

Section 2

Chapter 9 - Gamification and Self-Direct Learning: The Use Of Mobile Applications In Education And Lifelong Learning

Theoretical Framework

9.1. "Homo videoludens": the lesson of Johan Huizinga

The insights on the cultural roots of the game that Johan Huizinga developed in his text "Homo ludens" (1939) are still of great interest today, in a scenario where the video game is becoming a paradigm of reference for many life experiences. We are facing an unprecedented anthropological transformation; to understand it you need to find historical references, and J. Huizinga's analysis of the game is still very useful.

This is how he defines the game: *"An action, a voluntary occupation carried out within defined limits of time and space, according to deliberately assumed rules, which engages in an absolute way, which has an end in itself and is accompanied by a sense of tension and joy and the awareness of being different from ordinary life."*

In today's society, the spread of automata, internet-connected objects, *avatars* that represent us in the digital world, various forms of artificial intelligence that interact with us, Augmented Reality devices and Virtual Reality, is bringing the real world closer to a video game scenario. In this imminent scenario of "generalized gamification", it is essential to understand the root and role of the game in the societies of the past.

Huizinga argues that the game is older than culture, because it is widespread among animals and thus anticipates the development of human civilization. The game therefore goes beyond the

limits of purely anthropological analysis, including ethology: it precedes man and culture and creates a link between the human and animal dimensions.

The game is only apparently useless; even in animals it has an irreplaceable social function. Puppies often play by simulating the activities of adults, driven by the latter. Therefore, even for animals, the game can be traced back to primary social activities, such as, for example, in the human field, "professional training".

Huizinga notes that in a game the rules are absolutely mandatory and irrefutable. In addition, the game isolates itself from ordinary life in a given place and time. In some analyses he anticipates typical videogame phenomena. The game is a way away from real life to enter a sphere of temporariness with its own purposes. Each game can at any time completely take possession of the player. In this sense it has strong analogies with videogames, Virtual Reality and also with many forms of art.

9.1.1. Game, beauty, culture

Huizinga places the game in a supra-logical and supra-ethical dimension, out of the binomial wisdom-foolishness, but also out of those of truth-falsity and good-bad.

Culture arises in a playful form; culture is first played. With games, social life dresses up in supra-biological forms that give it greater value. Culture, in its original stages, has the character of a game; as it progresses, the playful element is overshadowed. This is true both for the evolution of humanity, in the passage from animal to man, and for the individual: culture follows the game, without completely replacing it. All the fundamental factors of the game, even collective, are present in the life of the animals. They are the struggle, the representation, the challenge, the show off, the fiction, the restrictive rule.

Rivalry in the form of play is a factor of social life older than any culture and is also present among animals. Wisdom and knowledge were manifested in ancient times in sacred competitions with no practical purpose. The race, like any other game, is essentially useless, that is, it is an end in itself;

its outcome is not part of the inevitable vital process of the group. Huizinga argues that if the game originates beauty, its value imposes itself as a cultural form. The game is older and more originary than any culture.

True culture cannot exist without a certain playful quality, because it derives from a common agreement according to established rules. Human nature always aspires to a higher end, whether it be honor or earthly superiority or victory in the afterlife. The innate function through which man expresses this aspiration is the *game*. In *Homo ludens* it is also stressed that the links between play and beauty are of great importance. Beauty, skill, fun, passion, are fundamental components of the game. But even those activities that are aimed at satisfying vital needs, such as hunting, in an archaic society take on a more playful form.

Huizinga emphasizes some typical features of the game that distinguish it from other activities:

- the game is a *free act*; the imposed game is no longer a game;
- the child and the animal play because they *get pleasure* from it;
- the game is *superfluous* and *disinterested*, like Art.

In these expressions the game seems to diverge from the work, but in others it converges with it. For *Homo ludens*, play decorates life and completes it, and as such it is indispensable both for the individual and for the community; but play imposes itself in the various civilizations as a form of culture handed down, just like work. It creates order, it is shared order, it gives a precise meaning to things. In this sense, play and work clearly converge as well.

