

Media Convergence and Game-Based Learning: Developing a Hypothesis of Film Education for the Post-Media Age

Massimo Atzori

University of Cagliari, Italy

massimo.atzori@unica.it

Abstract: The purpose of this paper is to develop a hypothesis of film education built on a theoretical speculation concerning media convergence between cinema and video games, game-based learning and participatory culture, in the interest of schools willing to introduce the subject in their curricula and try out new educational approaches, embracing the inclusive definition of 'film' adopted by British Film Institute (2015).

Keywords: Film education, Game-based learning, Machinima, Participatory culture, Post-media condition, Transformative play

1. Introduction

The twentieth century was the century of cinema; nowadays, thanks to such a legacy, our culture is mainly visual. Therefore, film education has a long tradition in Europe, made of a variety of experiences, practices and approaches covering the whole sector of education.

However, the place of cinema in school curricula is seldom, if ever, guaranteed; when luckily it finds its way to formal education, it raises several questions about its right collocation in the curriculum, the content to cover and the pedagogy to adopt (Burn, 2016).

These issues reinvigorate the ongoing debate about school, with the institution suffering a loss of centrality in young people's lives and having to face the challenges coming from a more and more demanding and highly technological society. As widely known, these days the aim is to build a bridge towards the world outside and make students key players of their own learning; leveraging their media culture can be relevant in this action.

Through the example of Italy, with its school reform making film education a strategic key point of innovation, this paper will take the opportunity to lay the theoretical foundation for an experimental hypothesis of film education.

2. Film Education as a Field of Experimentation and Innovation

In 2012, *Screening Literacy* (BFI and EC, 2013a, 2013b, 2013c), the first European report on film education aimed at framing the state of the art across the Old Continent (Moraldi, 2018), pointed out three main issues, specific as well as strictly interconnected, to tackle in order to proceed towards a common idea of the discipline: cinema as a proper subject rarely has its place within school curricula; a supposed ideal canon of movies (constituting a shared European film heritage) for students to discover and appreciate can't be too exclusive and has necessarily to deal with young people's own cinema culture; in the age of digital filmmaking and convergence culture, the relation between cinema and the other media is inevitably reflected in the approaches to the subject, with a strong emphasis on the creative dimension of media education (BFI and EC, 2013a).

Film education is a "Janus-faced discipline" (Burn, 2016), looking at once at the past and at the future: when cinema is mainly conceived as an art to preserve, it has its own selection of authors and movies to know and fosters an interest in the so-called grammar of film; otherwise, when the focus is on the technological aspects of the medium, especially the ways digital technology affects the processes of creation, editing and distribution of moving images and the concept of author, there's an emphasis on the creative as well as democratic nature of contemporary visual communication.

From an educational perspective, this twofold approach to the subject contains two ways of conceiving the roles of teachers and students and the nature of learning processes: in the first case, cinema seems to be regarded as a fixed knowledge domain, animated by some sort of protectionist spirit towards an elitist idea of art, which film educators embody as the established repositories of culture to transmit; in the second one, a broader perspective on cinema is adopted, with film education embracing popular movies and building bridges towards young people's own media culture to discover and creative practices to leverage. The tension along these two opposites reflects the current transition from the traditional teacher-centred learning model to a more student-centred one.

Film education lacks a unique and shared pedagogical model to follow unlike other well-established disciplines; far from being a flaw and a limitation, this aspect represents how this subject can be lively and open to experimentation and innovation.

In 2015, the British Film Institute published *A Framework for Film Education*, a document aimed at leveraging the variety of practices and experiences related to film education and interpret them in terms of shared learning outcomes, to overcome distances between specific models. The general goal to achieve through film education is a sort of lifelong film learning, with the word 'film' being representative of all kinds of moving images, aligning with the complexity of the contemporary audio-visual landscape (BFI, 2015).

Under the traditional tripartite architecture of media education (Burn and Durran, 2007), with its creative, critical and cultural dimensions, the *Framework* defines more specific learner profiles to develop and foster as learning outcomes, resulting from processes and practices young people are involved in while participating in film and media culture. The ones related to the creative dimension reflect the current phenomenon of viewers becoming makers, thanks to digital technology impacting on film and media making, and are extremely relevant when school tries to build bridges towards the world outside (with its informal education sites), by leveraging students' previous knowledge, competences, social and cultural practices.

