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Interactive Digital Narratives: A Close Reading Of Bandersnatch To Analyze The Aesthetic Relations With The User

ABSTRACT

Computational and interactive technologies are ubiquitous and play an increasingly important role in our daily lives. From the oral language to the written word and printing, we have been building and expanding our capacity to provide information and present it through fictional or non-fictional narratives, allowing newfangled models through which we learn and interpret the world. As new representations transformed these new digital environments, through procedural, encyclopedic, spatial, and participative affordances, narratives have also changed and afforded a set of different scenarios, where users are given the possibility to experience and understand the same system by exploring different paths. Interactive digital narratives are open and complex works that cross different approaches, research fields, and emerging technologies, but are always shaped by interaction, from creation to reception. They also explore social, cultural, ideological, and aesthetic elements, where it is significant to comprehend how these computational formats can help us to allow new positions and points of view, modeling how we construct meaning, examining the relationship between user and technology and how human beings perceive the world. Analyzing the aesthetic qualities of the Netflix production Bandersnatch through immersion, agency, and transformation, and combining these with an analytical framework that studies the dimensions of user experience, we develop a close reading, that analyzes the development of aesthetic relations and its transformational potential in interactive digital narratives.

KEY WORDS

Interactive digital narratives. Aesthetic. Interaction. Bandersnatch.

1. Introduction

Over the last few decades, we have witnessed several situations where computer and interactive systems have become an integral part of all aspects of our social and cultural life. From this ubiquity of the new digital media, it is essential to look at the variety of formats that arise from here.

The narrative, considered one of the most fundamental cognitive mechanisms for understanding the world, presents itself as a critical factor by which it is possible to build diverse dialogue relations, capable of helping individuals and societies. „*A narrative is a sign with a signifier (discourse) and a signified (story, mental image, semantic representation).*"[1]

Interactive digital narratives (IDN), apart from being reinforced by the characteristic of procedurally, where the computer as an artifact capable of executing a set of rules, becomes an attractive vehicle for telling stories,[2] supports all the other features of digital environments, being therefore participatory, spatial and encyclopedic.[3] To the extent that procedurally, and participation generally correspond to the complex meaning attributed to the word *interaction*, their ability to represent navigable spaces, as well as the ability to expose enormous amounts of information in digital format, is related to the fact that they are immersive.[4] Thus, and because all these characteristics determine them, the IDN, is also characterized by presenting a duality surface and subface,[5] where „*we do not usually have access to the subface (...) which is the algorithm, the description of the class, the program-and-data. In the same manner of describing the situation, the surface is the image on the screen, in projection, be it still or dynamic, passive, or interactive.*"[6] This complexity makes these digital artifacts into open works that are works in progress, whose embodiment is manifested in movements, places, collective dynamics, but no longer in individuals expressing themselves in „*art without a signature*" or art with multiple signatures.[7] It affects not only the nature and form of the narratives themselves but also the relationships that both authors and users can develop between them.[8]

The creators of IDN must have the capability to project a system in a mode that the contents can appear in the imagination of the users as if they were truly there. That way, the narratives are understood as mental constructions in which the action and interaction of the user to the system trigger responses.[9] Thus, for Murray, the success of any interactive digital narrative is its „*dramatic agency.*" By defining the concept of agency as a result of the attractive exploration of procedural and participatory properties and the result of user expectations aroused by a

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[1]   RYAN, M. L.: Beyond myth and metaphor: Narrative in digital media. In *Game Studies*, 2001, Vol. 1, No. 1, p. 1. [online]. [2020-02-05]. Available at: <http://www.gamestudies.org/0101/ryan/>.

[2]   MURRAY, J.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. New York : Free Press, 1997, p. 99.

[3]   MURRAY, J.: *Inventing the medium: Principles of Interaction Design as a Cultural Practice*. London : MIT Press, 2012, p. 51.

[4]   MURRAY, J.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. New York : Free Press, 1997, p.120.

