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Creative thinking and its relationship to visual field and visual speed among goalkeepers of the Iraqi Handball Premier League

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ABSTRACT

The aim of this study was to identify the level of creative thinking and the level of visual field of vision and its speed among goalkeepers. The study was also aimed to identify the relationship between these factors. The researcher used the descriptive approach in the correlative research method. This study involved a sample of 10 goalkeepers participating in the local championship of Iraqi clubs in the Premier League held in Sulaymaniyah Governorate, Kurdistan Region of Iraq. Statistical analysis was done using SPSS 26.0. The results of our study showed that creative thinking directly affects the visual field of vision and inversely to the visual reaction of goalkeepers in the Premier League handball clubs. The higher the creative thinking is, the degrees of their visual vision will increase and the time of their visual reaction will reduce. It is necessary to establish the improvement of creative thinking as an important psychological factor in the training units in the Premier League handball clubs, and also to increase the coaches' experiences on improving it by gathering the physical and skill exercises of the goalkeepers.

KEYWORDS

Creative Thinking; Visual Field; Visual Speed; Goalkeepers

1. INTRODUCTION

The psychological factor is considered as one of the training elements used during the training process. It is a factor that, like other training courses, is subject to programs, exercises and instructions that focus attention on the mental aspect, perception and interpretation of ideas and treatments that occur in the brain. "The visual perception is one kind of perception, and an active process that includes multiple activities, such as attention, sensation, awareness and memory. Attention is considered the key of perception" (Khaleq, 2002).

Prior to the development of cognitive psychology, which is the fundamental and effective component in the system of thinking and mental activity, philosophers were interested in the nature of mental images and imagination. Imagination has been defined by more than one definition, the most important one is: it is a psychological activity in which the process of installation and merging between the components of memory, perception, and mental images that were formed before through past experiences, which produce new mental formations and forms (Hamid & Khalifa, 2000).

"Perception, in general, is the mental process that occurs inside the brain, and the way or the style that the individual organizes his reception, assimilation and understanding of information. Perception depends on the integrity of the senses and the activity of attention in addition to concentration, which makes the process of cognition tracks storage and search processes in memory to make a decision later" (Goetz, Alexander & Ash, 2006). Hisham (2008) define thinking as follows: "a conscious process that the individual does consciously and by realization, it does not take place in isolation from the surrounding environment. The thinking process is affected by the social and cultural context in which it operates." It was also defined as "a cognitive activity that works to give environmental stimuli by meaning and significance that is through the cognitive structure to help the individual fit and adapt to environmental conditions" (Al-Otoum, 2007).

> "Thinking by its nature is a purposeful behavior, it does not happen out of nowhere, or without a goal, but rather occurs in certain situations. Thinking is an evolutionary behavior, which changes in quantity and quality according to the evolution of the individual and the accumulation of his experiences. Also, it is a relative concept, it is unreasonable for the individual to reach the degree of perfection in thinking, or to achieve and practice all kinds of thinking, and thinking is formed from the overlapping elements of the environment in which it takes place, attitudes and experience. Thinking occurs in different forms and patterns, they may be verbal, symbolic, quantitative, spatial, or a formality, each one of them has its own peculiarity" (Nofal & Al-Rimawi, 2010).

Handball goalkeepers entrusted with blocking the fast balls in the beginning of the offensive plan must be distinguished by a level and a type of thinking to enable them to fulfill the requirements of their game in the fullest manner. Thus, handball goalkeepers must be creative in estimating the distribution of players based on what they know about their abilities, they gather information and decide at the same time as quickly as possible (Abdulhadi., & Abdulhamza, 2022;

Abdullh et al., 2022; Abod & AlHaddad, 2022a,b; Alkhawaldeh, 2022; Rahman et al., 2021; Wahed, 2022).

Here the matter certainly requires creativity in this immediate thinking in blocking, possession of balls and the beginning of the offensive plan for their team, and perhaps it is related to their skill or cognitive ability and above cognitive thinking such as:

- Focusing skills in identifying problems to formulate goals.
- Collecting information through observation and formulating questions.
- Remembering through coding and retrieval.
- Organizing that information by using: comparing, categorizing, arranging and representing.
- Ability to analyze, generate by deduction and predicting details.
- Summarizing and reconstructing integration.
- Evaluating by setting and verifying criteria.

