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Puzzles as a creative form of play in metaverse

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Abstract

The present study invites us for an ontological reflection about the close relationship between the logical-mathematical reasoning developed through the existence and experience in the puzzles into metaverse and creativity or creative thinking. For that reason, we seek to focus on the epistemological character of the puzzles in the metaverse and intrinsic creativity of metaverse as a natural process to be developed and not a privilege of few persons. Encourage creative processes through the digital universe - metaverse - and the use of heuristic construction for problem solving and openness to lateral thinking. Encourage creativity, creative and original thinking, which lead us to a new way of playing, the way of puzzles.

Keywords: creativity, creative thinking, mathematical logic, puzzle, games, metaverse.

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Introduction

The cognitive potentialities offered in the in metaverses experiences according to Tonéis & Petry (2010), exceed the immediate reaching characteristics of sum importance to development of ways of thinks. We can affirm that the "epistemic subject" main role character of Piagetian model, therefore its major inquietude is in disclose the processes mechanisms of thinking, since childhood until adult age. In this meaning, the comprehension of the constitution mechanisms of knowledge, in the Piaget conception, is equivalent to the comprehension the mechanisms involved in the formation of logical-mathematical reasoning.

The development of logical-mathematical thinking by means of adventures and puzzles in the digital universe opens a space to consider about new and relevant ways of the constitution form of creative and reflective thinking. Certainly that the development of logical-mathematical thinking not supply all the solutions to process of solving problems, however it supplies a new way of look to values as activities the involved mathematic, not something to fear as been exclusive to few and brilliants individuals, but to those who dispose and expose to cognitives experiences in solve the puzzles in the metaverses. We could discuss if brilliants minds were different of ordinary minds in a special way. Minsky (1985, p.1) believes that there is not anything basically different in a genius, except to exist an unusual combination of abilities, nothing unique only. But for what reason not all obtain such combination? Minsky (1985, p.2) helps us to find the answers, he affirms that some possess the innate ability to look the things in the different way and others still could present such ability with difference nuance, many times this capacity develops unconsciously as a inside organization form - cognitive - of events with such as an individual was involved or was exposed. In spite of that we want to show that everybody have a unique "look" and singular that can assist in the construction of such structures and unusual combinations.

The creativity in terms of new and original ideas and new perceptions of the world can not be understood as a "gift" or something mystic, but as cognitive structure that could be stimulated, challenged. The form as we get into in the digital universe and our intentions, reveal

a form to experience this world and which access we offer it, in the same way it – the digital universe offers to us. Thus, if we wish to constitute a creative form to play we need new structures that evidence this goal, such as, the puzzles in the metaverses. Beyond the constitution of logical- mathematical reasoning, form a pleasure way to encourage new forms of thinking – lateral thinking – stimulate the creativity.

Merleau-Ponty observes that the world enters inside us and we enter inside the world, so our experience in the metaverses lead to a process of construction and re-construction of the meanings in the *lebenswelt* (living world) within us. Therefore, Petry (2010) summons us to a deep reflection a respect of metaverses, when affirms that world is everything what it is the case... but the world does not have an ontological foundation it only will can reckon on that to any mind have not any sense. The oncologic foundation of the metaverse, in the form of a *Mathema* able to transmissibility and reasonableness are necessary and urgent.

With that, establish a light house to the navigators, the metaverses are an extension of our *living world* and such as need a foundation, a return of original things – the first things – according Merleau-Ponty. And what will we find? This is the adventure that we start in the metaverses, left the shelter to discovery hidden new worlds in this ocean.

