



## *Perspectivas de la psicología del deporte sobre los aspectos cognitivos en la configuración de las trayectorias de los jóvenes futbolistas en Indonesia y Malasia*

### *Sports Psychology Perspectives on Cognitive Aspects in Shaping the Pathways of Young Football Players in Indonesia and Malaysia*

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#### Abstract

**Introduction:** Cognitive aspects play a crucial role in the developmental pathway of football players in Indonesia and Malaysia, especially in building the foundation for young players to develop holistically. Children's cognition needs to be trained to improve playing intelligence, decision-making skills, understanding of their abilities and the ability to adapt to the high-pressure level of competitive football for players.

**Objective:** This research aims to provide information regarding the cognitive aspect. This research focuses on the perspectives of coaches regarding football players.

**Methodology:** The study employs qualitative methods involving 25 coaches from Indonesia and Malaysia with a football coaching license and a minimum of five years of coaching experience. Participants were selected using purposive sampling. The data was collected through semi-structured interviews, field observations, and document analysis, which were analyzed using NVivo 14 software.

**Results:** The results showed that using imagery helps players imagine complex game situations so that mental readiness to face challenges can be done well. In addition, cognitive abilities are also associated with concentration, which helps maximize the ability to focus on the match.

**Discussion:** Improving cognitive function through sports activities can be a valuable tool for improving the safety and awareness of young children.

**Conclusions:** The integration of cognitive training is vital to be applied by coaches as a strategy to develop the ability to control emotions and focus on spatial vision clearly so that young players can optimize their physical and mental potential and create potential football players in the future.

#### Keywords

Cognitive aspects, developmental pathway, football players, Indonesia, Malaysia.

#### Resumen

**Introducción:** Los aspectos cognitivos desempeñan un papel crucial en el desarrollo de los futbolistas en Indonesia y Malasia, especialmente al sentar las bases para que los jóvenes jugadores se desarrollen integralmente. La cognición de los niños necesita ser entrenada para mejorar la inteligencia de juego, la toma de decisiones, la comprensión de sus habilidades y la capacidad de adaptarse a la alta presión del fútbol competitivo.

**Objetivo:** Esta investigación busca proporcionar información sobre el aspecto cognitivo. Se centra en las perspectivas de los entrenadores respecto a los futbolistas.

**Metodología:** El estudio emplea métodos cualitativos con 25 entrenadores de Indonesia y Malasia con licencia de entrenador de fútbol y un mínimo de cinco años de experiencia. Los participantes fueron seleccionados mediante muestreo intencional. Los datos se recopilaron mediante entrevistas semiestructuradas, observaciones de campo y análisis de documentos, que se analizaron con el software NVivo 14.

**Resultados:** Los resultados mostraron que el uso de imágenes ayuda a los jugadores a imaginar situaciones de juego complejas, lo que les permite una buena preparación mental para afrontar los desafíos. Además, las habilidades cognitivas también se asocian con la concentración, lo que ayuda a maximizar la capacidad de concentrarse en el partido.

**Discusión:** Mejorar la función cognitiva mediante actividades deportivas puede ser una herramienta valiosa para mejorar la seguridad y la concienciación de los niños pequeños.

**Conclusiones:** La integración del entrenamiento cognitivo es vital para que los entrenadores la apliquen como estrategia para desarrollar la capacidad de controlar las emociones y enfocar la visión espacial con claridad, de modo que los jóvenes jugadores puedan optimizar su potencial físico y mental y formar futuros futbolistas.

#### Palabras clave

Aspectos cognitivos, trayectoria de desarrollo, jugadores de fútbol, Indonesia, Malasia.