Creative thinking is a specific responsibility, particularly when it comes to increasing the motivation of students to learn. It is one of the best examples of human thinking, thus it stands out from all other mental processes, especially in the areas of analysis, interpretation, prediction, and conclusion (Hadi & Ayyad, 2009).

"Scientists and theorists of information processing theory don't care about external conditions; instead, they concentrate on the mind, which, in their view, is the information processing system and is in charge of connecting new knowledge to the past knowledge, organizing it, and making sense of it" (Schunk, 2012). The two major classifications of memory are as follows: short-term memory and long-term memory.

As for the short-term memory (STM), this memory is the second station for information after sensory registers. It constitutes a temporary repository of storage in which information is kept for a period not exceeding (30) seconds, and it receives only the information that is paid attention to, and remembers and processes information from long-term memory.

Long-term memory (LTM) is where information, experiences and knowledge are settled in its final form. Information is permanently stored in the form of mental representations, that is after encoding and processing it in working memory. Long-term memory has the advantage to have enormous storage capacity (Al-Zogoul, 2010). Lang classifies the trends of modern theories into two groups: the first focuses on receiving sensory experience and how to assemble sensory information into perceptual units supposed together in the brain, while the second focuses on the

senses as an effective interconnected system, so that, the basis of integration is the simultaneous organization of sensory inputs to the brain (Lang, 2017).

The development of creative thinking and its incorporation into the psychological side of the training factors of handball goalkeepers is a simulation of the reality of the nature of the handball goalkeeping and its requirements. The researcher noticed, through observation and deliberation with some of the Handball Premier League coaches, the need for diagnosis and its relationships with academic research that answers the following question: Does the creative thinking of handball goalkeepers have a role in increasing the visual field and visual speed during matches?

So, the aim of this study is to identify the level of creative thinking and the level of visual field of vision and visual speed among goalkeepers. The study also aims to identify the relationship between these factors. H_1: There is a statistically significant correlation between the results of the creative thinking scale and the test results of the visual field and its speed among goalkeepers in the Premier League handball clubs.

2. METHODS

2.1. Research participants and sampling method

In order to solve the problems and achieve the objectives of the research, the researcher used the descriptive approach in the correlative research method. The community's limits were represented by handball goalkeepers participating in the local championship of Iraqi clubs in the Premier League held in Sulaymaniyah Governorate, Kurdistan Region of Iraq. The 10 main goalkeepers were deliberately chosen with 100% of the votes from the following clubs: "the Army clubs" in Baghdad governorate, "the Police" in Baghdad governorate, "Al-Fatwa" from Mosul governorate, "Al-Daghara" from Al-Qadisiyah governorate, "Karbala" from Karbala governorate, "Diyala" from Diyala governorate, "Basra Municipality" from Basra governorate, "Al-Kut" from Wasit governorate, "Sulaymaniyah" from Sulaymaniyah governorate, and "Al-Qasim" from Babil governorate. So, these goalkeepers represented the sample of the research.

2.2. Measurement tools and procedures

2.2.1. The Torrens test

The Torrens test was used to calculate the degree of creativity of each goalkeeper, obtaining the maximum score of 30. It combines the scores for fluency, flexibility and originality.

The degree of the visual field vision tests was also calculated by summing scores from 260 degrees, 40 degrees in the upper direction,50 degrees in the direction of the nose, 80 degrees down, 90 degrees outward by the "Vina" system.

