

**Title: Ludicity. A theoretical horizon for understanding the concepts of game, game-playing and play**

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**Abstract**

The promotion and development of learning based on games and playing must be supported by a unifying theoretical structure that will allow for: contextualising and clarifying the various concepts involved, particularly those of the game and the toy, playing games and play, distinguishing between the characteristics of each of these manifestations; establishing a connection between the types of ludic interaction that are dominant in each of these manifestations and highlighting the nature of the relationship that each of the manifestations has with the others. This theoretical structure will suggest a design framework for projectual ludicity, which may guide the creation of a range of interventional and research methodologies, which is essential for the promotion and development of learning activities that are based on, or which make use, of ludicity.

Given that the proponents of the multiple and diverse theoretical and practical approaches to the game, the toy, playing games and play attribute an identical meaning to such distinct actions as play, playing games, games and toys, understanding these theories, and the reality which they are intended to analyse, becomes somewhat more difficult. As there is no existing unifying theoretical framework, the author of this paper has built up the conceptual structure known as ludicity, rooted in the work done in the pragmatics of human communication by Gregory Bateson (1972), (1979), (1956), (1955), Paul Watzlawick, Janet Beavin and Donald Jackson (1967), Edward T. Hall (1959) (1983), Stuart Sigman and Cronen (1995).

This article introduces, for critical review, the conceptual structure that enables both an understanding of the diversity and multiplicity of those experiences that result from the human and social condition of ludicity, and an anticipation of the effects arising from such experiences. Ludicity is communication, learning and change.

Keywords: ludicity, consequentiality, game, toy, game-playing, play

## 1. The problem. Conceptual indistinctness between ludic artefacts (toy, game) and play and game-playing

During the 20th century, a number of authors focusing their studies in the area outlined their differing points of view on what I call Ludicity and it is possible to extract a common thread in their reference to manifestations of this human phenomenon. Specifically, the words 'game' and 'play' are used interchangeably as if referring to the same human manifestation. They can both be said to be consequences of human ludicity and yet different in the way they manifest themselves.

The thinking underlying the concept of ludicity, and the distinction between its consequences, that is play and game-playing, has its roots in Ancient Greece.

At the peak of Greek civilisation (500 BC), ludicity was part of the myth of the free Man. It did not include all human beings, as it was limited to an elite and did not include slaves (Gobey, 1978:13). However, two domains of ludic manifestation are illustrated and expressed by the words *paideía* and *agôn*. *Paideía* is specific to child play and the acting that are characteristic of children, but it also refers to adult amusement, namely fighting, gymnastics and flute contests. On the other hand, *agôn* means game and some characteristics stand out: the purpose of the competition, the contests, poetic and musical fights which, as Huizinga emphasises, "did not deny their ludic nature" (1951:88).

Heraclitus, a philosopher, writing around 478 BC, established, in Fragment 52, the relationship between the strength of the child at play and the vital force of time, Kirk, S., & Raven (1957: 106). St. Augustine also referred to ludicity in 1536, saying that game-playing was the driving force behind curiosity, respect for others and life (1990: 38-50).

Mainly using either the word 'game' and/or the word 'play', many authors emphasise these concepts in their theories. For example, Schiller (1954) refers to 'game' when identifying children's ludic manifestations as being aesthetic and vague. Spencer (1873) follows Schiller's point of view and stresses game as a ludic behaviour, justifying it and describing it as a means to express and free unspent energies. Groos, the main author of preparation theory, departed from Darwin's studies and, in 1901, referred to the biological origin of game (human condition), identifying a child's game with the child's effort to prepare for practical life. Carr, the author of the instinctual-practical theory (1907), also mentioned game as being an agent for organic development, as it stimulates the action of the nervous system and facilitates the brain's process of myelination. In 1916 Patrick published his theory of relaxation and reiterated the notion of game as recreation, based on the assumption that the individual has to find gratifying ways to recover from the tiredness and tension created by work. Stanley-Hall (1920), in his Theory of Recapitulation, also departs from Darwinism and uses the word game to refer to recreation, considering game as instinctive and as such the result of biological human evolution.