[5]   NAKE, F.: The Disappearing Masterpiece. In VERDICCHIO, M., CLIFFORD, A., RANGEL, A., CARVALHAIS, M. (eds.): *xCoAx 2016: Proceedings of the fourth conference on Computation, Communication, Aesthetics, and X*. Bergamo : Universidade do Porto Praça Gomes Teixeira, 2016, p. 16. [online]. [2020-02-25]. Available at: <http://2016.xcoax.org/xcoax2016.pdf>.

[6]   *Ibid.*, p. 16.

[7]   CARVALHAIS, M.: *Artificial Aesthetics: Creative Practices in Computational Art and Design*. Porto : UPorto Edições, 2016, p. 233.

[8]   CARVALHAIS, M., CARDOSO, P.: Empathy in the Ergodic Experience of Computational Aesthetics. In ADEBAYO, R., FAROUK, I., JONES, S., RAPEANEMATHONSI, M. (eds.): *Proceedings of the 24th International Symposium on Electronic Art*. South Africa, Durban : Faculty of Arts and Design, Durban University of Technology, 2018, p. 222. [online]. [2020-02-15]. Available at: <http://www.isea-international.org/isea2018/>.

[9]   KOENITZ, H.: *Towards a Specific Theory of Interactive Digital Narrative*. NY : Routledge, 2016, p. 93.

highly interactive environment, leading them to act in a way that results in a set of appropriate responses to the digital environment in which they are inserted,[10] she explains that:

„To create dramatic agency the designer must create transparent interaction conventions (like clicking on the image of a garment to put it on the player's avatar) and map them onto actions which suggest rich story possibilities (like donning a magic cloak and suddenly becoming invisible) within clear story stories with dramatically focused episodes (such as, an opportunity to spy on enemy conspirators in a fantasy role-playing game)."[11]

Therefore, IDN provide a set of different scenarios in which we understand the same events in different ways, and we recreate the same starting points to give multiple results.[12] Accordingly, these narratives are amplified and transformed repeatedly through space and time and described as a *„medium that we use instrumentally as a tool while communicating with it as a medium."*[13] This way, they contribute to the recollection of certain information and new forms of identity, having effects on individual human beings and humanity, altering the view of the world as well as the intellectual capacities themselves.[14] Thus, IDN are also considered *„dispositifs"* defined by Foucault[15] as something that refers to the broader social, cultural, ideological, and aesthetic elements that organize knowledge and power relations.

This impact led by IDN becomes possible due to the aesthetic qualities that they present and that are characterized by Immersion, Agency, and Transformation.[16] Stories are constructed by the power of transportation inside the narrative, identification with the characters, and taking responsibility for actions.[17] The experience of being transported to a simulated place is called immersion, which may require a pure flood of sensations into the mind, but involves learning to do the things that the new environment makes possible.[18] As an aesthetic value, *„immersion requires consistency and detail, and most of all a careful regulation of the boundary between the imaginary and the real."*[19] Besides that, its action is even more significant when there is a combination between immersion and interactivity, producing a significant Active Creation of Belief, translated by the attention we give to the surrounding world and the way we use intelligence to reinforce this idea instead of questioning the reality of experience.[20]

If the sensation of immersion into the narrative world is well played, more actively, we want to act within it. When this performance presents tangible results, we are faced with the second aesthetic quality of IDN - the Agency. Already mentioned above, it translates into the rewarding ability to carry out actions and see the result of these decisions and choices, and

[10] MURRAY, J.: *Inventing the medium: Principles of Interaction Design as a Cultural Practice*. London : MIT Press, 2012, p. 9.

[11] MURRAY, J.: Research into Interactive Digital Narrative: A Kaleidoscopic View. In *Interactive Storytelling, 11th International Conference on Interactive Digital Storytelling.* Dublin, Ireland : Springer, 2018, p. 12. [online]. [2020-02-25]. Available at: <https://link.springer.com/chapter/10.1007/978-3-030-04028-4_1>.

[12] Ibid.

[13] NAKE, F.: Human-computer interaction: signs and signals interfacing. In *Languages of design*, 1994, Vol. 2, No. 2, p. 4. [online]. [2020-02-25]. Available at: <https://www.researchgate.net/publication/37915572_Human-computer_interaction_Signs_and_signals_interfacing>.