## Introduction

Cognitive aspects are related to temporal-spatial orientation, auditory attention, concentration, visual perception, memory, logical skills, language, and executive function (Tessele et al., 2024). If linked to branching sports, cognitive functions are included in athletes' psychological characteristics in determining the match's position or strategy (Arshad et al., 2020; Gemaini et al., 2024). The integration of cognitive abilities and social-emotional development of young athletes is a reference in strengthening basic skills such as memory, concentration, and problem-solving abilities. The cognitive dimension has interactive and structured access, so creating a fun learning environment can help promote children's intellectual and emotional growth (Cabahug et al., 2024). The explanation of this understanding is closely related to the development of football because cognitive abilities help players understand game situations, make quick decisions, and anticipate the movements of opponents and teammates. Good cognition can be a direction for young players to hone their vision, strategy, and adaptability, which are essential foundations in developing techniques and tactics for future football players.

Football is a sport that has a fast movement, where in the game there are elements of strategy and tactics, so cognitive abilities become the main point that can be the key to the success of a football team. The results of a study by Lilić et al. (2013) stated that football players with higher competition rankings have better cognitive abilities and perceptive abilities than those at low competition levels. This shows that the flight hours of football players also determine the cognitive level and success of football players in matches. Psychological adaptation and flexibility play an important role in cognitive and emotional functioning. The interaction of elements related to cognitive-affective processes is one of the manifestations of athletes in maximizing daily activities (Bryant et al., 2024; Westhoff et al., 2024). This means that their cognitive abilities, which are trained from an early age, have advantages in the decision-making process, as well as self-control and mental toughness, which help deal with stressful situations in matches and in daily activities.

The environment in which children live and train significantly impacts their cognitive development (Kim et al., 2024). According to Elliott et al. (2024), the effects of violence on child development can inhibit cognitive function in young adulthood. This description is undoubtedly information that children need to be in a positive environment to support their career in football so that neurological mechanisms can encourage a positive relationship between physical activity and cognitive function (Feng et al., 2024; Legault & Faubert, 2024). The cognitive aspects of the football developmental pathway are related to children's motor skills and coordination. These abilities require synchronization between the brain and body in responding quickly and accurately to stimuli on the field, such as the ball's speed or other players' movements. Mature cognitive processes allow young players to use physical abilities more effectively, such as controlling the ball or adjusting body position in the game.

Cognitive appraisal has links with competitive stress and emotions. Athletes who perceive stress as a challenge tend to feel more in control of the situation and more resourceful (perceived coping), leading to more positive emotional experiences, while athletes who perceive stressors as threats are more prone to experience less control and more negative emotions (Gomes et al., 2022; Staiano et al., 2024). Cognitive skills in youth football contribute to the ability to read the game, perform fast strategies, and manage mental stress. The link between psychology and physiology makes cognitive ability an essential domain for producing young players who are intelligent and effective on the field. According to (Pompeo et al., 2024), cognitive skills will impact the behaviour of football players on the field. Therefore, integrating cognitive aspects is needed for football players, especially those in the developmental pathway

## Method

This research uses a grounded theory approach proposed by Strauss and Corbin (1998), namely Evolved Grounded Theory (EGT), which emphasizes theory development. EGT is a research methodology that significantly appeals to various scientific disciplines because of its explanatory power. Strauss and Corbin (1998) show the evolution of grounded theory, which requires time and theoretical sensitivity to move continuously from data to theory. In qualitative research, three data collection methods can be



used: interviews, observation, and document analysis (Lebar, 2021; Gibson & Brown, 2009). This research follows the principles of Strauss and Corbin's (1998) grounded theory, so data is collected using semi-structured, in-depth interviews, observation, and document analysis. Integrating various methods in the data collection process covers a method's weaknesses, giving reinforcement and confidence to the researcher in discovering and obtaining more comprehensive data.

### **Participants**

The informants in this research were 25 coaches in grassroots football in two countries, namely Indonesia and Malaysia, with at least five years of experience. Coach experience is a resource that can be used and has implications for coaching future football players (Watts & Cushion, 2017). In addition, the criteria set for participation in this study is a coach with a coaching license in football. Trained coaches can have a more positive impact on young athletes than untrained coaches regarding athletes' psychosocial well-being (Sullivan, 2017; Paquette et al., 2012). To make it easier for readers to understand this article, the researcher gave the codes JI for Indonesian coaches and JM for Malaysian coaches who participated in this study. The researcher also attached a table of participants in this study.

