Chapter 1

Game and Video Game. Reflections between education and entertainment

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> *Anyone who tries to make a distinction*
> *between education and entertainment*
> *doesn't know the first thing about either*
> Marshal McLuhan

The educational and training potentialities of videogames - which have been debated in the teaching context over the last years - have seen a slow but progressive shift of the attitude of the institutions and people in training agencies of every order and degree towards the acknowledgement of the many training and educational potentialities of such medium, although it has not yet been possible to define which must be the dimensions through which observe the videogame from a teaching point of view.

It is possible to divide the attempts that have so far been made into two categories of contributions:

1. those that focus on videogame activities considering the risk-benefit dualism in the use of such medium, they highlight the former quoting researches often lacking scientific value and will not go any further than showing the latter;

2. those that exalt the videogame as a powerful learning medium, especially on a disciplinary level, though not justifying this process with theoretical references and not identifying the modality in which the videogame can be introduced into daily didactic activities.

The teaching research on videogames should start from a reflection upon the issues concerning man in relation to videogame and technology, then it should identify the characteristics that the videogame could and should present in order to be considered without any prejudice in the educational context.

Starting from this consideration, the central issues related to videogames will be analysed first beginning with a general talk which stresses both the meaning that electronic media presently have in the relationship with man and the role that digital technology is gradually playing in contemporary society and culture; after that there will be the description of three meaning pairs that are supposed to characterize a preliminary reflection upon the medium from an educational-training point of view - interaction and participation, simulation and immersion, exploration and mastery.

Questions

Man vs machine?

In order to reflect upon the meaning that videogame has within the teaching research it is necessary to first of all understand the role that such medium plays in modern society and which can be the sense horizons that it has in its relationship with man. For centuries each culture has expressed games that were different from the ones of previous and following cultures, therefore creating new ones and eliminating the "superfluous" ones[1]. It is thus natural to ask why videogame has appeared now. You could at first reply very superficially that technology has only now allowed to develop such an entertainment mode. To understand the meaning that technology, or rather digital technology, has in our culture, it is essential to consider that along the centuries technology has increasingly affected man's operational dimensions - from the industrial productive fields, technology has gradually entered those environments connected to knowledge objects, passing from economy and science to art and culture until it has filled "spaces" and "times" which make man different from any other living being - free time. The result of an evolutional process in games - which began centuries ago with the introduction of small mechanic devices that were hand operated or used electric power (analogical technology) and has modernized with videogame (digital technology).

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[1] Staccioli, G. (2004), *Culture in gioco. Attività ludiche per l'apprendimento*, Carocci, Roma.

Analogic vs Digital?

Thus, the starting point focuses on the relationship between man and machine in the moment when the latter becomes the intermediary of the game activity. If any human activity can be considered in the form of a game, we must not make the mistake of thinking that technology, especially the digital one, can convey any kind of game.

Currently the completely "analogical" game culture - which has developed over 3,000 years - is at risk of not finding a way to be "digitized"[2]. The term "digitization" is not intended here as the process of converting phenomena and behaviour into discrete representations through mathematical algorithms. It is instead considered the meaning that such process is having for mankind - the impossibility to simulate the deepest and intimate dimensions of the human being (emotions, feelings, affections) and the reduction of some experiential aspects which present a mediate and simplified use in digital technology (relationships, society, world).

Still the digital game must not be considered as opposing or eliminating the analogical game, it must be seen as a new way to conceive the game since its presence enriches the general game scene. The videogame presents new game situations that led the classic game model to a crisis as its space-time dimensions and goal must be clear and set in advance. Endless simulations games - such as SimCity and The Sims - present the typical situation in which a player might theoretically play an endless game without ever reaching a clear goal but prolonging the game itself endlessly[3].

Digital games with such characteristics lead to another fundamental question - must they still be considered videogames or should they be called video-toys?

Video-Game vs Video-Toy?