From aesthetic experience in the metaverse to creativity

In the journey of our existence we confront every moment with personal world experience believing this is changed dynamically by our participation, however in a phenomenological understanding of this meeting, that aesthetic experience, we not only can change or alter the world around us, but we were changed and modified with it, rebuild it our inside and been rebuilt with it. Realize the digital universe as an extension of this *living world* fall in with virtual reality, show by the games, all the immersive power and all the feeling of agency, therefore tine sensation experienced when interact, we observe that our significant action is the result of one decision or choice (Murray, 1997, p. 126). The agency in other words, is avail oneself of this meeting and indicate the occurred aesthetic experience in the sensorial immersion, be it the most possible variable, "as much as resolved the immersion environment (surrounding), more actives we wish to be inside it" (Murray, 2003, p. 127), so there is diversity of experiences due to the spectrum of aesthetic experience. When the immersive surrounding

offers countless sensorial attractive   such as a film production, the spectator should wish to be in the history, abandon the outside attitude to assume an inside attitude, interacted with the environment, with the surround with the plot of the history. Murray designates as agency this reward "capacity of accomplish significant actions and see the results of our decisions and choices" (Murray, 2003, p. 127) and elucidate that due to the vague use and diffused of the term "interactivity," the pleasure of agency in the electronic surrounding is often confused with the simple ability to move the joystick or click with the mouse, but the activity by itself is not agency. Agency exceeds the participation and the activity, i.e. with aesthetic pleasure, an experience to be taste in itself, it is offered in a limited way of forms of traditional arts, but it is more common found in the framing activities that we call games.

Herewith, we understand that the agency - as the spectrum of aesthetic experience – follow forward the action and reaction. We do not dialog with only one form of reaction to action predetermined, however to a cognitive problem - to find the way - and a symbolic emotional standard – to confront what is scared and unknown respecting that immersed in an attractive history we left our "outside" attitude to accept into the plot itself, really we are like it, we live this meeting and we enjoyed it. It is exactly in the context of digital games that we focus our work and this form offer one alternative to taste the knowledge (logical-mathematical) hidden into a complex game and be able to offer a filmic experience.

We focus in this case the universe opened by Myst - and consequently all its series - due to its characteristics so great immersive, narrative and playfully. Miles (1999) concludes that in Myst, we are more than spectators; we are protagonist of the history and our intervention move the narrative. Myst also represents a paradigm in form of play, where the puzzles present in all the games represent connections with the narrative at the same time stimulate, elucidate and build it. From this we have in Myst a model of the human creativity to serve the awake of the creative think by the form of play. By means of it we glimmer the potentiality of metaverses to awake the creative thinking or creativity. Winnicott (1975) teaches us that in the play, the person, whether adult or child can be creative and use all entire personality (*self*) to be creative we discover and know ourselves. Then the game is change itself in a space of self-*knowledge*.

In this way, the game, as affirmed Huizinga (1990) beyond be former of the culture, because produce, offer freedom to settle ways to utilize this game. In the metaverses, we can find this possibility by means of construction a narrative that offer overture to the player to explore,

to know, to discuss, to mistake and to get right. The puzzles as form of play embody exactly these aspects and indicate a creative attitude inside that exceeds its own resolution. We understand of this form a first meaning of creativity, as to process of disclose of *self*.

This phenomenological attitude, learning to know, show the essence of merleau-pontyan thinking, as a return to the same things, so the truth not live in only inside the man, or before, there is not inside the man, because the man is in the world, and is in the world that he knows himself. When I return to myself to the point of dogmatism of common sense or the dogmatism of science, "discover not a focus of the intrinsic truth, but an individual devoted to the world"(Merleau-Ponty, 2006, p.6). The creative thinking cross and is crossed by disclosed world to find out, and discover yourself and this way pointing the disclosed of *self*. The creativity or creative insight provides an overture of the world, and here with a necessary overture to new experiences.

So occur with an aesthetic experience inside the metaverses, in this world such as result of our actions, decisions or choices reflect temporally evident consequences, so planned actions, conception of the hypothesis are easily notice in the results in a period of time reasonable short compared with the outside time - the world of outside the metaverses. However, the constitution of time and the consequences cause by deliberated actions or not, they are essential to construction and constitution of the thinking as form to organize and build knowledge. The logical thought, ontologic the mathematic itself (Tonéis & Petry, 2010) constitute not only one ontological aspect to this, but also propitiate the construction of forms not traditional (algorithms) to resolve the inside problems of a metaverse - lateral thinking.

