

THE VIDEO GAME: HOW TO CREATE A REAL LEARNING EXPERIENCE IN THE VIRTUAL WORLD

IL VIDEOGIOCO: COME CREARE UN'ESPERIENZA DI APPRENDIMENTO REALE NEL MONDO VIRTUALE



Double Blind Peer Review

Citation

Tenerelli, N., & Del Sorbo Francesco, F. (2025). The video game: how to create a real learning experience in the virtual world. *Giornale italiano di educazione alla salute, sport e didattica inclusiva*, 9(2).

Doi:

<https://doi.org/10.32043/gsd.v9i2.1350>

Copyright notice:

© 2023 this is an open access, peer-reviewed article published by Open Journal System and distributed under the terms of the Creative Commons Attribution 4.0 International, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

gsdjournal.it

ISSN: 2532-3296

ISBN: 978-88-6022-510-8

Nicola Tenerelli
Università degli studi Aldo Moro
nicola.tenerelli@uniba.it



Francesco Del Sorbo
Università degli Studi della Campania "Luigi Vanvitelli"
delsorbo.francesco@iisferraristabia.edu.it



ABSTRACT

The video game is considered a cross-over tool, capable of generating realistic second life experiences for all generations (Nikolaeva, et al., 2025); the video game is a tool for socializing, feeling emotions and learning at the same time – there are many educational tools in use. The video game, considered a virtual product, produces experience because it involves corporeality - sensations, actions and factual change (Leone, 2025). Using video games, the subject builds a sense of reality and “other” identity capable of overcoming the distinction between real and virtual, using previous assumptions to develop new models useful on an existential level. The study involved 232 students of the three-year period of a secondary school aged between 16+/-1 and 18+/- 1 year and lasted three years; The inference of video games on values, emotions and socialization, as well as student attitudes and opinions, was evaluated.

Il videogioco è considerato uno strumento *cross-over*, in grado di generare esperienze realistiche di second life per tutte le generazioni (Nikolaeva, et al., 2025); il videogioco rappresenta uno strumento per socializzare, provare emozioni e al contempo apprendere – molti sono gli strumenti didattici in uso. Il videogioco, considerato un prodotto virtuale, produce esperienza poiché coinvolge la corporeità - sensazioni, azioni e mutamento fattuale (Leone, 2025). Il soggetto usando il videogioco costruisce un senso di realtà e identità “altra” in grado di superare la distinzione tra reale e virtuale, utilizzando gli assunti pregressi per sviluppare nuovi modelli utili sul piano esistenziale. Nello studio sono stati coinvolti 232 studenti del triennio di una scuola secondaria di secondo grado di età compresa fra i 16+/-1 e i 18+/- 1 anno e ha avuto durata triennale; è stata valutata l’inferenza dei videogiochi su valori, emozioni e socializzazione, oltre che atteggiamenti e opinioni degli studenti.

KEYWORDS

Teaching-learning process, learning experience, video game. Processo di insegnamento-apprendimento, esperienza di apprendimento, videogioco.

Received 30/04/2025

Accepted 11/06/2025

Published 20/06/2025

Introduction

According to what logic can a video game be considered a real situation and what possible effects does it determine? This question gives rise to this research work, which considers three aspects to understand whether video games have positive effects (Evans, 2025):

- starting from the video game as an experience of reality which foresees the dialogue and participation of different logics and identities (therefore opposed to its simulative-immersive stereotype);
- looking at the making of the reality of the video game and the transformation of the player subject, therefore looking at the world of the game as a structured and regulated set of possibilities that form the determined but at the same time always re-determinable reality;
- associating these processes of participation-dialogue and transformation-belief with the concrete and variable productive activity of a situated player subject who, in a text with weak truths (for example, in the game *SuperMario* there aren't guarantees that Mario will be able to save Peach!), attributes value and truth to the virtual by realizing and enunciating it.

Commonly, the term video game means a virtual world or reality because it is capable of inducing in the user experiences capable of making him live other lives - in this it differs from other media; the reality of the video game is generated by a language, so it has a cognitive-imaginative and discursive-assertive potential on reality.

Today, the video game is used for educational and training purposes and is considered by the new generations as a preferential tool for socializing, and it is also for this reason that it is considered an experience of reality (Checa-Romero, Gimenez-Lozano, 2025).

In every moment of the game, the reality and identity of the player construct the sense of an "other" reality and identity in a virtual world so much so that it can be defined as paradoxical.

This work involved 232 high school students aged between 16+/-1 and 18+/-1 and lasted three years. It was observed how through video games it is possible to implement innovative teaching proposals capable of positively influencing the teaching-learning process, emotions and socialization, as well as attitudes (motivation and interest) and opinions of students.

1. Video games as a tool for gaining experience

The term corporeity derives from the medieval latin *corporeitas*, derived from corporeus, “corporeal”, and indicates having a body, being a body and inhabiting a body, living and making a body live in everyday life, thus contemplating in itself the visible expression of every human being in his psychophysical uniqueness manifested through a body that thought itself inhabits (Rosa, De Vita, 2017). Everything that a person consciously lives and perceives must necessarily be experienced and can be considered an experience. To understand whether it is possible to define the video game in experiential terms, it is useful to analyze the term “experience”, regarding which four recurring points of interest can be identified:

1. experience can be defined as something that has to do with corporeality (for example: the experience of pain, cold, taste, etc.) therefore that arises from the body;
2. experience can be defined as something factual (sensations, actions and works that have occurred previously) which, therefore, opposes imagined events (“I don't know if I really saw/did/felt it or if I dreamed it”);
3. as a fact known through the body, experience can be defined as something that is considered true because one is a direct witness of its occurrence and consolidation (knowledge, ability, personal and transferable sensation);
4. experience is inscribed in subjects as something from the past that determines a change with respect to a starting condition (for example: having work experience) and generates present states (for example: getting used to the cold);
5. experience can be defined as something that tests possibilities with respect to the different forms of authority that limit them.