[14] CARVALHAIS, M.: *Artificial Aesthetics: Creative Practices in Computational Art and Design*. Porto : UPorto Edições, 2016, p. 71.

[15] FOUCAULT, M.: *Power/Knowledge: Selected Interviews and Other Writings 1972-1977*. NY : Pantheon Books, 1980, p. 202.

[16] MURRAY, J.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. New York : Free Press, 1997, p. 13.

[17] JENKINS, K. M.: *Choose your own adventure: interactive narratives and attitude change*. [Dissertation Thesis]. Chapel Hill : University of North Carolina at Chapel Hill, 2014, p. 97.

[18] MURRAY, J.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. New York : Free Press, 1997, p. 99.

[19] Ibid., p. 120.

[20] Ibid., p. 107.

it „*requires two kinds of scripting - coding the actions of the digital system, and cueing the action of the interactor.*"[21]

The transformational characteristic of the computer is particularly attractive for IDN. for the freedom they have in showing a set of events that can be changed according to multiple points of view. To this view, Murray calls it the „*kaleidoscopic*" approach as a composite made up of fragments and emphasized the creation of coherent multi sequential narrative forms that foster a more sophisticated understanding of systems of behaviour.[22]

Focusing on the aesthetic qualities of interactive digital narratives and converging on an analytical framework motivated from here, we want to effort and demonstrate how these kind of narratives can be a compelling link of communication between the users and the system.

2. Methodology

Interactive digital narratives explore the affordances of the digital medium and are reinforced by the ability to allow users to experience the narrative and to feel that their actions have some meaningful effect. Over the last hundred years, the term *interaction „that described the reciprocal actions that occur primarily in biological, chemical, and physiological processes,*"[23] has undergone numerous changes. Christoph Neuberger, quoted in Kwastek,[24] explains that nowadays, interaction is based both on feedback processes and on the cognitive elaboration of those same processes. To this extent, the author states that the fundamental characteristics of the interaction „*include real-time exchange and presence, control and feedback, and the selection and interpretation processes.*"[25]

Roth and Koenitz[26] decided to evaluate the user experience with IDN in 12 dimensions that they grouped according to the aesthetic qualities of agency, immersion, and transformation.[27] Although they organize the dimensions in this way, the authors reveal that there is a close and inter-relational relationship between them, since, for example, a user who experiences agency, automatically becomes more immersed. This framework, which combines several dimensions related to the user experience with characteristics specific to IDN, allows an analysis of the possible relationships that are created between users and the system itself.

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[21] MURRAY, J.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. New York : Free Press, 1997, p. 144.

[22] Ibid., p. 169.

[23] KWASTEK, K.: *Aesthetics of Interaction in Digital Art*. Cambridge, Mass., United States : The MIT Press, 2015, p. 5.

[24] Ibid., p. 6.

[25] Ibid., p. 6.

[26] ROTH, C., KOENITZ, H.: Evaluating the user experience of interactive digital narrative. In CHAMBEL, T., KAISER, R., NIAMUT, O., OOI, W. T., REDI, J. R. (eds*.): Proceedings of the 1st International Workshop on Multimedia Alternate Realities*. Amsterdam, The Netherlands : ACM, 2016, p. 32. [online]. [2020-02-25]. Available at: <https://www.researchgate.net/publication/308986296_Evaluating_the_User_Experience_of_Interactive_Digital_>.

