

GAIA AMADORI*

VIDEO GAMES FOR ENVIRONMENTAL COMMUNICATION: RAISING AWARENESS THROUGH SANDBOX GAMES AND STREAMERS

Abstract

Video games have come to play a significant role in the media habits of various generational cohorts, but particularly of the younger ones. Because of this, serious games have emerged in the past two decades as a viable way to sensitize to sociopolitical issues and today they're employed also for sensitizing about environmental issues. This research examines the "To The Last Tree Standing" ("Ostatnie drzewo") campaign carried out in 2017 by advertising agency Ogilvy Poland for Greenpeace to stop the deforestation of the Białowieża forest. To generate awareness among younger segments of the audience, the campaign leveraged the popularity of the sandbox video game Minecraft, within which a 1:1 digital copy of the forest was developed, and of famous Polish videogame "streamers" (i.e. people broadcasting their gameplay sessions). Methodologically, the research relied on interviews to executives and designers (n=4), as well as content analysis of the campaign and related discourses in Polish media (n=19). The findings suggest that *a)* sandbox games can generate innovative storytelling practices overcoming the political polarization of environmental communication; *b)* sandbox games as Minecraft, thanks to the high degree of manipulation of its worlds and the freedom of creation it allows, represent a salient framework for the meaning-making of ecological facts; *c)* streamers represent an "educational leverage" for the development of ecological attitudes. This evidence highlights new development trajectories for the study of environmental communication.

Keywords

Video games; streamers; awareness; sandbox games; environmental communication.

ISSN: 03928667 (print) 18277969 (digital)

DOI: 10.26350/001200_000103

1. CONTEXT

We live in a very particular era, the "Anthropocene", in which the presence of our species has now profoundly changed the evolution of nature on Earth. It is evident the urgency of a "new deal" of relating to environmental facts not only by institutions and politicians but also by the average citizen. For these reasons Environmental Communication, defined as "the practical and constitutive vehicle for our understanding of the environment and our relations with the natural world"¹, is called to play a fundamental

* Università Cattolica del Sacro Cuore, Milan – gaia.amadori@unicatt.it.

¹ R. Cox, P.C. Pezzullo, *Environmental Communication and the Public Sphere*. Los Angeles - London - New Delhi - Singapore - Washington DC - Boston: Sage Publications Ltd, 4th edition, 2015.

role in raising awareness², encouraging behaviors and practices that take into account the need to implement long-term sustainable actions. This is not an easy task if we consider the global nature of ecological phenomena, whose manifestations on a global scale are the result of a complex interweaving of local factors. This makes the debate on environmental issues even more difficult to understand, especially considering the strong political significance of the issue: each stakeholder involved – be it a state, a company, an NGO or citizenship – tries to affirm its meaning on space, thus legitimizing some practices to the detriment of others³.

All these aspects come to life in public talks and social representations⁴ of environmental problems, often associated with a certain degree of political polarization, which reduces the problem of the environment to a dialectic between conservative and progressive politics. This emerges particularly on ‘traditional’ social networking services (henceforth SNSs), such as Facebook and Twitter, where media practices, in particular some forms of citizen journalism that draw on unverified sources, make the citizen more exposed to the danger of misinformation, confusion between news reporting real events and fake news, generating ideological bubbles⁵ (or echo chambers) within which narratives can become self-referential and information polarized.

In the contemporary debate on the environment it is also essential to consider the growing desire for being in the limelight of a new age cohort, one of those born between the beginning of 1995 and 2012⁶: the so-called Generation Z. Digital natives⁷ and ecological natives, the Gen-Zers feel personally responsible for the fate of the planet and are living the environmental issue less and less as a left-wing topic⁸.

The media habits of Gen-Zers include less traditional media and social networking services (newspapers, TV, Facebook and Twitter), but are oriented towards platforms with a predominance of audio-visual content, such as Instagram and YouTube⁹. What makes this generation unique for media practices is the role played by video games. The arcades of the past have been replaced by the online communities that are built around video games, thanks to video-sharing platforms like Twitch and YouTube¹⁰. Con-

² M. Abbati, *Communicating the Environment to Save the Planet. A Journey into Eco-Communication*, Switzerland, CH: Springer Nature AG, 2019.

³ S. Tosoni, M. Tarantino, “Media Territories and Urban Conflict: Exploring Symbolic Tactics and Audience Activities in the Conflict over Paolo Sarpi, Milan”, *International Communication Gazette*, 75 (2013): 573-594.

⁴ F. Lorenzi-Cioldi, A. Clémence, “Group Processes and the Construction of Social Representations”, in *Blackwell Handbook of Social Psychology: Group Processes*, edited by M.A Hogg and R.S. Tidale, Oxford, UK: Blackwell, 2001, 331-333; S. Moscovici, “Notes towards a Description of Social Representation”, *European Journal of Social Psychology*, 18 (1988): 211-250.