From the action of the surrounding world on the body arises a certain conceptual awareness of what has happened, which is precisely what is recognized as experience. Humans can talk about the world and act precisely because they possess the corporeality that unites them as human beings and the experience of the self as a shared phenomenon.

Video games can be defined as cultural artefacts whose difference lies precisely in their ability to generate experiences deriving in general from the ability to involve the senses, body and mind of those who play (Boatti, 2025).

From a psychological point of view, the video game can be defined as an immersive object capable of generating optimal experiences, or of creating in those who play a state called “flow”, which consists of a sensation of total immersion in the gaming activity generating happiness (Hamlen, 2025). What is identified and singularized as experience is logically presented as a “narrativized” form of the experiential flow that sees the subject involved not only in sensations, but also in emotions, desires and other aspects related to an event (Roth, Jornet 2013).

The experience takes on a meaning as it is useful to constitute the memory of something significant, especially if unusual or unexpected, and the video game, understood as an experience of encounter with everything that can be known, becomes an approach to reality indistinguishable from the reality outside the screen; at the same time, it represents the experience of what the player has never experienced and could never have experienced otherwise (Trumello, 2018).

2. Video game: between virtual and real

There are numerous studies related to video games and the influence they can have in the real world (Kriss, 2018; Trumello, 2018; Aloia, 2025). Below, we report the reflections of two authors considered, from our point of view, fundamental.

In 2013, James Paul Gee defines video games as “learning machines” (Gee, 2013); he considers the moment of learning as the heart of the pleasure and meaning of playing video games. Furthermore, the author emphasizes how learning processes are the true content of video games.

According to Gee, the study of video games must go beyond their stories and images, to be studied for the purposes of a learning theory that is not only interested in few aspects such as improving hand-eye coordination. Gee introduces thirty-six principles useful for studying the learning process through video games; in our opinion these aspects assume fundamental relevance:

1. the re-situation created by the video game: the video game, from an identity point of view, manages to make the player identify with a “second” first person, since it requires the player to learn and think in ways that he would not be able to and, therefore, requires the development of a new form of learning and thinking, at the same time frustrating and positive;
2. the semiotic domains of the video game: the aforementioned re-situation occurs starting from what Gee defines as semiotic domains; this is a concept that is used in a contingent way to refer to individual fields of

knowledge that produce meanings strictly connected to the practices that determine them.

“Semiotics” here is just a fancy way of saying that we want to talk about all sorts of different things that can take on meaning, such as images, sounds, gestures, movements, graphs, diagrams, equations, objects, even people like babies, midwives, and mothers, and not just words. All these things are signs (symbols, representations, whatever you want to call them) that “represent” (take on) different meanings in different situations, contexts, practices, cultures, and historical periods. [...] By semiotic domain I mean any set of practices that use one or more modalities (e.g., spoken or written language, images, equations, symbols, sounds, gestures, graphs, artifacts, etc. [...] Our sentence about basketball – “The guard dribbled the ball down the court, held up two fingers, and passed it to the free man” – is a sentence from the semiotic domain of basketball. It may seem strange to call basketball a semiotic domain. However, in basketball, particular words, actions, objects, and images take on distinctive meanings. [...] If you do not know these meanings, if you cannot read these signs, then you cannot “read” (understand) basketball. [...] If we first think in terms of semiotic domains and not in terms of reading and writing as traditionally conceived, we can say that people are (or are not) (partially or fully) literate in a domain if they are able to recognize (the equivalent of “reading”) and/or produce (the equivalent of “writing”) meanings in that domain. (pp. 17-18)

If video games in general are semiotic domains, then each individual video game enacts existing domains of the world in new and specific ways, allowing the player to actively discover them through experience. Gee links this way of thinking about video games to the cultural models used by the player and which are then confirmed or denied by those present in the rules and experiences of the game. This way of knowing the world can be called “active learning” and is a general form of learning for the human mind that is based on three key aspects of video game practice:

1. experiential dimension: we learn to experience (see, feel, and operate) the world in new ways;
2. social dimension: since semiotic domains are usually shared by groups of people who practice them as distinctive social practices, we learn the potential to join this social group, to affiliate with this type of people;

3. future/project dimension: we acquire useful resources to prepare ourselves for future learning and problem solving in the domain and, perhaps more importantly, for pre-understanding related domains.

The need to act in the video game requires reasoning on the meta-level of these domains, conceiving them as complex manipulative systems, which lead to the development of a critical attitude both internally to the game (e.g., strategies) and externally (reflections on the video game as a medium). From this reflection comes a key definition of what the content of the video game is for Gee:

The content of video games, when played actively and critically, is more or less this: they make meaning in a multimodal space through embodied experiences to solve problems and reflect on the complexities of designing imaginary worlds and real and imagined social relations and identities in the modern world. (p. 48)

Learning through video games occurs because humans live experiences, store them and create connections or associations between them. This means that players must understand and discover what is true and what is not in a video game and interpret their experiences present in the new game situation, connecting them both to their personal past experiences in the game and to their daily situation.