Huizinga's reflections help us to define a complex scenario, in which the game seems to have a much more relevant role than what is commonly attributed to it. His reflections also help us to understand the nature of gamification that has already taken place in many phases of human history (war itself has inbuilt obvious forms of gamification) and therefore also its potential in the current phase of an *Homo ludens* that becomes "Homo videoludens". Game, culture and work, as we will see in the dedicated chapter 14, seem to converge, in the era of artificial intelligence.

9.2. Classification of games according to Caillois

Another important theoretical starting point implicit in contemporary Gamification practices is undoubtedly the essay on the game that Roger Caillois published in 1961, in which the scholar clarifies what are the fundamental characteristics of the game and the main types into which it can be categorized (Caillois, 1961).

Moving on from Hizinga, Caillois says that the game must be an activity:

- *Free*: the player cannot be forced to play without immediately losing his interested and joyful nature;
- *Separate*: the activity of the game must be circumscribed in space and time within precise limits established *a priori*;
- *Uncertain*: the outcome of the game cannot be known before its conclusion and its development cannot be the result of a pre-established project;
- *Unproductive*: the nature of the game means that its result is not useful to a practical objective or aimed at the production of goods or wealth;
- *Regulated*: this is an activity subject to an arbitrary convention but initially decided by the players, in his realm the laws of real life cease to apply, temporarily replaced by legislation that is all that counts;
- *Fictitious*: this is an activity that takes place in a symbolic dimension of fiction, completely different from that of normal reality.

9.2.1. Categories of games

Caillois associates this general profiling with a more articulated typologization of the game, consisting of four categories into which - in one way or another - the different forms of play fall:

- *Agon*, which represents all games based on competition, where two or more players compete to see their skills recognized as superior to those of others (fighting, chess, competitive sports, etc.);
- *Alea*: all games in which the player relies on chance or luck, games whose outcome therefore do not depend on the will of the player but on fate (dice, lotteries, etc.);

- *Mimicry*: all games of disguise, in which the player temporarily loses his identity and temporarily assumes another identity, suspending the principle of reality of his existence and immersing himself in a "parallel" reality (disguises, role-playing games, theater, etc.);
- *Ilinx*: all games through which the player seeks out and reaches a state of dizziness, bewilderment or a feeling of "panic" (the roundabout, the rollercoaster, etc.).

According to the author, these types of games can be interwoven in various ways and proportions, also characterizing many adult activities. In addition, they can have a positive or negative value, depending on whether the outcome is constructive or destructive.

9.3. Gamification and its conceptual and methodological tools

Over the last two decades, game-based learning has become an increasingly widespread educational approach, thanks to its undoubted power to motivate and engage students in learning. For example, in problem solving practices, in the growth of decision-making capacity or in the development of metacognitive thinking, that type of thinking that is aware of itself and therefore able to apply itself to situations different from those that produced it.

With regard to the use of video games, despite the debate about their positive or negative impact on the personality of players, there is sufficient empirical evidence to support their benefits in education, with regard to the cognitive aspect, the motivational aspect, the emotional aspect and finally the social aspect.¹

Digital games are becoming one of the most popular educational tools simply because they are fun and engaging. The game itself has the ability to motivate and develop the cognitive thinking of learners and for this reason educators have sought to infer the fun, challenges and commitment of the game experience and to apply it to support learning and education.

¹ Information Resources Management, A. (2018). *Gamification in education: breakthroughs in research and practice*.

9.3.1. The dynamics of the game

Among the elements that can be deduced from the mechanisms and dynamics of the game, we can remember for example:

- *Points or credits*, which are the reward for the player's actions and at the same time denote the player's skill and experience;
- The *levels*, which represent a system to introduce progressive objectives to be achieved on the basis of those already exceeded, thus acting on the motivation and allowing an ongoing "verification" of the skills acquired;
- *Medals* or other forms of recognition, which mark the achievement of a goal by increasing the challenge component of the game and characterizing the player;
- *Rankings*, which are a method of ordering players' skills by allowing them to confront each other and stimulate their competitive component;
- The *missions*, tests that the player must pass within the playful narrative to get results and awards and to be able to proceed;
- *Virtual goods*, which represent the value within the fiction of the game and allow you to actually or virtually buy objects and equipment useful for its development.

