The enchanted bond that unites games to the act of thinking

https://doi.org/10.56238/sevened2024.026-066

Maria Apparecida Campos Mamede Neves[1]

ABSTRACT

The objective of this article is to discuss the importance of games in the construction of essential skills and competencies for the reflexive cognitive development of children and adolescents, especially among those who live in the poor segment (favelas), do not have the necessary physical/social support for their development. It is based on authors such as Damasio, Piaget, Huizinga, Pain and on his 20 years of experience working with groups from needy communities in Rio de Janeiro (Brazil) and several other states of the country (always supported by the National Research Center [CNPq]). It proposes a way of using the game in a playful way in the classrooms that considers not only playing, but, mainly, reflecting on the moves made and their effects. It also makes an incursion into ancestral games and the importance of their structure and their playing, often found in current games, of which one is not aware, as well as their symbolic value has been lost by most in today's times, leaving only winning for the sake of winning, profiting, winning.

Keywords: Thinking and the construction of knowledge, Learning, Ancestral games, Taxonomy of games.

[1] Professor Emeritus at PUC-Rio; Doctor in Psychology PUC-Rio

INTRODUCTION

I am always asked why I like the use of games with children and adolescents, both in the daily life of the school and in groups of community centers. There is no mystery. Because the game, when played well, is fun and develops mental structures! In fact, it seems to me that there is no longer any doubt about the importance of playing for the development of human thought, and, for this, at least for those who believe in the relevance of studies in Neuroscience, mental functioning must be better understood.

Thus, I believe that, if the cognitive abilities and the ways of structuring the individual's thinking are determined by congenital factors, their development and transformation into competencies occur as a result of the activities practiced according to the social habits of the historically dated culture in which the individual develops. I agree, therefore, with Damasio in his criticism of William James' formulation, when he affirms the restriction of emotions at the level of somatic alterations, not giving due attention to the mental processes that provoke emotion.

Thinking includes emotion; emotion structures and alters thinking.

I perceive with Damasio "the importance of emotions and feelings in the construction of our reasoning; that they play a very important role in the development of reasoning and decision-making To have what we call basic consciousness, you need to have feelings. That is, the brain needs to be able to represent what happens in the body and outside it in a very detailed way." [2]