This reflection relates the player's identity to the new identity constructed from the re-situation. Therefore, all learning, in all semiotic fields, requires work on identity and the assumption of a new identity: a third identity characterized by an unsolvable ambiguity between the self and the other, where the self is constituted by the game while the other is defined by an intentionality of the player.

Finally, Gee states that through the “investigative” and “identity” dimensions present in the video game, it is possible to generate a knowledge of the world that is distributed among other users and extended by the technologies of the game. Therefore, the meaning of video games (considered as a set of learning processes and “identity play” mediated by digital technology) can only be understood by analyzing the processes underlying the contents represented.

Torben Grodal considers the body and the psychological implications of physical interaction with a device as the central and characteristic means through which a video game produces its meanings, sometimes more profound (2000); he considers video games as the result of the fact that they are simulations of real experiences, inseparable from those lived in the physical world:

Video games and other types of interactive virtual reality are simulations of basic modes of real-life experience. This also means

that cognitive psychology offers many advantages as a tool for describing video games over a semiotic approach; although games may feature some symbolic signs, the majority of the gaming activity consists of seeing, feeling, and acting in a simulation of real-world interaction. (pp. 129-130)

It therefore proposes an interactionist idea of narration focused on the perception, feeling and action of the player:

The basic experience of the story consists of a continuous interaction between perceptions (I see a monster approaching), emotions (I am afraid, because I know or sense that monsters are dangerous), cognitions (I think it is better to shoot the monster) and an action (the actual motor act of shooting that transforms the motivational emotion of fear into relaxation). (p. 131)

The video game offers an experiential narration that: 1. can do without the linguistic dimension because it focuses on the visual and motor aspects; 2. makes spaces and objects full of meanings typical of audiovisual language; 3. creates new effects on the player because he is called to act in a context in a subjective way, as a person. Each video game imposes on the players schematic learning and offers them a personal story lived in terms of experiential flow:

A first-person, action-driven, agentic experience that “offers two distinct experiences of agency as control and agency as playful interaction with other dynamic agencies,” which gives the game a unique emotional dimension as “fundamental emotions such as love, hate, jealousy, curiosity, grief, and fear rely on a first-person perspective to fully experience these emotions.” (pp. 139-145, scattered)

It is with these assumptions the notion of embodiment is placed at the center of attention as a fundamental part of a self-awareness of human experience and the notion of the player’s “virtual body” in relation to the virtual environment (Grodal, Gregersen, 2008). It is highlighted how thanks to video games significant processes are created on the body of those who play them but, through the direct involvement of this same body, in particular ways linked to the action schemes required to act, forms of phenomenological experiences of the lived body are allowed that go beyond that same physical body.

3. Description of research work

The use of video games is a topic that has attracted increasing interest in educational contexts, and for this reason it is important to fully understand the perspectives of students: students' attitudes towards the tools and the tasks to be performed.

The purpose of this study is to explore and analyze secondary school students' perspectives on learning potential, emotions, and socialization, as well as students' attitudes and opinions through video games.

The selection of students to participate in the study was carried out through a survey and group interviews in September 2022 for a period of two weeks, involving all classes of the three-year period; the total number of students involved is 423. Before the survey, students were reminded that completing the questionnaire and participating in the study were optional and that consent could be revoked at any time.

The survey used in this study took the form of a questionnaire distributed digitally to students via Google Forms. Students were asked to respond to questions about their gaming habits and preferences, why they played, and whether they believed the game could be used successfully in an educational context. Given the closed-ended nature of the questions, interviews were used to supplement the survey data with open-ended responses.

Interviews were conducted in groups with the help of teachers to bring students together and make them feel comfortable, minimizing anxiety and discomfort. A separate room was used for the interviews. These interviews were recorded so that the data could be analyzed in depth later.

The group interviews involved students with different habits and perspectives on the topic at hand. These contrasting experiences within the group generated valuable data and discussions that would not have been possible using individual interviews or a single questionnaire.

Regarding data analysis, since the questionnaire data was collected through Google Forms, the collection and compilation of responses were handled by the default application. However, the breakdown of responses by reported habits or quantification of interview responses was done manually during the analysis process using Google Sheets, which is useful for creating and editing graphs.

The questionnaire data was analyzed alongside the focus group interview data and, where relevant, compared and contrasted in an attempt to provide greater depth and support for the common claims, perceptions and ideas expressed.

Data from interviews and questionnaires addressed to students			
1	How often do you play video games?		
1 – 2 times a week = 15%		3 – 4 times a week = 34%	5 – 7 times a week = 47%
2	What kind of game do you prefer?		
Single game = 48%		Multiplayer game = 52 %	
3	Can video games be educational?		
Yes = 71%		No = 39%	
4	Can video games play a key role in the learning process?		
Yes = 81%		No = 82%	
5	Can video games play an important social role?		
Yes = 67%		No = 33%	
6	Can video games play an important role emotionally?		
Yes = 62%		No = 38%	
7	Would you like to see video games used in the classroom?		
Yes = 56%		No = 44%	

Table 1. Data from interviews and questionnaires addressed to students (N.B. selected the questions considered most useful)

In total, 232 students were selected from the 423 participants. Those who did not want to participate in the work and those who had never used a video game were excluded.