⁵ Situation in which information, ideas or beliefs more or less truthful are amplified by a repetitive transmission and retransmission within a homogeneous and closed environment, in which divergent visions and interpretations end up no longer finding consideration. W. Quattrociocchi, A. Vicini, *Misinformation. Guida alla società dell’informazione e della credulità*, Milano: FrancoAngeli, 2016.

⁶ This time scale was adopted according to the parameters of the Pew Research Center’s research “Defining Generations: Where Millennials End and Generation Z Begins” (2019).

⁷ Gen-Zers are called “digital natives” because they live a direct experience with interactive digital screens since birth and surf the Internet using Web 2.0, preferring smartphones, computers, and tablets to television. P. Ferri, *Nativi digitali*, Milano: Bruno Mondadori, 2011.

⁸ <https://climatecommunication.yale.edu/publications/do-younger-generations-care-more-about-global-warming/>.

⁹ <https://www.globalwebindex.com/reports/global-trends-among-gen-z>.

¹⁰ Three out of four Gen-Zers gamers say they regularly watch sessions of games held by streamers on video-sharing platforms, with a 25% increase compared to the Millennials. https://www.aaa.org/wp-content/uploads/2019/02/Whistle-GamingGen_Z_Males_Infographic.pdf.

tent-producers stream their gameplay sessions are known as streamers, whose audiences can rank in the millions. On these platforms, fans can watch the game sessions, but they can also influence the dynamics of the video by commenting, both in real-time in case of live streaming, and deferred for other types of media content. In this sense, video games can be seen as fulfilling also a social networking function, connecting and making thousands of people interact: for this reason they represent third places¹¹ that are salient for the creation of opinions, attitudes and intentions of behavior.

In the light of these aspects, we can wonder if and how video games can be used to pursue strategic communication objectives in the environmental field, bringing certain issues to public attention and to criticize the most problematic aspects¹², providing children with a framework to confront and give meaning to ecological issues.

Therefore, the question in this paper is the following: how can video games be used as a medium for Environmental Communication – addressing in particular Gen-Zers?

2. LITERATURE REVIEW

Since the mid-2000s game designers have started to see in video games more than just entertainment, in particular, they have realized the potential they could have as ‘serious games’¹³. Zyda¹⁴ proposes the following definition of a serious game: “A mental environment played with a computer according to specific rules, which uses entertainment to promote government or corporate training, education, health, public policy and strategic communication objectives”. During the last years, the role that video games can play in political activism has become clearer¹⁵.

Already in 2005, Frasca¹⁶ predicted that video games would become an increasingly popular tool for the articulation of politics, social discourse and activism as they were incorporated into the media habits of families. Raessens¹⁷ argued that by bringing social and political issues to the forefront, developers, artists and political activists would transform video games from spaces for pure fantasy into means to promote social realism and criticism. In defining video games as expressive media that communicate messages through their procedural and audio-visual representation systems capable of simulating real-life processes, Bogost *et al.*¹⁸ point out that their persuasive power could be used by politicians, decision-makers, as well as citizens, non-governmental organizations and by journalists to explain, criticize and even bring political issues to life. For Lerner¹⁹ video games can be assimilated into political action to achieve political change,

¹¹ R. Oldenburg, *The Great Good Place: Cafe's, Coffee Shops, Community Centers, Beauty Parlors, General Stores, Bars, Hangouts, and How They Get You through the Day*, New York, NY: Marlowe & Company, 1999.

¹² I. Bogost, S. Ferrari, B. Schweizer, *Newsgames*, Cambridge, MA: The MIT Press, 2010.

¹³ S. Blackman, “Serious Games...and Less!”, *ACM SIGGRAPH Computer Graphics - Learning through Computer-Generated Visualization*, 39 (2005): 12-16 (1); D.R. Michael, S.L. Chen, *Serious Games: Games that Educate, Train, and Inform*. Muska & Lipman/Premier-Trade, 2005.

¹⁴ M. Zyda, “From Visual Simulation to Virtual Reality to Games”, *Computer*, 38 (2005): 25-32 (9).

¹⁵ D. Sezen, “Political Game Design” in *Encyclopedia of Computer Graphics and Games*, edited by N. Lee, Springer International Publishing AG, 2018.

¹⁶ G. Frasca, *Play the Message: Play, Game and Videogame Rhetoric*, PhD diss. IT University, Copenhagen, 2005.

¹⁷ J. Raessens, “Reality Play: Documentary Computer Games beyond Fact and Fiction”, *Popular Communication*, 4 (2006): 213-224 (3).

¹⁸ Bogost *et al.*, *ibid.*

¹⁹ J. Lerner, *Making Democracy Fun: How Game Design Can Empower Citizens and Transform Politics*, Cambridge, MA: The MIT Press, 2014.

whose virtual conflicts and outcomes should be considered as tools for making political decisions.