The tension which animates the contemporary film spectator, who is at once both viewer and maker, can resolve the distance between theory and practice and makes the creative dimension a strategic link across the critical and the cultural ones.

3. Film Education in Italy

Italy has a long tradition of film industry. Since the silent era, the country has given birth to worldwide recognised directors, actors, screenwriters and important film movements and genres such as Neorealism and Italian-style Comedy. Despite such an important heritage, film education has always had to struggle for acknowledgement within school curricula.

Luckily, thanks to illuminated educators with a vivid passion and forward-looking policy makers, there have been relevant exceptions to this situation, some worthy of attention because of their scale and pedagogy adopted.

The already mentioned twofold way of conceiving film education is well represented by two major national plans to include cinema in formal education which have taken place in the last twenty years (Costantino, 2005; Moraldi, 2018). In 1999, an ambitious three-year project aimed at introducing all students to Italian and European acknowledged film heritage and contain the excessive power of American mainstream cinema, by teaching them film language and storytelling through the tool of film analysis (Medici, 2002).

In 2015, the so-called *Buona Scuola* reform promoted film education in school curricula once again, through a strategic synergy between the Ministry of Education and the Ministry of Culture¹, the latter funding the activities (Moraldi, 2018). The main goal of this ongoing project is to form an aware audience, in a world where media are "onlife" (Floridi, 2017) and the condition of audience is natural to everyone (Fanchi, 2014) by now.

Visual culture is finally perceived as having its own importance; young people's own media practices have to be nurtured.

In terms of media education, there is an emphasis on the creative dimension, which usually results in making audio-visual products by students.

In 2022, this project embraced videogames and animation as subjects to cover², in line with a more inclusive meaning of the word 'film' (BFI, 2015) and a democratic attitude towards students' media culture (Buckingham, 2003).

In a sense, film education has just started to be framed in relation to digital technology as a complex phenomenon, absorbing the technological change of cinema as a medium.

4. Learning in the Post-Media Age: The Post-Scholastic Condition

Media scholar Ruggiero Eugeni (2015) uses the label 'post-media condition' to describe the contemporary mediascape and the way people live and deal with it. Three great narratives (*epos*) represent not only how media

¹<https://cinemaperlasuola.istruzione.it/wp-content/uploads/2022/12/CIPS-NATIONAL-CINEMA-AND-PICTURES-PLAN-FOR-SCHOOLS.pdf>

²https://cinemaperlasuola.istruzione.it/wp-content/uploads/2022/03/Piano-Nazionale-Cinema-e-Immagini-per-la-Scuola_22-23.pdf

work and reflect on their working in this condition, but also the ongoing tendencies by users: the *epos* of naturalisation, the *epos* of subjectivation and the *epos* of socialising. They are interconnected and each of them tells something specific about us in relation to media and the way they affect our lives.

The *epos* of socialising is key to the aim of this paper: it describes the tendency to be sociable and establish various interest-driven relationships (Ito et al., 2010, 2008) by people through several kinds of social networks available, leveraging the akin concepts of participatory culture (Jenkins et al., 2009) and affinity space (Gee, 2013).

From an educational perspective, this *epos* leads Eugeni to reflect on the impact of digital media on school system and develop a comparison between formal and informal education: the latter is represented by the emerging participatory culture related to mass media and focuses mainly on developing more practical competences and skills. In terms of learning processes, there is a shift from learning individually to learning through the involvement within a community driven by an affinity. Learning is situated and stems from collaboration and extended practice within social networks.

Video games seem to be the perfect “training camp” (Eugeni, 2015) where such learning can take place and people learn how to stay in the contemporary media-led society.

The socialising aspect of this medium has its own educational implications: from this perspective, it succeeds in promoting situated learning, engaging players and freeing their creative skills where traditionally school fails because of its rigid commitment to theory, transmission of knowledge and teacher-centred learning.

By virtue of this educational potential, linguist James Paul Gee (2014, 2013) has established his own approach to video games, which is not tackled as mere technology, but in terms of communication and literacy processes resulting in social affiliation. His specific interpretation of game-based learning is built on the concept of semiotic domain.