Erikson (1950), well known for his work on psychoanalysis theory, continued Freud's studies (1961), referring to ludicity by using the word playing and emphasising its function of sublimation, showing that this manifestation goes beyond pleasure and can be considered the ego's attempt to synchronise the organic and social processes within the individual self.

In his theory of cognition, Piaget (1962) refers to ludicity by referring to game as an autonomous reality and he relates game with cognitive development and the construction of moral judgement. Huizinga (1951), in his social and cultural theory, considers game as a basis for culture and justifies it as an end in itself and not as a means to certain ends. Vygotsky (1966) also refers to ludicity in his socio-historical theory, pointing out that a child's social play is an internal change prompter, as it brings about "the creation of a new relationship between meaning and the field of visual perception, i.e., between situations in thinking and real situations " (ibid: 118). Bateson, in his theory of Metacommunication, refers to ludicity through the denomination – "The message is play" (1955: 39-51) (1956).

## 2. How can the Human ludicity condition be understood? The consequentiality of ludicity

Ludicity, like communication for Sigman and Cronen (1995), is a phenomenon which is consequential in nature for humans. It indicates a quality and a state which is not only characteristic of infancy but which is shared by all age groups, genders, languages, cultures and societies. In this sense, the concept of ludicity put forward here has three interconnected and inseparable dimensions which cannot be independently studied.

Dimension one: Ludicity is a human condition. Thus, ludicity is a constituent part of being human. This condition precedes any and all of its manifestations and effects.

Dimension two: manifestations of ludicity. These result from the human condition of ludicity. In their variety and multiplicity, these manifestations can be categorised as play, the building of ludicity artefacts (toy or game), entertainment, leisure, etc.

Dimension three: effects of ludicity (procedural and final). These emerge from the diversity and multiplicity of processes that are part of any one of the abovementioned manifestations of ludicity and give rise to distinct end effects, given that the components of each of the processes are also distinct from each other.

Moreover, it is important to point out that the phenomenon of ludicity cannot be understood if our analysis is to be confined to only one of these aspects.

Using the concept of consequentiality referred to above, one can see that ludicity is that stage of action at which the ludic intention of each individual is expressed, and at which various connections are established and then manifested. These will be criticised, changed or abandoned as the individual carries out his or her intentions.

However, ludicity should be separated from the group of consequences that occur in that process by which the human ludic condition is expressed. It should also be distinguished from the nature of these effects. Therefore, ludicity is to be found mainly within the group of inter-relational and interactional dynamic processes engaged in by individuals. These processes confer a ludic meaning on such behaviours rather than on their final effects. One could thus say that ludicity is defined as a condition of being human, *homo ludens*, manifesting itself diversely and producing different effects.

The diversity of manifestations of ludicity, especially those of amusement/recreation, leisure, play, game-playing and the production of ludic artefacts, toys or games, interact according to different logics, as detailed below.

Another aspect of the consequential nature of ludicity is also worth considering.

The etymology of the word “consequentia” tells us that it means the effect of an action (Machado, 1981c:394). Here, the consequence of ludicity is the action itself. The suffix –al in consequential expresses a function, which gives the word a new meaning, a sense of belonging that is established by what precedes it: the condition of being human – ludicity. In turn, the suffix –ity in consequentiality indicates a quality, a state, a way of being, and is different from the group of consequences that occur in its process of manifestation, where the being shows itself, expresses itself and (by living these experiences) forms, transforms and informs itself, resulting in the transmission of messages that make up its existence in and with the world.

Acceptance of the consequential nature of ludicity means a conceptual framework can be set up for analysing the diversity of experiences – manifestations – of human and social ludicity. This framework also allows a number of theories to be incorporated which, in alluding to ludicity, deal with only some manifestations, or focus on a single analytical dimension and do not allow for a full understanding of the phenomenon itself.

## 2.1 Words that allude to ludicity in Portuguese and English

From the semantic point of view, the uses that speakers of Portuguese and English make of words that allude to ludicity do not greatly help the understanding of the phenomenon, as the same word is used to refer to very different and distinct manifestations of ludicity. This is a difficulty that can interfere with the planning of the ludicity design process. The lack of clarity in the arguments that support choices for mediation strategies in learning can make these ineffective in achieving the desired results.