Recognizing the potential of video games to generate significant change at the socio-political level, during the 2000s some experiments regarding environmental issues took place: one of the earliest and most articulated is World Without Oil²⁰, designed by Levy and McGonigal. WWO combined elements of an ARG (Alternate Reality Game) with those of a serious game, sketching out the overarching conditions of a realistic oil shock, and then calling upon players to imagine and document their lives under those conditions²¹. Several empirical reconnaissances²² point out that during recent years video games have been the most popular forms of serious games for sustainability. If at first they consisted mainly of online multiplayer games developed by non-profit or research institutions, today the video game industry is making great strides forward. Several famous games, especially Minecraft, have been employed in awareness campaigns such as “Angry Birds Champions for Earth”²³, “ClimateFortnite”²⁴, “Minecraft Coral Crafters”²⁵ and “Minecraft Climate Hope City”²⁶. Some of the big players of the industry – like Sony, Unisoft and Rovio – are also reflecting on their role concerning sustainable development objectives, as demonstrated by the “Playing for the Planet Alliance” launched by the UN Environment and GRID Arendal.

Literature on the role of serious games raising awareness about the environment appears mainly focused on the educational value of video games, which has been studied empirically since the 1980s, leading in the 1990s to the emergence of the term “edutainment”.

Several authors have identified many reasons why they can be considered educational tools, such as their intrinsic motivation²⁷, the experiential learning that takes place during the game²⁸, the presence of pedagogical principles in game design²⁹ and access to shared social practices for knowledge building³⁰. Recent analyses have found

²⁰ www.worldwithoutoil.org.

²¹ N. Jafari Naimi, E.M. Meyers, “Collective Intelligence or Group Think? Engaging Participation Patterns in World without Oil”, *Proceedings of the 18th ACM Conference on Computer Supported Cooperative Work & Social Computing*, 2015, pp. 1872-1881. Accessed November 10, 2020. DOI: <https://doi.org/10.1145/2675133.2675258>.

²² K. Madani, T.W. Pierce, A. Mirchi, “Serious Games on Environmental Management”, *Sustainable Cities and Society*, 29 (2017): 1-11. Accessed November 10, 2020. DOI:10.1016/j.scs.2016.11.007; M. Stanitsas, K. Kirytopoulos, E. Vareilles, “Facilitating Sustainability Transition through Serious Games: A Systematic Literature Review”, *Journal of Cleaner Production*, 208 (2018): 924-936; T. Patterson, S. Barratt, *Playing for the Planet – How Video Games Can Deliver for People and the Environment*, UN Environment/GRID-Arendal, Arendal, Norway, 2019.

²³ <https://unfccc.int/news/time-to-get-angry-about-climate-change>.

²⁴ <https://www.wired.com/story/fortnite-twitch-climate-scientists/>.

²⁵ <https://www.minecraft.net/en-us/article/you-helped-us-help-oceans>.

²⁶ <https://www.theguardian.com/environment/keep-it-in-the-ground-blog/2015/jun/12/climate-hope-city-how-minecraft-can-tell-the-story-of-climate-change>.

²⁷ T. Malone, M. Lepper, “Making Learning Fun: A Taxonomy of Intrinsic Motivations for Learning”, in *Aptitude, Learning and Instruction: III. Conative and Affective Process Analyses*, edited by R. Snow and M. Farr, Hillsdale, NJ: Erlbaum, 1987.

²⁸ H. Dieleman, D. Huisingsh, “Games by which Learn and Teach about Sustainable Development: Exploring the Relevance of Games and Experiential Learning for Sustainability”, *Journal of Cleaner Production*, 14 (2006): 837-847 (9-11).

²⁹ K. Becker, “Pedagogy in Commercial Video Games”, in *Games and Simulations in Online Learning. Research and Development Frameworks*, edited by D. Gibson, C. Adrich and M. Prensky, Hershey, PA: Information Science Publishing, 2007, 21-47.

³⁰ J.P. Gee, *Good Video Games + Good Learning: Collected Essays on Video Games, Learning and Literacy*, New York: Peter Lang, 2007; C. Steinkuehler, “Cognition and Literacy in Massively Multiplayer

that serious games and educational simulations can influence users' beliefs, affect, and behavior³¹.

Some contributions examine the role of serious games for environmental education in the childish public with attention to mobile games³² and smart pedagogy³³, while others deepen this topic through behavioral and cognitivist psychology approaches³⁴.

The advantage of educational serious games comes from the fact that they (a) allow players to experience situations that are impossible in the real world for reasons of security, cost, time; (b) involve the user in the pedagogical path and can have a positive impact on the development of a range of different skills, such as analytical and spatial skills, strategic and deepening skills, learning and remembering skills, psychomotor skills, selective visual attention and (c) allow self-monitoring, improve recognition, problem-solving and decision-making, corroborate short and long term memory and strengthen social skills such as collaboration, negotiation and shared decision-making³⁵. Several studies³⁶ also confirm that especially sandbox games³⁷, allowing to explore and approach objectives freely, help children increase their awareness of the real-world problems.

The ideological scope of this kind of video game can be reconnected to the distinction between *ludus* and *paidia* elaborated by Frasca³⁸ drawing upon Callois³⁹. The world simulated in *ludus* games is more consistent because the player's goals are clear: you have

Online Games", in *Handbook of Research on New Literacies*, edited by J. Coiro, M. Knobel, C. Lankshear, D. Leu, Mahwah, NJ: Erlbaum, 2008.

