Navarro-Adelantado, V.; Pic, M. (202x) The Motor Triad and Its Educational Value Through Two Competences. Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte vol. X (X) pp. xx. Http://cdeporte.rediris.es/revista/___*

# ORIGINAL

# THE MOTOR TRIAD AND ITS EDUCATIONAL VALUE THROUGH TWO COMPETENCES

# LA TRÍADA MOTRIZ Y SU VALOR EDUCATIVO A TRAVÉS DE DOS COMPETENCIAS

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**Código UNESCO / UNESCO code:** 5899 Otras especialidades pedagógicas (Educación Física y Deporte).
**Clasificación Consejo de Europa/Council of Europe classification:** 4. Educación Física y deporte comparado.

**Recibido** 7 de junio de 2021 **Received** June 7, 2021
**Aceptado** 2 de mayo de 2022 **Accepted** May 2, 2022

## ABSTRACT

Triadic games is analyzed from its communication structure and in its pedagogical and educational drifts, providing a message for teachers and students. The triad is an augmented source of relationships that relativizes the understanding of antagonism and cooperation in keeping with a complex society. The paradox gives meaning to the triad game and a relativizing way of thinking. To undertake the implementation of this type of motor triad requires the teachers' knowledge of the triad game (conceptualization, design), and the development of procedural learning by students. To learn about paradoxical situations, two competencies ('learning to learn', and 'social and citizen') were examined through 4 processes (mental processes, interpersonal processes, education in values and systemic), specifying 24 indicators to develop the learning strategies, each one with its reference to guide the teaching strategy.

**KEYWORDS:** sporting games, triad, physical education, competences, teacher-designed games, ambivalence

**RESUMEN**

El juego triádico es analizado en su estructura de comunicación y en sus derivas pedagógicas y educativas, aportando un mensaje para profesores y alumnado. La tríada es una fuente aumentada de relaciones que relativiza la comprensión del antagonismo y la cooperación en consonancia con una sociedad compleja. La paradoja da sentido al juego de tríada y a una forma de pensamiento relativizador. Para acometer la puesta en práctica de este tipo de juego se requiere un conocimiento del profesorado del juego de tríada (conceptualización, diseño), y el desarrollo de un aprendizaje de procedimientos por parte del alumnado. Para aprender de las situaciones paradójicas, se examinan dos competencias ('aprender a aprender' y 'social y ciudadana') a través de 4 procesos (procesos mentales, procesos interpersonales, de educación en valores y sistémicos), concretando 24 indicadores para desarrollar las estrategias de aprendizaje, cada uno de ellos con su referencia para orientar la estrategia docente.

**PALABRAS CLAVE:** juegos deportivos, tríada, educación física, competencias, diseño de juegos docente, ambivalencia

## INTRODUCTION

Through knowledge of the triad census and the strategic behavior triggered (Pic & Navarro-Adelantado, 2017), it would seem appropriate to delve into the educational value and the problem of competencies in order to find the usefulness of the motor triad for physical education.

In the same publication (Pic & Navarro-Adelantado, 2017) the census of motor triads and the strategic enrichment generated was shown and justified. The complexity provided by the various forms of triad structure and its strategic developments have led to various subsequent individual investigations, which constitute a series of articles that make up a new line of research, gradually developed. Some examples of this topic would be the T-Pattern detection (temporal regularities) by player's decision-making (Pic, Navarro-Adelantado & Jonsson, 2018), gender differences in strategic behaviors (Pic, Navarro-Adelantado & Jonsson, 2020), the opening of the triadic rule with connectivity deficit (Navarro-Adelantado & Pic, 2020), the verification of signs of triadic playability under critical situation, translated into the paradoxical solution that rebalances the strategic options of potentially weak teams (Navarro-Adelantado & Pic, 2021), and triadic asymmetries in strategic behavior and its impact on gender (Pic, Navarro-Adelantado & Jonsson, 2021). This article addresses the feasibility of offering educational and curricular value to the motor triad through two competencies.

Sporting games have their own pedagogical character and function. However, the strong influence of sport makes them lose a part of their wide pedagogical possibilities, from the perspective of the established communication to play.