The work began in the 2022/2023 school year and ended in the 2024/2025 school year, thus lasting three years. Of these, 81.1% were male, the remaining part were female. The age ranged from 16 +/- 1 year to 18 +/- 1 year, since the project involved three sections (A, B, C) of the third classes and a fourth of a single section (A).

EXPERIMENTAL GROUP		
school year 2022/2023	school year 2023/2024	school year 2024/2025
<i>Classes involved / Number of students</i>		
classe III sezione C = 29 students	classe IV sezione C = 27 students	classe V sezione C = 25 students
classe III sezione B = 29 students	classe IV sezione B = 28 students	classe V sezione B = 27 students

classe III sezione A = 30 students	→ classe IV sezione A = 29 students	→ classe V sezione A = 26 students
classe IV sezione A = 28 students	→ Classe V sezione A = 27 students	---
Total number of students = 116		
CONTROL GROUP		
<i>Classi coinvolte / Numero alunni</i>		
classe III sezione C' = 29 students	→ classe IV sezione C' = 26 students	→ classe V sezione C' = 24 students
classe III sezione B' = 28 students	→ classe IV sezione B' = 27 students	→ classe V sezione B' = 25 students
classe III sezione A' = 31 students	→ classe IV sezione A' = 29 students	→ classe V sezione A' = 27 students
classe IV sezione A' = 28 students	→ Classe V sezione A' = 25 alunni	---
Total number of students = 116		

Table 2. Class division, number of students, school year

The teachers involved remained the same for all three years of work, both to avoid having to train and inform new teachers every school year, and to ensure that the classes of the control group and the experimental group had the same teachers and therefore the teaching proposals were the same, thus avoiding compromising the results of the work.

To evaluate the effectiveness of the video game on the learning process, the students were divided into two groups composed of the same number of students: experimental (number of students: 116) and control (number of students: 116).

Before the start of the course, teachers were informed and trained adequately both on the objectives of the work and on the teaching proposals. As regards the teaching proposals, different between the third, fourth and fifth, as foreseen by the M.I.M. (national government) indications, it is important to specify that the substantial difference between the experimental group and the control group is that in the first each discipline dedicates an hour of its weekly timetable to the use of the video game as a tool in the teaching-learning process.

From the beginning, this work, in addition to taking into account the opinion of students through questionnaires and interviews, aimed to evaluate the effects of

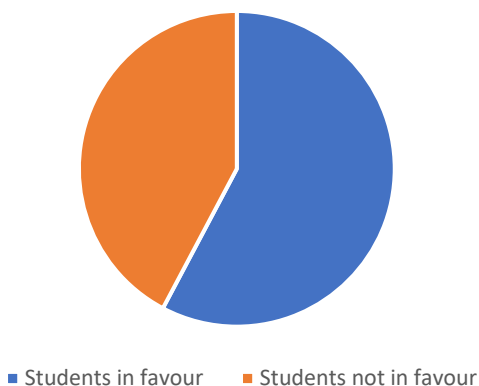
video games as an object and tool for transversal learning, as well as for school learning, emotions and socialization of students.

The methodological perspective applied to video games aims to promote knowledge, skills and reflections for a more conscious and critical use of its applications, up to activating a creative process (Özmen, 2025). Below are some hypotheses of video game proposals as an example.

Examples of video games used in teaching proposals	
Video games	Description
Venti Mesi	Venti Mesi is a collection of interactive stories about the Resistance and Liberation from Nazism. The game includes twenty short stories inspired by real events that occurred in the area of Sesto San Giovanni (Milan) and its surroundings during the Second World War.
Unpacking	Have you ever had to deal with a move? Unpacking boxes is perhaps not the most pleasant activity, yet inside those boxes there are so many stories just waiting to be told.
Papers, Please	The game tells the daily life of a border inspector in charge of immigration control. More than a game, a real full-time job!
Machinarium	The curious adventures of a little robot who was unjustly scrapped: will you be able to find your way home?
Never Alone	In Never Alone we come into contact with the culture and traditions of the Inūpiat, the natives of Alaska. A traditional tale is staged, with a little girl and a fox as protagonists.
Alba: A Wildlife Adventure	On holiday on a Mediterranean island, little Alba must work to prevent the construction of a glittering hotel from endangering the local flora and fauna.
Beholder	The protagonist moves within a totalitarian state, where every citizen is controlled. It is up to you to obey orders or transgress them.
Florence	A love story told through small daily gestures, moments of joy and sadness, the difficulties and big steps of any romantic relationship.
Gorogoa	A surreal video game, where you break down images and think outside the box. A dreamlike journey in the shoes of a boy grappling with a bizarre world that relies on curiosity.