Table 1. Participant Information Indonesia

No	Age	Licence	Coaching experience	Status
JI1	30	C	10 Years	Active
JI2	38	C	12 Years	Active
JI3	31	C	6 Years	Not Active
JI4	43	B	17 Years	active
JI5	53	B	16 Years	Active
JI6	49	B	15 Years	Active
JI7	45	B	18 Years	Active
JI8	42	A	14 Years	Active
JI9	36	A	13 Years	Active
JI10	42	A	6 Years	active

Table 2. Participant Information Malaysia

No	Age	Licence	Coaching experience	Status
JM1	41	D	16 Years	Active
JM2	46	C	10 Years	Active
JM3	68	C	36 Years	Not Active
JM4	48	C	20 Years	active
JM5	30	C	7 Years	Active
JM6	42	C	10 Years	Active
JM7	42	B	18 Years	Active
JM8	42	B	12 Years	Active
JM9	54	B	28 Years	Active
JM10	54	B	22 Years	active
JM11	43	B	17 Years	Active
JM12	39	A	16 Years	Active
JM13	59	A	30 Years	Active
JM14	65	A	40 Years	Active
JM15	35	A	12 Years	Active

### **Procedure**

The primary objective of research procedures is to ensure that research is conducted relatively and systematically, resulting in reliable findings that address the research questions. Additionally, these procedures provide structured guidelines for researchers in data collection and analysis and for producing relevant findings that are trustworthy and applicable to the research context. In this study, ten experts evaluated the draft questions prepared by the researchers. The evaluation results were then analyzed using the Cohen-Kappa index. The researchers followed the established procedures before data collection to secure approval from the primary supervisor. This approval was necessary before seeking permission from the Research Ethics Committee of the UPSI Management and Innovation Center (RMIC) to involve human study participants. The researchers complied with all administrative requirements related to data collection procedures. They obtained a certificate confirming the completion of ethical studies, referenced by the letter number UPSI/PPPI/PYK/ETIKA(M)/Vol. 15(50) - 050-2023.



## Data analysis

The next stage involves researchers analyzing the data that has been collected. This process begins with open coding, followed by axial coding, and culminates in selective coding. Researchers will utilize NVivo 14 software to manage and organize the data gathered from interviews and document analyses. NVivo assists researchers in categorizing and separating data based on the identified themes and categories. In this study, which includes twenty-five U-17 football coaches, researchers gathered 560 pages of transcripts. Each page must be meticulously reviewed word by word, line by line, and sentence by sentence. After the data transcription process, the researcher returned the transcripts to the participants. This was done to agree that what the participants said was the same as what was intended in the chat meeting process. The next stage is for researchers to analyze the data that has been obtained, starting with open coding and axial coding and continuing with selective coding, which also uses N-Vivo 14 software as a tool to manage data obtained from interviews and document analysis. N-Vivo helps researchers manage and separate data according to the categories and themes obtained. For more details, the researcher explains the data analysis process in this study following the development of grounded theory (Strauss & Corbin, 1998).

## Results

Researchers spent at least ten months completing this research process, which began with the process of preparing questions for interviews, the interview process, data transcription to data analysis, which was carried out repeatedly to find themes that would explain the appropriate form of parental support for children as football players at this level. Grassroot. The researcher first explains the data collection process in this research, which has provided information regarding the research results. The results found that the cognitive aspect is one of the individual psychological characteristics that football players need to have; this is important because it involves processing information, making quick decisions, and understanding tactics in the game. A good understanding of game strategy, opponent position, and field conditions can give players a significant tactical advantage because players need to think quickly and make the right decisions in changing situations on the field.