³¹ K. Katsaliaki, N. Mustafee, "Edutainment for Sustainable Development: A Survey of Games in the Field", *Simulation Gaming*, 46 (2015): 647-672. Accessed November 10, 2020. DOI: 10.1177/1046878114552166; R.L. Lamb, L. Annetta, J. Firestone, E. Etopio, "A Meta-Analysis with Examination of Moderators of Student Cognition, Affect, and Learning Outcomes while Using Serious Educational Games, Serious Games, and Simulations", *Computers in Human Behavior*, 80 (2018): 158-167. Accessed November 10, 2020. DOI: 10.1016/j.chb.2017.10.040.

³² E.P.S. Nunes, A.R. Luz, E.M. Lemos, C. Maciel, A.M. dos Anjos, L.C.L.F. Borges, C. Nunes, "Mobile Serious Game Proposal for Environmental Awareness of Children", *2016 IEEE Frontiers in Education Conference (FIE)*: 1-8. Accessed November 10, 2020. DOI: <https://doi.org/10.1109/FIE.2016.7757353>.

³³ M. Wrzesien, D.P. López, M.A. Raya, "E-Junior: A Serious Virtual World for Natural Science and Ecology Learning", *Proceedings of the International Conference on Advances in Computer Entertainment Technology*, 2009: 319-322. Accessed November 10, 2020. DOI: <https://doi.org/10.1145/1690388.1690447>; V. Rossano, T. Roselli, G. Calvano, eds., "A Serious Game to Promote Environmental Attitude", in *Smart Education and e-Learning 2017*, edited by V.L. Uskov, R.J. Howlett and L.C. Jain, Springer International Publishing, 2018, 48-55. Accessed November 10, 2020. DOI: https://doi.org/10.1007/978-3-319-59451-4_5.

³⁴ H. Hildmann, B. Hirsch, "Raising Awareness for Environmental Issues through Mobile Device Based Serious Games", paper presented at 4th Microsoft Academic Days, Berlin, Germany, 2008; J. Fox, J. McKnight, Y. Sun, D. Maung, R. Crawfis, "Using a Serious Game to Communicate Risk and Minimize Psychological Distance Regarding Environmental Pollution", *Telematics and Informatics*, 46 (2020). Accessed November 10, 2020. DOI: <https://doi.org/10.1016/j.tele.2019.101320>.

³⁵ A. Mitchell, C. Savill-Smith, *The Use of Computer and Video Games for Learning: A Review of the Literature*, London: Learning and Skills Development Agency, 2004.

³⁶ Y. Hirose, J. Sugjura, K. Shimomoto, "Simulation Game of Industrial Wastes Management and Its Educational Effect", *Journal of Material Cycles and Waste Management*, 6 (2004): 58-63 (1); T.A. Philpot, R.H. Hall, N. Hubing, R.E. Flori, "Using Games to Teach Statics Calculation Procedures: Application and Assessment", *Computer Applications in Engineering Education*, 13 (2005): 222-232 (3).

³⁷ The term "sandbox" refers to a type of game that makes numerous tools and possibilities available to players, without imposing a particular goal to achieve, but leaving them free to invent and modify the game world. The use of this term takes up the idea of the sandbox for children, where imagination reigns free because the absence of constraints favours an open, free, non-linear game mode. <https://www.techopedia.com/definition/3952/sandbox-gaming>.

³⁸ G. Frasca, "Rethinking Agency and Immersion: Video Games as a Means of Consciousness-Raising", *Digital Creativity*, 12 (2001): 167-174 (3).

³⁹ R. Caillois, *Les jeux et les hommes: Le masque et le vertige*, Paris: Gallimard, 1967.

to make X to reach Y and then become a winner. This implies that Y is the desired goal and therefore morally significant, like saving a princess or protecting the world from the alien threat. The rules in the *ludus* include a personal and social reward: only those who reach the end of a game will be recognized as good players. In *paidia* games, ideology is not transmitted through the achievement of the goal, but rather through subtle “rules of manipulation” that do not imply a winning scenario but leave the player a space of possibility starting from the rules themselves⁴⁰. And it is from this freedom in game-play that the virtual context serves as a framework for meaning-making⁴¹.

3. THE RESEARCH

To answer our research question, an intensive analysis was carried out of one particular experimental case, the “To The Last Tree Standing” (“Ostatnie drzewo”) campaign realized by Ogilvy for Greenpeace Poland in 2017 in the conflict regarding the deforestation of the Białowieża forest, UNESCO heritage since 1992 and the last testimony of the primeval forest that once stretched across the whole of Europe. In 2017, the Polish conservative government tripled the amount of deforestation, arguing for the need for ‘sanitary pruning’ to stop the infestation of bark beetles, thereby damaging the biodiversity of the area. In particular, this campaign was born to generate awareness in Generation Z about the importance of Białowieża, making young people sign the petition to extend the National Park, by leveraging the popularity of two phenomena: that of the sandbox video game Minecraft⁴², and that of the famous Polish videogame “streamers”. The central element of the strategy was the digital copy of the forest made in the video game on a 1:1 scale, with 700 square kilometers of satellite images and over 7 million custom-designed trees. Children had the chance to explore the forest “as if live”, moving freely within this gigantic map, and had the opportunity to learn about Białowieża thanks to 6 hours of educational content set in the map published on YouTube by various Polish streamers. Also, many teachers used this map in school during lessons with kids to tell them about the forest.