2.2.2. The test of throwing the ball on three colored squares

- Test objective: to measure the speed of the visual reaction.
- Required tools: 9 x 10 m obstacle-free yard, measuring tape, 3 balls, colored tape, 2 stopwatches and a registration form
- Test specifications: the tester is required to stand on the starting line which is 2.5m away from the first line, and throw the ball to one of the three squares of different colors with his favorite arm after hearing the 1m square color instruction. The timekeeper calculates the time from the moment of hearing the instruction to the moment the ball falls on the ground in the correct square, and three attempts are given for each tester and the best time is taken (Figure 1).
- Recording: the time is calculated for each correct attempt from the moment of hearing the instruction until the ball falls to the ground in the correct square, and zero is given for each incorrect attempt.
- Correction: the score is the sum of the time spent in the applying each attempt in seconds, as shown in the following figure:

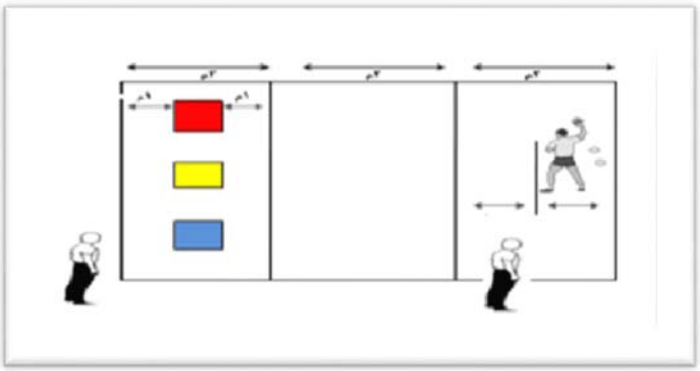

Figure 1. The ball on three colored squares

2.3. Statistical Analysis

In the present study, statistical analysis was done using SPSS 26.0. The analytical methods used in this study included descriptive statistics, Pearson's correlation coefficient and linear regression. Statistical significance was $\alpha = 0.05$.

3. RESULTS

We begin the presentation of this section by showing the results of the study variables level and their mean distribution. The investigated variables are distributed evenly (Table 1).

Table 1. The results of the variables level and their mean distribution

Variables	Unit of measure	Sample number	Arithmetic mean	Standard deviation	Skew
Creative Thinking	Score	10	20.7	3.129	0,211
Visual field of view	angle	10	244.1	3.414	0.952
Optical reaction speed	Second	10	3.768	0.713	0.952

The following table presents the relationship between creative thinking and the visual field of vision and its speed. As we can see from the table, we have a statistically significant relationship between these variables ($r = 0.8$) (Table 2).

Table 2. The relationship between creative thinking and the visual field of vision and its speed

Influenced	Effect	Simple Correlation Coefficient (R)	Linear Regression Coefficient $(R)^2$ (Coefficient of determination)	Contribution ratio	Standard error of the estimate
Creative thinking	Field of vision	0.856	0.733	0.7	1.871
Creative thinking	Visual reaction speed	0.817	0.668	0.627	0.436

Table 3 presents and explains the results of the test to check the quality of the fit of the linear regression model. These results confirm the quality of reconciling this linear regression.

Table 3. The quality of the fit of the linear regression model

Affected	Influence	Variance	Sum of squares	Two degrees of freedom	Average of squares	F Calculated value	p value
Creative thinking	Field of vision	Regression	76.882	1	76.882	21.952	0.002
		Errors	28.018	8	3.502		
Creative thinking	Visual reaction speed	Regression	3.055	1	3.055	16.1	0.004
		Errors	1.518	8	0.19		

The final table (Table 4) shows the results of the values of the estimates for the fixed term and the slope (effect). The researcher attributes the remainder of the two percentage contributions

to an unexamined random factor, the effects and significance ($p < 0.05$) of which are shown by the results in the following table.

Table 4. The values of the estimates for the fixed term and the slope (effect)

Affected	variables	beta β	standard error	t value	p value
field of vision Optical	fixed term	224.763	4.169	53.907	0.000
	Creative Thinking Moral	0.934	0.199	4.685	0.002
Optical reaction speed	fixed limit	7.623	0.971	7.854	0.000
	Creative Thinking	-0.186	0.046	4.013	0.000

4. DISCUSSION

The results of the research show the positive moral relationship of creative thinking and the visual field of vision and its speed. So, we have a direct relationship between it and visual vision field increased degrees, and between it and the short time of the visual reaction which are affected by the type of thinking. The higher the creative thinking level, the higher the goalkeepers can increase the level of visual vision field and the improvement of its speed. It is noted from the results of Table 1 that the degrees of the investigated variables were distributed evenly, while the results of Table 2 showed the statistically significant relationship between creative thinking and the visual field of vision and its speed. Furthermore, the significance results of Table 3 confirm the quality of reconciling this linear regression. Finally, the researcher attributes the remainder of the two percentage contributions to an unexamined random factor, the effects and significance ($p < 0.05$) of which are shown by the results in Table 4.

