such as finding psychometric properties, including:

- Virtual honesty: This type of honesty has been verified through the agreement of experts and specialists on the paragraphs of the scale of creativity awareness.
- Structural Validity: This type of validity has been verified by the association of each paragraph with the total of the scale (internal consistency)
- Reliability by the re-test method: The research tool was applied to the stability sample of (10) students and reapplied again after (16) days. The collected data was analyzed statically using the simple correlation coefficient (Pearson) between the two rounds of data collections, the calculated value (r) was (0.88) and this indicates the stability of the scale.
- Koder Richardson consistency method. The value of the coefficient of stability calculated in this way to test the image similarities reached (0.75), while the consistency coefficient of the test of image differences reached (0.79) and the stability factor of the length estimate test was (0.70). Thus, all the results are considered as good indicators of the test stability.

Statistical Means Used in the Research

The researchers used the Statistical Package for the Social Sciences (SPSS) to analyze the data.

DOI: 10.37200/IJPR/V24I4/PR2020497
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IV. RESULTS REVIEW AND DISCUSSION

Review of sample classification: Fencing circular attack test was applied to the research sample of (100) students, after which the data were statistically analyzed using the SPSS program, and the following table shows the results.

Table 1: Shows that the Circular Attack Accuracy Test Scores for Accuracy

Test	Number of Samples	Mean	Deviation	Standard Deviation	coefficient of skewness
Circular attack	100	8	1.45	0.145	-0.17

The table above shows that the circular attack accuracy test scores for accuracy were with average arithmetic (8) and a standard deviation (1.45) while the value of the standard deviation for the test was (0.145), which is a small value, indicating that the sample size is appropriate, and the studied community is well represented by the sample. The coefficient of skewness value is (0.17) and this indicates that the scores of the individuals of the research sample have a normal distribution over the results of the skill performance.

Review of Creativity Awareness Scale Results

The final form of the scale applied to the (100) students' sample. The data statistically analyzed. The statistical results show that the sample has a creativity awareness, as shown in the following table

Table 2: Shows that the Scores for the Creativity Awareness Scale

No of Sample	**Mean**	**Hypothetical Mean**	**Standard Deviation**	**Standard error**	**coefficient of skewness**	**Calculated t value**	**Type of indication**
100	**105.2**	**84**	**10.87**	**1.087**	**-0.73**	**19.5**	**significant**

The table above shows that the scores for the creativity awareness scale were with an arithmetic mean of (105.2) and a standard deviation (10.87), while the value of the standard error is (1.087), which is a small value, indicating that the sample size is appropriate, and the studied community is well represented by the sample. The coefficient of skewness value is (-0.73) and this indicates that the scores of the individuals of the research sample have a normal distribution over creativity awareness scale. When comparing the average scores of the research sample on creativity awareness with the hypothetical average (84), it turns out that the average degrees of creativity awareness is higher than the hypothetical average of the scale, and this means that the sample has a high level of creativity awareness. The researchers applied the T-Test in order to identify the statistical significance of the differences between the two averages. The calculated value of T-Test is equal to (19.50) and it is bigger than the table T-Test value (1.68) at the significant indication level of (0.05) and (99) degree of freedom. This result is consistent with the study of (Enas Muhammad Mahdi al-Mahdawi 2010), which showed a high level of awareness of creativity among the students of Al-Mustansiriya University. The researchers attribute the reason for the sample having a high level of creativity awareness to the fact that the sample members have a personality prepared to provide creative solutions and that they are aware of everything sensory, and what is physical. In other words, they can transmit the results of a creative act to others through superior performance. As well as researchers believe that the sports environment plays an important role in activating the creativity energies of the sample so as to prove their presence during the performance. Other researchers such as (Nouri Jaafar:1986) believes that creativity derives its content from the social environment, so there must be two factors together, the physical (physiological) factor that provides creativity

DOI: 10.37200/IJPR/V24I4/PR2020497
Received: 14 Mar 2020 | Revised: 28 Mar 2020 | Accepted: 14 Apr 2020

with its foundation, and the environmental factor that provides creativity with its content. There is a third factor that is no less important and impact than the first two factors, which is the psychological factor that pushes its owner to invest the maximum of his mental, intellectual, and physical (motor) balance in reaching what he aspires to achieve.

Review of Cognitive Speed Test Results

Applying cognitive speed test to the final sample of (100) students showed that the sample has a high level of cognitive speed, as shown in the following table.