The project meant that the map, after becoming a success within the gaming community, would be removed and replaced with a copy of the same size in which all the trees had been cut down, but one (the last tree that gives the name to the campaign). The focal point of the campaign was the live-stream Twitch with Gimper, a well-known Polish gamer whose channel has over a million subscribers, in which the streamer has to find the last tree on the map, led by a mediator providing information about the forest. This live broadcast was the most-watched content in Poland among the Twitch videos and the fourth most searched title on Google in Europe on that day. The audience, motivated by the experience of the feeling of loss, reacted by signing the petition and loudly expressing support for the campaign.

Ogilvy estimates that the campaign reached over 100 million people worldwide and helped collect the 170 000 signatures to increase the size of the Białowieża National

⁴⁰ Frasca, *ibid.*.

⁴¹ Gee, *ibid.*

⁴² Minecraft is a sandbox game based on the building and rebuilding things whose power users, the so-called “Minercrafter”, are the kids between 9 and 15. According to research conducted by Ypulse, this videogame is the ninth game preferred by Gen-Zers who create worlds, upload their creations online to share them with their friends, sometimes close, sometimes thousands of miles away and coming from different languages and cultures. <https://www.ypulse.com/article/2019/01/15/these-are-gen-z-millennials-17-favorite-video-games/>.

Park. This project, together with the massive efforts of ordinary people, NGOs and other media, has helped to stop deforestation, leading to the resignation of the Minister of the Environment in January 2018.

4. METHODS

Through a qualitative approach, the analysis tries to deepen the conflict regarding the deforestation of Białowieża through field research by thematic nuclei, articulated in a desk analysis of the social discourse developed online and in structured interviews aimed at understanding the upstream implementation process.

The online discourse on forest deforestation was analyzed through content analysis, performed on Facebook and YouTube, platforms used for campaign communication: approx. 600 posts and 50.000 comments were examined. The values of the indices date back to October 2019, the period of data collection. The materials were collected in Polish and translated into English. To understand the nature of users' participation, data were thematically coded adopting analytical categories focused on our research question.

On Facebook, as far as representations of the forest were concerned, the institutional campaign page (Ostatnie drzewo), four pages created in support of the Białowieża forest (Wierzę w Białowieżę Kocham Puszczy and Obóz dla Puszczy), the page of Greenpeace Polska, the public group Puszcza Białowieska, were analyzed. The publications, comments and posts of people on the page published from June 2017 to April 2018, the period of activity of the campaign, were examined. The analysis was built upon these parameters:

- the date of opening, to evaluate the time in which the follower base was created;
- the number of followers, to estimate the breadth of users reached by the conversation;

- ER for posts, to evaluate the engagement generated by the various posts in the period between June 2017 and April 2018;

- communication mode of contents published by the admins, to understand how communication differs in the various pages. Three categories were used: *Politicized*⁴³ to indicate those pages that make explicit reference to political facts through the denunciation of scandals relating to the representatives of the various parties, the repost of articles/television services of newspapers, organizations and scholars, and the re-sharing of tweets/posts of political personalities; *Not politicized* to indicate a not politically aligned mode of communication with no explicit references to political life (no mention to facts, scandals, parties or politicians); *Mixed* to report a varied mode in which politicized and non-politicized messages alternate.

Some articles reposted by these pages from the main Polish newspapers (Rzeczpospolita, Gazeta Prodoze, Drewno.PL) and a blog (Demotywatory) have also been detailed to understand the representations conveyed by the media.

⁴³ The term is used in the meaning given by De Wilde who suggests that “politicization is an increase in salience and diversity of opinions on specific societal topics. If issues become more contested and there is an increasing public demand on public policy, these issues are then considered to be ‘politicized’. An issue can only become politicized, when there are at least two different opinions on the subject: politicization thus requires purposive engagement by societal actors”. In the case under analysis, the two positions are those of the environmentalists against the Ministry of the Environment and both sides are active in affirming their representations of Białowieża to obtain the greatest possible consensus, an aspect that is also manifested in the communication mode on social media. P. De Wilde, “No Polity for Old Politics? A Framework for Analyzing Politicization of European Integration”, *Journal of European Integration*, 33 (2011): 559-575 (5).