The semantics of Portuguese words which are used to refer to different manifestations of ludicity vary slightly. The word “ludicidade” – ludicity, as a semantic fact, does not yet exist in the dictionaries of any language. The research carried out here has contributed to its use, namely in Portugal and Brasil.

The word ludicity comes from the verb *ludere*, which means to exercise, and from the adjective *ludus* which characterises that exercise. Therefore, *ludus* identifies not only manifestations of ludicity in children but also in adults and, as Brougère (1995) states, the type of activity that the former and the latter exercise. In a social and historical approach, Brougère stresses the importance Romans gave to ludic spaces as places for ceremonies and the different ludic manifestations the Emperor also attended. Thus, in ancient Rome *ludus* was almost a religious ritual which manifested itself in offerings to the Gods. In addition to bringing his divine power to bear, the Emperor also financed the games and offered the festivities to the citizens.

The semantics of the word *ludus* highlight the logics of serious and non-serious which, according to Huizinga (1951) and Brougère (1995), are the matrixes within which manifestations of ludicity are most generally understood.

According to the explanation given above, when we use the word ludicity we are referring not only to manifestations of ludicity in children but also in adults, as well as to the consequences and resulting effects manifested by both of these.

In Portuguese at least five words, with similar meanings, are commonly used to refer to ludicity: brincar – play; jogar - game-playing; jogo – game; recrear – recreation; lazer - leisure and brinquedo - toy.

According to Machado, “brincar” (play) or (game-playing) is derived etymologically from “brinco” (earring) and it means to make merry, amusement, jest, playing, jumping like children do, idleness, to act thoughtlessly, to have sex, to adorn, to ornament excessively, object for children’s play, pretty and toy, not to speak seriously (1981a: 417-418).

As one can see, the same meaning is given to different behaviours. But one can also identify the notions of: action with a positive or negative meaning, physical activity of adults or children and aesthetical artefact.

The word “jogar” (to play) or (game-playing) from the latin *jocare*, does not come from *ludus*, but from the Latin *jocu*. *Jocare* in neo-Latin languages is the origin of words referring to game such as: *jeu* in French, *juego* in Spanish, *giuoco* in Italian, *joc* in Romanian, *jogo* in Portuguese. As a noun, its meaning refers to any activity carried out to recreate the spirit, distraction, amusement, play and toy, mockery, practising a pleasure and something you say laughingly and not seriously, practising sports, cunning, pretence and fight (Machado, 1981f: 291-294). However, the verb “jogar” (play) means among other things: to practise entertainment or play with the others in general; to express, to say jokingly; to play daringly; to practise sports; to match something with something else or just play (Machado: *ibid*).

The word “recrear” (recreation) is related to other meanings. Its etymological origin is *recreare* and the Latin word *creare* means to produce anew, to cause to surge anew, to cause to grow and to bear. In Portuguese it means to cheer, to cause pleasure, to satisfy, to give relief from work by means of some distraction or entertainment, to rejoice, to amuse and to play. The noun “recreio” (play-ground) stresses the meanings of the verb and adds to them the notions of time and place, as it means: pleasant agreeable place, time given for children to play and place where that time is spent (Machado, 1981j: 178). It seems to be clear, from the different meanings, that “recrear” (to amuse) refers to ludic activities carried out during intervals in useful working time.

The word “lazer” (leisure) comes from the Latin *licere* which means: to be allowed or to be free, free time. In Portuguese it means: idleness, spare time, time free to do something, but also rest and relaxation (Machado, 1981f: 393).

The semantics of the verb “lazer” (free time) and (recreation) stress: action in the context of non-work and non-activity, associated with extra time after work tasks have been performed. It is the time for each individual to pursue their own enjoyments.

Finally, the word “brinquedo” (toy) and (game) also comes from “brinco” (earring). According to the same author, it means an object made for children to play with and it also means play (1981b: 418). Two different notions can be identified in this word: the idea of toy, like a game this is a ludic artefact made specifically for a certain type of action – play or game-playing, both ludic actions. In our view ludic artefacts are the media of ludicity (MCOlLopes, 1994: 47-63) given that they have the same characteristics as the means of social communication. Ludicity artefacts are the messages inscribed in them by the designers of ludicity who design, build or co-produce them through cooperative intervention. They are also, however, the use to which they are put by those playing.