Table 3. Examples of video games used in teaching proposals

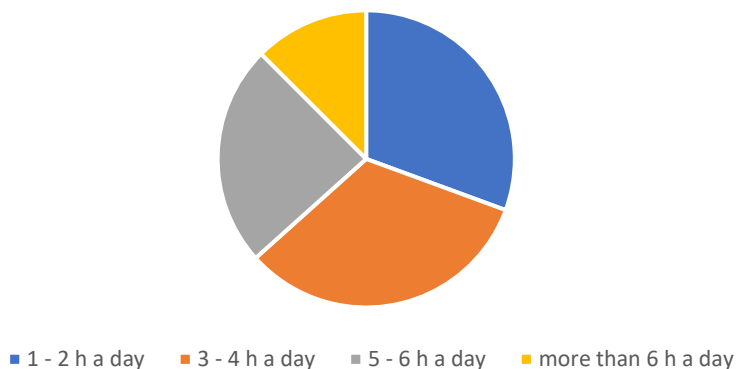
Analysis of students in favor of using video games in class for educational purposes



Graph 1. Students in favor of using video games in class for educational purposes

Overall, the results of the questionnaire and interviews indicate that students generally have a positive attitude towards the use of video games in the classroom. First, it emerges that 58% of the students who participated in this study believe that video games can help develop or improve at least one subject/skill at school.

Analysis of students' habits regarding the use of video games



Graph 2. Students' habits regarding the use of video games

Secondly, students' attitudes and opinions towards the educational potential of video games are explored from the perspective of their usage habits, and the results seem to indicate that those who play between one and four hours on average have obtained, in a school context, at least a sufficient evaluation. On the contrary, those who play between five and six hours or for more than six hours a day do not always manage to obtain a sufficient result.

The teaching proposals, for both the control and experimental groups, began in September 2022. In all groups, the learning objectives and the criteria for achieving them were communicated in detail, and the methodological and organizational methods of the lessons were clearly presented to the students. Specifically, each lesson would include an activity lasting approximately sixty minutes, one hundred and twenty in the case of two consecutive hours, divided into specific moments:

1. presentation of the single topic lasting approximately 25 minutes;
2. use of the video game necessary to repeat or reinforce previous content lasting approximately 25 minutes (this setting allows students to receive immediate feedback);
3. final discussion on the topic (approximately 10-15 minutes).

As regards assessment, it is specified that the criteria in secondary school refer to the learning and skills acquired by students. It occurs through intermediate, periodic and final tests, according to ministerial guidelines, differentiated by year, needs and specific characteristics of the students. Specifically, both for the control group and for the experimental group, the use of checklists and assessment rubrics was planned.

Attitudes or skills		Attendance/Attendance Recording		Overall level attributed based on the detection of presence and/or frequency of skills and attitudes	
Skill 1:					
Skill 2:					
Attitude 1:					
Attitude 2:					
Evidence	Initial (4 - 5)	Base (6)	Intermediate (7 - 8)	Advanced (9 - 10)	

Interact in communicative situations with the ability to listen to the interlocutor, adopting communication strategies depending on the situation, and using dialogue to acquire information and develop shared solutions.	If supported by collaborative interlocutors, he/she interacts in conversations and debates, respecting the basic rules of conversation and using an appropriate register.	Interacts in conversations and debates, respecting the basic rules of conversation and using an appropriate register, using usual patterns.	Interacts in conversations and debates, in a manner that respects the other person's point of view and the rules of conversation. Adapts the linguistic register to needs.	Interacts in conversations and debates, in a manner that respects the other person's point of view and the rules of conversation. Adapts the linguistic register to needs. Uses dialogue to acquire information and develop shared solutions.
--	---	---	--	---

Table 4. Example of checklist and evaluation rubric used

At the end of the work (June 2025), the experimental group was given an online questionnaire consisting of 16 statements on which to express the degree of agreement on a four-level scale (1, No; 2, More no than yes; 3, More yes than no; 4, Yes) to collect feedback relating to the teaching organization of the lessons.

The following table (Table 5) presents the overall data of the frequencies detected. It should be noted that to make the students' opinions more evident, we have aggregated the percentages of the extreme and contiguous modalities of the dependent variables considered (No/More no than yes; More yes than no/Yes).

Questions	Answers	%
1. Carrying out teaching activities through the video game allowed me to better understand the concepts presented during the lesson.	No / More no than yes	5
	Yes / More yes than no	95
2. Carrying out the activities through the video game allowed me to optimize the study time of the course topics.	No / More no than yes	21
	Yes / More yes than no	79
	No / More no than yes	38

3. If I hadn't done the activities through the video game I would have spent more time studying the course topics.	Yes / More yes than no	62
4. Carrying out the activities through the video game guided me in studying the topics proposed by the teacher.	No / More no than yes	13
	Yes / More yes than no	87
5. Interacting with the teacher before, during and after the activities that included the video game as a teaching tool allowed me to better understand the concepts studied.	No / More no than yes	9
	Yes / More yes than no	91
6. Carrying out teaching activities through the video game allowed me to understand what I had understood and what I had not understood about the topics of the lesson.	No / More no than yes	16
	Yes / More yes than no	84
7. The teacher's feedback after the planned activities with the video game allowed me to better understand the concepts studied.	No / More no than yes	3
	Yes / More yes than no	97
8. Receiving feedback from other students helped me better understand the concepts presented during the video game lesson.	No / More no than yes	19
	Yes / More yes than no	81
9. Providing feedback from other students allowed me to better understand the concepts presented during the video game lesson.	No / More no than yes	23
	Yes / More yes than no	77
10. The discussion with the teacher after the activities that involved the use of the video game allowed me to better understand the concepts presented during the lesson.	No / More no than yes	5
	Yes / More yes than no	95