The analysis included also the forest discourse developed on YouTube. This entailed analyzing the comments below the videos published by the official campaign channel and by the streamers who took part in the initiative on this platform (Itesim&Żelazny, Zakreble, RobMx, GamerSpace, Mattyniu, GilathissNew, Manoyek, Flothar) were then examined. For each content, the following parameters were applied:

- subscriptions to the channel and video views to assess the message amplification potential;
 - date of publication to place debates about the current political events;
 - type of video to investigate the nature of the message: *Educational* in the case of content that aims to deepen the characteristics of the forest of Białowieża through the map on Minecraft; *Drama* in case the map is a place of fun, for example as the setting of a story created by the streamer;
 - the number of comments and type to frame the breadth and nature of the debate.
- 4 categories have been adopted: *Gameplay*, for comments related to the game on the map or the map itself; *Advocacy* for compliments and expressions of affection to the streamer; *Forest Issue* for the (more or less politicized) debate on forest and deforestation; *Reputation* issue for any controversy regarding the collaboration of the streamer with the campaign.

Concerning Gimper, we analyzed the Facebook posts and YouTube videos published by the campaign account and on its profile/channel, identifying the comments regarding the partnership. Unfortunately, it was not possible to analyze the speech developed on Twitch live-streams, because the platform does not allow the recovery of live-stream materials.

To investigate the phenomenon from the point of view of those who designed and implemented the campaign, structured interviews were conducted with those who followed the operational and strategic activities of the project in the PR agency and the Danish company that the agency relied on for the realization of the Białowieża map on Minecraft. Concerning the PR Firm, 7 people employed in the project, the project manager, the copywriter and author of the creative concept and one of the two art directors involved were interviewed. Secondary sources (i.e. interviews with Polish and foreign newspapers) have been used to reconstruct the role of two creative directors and a second art director, who could not be interviewed. Finally, the CEO of software firm was interviewed.

As for online discourse, data emerged from interviews were thematically coded, considering the research question. The overall analysis leads us to the results described below.

5. RESULTS

Discussion around the deforestation of the Białowieża has been mostly taking place on Facebook: the characteristics of this platform and the media practices that take place there (posting comments, posting photos, re-subdividing articles) have made it a fertile ground in which users have been able to express their opinion on the matter, with various degree of political polarization, as shown in Table 1.

Table 1 - Summary of the communicative analysis for Facebook selected pages

Page name	Date of opening	Number of followers	ER per post ⁴⁶	Communication mode
Greenpeace Polska	October 2008	228.840	0.1	Politicized
Obóz dla Puszczy	May 2017	28.354	0.8	Politicized
Wierzę w Białowieżę	January 2016	7786	0.7	Not Politicized
Puszcza Białowieska	October 2012	5875	/	Mixed
Ostatnie drzewo	June 2017	3113	0.3	Not Politicized
Kocham Puszcę	June 2015	447	0.1	Politicized

It is possible to assume that echo chambers have developed, which has not contributed to a balanced and useful comparison. In some cases, the debate has also developed around fake news, shared more or less consciously by users. There have also been many cases in which external blogs or online newspapers have been reported as sources of information, not always neutral in presenting the facts: most of them refer to events with a decidedly pro-government point of view. This emerges in particular from some of the terms used, such as “eco-terrorists”, or in the selective attention to some aspects of reality rather than others: in this sense the function of Moscovici’s social representations⁴⁵ as heuristic tools to interpret and simplify the often complex and univocal reality that surrounds us is clear.

Two perspectives in particular find more space: one that sees the forest as economically exploitable and sick, the other that sees it as a virgin and healthy. These two representations are conveyed by different stakeholders. The first finds space in the speeches of the Ministry of the Environment and its supporters, and frames the forest as a resource for Polish economic development, with the consequent need for active and continuous protection by man to stop the infestation of the bark beetle. Conversely, the second representation is mostly conveyed by opponents, and frames Białowieża as a mature ecosystem that, over thousands of years, has developed self-regulating mechanisms that allow it to deal with changes while preserving biodiversity.

The media narratives of the conflict, in giving relevance to some aspects rather than others, have contributed to represent it as a clash not between different uses of space, but between different visions of Polish politics: in a word between conservative and progressive politics, between economic profit and ecology.

The very author of the campaign references this state explicitly:

There was an “insight”, a purely strategic piece of truth that ignited it all – namely, the realization of the root of all evil, which is the polarization of society. When a society is polarized, it’s pretty easy for politicians to manipulate peoples’ opinion about virtually any subject – here it looked as follows: people felt that being an environmentalist is synonymous with being a “leftie”, in the meaning of a clueless and blind believer in all

⁴⁴ The engagement rate was calculated using the software of Rival IQ. The calculation formula is given by the total number of interactions (reactions and comments) of the posts published in the period between June 2017 and April 2018 divided by the number of followers. The result is expressed in percentage value.

⁴⁵ Moscovici, *ibid.*

things “not patriotic”. You know, if the “patriotic government” is logging the forest, who are the people who oppose the logging? Non-patriots. Pretty simple really. The whole task was about de-polarising the target group and then making them act collectively [W., 34, copywriter].