The old saying “what you do is more effective than what you say” is true when representing behavior and physical education as fastest and most efficient way to teach physical activity (sports). They are the effective models that highlight the transition points in performance (Mahmoud, 2006).

Psychologists and educators pay great attention for studying the ability of creative thinking, and the characteristics of creators, this type of thinking represents one of the important needs of societies (Musa, 2003). There is no discussion about processing of information without examining the processing automatically or controlled, the automated processing uses a series of nerves that become active, as a response to specific stimuli. This activity does not need a dynamic control in the part of the subject, which is the result of good learning, and the exciting matter that it is either

organized as a scheme, or sent directly to the correct response areas in the brain with limited processing (Sareeh & Wehbe, 2010).

The main driver of creative work, from Freud point of view, who is the pioneer in this direction, is those internal conflicts linked to the subconscious of the individual, and the creative thinking process remains dependent and linked to unconscious and illusion, and characterized by primitive, irrational and instinctive. The process of primary thought, corresponds the process of secondary thinking, in Freudian theory, which is characterized by realism and logic, and linked to conscious and feeling ego.

Some Freudians reduce the importance of the primary thinking process in the interpretation of creative activity, because creative thinking occurs at the level of feeling and awareness, and cannot be absolutely instinctive (Al-Otoum, 2007). As for Kris, creative individuals are able to re-create a mental state similar to the mentality of childhood, in which unconscious ideas are easier to reach the conscious mind. While Jung, one of Freud's assistants and followers, emphasized the importance of personal and unconscious experience in setting the framework of creative production, he defined the creative person as the one who is able to immerse himself in the collective unconscious (Starko, 2012).

5. CONCLUSIONS

Creative thinking connects, contributes and directly affects the visual field of goalkeepers in the Premier League handball clubs, and the higher its level is, the higher the degrees of their visual field will be. Creative thinking contributes and affects inversely the visual reaction of goalkeepers in the Premier League handball clubs, and the higher its level is, the lower the time of their visual reaction. It is necessary to establish the improvement of creative thinking as an important psychological factor in the training units in the Premier League handball clubs, and also to increase the coaches' experiences on improving it by gathering the physical and skill exercises of the goalkeepers.

6. REFERENCES

1. Abdulhadi Ahmed, S., & Abdulhamza Kadhem, A. (2022). Effect of an educational curriculum with fixed and changeable sequential methods on the accuracy of handball skills in 14-15 years old players. *Atena Journal of Sports Sciences, 4*, 5.
2. Abdullh, H. J., Jabbar, H. A., & Jabbar, T. A. (2022). Effect of anaerobic and aerobic exercises using organic nutritional supplements on the lactic threshold, energy expended

during effort and endurance performance in handball players. *Atena Journal of Sports Sciences, 4*, 10.