Table 3: Shows that the Scores for the Cognitive Speed Scale

No of Sample	Mean		Standard Deviation	Standard error	coefficient of skewness	Calculated t value	Type of indication
100	16.33	11.5	4.19	0.419	0.53	11.52	significant

The table above shows that the scores for the cognitive speed scale were with an arithmetic mean of (16.33) and a standard deviation (4.19), while the value of the standard error is (0.419), which is a small value, indicating that the sample size is appropriate, and the studied community is well represented by the sample. The coefficient of skewness value is 0.53) and this indicates that the scores of the individuals of the research sample have a normal distribution over cognitive speed scale. When comparing the average scores of the research sample on the cognitive speed with the hypothetical mean (11.5), it turns out that the average degrees of cognitive speed is higher than the hypothetical average of the scale, and this means that the sample has a high level of cognitive speed. The researchers applied the T-Test in order to identify the statistical significance of the differences between the two averages. The calculated value of T-Test is equal to (11.52) and it is bigger than the table T-Test value which is (1.98) at the significant indication level of (0.05) and (99) degree of freedom. This result is consistent with the study of (Nawras Kareem Obaid 2011), which showed a high level of cognitive speed among the students of a secondary school. The researchers attribute the reason for the sample having a high level of cognitive speed to the fact that the player tries to understand all the stimuli that surround him on the field, and the rapid response to these stimuli, the age of the player also has a big role in increasing the level of rapid awareness of the stimuli.

The Nature of the Relationship between the Results of the Test of Circular Attack in Terms of Cognitive Speed and Creativity Awareness for Students

The correlation coefficient (Pearson's R) was calculated among the results of the accuracy test of the circular attack, cognitive speed and creativity awareness of the research sample of (100) students. The results as shown in the following table.

Table 4: Shows that the Calculated Values of the Correlation Coefficient

No.	Variables	Correlation coefficient	Degree of freedom	Value from Table	Significance Level	Type of indication
1	Circular attack and cognitive speed	0.413	99	0.205	0.05	significant
2	Circular attack and creativity awareness	0.600				significant
3	Cognitive speed and creativity awareness	0.485				significant

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Received: 14 Mar 2020 | Revised: 28 Mar 2020 | Accepted: 14 Apr 2020

The above table shows that the calculated values of the correlation coefficient values respectively are (0.413, 0.600, 0.485) which is greater than the tabular value of (0.205) at the degree of freedom (99) and the level of significance (0,05). This indicates that there is a significant relationship between the studied variables, which mean the increase in the degree of performance of the circular attack is paralleled by an increase in cognitive speed and creativity awareness. This confirms the important and effective role that good skill performance plays, as people who have this skill are at the same time showed accuracy in cognitive speed and creativity awareness and this is why correlations have emerged among the members of the research sample.

Identify the Possibility of Predicting the Accuracy of the Circular Attack in Terms of Perceptual Speed and Awareness of Creativity for the Research Sample

Identify the potential to accurately predict the circular attack in terms of cognitive speed and creativity awareness of research sample:

Tests and measurements may be used for prediction purposes. In other words, it means predicting the result in light of the result of the test and measurements. The statistical methods usually are used for prediction such as regression. The ability to predict will allow us to select the individuals who can predict their success. Knowing the predictive value of the researched variables comes through an advanced statistical method to know the relationship between the performance of circular attack, cognitive speed and awareness of creativity. In this research, the researchers adopted the regression equations for prediction. By regression, we mean to study the relation between two variables, the dependent and the independent to identify the formula of the relation between them to allow the researchers to predict an approximate value of the dependent variable for a specific dependent value in a specific level.

Table 5: Shows the Extraction of the Predictive Value of the Studied Variables

No.	Variables	Variables type	Number of Samples	Mean	Hypothetical Mean
1	Circular attack	Dependent	100	8	1.45
2	Cognitive speed	Independent		16.33	4.19
3	creativity awareness	Independent		105.2	10.87

The main goal of the statistical process for the independent and the dependent variables is to obtain one value representing the independent variables which is the cognitive speed and creativity awareness of the dependent variable which is the circular attack.

The table below shows the parameters of the dependent and independent variables.

Table 6: Shows the Parameters of the Dependent and Independent Variables

Variable Name	Correlation Coefficient (r)	Determination coefficient	coefficient of alienation	Correlation coefficient trust percentage	Calculated F value	Level of significant at 0.5
Circular attack and cognitive speed	0.413	0.171	0.910	0.09	7.825	0.008
Circular attack and creativity awareness	0.600	0.380	0.787	0.122	11.336	0.000

In order to identify the level of trust in the calculated correlation coefficient calculated above, the researchers have used the alienation coefficient. The alienations coefficient represents the proportion of variance in the