5. Beyond Content’s Dictatorship: Learning in a Semiotic Domain

A key aspect of Gee’s educational approach to video games is the concept of semiotic domain, that is

[...] any set of practices that recruits one or more modalities (e.g., oral or written language, images, equations, symbols, sounds, gestures, graphs, artifacts, etc.) to communicate distinctive types of meanings. (Gee, 2014)

Gee goes beyond the traditional idea of word-led literacy and adopts the broader perspectives of Multimodality and Social Semiotics (Kress, 2010; Kress and van Leeuwen, 2006; van Leeuwen, 2005; Kress, 2003) to describe the complexity of contemporary communication. He rejects the “content fetish” as the way of conceiving learning and knowledge in school: disciplinary contents are not to be seen as “bodies of information”, that is theory detached from the real world, but as “things people do with [...] those bodies of information and the various sorts of tools and technologies associated with them.” (2004).

The kind of learning in a semiotic domain is active and entails producing and communicating meanings in several modes.

One way to approach this concept is through an inner perspective: what the specific semiotic domain is about; another one is through an outer perspective: what people involved do around this domain, while acting in the related affinity group (Rivoltella, 2013).

Learning also needs to be critical: learners have to reflect on the specific semiotic domain they are in as a system with interconnected parts and processes, the way it is organised and works, and try to innovate it when possible.

Semiotic domains are design spaces that manipulate us as well as we can manipulate them (Gee, 2014). As such, they are always designed by someone and have design grammars, that is working principles, both internal and external, consistent with the two perspectives described previously: the former show the aspects which make the content recognisable; the latter highlight the affinity group which rises by virtue of the semiotic domain, with its social practices.

These design grammars are interrelated and people can contribute towards their design: by subverting the way of experiencing a semiotic domain, they can affect and transform it, or give rise to a new one. The shift of acting within a semiotic domain marks the shift from active to critical learning (Gee, 2014).

Video games are a family of semiotic domains, articulated in several genres, where gamers, usually grouped in game communities, learn and become literate by playing and interacting with each other. The related kind of learning is active by its own nature (Juul, 2011).

Gee (2014) highlights that the educational potential of video games lies in their inner architecture as well as in the network of social relations around them. Playing video games goes beyond the mere dimension of entertainment, though important, and becomes learning how to move within the semiotic domain, interacting both with the medium and the other people involved.

6. Manipulating the Semiotic Domain of Video Games: From Playing to Filming

If gameplay represents the experience allowed to gamers by game designers (Egenfeldt-Nielsen, Smith and Tosca, 2016), using the game engine as a filmmaking tool is the emblem of the way people can manipulate such a design space. This is the case of machinima, that is “making animated movies in real-time with the software that is used to develop and play computer games.” (Lowood, 2006).

This media form was born in the ‘90’s, around the then rising first-person shooter video games and thanks to the appropriative and subversive action of gamers towards the medium and its technology. *Doom* (id Software, 1993) institutionalised the 3D space, navigable by gamers through their avatars from a subjective perspective, and established this feature as a new way of conceiving video games and the related gameplay (Fassone, 2017); it was meant to be as an open work by its software house, allowing gamers to modify, personalise, in a word co-create, it, according to the principle of cultural economy (Manovich, 2002).

Quake (id Software, 1996) preserved and amplified this aspect, allowing gamers, then grouped in clans, to appropriate the medium radically to the point of altering its own interactive nature: they started to shoot movies about their performances inside virtual worlds, as a demonstration of playing skills, by using the game engine as a filmmaking tool (Fassone, 2017). The shift from user as a gamer to user as a filmmaker was marked by changing the camera position through “recamming” (Salen and Zimmerman, 2004), that is abandoning the first-person shot for an independent view.

Since then, machinima has quickly risen in popularity, at first inside the clans strictly related to first-person shooter games, then exceeding the genre boundary and embracing a more composite kind of game community, articulated in different gamer profiles, thanks also to the attention to this phenomenon by forward looking game designers interested in the concept of user-generated content (Egenfeldt-Nielsen, Smith and Tosca, 2016).

Machinima can be framed from two perspectives relevant to the aim of this paper: the game design perspective and the animation perspective.