This character of the sporting game is kept in its structure, in the communication it unleashes, and in the pedagogical drifts that it entails. It is also advisable to focus interest on social action capable of promoting other conditions for relationships and showing them in pedagogical practice as an alternative to those already established. There are pedagogical consequences that come from the contamination of the sporting game (Kalman-Lamb, 2020) by close influences of the sport in its dual version. It is unfair to affirm that the drift is entirely negative, because the dual sporting game contains relevant motor and strategic learning, and it is one more relationship option to play. The problem stems from one activity being prevalent over another, and above all from its symbolic background. Our interest is in the contribution of new proposals for sports games that involve a different motor communication and facilitate a message for practitioners closer to social complexity, as well as being raised in the curriculum (Alfrey & O 'Connor, 2020; Devís, 1996; Walton-Fisette & Sutherland, 2018).

A play structure is also always a scene of situations. Thus, the polarization of the dual game is a form of relationship that expresses a repertoire of players decisions (Castro et al., 2019; Vila-Maldonado, Sáez-Gallego, García-López & Contreras, 2019) that the triad questions incorporating a phenomenon: the paradox. The emergence of paradoxical thinking (Rothenberg, 1979) can be beneficial in integrating ambivalence (Jachyra & Fusco, 2014) as one more form of social relationship. The triad increases the decisional complexity by requiring the teacher's knowledge.

The analysis of the communication has reasons for reflection and dilemmas of situations in a playful model with interest for practical application. For Simmel (1997), communication and values are two aspects of interest; this conjunction supposes a playful experience that can be harmonized in practice and in educational intervention. Neither communication nor the values that help to shape the triad game constitute a reality alien to the dual game, but it is more socially complex and, in parallel, a relativization of the dyadic relationship. There is a triadic hallmark, not feasible for the dual game, which is the paradox, with its courtship of triggering and mitigating situations (Bauman, 1991). This hallmark gives meaning to the triad game and to a relativizing way of thinking, and this makes it worthy of being the axis of educational intervention. Contradiction and non-linearity (Chow & Atencio, 2012) are keys to understanding organizations (Cameron & Quinn, 1988) and the processes causes by the paradox. In a pedagogical context, the study of the paradox provides an organizational meta-knowledge that is supported by the systemic study of complex and rich relationships. To learn in depth from situations, generating paradoxical processes can be an alternative (Lewis & Dehler, 2000), for example to play (Oboeuf, Collard, & Gérard, 2008) with sufficient competence.

We openly question about how to approach the ambivalence with games as a pedagogy (paradox-pedagogy), how to conceive it and which the specific procedures to solve the ludic complexity. Thus, the motor triad (MT) hides experiences that are understood by the practitioners of the game (Hastie, 2010;

Hastie, Casey, & Tarter, 2010), constituting a tangible recreational reality and a pedagogical potential of interest.

## THE TRIAD AS A RELATIVIZING MODEL OF SOCIAL RELATIONS AND ITS MISUNDERSTANDINGS

There are game conceptions of a social nature; in this sense, it is necessary to advance in the game ambivalence as rhetoric (Sutton-Smith, 2001) to come to understand the triad as a practice to transform human action into communicative action (Jorn, 1962; Habermas, 1984). In order to do so, MT is an option with a double advantage. The first advantage is motor enrichment and the expansion of its relational situations, favoring making motor-learning people more competent. The second advantage is the shared paradoxical situation and its critical reflection (Stolz & Kirk, 2015; Fernández-Balboa, 2017), which can be transferred to pedagogical orientations for teachers. Both advantages question the dual strategy used in the triadic game (Pic & Navarro, 2019) and the beliefs attributed in physical education and sport (Hargreaves, 1977; Kirk, 1990). Asger Jorn (1962/2015), influenced by Niels Bohr's Complementary Theory and a member of the Situationist International, devised a triad soccer game when he saw in conventional soccer a background to the class struggle and wanted to propose an alternative that reflected social complexity. Jorn (p. 133, 134) defends new rules for a law of contradiction, with a unity and a doctrine of asymmetry stating that any complementary relationship must be at least triple, and never be established in a purely double system (p. 135).