Distinguishing between game and toy may look simple, but defining the toy characteristics is complex since there is no univocal game definition. In our vision, the game is peculiar to the person who does the action of playing, therefore it is an inwards action, on the other hand, the toy is connected to the object – whether material or immaterial – that undergoes the action of playing. In this sense, the relationship between game and toy is the relationship that is established between a person

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[2] Jenkins, H: (2010), *Culture partecipative e competenze digitali. Media education per il XXI secolo*, Guerini Studio, Milano.
[3] Juul, J. (2005), *Half-Real. Video games between real rules and fictional world*, The MIT Press, Cambridge (Massachusetts).

and the surrounding environment, and playing can be seen as a person's ability to interact with the environment and the elements it contains. Thus, the wide range of playing offers in a setting does not depend on the quantity and the economic value of the materials within the environment but on their variety and quality, they must always be considered as a support to the game activity. The game is not an action that is directed inwards from outwards, from the environment to man, on the contrary it is directed outwards and on the outside because the person is the drive of the game activity – without a player there is no game and the toy is an inert matter.

Over the last years, the reflection[4] upon the characteristics of the game setting has highlighted the quantity and the variety of the game materials - seen as objects within a given space and with the function to support people's game activity. In the simplification process carried out by adults such materials are named with the term "toy", but this definition tends to be reductive and misleading. Since it usually refers to those commercial products whose game characteristics are highly specialization (they only do one thing), little flexibility (they are not adaptable to other game situations) and little freedom of action (they reduce the game possibilities to a limited sphere of situations).

The material supporting the game activity is generally divided in two categories - structured material and non-structured material. The objects that belong to the first category are those products, mostly industrially manufactured, specifically designed for playing and usually made of plastic; the second category includes all the materials that present the following characteristics:

- low specialization level - they can adapt to game contexts which are very diversified;
- high flexibility level - their roles and functions in the game activities are always new and different;
- large freedom of action - they allow to act with a small space-time limitation;
- infinite use - their function is not limited to a restricted sphere of space-time situations;
- no pre-established goal - they do not have any special meaning within the game, thus becoming part of the process.

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[4] Goldschmied, E., and Jackson, S. (1996), *Persone da zero a tre anni. Crescere e lavorare nell'ambiente del nido*, Edizioni Junior, Bergamo; Bondioli, A. (1986), *Lo spazio ludico: il gioco e i giochi*, in AA.VV., *Il gioco*, La Nuova Italia, Firenze; Bondioli, A. (1996), *Gioco e educazione*, Franco Angeli, Milano; Guerra, M., (2008), *Progettare esperienze e relazioni. Azioni, contesti, sperimentazioni e formazione nei servizi educativi per l'infanzia e le famiglie*, Edizioni Junior, Bergamo.

This category includes natural materials (wood, stones, sand, fabric, water, vegetables, fruit and so on), those who were originally produced for the many different purposes of human activities (recyclable waste, industrial waste, home items, food items) and those designed for a creative game activity (small bricks, crayons, modelling clays, glue and so on).

The wide range of video games types on the market can be divided into two categories of games:

1. those that have a specific objective to reach (constrain the victory to reach the highest score; defeat of the opponent; conclusion of options and/or gaming opportunities; obtaining the predetermined goal etc.) or allow a maximum time for the playful activity, can be approached with "games" as they enable the player to act within an environment well defined in time and space. In these cases the rules define the boundaries within the subject is free to act;

2. those that do not have a specific goal to reach or a time limit within which the game concludes (they are formally infinite) can be compared to unstructured "toys", since they allow the player to manipulate the game to his liking, "bend it" also for purposes which are external and extraneous to the objectives of the game. Machinima[5] is the most typical example of this concept. The game is meant here as a non-structured to support the free and personal playful activity: the player uses the potential and the resources of the world simulated to set the scene ludic forms different and alternative.

Learning vs Fun?