7. The Game Design Perspective: Machinima as Transformative Play

In their framing game design, Katie Salen and Eric Zimmerman (2004) put the words ‘play’ and ‘game’ into relations: the former defines a “free movement within a more rigid structure”, while the latter points out “a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.”. According to this lexical distinction allowed by English, a game can be seen as a subset of play because, thanks to its rule, it represents a formalised kind of play; at the same time, play can be seen as a component of game because the player, in order to succeed, has to find their own way through the constraints a game imposes. The tension between these two aspects is what characterises the gameplay as the interaction between the player and the game as a design space and makes the resulting experience challenging and entertaining.

Hard to define as demonstrated by historian Johan Huizinga (2002), play is only thinkable and understandable in terms of opposition to a more general order as a rigid structure, whatever form the latter takes.

Play is also unpredictable, able to change the game which contains it. This occurrence is defined as transformative play and the use of a game engine as a movie-making tool is an example of it (Salen and Zimmerman, 2004).

By leveraging this aspect, players can change the game experience (Salen and Zimmerman, 2004), whether or not allowed to do it.

In relation to *The Sims* (EA, 2000-), Gee and Hayes (2010) speak of gaming beyond gaming to describe the experience of going beyond the traditional gameplay which takes place in the affinity spaces channelled by the web; in Gee’s own words, “Everyone can, if they wish, produce and not just consume” (2013).

This creative agency results in an innovative form of cultural production, which Jenkins (2007) defines “grassroots”, that is coming from media users through media appropriation, and characterises youth practices in the media ecology; the resulting learning is based especially on the genre of participation, which can be interest-driven and centred on specialising activities (Ito et al., 2010, 2008).

Therefore, the idea of game-based learning is constructionist instead of instructionist (Whitton, 2014): learning is not developed through transmitting and consuming educational content via video games previously conceived by designers, but it stems from the horizontal interaction between members of social affiliations and their sharing of knowledge and competences as well as their production of contents and artefacts.

This approach to game-based learning marks the shift from the learners as players and consumers paradigm to the one of learners as creators and producers.

8. The Animation Perspective: The Return of the Impossible Image

Machinima can be seen as a particular form of animation, halfway between digital automatism due to computer procedurality and analogue manual skills through mouse and keyboard, but first and foremost a strong commitment, required to “machinimators” (Kelland, Morris and Lloyd, 2005) in order to leverage the game engine and carve new audio-visual artefacts from video games.

At the end of the 19th century, cinema soon established itself as the only art able to fully represent reality in a truly objective way: photography was completed with movement.

If animation as a concept was central to the rise and development of cinema as a medium, on the contrary, precisely as a form of cinema, it was soon dismissed as a low expression of the then new art by a growing derogatory attitude.

In his framing cinema from the perspective of multimodality, Burn (2017, 2016) recalls the trajectory descending from the anti-realist Georges Méliès’ movies, where magic was lent to the medium and the resulting composite images could create the world of unreality, or represent the impossible.

In a sense, visual effects started with this premise and Méliès can be considered the father of modern computer graphics (Manovich, 2002), where machinima belongs to.

This media form, thanks especially to lamination, which in animation refers to the semiotic process of creating images through the stratification of signifier material (Burn, 2017, 2016), brings cinema back to its own origins and makes it rediscover a neglected tradition.

9. Innovating Film Education: The Machinima Hypothesis

From a pedagogical perspective, there are two main approaches to formal film education, one theoretical and one practical, which have been embodied by critical analysis and filmmaking (Felini, 2015). Traditionally, they have been conceived as separated, with the former particularly widespread at the beginning and the latter which started to grow in importance especially in the 90’s, thanks to the miniaturisation of cameras and the introduction of non-linear video editing software. Nowadays, it is possible to overcome the distance between theory and practice by leveraging the affordances of digital technology and adopting innovative approaches to film education already circulating in Europe.

According to Matthew Thomas Payne (2011), the educational potential of machinima is clear: it makes possible to foster the three dimension of media education. The resulting approach to the field recalls Jean Piaget’s theory and its emphasis on learner-centred knowledge production based on discovery and experience. Machinima is an aware act of appropriation towards a medium and its technology, therefore, when it is adopted as a learning tool, the related pedagogical approach is based on practice: the media form is associated to a pedagogy of craft because of the tinkering with technology which characterises it (Ng and Barrett, 2013).