The game between the creativity and the logical-mathematical reasoning: The Puzzle

Then we have the first creativity conception encounter in the *living world* and herewith the *self*. As Socrates said *Nosce te ipsum - know thyself* - this the Socratic utmost thought became the base of maieutic that can be understand here as the reversibility of aesthetic experience, i.e., when we return the same things - *the living world* – we return to ourselves and transform the meaning of the world, reconstructed it and been rebuild by itself.

However, otherwise considers the creativity a potential inherent to the human being, and the realization of these potential one his necessities. This way, the realization of the *self* encounter on a creative being. Thus, we can ask:: in which way can a puzzle contribute to creativity or creative thinking? Obviously that our answer for that question not exhaust the possibilities of using of the digital puzzles engendered in a game - metaverse - but we point out to the ontologics urgent aspects (Petry, 2010) and epistemologics of the puzzles in the metaverses (Tonéis, 2010).

To understand the close relationship that emerges between the logical-mathematical thinking and creative thinking, original, we present some puzzle definitions that will be useful to our epistemological reflection in the utilization of these structures - puzzles.

In the puzzles museum (a site[2] that ably documents physical puzzles), there is a classification of mechanical puzzles by James Dalgety & Edward Hordern that includes a broader definition: a puzzle is a problem having one or more specific objectives, contrived for the principle purpose of exercising ones ingenuity and/or patience.

Scott Kim, presents an interesting definition of "puzzle", he affirms that a puzzle needs two fundamental elements: be fun and have a right answer ever. If puzzle is fun so this is a form to play and has a right answer distinguishes of other ways to play, such as games and toys.

A puzzle has an intentionality, "to be fun". We don't resolve a puzzle as mathematics exercise, to practice some concepts. The intrinsic process to the puzzle is exactly the opposite, solving the puzzle, we reach some kind or level of logical concept and / or mathematic. Because of this is fun, not requires previous knowledge, the puzzle challenges us, "solve it if you can!" when we accept the challenge we are able to apprehend its heuristic or methodology. We think as "epistemologist", and we approach of Greek ideia of the *mathema*.

Montford (2003) affirms that a puzzle has a purpose and that its resolution can not be obvious. Although of refers to interactive fiction, Montford shows us an excellent path to tread. We can put together the expressions of the definitions presented with the word goal. What is the goal of the game? If it presents an opportunity of aesthetic experience front its puzzles then its goal is to amuse and simultaneously to provide a space to form yourself. This way, to understand that a puzzle constitutes in an organized logical structure and that expose that lead a reflective process that culminates in the comprehension of a specific problem. The path of the research and the experience of a puzzle culminates in an overture of the world, i.e. an extension

of aesthetic experience in the phenomenological sense. The history of mathematic shows us that sometimes we should "think different", look for a new prism to resolve same problem. Certainly, the puzzle offers a valuable spectrum in possibilities.

However, a puzzle does not constitute as an isolated object but as an object able to impulse and provoke huge discoveries. Remember what Polya (1995) teaches us to affirm that a huge discovery solves a big problem, but there is always a bit of discovery in the solving any problem. Herewith, we verify that the internal motivation to solve puzzles in metaverses tends to be very big due to the intense virtual synesthesia elapsing of the immersion in the game. Therefore, the creativity transport us a new possibilities and attempts, by means of this overture of the world we become more flexible to the changes and suitable so, so we are able to change our approach by re-learn our living world. A creative look opens the horizon of possibilities in the metaverses and contemplates the immensely that can be develop such this creative impulse is necessary to a healthy life and full of meanings.

Gardner, in an occasion, an interview[3], said that the puzzles are an important object of study, as in a model sense, represents what the scientists are doing, in the permanent research, of answers and the formulation of new questions. They are trying to solve the *puzzles* about the nature of the universe, over and over, the puzzle is leading to mathematical concepts.

When we solve a puzzle we are involved in an activity naturally creative in the play, we play with the possibilities, with the ingenuity, with the creativity, where re-organize our goals and assumptions to create new heuristics (Tonéis, 2010).