In recent years, the institutions and training agencies, ascertained the strong interest on the part of younger generations toward the gaming entertainment, have tried to find the philosopher's stone that transformed the commitment in video games into training and disciplinary activities. The expedients identified do not always have achieved an acceptable result, because if the objectives have been

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[5] "Machinima", an abbreviation for "machine cinema" or "machine animation", means a kind of movie that uses techniques of digital animation created with interactive video games with a 3D graphics engine. The video game, which is used for purposes different from the intentions of the game designer, becomes the environment and the tool for scripting, creating and producing their audiovisual products, which in some cases are true "feature films". The first realizations were born in 1996 with the use of the graphics engine of Quake, but it was with the video game The Movies, published at the end of 2005, that the phenomenon has grown in importance and dissemination.

achieved on the content/school matter level, on the interest/fun level rarely they managed to get to say "I'm playing" to the end-user.

These failures are certainly due to the delay of the research in social sciences and humanities and to the injury inherent in many educational environments, accompanied by a secular reflection on the human activity, which sees the positive and educational dimension only in the work, understood as "effort" and "duty", in opposition to the game, understood as "loss of time" and "pleasure": the expression "duty comes first" belongs to a popular pedagogy still dominant, which finds its roots in the protestant ethic[6] and doesn't see in the game a valuable opportunity for learning, discovery, comparison and experimentation. In addition to this, the difficulty to integrate playful methodologies within educational-school matter activities already at the beginning of the second cycle of the primary school has not certainly favoured the task to those who believe that the game facilitates and stimulates the learning person to approach problems and issues pertaining the world and culture.

The fundamental mistake is to think that learning is always played against the fun, that there is opposition between knowing and play, as if the pleasure of discovering new things and the satisfaction to find appropriate solutions to a problem can belong only to the educational-disciplinary area, and the nature of the game is only amusement, carelessness and fun. In reality, the great effort during the playful activity takes the player to concentrate to find the best strategies to achieve the result, not to underestimate any variable for understanding the problem in its entirety, to commit oneself to playmates that collaboratively can help him to achieve the goal. In this sense, the game becomes a serious activity and loses all those negative meanings that relegate the game to a practice with no formative and educational purpose, to take place only after productive occupations and understood as a filler for a "vacuum" time.

Video Games vs Serious Games?

It's not easy, therefore, remove these convictions, because the training paths appear refractory to consider the game as a formative methodology, insomuch as the playful activity has transform itself into physical activity in order to "save". It's emblematic in this sense the path that game and play undergo within the different school levels: in the preschool they are the cardinal principle of the formative action, while in the secondary school they are relegated and bent to sport with the Physical Education.

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[6] Himanen, P., (2003), *Etica hacker*, Feltrinelli, Milano.

The videogame, within the meaning of reality mediated by digital technologies in which spontaneously, freely, voluntarily act, purely for fun outside from the urgencies and from the boundary of the ordinary life, is experiencing a similar situation, as it isn't considered appropriate to the needs and culture of the educational institution in general and for this reason, it must be folded and labelled as "serious game", as if it could be a "non-serious game"[7].

The debate around the Serious Games, however, is not free from ambiguity and confusion: at a macro level it is likely to lose sight of the meaning that a video game should have into the wider world of the game, while at a micro level it tends to have an unclear idea what are the boundaries that differentiate the serious games compared to commercial bookshelf games[8]. In some cases the latter acquires connotations of the first as they reveals educational purposes, in other cases they are very far away, as they seem concentrate their focus on fun. In addition, the meaning attributed to the term "serious" on one side shows the uncertainty of the industry, and the other tries to hide a goal often commercial rather than educational.

The Serious Games differ from commercial games for the «educational purpose explicit and carefully weighted»[9], although someone says at the same time that the term «*"serious" in "serious games" is intended to reflect the purpose of the game, why it was created, and has no bearing on the content of the game itself*»[10]. According to this concept the difference is only given by the intentions of the game designer, not by the product actually made, and then would have a greater value the label next to the name of the game rather than the playful activity putted in use by the player.

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[7] Andreoletti, M., (2010), *Videogiochi. Questioni, tassonomie, similitudini*, in *REM. Ricerche su Educazione e Media*, Erickson, Trento, II, n° 1, June.