This aspect does not ban theory from learning: the former is developed deductively through experience (Buckingham, 2003); therefore, expertise can be seen as a sort of unspoken theory people already possess thanks to experience and perseverance (Gee, 2014). While creating machinima, the act of redrafting is emblematic of a constant shift from action to reflection according to a specific expressive goal of the machinimator who, as an apprentice in a hand-crafted studio (Antinucci, 1999, 2001), learns by making, masters the art and finds their own voice at the end.

By including machinima in film education, it is possible to nurture students' media skills and culture as well as to refine and expand them by introducing people to acknowledged visual communication models. For this reason, Alain Bergala (2016) states that "The [film] analysis is not an end in itself, but a movement toward something else": it does not teach students how to read a film, but it inspires and prepares them for practice. Thanks to the concept of creative analysis (Bergala, 2016), the bond between theory and practice proves to be effective in the so-called pedagogy of fragment, which works through exposition to and confrontation between different models, leading to their assimilation within the range of expressive solutions at one's disposal. In this sense, the creative process is both practical and critical.

Machinima might be the right place where let this confrontation take place in an innovative way.

10. Finding Virtual Reality: The *Casablanca Interactive Performance Experiment*

The founding act of machinima as a new approach to film education could be traced back to the *Casablanca Interactive Performance Experiment*, led in 2002 and 2003 at the University of Cambridge (Nitsche, 2008; Nitsche and Thomas, 2004). The aim of this experiment was to interpret an acknowledged communicative model such as the Classical Hollywood Cinema, in light of the affordances offered by virtual reality which then had just started to be explored as a new media form, in order to prove the expressive strength of this interactive medium and create an experience for the audience as engaging as the one allowed by cinema.

In 2002, the students involved in the project had to recreate a famous scene from *Casablanca* (Curtiz, 1942) - the one set in Rick's apartment when Ilsa admits she still loves him - through the use of *Unreal* game engine. The participants, who had previously watched the movie (without the scene to reproduce in order to avoid any kind of influence) and read the script, were organised in small groups. They had to interpret the fragment in light of their understanding and own media culture, then implement it in the virtual environment (Nitsche and Thomas, 2004).

In terms of style, the resulting performance of the camera was determined by the extemporaneous interaction between the operator and the acting characters; despite the previous planning, the camera work had to adapt to the freedom allowed by the virtual nature of the medium, with no spatial restrictions, or due to film conventions, in a way which was closer to Dogme 95 movies (Nitsche, 2008).

At the same time, the new medium also imposed its constraints on several aspects of production: specific camera movements were not allowed (Nitsche and Thomas, 2004); characters acting was determined through customized puppeteering (Kelland, Morris and Lloyd, 2005) by students practice and improvisation, in part affected by automatic animation of the game engine own procedurality (Nitsche and Thomas, 2004).

If *Casablanca* set the style, the *Experiment* resulted in a combination of personal choices shifting from classic to modern cinema, with a rich cinematic vocabulary deployed (Nitsche, 2008; Nitsche and Thomas, 2004) and the possibility to create and develop all the expressive material required from scratch.

11. Virtual Filmmaking in Education: Machinima into Practice

In the last two decades, some machinima projects have been carried out, across school and university at international level, under the supervision of educators and researchers.

Far from setting acknowledged patterns to follow and being prescriptive, these projects, through their explorative nature, can offer useful insights into different questions related to film education: the correct use of film language combined with creativity in digital filmmaking (Davis *et al.*, 2013); the multimodal nature of cinema (Burn, 2016, 2017); the deployment of virtual worlds as virtual classrooms (Benassi, 2012b; Carter, 2012); nevertheless, they can also be specific and show, for example, how a university film production online course can be developed through virtual reality (Ziensen, 2017), or smaller in scale, how a short movie might be shot in virtual worlds at school instead of having traditional filmmaking (Benassi, 2012a).

The urge to innovate film education in light of digital technology is getting more and more relevant. These projects prove the importance virtual worlds have started to acquire in terms of media education and education in general ('metaverse' is the new buzzword); they also highlight the fact that a new approach to film education, hopefully closer to young people's media culture, can find its own space among other more traditional practices.

Hands-on learning, creativity and participation are the key aspects of such an approach, in line with the guidelines of the *Framework*. Teaching goes beyond knowledge transmission: it makes knowledge possible to build and acquire through situated discovery and shared experience. The focus is on learning processes resulting

from the affordances of technology as a way to appreciate how film literacy changes through technological evolution and related people's practices.