MT is a way of organizing a forces disposition according to three autonomous units (teams) with autonomy to decide, covering 13 census triads (Pic & Navarro, 2017, 2019). As a model, MT breaks dual polarization through coalition and means a change in the playful environment that diversifies motor communication and its pedagogical approach; this supposes the relativization of the interrelations process and how to understand it. However, the dual and triad games are joined by structural confrontation and antagonism as a finalist action. Certainly, triadic complexity (Chow & Atencio, 2012) is greater than duality; this fact is understood when confronting the transit of states; Navarro (1995) compared the same game and roles with dual and triad structures, verifying the increase in the density of communication relationships at the role level. Another aspect that adds to the model is the simulated resistance in the triad games of two weak teams united against the greater power (stable, eventual) or privileged strength of a third element; therefore, the phenomenon of strategic solution acts as a functional response of resistance (Foucault, 1980) derived from a particular communication structure. This breaking point of the dual crisis in favor of a third element (Team) through the coalition constitutes a ludic experience with pedagogical interest. Bauman (1993) suggests that we should live together as in a playground, which is a way of facing the social issues and favoring a particular activity. In this way, the triad game serves an ambivalence with space for the paradox in educational approaches, inherent in a liquid society (Bauman, 1991), because it relativizes dual polarization and is useful for reflection on the meaning and rupture of the duality.

The dominant scenario of the game (Casey, 2017), seen as a polarized sport, supposes a forced inheritance of a dual thought (Lévi-Strauss, 1987; Navarro, 2006) that has permeated all types of games. Cooperative play emerges as an alternative to antagonism (Orlick, 2006), being a powerful option and with a message opposed to rivalry; however, the dual game needs a reason within its own antagonism. The internal point is provided by the triad game because it contains the human contradiction, the paradox; this is a positive contradiction because it opens up more relationships and allows the game to be rebalanced with participation in a coalition. Thus, for example, Orlick (2006) does not eliminate team-facing games from his cooperative game proposals, and tells us how to play competitive games.

The triad is often misunderstood when its ambivalence is perceived; thus, an intuitive exercise of opposite directions is not enough, the reality and practice of the game is more complex. One of the seven rhetorics that Sutton-Smith (2001) includes in his analysis of the ambiguity of play is play as power, as a form of competence (p. 74) involving two groups (p. 75). The difference in power of the teams in the triad game behaves as an asymmetry of forces, which can be initial but present throughout the development of the game. In the debate between the differences of forces before an activity, the educational intervention also suggests constructing critical approaches, together with viable alternatives to unveil the pedagogical discourse of the ludic microsociety formed by MT. The triad social motive is always a positive ambiguity, because ambiguity in the presence of the rule is beneficial for society since it is capable of expressing itself within the ludic organization. This idea removes any attribution that the paradox is confusing or contradictory (Boudon, 1977; for example, The Guardian [May 7, 2013] three-sided football as organized confusion) because it is agreed and proceeds from the rule (Parlebas, 1981, 1988). Precisely, the confusion or the attribution of disorder in the triadic game comes from the unpredictability of the actions, and even more if they are vertiginous, as happens, for example, in teams or ball pursuit games. In triadic team play there is an order about how players are to act strategically, though more subtly than in dual confrontation.

Reflecting on triadic ambivalence, it can be seen as a ‘double bond’ or ‘double obligation’ (Bateson, 1979; Parlebas, 1988), because ‘de facto’ it constitutes a relationship category (antagonism-solidarity) that establishes reciprocity. Consequently, there is no confusion or contradiction in the triad, but rather greater subtlety and complexity in the coalition relations, susceptible to educational advantage. Thus, in the triadic game development, the breakdown of the antagonistic dual strategy has its exhaustion, providing an ephemeral advantage. In this way, the progress of the game leads to a path where rivalry and solidarity (R∩S) come together episodically; this point of union is confirmed by the rebalancing of the strategic advantage that weak teams seek.

There is also a structural argument to adequately understand MT; this argument resides in triadic communication and motor interactions that justify the actions of the players. There are two powerful reasons to put in the hands of teachers and students the possibility of understanding the logic of situations and learning with these games. A group of authors analyze ambivalent sports games (Guillemard