[8] Rockwell, G., Kee, K., (2011), *The leisure of Serious Games: A dialogue*, in *Game Studies. The International Journal of Computer Game Research*, XI, n° 2, May.

[9] Abt, C., (1987), *Serious Games*, University Press of America, Lanham (Maryland), in Michael, D., Chen, S. (2006), *Serious Games: Games that educate, train, and inform*, Thomson Course Technology PTR, Boston (Massachusetts).

[10] Michael, D., Chen, S. (2006), *Serious Games: Games that educate, train, and inform*, Thomson Course Technology PTR, Boston (Massachusetts).

Characteristics

By the difficulty of defining what is the game also derives its complexity to achieve a clear definition of video game. Omitting the surface definition that refers to the game as «*a game whose rules are automatically managed by an electronic device that uses a man-machine interface based on the display as an output system*»[11], it is necessary to analyse to which elements and dimensions video game and game are similar and at the same time dissimilar. This examination is vital for their use within training and educational courses.

Interaction and Participation

It's a common opinion that the main feature of the video game is its ability to respond in an appropriate manner (output) to the stimuli offered by the player (input). In reality, this process must be seen in a mutualistic point of view, as even the player responds to situations presented by the game: the interactivity can then be defined as the ability «*to test the environment, explore it and, finally, interact with it and change it*»[12]. The process of mutual interaction creates a strong bond between the man and the machine and the reciprocal influence generated between the two systems creates dependency to the point that the first completely dip in the second, coming also to isolate himself from the real world, while the second cannot exist without the first, in the sense that man is the true engine of the playful activity.

The lived experience within a virtual world is defined by the David Zeltzer's model and is represented by three dimensions:

- autonomy: «*quantifies the ability of a computer model to react to an event or to a stimulus*»;
- interaction: «*defines the access to computer parameters, the ability to alter them and get an immediate reply*»;
- presence: «*quantifies the number and type of stimuli exchanged between the operator and the virtual world*»[13].

The interaction so understood only shows the existence of a mutual influence between the two systems, but without defining times, ways,

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[11] For an overview of the definitions given for video game see Andreoletti, M., (2010), *Videogiochi. Questioni, tassonomie, similitudini*, in *REM. Ricerche su Educazione e Media*, Erickson, Trento, II, n° 1, June.

[12] Aukstakalnis, S., Blatner, D., (1995), *Miraggi elettronici*, Feltrinelli, Milano.

[13] Zeltzer, D., (1992), *Autonomy, interaction and presence*, in *Presence*, vol. 1, n° 1, MIT Press, Cambridge (Massachusetts).

purpose and quality of this relationship. The stimulus proposed by Henry Jenkins, «*the interaction competes to technology, the participation competes to culture*»[14]. As Seymour Papert says, «*is not the computer that dominates the man but it is the man to dominate the computer*»[15] and in this direction it can be argue that the interaction must be understood as the action that a person plays within a given system.

The activ dimension involves primarily that the subject has the awareness that he is the principle and the end of the relationship with the technology and that the relationship with it should be understood as a process of enrichment for him and the other players that can participate in the relationship with and through the technology itself. The participation must be understood as the way in which a people acts within a given system.

The participation involves the knowledge of the nature of the relationship with technology (video game) in the final dimension (because there is this relationship?), in the modal dimension (in which way this relationship is carried out?), in the temporal dimension (when does it start, when does it stop and how many time does this relationship take?), in the spatial dimension (where does this relationship take place") and in the relational dimension (with whom does this relationship develop?).

Simulation and Immersion

The simulative function of the videogame results from a reconstructive process which reduces a world, a reality or a fantasy. This process is done by the game designer, which carries out an analysis of a phenomenon, of a process or of a system achieved through the construction of a mathematical model, which can be explained on two levels:

1. *macro*: the inability to fully reproduce any existing system, by considering:
   - the complexity of the real in its dimensions;
   - the unconsciousness of the real in its entirety;
2. *micro*: the choices made by game designer that within a range of technological and playful constraints creates:
   - a closed system without any link with other systems;
   - a system adapted to the gameplay[16].