It is precisely from the observation of the pressing polarization that a video game has been chosen as the campaign’s pillar. As the author of the concept observed:

Video games don’t polarize kids. Of course, everyone has preferences, but it’s not like fans of Starcraft throw rocks at fans of Quake [...]. So we took the polarizing subject and put into a friendly, safe world, where opinions could still be freely exchanged, without excess hostility [W., 34, copywriter].

The choice fell on Minecraft due to its popularity and its educational potential:

We wanted to bring this conversation in schools and inside people’s houses through their children. Minecraft sounded like the best platform for it. It’s already used as educational tools in lots of schools [M., 30, art director].

The heated tones present in the debate on Facebook do not find correspondence in the conversations developed in the comments below the videos published by the various streamers on YouTube. Taking a weighted average of *Forest Issue* percentages in Table 2, it can be seen that this covers 15% of the speech, demonstrating the limited interest that the discussion on deforestation has found on this platform.

Table 2 - *Summary of the analysis of the content and comments below each video published on YouTube by the official account and by the streamers involved in the campaign*

<i>Streamer</i>	<i>Followers</i>	<i>Tipology</i>	<i>Date of publication</i>	<i>Views</i>	<i>Comments</i>	<i>Tipology of comments</i>
Ostatnie Drzewo ⁴⁶	169	Educational	June/July 2017	20.727	150	35% Gameplay 40% Advocacy 15% Forest Issue 0% Reputation Issue
Rob Mb	1,42 mln	Educational	16/7/2017	434.354	2658	35% Gameplay 40% Advocacy 20% Forest Issue 5% Reputation Issue
Itesim & Iron	90.100	Educational	4/7/2017	5.878	53	35% Gameplay 60% Advocacy 5% Forest Issue 0% Reputation Issue
Zakreble	211.000	Educational	1/7/2017	12.263	85	35% Gameplay 15% Advocacy 50% Forest Issue 0% Reputation Issue

⁴⁶ The index values are given by summing up the average KPIs for each published content.

<i>Streamer</i>	<i>Followers</i>	<i>Typology</i>	<i>Date of publication</i>	<i>Views</i>	<i>Comments</i>	<i>Typology of comments</i>
Gamer Space	/ ⁴⁷	Educational	5/7/2017	2249	22	45% Gameplay 10% Advocacy 45% Forest Issue 0% Reputation Issue
Gilathiss New	1,2 mln	Educational	30/6/2017	30.759	324	35% Gameplay 45% Advocacy 20% Forest Issue 0% Reputation Issue
Flothar	877.000	Drama	7/7/2017	98.691	280	60% Gameplay 30% Advocacy 0% Forest Issue 10% Reputation Issue
Manoyek	788.000	Drama	8/7/2017	197.578	162	60% Gameplay 30% Advocacy 0% Forest Issue 10% Reputation Issue
Mattniu	450.000	Drama	6/7/2017	86.808	203	40% Gameplay 30% Advocacy 20% Forest Issue 10% Reputation Issue

The interest of users is more oriented to gameplay or gamer involvement than the campaign. The transversal theme is the one that recognizes streamers an educational role: many comments (“You’re the best teacher”, “I learned more about this video than in geography lessons!”; “I want you to be my teacher, I’m going to school, I’m 8 years old”) show how the intention to involve “smaller” streamers to create educational content was a far-sighted choice to communicate information that otherwise would have been hard to listen to (just think that the creators’ material was watched for 2.954.510 minutes, almost 5 and a half years⁴⁸).

It can also be assumed that the polarization found on this social media is attributable to the average age of the users, higher than that found on YouTube, which has led to a more heated dialectic between the parties: presumably, the political beliefs of the adult public have radically influenced the perception of the debate.

6. DISCUSSION

Three main aspects emerge from the analysis.

First, sandbox games as *paidia* types⁴⁹ can generate innovative storytelling practices with the potential to overcome the political polarization of environmental communication characterizing social media. The absence of morally significant goals that

⁴⁷ Data not available.

⁴⁸ Data provided in a YouTube interview to Life Tube by one of the two art directors involved in the project. <https://www.youtube.com/watch?v=xIBs8d87IYQ>.

⁴⁹ Lerner, *ibid*.

distinguish between winners and losers, marking what is “right” or “wrong”, let the communicators offer representations of real facts allowing players to reflect openly without moral conditioning and without the need to reach a predetermined goal to “play/feel right”.

This happens effectively in Minecraft thanks to the freedom of the gameplay: the lack of a predetermined objective lets users choose how to play the game within the rules set by the map makers. The rules stated that server would be available only in exploration mode: thus players would not be able to modify the forest, which was a key affordance of the Minecraft game. The motivation for all this did not come so much from the fear of possible deviant behaviors in the virtual forest. Rather, it was based on a strategic and ‘ethical’ underlying choice by the developers, as the project leader’s words suggest:

We wondered if we should allow people to cut down trees in the game as well, but we decided not to: you should change real life, so the forest in the game was just to watch [J., 27, project manager].