Perkins (2001) searches to organize the *modus operandi* of the innovator and creative thinking, inspired by great names of the human history like Archimedes, Darwin, Newton, Edison, among others. Briefly listed these features:

[1]   Protracted search: reflection;

[2]   Little apparent progress: hypotheses and speculations;

[3]   Precipitate event: suffered experience circumstantial;

[4]   Cognitive state (Insight): part fits and this fact cause the comprehension of others;

[5]   Transformation: re-signification of the *living world*.

Obviously, some findings require time because its potentials, as the example of the Darwin's theory of evolution, or the Thomas Edison's filament lamp. Every discovery, every

creative thought reveals a potential transformer re-signifying the *living world* and the same form the *self*.

In the development of logical-mathematical thinking, discussed widely in Tonéis (2010), we verify the importance of this cognitive structure as a key to solving problems and thus for creating personal heuristics, forming what we call "epistemologist", i.e., individuals capable of thinking in forms of think. With that we send our flexion to forms of think not-linear or not algorithmic. That also can be contemplated in the resolution of the puzzles in the metaverses.

De Bono (1970) uses a very interesting term to distinguish different forms of thinking. He interprets the algorithmic forms with fixes rules or mathematical rules, the formal logic, like constituted the form of *vertical thinking*, and calls of *lateral thinking* the kind of thinking that escape from the formal logic or another pre-defined rule to solve a problem. Therefore, he investigates the parameters that establish some comparison among these forms of thinking, i.e., vertical thinking in comparison with lateral thinking. The formal techniques of lateral thinking include: provocation and movement; challenge; concept fans and concept triangles; random entry, etc.

At any moment these forms of thinking are in conflict, on the contrary, in develop both forms of thinking we will be change the form like our brain processes information, as relate information linearly and others forms, randomly. A puzzle into metaverse, if well designed, can support and give rise to both. Immersed in a history, creating a narrative - vertical but not linear - the puzzles change the form of connection structures - vertical and lateral (links). Everything collaborate to the puzzle resolution, all our ingenuity, desire, motivation (style of gameplay) constituted what we call the creative thinking. When we are challenged, we assume the consequences of our actions immersed in the metaverse, hope to overcome the obstacles, contributed so to increase the self-esteem, motivation, competences, inferences, and cognitive links favored the awakening of self-knowledge or the spontaneous development (Piaget, 2002).

Brolezzi (2008) remembers that exist several courses to solve problem forgot to focus the importance of the creative thinking, however in any course about creativity will be use numerous problems. Moreover, presents an interesting form to encourage the creativity, through the *synectcs*[4], a method that involves both types of thought - vertical and lateral - in form of contrast between concentration and distraction. In other words, trust in what is stranger and strange what

is trustful. In this process will be favor the emotional and "irrational" elements that we have about a puzzle to feel free to make mistake to can get right.

Creativity in the contrasts

We mentioned as an exemplary metaverse the game Myst and its issues, actually Myst Uru Live, where the game assumes the form of multiplayer, more challenges herewith the puzzles and mystery. It is not any apology or advertisement to this specific metaverse, but considering that the Myst be a paradigm as form to play - puzzle as a form to play – so the game itself presents like a puzzle and according to we advance in the series we formed and understood the history[5] and the characters[6] of Myst.

Myst inaugurates a new way of *storytelling*. As well observed Jon Carroll (1993, p.1), Myst was the "first interactive artifact to suggest that a new form of art can be plausible, such as "puzzle box" types contained within a novel inside a picture – added the music, or something else. One aspect the same time amusing and frustrating in Myst consisted in the intertwinement between the history and the game. To read the history you need to solve the game: both of them are concomitants. To those who wish to become Myst as a multimedia novel, the puzzles are singular parts that help the reader continue reading. But if you want it like a game, the history will help you allowed the player to complete the puzzle and reach the end of the game. The time of this history is duplicated, we have the immediate history in which us, as a reader / player, try to solve the game and on the other hand, we have the Atrus story, which occurred in the past and, anyway, we are working in the present with it. The way of the narrative shows up as visual and acoustics introspection.

Online Myst, Uru Live, is a multiplayer game in which the explorers, as in other kinds of games, have the possibility to create its on avatars, choosing their features that confirm a digital presence. (*Digital Anwesenheit*). When, by the side of yours digital partnerships, the Argonaut game enters in the great council *D'ni's* Restoration so the plot of this episode invite us, among others adventures, to rediscover, to restore and rebuild the *D'ni's* ancient civilization and learn the history of this civilization.