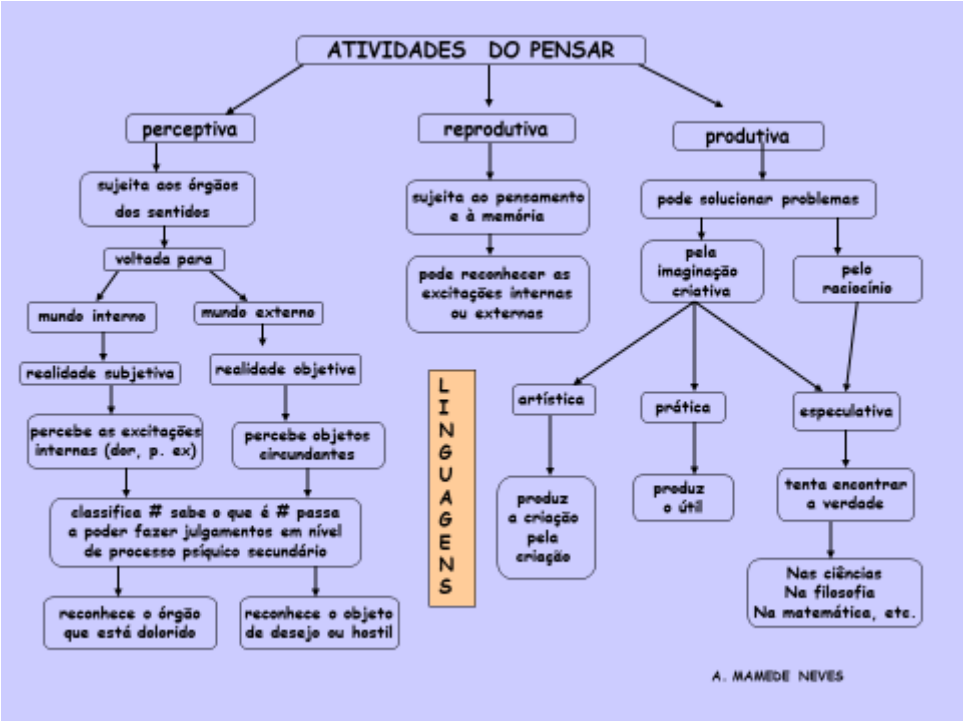
According to Damásio, but not only him,

> "... Emotions have been extremely successful, throughout evolution, in keeping us alive. Fear made us less exposed to danger and had a better chance of surviving. Joy has given us incentive to do what we need to thrive: exercise the mind, invent solutions to problems, eat, reproduce, not to mention the guilt that helps to maintain conduct in accordance with living in society.

Feelings are, therefore, fundamental to organize society and were fundamental for the formation of moral systems. But we cannot leave emotions without the brake of a systemic organization that is superior to them... and decide when an emotion is not advantageous. There's a basic level where emotions help, but there's a higher level where emotions tend to be not the counselors, but the counseled ones."

In this regard, the contribution of Freudian theory with regard to thought was very important in my training:

[2] https://veja.abril.com.br/ciencia/o-homem-esta-evoluindo-para-conciliar-a-emocao-e-a-razao-diz-antonio-damasio



Thought is, as you can see, much more than simple information processing. It is, above all, analysis, judgment and criticism and implies a permanent articulation between reason and emotion, a dynamic process that, at all times, is faced with the need to choose between paths of its networks. To this end, he has the possibility, after receiving the information, to record, signify and store it. It works with mental representations of external reality, visual, motor, tactile, language and movement, organized in operating structures capable of putting into action *mechanisms of anticipation*, perhaps the most important characteristic of its functioning.

But how can thought be communicable? We adopt the conceptual hypothesis that it is through language that thought becomes communicable, no matter what form of language is being used. Consequently, we give paramount importance to the interfunctional relations between thought and language, relations that will not be understood as long as thought and speech are treated as isolated functions.

I put this as a pillar for the construction of my ideas, I immerse myself in the fascination that games produce.

In this new millennium, we usually say that, more than ever, we live challenged by a new world and that this is mainly a consequence of the revolutionary changes that technology has provided. Even if sociologist Manuel Castells himself, since 1999, has been taking us down this path, I am not so sure of it, because technology is for today what perhaps was the invention of the printing press for the time it was invented, or the telephone, when it turned on voices in real time. In any case, perhaps games, especially electronic ones, have never been so high as a school instrument, advised for the best

development of the subject, classified by Y, Z or I don't know how many classifications have already been made. I don't know if it's really like that either...

Mamede Maia (2023) raises yet another interesting question: when we talk about playing or playing, what are we talking about? Do they designate the same thing? On the other hand, is the concept of game one? We see that distinguishing these issues is not an easy task.

"The conception of play as a game is reflected in the use of the term *play* that (for example) Winnicott ([1971]/2005) and Huizinga ([1944]/1980) use in their respective works. In the Brazilian translation of Winnicott's work ([1971]/1975), *play* was translated as *playing*, while in Huizinga's work ([1944]/2000) it was translated as *game*[3]." (c) On the other hand, if we go to the German language, *brincar e jogar* is translated as *spielen und spielen,* which shows the difficulty of conceptualization in another language.

In this regard, the richness of our Portuguese allows us to distinguish the two with different words. Let's use the word *Game* which, being a *game*, *has rules* that must be obeyed and is a *serious thing* while it happens, even if it seems to the eyes of many only as a distraction, a waste of time or a moment of relaxation for later, yes, to go back to doing important things, that is, "studying" or "working". At this point, we close our theoretical belief with Huizinga, for me with his most detailed work on the essence of games.

HOW DID HUMANITY GET TO THE GAMES? [4]

The fascination with knowing what happened thousands of years ago moves scholars and a lot has been found. However, as a clinical psychopedagogue and researcher, I like to think[5] that perhaps *walking along the trails was* the first playful manifestation, the *quasi-game*[6] of the primitives. Because walking takes place in three-dimensional space, as well as children's dances and games. It is the body and with the movements of the body that primitive man can create and, when he succeeded, he wanted to record what he wanted, in cave paintings.