### Interview

The interview sessions conducted in this research used the principle of data saturation or information saturation, where interviews cannot depend on the number of participants but on the absence of new information from the participants so that the data can be said to be saturated so that the research can be stopped. The interview session conducted by researchers took approximately 1,643 minutes, or the equivalent of 27 hours and 34 minutes, for coaches in two countries, with an average of 65 minutes for one participant. The researcher tried to provide several examples of questions that have produced answers for this research.

#### Question 1

According to the coach, What aspects can influence a football player's development path?

In the game of football, the foot is only used as a tool, this is said because football requires players to have intelligence or intellectual abilities, as expressed by coach JM11, *"I hope when I do the exercise, he has a way of thinking faster, I want him to make decisions faster, he can trigger ideas, think critically during the game. One or two seconds of football is precious"*, the coach's statement above is similar to that expressed by coach JM7:

*"That is where intelligence comes in. That reasoning makes the difference between a good player and a biased player. His decisions are right, and he knows when to take them. When and where. We believe that we want someone who is a thinking player. He can think and make decisions based on the situation"*.

Other coaches in Indonesia also supported the information previously conveyed by the coaches above. Coach JI1 stated that *"football is a sport that requires the brain to think critically. Individual skills are what sets it apart. Some coaches even do IQ tests to see which players are ready."* Coach JI6 also conveyed similar information: *"The point is to be smart when using the ability correctly and at the right time or time."*



### *Question 2*

According to the coach, what cognitive aspects do football players need in their developmental path?

Players are required to concentrate and focus on their developmental path; another cognitive aspect that is also expected in players is the ability to use imagery, as this allows players to visualize techniques, strategies, and game situations in their minds before, during, and after competition. The coaches who participated in this study agreed that players need to have this imaging ability, as expressed by coach JM9, namely,

"We create imagery, imagine what will happen tomorrow, think about being able to make decisions quickly, if I receive the ball, I have already done a quick execution, so there is no need for body contact because of the quick decision making".

Coach JI7 also conveyed a similar statement regarding the need for imaging,

"We do imaging exercises, everything leading up to it, goal setting, self-talk. I can do it, and I will do it. We are geared towards minimising the issues that interfere with his mind or cognitive functioning."

Therefore, developing cognitive aspects is a must for football players who want to succeed. The cognitive aspect requires intellectual abilities from the player himself, such as goal setting and a strong will to achieve the development of his football career. A 17-year-old football player also needs this aspect and the ability to focus and imagine. In addition, goal setting also shapes player discipline and work ethic and teaches players to commit to the maximum to achieve the results set at the beginning. As stated by coach JM4, namely,

"To be a good player, you must have goals first'. Goal setting is the main thing before we want to plan what is next, and what coach JM12 said was, "We have to make sure that these guys set goals, the ultimate goal is that they have to represent the country or the national team"

### *Question 3*

What are the coaches' hopes about the involvement of cognitive aspects in the developmental pathways of under-17 football players in Indonesia and Malaysia?

The hope is that all parties involved in the development path of football players must believe that football does use the feet as a tool. However, the most important thing is the cognitive ability to move the feet, which we usually know as cognitive ability. Coaches and players must also be aware that this cognitive ability also plays an essential role in helping the development path of football players because it also involves focus, imagery and goal setting from the players themselves. For this reason, the coach must design a training pattern that can improve cognitive abilities. A coach's job is to provide information related to the need to become a successful football player and equip players with various training methods. However, the players' readiness is essential in improving their abilities, making them more efficient than other players. Who only depend on the coach's instructions. Those who have advantages will be selected and can reach the professional level, as conveyed by coach JM10:

"Are you willing to play football, are you willing to learn, are you willing to listen?" When you start listening, then you start learning. When you start learning, then you will improve yourself. When you improve yourself, your heart will speak. I will go further. That is playing the concept of player selection. Good lesson, accept it. What the coach says, accept it and do it."