Now, becomes important to our proposal to analysis, but is not in total, a puzzle of Myst - Uru live. Our intention is not to exhaust the possibilities, but to illuminate them under the

perspective to the solving problem and creative thinking. In this point of our work we will take a puzzle found in *Kadish Tolesa* called *Moon Room* – the *Kadish Tolesa* puzzles are among the most difficult in Uru. We do not only imagine how to resolve them, as well to imagine how to interpret the clues. All indications are in this gallery - *Tolesa Kadish* – them the question is to study the panels, make notes and sketches or make a detail an examination of possible relations between them.
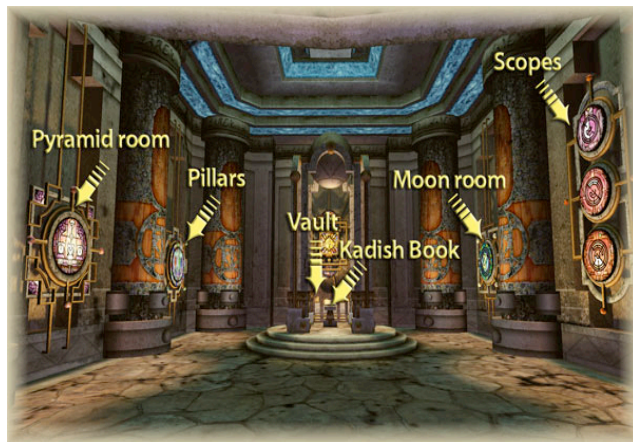

Figure 1: *Kadish Tolesa* Gallery – In the right the stained glass to solve the puzzle in the Moon Room

The moon room is the puzzle that follows to the telescopes puzzle, solved in Tonéis & Petry (2009). To enter into a large cylindrical room with an elaborate handing sculpture, observe the floor of the room; note that it is composed by spirals. In the background, we will see an area with six balconies, five of them with blue buttons. Pressing each button causes different patterns of light to illuminate the floor of the room. Hopefully, this reminds us of a stained glass window in *Kadish Gallery*. The panel gives us the pattern of light and dark that we need to create using the five buttons.

Numbering the buttons to 1-5, as shows the figure below, the appropriate light pattern is displayed when we use the buttons 2, 3 and 5. This information is found in the stained glass is a clue that it was in the gallery what we visited. Note that there are five blue buttons in the stained glass windows, three (3) bright blue and 2 (two) dark blue.

Figure 2: Stained glass to solve the puzzle in the Moon Room

When the correct path to lit, we walk down the stairs to the floor. Without stepping out on the floor, we look around and see a door at the end of the path was lighted. The "logic" would imply that you should walk the lit path over to the door open it and proceed. However, we remember that the key to progress in *Kadish* is to find what is unseen or not obvious. In the stained glass to this puzzle in the gallery, we see a small red dot immediately opposite the blue circles that representing the buttons (like shown the figure above).

We should walk around the room on the perimeter, without stepping onto the floor, until the position directly across the buttons. If we are in the right spot, we will see a prominent dark path leading to the center of the floor. To find the room exit, we should walk on the dark path without touching any part of the lighted area. Once we reach the center of the room, the exit is revealed as the floor lead us to a staircase and an exit, like shown the figure below. The door previously saw under the lit path, would pass like a false hood to mislead the visitor.
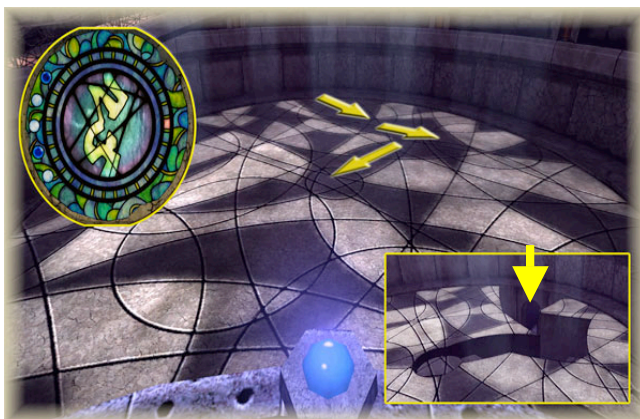
Figure 3: Moon Room. To the left the stained glass solution. To the right there is to red dot of the room, see the staircase and the exit.