Through the trails in nature, *THE WALK* are like the ancestral footprints of the paths of Humanity. Human journey and its vicissitudes in search of a goal, in sync with the events of heaven and earth, the confrontation of real life *versus the* trajectory of the soul after death (or *concomitantly*).

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[3] Emphasis added
[4] There are two basic books taken by me in this writing: Grunfeld, Frederic Games of the world, Zurich: UNICEF1975 and Botermans, Jack and others The world of games, NewYork: Facts on File Inc., 1989
[5] In fact, who introduced me to this magical world was a Master's student at PUC-Rio, now a Professor at UFF, Tania Vasconcellos, who did her dissertation on the subject. Grateful to her who was a true Shaman in this field, for me.
[6] In the terms proposed by Physics

And I can't forget the figure of the MASTER OF THE GAME. The Master of the Game fulfills the role of the *shaman, the aedo, the narrator* on the trail. The function of the *Shaman* is to 'read' and translate the elements of nature and, in this way, ensure (cosmic) harmony and the principle of order. Building paths and guiding the other players from readings and interpretations that he communicates to the group, he is the *representative of the Law, of cosmic balance; he is the judge.*

Predominantly bodily (three-dimensional) games are *Walking*, which uses the body and nature, as well as *Running carrying a tree log on the shoulder* (and taking turns). I witnessed them in the 70s, in the village of the Canela indigenous tribe, on the upper Corda River, Maranhão.

There is also the *game Blind Goat,* originated during the Zhou Dynasty of China, around the year 500 BC, popular in the Middle Ages and the Victorian era in which touch is also worked. Or the game *Heads or* tails, which emerged in Ancient Rome, known as *NAVIA AUT CAPUT,* "heads or ship", a reference to the coin that had on one side the face of the god of mythology Janus and, on the other, a vessel, which involves the dexterity of throwing it in the air and picking up the coin.

Examples of three-dimensional walking that have come down to us are the *Labyrinth* and the *Hopscotch*.

The *Labyrinth*, of Greek tradition, its plot is revealed by Ariadne's thread that guides Theseus on the way out and does not die at the hands of the Minotaur. It can also be experienced by primitive man using the surroundings of Nature and his own body, and later it will have its two-dimensional expression.

Keeping a strong relationship with the labyrinths, the *Hopscotch,* found in records since Roman times, represents the path of man from earth to heaven and his return to earth; the footprints, step by step, mark the perfect trajectory of the human being with a clean heart. Faced with the scratched line, the player, jumping with a *single foot*, that is, limping, recognizes that his defective soul does not ensure him an unhindered trajectory from earth to heaven. *Hopscotch* is played with a *marker* that adds obstacles to the path, but which everything indicates to symbolically represent divine grace.

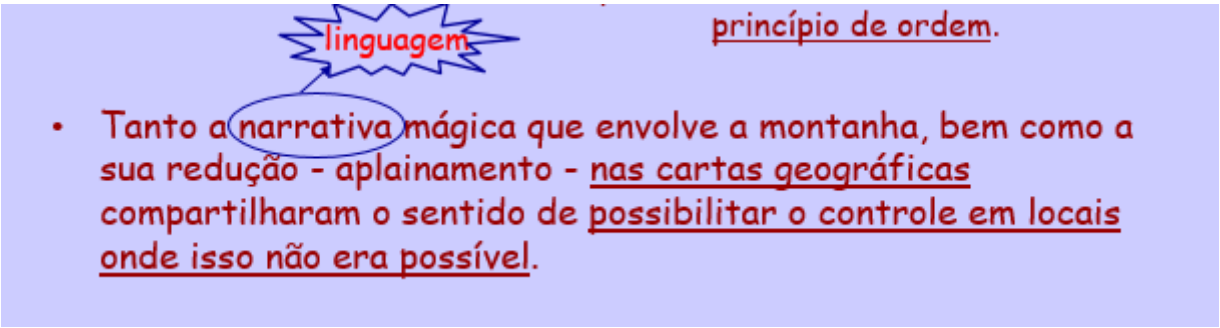
The *Hopscotch* refers to initiation rites, to the passages from one phase of life to another, from initiation to magical or profane knowledge.