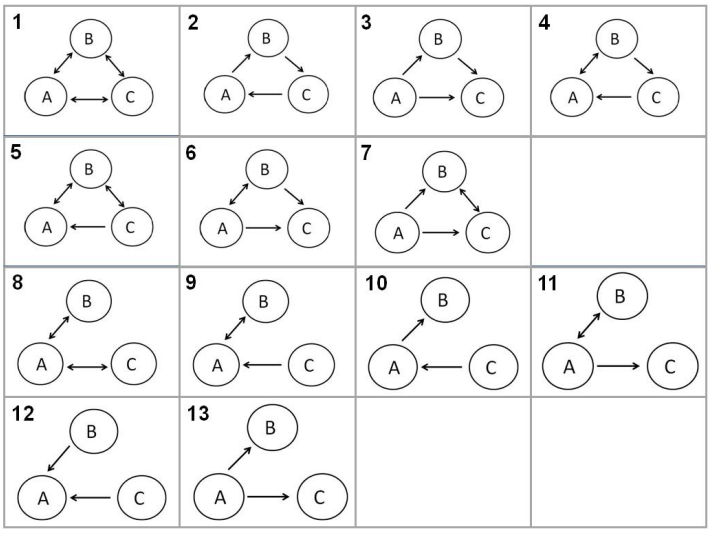
et al., 1988; Parlebas, 1988, 2010; 2011; Pic & Navarro, 2017, 2019; Pic, Navarro-Adelantado & Jonsson, 2018; Pic, Navarro-Adelantado & Jonsson, 2021; Navarro, 1995; Navarro-Adelantado & Pic-Aguilar, 2016; Oboeuf, Collard & Gérard, 2008) and, among them, two types of motor triads are examined: Parlebas (2010, 2011) studies the game Three Fields (triad type 2, figure 1) and Navarro (1995) Maze (triad type 1, figure 1). However, these previous games belong to two types of motor triads from a broader census for a total of 13 structures (Pic & Navarro, 2017, 2019) (Figure 1) and their developments in internal logic (Parlebas, 1981, 1988).

It is not honest to disconnect the social point from the structural one, because the students lose the opportunity to give community meaning to their practice and to transfer strategies to game families. Therefore, playing and reflecting requires a shared strategy among the teachers who design the game, and among the students (André & Hastie, 2018; Fernández-Río & Morales-Sallés, 2020) that modify games.

## FOCUSING THE LEARNING OF THE MOTOR TRIAD IN NEW CONCEPTIONS FACING THE COMPETENCES

In order to transfer MT to games programs in education, teachers need to identify this type of game (Table 1, indicator 1) and its specificity. This option of games helps to develop capacities framed in competences, as it will be explained later (Tables 1 and 2), establishing the relationships between the specificity of MT and the learning of two competences. From a strategic point of view, cooperation between teammates and opponents hides an individual aim, because it corresponds to the demands of seeking advantage in the game (Table 1, indicators 2-7 and 12) and the strategy is a reflection of the chances of winning by each team. This excludes the altruism of the actions from the theoretical discourse (Casey, Goodyear, & Dyson, 2015; Fernández-Río, Sanz, Cando, & Santos, 2017), although it can be contained in the reflection on the ludic experience, because it is a practical cooperation that can apply according to the player's will (Table 2, indicator 21), within the frame of the rules. There is no social impairment in non-altruistic cooperation, because life is full of commitments in which to work together for a common good. Triadic cooperation is the other side of the coin of triadic antagonism, because both relationships are relativized within the rules (Table 1, indicator 11). All this attenuation of rivalry and solidarity is summed up in different triads seen from the communication flows (Figure 1).

**Figure 1.** Census of motor triads (Pic & Navarro, 2017, 2019)




MT has a greater wealth than expected, forming two groups: the types of triads connected in all their nodes (teams), which are triads of type 1 to 7, and the types with the absence of a connection between two of their nodes, which are from 8 to 13 (Figure 1). All triads are ambivalent and stable, that is, they promote paradox and the players always belong to their own teams. All types of triads have gameplay and more than one paradox (Pic & Navarro, 2019), which is confirmed with specific games, being the mechanism by which the paradox emerges, the rebalancing of forces at a critical moment with incidence on the outcome of the game (Table 1, indicator 5; Table 2, indicator 14).

Proactive rebalancing works at disadvantageous conditions - most often at a critical point in the game (Table 1, indicator 5; Table 2, indicator 23) - of the two weak teams versus the stronger team, because the triad can end with a winner. The strategic trigger is that everyone struggles to win, opening the way to a richer process offered by ambivalent communication (Table 1, indicators 6 and 12; Table 2, indicator 13). Human imperfection causes the game to end and a constant loop of rebalancing does not happen; this is the human response to the mathematical forecast of the games (Caillois, 1986, p. 284; Parlebas, 2011, p. 23). The reflection is that thanks to limitations we do not fall into the hands of uncertainty (Table 2, indicator 16) and decisions can be made (Aarskog, Barker, & Borgen, 2019) in triadic situations.