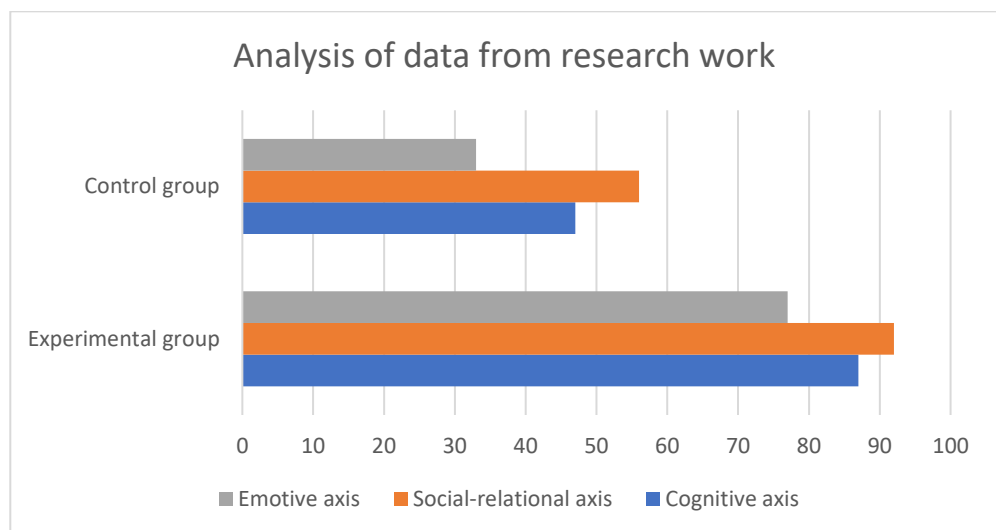
Table 5. Data of the frequencies detected

As regards the assessment concerning the recognition of emotions and the ability to know how to use them, it was decided to use objective tools, based on the measurement of emotional performance. In particular, the Schutte Self-Report Index questionnaire by Schutte, Malouff, Hall, Haggerty, Cooper, Golden and Dornheim (1998) was used, consisting of 33 items: 13 regarding the category "emotion evaluation and expression", 10 items "emotion regulation" and 10 "the use of emotions". Each item is evaluated on a 5-point Likert scale, from 1 ("I completely disagree") to 5 ("I completely agree").

The items are designed to reflect the typical emotional responses and behaviors of the respondents. Finally, the socio-relational axis was created, a scale that

investigates the level of relationship that has been created between classmates, and whether these factors push students to carry out the activities related to the teaching proposals. It is composed of behavioral models that describe how people interact with others.

They are based on two main dimensions: assertiveness (how much a person expresses their thoughts and desires) and responsiveness (how much a person responds to the emotions of others). In addition, four resulting social styles are reported: Analytical, Driver, Amiable (friendly) and Expressive (expressive). The score is expressed on a 4-point Likert scale (4 = very true; 1 = not at all true). High scores on a scale indicate a greater propensity towards that specific behavioral regulation



Graph 3. Analysis of data from research work

At the end of the work, considering the three-year period evaluated, it was observed that, in terms of learning, 87% of the students in the experimental group obtained a grade equal to or higher than sufficient, while in the control group this percentage stopped at 47%. These data can be explained by positively evaluating the ability of the video game to arouse interest and motivation.

The idea that video games are motivating from an educational point of view seems to be a major theme, since through the game aspects such as anxiety can compromise the learning process. As regards the origin of this motivation, the player's enjoyment is widely indicated as an important contributory factor, since if the players/students appreciate the educational process based on the game,

learning and the acquisition of new skills and competences can be a consequence of the simple desire to engage in the game.

From the point of view of the ability to collaborate, it is recorded that 92% of the students in the experimental group collaborated, also thanks to the presence of multiplayer video games, or in any case managed to create forms of collaboration during the three school years. This aspect in the control group stands at 56%. These data demonstrate how the social and collaborative value of the video game can bring out these skills, thus making the value of the virtual experience equal to the real one.

Finally, it is possible to observe that the emotional axis was also more involved in the experimental group (77% of students), while only 33% in the control group. These data, once again, highlight the ability of the video game to bring out the emotions of each student during the teaching proposals and, not to be underestimated, to make them known, learn to manage them and know how to use them at the right time. This aspect highlights the ability of the video game to create useful skills to be used in real life. Furthermore, since stories and immersive experiences can provide ample contextual clues and situated meanings for words and phrases, while remaining challenging and goal-oriented in terms of gameplay, they can also be able to provide new knowledge that can act as scaffolding.

At the end of the work, considering the three-year period evaluated, it was observed that, in terms of learning, 87% of the students in the experimental group obtained a grade equal to or higher than sufficient, while in the control group this percentage stopped at 47%. These data too can be explained by positively evaluating the ability of the video game to arouse interest and motivation.