Given machinima as one of the trajectories of moving images, this new approach needs to be inclusive and explorative, with such a media form strategic in terms of complementarity within visual culture.

12. Conclusions

Machinima can be seen as a peculiar trajectory of moving images in the digital age; as such, this media form lies in a sort of Janus-faced condition of its own: it looks to cinema for a precise narrative model to follow (Salen, 2011) as well as it exposes the artistic nature of image creation through digital authoring technology. As Peter Greenaway (2010) provocatively states, the latter can free machinima from the constraints of storytelling in favour of the expressive power of images, succeeding where cinema has failed.

This dichotomy happens to emerge also in the field of film education, where usually film language and storytelling represent the main interest towards cinema to the detriment of other relevant aspects of the medium, such as image composition, acting and *mise-en-scène*.

In his film education hypothesis, not only Bergala (2016) bends the boundaries between theory and practice, but also rethinks both in an innovative way of mutual interrelationship, which adheres to the media learning dynamic model of action and reflection outlined by Buckingham (2003). By leveraging film excerpts, creative analysis aims to put students in a film director's shoes, in order to reflect on specific aspects and prepare them for practice; the latter can result in a fragment to shoot, when decision making process takes place and all the expressive materials of cinema can be explored, free from the urgency of coherence and cohesion a whole movie entails from a narrative standpoint.

The *Experiment* shows how this dichotomy might be solved when machinima is used as an approach. Analogue craftsmanship and digital procedurality live side by side in this media form, each time making virtual worlds design spaces manipulating as well as to manipulate. By re-interpreting a famous scene from *Casablanca*, the students had to reflect on a specific way of communicating, appreciate it in order to explore then the expressive means of a virtual environment.

By enucleating an excerpt from the rest of the movie, it becomes unfamiliar by virtue of its detachment, therefore captivating to discover in depth and make it familiar from an inner perspective. When moving the fragment to a virtual environment, the shift from critical to creative analysis happens under a ludic regime: the restrictions of the interactive media act as the rules of a game and make the design space manipulating and open to manipulation as well. At the same time, people have the opportunity to interpret the movie through the lens of their own media culture and their understanding of the original text.

Machinima filmmaking can be a hypothesis to take into account as "[...] an example, not of disjuncture or radical practice, but of bridge-building" (Burn, 2016) in terms of media education, through which it could be possible to discover how the concept of (film) literacy is destined for a change from the perspective of young people (Buckingham and Sefton-Green, 2017)

References

- Antinucci, F. (2001) *La scuola si è rotta. Nuovi modi di apprendere tra libri e computer*, Bari: Laterza.
- Antinucci, F. (1999) *Computer per un figlio. Giocare, apprendere, creare*, Bari: Laterza.
- Benassi, A. (2012a) "Girare un film in classe con i mondi virtuali", [pdf], ANSAS.
- Benassi, A. (2012b) "Virtual storytelling. Metodi e tecniche di 'scrittura audiovisiva' con i mondi virtuali", [pdf], *TD Tecnologie Didattiche*, Vol. 20, No. 2, pp 113-120.
- Bergala, A. (2016) *The Cinema Hypothesis: Teaching Cinema in the Classroom and Beyond* (translated from French by Whittle, M.), Wien: SYNEMA.
- British Film Institute (BFI) (2015) *A Framework for Film Education*, [pdf].
- British Film Institute (BFI) and European Commission (EC) (2013a) *Screening Literacy: Executive Summary*, [pdf].
- British Film Institute (BFI) and European Commission (EC) (2013b). *Screening Literacy: Country Profiles*, [pdf].
- British Film Institute (BFI) and European Commission (EC) (2013c). *Screening Literacy: Case Studies*, [pdf].
- Buckingham, D. (2003) *Media Education: Literacy, Learning and Contemporary Culture*, Cambridge: Polity Press.
- Buckingham, D. and Sefton-Green, J. (2017) "Multimedia Education: Media Literacy in the Age of Digital Culture", in Kubey, R. (ed.) *Media Literacy in the Information Age*, [Kindle], New York-Abingdon: Routledge.
- Burn, A. (2017) "The Kineikonic Mode: Towards a Multimodal Approach to Moving-Image Media", in Jewitt, C. (ed.) *The Routledge Handbook of Multimodal Analysis*, (Second Edition), New York-Abingdon: Routledge, pp 375-385.