I like to think, based on Piaget's epistemological concepts, the Hopscotch, in its various forms, including spiral, as being a *transition phase* between the sensory-motor period and the symbolic period in child development; because it represents a passage between the use of three-dimensional space, when it moves its own body in walks or in real labyrinths, to the two-dimensional representation phase , when it follows a path that is scratched on the ground. As is the *tic-tac-toe***,** derived from similar games in Ancient Egypt (Kurna temple), with more than 4000 years,

ancient China, pre-Columbian America and the Roman Empire. In nineteenth-century England it became popular and earned this name. It was the basis for the pioneer in digital games: OXO, 1952, one of the first video games developed. [7]

If I believe in evolutionary theoretical thinking, if I consider and see this passage as structuring in child development itself, I agree that Humanity has come a long way to reach this level - the two-dimensional record, the result of the understanding of what happened in three-dimensional space, representing an immense progress in evolution. You can't lose this gem!

And man does not stop in his development. From the scratched on the ground, the man arrives at the construction of the board and whose scratches will represent the trails, as the maps correspond to territories. You no longer need to walk with your feet, because you are represented by a marker!



In summary, from the real trail to symbolic paths, all events unfold and meet a principle of order, which is fundamental to them, and the desire to communicate that makes him create language, from pictorial to signic and, mainly, the records of these mental representations. With this, he detaches himself from the real and enters the symbolic and, later, the signic. A great step for human thought, highly valued by Piaget's Epistemology in the construction of intelligence in the child.)

Thus, already in two-dimensional space, the so-called *ancestral games*, or board games, represent the rites of initiation, the passage from one phase of life to another, and the initiation to magical or profane knowledge. You can count on the support of a *Game Master* who has the function of guiding the group's steps. Its special houses and the passages from one pole to another correspond, symbolically, to the evolution and preparation of the "magician".

From now on, I propose to the reader to visit several games that should be introduced in school spaces as structuring knowledge.

[7] *https://super.abril.com.br/coluna/superlistas/conheca-a-origem-de-6-brincadeiras-populares*

An important game that is recorded, *Mahalila* (*Maha* means big and *Lilah*, joke), formerly called *Gyan Chaupad* (game of knowledge) is a game that, in its origin, also represents man's ascension to the divine world and his stumbling blocks. At present, it is industrialized as *Ladders and Serpents*.

Another, perhaps of the most significant ancestral games, is the Royal Game of your (a city near Baghdad), because its rules were found, written on a stone in cuneiform language. The Royal Game of your represents the flight of birds through dangerous deserts, with safe oases for landing. A copy of this game is on display at the British Museum. "The game became known in the 1920s when it was found by archaeologist Leonard Woolley during excavations of the Royal Cemetery of your, an ancient city in Mesopotamia. Copies of the game have also been found in Egypt, Syria, and elsewhere in the Middle East. A copy of the game was also discovered in the tomb of the Egyptian pharaoh Tutankhamun, around the same time as Woolley's discoveries. The rules of the game have long remained a mystery. Until in the 1980s, a clay tablet was discovered in the British Museum, by curator Irving Finkel. On this tablet (see below), dated 177 B.C., a Babylonian scribe named Itti-Marduk-balatu described the rules of the game.[8]

Transcription of Itti-Marduk-balatu. Circa 177 BC British Museum.
No. 33333,b cuneiform clay tablet containing explanatory diagram and rules for playing

At some ancestral moment, *dice will appear* that will take different shapes, they can be pieces of wood in semi-cylinders that are thrown up in the air and, when they fall, three possibilities are considered: all with the concave face down; all with the flat part down or the combinatorial of these positions. Or they can be pyramidal, cubes, or other polyhedra. In the game, the rules are established and followed within the established and the dice define *the pace of the* walk.

[8] We can watch a match of this game in https://www.youtube.com/watch?v=WZskjLq040I, using a replica of the Real Game of your that is on display in the museum and having, as one of the players, Irving Finkel himself, "translator" of the rules in cuneiform language.

https://aventurasnahistoria.uol.com.br/noticias/almanaque/10-brinquedos-e-jogos-do-egito-antigo.phtml
https://apaixonadosporhistoria.com.br/texto/77/o-jogo-real-de-ur.