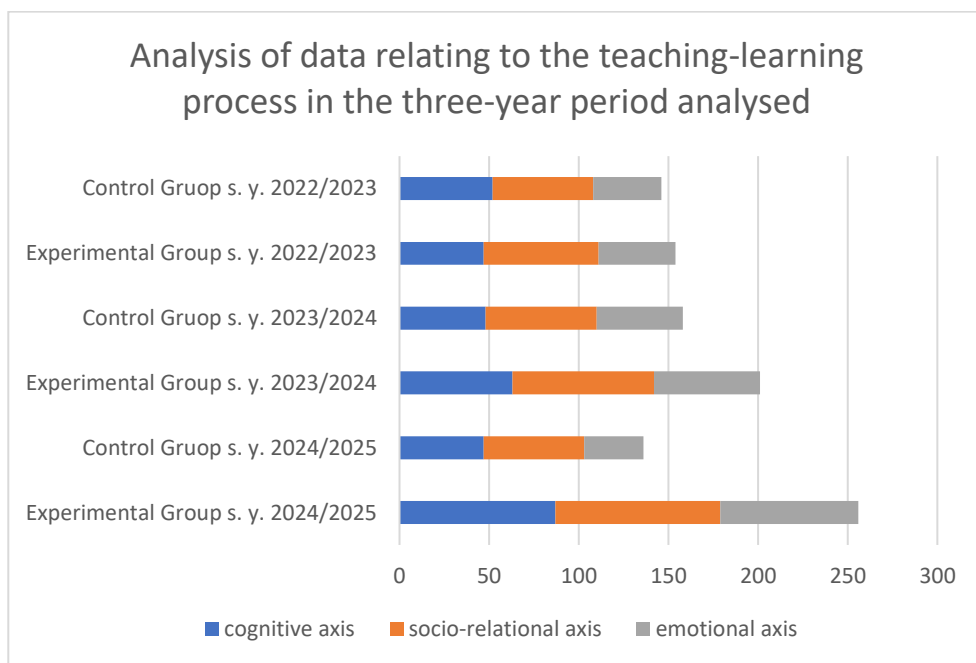
The idea that video games are motivating from an educational point of view seems to be a major theme, since through the game aspects such as anxiety can compromise the learning process. As regards the origin of this motivation, the player's enjoyment is widely indicated as an important contributory factor, since if the players/students appreciate the educational process based on the game, learning and the acquisition of new skills and competences can be a consequence of the simple desire to engage in the game.

From the point of view of the ability to collaborate, it is recorded that 92% of the students in the experimental group collaborated, also thanks to the presence of multiplayer video games, or in any case managed to create forms of collaboration during the three school years. This aspect in the control group stands at 56%. These data demonstrate how the social and collaborative value of the video game can

bring out these skills, thus making the value of the virtual experience equal to the real one.

Finally, it is possible to observe that the emotional axis was also more involved in the experimental group (77% of students), while only 33% in the control group. These data, once again, highlight the ability of the video game to bring out the emotions of each student during the educational proposals, and what should not be underestimated, to make them known, learn to manage them and know how to use them at the right time.

This aspect highlights the ability of the video game to create useful skills to be used in real life. Furthermore, since stories and immersive experiences can provide ample contextual clues and situated meanings for words and phrases, while remaining challenging and goal-oriented in terms of gameplay, they can also be able to provide new knowledge that can serve as scaffolding.



Graph 4. Analysis of data relating to the teaching-learning process in the three-year period analysed

A fact to be underlined is the growing improvement that the experimental group had in the three years, improving in the three aspects analyzed and, in the case of the teaching-learning process, the control group was surpassed by the

experimental group that in the first year recorded some difficulties, perhaps due to the need of the students and the teaching staff to adapt to this “new” way of teaching.

Conclusions

Educators and teachers are called to change the pedagogical approach especially when the learning environment is characterized by the virtual, since the younger generations dedicate more time and attention to IT platforms than to dialogue with family members and teachers.

Educating the new generations within learning environments (Limone, 2021) in the new digital ecosystem highlights the need for a social pact between human development and training, capable of leveraging the proactive capacity of the subject, called to understand how to acquire knowledge, how to find it, how to weave relationships of trust, creating new human development objectives for themselves and for society (Vuorre et al., 2022).

The work highlighted the importance of video games in the teaching-learning process, especially in strengthening students' motivation to learn and, consequently, in obtaining results in terms of learning and better skills. An aspect that emerged immediately, and that could be the subject of further investigation, is the profound gender difference in gaming habits or in the gender of preferences: in particular, male students, on average, play more frequently with competitive multiplayer games, due to a real way of doing and a habit towards them. This data explains how the same students who frequently play video games are more predisposed to be motivated to learn through them and to believe in their usefulness in terms of learning. Regarding this last data, it has been observed that multiplayer games offer improvements in learning thanks also to the improvement of relationships between the boys in real life.

A further data inherent to the learning process is the time dedicated to video games, which is positively correlated to aspects such as memorization: think for example of subjects such as English, history and literature, verified with the scores of closed-ended tests.

Many students, both in the survey group and in the interview phase, stated that video games can be good sources of motivation for learning, an aspect confirmed by the practical proposal in the three years of work. Video games can encourage social interaction and cooperation; They stimulate an expansion of language in

engaging and stimulating environments, albeit virtual; it has been observed that some video games stimulate the connection with online friends (decades ago there was the so-called pen pal), thus influencing not only the learning process but also socio-relational skills.

It is essential to understand that students consider games as fun activities: this approach generates a positive effect in engaging in something they like, especially if competitive and, therefore, engaging.

This work has highlighted through the comparison between the experimental and control groups how the video game can be considered a tool capable of creating realistic experiences capable of producing long-lasting learning skills that can be used in any context. Furthermore, thanks to the ability of the video game to implement social and relational values through emotions, it has been seen how it is possible to encourage the acquisition of new knowledge by students. Obviously, for this to happen, it is necessary for the teacher to calibrate the teaching proposal on the peculiarities of the student to personalize the teaching-learning process. In this sense, the video game, while still considered a virtual product, is able, as observed through this work, to produce experiences that involve corporeality, sensations and actions, building a sense of reality and "other" identity capable of overcoming the distinction between real and virtual.