Maintaining our focus on these five words, which are embedded in the social context of the Portuguese language, we may move on to consider the English words which allude to ludicity and, via which, we will encounter the same semantic problem. According to the International Dictionary of English (1995) play is to have fun; to joke; to be joking; to be kidding. Game-playing is to play; to have fun; game; playful; intentionality; amusement; entertainment; hobby; distraction. Toy is play thing. Game is to enjoy; to have a good time; competition; pastime; entertainment; fun. Recreation is leisure; playtime; play-ground; break; to amuse and diversion. Leisure is free time; hobby; idleness; indolence; relaxation; spare time; laziness; to amuse and recreation.

However, manifestations of ludicity are not restricted to games and game-playing, to toys and playing, to recreation and leisure. Humour and parties are further manifestations of this phenomenon of human reality which is so complex and yet so enigmatic.

### **3. Conceptual horizon for the human and social ludicity experience**

Following Wittgenstein’s language game analysis, one could say that ludic manifestations are not similar just because one uses similar words to refer to the same phenomenon, nor is their distinction sufficient reason to be able to understand them. A semantic analysis of the five words play, game playing, recreation, leisure, and toy or game shows that these have multiple meanings. One would say, as Wittgenstein does, that there seems to be a “complex network of similarities which intertwine and overlap, revealing similarities as a group and, at the same time, revealing detail similarities” and, what is more, other notions of non-similarity. (1987: 227-229).

In an attempt to define the essence of ludicity and to distinguish between its consequences, we will first present five axes which distinguish and group together each of the semantic families. These are followed by a further five axes which group together and distinguish the closeness relationships of the semantic families which were first described. To this end, Wittgenstein's methodology will be followed (1987: 242-243).

### 3.1 Axes of distinctiveness, by manifestations of semantic family:

- First axis – play - spontaneous manifestation – experienced freely by protagonists who choose it and feel it as such.
- Second axis – game-playing - pre-ruled manifestation – experienced by protagonists according to a previously explained and accepted set of rules.
- Third axis - recreation – the experience of ludic action during breaks in work periods.
- Fourth axis – leisure – the experience of ludic action in meta-time for the individual's own enjoyment.
- Fifth axis – technical/digital and analogical artefacts – the experience of producing toys or games - ludic artefacts which are designed and produced to guide the different ludic manifestations.

### 3.2 Axes of Similarity, by manifestations of semantic closeness relations:

These axes aim to limit the semantic borders existing between the semantic family axes described above.

- The first axis is associated with the manifestation of play, with or without a toy. It emerges from the individual and/or social spontaneous manifestation of the protagonists. It is autonomously subject to regulation by "non-zero sum" social interaction logic, as in the possibility that everyone wins or everybody loses, meaning that there are neither winners nor losers. (Watzlawick, 1983: 117-121) Spontaneous social playing is one of the manifestations of ludicity subject to this logic.
- The second axis includes the exercise of socially pre-defined ludic manifestations such as game. It is regulated by "zero sum" logic, meaning that what I win you lose and what you win I lose. Therefore, there are always winners and losers (Watzlawick, *ibid*). This includes: sports, traditional games, television contests, video games and interactive games, among others.
- The third axis has to do with relaxation occurring between so-called useful activities, such as work and school. In other words, it includes the relaxation experience designed to use up restrained energy or to recover strength to continue performing these activities. It refers to "recreation" as the institutionalisation of this break, as it occurs in a school or company.
- The fourth axis brings together the exercise of ludic enjoyment of time for the individual's own profit. Leisure is time that is situated and synchronised within the individual time chart. (Hall, 1983).
- The fifth axis includes the ludic artefact, which is the product of the know-how of the *homo faber*. It is a hand-crafted, industrial or rationalised technical object, for ludic use. This axis also includes other objects to which the individual attributes a ludic functionality and meaning by playing with them.