The entry of data into the game began to give the "luck" factor as a greater strength and this, in a way, led to competition, making players forget the magic of the act of playing, its possibilities, and focus only on the pleasure of winning, of winning the prize, therefore, leaving the intrinsic motivation for extrinsic motivation, for which the only pleasure is in the reward. I recall here a curiosity: while chess, a game today highly regarded for the development of the reasoning it requires, was prohibited, in ancient times, by the Catholic Church, while the dice were included in its games. Only after the use of data fell into disuse, it was considered beneficial.

In fact, personally, as a result of my research with groups of young people, mostly belonging to communities, I also saw how important it is, from a psychopedagogical point of view, to *play games without the primacy of data*, games that sharpen the intellect, lead the player to see *error* as a way that, if at that moment it did not work, it must be evaluated because it did not work and, even more, if it will work in other circumstances.

Thinking that thought reveals itself as a network, being "kept on track" by the control of selective perception linked to reality; that electronic hypertext is built in its likeness, are fundamental points as a guide to play with children and young people, we adults that we are, in this field of play and, even more, in the electronic field, often being more learners than teachers.

But, let's go back to the old game types

An equally interesting example of an ancestral trail game is *Senet.* It dates back to Ancient Egypt, about 4000 years ago. It represents the journey of the "soul" through the lands of the other world, its fight against the forces of Evil and the enemies of Osiris, the god of the dead. Success in the game is the success of the soul in its difficult path towards eternal life.

Wife of Ramesses II, playing SENET(Engraving painted on his tomb)[9]

Following in the footsteps of Piaget's epistemological development, moving from the concept of simple measurement, *linear measurement,* or the accuracy only of the perception of three-dimensional forms (such as the Blind Goat Game) to the *concept of area* makes one think *of the games of territory or strategy,* which require from the players other much more complex skills. In these games, the conquest of territory or goods is the goal. Among them, I highlight the importance of *Mancala*, of African origin, also considered one of the oldest in the world, with archaeological evidence dating back thousands of years and which can be built by making holes in the earth or carving in stone, separating the territories, yours and your neighbor's.

https://www.zmescience.com/science/news-science/macala-boards-africa-ancient/

Representing sowing and harvesting, the seeds are distributed through the holes and the player can only harvest in the other's field, which teaches to be generous and not accumulate everything for himself. In *Mancala,* power and wealth need to circulate, with leadership being decided by its ability to play, that is, predicting where it will reap the most, not holding the game (miserly) and knowing how to reap generously. This is a game in which moral values can be built, which makes it, for me, one of the great ancestral games to be used in Education, in addition to the mental strategies it develops, if the player wants to get the most out of harvesting in his moves.

[9] https://vestibulares.estrategia.com/public/questoes/Pintura-mural-tumulo29db1fef7a/

I also consider, among many and just as examples, *four interesting ancestral games* for the development of reflective thinking:

- *Petteia*, Greek ancestral game meaning *aka polis* (polis, city, cities, or pebbles), uses stones of different colors, initially lined up on opposite sides. The object of the game and make the winner is to capture the opponent's stones by immobilizing them between two of his stones. It was Plato who called him Petteia, in his work The Republic, when he compares Socrates' victims to bad Petteia players, cornered and unable to move by intelligent means.

- *Seega,* still very much played in Somalia, whose origin is attributed to Egypt. Several boards have been found engraved in stone in archaeological excavations, approximately 1300 years B.C. With short games, it presents many possibilities for strategic performance.

https://smoraes2000.wixsite.com/simonemoraes/seega

- *Morris* it is a game with records dating back to 1440 BC. Its layout was found carved in rocks from the Bronze Age of Ireland, ancient Troy, in Sri Lanka. Precursor to Tic-Tac-Toe, whenever a player forms a line of three, he can remove

one of his opponent's pieces from the board. The first player who loses two pieces loses the game.