[27] MURRAY, J.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. New York : Free Press, 1997, p. 13.
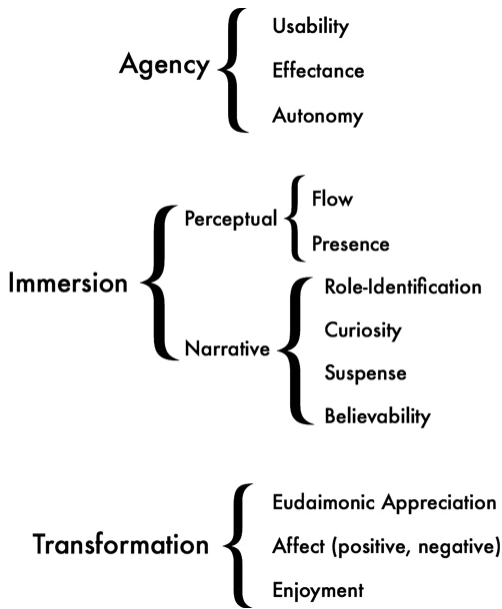
In the Agency category, we find the dimensions of Usability, Effectance, and Autonomy. Usability refers to the system itself and the interaction design. In IDN, it mentions to how we construct the interface that will come into contact with the user and, which relates directly to the characteristics of „*perceived effectance, autonomy, and satisfaction of the user's expectations.*"[28] The better we consider the Usability, the higher the degree of involvement and reciprocity. Effectance is about the outcome that a given action has on the narrative and the meaning it can have for the story's progression. It relates directly to Self-Determination Theory, „*where people are motivated to pursue actions that satisfy fundamental intrinsic needs for autonomy (sense of volition or willingness when doing a task), competence (the need for challenge and feelings of effectance), and social relatedness (the need to feel in touch with somebody else).*"[29] Thus, actions that satisfy these characteristics are highly related to a feeling of belief, and because of this, the authors of the framework distinguish two levels of effectance:
- The Local Effectance where users can view the immediate effects of their actions;
- The Global Effectance has more substantial influence and is highly related to the impact that actions can have on the future of the narrative, and can lead to new situations.[30]

28 MURRAY, J.: *Hamlet on the Holodeck: The Future of Narrative in Cyberspace.* New York : Free Press, 1997, p. 32.
29 ROTH, C.: *Experiencing Interactive Storytelling.* [Dissertation Thesis]. Amsterdam : VU University Amsterdam, 2015, p. 40.
30 ROTH, C., KOENITZ, H.: Evaluating the user experience of interactive digital narrative. In CHAMBEL, T., KAISER, R., NIAMUT, O., OOI, W. T., REDI, J. R. (eds*.): Proceedings of the 1st International Workshop on Multimedia Alternate Realities.* Amsterdam, The Netherlands : ACM, 2016, p. 31-36. [online]. [2020-02-25]. Available at: <https://www.researchgate.net/publication/308986296_Evaluating_the_User_Experience_ of_Interactive_Digital_>.

Autonomy is highly related to the independence of choosing within a series of options, without the feeling of being pulled in a single direction. This dimension promotes a more engaging and realistic world that leads proportionally to a higher perception of immersion. However, it can be problematic, too, since more Autonomy does not always result in enjoyable experiences.[31]

The quality of immersion is divided into two types: perceptual immersion (Flow and Presence) and narrative immersion (Role-identification, Believability, Curiosity, Suspense). Flow is accomplished *„if a state in the middle between boredom and anxiety occurs. Tasks that are perceived as being too easy and not challenging can lead to disinterest and boredom, while tasks, which are too tricky, can evoke frustration and stress.“*[32] Therefore the users experiencing flow are genuinely engaged in their activity, and they feel immersed in their participatory activities, causing them to experience the sense of Presence in the story world. Consequently, Presence describes the sense of being present in a simulated world, which indicates being involved, like they were transported inside the narrative and absorbed by the content and feelings that they are representing.[33]

In the other kind of immersion, the narrative one, Believability*, „refers to the active creation of belief that requires a reactive environment in which the interactor experiences agency, while the narrative evolves in a plausible way and characters react in a credible manner.“*[34] The Role-Identification characteristic is about identifying with a virtual character and the feeling of being anyone and can generate states like reduce self- discrepancies and increase self-esteem.[35] Curiosity is related to the capability to produce and support users' interest in the narrative and is considered a profound emotional state with the impact of retaining the user in the IDN experience for longer.[36] Relate with Curiosity is Suspense, defined by conflicting emotional components, such as states of anxiety or stress. Nevertheless, the dimension of Suspense is achieved when we follow the previous states by a secure experience of relief and satisfaction or even sadness.[37]