### **Observation**

In addition to obtaining primary data from the interviews described above, researchers also made field observations by observing the process of practising and competing with football players. Another data collection technique in qualitative research is observation. Observation in qualitative research occurs when researchers make field notes about the behaviour and activities of individuals at the research site (Creswell, 2014). Observations are made to strengthen the results of interviews, but observations should not bias the researcher's perceptions, interpretations, and analyses (Ciesielska et al., 2018). Making observations may take longer, but observations have many benefits for qualitative researchers, as some people say they are doing something but actually are not doing something (Strauss & Corbin, 2008).





## Document Analysis

Document analysis was conducted to collect information about the need for cognitive aspects in the development pathway of 17-year-old football players. The collection of these documents helps to add evidence from other sources that has already been done and the information will confirm previous information. Researchers can collect documents that support player research during the data collection process. Some of the documents obtained by researchers are in the form of training programs each coach provides and books that become references for players, which provide knowledge to players about football. The analysis conducted by the researcher revealed that these documents came from the sports academy. They supported the findings of the goals of the football academy and the coach's views regarding the importance of this cognitive aspect.

## Discussion

Improving cognitive function through sports activities can be a valuable tool for improving the safety and awareness of young children (Akbar et al, 2024;). Football training launched in early childhood is not only a forum for developing children's talents, but through football, children will be trained in their abilities as one of the Life skill Integration through sports aspects (Afrizal et al., 2024). The positive impact resulting from sports activities is not only to improve health; more than that, children are trained to have the ability to deal with difficult situations and overcome them; this statement is the opinion of Heiskanen et al. (2024), which states that sports activities have an impact on the development of cognitive performance which can determine a person's quality of life. In addition, the experiences offered in competitive sports also positively impact children's character development (Mattie et al., 2020; Miller et al., 2004). The pressures and challenges in competitive sports can be a means of mental training for young children. According to Slutter et al. (2021), an essential part of competitive sports is the ability to control anxiety and mental stress that can determine athletes' success, so the cognitive domain plays an essential role in regulating negative emotions generated in competitive sports. Self-awareness is an essential point in overcoming any obstacles in competitive sports (Kreibich et al., 2022) because the relationship between coach leadership and the state of athletes during competition is inextricably linked (González-García et al., 2021).

Coach communication skills are essential transactions during training sessions and when travelling to sports competitions (Jowett & Cockerill, 2003). Other results also show that coach support has a positive dichotomy on athlete achievement and athlete mental well-being in the future (Kalinin et al., 2019). Coach communication can be a means of improving the thinking ability of football players. Using language that is easy to understand and the ability to express emotions also impacts athletes' understanding of football. Football is one of the sports with a high level of fatigue, so the athlete's ability to manage emotions on the field becomes one component that needs to be trained continuously (Shcherbak et al., 2023) and in a study mentioned that differences in cognitive abilities can be an essential marker for analyzing racial, ethnic and gender differences, especially in team sports (E. Evans et al., 2024). Therefore, improving cognitive abilities is closely related to goal setting, which determines the sustainability of early childhood football development. Goal setting is an essential component in sports achievement, this is because goal setting provides a clear direction for planning and evaluation in sports coaching (Elshahat et al., 2020; Kreibich et al., 2022; Monteiro et al., 2018).

The effect of physical activity on cognitive performance has a significant bearing on a person's success (Gammelsæter et al., 2023; Padulo et al., 2019; Zadkhosh et al., 2018). Many sports psychology experts recommend that training should be oriented towards physical aspects and consider psychological aspects in the coaching process (Hben, 2023; Muhammad et al., 2020). Training methods that involve intelligence help develop tactics and strategies so that they become an essential study for coaches in compiling training programs. Besides that, the use of technology can also help maximize the process (Kostiukevych et al., 2020; Sanjaykumar et al., 2024; Zheng et al., 2023). When it comes to individual character and personality, cognitive ability is related to self-strength, self-confidence, organized motivation, awareness, and focusing the mind so that balance and concentration during matches and training can go well (Kurniawan et al., 2024; Claver et al., 2020; Mallia et al., 2019; Öner, 2022; Uludağ et al., 2021).