In order to be able to plan play activities in accordance with their objectives as educators, it is important in this context to consider the classic difference - often cited by experts - that in the English language there is between "play" and "game": to play also means playing a part or playing an instrument and therefore indicates a free activity completely devoid of purpose that is not its own implementation; game, *vice versa*, indicates a type of organized, regulated and competitive game, as in the case of sports or card games. Rule, structure and scheme make the difference.

It is useful in this regard to refer to the taxonomy introduced by Deterding (Deterding, Dixon, Khaled, Nacke, 2011) in which, in addition to the difference between Game and Play, we add that between "totality" and "partiality" of the action. Please refer to his writings for a complete description of this very interesting classification.

9.3.2. The MDA framework

Another important tool that the research has given us and that can be extremely useful for reasoning in terms of the Gamification of educational activities, is the MDA framework, which formally describes the three main components of the game design and which, correctly understood, can be used to improve the gaming experience (Hunicke, LeBlanc, Zubek, 2012):

- *Mechanics*, which corresponds to the structural component of the game and includes all those elements, such as the individual algorithms developed by the programmer, its rules, the number of players or the ways and tools through which they interact with each other or are able to be always aware of their progress;
- *Dynamics*, which designates the way in which the mechanics are received and interpreted by the player, describing the course and outlining the developments, which in this sense derive from his initiative and the way in which it interacts with that of others;
- *Aesthetics*, which includes all the emotional, motivational and - we could say - psychological aspects of the game experience and which represents the perceptive and narrative dimension that is offered to the player; in the case of video games, it primarily concerns their visual aspect.

Of these elements, the Dynamics are central as they represent the designer's objective and involve the motivational and didactic aspects; the Mechanics, as structural components, require most of the constructive effort on the part of the authors, while the Aesthetics represent what we could also call the "artistic" dimension of the game, concerning the narrative and graphic aspect of the "appearance", which in this sense is not only a container but - we could say - the "symbolic form" of the proposed narrative environment.

9.3.3. The core drives of the game

One of the pioneers of Gamification, Yu-Kai Chou (Chou Y. K. (2014)), analyzed the relationship between game and human mind, identifying a series of key principles ("core drive") that constitute the psychologically motivational basis of the games and that he brings together within a framework that he calls "Octalysis", because it consists of eight elements:

- Epic Meaning or Calling
- Progress (Development & Accomplishment)
- Empowerment of Creativity & Feedback
- Ownership & Possession
- Social Influence & Relatedness
- Scarcity & Impatience
- Unpredictability & Curiosity
- Loss & Avoidance

Reflecting on these narrative principles, it is clear that they describe and exhaust the narrative structure of the archetype of that "hero's journey" that is the basis - even according to psychologists - of the motivation to participate in play, it being psychologically "existentialist".

9.4. Natives, migrants and digital residents

When designing a Gamification educational activity using electronic tools, it is very relevant to take into account the important classifications of Kapp (Kapp, 2007) that highlight the differences in perception of reality and things - we could say of the world - that exist between "digital natives" and the so-called "digital residents", their different "visions of the world". According to this author, this is how some areas of life that are particularly involved in learning processes are perceived differently:

Perception	Boomer	Gamer
<i>Organizational structure</i>	Conceived as hierarchical	Perceived as horizontal
<i>Communication media</i>	Formal (face-to-face, telephone)	Informal (messaging, email, sms)
<i>Apps</i>	Interface and information designed as separate	The information coincides with the interface and vice versa
<i>Career</i>	Slow advancement	Fast feeds

<i>Learning environment</i>	Classroom	Online
<i>Videogames</i>	Distraction, fun, waste of time	Lifestyle
<i>Information processing</i>	Linear	Multitasking
<i>Relationship with technology</i>	Migrant	Native

9.5. The taxonomy of players according to Bartle

Games can be very different from each other and fall into different types, but even players are likely to be classified according to their behavior within the fiction of the game, especially electronic games.