- Burn, A. (2016) "Making Machinima: Animation, Games and Multimodal Participation in the Media Arts", [pdf], *Learning, Media and Technology*, Vol. 41, No. 2, pp 310-329.
- Burn, A. and Durran, J. (2007) *Media Literacy in Schools: Practice, Production and Progression*, London: Paul Chapman Publishing.
- Carter, B. (2012) "Expression Through Machinima: The Virtual Classroom", in Johnson, P. and Pettit, D. (eds.) *Machinima: The Art and Practice of Virtual Filmmaking*, [Kindle], Jefferson (NC)-London: McFarland & Company.
- Costantino, M. (a cura di) (2005) *Educare al film. Il Piano nazionale per la promozione della didattica del linguaggio cinematografico e audiovisivo nella scuola*, Milano: FrancoAngeli.
- Davis, N., Zook, A., O'Neill, B., Headrick, B., Riedl, M., Grosz, A. and Nitsche, M. (2013) "Creativity Support for Novice Digital Filmmaking", [pdf], *Proceedings of CHI 2013: Changing Perspectives*, April 27-May 2, Paris: France, pp 651-660.
- Egenfeldt-Nielsen, S., Smith, H.J. and Tosca, S.P. (2016) *Understanding Video Games: The Essential Introduction*, (Third Edition), [ebook], New York-Abingdon: Routledge.
- Eugeni, R. (2015) *La condizione postmediale. Media, linguaggi e narrazioni*, Brescia: Editrice La Scuola.
- Fanchi, M. (2014) *L'audience. Storia e teorie*, Bari: Laterza.
- Fassone, R. (2017) *Cinema e videogiochi*, Roma: Carocci Editore.
- Felini, D. (a cura di) (2015) *Educare al cinema: le origini. Riflessioni ed esperienze di pedagogia dei media fino agli anni della contestazione*, Milano: Guerini e Associati.
- Floridi, L. (2017) *La quarta rivoluzione. Come l'infosfera sta trasformando il mondo*, Raffaello Cortina: Milano.
- Gee, J.P. (2014), *What Video Games Have to Teach Us about Learning and Literacy*, [Kindle], New York: Palgrave Macmillan.
- Gee, J.P. (2013) *Good Video Games + Good Learning: Collected Essays on Video Games, Learning and Literacy*, (Second Edition), New York: Peter Lang Publishing.
- Gee, J.P. and Hayes, E.R. (2010) *Women and Gaming: The Sims and 21st Century Learning*, New York: Palgrave MacMillan.
- Gee, J.P. (2004) *Situated Language and Learning. A Critique of Traditional Schooling*, [ebook], New York-Abingdon: Routledge.
- Greenaway, P. (2010) Speech at *48Hour Film Project Machinima*, [online], *Second Life*, 23rd September, 2010, https://vimeo.com/15253336/2a5bf26a32?embedded=true&source=video_title&owner=420338.
- Huizinga, J. (2002) *Homo ludens*, (Saggio introduttivo di Eco, U., traduzione dal tedesco di Van Schendel, C.), Torino: Einaudi.
- Ito, M., Baumer, S., Bittanti, M., Boyd, D., Cody, R., Herr-Stephenson, B., Horst, H.A., Lange, P.G., Mahendran, D., Martínez, K.Z., Pascoe, C.J., Perkel, D., Robinson, L., Sims, C., Tripp, L. with contributions by Antin, J., Finn, M., Law, A., Manion, A., Mitnick, S., Schlossberg, D. and Yardi, S. (2010) *Hanging Out, Messing Around, and Geeking Out: Kids Living and Learning with New Media*, [ebook], Cambridge (MA)-London: The MIT Press.
- Ito, M., Horst, H., Bittanti, M., boyd, d., Herr-Stephenson, B., Lange, P.G., Pascoe, C.J. and Robinson, L. with Baumer, S., Cody, R., Mahendran, D., Martínez, K.Z., Perkel, D., Sims, C. and Tripp, L. (2008) *Living and Learning with New Media: Summary of Findings from the Digital Youth Project*, [ebook], Cambridge (MA)-London: The MIT Press.
- Jenkins, H. (P.I.) with Purushotma, R., Weigel, M., Clinton, K., and Robison, A.J. (2009) *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*, [ebook], Cambridge (MA)-London: The MIT Press.
- Jenkins, H. (2007) *Cultura convergente*, (Prefazione di Wu Ming 1 e Wu Ming 2, traduzione dall'inglese di Susca, V. e Papacchioli, M., Sala, V. B. per la Postilla), Milano: Apogeo.
- Juul, J. (2011) *Half-Real: Video Games between Real Rules and Fictional World*, Cambridge (MA)-London: The MIT Press.
- Kelland, M., Morris, D. and Lloyd D. (2005) *Machinima*, Lewes: The Ilex Press.
- Kress, G. (2010) *Multimodality: A Social Semiotic Approach to Contemporary Communication*, New York-Abingdon: Routledge.
- Kress, G. and van Leeuwen, T. (2006) *Reading Images: The Grammar of Visual Design*, (Second Edition), New York-Abingdon: Routledge.
- Kress, G. (2003) *Literacy in the New Media Age*, London-New York: Routledge.
- Lowood, H. (2006) "High-Performance Play: The Making of Machinima", [pdf], *Journal of Media Practice*, Vol. 7, No. 1, pp 25-42.
- Manovich, L. (2002) *Il linguaggio dei nuovi media*, (traduzione dall'inglese Merlini, R.), Milano: Edizioni Olivares.
- Medici, A. (2002) "La filosofia del Piano. Contenuti e metodologia della formazione", in Costantino, M. (a cura di) *Piano nazionale per la promozione della didattica del linguaggio cinematografico e audiovisivo nella scuola. Monitoraggio della prima annualità*, Roma: IRRE del Lazio, pp 41-52.
- Moraldi, S. (2018) "Film Education in Italia e in Europa: un decennio vissuto pericolosamente", in D'Arrigo, A., Fanchi, M., Rosina, A. e Zambardino, B. (a cura di) *Rapporto Cinema 2018. Spettatori, strumenti, scenari*, Roma: Fondazione Ente dello Spettacolo, pp 181-187.
- Ng, J. and Barrett, J. (2013) "A Pedagogy of Craft: Teaching Culture Analysis with Machinima", in Ng, J. (ed.) *Understanding Machinima: Essays on Filmmaking in Virtual Worlds*, London-New York: Bloomsbury, pp 227-244.
- Nitsche, M. (2008) *Video Game Spaces: Image, Play and Structure in 3D Worlds*, [ebook], Cambridge (MA)-London: The MIT Press.
- Nitsche, M. and Thomas, M. (2004) "Play It again, Sam: Film Performance, Virtual Environments and Game Engines", in Carver, G. and Beardson, C. (eds.) *New Visions in Performance. The Impact of Digital Technologies*, [ebook], Lisse: Swets & Zeitlinger B.V., pp 121-138.