The participation of families and coaches is fundamental in organizing sports coaching development plans so that efforts to promote a competitive training environment can be healthy for children's mental well-being (Akbar et al, 2024; Bettega et al., 2023; Eather et al., 2020). Criteria for the success of pedagogical patterns of physical training (Sepdanius et al., 2024; Bolotin & Bakayev, 2017) are essential for sports coaching. On the psychological aspect, the coach's consideration of sports competition anxiety among athletes in the preparatory mass can be a significant factor that helps reduce athletes' anxiety (Collins et al., 2009; Cope et al., 2017; Mottaghi et al., 2013). Training concentration by relying on imagery skills is an alternative to diverting negative emotions in sports competitions. Imagery training is a psychological strategy that coaches can use to teach novice athletes how to improve their sports performance and psychological skills (L. Evans et al., 2004; Hidayat et al., 2013). Hidayat et al., 2023; McNeil et al., 2021; Simonsmeier et al., 2021). The context of imagery training (mental visualization training) suggests that children can imagine specific technical movements, strategies, or game scenarios without performing them physically. According to (Velea, 2022), visualization exercises can help athletes be more aware of relevant stimuli and ignore negative stimuli from outside and from within. Through visualization, players can improve their technique, increase their focus, and better manage match pressure. Imagery can enhance the performance of athletes, including soccer players, by creating mental experiences similar to real match situations (Nicholls, Polman, Levy, & Backhouse, 2008). With regular imagery training, players can strengthen the mind-body connection, improve decision-making, and increase self-confidence. Imagery provides a significant competitive advantage on the field. Therefore, coaches and under-17 players should pay great attention to developing these imagery skills (Bjorkstrand & Jern, 2013).

Cognitive performance can be defined as the performance of mental processes related to perception, memory, intelligence, and action. Perceptual-cognitive skills are a person's ability to receive, define, and process environmental information to select and perform appropriate actions (Ando et al., 2023; Ayla et al., 2020; Patel et al., 2024). This means that the behaviour of football players on the field is a synergy of cognitive abilities in controlling themselves so that they are not influenced by harmful competition. According to (Nashmi et al., 2024), cognitive training strategies are essential in improving the skills of football players. In addition, the results of research from Bashore et al. (2018) state that elite football players have more proficient executive control over the motor system and show that the speed of controlling impulsive motor reactions represents a cognitive improvement. That is, motor skills are closely related to cognitive function; the better the cognitive abilities of football players are, the better their motor level.

The use of football as a means of developing cognitive and motor skills is a unity that has sustainable benefits for the development of sports achievements (Bursais, 2024; Friebe et al., 2024; Kozina et al., 2023; Mao et al., 2024; Srem-Sai, 2024). Other results also suggest that physical activity, depression, anxiety, and self-confidence are associated with cognitive domains in children and adolescents (Biddle & Asare, 2011). This review highlights the potential of implicit learning to overcome the effects of psychological stress in football and promote mental resilience and adaptability in competitive sports scenarios. Optimization of training methods and the ability of coaches to explore their application can be a driving factor in improving football players' skills to cope with emotional stress on the field. Integrating learning strategies linked to cognitive enhancement into football training programs can equip athletes with the mental tools to perform optimally and make it easier to reach peak performance (Pourreza et al., 2024)

## Conclusions

Improving cognitive aspects is part of a strategy to develop sustainable football achievements. The cognitive abilities of football players in the development path must be understood as a crucial part of determining potential football seeds in the future. Cognitive abilities should be identified based on intelligence, problem-solving ability, ability to make decisions, and ability to control emotions in the field. The integration of cognitive training in competitive sports has a positive impact on players' mental well-being because the better the cognitive level of football players is, the better they can control their emotions consciously. In addition, creating a healthy training environment is also very important for



both coaches and parents because the training environment can affect the concentration level of football players. The imagery training can also be an alternative strategy in training visualization skills, which can indirectly increase the confidence of football players. Therefore, the integration of cognitive and physical training is a strategic step to create superior and adaptive football athletes in various match situations.

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