Fig. 1

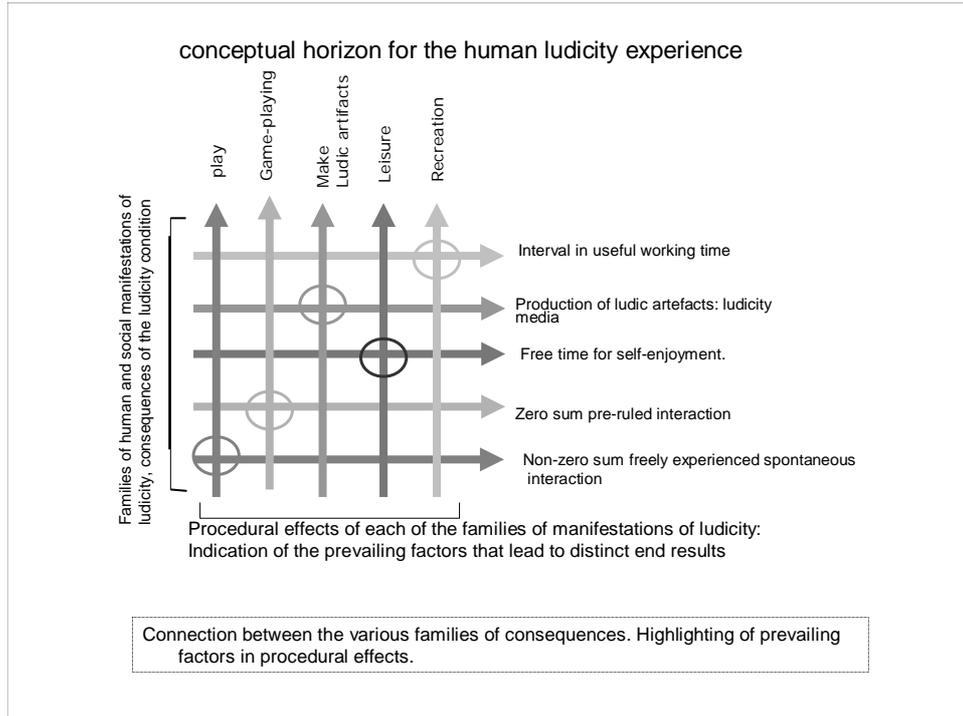


Figure 1 contains an overview, expressed as a horizon, of the human and social ludicity experience. It highlights the connection between the various consequence families of the phenomenon. It shows the characteristics of the prevailing procedural effects registered in each of the semantic families given: game-playing, playing, recreation, leisure and the construction of ludicity artefacts. It distinguishes each of the manifestations from which procedural effects, and a variety of end results, are produced.

Thus, the vertical lines represent the five axes of the families of manifestations of ludicity that are the subject of this article. These are semantic family axes that differentiate the various consequences of the human ludicity condition that precedes any of the manifestations: play, game-play; recreation; leisure; making ludic artefacts.

The horizontal lines refer to the five axes of effects that occur during the process of manifestation for each of the ludicity families referred to on the vertical axes. A prevailing characteristic of the procedural effects for each manifestation family can be seen in each of the horizontal axes.

This diagrammatic horizon for the human and social ludicity experience allows one to see not only the differences that are to be found between each of the manifestation families but also the differences between the specific procedural effects of each of the manifestations of ludicity. This clarity of expression makes it much easier to predict the end results of the various processes incorporated within a single phenomenon.

We hope this semantic analysis and classification makes clear our attempt at a closer view and understanding of a theoretical structure designed to incorporate the different consequences and effects of human ludicity.

The horizon metaphor illustrates the conceptualisation of the human and social ludicity experience in order to facilitate the unveiling of the various paths it takes. In this way, and as one approaches the defined horizon, new horizons open up as do new paths of reflection and action. This metaphor for the conceptualisation of ludicity opens us up to the unknown and reinforces our desire to carry on and

explore this phenomenon which has proved so elusive. It operates in contrast to the metaphor of the framework which limits us to that which is within.

#### **4. Learning according to Gregory Bateson and Edward T. Hall**

In 1964 Bateson introduced a version of learning theory, in which he differentiated four logical levels of learning and highlighted the existence of discontinuity between these and a progressive increase in complexity from levels 0 to III (1977: 253-282). In clarifying how learning takes place, Bateson differentiates each of these four levels in the following way:

Learning 0 - the reception of a stimulus type that systematically induces a given response type. This is the simplest form of learning and is well exemplified by the ambulance siren, which tells us that someone is ill. It is a cause and effect linear type of learning and one with which the most common understanding of the word 'learn' is associated. It is determined by the conditions set by the type itself.