An MT cannot be examined as a dual game (Table 1, indicators 2-4 and 7), so the rule must allow the paradox to emerge, because it is inherent to the triad. This quality of the game agreement, or 'opening of the rule' (Table 2, indicator 19), is not found in sport because it precisely uses the rule in a contrary way (closing the non-belonging behavior of the teams), as it is characteristic of exclusive communication. The triad is consistent with its ambivalent structural condition in transferring to regulated relationships (Table 2, indicator 20) the situations that are potentially given to the relativization of rivalry and solidarity. Although the paradox is not typical of sport, there are triad games that, within their particularity, are more transferable to sport. This is the case of the triad type 1 (Figure 1); Navarro (1995) applies it with the invention of a team chasing game (the Maze), with simultaneous participation. This is also the case of some

of the triad sport solutions, such as the one inspired by the ideas of Asger Jorn, with a first meeting in 1993 and, subsequently, official meetings (FIFA, 2014, Three Sided Football World Cup, Denmark 2014). The type 1 triad (Figure 1) appears to be a double duel, but it is more than this because it responds to triadic solutions. The triad type 2 (Figure 1) is the best known one thanks to the work of Parlebas, through the game, also called *foxes, hens and vipers*; it is a constant paradox where the idea of 'the hunted hunter' is permanent. Both triads are played under symmetry conditions related to the number of players, roles and actions allowed to players (Table, 1, indicator 6; Table 2, indicator 24). Unfortunately, the recreational heritage lacks triad games for the rest of the census types, that is, 11 more types. This triad game design work is carried out by Pic & Navarro (2019) with chase games and ball games but, in order for it to be used in physical education classes, guidelines are required for both the design and the learning of procedures (Table 1, indicators 8 and 9).

The two examples cited from triads 1 and 2 of the census (Figure 1) have their particularities and interest for learning. Triad 1 (A↔B↔C↔A) increases the complexity of team dueling but incorporating the rebalancing solution into great antagonism (Table 1, indicators 2 and 5-7). If we place ourselves in a game of simultaneous pursuit of teams (Pic & Navarro, 2019, the Maze [modified] p. 119, 202, 232), the three corresponding strategies seek victory, but the moment a team progresses and is about to make the opposing sides, the other two teams will activate a coalition by saving one or more opposing prisoners (Table 1, indicators 10 and 12; Table 2, indicators 14 and 17); otherwise, defeat is certain for one of the two weaker teams (Table 2, indicators 18, 22 and 23). For its part, the type 2 triad (A → B → C → A) is the furthest from the communication structures used by sport (Parlebas, 1988, 2011), with two versions (Guillemard et al., 1984; Pic & Navarro, 2019, p. 121, 203, 237). The relationship in the game is a trap from the moment, the chase is activated, since the closer a player is to touching a fleeing opponent, the more feasible is the capture for a third team pursuer. That is, a permanent paradox (Table 1, indicators 2 and 7) that is added to the episodic ones, a question that is radically contrary to the thought of sport.

However, the vision of sporting games through the triad changes when we focus attention on structures with the absence of a connection between two of its three nodes (teams) (Figure 1). Let's see the type 9 triad, which at first glance seems unfeasible as a game (Table 1, indicator 9). It's not like that; the triads of types 8 to 13 hold a surprise in the middle of asymmetric relationships (Table 1, indicators 2, 7 and 12); this is the case in an adaptation (Storey and Butler, 2013) of the chase game The String Cutter (Cortahilos), in which there is a non-complete relationship (A↔B, B and C without connection, C ← A, where C is the privileged team and side A the weakest; figure 1). The asymmetric initial force distribution is compensated in the design of the number of players per team and the options of the roles (Table 2, indicators 22 and 24).

Let's see two critical moments of the development of the game (Table 2, indicator 23) of the triad type 9, according to the strategic interests of each team and the appearance of the paradox (the 'opening of the rule' is taken into account as a criterion (Table 2, indicator 19), with the rule "The prisoner can be

saved by a free player"): Paradox 1. If team C is about to win (there are very few free players to capture from team A and almost all of them have been taken prisoners), So the only way to continue in Team B's game is to save an opposing prisoner from side A (Table 1, indicators 10, 11 and 12; Table 2, indicators 15, 17, 21 and 23). Paradox 2. If team B is about to win (there are very few free players from side A and almost all have been taken prisoners), then it happens that side C would not win the game, so some player from this team, in order for their team to maintain its winning options, it would save a captive opponent from side A (Table 1, 5).

The learning of the triads is shown as a specific context for motor actions, with rich situations in which role interaction develops the paradoxical way in a particular and meta-communicative reciprocity. It is now necessary to analyze its effective integration in the curriculum.