In this puzzle, the integration between the visitors will be essential to help to remember the details or observe some specific spot. The habitual practice of the Myst players is the custom to make notes, to make small diagrams to the possible clues that they find in the way. Therefore, we confront the collective intelligence in action, since to solve the puzzle alone would be complicated. The dialogue, exchange of information, all while competing and collaborating, as they are playing. Each and every one have something offers to solve the puzzle.

The logical point of view, we hade a problem witch offers complementary values, the dark and light. Remember the archetypes which ones we were "marked" at the moment to solve this puzzle should we follow the light or follow the shadows? The puzzle induces to the error purposely invited the visitor to see again its heuristic in solve the problems. Not always the obvious is the correct like not always what appears an error sustain so that. We have a point of reflection and also an optical illusion because our attention was focused on light and thus we can not even imagine the staircase that appears in the dark. Point of view, mutability, flexibility, these are the key words in this puzzle in its many means. The solution to it, however, was in the great *Kadish Tolesa* gallery that is enough to interpret it and in this task, we rely on the solutions tests and the possibility to share hypotheses or conjectures with journey friends. We do not know how many passed us or how many will come next, however, as accumulate "knowledge", there is a progress of learning, there is a cooperative process.

The moon room is designate by the contrast. It's room of contrasts, where the opposites find itself, co-habit, co-exist. Moreover, overcome the obstacle witch success is in change the routine of the thought itself. The rational and "irrational", which we believe must be right and the

feeling be correct. In many situations, the first step to solve a problem is to step out the routine, thinking different (utilizing lateral thinking).

We would have to explore the geometric question of the room, its circular shape, its floor layout with spiral like a *mandala*, is a Sanskrit word that means "circle". The psychoanalyst Carl Jung[7] saw the mandala as a representation of the unconscious self, and believed his paintings of *mandalas* enabled him to identify emotional disorders and work towards wholeness in personality.

In common use, *mandala* has become a generic term for any plan, chart or geometric pattern that represents the cosmos metaphysically or symbolically, a microcosm of the Universe from the human perspective.

If we observe the changes of light and dark offered in the room we will see that the floor shows the moon phases. Moreover, as the phase of the moon "change" our frame is changeable. This is the puzzle purpose, conceive with the purpose of practice our ingenuity and patience and with that re-build our knowledge and awareness of *self* in a movement (transformation).

Returned to the logical mathematical reasoning we find possible solutions to solve a puzzle. Represented in binary digits will have 2^5 combinations that it will result in 32 different combinations, i.e., if the visitor count only with luck the possibilities will be against him so the explorer will have one chance of success in 32 possibilities, that result in 3,12% of probability of success. Besides the statistic analysis we would cite the constitution of different numeric systems, this will be a binary sequence to the condition of success, i.e. to turn on the buttons 2, 3 and 5, in the sequence given of five buttons, and use the value 1 to turn on and 0 to turn off, we will have a binary number 01101. This binary number in its decimal representation is equivalent[8] to the number 13. One curiosity in this number is its representation in Uru live. When in Tonéis & Petry (2009) previous puzzle from this was solved and analyzed, the value 13 was predominant (the telescope puzzle combinations). The number thirteen mysteriously was considered to be sacred to the inhabitant of *D'ni* and this information will be evident to explore Uru Live.

Finals Considerations

Don't be the first to speak, but expect that the *opus* interpellate us (Schopenhauer), thereby to know the world, the *opus*, we also develop the self-knowledge. When these "digital alchemists" – the programmers - open the gates to new worlds, we glimpse the endless possibilities that arise from this interaction.