Lastly, concerning the qualities aesthetics of transformation, we have three dimensions: Eudaimonic Appreciation, Positive and Negative Affect, and Enjoyment. Eudaimonic Appreciation is *„the link that connects the aesthetic presentation to a personal dimension and its pleasurable experience, which manifests itself in a sensory way, evoked by the image, music, camera angles, narrative style, the narrative content or the characters.“*[38] While Positive Affect is connected to gratification, the Negative Affect can have a double meaning. For example, something sad can be seen as the best for the narrative itself. Finally, Enjoyment is the most general dimension and is associated with a feeling of positive experience and emotion. This experience can be related to the phenomenon of play that is driven by curiosity and make-belief.[39]

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[31] ROTH, C.: *Experiencing Interactive Storytelling*. [Dissertation Thesis]. Amsterdam : VU University Amsterdam, 2015, p. 69.

[32] ROTH, C., KOENITZ, H.: Evaluating the user experience of interactive digital narrative. In CHAMBEL, T., KAISER, R., NIAMUT, O., OOI, W. T., REDI, J. R. (eds*.): Proceedings of the 1st International Workshop on Multimedia Alternate Realities*. Amsterdam, The Netherlands : ACM, 2016, p. 33. [online]. [2020-02-25]. Available at: <https://www.researchgate.net/publication/308986296_Evaluating_the_User_Experience_of_Interactive_Digital_>.

[33] Ibid., p. 33.

[34] Ibid., p. 34.

[35] ROTH, C.: Experiencing Interactive Storytelling. [Dissertation Thesis]. Amsterdam : VU University Amsterdam, 2015, p. 77.

[36] Ibid., p. 46.

[37] ROTH, C., KOENITZ, H.: Evaluating the user experience of interactive digital narrative. In CHAMBEL, T., KAISER, R., NIAMUT, O., OOI, W. T., REDI, J. R. (eds*.): Proceedings of the 1st International Workshop on Multimedia Alternate Realities*. Amsterdam, The Netherlands : ACM, 2016, p. 34. [online]. [2020-02-25]. Available at: <https://www.researchgate.net/publication/308986296_Evaluating_the_User_Experience_of_Interactive_Digital_>.

[38] Ibid., p. 35.

[39] Ibid., p. 35.

Therefore, and through a minimal empirical analysis, we will evaluate the interactive movie *Bandersnatch[40]* and analyze how these dimensions are present in this IDN. The objective is to understand whether the presence of dimensions that enable agency, immersion, and transformation, provide changes in the relationship between user and system, enabling new forms of interpretation with the subject and the represented work.

3. Results

Bandersnatch[41] is an episode of the „*Black Mirror*" series that was presented by Netflix. The action takes place in the 1980s, in the United Kingdom, and focuses on the narrative of a game developer aspirant.


PICTURE 1: *Bandersnatch poster (2018)*
Source: Screenshot, Bandersnatch, 2018

The audience has control over some crucial decisions during the episode, implemented through the choice between two text options. It is also possible to watch the narrative without any interaction since one of the two options is chosen automatically after a specified duration. Additionally, there is also an invitation to repeat, which allows us to revisit decisions and find paths and results that were not discovered at first sight. These various paths expose some of the themes of the narrative, such as psychological issues, violence, and death. The user also has the option to reach most of the endings that the narrative proposes without having to start from the beginning. He can merely choose which interaction he wants to return to, allowing him to return to the crucial moments that make new choices and paths possible. Also, „*throughout the film, viewers' choices are shaped by their: esthetic preferences (e.g., choice of music), consumption preferences (e.g., choice of breakfast cereal), backgrounds (e.g., older viewers may experience nostalgia for the early adventure and computer games while younger viewers might regard the film as a period drama full of quaint obsolescence), contextual information (e.g., if viewers*

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40 *Bandersnatch. 2018.* [online]. [2020-02-20]. Available at: <https://www.netflix.com/pt/title/80988062>.
41 Ibid.