Bartle (1996) identified four main types of players by analyzing the issues of Gamification:

- *Achiever*: is a type of player mainly interested in collecting victories, levels, equipment or bonuses within the game, for the achievement of which he is willing to do anything;
- *Explorer*: these are "meditative" players who find the greatest satisfaction in the accurate exploration of the environment and the mechanisms of the game, which they often enrich with new levels and sometimes with new technical features;
- *Socializer*: the player of this type conceives the game essentially as a way to socialize and eventually emerge through a return of image within the group of players;
- *Killers*: this player has as his only goal the achievement of supremacy over others, he is not interested in the quality of social relations but only to excel in direct competition with others.

9.6. Videogames: game and *world view*

One of the main characteristics that, due to the introduction of electronic media, differentiates generations of digital natives from those of so-called "migrants" or "residents", concerns - as we

have seen - the way in which the medium itself is perceived. While for the generations prior to those of the millennials - which still today are those of most of the current teachers - the medium was fundamentally conceived and treated, even scholastically, as an *essentially neutral* "container" and separate from its content, for the new generations it is perceived and treated as if it coincided with its content. According to Kapp (Kapp, 2007), specifically, the interfaces of digital applications are perceived and considered by the natives as interfaces with the information they provide access to; contrary to what happens, therefore, for previous generations (which Kapp defines as "Boomers"), for which the interface is only access to the information it retrieves.

Leaving aside here the fact that, as we have seen in another point of these notes, there has always been in fact a substantial homology among what McLuhan called the "medium" and the "message" within the communication channels (McLuhan, 1964), this should be emphasized especially in relation to the didactic use of digital technologies.

Let's remember that the video game "text" is the only cultural product that can be defined as "resident" in the digital technological form; video games are in fact the only media that do not come - more or less indirectly - from other media, but that were born on the computer for the computer, the result of the coupling between a microprocessor and a screen.

Its history covers the entire recent history of multimedia. In it we see almost a sort of conceptual "summary" of what happened in the West in the field of figurative arts from its origins to the present day. The first video games appeared at the end of the 70's, just like the first experiences of figurative narration of medieval antiquity, develop their visual structure using the metaphor of the "plane", introducing at most a sort of conceptual perspective as in the case of Byzantine art, in which the size of the elements is connected to their importance or to a certain narrative function within the "story". Subsequently, the technology has gone in the direction of an increasingly precise three-dimensional connotation and perspective in the proper sense of the term, to reach the products of the latest generation of games, where the perspective reconstruction enriched by

the possibility of movement in real time in the virtual space generated on the monitor reaches a very high degree of realism.

9.6.1. Perspectives

In the history of the Western image we can talk about six types of perspective (Parini, 2001):

- a- The *dissociated perspective*, exemplifying the perspective fragmentation typical of representations from late antiquity and the first centuries of Christianity, in which within a formally unitary image *"the individual episodes of the sacred and profane representations tend to be represented in isolation as if each were lowered into its own spatial niche"*;
- b- The *inverse perspective*, of which the mosaics of Ravenna are an example, in which *"the progressive spatial disarticulation leads to dismember the same scene in divergent perspective polarizations"*, an evident sign of a totalizing vision of the divine transcendence;
- c- The *axonometric projection*, consisting in a *"particular anti-perspective expedient"* frequently used in the Romanesque period, in which *"the most decisive and integral anti-perspective affirmation, understood as a negation of the naturalistic type of corporeity, is realized"*;
- d- The *scheme called herringbone* or axis of escape, in which the orthogonal lines *"have autonomous points of convergence located at different heights"*, which is essentially *"intermediate between the axonometric representation and perspective representation of the vanishing point that will be reached by degrees"* and constitutes *"the tendentially perspective layout of many of Giotto's works (...)"*.
- e- The *central perspective*, *"in which the lines converge in a single point to infinity, is a synthesis of rationality and transcendence"*;
- f- *Schematic of the lateral vanishing point*, traceable in works such as Tintoretto's Last Supper, which thus becomes *"emblematic of that process of transformation of figurative space that will then have the most important developments in the Baroque era, involving, along with the most daring and ingenious perspective solutions, the problems of light and movement"*.