- Payne, M.T. (2011) "Everything I Need to Know about Filmmaking I Learned from Playing Video Games: The Educational Promise of Machinima", in Lowood, H. and Nitsche, M. (eds.) *The Machinima Reader*, [ebook], Cambridge (MA)-London: The MIT Press, pp 241-256.
- Rivoltella, P.C. (2013) "Prefazione all'edizione italiana", in Gee, J.P. *Come un videogioco. Insegnare e apprendere nella scuola digitale* (Prefazione di Rivoltella, P.C., traduzione dall'inglese di Rivoltella, P.C. e Carezio, A.), Milano: Raffaello Cortina Editore, pp vii-xxii.
- Salen, K. (2011) "Arrested Development: Why Machinima Can't (or Shouldn't) Grow Up", in Lowood, H. and Nitsche, M. (eds.) *The Machinima Reader*, [ebook], Cambridge (MA)-London: The MIT Press, pp 37-50.
- Salen, K. and Zimmerman, E. (2004) *Rules of Play: Game Design Fundamentals*, Cambridge (MA)-London: The MIT Press.
- van Leeuwen, T. (2005) *Introducing Social Semiotics*, New York-Abingdon: Routledge.
- Whitton, N. (2014) *Digital Games and Learning: Research and Theory*, [Kindle], New York-London: Routledge.
- Ziensen, E. (2017) *Virtual Filmmaking: Developing a Learning Model for Teaching Film Production Online*, (PhD Thesis), [Kindle].