Level I learning – This is related to conditioning. Over a period of time, a person will learn to give different responses to the same stimulus.

Learning II –the transfer of level 1 learning, which is generalised to new contexts so that the person learns to learn. This type II learning results from the application, by the learner, of internalised models, whether intentionally or not.

Learning III –a conscious understanding of how learning to learn took place. It consists of a shift in human and social development. According to Bateson, this learning results from the contradictions inherent in learning II, and the resolution of these contradictions acts as a positive reinforcement of learning III. At this level, level II learning is restructured, modified or redirected and is accompanied by a significant redefinition of the self that leads to a change in mentality and behaviour as well as the construction of a new reality of the self and of the world.

Also worth mentioning is Edward Hall's (1959) learning triad. This differentiates learning according to its nature: formal, informal and technical. These form an inseparable triad, although, in certain situations, one of these may dominate the others. Informal learning is that which a person does without realising consciously that they are learning. This learning is acquired through imitating models, whether or not these are chosen by the learner, which along time will become a part of daily life and will remain there in the form of a cultural sign. Formal learning is different in nature and is linked to social and cultural tradition. Its bipolar nature is of the type good-bad, yes-no, right-wrong and results from exercising models, particularly those with authority. This communication strategy almost never involves explanations. It is predicative along the lines of 'boys don't cry' or 'adults don't play'. This type of learning involves a high emotional load and acts as a framework for our convictions structure. Technical learning is different from formal and informal learning. According to Hall, it is based on an expertise in, and transmission of, knowledge. It can be found, for example, in the competences of the designer of ludicity where it manifests itself in the knowledge which is mastered, in the questioning of, and reflection on, the actions that are observed and in which the designer will intervene. It is also found in the capacity to analyse situational contexts of ludicity and in the ludicity designer's attitude in terms of both the self and the world. In short, technical learning embraces both formal and informal learning and, from such learning, emerges the highest level of individual consciousness. In terms of the passage from one type of learning to another, Hall makes it clear that this is quick and is generally associated with a change of some kind.

## **5. Learning and change according to Gregory Bateson**

The construction of the change that results from learning is inherent in Bateson's learning theory in which two processes of change, designated type one, those which allow the human system to maintain its equilibrium (homeostasis), or type two, in which the system itself changes or is completely modified (Watzlawick, Weakland, Fisch, 1974).

In type one change, the change operates on only one component of the system which, despite such change, rebalances and maintains itself. In type two the change implies a reconstruction of reality or of its principles.

The 'sweeping man' toy may be used as a metaphor to illustrate these two types of change. In this mechanical toy a cord is pulled to allow the broom the man is holding to make sweeping motions. If the clockwork is lightly engaged, the toy will either make a slow sweeping motion or will quickly run out of energy, if the floor is uneven (type 1 change). In type 2 change, and if the clockwork is moving faster, the rhythm of the sweeping motion changes completely.

In type 1 change, a single component of the human system is changed. Despite this, the system incorporates the change and then continues, rebalanced. In type 2 changes, the human system either changes or is completely altered.

As pointed out above, the bringing about of any type of change presupposes a learning process. We are that which we learn.

The use of ludicity media or artefacts in learning, whether these are toys or games, can drive learning and change. Research carried out by this author, in 1998, on the spontaneous social play of children, aged between 3 and 6, in real life contexts showed that the mediation of ludicity artefacts drove the processes of learning and change, particularly in terms of the procedural components of social interaction, in the gaining of knowledge and in the acquisition and development of verbal language.

The work of ludicity designers who conceive and construct these artefacts and that of the teachers and educators who make use of them as supports, means and uses is fundamentally important to the encouragement and development of learning and change.

## **6. Conclusion and discussion**

This article has tried to put forward, for critical review, the concept of ludicity and a conceptualisation horizon for the human and social ludicity experience in an attempt to contribute to a conceptual clarification of the game and game-playing, playing and the toy.