have previously watched the Black Mirror episodes and are aware of its dystopian themes), and technological affordances (e.g., having access to and being able to use a smartphone, a tablet, a laptop, a smart TV, or a video game console on which the film can play).[42]
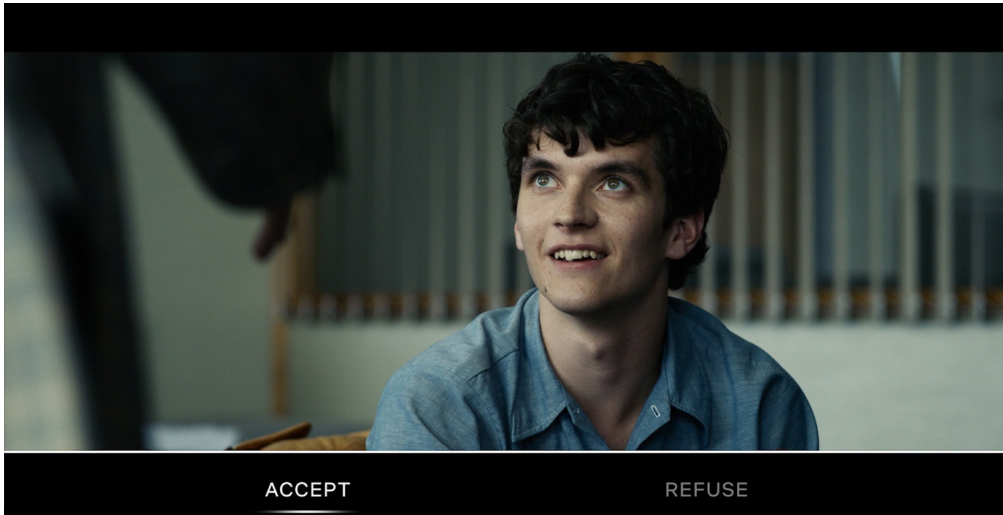
PICTURE 2: *Bandersnatch frame (2018)*
Source: Screenshot, Bandersnatch, 2018

Roth and Koenitz[43] conducted an audience reaction study based on the framework analyzed in this context, to 32 students from an interactive narrative seminar at the University of the Arts Utrecht (HKU). The results showed a positive reaction for usability and the impact on the narrative' progression, both at a local and global level. For the simple fact that the choice is only possible in two options, the relationship with autonomy is weak, and it also did not convince users from perceptual immersion. One of the reasons for this may be the fact that the role-identification dimension had the lowest value of all dimensions, showing once again that they are interrelated, and if one presents a low representation, it can automatically decrease the possibility of manifesting other dimensions.

On the other hand, believability, suspense, and curiosity were both positively positioned, showing the possibility of users being interested and excited by the narrative. After the *Bandersnatch* experience, the authors found users in a more positive than a negative state, constituting a sign of enjoyment and eudaimonic appreciation. It is possible to perceive that the positive experience and the relationship of general understanding they had with the narrative itself show the relevance of the transformational power and meaning of IDN, just as the demonstrated agency is a sign of better relations between user and system.

Focusing on these results, we will now discuss in specific and do a close reading about this interactive digital narrative.

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[42] EL NAHLA, N.: Black Mirror: Bandersnatch and how Netflix manipulates us, the new gods. In *Consumption Markets & Culture*, 2019, Vol. 22, p. 2. [online]. [2020-03-15]. Available at: <https://www.researchgate.net/publication/335172351_Black_Mirror_Bandersnatch_and_how_Netflix_manipulates_us_the_new_gods>.

[43] ROTH, C., KOENITZ, H.: Bandersnatch, yea or nay? Reception and user experience of an interactive digital narrative video. In *Proceedings of the 2019 ACM International Conference on Interactive Experiences for TV and Online Video*. Salford (Manchester) United Kingdom : ACM, 2019, p. 250. [online]. [2020-02-15]. Available at: <https://www.researchgate.net/publication/335392016_Bandersnatch_Yea_or_Nay_Reception_and_User_Experience_of_an_Interactive_Digital_Narrative_Video>.

4. Discussion

When analyzing this framework, we do not intend to quantify the dimensions that may or may not be present in the IDN that we propose to observe. We instead want to understand how these dimensions are manifest through the narrative and the characteristics that they exhibit, becoming able to perpetuate the relationship between user and system when they provide an experience based on the attendance of elements in the categories of Agency, Immersion, and Transformation.