In the wake of multiple intelligences (Gardner, 1987), today it is necessary to recognize and educate technological intelligence (Maragliano, 2019).

Starting from the assumption that "nobody knows everything, everyone knows something, the totality of knowledge resides in humanity" (Lévy, 2002), it is necessary to recognize and pursue a form of "hybrid intelligence", the result of the combination of people, objects and tools capable of thinking in radically new ways, aimed at solving complex problems, identifying discomfort and a profound reconfiguration of resources in new ways. A "bigger mind", ultimately, the result of the collaboration between human capabilities and the potential of machines, first helps us not to disperse the knowledge (especially humanistic) that we have created; moreover, it carries within itself the potential to solve the great challenges of our time.

From this work it emerged that with a purposeful use of video games it is possible to go well beyond "the boundaries of the media" and of the same school subjects, in a formative perspective of education for active, collaborative and aware citizenship.

The testimonies of the students have underlined not only the value of video games in the teaching-learning project, but also the mix of emotions and reason that the so-called virtual tool creates in the process of building the self:

“For me it was wonderful to play video games in a group and to be able to compare and discuss the meanings and elements of the game that lead us to experience the emotions we feel, but which are also connected to what we think and experience in everyday life” (Carlo, 16 years old);

“Before this journey I had never thought about the fact that many games teach many things that happened in the past, and above all they explain in an engaging way many topics that are rather boring at school. It asks you if it is right to think about yourself, staying within the rules, even if these are unfair to others...” (Annamaria, 17 years old);

“I felt so inside the game that I couldn’t stop crying. Everyone, and especially every girl, should be able to achieve what they want, and not be caged by what their family, friends or boyfriend want...” (Francesca, 15 years old).

Author contributions

Nicola Tenerelli author of: Introduction, paragraph 1 - 2.

Francesco del Sorbo author of: paragraphs 3, Conclusions.

References

Aloia, A. (2025). *Immersione radicale. Laguna e lacune della percezione*. La Rivista di Engramma, 2025.

Boatti, L. (2025). *Giocare pensando con genitori e bambini: Trasformazione di emozioni dal corporeo al mentale*. Mimesis.

Checa-Romero, M., & Gimenez-Lozano, J. M. (2025). *Video games and metacognition in the classroom for the development of 21st century skills: a systematic review*. In *Frontiers in Education* (Vol. 9). Frontiers Media SA.

Evans, L. (Ed.). (2025). *Virtual Reality Gaming: Perspectives on Immersion, Embodiment and Presence*. Emerald Publishing Limited

Gardner E. (1987). *Formae mentis*. Saggio sulla pluralità dell'intelligenza, Milano, Feltrinelli [Edizione originale pubblicata 1983].

Gee, J. P. (2013). *Games for learning*. Educational Horizons, 91(4).

Grodal T. (2000). *Video games and the pleasures of control*. In *Media entertainment* (pp. 197-213). Routledge.

Grodal T. and Gregersen A. "Embodiment and interface." Video Game Theory Reader 2 (2008).

Hamlen, K. (2025). *A Case for Studying Video Game Learning through Integrated Economic, Educational, and Psychological Models*. In Society for Information Technology & Teacher Education International Conference (pp. 1352-1356). Association for the Advancement of Computing in Education (AACE).

Kriss, A. (2018). *Il giocatore e il gioco: compulsione, relazione e spazio potenziale nei videogiochi*. Richard e Piggie, 26(3), 254.

Leone, M. (2025). *Il senso dell'immersione*. In *Il senso immerso: Libertà e smarrimenti del corpo digitale* (Vol. 59, pp. 11-48). Aracne.

Lévy P. (2002). *L'intelligenza collettiva. Per un'antropologia del cyberspazio*. Milano, Feltrinelli.

Limone P. (2021). *Ambienti di apprendimento e progettazione didattica. Proposte per un sistema educativo transmediale*. Nuova Edizione. Roma: Carocci.

Maragliano R. (2019). *Zona Franca. Per una scuola inclusiva del digitale*. Armando: Roma.

Nikolaeva, E., Soldatova, N., Nekrasov, M., Nikolaev, M., & Kuzmina, E. (2025). *The Phenomenon of Video Games: the Production of Digital Media of Everyday Life*. In *Journal of Lifestyle and SDGs Review*, 5(2), e04046-e04046.

Özmen, E. (2025). *Educational Application and Games for Specific Skills Development*. In *Enhancing School Counseling With Technology and Case Studies* (pp. 73-104). IGI Global Scientific Publishing.

Rosa, R., & De Vita, T. (2017). *Corporeità, affettività, emozione e Cognizione nei processi di apprendimento*. Italian Journal of Health Education, Sport and Inclusive Didactics, 1(3).

Roth, W.-M., & Jornet, A. (2013). *Situated cognition*. WIREs Cognitive Science.

Trumello, C. (2018). *I videogiochi: esperienza "virtuale" e "reale" nella stanza d'analisi*. Richard e Piggle, 26(3), 230.

Vuorre, M., Johannes, N., Magnusson, K., & Przybylski, A. K. (2022). *Time spent playing video games is unlikely to impact well-being*. Royal Society Open Science, 9(7), 220411.