About *Morris*, "the strategic nature of the game made it not only a source of entertainment, but also a tool for teaching military tactics and strategies. Its importance in medieval culture is further highlighted by its inclusion in various historical documents and treatises."[10] [11] A board, carved from a clay tablet, was discovered while a team of experts searched a secret chamber attached to Vyborg Castle, situated in the historic city of the same name in Russia, possibly validating its antiquity. "Since the construction of the castle was erected in the thirteenth century, it is possible to conclude that the tablet dates back to the Middle Ages — further proof that the game is one of the oldest in existence. It is worth remembering that other boards of this type have already been found in Egypt and China."[12]

- *Alquerque* (also called *alguergue)* is a strategy board game, which knows 3 classic varieties: the alquerque of the three, the alquerque of the nine and the alquerque of the twelve. The first two variants are the oldest and will come from the Middle East, with their historical precursors coming from Ancient Egypt. The *alquerque* of the twelve was

[10] https://shivarnaturals.com/pt/historia-do-jogo-nove-mens-morris/
[11] https://smoraes2000.wixsite.com/simonemoraes/seega
[12] https://www.megacurioso.com.br/artes-cultura/109211-jogo-de-tabuleiro-medieval-e-encontrado-por-arqueologistas-in cidade-russa.htm

already played in Europe in the thirteenth century, because records have already been found of them. [13]

Vestígio de jogo do alquerque dos seis - Igreja das Servas, torre e claustro - igreja em Borba, Portugal

It was this game that served as the basis for the game of Checkers and Fanorona, Madagascar's national game. There are records in 1283 reign of Alfonso X of Castile of the three ways to play it.

In fact, this illumination[14] above, showing the *Alquerque being played,* was extracted from the exceptional work executed by order of King Alfonso X of Castella: *Libro de acedrex, dice and tablas,* bringing together the games that, in his time, were known. Of inestimable value, its original is part of the collection of the Escorial Palace, Spain.[15] This game is excellent to be used with the psychopedagogical intention of promoting the opposite of the action. Why? Because the player can imprison the opponent's piece also by distancing, requiring an inverse mental operation to which he is accustomed.

[13] https://pt.wikipedia.org/wiki/Alquerque
[14] The term illumination is generally used to designate the entire pictorial set of a decorative or illustrative character that accompanied the texts of the codices and manuscript books of the medieval period.
[15] https://pt.wikipedia.org/wiki/Alquerque

- *Hnefatafl or Tafl or Tablut* is the generic name of a family of ancestor games of VIKING origin (Celtics??), played on checkerboard or grid with two teams with unequal strengths. [16]

It is exactly this gap between the two teams that makes it very interesting, because if the mission of the King's court is to defend him, the others must attack him according to some rules.

As you can see, entering this world of old board games is entering a network of information that is not exhausted. Here, we had the sole intention of bringing some copies, just to show the reader how games can develop important skills for reflective thinking, consistent with all stages of human development, from the sensory, through the figurative and reaching the hypothetical-deductive, if we take Piaget's classification of the genesis of human thought; from observant, practical, cogitative to critical thinking, if we adopt Freud's classification.

In fact, in these more than 30 years working with young people and games, I have been able to observe that a good ancestral game enchants children and adolescents from any social stratum, for its unusualness, for the fascination of their trajectories, leading them to enjoy using them, and, mainly, because they open doors to the understanding of the chronological timeline, if not also the understanding of permanences and changes; respect for established rules; the understanding of geography, the value of anthropology, natural sciences, mathematics; the civilizing elements of peoples who, if they seem primitive to us, have so much to offer us with their cultures and conventions; peoples who, if they disappeared thousands of years ago, their legacy reaches us and makes us respect for their knowledge, often coming from continents that are now martyred and corroded by the contempt of the so-called developed countries.