## APPROACH TO COMPETENCY-BASED LEARNING FOR THE MOTOR TRIAD

Proposing MT in teaching has a double perspective: the teacher as teaching designer and students as the protagonists of their learning. For PE teachers, MT offers a revisionist concept of the established ludic reality with which to plan how to deal with rich motor situations; for students, it is about appropriating knowledge, finding the logic of the situations in which they learn, revealing the processes and consequences of what they learn, and predisposing themselves to the game.

When examining the competency potential (Lleixa et al., 2016) in the educational curriculum (Halász & Michel, 2011) from the pedagogical vision that we provide of the MT, we link it to two key competences, which are a regular part of the teaching curricula of secondary education at a European level; they are ‘learning to learn’ competence and ‘social and civic’ (Tables 1 and 2) (EU, 2006; CE, 2012; European Union, 2006: L 394/313; Haláz & Michel, 2011). Both competences are significant to address learning in which MT is the object and resource; to undertake this purpose, two criteria are integrated. The first criterion corresponds to mental processes (cognitive, alternative and critical, creativity, and metalearning), and the second is interpersonal and systemic (relational, values, rules, instrumental organization, groupings). Attitudinal and didactic aspects are excluded from the analysis of the two competences in Tables 1 and 2, since only attempts have been made to link them with processes and indicators and with guidelines for the teacher.

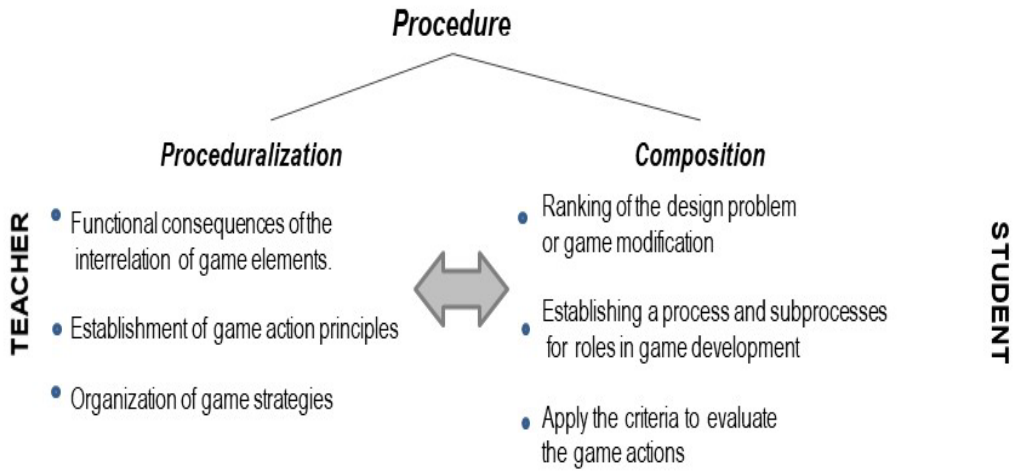
There are two important facts in MT competence learning: learning to learn the triad, and recognizing and putting into practice triadic social relationships with others. ‘Learning to learn’ implies generating a specific procedure on personal learning with respect to paradoxical content, very dynamic and logical; for its part, the triad has a strong social impact, in its interpersonal practice and cultural debate, in a participatory, cooperative and constructive way (Darnis & Lafont, 2015). In Tables 1 and 2, based on the processes (mental processes, in Table 1; interpersonal, education in values and systemic processes, Table 2), 24 indicators are specified to develop learning strategies, each of them with

their own references to guide the teaching strategy. Let's look at an example for each competition.

*Example 1: Game design, procedures learning.*

Since the options for combining elements for game design are limited (Navarro, 2002, pp. 295-357) and given the analytical difficulty, it seems convenient to approach game design basing on a problem (Casey & Hastie, 2011; Casey, Hastie & Rovegno, 2011; Hastie, 2010; Hastie, Casey & Tarter, 2010; Méndez, 2011). The most accessible problem for teachers and students is how to play a known dual game in a triad. For this, the simplest solution is found in the triad type 1 (Figure 1), with questions adapted to the roles and tasks that are carried out, the adaptations of the game space, the scoring system, the presence or not of goals, etc. Undoubtedly, the 'opening of the rule' must be considered, since failure to do so could close the option of cooperation between adversaries, which is inherent to the triad. For example, if in the Type 1 triad, a player playing with a foam rubber ball who tries to hit the body of a moving opponent, the rule says that the ball can only be passed between fellow players, the paradox would be hindered.