3. Abod, Z. F., & AlHaddad, N. H. (2022a). Achievement motivation and its relationship to jump pass and jump shot in handball. *SPORT TK-EuroAmerican Journal of Sport Sciences, 11*, 11. https://doi.org/10.6018/sportk.537131
4. Abod, Z. F., & AlHaddad, N. H. (2022b). The muscular ability of the two legs and its relationship to some basic skills of handball. *SPORT TK-EuroAmerican Journal of Sport Sciences, 11*, 12. https://doi.org/10.6018/sportk.537141
5. Al-Atoum, A. Y., et al. (2007). *Developing thinking skills*. Amman: Dar Al Masirah.
6. Ali, S. I., & Flayyih, H. H. (2021). The Role of the External Audit in Assessing Continuity of Companies under the Financial Crisis: An Applied Study in the Iraqi Banks Listed in the Iraq Stock Exchange for the Period 2016-2019. *Studies of Applied Economics, 39*(11), 17. https://doi.org/10.25115/eea.v39i11.5925
7. Alkhawaldeh, I. M. (2022). Impact of VO2max on mechanical variables, lactic acid concentration and shooting accuracy of the 7-meter throw among handball players. *SPORT TK-EuroAmerican Journal of Sport Sciences, 11*, 20. https://doi.org/10.6018/sportk.531631
8. Allam, R. M. A. (2006). *Research Methods in Psychological and Educational Sciences*. Egypt: University Publishing House.
9. Al-Otoum, A. D., et al. (2007). *Developing thinking skills, theoretical models and practical applications*. Amman: Dar Al Masirah for Publishing, Distribution and Printing
10. Altameemi, A. L. I. H., & Flayyih, H. H. (2021). A comparative Study in the Role of Private Sector in Relationships Analysis between Economic Sustainability and COVID-19: Evidence from Iraq and Russia. *Studies of Applied Economics, 39*(11), 1–13. https://doi.org/10.25115/eea.v39i11.5842
11. Al-Titi, M. H. (2007). *Developing creative thinking capabilities*. Amman: Dar Al Masirah.
12. Alwan, S. A. K. W. (2010). *Qualitative Analysis in Kinesiology*. Baghdad: Dar Al-Kutub.
13. Al-Zogoul, E. A. R. (2010). *Learning Theories*. Amman: Dar Al-Shorouk.
14. Donald, I. J., & Caroline, H. (1995). Inspection of time and high speed ball games. *Perception*, *18*(6), 789-792.
15. Goetz, E., Alexander, P., & Ash, M. (2006). *Educational Psychology*. N.Y. Macmillan, Publishing CO.
16. Hadi, N. A., & Ayyad, W. (2009). *Strategies for Learning Thinking Skills*. Amman: Dar Wael.

17. Hamid, S. A., & Khalifa, A. L. (2000). *Studies in Curiosity, Creativity and Imagination*. Cairo: Dar Gharib Publications.
18. Hisham, S. M. (2008). Managing with Ideas. Amman: Dar Al-Raya for Publishing and Distribution.
19. Issa, H. A. (1994). *The psychology of creativity between theory and practice*. Tanta: Al-Isra Library.
20. Karim, M. A. H. A. (2006). *The dynamics of teaching physical education*. Cairo: Book Center for Publishing.
21. Khaleq, A. M. A. (2002). *Foundations of Psychology*. Alexandria: University Knowledge House.
22. Lang, Jon. (2017). *Creating Architecture Theory: The Role of Behavioral Sciences in Environmental Design*. New York.
23. Maseer, R. W., & Flayyih, H. H. (2021). A Suggested Approach to Use a Decision Tree to Rationalize the Decision of Accounting Information Users under the Risk and Uncertainty. *Studies of Applied Economics, 39*(11), 1–13. https://doi.org/10.25115/eea.v39i11.5877
24. Musa A. H. M., et al. (2003). *Curriculum theory in light of the reality of educational theory*. King Fahd National Library.
25. Nofal, M. B., & Al-Rimawi, M. O. (2010). *Practical applications in developing thinking using the habits of mind*. Dar Al Masirah, Amman.
26. Nour, K. A. (2005). *Studies and research in psychology and the education of thinking and creativity*. Amman: De Bono for printing.
27. Rahman, A. N. G., Flayyih, H. H., & Salih, J. I. (2021). An Empirical Analysis on the Impact of External Auditing Quality on the Earnings Management of the Iraqi Industrial Companies under financial for the period 2010 to 2017. *Estudios de Economia Aplicada, 39*(11), 1133-3197. https://doi.org/10.25115/eea.v39i11.5853
28. Salman, F. A. (2007). Thinking styles and their relationship to the motivation of academic achievement among university students. [Doctoral thesis, University of Baghdad, College of Education for Girls].
29. Schunk, D. H. (2012). Learning Theories. An Educational Perspective. MA: Pearson Education Inc.
30. Starko, A. (2012). *Creativity in The Classroom, Schools of Curious Delight*. Eastern Michigan State University: Longman, Publishers, U.S.A.

31. Wahed Chalob, H. A. (2022). Effect of special exercises using the mini trampoline on motor abilities and complex offensive skills in 14-16 years old handball players. *Atena Journal of Sports Sciences, 4*, 6.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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