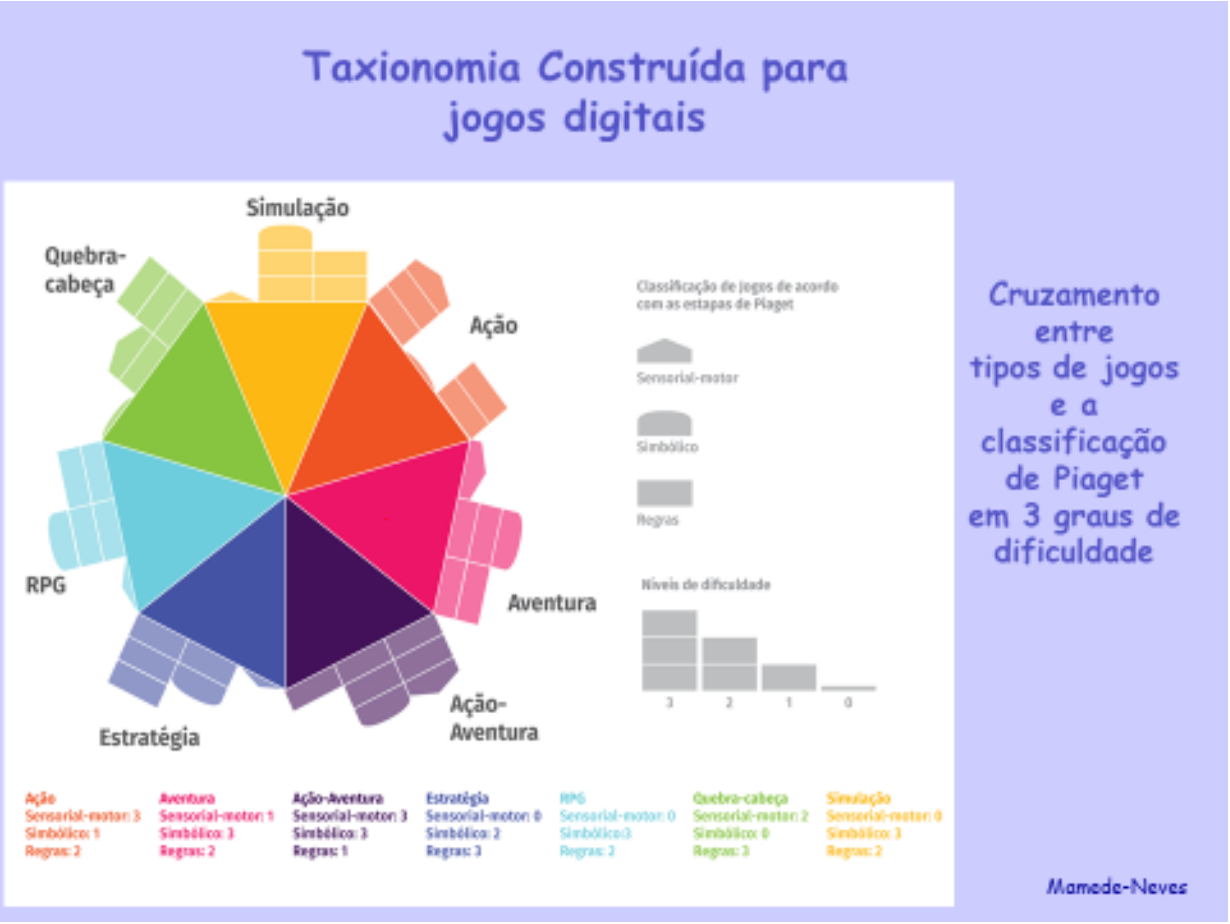
In a game, there is a world to be explored and it will be us, the teachers, the shamans of the young apprentices.

[16] http://ift.tt/2xJgEKI

MY EXPERIENCE

Finishing the much that I tried to concentrate in a *drop*, due to the fascination that this theme causes me, I leave with the reader a taxonomy that I built for the choice of games (already electronic, at the time) that I was going to use in my practice, taking into account, mainly, the skills I wanted to develop.

The combination of all these variables, submitted to the extent that critical thinking is required in the terms proposed by Freud, allowed the creation of a plot that makes it easier for the teacher to perceive the greater or lesser complexity of the game, what skills it requires, whether or not it is appropriate for that student or group profile. To build it, we also joined Piaget's recommendations – *to do to understand, and then to understand to do* – to Polya's (1957) – *"learning by problem solving is the best way to learn* – and Vergnaud (2000) when he points to the construction of *conceptual fields* Hence the research has moved towards a graphic composition that met the purpose sought and that proved to be very valuable when applied and evaluated in various groups.