Seen from the learning of procedures (Coll & Valls, 1992; Navarro, 2002), we distinguish between 'proceduralization', to transform specific knowledge thanks to principles (concretion of functional consequences in the interrelation of elements of the game, establishment of principles of game action, organization of game strategies), and the 'composition', or compilation of two or more processes (ordering of the game design or of the modification problem, establishment of a process and sub-processes for the roles in the development of the game, proposal of aspects to evaluate the game actions). Taken to the type 1 triad game above and as an example of proceduralization, the group of students would work to establish a principle to protect themselves from catches with the ball, which, as a hypothesis put into practice, could be 'escape to distant from the ball and prisoner support'; as an example of the composition of the procedure, a group would build a role transition (map of a decision tree of a player in play) based on the game experience.




***Example 2: Values***

Triad motor communication provides a space to locate a playful activism and serve as a reflection on the meanings, ways of thinking and the type of game that best fits all of this. However, it is necessary to clarify that the values derived from the reciprocity of the triad are contextualized in playful situations of confrontation; for this reason, it is an aspect to include in the debates on the reality of many human relations of groups or institutions united by norms. All mentions of the values expressed below are reflections that can be transferred to the students for discussion.

There is an increased reciprocity value over the adversary in the game after the weak teams coalition to counter the greater strength or privilege of a third team. Many times, it is expected based on what is given to others without expecting anything in return, and other times there is an expectation of receiving. The triadic game rule acts for relationships in a democratic way because it makes relationships reach all players equally, so that reciprocity will take place although without ordering a pattern of with whom. Relationship expectations in the triad teach us that a reciprocal action is open for the future and is not strictly measurable or expected mutually and instantaneously. The reciprocity of the coalition becomes a fluctuating transitional pact, helping to shape an ethic of transitory and fickle 'give-receive-return-share' reciprocity; in this, the player's will is the one that ultimately decides, because the rules are a margin of action, not the action itself. Another value highlighted with interest in the teaching of the triad is the relativization of winning in the game since, even if victory is possible, there is a process of resistance from the weak teams against the privileged one, favoring the effort to keep in the game as a way to preserve yourself. This resistance can be understood as another way of obtaining success in group tasks and experiences.

**Table 1.** The competence 'Learning to learn' in the development of the motor triad.

| Key Competence | Mental process | Indicators [1] for the learning strategy | Guidelines for the teaching strategy |
|---|---|---|---|
| Learning to learn | Identification | Paradoxical game *1* | Recognition and implementation of a triadic game to collect opinions from the students about the character of the game and its situations (Oboeuf et al., 2008) |
| | Conceptualization | Triadic state *2* | Exemplification of the relationships of three interacting teams and the phenomenon of paradox. |
| | | Reciprocity *3* | Review of the reduced use of the concept of triadic reciprocity due to the influence of sport. Expansion of relationships in triadic reciprocity for strategic interest. |
| | | Complexity *4* | Description of ambivalence as three interactions: antagonistic, cooperative, and paradoxical (R∩S). This implies a lower prediction of a pattern for relationships (Pic et al., 2018; Hussain, 2018; Storey & Butler, 2013). |
| | | Strategic rebalancing *5* | Balancing situation to counter the greater strength of a team, with an episodic and / or permanent character. |
| | | Variability | Confluence of different triads, grouped into symmetric and asymmetric, giving rise to |

| | | | |
|---|---|---|---|
| | | *6* | strategically more numerous and richer situations and tasks. |
| | Reasoning | Communication logic *7* | Meaning of the communication variables: ↔, →, ← (at the team and role levels). A priori method to analyze the behavior of the triad: deducing the preferences of each team and their roles, according to the preferences of the other teams. Preparation of decision trees (Aarskog et al., 2019) from each role. |
| | Problem resolution | Procedure *8* | Establishment of a triadic game principle (proceduralization) to foresee the strategic behavior of cooperation with the adversary. Composition of the variables of systemic elements that give rise to processes and subprocesses that concur in the game situation (Navarro, 2002). Elaboration of conceptual maps to give meaning to the triad. Evaluate the procedure followed (Coll & Valls, 1992). |
| | | Game Design *9* | Solutions to game design problems, identification of structural elements and functional consequences that they bring with them. Implementation of game proposals and assessment of their results (Navarro, 2002). |
| | Critical and reflective thinking | The complex reality of social relations *10* | Discussion about whether the triad is more similar to the reality of social relationships, in which individuals and groups oppose each other due to different goals but they need help each other, than the dual relationship. |
| | | Relativization of antagonistic relationships *11* | Discuss how antagonism is not absolute in triad play, as in other human activities. |
| | Metacognition | Instrumental metacommunication *12* | Ability of the triad to generate a paradox and for two teams to form an alliance, by having all the players information on the progress of the outcome and, thus, preventing the strongest team from winning the game (Pic & Navarro, 2019). |