If the game mode on the Białowieża map had provided for saving trees as an objective, there would have been a basic ideology that divided between good and evil, between saving and destroying. The game design together with the rule imposed by the map makers left the moral discussion out, providing a representational space free from polarization.

Secondly, sandbox games, if used as serious games, may offer a “learning-oriented” frame for meaning-making processes regarding environmental matters. Although containing designed rules orienting the player’s behavior⁵⁰, games of this kind can enable the forming of less rigid interpretational frames, which appear less polarized and more listening-oriented.

Thanks to the high degree of manipulation of its worlds and the freedom of creation it allows, Minecraft in particular represents a salient framework for the meaning-making⁵¹. The campaign can be read as a case of education to sustainability, where this term denotes the need to find a balance between what Białowieża represents today (considering the relationship between business, society and the environment) and what could remain of it in the future in the case of measures that do not take into account the natural cycles of the forest itself. In this direction, Minecraft emerged to be an exemplary case of “edutainment game”, because (a) it allowed Gen-Zers to explore the forest, which was impossible in the real world for reasons of safety (the area was not accessible to the public), cost (not all children could afford to visit the forest in person) and time (the effort would have been greater than the perceived benefit); (b) it involved the youngest people in a didactic path that favored the learning of a series of information; (c) it allowed the recognition of the problem and increased the perception of its self-efficacy⁵², especially for all who then actually signed the petition, thus demonstrating that they understood the possibility of influencing the surrounding world at first hand.

Thirdly, the choice of Minecraft was driven by its massive popularity along

⁵⁰ Bogost *et al.*, *ibid.*

⁵¹ Gee, *ibid.*

⁵² A. Bandura, *Self-Efficacy: The Exercise of Control*, New York: Worth, 1997.

with its educational potential. The pedagogical intent was also articulated through a series of lessons in schools and the educational materials produced by the various streamers. These creators may represent not only a bridge to new audiences (hard to reach by traditional media) but also an ‘educational leverage’ for the development of attitudes that could influence the dominant ecological culture. It is important to note how they have contributed to creating a ‘safe’ learning space: we recorded enthusiastic reactions of the younger players along with acknowledgments of the role of the streams in learning about the forest, judged as more relevant than that of geography lessons. All of this suggests that the popularity of games can be capitalized on to educate about the environment, but also how all those figures that revolve around the world of gaming and school can collaborate to increase the effectiveness of the environmental message.

7. CONCLUSIONS

If the goal of Environmental Communication is to achieve significant changes not only in current environmental policies but especially in the habits and behaviors of citizens⁵³, it is necessary to communicate effectively, differentiating the message according to the target and identifying the best medium to achieve it⁵⁴. All this is particularly delicate if we consider the urgency that the environment represents today, combined with the ability recognized to the media to convey certain representations, which could affect the development of society, changing its culture, once they have become dominant⁵⁵. We should ask ourselves to what extent traditional social media, with all their criticalities that have emerged even during the analysis phase (echo chambers, fake news and widespread hate attitudes) can fulfill this task.

This research, although limited, has tried to demonstrate how sandbox video games can represent a way forward: overcoming the losers and winners distinction deriving from predetermined goals as paidia games⁵⁶, they seem to be able to play a central role in educating and sensitizing the younger generations to the environment, considering the political importance and urgency of this topic.

Minecraft emerged to be particularly well-suited for awareness campaigns: designed on the possibility of creating and recreating virtual worlds identical to the physical ones (even on a 1:1 scale), this game offers a new perspective of observation on the real problems. Its popularity especially among Gen-Zers (but not only) and its already spread educational uses make it an exceptional vehicle for the environmental discourse, also thanks to the audience of streamers and fans who set their videos in the available worlds increasing the buzz.

⁵³ Abbati, *ibid.*

⁵⁴ M. Trollet, T. Barbier, J. Jacquet, “From Awareness to Action: Taking into Consideration the Role of Emotions and Cognition for a Stage toward a Better Communication of Climate Change”, in *Addressing the Challenges in Communicating Climate Change across Various Audiences*, edited by L. Filho, B. Lackner, H. McGhie, Switzerland, CH: Springer Nature AG, 2019: 47-64.

⁵⁵ H. Innis [1951], *Le tendenze della comunicazione (The Communication Trends)*, Milano: SugarCo, 1982; M. McLuhan [1964], *Understanding Media: The Extensions of Man: Critical Edition*, Berkeley, CA: Gingko Pr Inc, 2002; W.J. Ong, A. Calanchi, *Oralità e scrittura. Le tecnologie della parola (Oratory and Writing. The Technologies of the Word)*, series “Le vie della civiltà”, Bologna: Il Mulino, 2014.

⁵⁶ Frasca, *ibid.*

The lesson learned is precisely this: the procedural and audiovisual representation systems able to simulate real-life processes of many sandbox games, together with the participation of a transmedia community that in virtual worlds and on video-sharing platforms like YouTube and Twitch reinterpret contents and meanings, represents a key point for a successful combination between videogames and environmental communication. This aspect, still not very deepened, can represent a trajectory of future development in literature.