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[14] Jenkins, H., (2010), *Culture partecipative e competenze digitali. Media education per il XXI secolo*, Guerini Studio, Milano.

[15] Papert, S., (1994), *Il computer e i bambini*, Rizzoli, Milano.

[16] Andreoletti, M., (2010), *Videogiochi. Questioni, tassonomie, similitudini*, in *REM. Ricerche su Educazione e Media*, Erickson, Trento, II, n° 1, June.

The simulation element is already present in traditional game and appears to be meant as the detachment from reality in which you live to dive into a new playful reality: play means from one side to have a close relationship with the reality and on the other hand to be separated cleanly and radical. The player is aware of this situation because when he plays while remaining in the real world (we cannot be separated from it) is found in another world, the fantastic one (re)created in the game, which has close ties with the real world (you cannot imagine anything outside of the existing).

The way of immersion in the reality of the game of each subject, can be explained following two axis:

1. *type of immersion*: when a people plays, he immerses himself physically into a new reality, separated only formally from the world, and in it he interacts with the elements of the playful world. It's clear the difference of interaction, and then of immersion, between the classic game and the video game. In the latter the immersive process moves from the sensory-motor axis (in the game the immersion is predominantly physical) to a logical-formal axis (in the game world the immersion is predominantly mental). The intellectual component of video games has a greater weight and role respect to the traditional game, as the playful activity takes place in a world reproduced within a machine through algorithms designed by game designer and the courses of participation are mediated by a machine;

2. *level of immersion*: while playing the subject participates freely and voluntarily to the playful activity with diversified degrees of involvement on the basis of personal factors (physical and psychic condition, humor, interest, etc.) and environmental (degree of definition of the setting, quality of the present materials, freedom of action etc.). Being inside of the "magic circle"[17] created by the game does not imply the existence of an optimal level of involvement in the playful activity (immersion), but depending on the purpose with which each people decides to play may vary from time to time, going from a minimum level, where he plays a marginal role respect to the center of the action, to a maximum level, where he is the engine (or one of them) of the playful activity.

Exploration and Mastery

The game is "governed" by rules that define nature and borders without to presage what would be the strategies and behaviours that players could put in place. In fact, «*the rules of a game should not be confused with the strategies of the players. Each player chooses his strategies*

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[17] Huizinga, J., (2002), *Homo ludens*, Einaudi, Torino.

freely (i.e., the general principles that govern his choices). While every single strategy can be right or wrong (a condition that these concepts can be interpreted as exact), is at the discretion of the player use it or discard it. The rules of the game, however, are absolute commands»[18].

All types of game are brought together by two characteristics: the simplicity and the reduced number of rules. A game cannot be complex and have too many rules, since this would fail in business and the poor dissemination at the popular level. The approach to the game that every subject[19] performs passes through two consecutive phases:

1. *exploration*: can be defined as the process of knowledge and understanding of the rules that govern a playful action;
2. *mastery*: the path with which the same subject can steer these rules in order to acquire a level of expertise and develop strategies that enable him to play in an effective manner.

These two steps have their own characteristics which determine times, spaces, and completion procedures:

1. exploration:
    - precedes the mastery;
    - doesn't cost much time and much effort to subject[20];
    - involves objects, tangible or intangible, which become media for action;
    - conveyed by a person or a text;
    - necessarily is completed before the beginning of the playful activity;
2. mastery:
    - following the exploration;
    - depending on the circumstances, it may be short or long, simple or tiring;
    - the maintenance of an appropriate level of mastery in some cases may require a frequent activity;

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[18] Von Neumann, J., Morgenstern, O., (1953), *Theory of games and economic behavior*, Princeton University Press, Princeton (New Jersey), in Juul, J., (2005), *Half-Real. Video games between real rules and fictional world*, The MIT Press, Cambridge (Massachusetts).