This conceptualisation is of great importance for the work of ludicity designers, creators, practitioners and producers of ludicity media or artefacts, specifically games and toys whether these are analogue or digital. It is also of consequence to teachers and educators who use these media in the encouragement and development of learning. It offers the possibility that, in each and every context, project methodologies can be constructed which focus on the unique characteristics of each of the manifestations: game-playing, playing, building ludicity artefacts, recreation and leisure and that these methodologies will contribute to making the use of such manifestations in the learning process more efficient and effective.

The concept of ludicity can be explained as a human condition, inasmuch as ludicity signifies a quality and state shared by all humans. Ludicity manifests itself specifically in game, game-playing, play, recreation, leisure, celebrations, and in the construction of digital and analogical artefacts (toys and games). These manifestations affect humans and their environments in terms of learning, as well as

in terms of social, relational, affective, emotional, cognitive and creative competences, capacities and attitudes.

From this perspective, ludicity can be divided into three dimensions, which interact and cannot be disassociated from each other: first, the human condition, made up of the individual's Being, and which is prior to any and all ludic manifestations; second, ludic manifestations, resulting from the individual's human condition as ludic, and as the products of various, individually-authored ludicity-type actions. These actions can be classified in terms of game, game-playing, play, recreation, leisure, celebrations, and in the construction of digital and analogical ludic artefacts, and humour; third, the effects of ludicity, which consist of a diversity of procedural results, these owing their different particularities to the specific manifestations and procedures that produce them, as well as the final results of these procedures, which are regulated by the nature of ludic interaction. These three dimensions form the analysis of ludicity (which implies analysis of the broader human condition), manifestations of ludicity, and its effects.

The essence of ludicity can be located to a great extent in the relational and interactive processes undertaken by Humans who invest their actions with ludic meaning with, in the end, specific results of these actions. The diversity of Human and social manifestations of ludicity, through recreation, leisure, play, game-playing, and the construction of ludic artefacts (both electronic and analogue) corresponds to differentiated logical levels of analysis as well as various types of ludic social interaction.

Finally, ludicity influences our state of mind, and the way we look at things, the way we read and understand ourselves and others and our role in and with the world and the availability shown by each human to socialise in order to co-produce a socially happy and productive existence. Moreover, the horizon of our conceptual understanding of ludicity can enrich the existing conceptual frameworks, the practices developed in mastering the use of ludicity media, such as the game and the toy, and thus act as a basis for the encouragement and development of learning and the co-production of change.

## References

- Bateson, Gregory (1972) *Steps to an Ecology of Mind*, Scranton, Chandler, Pennsylvania. (French edition, (1977) *Vers Une Écologie de L'Esprit*, Seuil, Vol 1, Paris).
- Bateson, Gregory (1972) *Steps to an Ecology of Mind*, Scranton, Chandler, Pennsylvania. (French edition, (1980), *Vers Une Écologie de L'Esprit*, Seuil, Vol 2, Paris).
- Bateson, Gregory (1979) *Mind and Nature: A Necessary Unity*, E. P. Dutton, New York.
- Bateson, Gregory (1964) "Les categories de l'apprentissage et de la communication", in *Vers Une Écologie de L'Esprit*, Seuil, Vol 1, Paris, pp. 253-282.
- Bateson, Gregory (1956) The Message "this is a play", in B. Schaffner (Ed.), *Group Processes: Transactions of Second Conference*, Josiah Macy, Jr. Foundation, New York.
- Bateson, Gregory (1955) "A Theory of Play and Fantasy", *American Psychiatric Association Research Reports*, Vol 2, pp. 39-51.
- Brougère, G. (1995) *Jeu et Éducation*, Harmanntan, Paris.
- Carr, H. (1907) *Psychological Review*, No 14, p.6.
- Cronen, E. Vernon. (1995) "The Consequentiality of Communication", in Sigmam, S. J., *The Consequentiality of Communication*, Ed. Lawrence E. Ass. Ltd, USA, pp.17-65.