The creativity, thought like new ideas and new perceptions, are not a mystical gift but a learnable skill. To this, we need to stop to feel, to hear, to be touched by the workmanship, that is, to suffer the aesthetic experience in the metaverses. The formal and deliberate processes of lateral thinking, said De Bono (1970) are all based on a consideration of the *behaviour* of information in a self-organizing system, such as the nerve networks of the human brain - for which we should be most grateful. They also form asymmetric patterns: the route from A to B is not the same as the route from B to A.

The good innovative thinking (creative) can to "jump" systematically tracks of sequential thought assumed the lateral thinking as an alternative way to solve some challenges. This inquisitor spirit contributes to the global education of the individual formation, determined different forms of thinking, to think creatively. "Creative thinking is an art and a craftsmanship" (Perkins, 2001, p.67).

In the answer of a problem, activities which allow formulate hypotheses, test them, observe the results, reformulate the hypotheses - reversibility – are known to be heuristics activities. The freedom to "walk" around the problems - puzzles - conjectured is necessary to the "freedom to mistake". To learn with the mistakes is parts of the heuristic, this is positive, known the puzzles have a correct answer is evident that stimulated the explorer for search the solution, inquire informations, collecting data, conjecturing, speculating, and sharing hypothesis with other explorers. Restructuring, cognitively the connections between that information. It is the logic of creative variations, when we use opportunities to break up with a form of inertial mindset, i.e., resisted a new experiences and challenges. Like said Sir Conan Doyle, the creator of Sherlock Homes, when we eliminated the impossible, what remains must be true, further impossible it look like. The path to creative thinking is open to follow the way in the solution of the puzzle, even that it does not make sense sometimes

It is very difficult to recreate an experience previous that occurred in a time of great discovery, like Archimedes with the fluid's theory or Darwin's theory of natural selection of species, because we can not feel what they felt, we need our own experiences and challenges the

our delay and slowness and the our personal time. Thus, we rely with the experience in the puzzles into the metaverse as small moments to stimulate the creative thinking. Remember that Polya (1995) teaches us that a great discovery can solve a great problem, but it always will be a "pinch of discovery" in the resolution of any problem, even so the problem is modest, once it challenges the curiosity and set up our inventive faculties, when we solve by ourselves, we experiment the feeling of confidence and we enjoy the triumph of discovery.

It is noteworthy that this crescent cognitive development and significance of the *lived world* contribute to abilities of analyze and criticism. Thus we have the greatest reward of this game is in the discovery and reconstruction of meaning, create and re-create forms of thinking so broaden the neural connections and ways of organize and use the informations. "A good puzzle, like the virtue, is the reward itself" (Dudeney, 2008).

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Notes

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(2) In: http://puzzlemuseum.com/class/pzcla99a.htm

(3) In: http://alexbellos.com/?tag=martin-gardner

(4) Synectics: *synecticos*, as *syn* means add and *ectos* means diversity. Then *Synecticos* is connection of several things (Brolezzi, 2008, p.43). Synectics is based on a simple concept for problem solving and creative thinking - you need to generate ideas, and you need to evaluate ideas. Whilst this may be stating the obvious, the methods used to perform these two tasks are extremely powerful.

(5) Murray (2003, p.174) calls it "finalization to exhaustion and not finish up", in other words, the lock electronically happens when the structure of a work is understood, though not its plot. This closure assumes a more specifically cognitive activity than the usual pleasure of hearing a story. The story itself is not really resolved. It still is not deemed satisfactory or consistent, but their map in the reader's head is already clear.

(6) The book of Atrus, The book of Ti'ana, and The book of *D'ni.* Each novel is a step back in time in regards to the story of the narrative. Therefore, the book of Atrus, ends at the start of Myst, The book of Ti'ana ends at the start of the book of Atrus and so on. In the novels, two of the narrative aspects shift. The story remains the same. You are now learning more about Atrus' tale and the history behind the game. In fact, the novels serve as a backstory to Myst.

(7) See Jung, C.G.; Aniela J. (1965). *Memories, Dreams, Reflections*. New York: Random House, pp.186-197.

(8) To make the conversion between binary and decimal system may use a scientific calculator. We offer online in <http://mistupid.com/computers/binaryconv.htm>.