[19] In the presented model, the terms "exploration" and "mastery" are referred to adult subjects. We are aware that the Piaget's theory intends to these terms even and especially in very young subjects (first years of life), whose acquisition of game models is related essentially to the direct experience

[20] The rules of most of the games may be collected in no more than two pages of text, their knowledge is not complex and the remembrance of them does not require excessive effort.

- the identification of appropriate strategies for some games may require a lot of commitment and concentration.

From these characteristics we understood that the games respond to a classic formula: «*it's easy to know them, it's difficult to master them*». However, the emergence of digital games has led to a crisis this model, as the exploration and mastery processes can also vary considerably according to the types of game:

1. exploration:
   - does not come to an end before the activity of mastery, but can go hand in hand with it;
   - the rules are acquired through a process of direct experimentation, in a small part can be shared or disseminated by other people and are not known by reading a text (absence of in-depth manuals on the operation of the game);
   - the process of knowledge of the rules is long, complex and varied especially for those video games born from the process of hybridization of genres and consisting of different types of games and in the so called "emergent videogames", i.e. those titles that «*contain a high number of interactions between different parts of the system*»[21];

2. mastery:
   - in the video game the mastery process is not subsequent but contemporary to the exploration phase;
   - in some video games (simulations, strategic, role playing games) the complexity of the game does not allow the player to approach the playful activity in its entirety from its initial moments, but he needs a playful training phase where the player is gradually introduced to all of the features (configurations, menus, facilities etc.) and he is led by the hand to immediately try out the knowledge just acquired;
   - unlike the non-digital game, in which the difficulty and complexity produced by the combination of the rules are present at the beginning (the player adapts to the game) and vary depending on the skill of the opponent, some video games gradually increase the level of difficulty and complexity as the game goes on, adapting these two dimensions to the skills of the player (the game adapts to the player).

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[21] Juul, J., (2005), *Half-Real. Video games between real rules and fictional world*, The MIT Press, Cambridge (Massachusetts).

Definition

The search for a video game definition suffers from the same difficulties, that it's possible to encounter when we talk about the game in general. We can't say that there is a lack of a literature on the game, but the complexity of the medium in constant evolution make it almost impossible to give a definition[22].

Many researchers working in the context of game studies[23] over the years have tried to define what are the video games, what is their meaning and their context, which functions they have in today's society, which may be the effects arising from their use etc.

In most of the texts, the existence of the video game derive from technology that becomes the central element. In this sense, it is meant as «*a game whose rules are automatically managed by an electronic device that uses a man-machine interface based on the display as an output system. […] It has become an out-and-out mass cultural phenomenon, a medium or even a visual art in itself, the video game can live in reason of computer technology and electronics (for both software and hardware)*»[24]. The anthropological dimension is not considered, as if man had no relationship with the existence of the game itself. «*The key to better express the potentiality of the videogame as a tool lies into its technological matrix, or better in being the product of the digital manipulation granted by computers*»[25]; «*the videogame derives from the manner in which it performs this playful activity: in front of a screen, a monitor a player interacts with the actions within the fictional world of the video game with the joystick or other instruments of man-machine dialog*»[26].

The first attempt to overcome this technological "bond" takes place in those authors who located in the technology an expression of

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[22] Mäyrä, F., (2008), *An introduction to Game Studies*, Sage Publication, Londra; Nardone, R., (2007), *I nuovi scenari educ@tivi del Videogioco*, Edizioni Junior, Bergamo.

[23] Game studies substantially are a multi- and inter-disciplinary field with university professors and researchers from many branches, such as computer science, psychology, sociology, pedagogy, anthropology, arts, literature, communication etc., whose research interest is the game, their players and the role they play in society and culture in general.

[24] http://it.wikipedia.org/wiki/Videogioco.

[25] Alinovi, F., *Serio videoludere. Spunti per una riflessione sul videogioco*, in Bittanti, M. (ed), (2004), *Per una cultura dei videogames. Teoria e prassi del videogiocatore*, Edizioni Unicopli, Milano.