- Huizinga, J. (1951) *L'Homo Ludens, Essai sur la Fonction Sociale du Jeu*, Ed. Gallimard, Paris, (1<sup>st</sup> edition 1938).
- Ellis, M. J. (1973) *Why People Play*, Prentice Hall, New Jersey.
- Erikson, E. H. (1950) *Child and Society*, Norton, New York.
- Freud, S. (1961) *Beyond the Pleasure Principle*, Norton, New York.
- Gobey, G. (1978) *Recreation, Park and Leisure Services*, W.B.Sanders, Philadelphia.
- Gras, K. (1910) *The Play of Man*, Appleton, New York.
- Groos, K. (1901) *The Play of Man*, Appleton, New York.
- Hall, Edward (1959) *The Silent Language*, Doubleday, New York. (Portuguese edition (1994) *A Linguagem Silenciosa*, Ed. Relógio D'Água, Lisboa).
- Hall, Edward (1983) *The Dance of Life*, Doubleday, New York. (Portuguese edition (1996) *A Dança da Vida*, Ed. Relógio D'Água, Lisboa).
- Huizinga, J. (1951) *L'Homo Ludens*, Ed. Gallimard, Paris. (original work, 1938).
- International Dictionary of English, Cambridge (1995) University Press, Cambridge.
- Lopes, MCO. (2006) "Communication-Ludicity and Spontaneous Social Play: the Children's Power", Paper read an 32 nd Annual meeting, (TASP), Brock University, St Catharines, Ontario.
- Lopes, MCO. (2004) *Ludicidade, contributo para a busca dos sentidos do Humano*, Ed. Universidade de Aveiro, Aveiro.
- Lopes, MCO. (2003) *Comunicação, contributo para a busca dos sentidos do Humano*, Ed. Universidade de Aveiro, Aveiro.
- Lopes, MCO. (1998), *Comunicação e Ludicidade*, Tese de doutoramento em Ciências e Tecnologias da Comunicação, Universidade de Aveiro, Aveiro, Portugal.
- Lopes, MCO. (1994) "O Brinquedo como Médium de Comunicação", in *Para Intervir em Educação*, José Tavares (Ed.), CIDInE, Aveiro, pp. 47-63.
- Kirkg, C. Raven. (1957) *Os Filósofos Pré-Socráticos*, FCG, Lisboa.
- Machado, J. P. (1981) *Grande Dicionário da Língua Portuguesa*, Sociedade de Língua Portuguesa, Amigos do Livro Ed. Ld, Vols I-a, II-b, III-c, IV-d, V-e, VI-f, VI-j, Lisboa.
- Meyer, H. D. & Brightbill, C. K. (1964) *Community Recreation*, Prentice Hall, New Jersey.
- Nasch, J. B. (1960) *Philosophy of Recreation and Leisure*, William Brown Dubuque, Iowa.
- Neumeyer, M. and Neumeyer, E. (1958) *Leisure and Recreation*, Ronald Press, New York.
- Patrick, G.T.W. (1916) *The Psychology of Relaxation*, Houghton-Mifflin, Boston.
- Piaget, Jean (1962) *Play, Dreams and Imitation in Childhood*, Norton, New York.
- Platão (1900) *The Republic of Plato*, A. L. Burt, New York.
- Santo Agostinho (1990) *Confissões*, Edições Apostolado da Imprensa, Porto, (original work 1536).
- Sigman, S.J.(1995) *The Consequentiality of Communication*, Lawrence E. Ass., New York.
- Spencer, H. (1873) *Principles of Psychology*, Appleton, New York.
- Schiller, F. (1954) *On the Aesthetic Education of Man*, Routledge & Kegan Paul, London.
- Stanley - Hall, G. (1920) *Youth*, Appleton-Century, New York.
- Torkildsen, G. (1983) *Leisure and Recreation*, G. B. Management, UP, Cambridge.

Vygotsky, L. S. (1966) "Play and Its Role, in The Mental Development of The Child", *Soviet Psychology*, vol. 5, pp 6-18.

Watzlawick, P. et al. (1967) *Pragmatics of Human Communication, A Study of Interactional Patterns, Pathologies, and Paradoxes*, Norton & Company, New York. (Brazilian edition, (1983) *Pragmática da Comunicação Humana*, Cultrix, São Paulo).

Watzlawick, Weakland, Fisch (1974) *Change: Principles of Problem Formation and Problem Resolution*, Norton, New York.

Wittgenstein, L. (1987) *Tratado Lógico-Filosófico*, Ed. F.C.Gulbenkian, Lisboa.