After the baroque and mannerist revolution that involved the problems of light but particularly dynamism and movement in perspective rendering, the West found its next revolution in visual representation in the avant-gardes at the turn of the twentieth century, which finally led to the end of the research in naturalistically perspective rendering.

It is therefore on the digital video-ludic support that, after three hundred years, a new type of perspective rendering develops that takes its cue from the dynamism of the Baroque (Cioffi, 2003):

g - The *immersive perspective*, which is no longer given as an illusory surface, but as a navigable environment and as such is designed and produced - we can say "painted" - as a symbolic form of post-modernity. It is in fact a visual and perceptive symbolic form of the "post-modern condition", expressed by the "movement in situation" of virtual reality and 3D video games in first person.

It preserves the symbolic trace of the modern and "Renaissance" subject (the individual "point of view" as opposed to the coplanar vision of pre-modern antiquity) from which the West - which elaborates such immersive technologies - comes; "point of view" developed - we could say "played" - in the idea of movement, which marked the entire Baroque period, but finally launched into the existential journey-situation, represented by the context of the game².

9.6.2. From "*Point of View*" to "*Point of Being*"

Video games and apps are primarily visual text. The term "video game" itself contains two important indications.

The first one, the one we usually pay the most attention to, is that we are dealing with a "game": even without going into the details of the well-known classification of the characteristics that distinguish a game from another activity (Huizinga 1940, Caillois 1958) when we deal with "educational videogames" - whether they are complex computer products or declined in the most

² Cioffi, A, "Tecnologia e nuova creatività", in Ciocca A. et al. (2003). *Manuale di didattica museale on-line*. Firenze: 2F multimedia.

agile form of the "App" - we must not forget that of these characteristics the most important is the lack of purpose, the gratuities of the play experience. This obviously creates a problem when you want to attribute to a game an educational purpose, if not explicitly didactic. But - as we will see - there are tools to circumvent this difficulty, both when using these applications for educational purposes and when you want to review an application of this kind.

The second indication that the term "video-game" suggests is that it is something "visual", which appears in a video; that is, it is a more or less interactive "text" that is essentially offered as an "image". And it is precisely from the point of view of visual culture that it must be designed, enjoyed, considered and analyzed. The expression we have just used ("point of view") testifies to the importance of the conceptual dimension of the image also in alphabetical thought and culture, in hermeneutical theory and in scientific thought. On the other hand, the same use in the philosophical field of the German term *Weltanschauung* ("vision of the world"), to indicate the whole of a general conception of reality, confirms this fact.

So, what can happen when we try to "decant" an essentially verbal knowledge - scholastic knowledge for example - into an essentially visual text? The risk is to lose both the appeal of the image and the logical rigor of theoretical and textual knowledge, mortifying one and oversimplifying the other. If we add to this the attribution of an explicit purpose (didactic) to a recreational activity that should be devoid of purpose, the result can only be a failure. Again, there may be ways to overcome the obstacle, but it is necessary to begin with an awareness of the risks one is facing.

According to De Kerckhove (1988, 2014), we are currently in a phase of transition between the era of the "point of view" - essentially connected to perspective, Renaissance and Cartesian alphabet culture - and the era of the "point of being". Video games are exactly that. The book that becomes a video game is that "extension of memory" that - from the condition that foresees a subject (the learner) "prospectively" in front of a text, external to it - becomes the "being" placed inside the

text itself, in a virtual condition of projective mediation (even intersubjective in the case of multiplayer and the use of the cloud) perhaps close to the Heideggerian concept of *Dasein* (Heidegger, 1927).

Given these premises, we will look at the educational Apps that follow, essentially judging the conformity to a correct visual approach and to an equally correct methodological approach. The first characteristic should correspond to the ability to transform linear and alphabetical space into a truly digital immersive space ("360 degrees of memory"). The second, should be able to arrange the contents in a hypertextual way within a learning "environment", richer in didactic *proposals* rather than specific contents.

We are convinced that the transfer of knowledge into the immersive multimedia form takes greater advantage - in the present phase - from enabling teachers to "play" with students to produce applications rather than providing specific pseudo-videoludic applications.