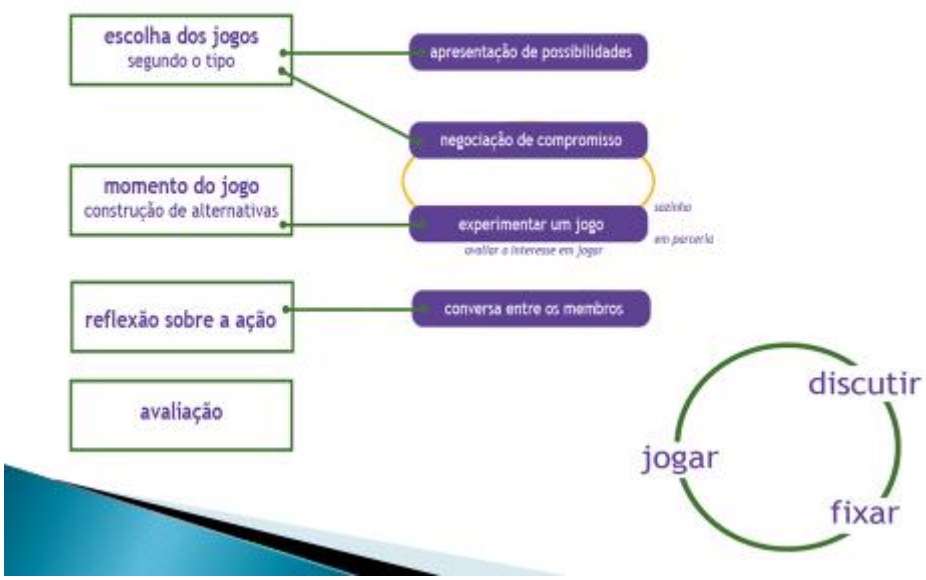


I reaffirm, based on the results of my investigations, that the game, requiring more or less critical reflection and never played at random by the taste of the dice (luck), is a powerful learning tool, because, focusing on the possibilities, on the paths, it can prove to be fruitful and, what is better, very interesting for those who play it, as a network that leads to another network, that leads to another network..., being "kept on track" by the control of selective perception linked to reality,

Ostrower (1998) helps us to understand this complexity when he defines it as a high level of organization of a phenomenon: "(...) a specific way in which the components are interconnected, establishing a dynamic equilibrium – an active equilibrium, never passive or mechanical. Instead of a combination of random and disconnected factors (...), we deal with configurations that have a high degree of coherent integration." (p. 197) For the author, from this integration of multiple components new totalities emerge, whose character is "qualitative, non-quantitative, based on reciprocal and reiterative processes, that is, non-linear and, therefore, not always measurable, predictable or programmable. It is, then, the production of successive syntheses, which result from "processes of transformation and not of summation, which makes them irreversible to a previous state, or irreducible to the previous components" (p. 197-1)

With a sculpted taxonomy and based on the contributions of Freudian and Piagetian theories regarding the types of thinking, I was able to build a *matrix* that guided me in *conducting the game workshops*, inspired by Freud's types of thought and the proposals of Piaget, Polya and Vergnaud, in which problem solving is considered the best way of learning; play is the best partner.

I later offered this taxonomy, along with the Practical Guide (to which the graph below belongs) to fellow teachers of Elementary 1 and Communities who, like me, wanted to work with games in a serious way, but without losing the playfulness of the act of playing, as they should always be considered.



It was precious for me and the whole team to prove how much barriers are broken when we stimulate the game for the sake of the game, the achievements of self-improvement, the formation of pairs with their constituents with different performances and, consequently, the encouragement of respect for differences, being the master who does not know everything and can learn from his class were the learnings that I took with me for life.

In 2019, in the middle of the pre-pandemic, at the end of the intertwined research between *Youth and Game* , the competent team of interinstitutional researchers and I concluded that, instead of working with electronic games, it was better to lead learners through the world of ancestral games, because from there they would arrive, perhaps better than us, at current electronic games.

The essence is in the magic of the ancient game! It was in this world that I had immersed... Rio de Janeiro, April 2024.

ACKNOWLEDGMENT

Through the years of studies of our Youth Network Directory, there were many colleagues, advisees, CNPq undergraduate scholarship holders, leaders of Communities in Rio de Janeiro who made it possible to get where we are. My thanks to everyone represented in the invaluable contribution of Drs. in Education Stella Maria de Azevedo Pedrosa from UNESA, who accompanied me with her team in the game workshops and was instrumental in the data analysis, and Ana Valéria de Figueiredo from UNESA and UERJ, in the publications of the findings. Without them, I would certainly be halfway.

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