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Received: 14 Mar 2020 | Revised: 28 Mar 2020 | Accepted: 14 Apr 2020

dependent variable that is not accounted for by the independent variable. The researchers used the alienations coefficient to obtain the prediction indicator which represents the trust percentage of the correlation coefficient and it is calculated based on the equation below(Mohammed Radwan:2006)

$$= 1 - \sqrt{1 - r^2}$$

- The results of using this equation resulted in a confidence ratio of these factors, as it reached (0.09) in relation to the relationship between the performance of the circular attack and cognitive speed. While the second equation resulted in a confidence ratio of these factors of (0.122) between the accuracy of the circular attack and the creativity awareness.
- The same table above illustrates that the calculated (F) value is respectively equal to (7.825, 11.336) with a significant level of (0.008, 0.000). These values of (F) indicate the significance of the regression model. Thus, the model represents the relationship between the variables under study.
- The values of the regression equation coefficients for the researched variables were calculated as shown in the following table.

Table 7: Show the Values of the Regression Equation Coefficients for the Researched Variables Were Calculated

Variable Name	Equations parameters		Correlation Coefficient (r)	Type of correlation	Calculated t value	Level of significant at 0.5	Statistical indication
	Type of Parameter	Value of Parameter					
Cognitive speed	Constant(A1)	14.431	0.431	Simple	2.872	0.007	Significant
	Slope (B1)	0.151					
Cognitive speed and creativity awareness	Constant(A2)	7.255	0.616	Multiple	3.533	0.001	Significant
	Slope 1(B2)	0.035					
	Slope 2(B#)	0.080					

From the table above we notice that we can develop a prediction equation from the variables under study. Because the calculated T-Test values were (2.872, 3.533) respectively and it is a significant function as it has a significant indication of (0.001, 0.007) respectively at a significant level of (0.05). Thus, these values indicate the significance of the coefficients (A and B) for the simple regression model as well as for the multiple, that is, the equation for the regression model does not pass through the original point (0,0) and the value of the regression equation is not equal to zero.

The emerging of the slope parameter (A, B) with a significant value reflects the importance of both variables the cognitive speed and the creativity awareness in the value of the dependent variable performance of the circular attack. This is another indication of the quality of estimating the parameters in the regression model.

From the above, it turns out that the developed model is highly efficient for predicting the values of the phenomenon being studied. As well as, the slope parameter indicates that the large value of independent variables (cognitive speed and creativity awareness) leads to an increase in the value of the dependent variable (circular attack). Accordingly, it has been possible to set the equation for predicting the accuracy of the circular attack in terms of cognitive speed and creativity awareness for students, and below the conclusion of the following prediction equation:

DOI: 10.37200/IJPR/V24I4/PR2020497
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First Equation

Circular attack in term of cognitive speed $= A1 + B1 * X1$

$$= 14.431 + 0.151 * 16.33$$

$$= 14.431 + 2.465 = 16.896$$

First equation parameters definition:

(A1) is a constant represent the relative weight of the dependent variable (circular attack)

(B1) is a constant represent the relative weight of the independent variable (cognitive speed)

(X1) represent the value of the cognitive speed

Second Equation

Circular attack in term of cognitive speed $= A2 + B2 * X1 + B3 * X3$

$$= 7.255 + 0.035 * 16.33 + 0.080 * 105.2$$

$$= 7.255 + 0.571 + 8.416 = 16.242$$

Second Equation Parameters Definition

(A2) is a constant represent the relative weight of the dependent variable (circular attack)

(B2) is a constant represent the relative weight of the independent variable (cognitive speed)

(X1) represent the value of the cognitive speed

(B3) is a constant represent the relative weight of the independent variable (creativity awareness)

(X2) represent the value of the creativity awareness

V. CONCLUSION AND RECOMMENDATIONS

Conclusions

- Students of the third stage in the College of Physical Education and Sports Science at Anbar University have a high level of cognitive speed and awareness of creativity.
- There is a strong direct correlation between the accuracy of the circular attack with both of the cognitive speed and the creativity awareness in the research sample.
- There is the possibility to predict the accuracy of the circular attack based on the values of the cognitive speed and creativity awareness for the research sample.

VI. RECOMMENDATIONS

- Use the scale of creativity awareness and the cognitive speed test in educational institutions.
- Establishing special training programs for educational and psychological counseling in educational institutions to develop cognitive speed and awareness of creativity.
- The necessity of giving quality lectures to students during physical education studies by a specialist in psychological counseling and sports psychology.
- Benefiting from this study psychological scales and applying them to samples in other stages.

DOI: 10.37200/IJPR/V24I4/PR2020497
Received: 14 Mar 2020 | Revised: 28 Mar 2020 | Accepted: 14 Apr 2020

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DOI: 10.37200/IJPR/V24I4/PR2020497
Received: 14 Mar 2020 | Revised: 28 Mar 2020 | Accepted: 14 Apr 2020