[26] Nardone, R., (2007), *I nuovi scenari educ@tivi del Videogioco*, Edizioni Junior, Bergamo.

contemporary culture and saw in the video game aspects connected with the whole being of the person. «*The video game has a dual nature: on the one hand is a game, hence is activity, praxis. On the other hand, it's video, therefore it refers to a see, an aesthetics. Within the meaning of practice, the video game maintains its structural continuity, recurring characteristics, brands can be traced back to those identified by Roger Caillois in his seminal "Man, Play and Games". Vice versa, on the aesthetics side, the video game is subjected to continuous and often radical transformations which in turn reflect the rapid succession of technical improvements*»[27].

The authors that look for the components of the video game in addition to its technological component recognize in playful dimension its first to be "game". The video game is considered like any other material that supports the playful activity and goes to be seen as «*an abstract world where some goals may be obtained by following certain rules and where the subject assumes a central role in all phases of the game*»[28]. The ludic dimension present in the video game is marked by a series of elements - «*conflict and challenge; imagination and curiosity; perception of progress/advancement; progressive difficulty; feedback*»[29] - showing how video game can be the contact point between the anthropological dimension and the technological dimension.

Some of the definitions is also took too far, going to seek within the video game exclusively functional elements, totally disregarding the aspects connected to digital technology. For Jesper Juul the videogame is a «*rules-based system with a variable and quantifiable results, where different values are assigned different results, the player exerts effort in order to influence the outcome, the player feels emotionally bound to the result and the activity's consequences are non-negotiable*»[30]. The man takes the central role within the (video)playful activities: «*the video game is a system, not an activity, an event, or a physical object. However, it is inseparable from the players, which are necessary to engage in artificial conflict*»[31].

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[27] Bittanti, M., (1999), *L'innovazione tecnoludica. L'era dei videogiochi simbolici (1958-1984)*, Jackson Libri, Milano.

[28] Fernández-Manjón, B., (2009), *Games as a didactic tools. Integrating educational videogames in the learning flow*, presentation at the meeting *Edu-Tech 2009. La tecnologia al servizio dell'educazione*, Milano.

[29] Ibidem.

[30] Juul, J., (2005), *Half-Real. Video games between real rules and fictional world*, The MIT Press, Cambridge (Massachusetts).

[31] Montola, M., Stenros, J., Waern, A., (2009), *Pervasive games. Theory and design*, Morgan Kaufmann, Burlington.

But what are the effects associated with the use of video games? Going beyond the controversy on the presence of violence within the video games, which should be extended to all the cultural-mediated "events" of contemporary society, some authors identify the point of grip in the emotional component. For Matteo Bittanti «*the video game is an happiness machine: is specially developed to satisfy the player by an instant gratification. […] The video games produce endorphins and reduce the levels of stress, anxiety and irritability*»[32]. Ivan Fulco even says that «*the video game is a democratic psycho-medicine. As if to say: it acts on the nervous system, but only if the subject is willing. To realize this, it's enough to observe any video player, expert or beginner, in front of a good video game. After a preliminary study phase, in which the player's attention is limited, something revolutionary takes place. The player finishes to blend in with the game. He becomes one with the electronic image. In a precise instant, the video game, virtual sponge, absorbs all the cognitive capacities of the spectator. Just a moment, and his hands are clasped around the controller, the eyes are glued to the screen, the responses to external stimuli are progressively attenuate until they reach zero*»[33].

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[32] Bittanti, M., *I videogiochi e la loro filosofia*. http://www.wuz.it/intervista-libro/2224/intervista-matteo-bittanti.html.

[33] Fulco, I., *Lo zero ludico. Decostruzione del videogioco e fondamenti della pulsione ludica*, in Bittanti, M. (ed), (2004), *Per una cultura dei videogames. Teoria e prassi del videogiocatore*, Edizioni Unicopli, Milano.