*Note:* The second column shows the mental processes taken from Jornet, García-Bellido and González-Such (2012) and associated indicators (third column) for the learning strategy

**Table 2.** Social and civic competence in the development of the motor triad

| Key Competence | Mental process | Indicators for the learning strategy | Guidelines for the teaching strategy |
|---|---|---|---|
| Social and Civic | Behavior | Cultural pattern *13* | Review of an established cultural pattern. The antagonism moves towards a common pact or form of strategic cooperation (Orlick, 2006), and the coalition relativizes the dominant pattern. |
| | | Roles, subroles *14* | Recognition that social action is channeled through a given role and the possible options derived from it. |
| | | Filling of 'Structural hole' (Burt, 2004) *15* | Showing of the example of a triad (e.g., Fig. 1, type 9) lacking a connection between two of its three teams, but with collaboration of non-connected teams by providing all players with information on the progress of the outcome (Pic & Navarro, 2019) enabling them to make strategic decisions (Aarskog et al., 2019). |

| | | | |
|---|---|---|---|
| | | Imperfection of game behavior *16* | Players also face their limitations. Due to these human limits, players enjoy trying to achieve goals in situations of uncertainty. |
| | Values | Coalition between the weakest *17* | Coalition recognition as a socially desirable reciprocity (Orlick, 2006; Navarro-Adelantado & Pic-Aguilar, 2016) |
| | | Keep playing *18* | Maintenance as sustainable, resistance, and effective strategic action, without excluding, the winning option. |
| | Rules | Triadic Rule Opening *19* | Consubstantiality of the triadic paradox, avoiding that the ambivalent opportunity in the design of the rules of a game is limited. |
| | | Paradox described in the rule *20* | (For a symmetric triad, Fig. 1, type 1) Design of a rule that fosters the paradox as a shared task between adversaries linking it to a permanent role (Navarro-Adelantado & Pic-Aguilar, 2016). |
| | | Help *21* | Recognition of the function of rules in group relations, and help to a partner or an opponent during the development of the game, when the player decides the right moment to carry it out. |
| | Organizational and relational processes | Triadic Organization *22* | The change of roles in the triad (role transition) develops an organization with intragroup (+) and intergroup interactions (+, -) that produces a changing strategy. |
| | | Critical moments of the appearance of the paradox *23* | The triads have critical moments, derived from the progress of outcome, and the strategic solution brings out the paradox as an effective option. |
| | Grouping | Symmetry and asymmetry of strengths and role options *24* | The a priori and practical strengths of teams can be symmetric or asymmetric; in the case of asymmetry, it must be compensated with a correspondence in the number of players and the actions derived from roles. |

## EPILOGUE

The polarization of duel is one more way of playing, a reductionism of sociability, and it is difficult to understand its current protagonism in game programs. Our message is that MT (Navarro-Adelantado & Pic, 2022) offers another way to understand and live the game experience with team confrontation. To do this, we have delved into the heart of the triadic message, in its transfer to games programs and to the physical education curriculum (Alfrey & O'Connor, 2020; Hussain, 2018; Kirk & Macdonald, 2010). Despite the cultural impact of sport and its dominance over games, its place in physical education programs is not questioned, but rather the monoculture of the dual model, influencing the projection of sporting games; accordingly, positive and viable ambivalence with MT is postulated.

In the educational context, playing (Butler et al., 2020) is also learning, and MT constitutes a ludic model with a variety of forms of communication that emphasize social relationships worthy of acknowledgement, practice and reflection by students (Casey et al 2011; Casey & Hastie 2011; Hastie, 2010; Hastie et al., 2010).

The professional responsibilities of the physical education teacher, both as a game designer and as a developer of ways of learning the procedures to solve game problems (Navarro, 2002), are two aspects of a games pedagogy that have good educational reasons in the MT game.

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