The variation in the duration of the experience with *Bandersnatch* can take between 40 and 90 minutes, making it possible to predict the variations that may exist during the narrative. It all starts on July 9, 1984, with the presentation of the main character - Stefan - waking up and taking pills pointing in a direction that indicates some psychological problems. He meets his father in the kitchen and tells him about the meeting he has at a video game company where he will present his game. *Bandersnatch* is based on a book by Jerome F. Davies, which belonged to his mother and which we soon realize is not present in his life.

In the next few minutes, we will be presented with the first interactions. The first is for the choice of cereals the protagonist prefers for breakfast, and the second is about the music Stefan will hear on the bus trip to the meeting. Both interactions do not influence any variation from a narrative point of view; however, they are not devoid of meaning. The choice of cereals later affects the TV commercial that Stefan watches. The choice of music not only decides Colin Ritman's musical preferences - a critical character - but also decides the soundtrack that will accompany the rest of the story. Therefore, although insignificant, they determine some characteristics of the plot. They represent an intention to adapt the user to the system, showing them how to navigate with the keyboard, how to use the mouse, contributing to a good usability experience and interaction design. However, and for a viewer who is not aware of these issues, these first two interactions leave us thinking about the real effect that our choices may have on narrative progression, and may even be seen with some frustration or boredom since we have the perception that nothing changes.
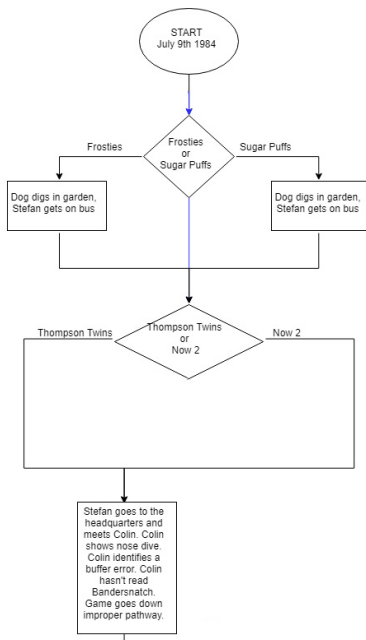

FIGURE 2: *Bandersnatch flowchart showing the two first interactions*
Source: Screenshot, reddit.com, 15.03.2020.

Moving forward, Stefan has a meeting with the CEO of Tuckersoft to present his game. He meets Colin Ritman, another video game creator and one of his greatest idols. The CEO invites him to program his game in the company, and we are presented with the third interaction that is based on „*accept*" or „*refuse.*" If we accept, we are immediately transported to the beginning of the narrative and arriving at the same point, we are obliged to refuse the job offer. Once again, we are faced with some frustration and lack of autonomy because by casually guiding users to a „*right*" answer or offering a „*Back*" button, Netflix takes away the possibility of feeling independent.

The fourth interaction is in the office of Drª. Haynes, the protagonist's therapist. She questions if he wants to talk about what happened with his Mom. By choosing yes, we are led to revisit an episode of Stefan when he was five years old and where we understand the cause of his mother's death and the guilt he feels, as well as his anger towards his father. These are essential points, which make us understand the choices we are forced to make later, „*inspired by a type of interactivity that wants to reproduce the interaction between two human beings.*"[44]

In this first part of the presentation of all the characters in the narrative, we feel obliged to choose a path, so the feeling of agency, immersion, and transformation is rather reduced. However, „*the audience is introduced into the diegetic world represented on the screen, creating a hybrid object with an ambiguous ontological nature, interplaying the position of spectator and character.*"[45] Moreover, although these factors serve to increase the role-identification with the character, it does not happen on a large scale.

As the narrative continues, the interactions that follow also begin to be more complex and to have repercussions in the way they present different meanings, which result in multiple outcomes. Consequently, almost every other decision the viewer has to make, drastically, affects the plot, covering „*issues of authorial control, government conspiracies, murder, suicide, paranoia, madness, fate, free will and failure/success,*"[46] providing the viewer with ten different endings. However, only five of them represent significant variations. Some are well resolved; others are inconclusive, forcing users to go back and try another different option to continue with the plot. For example, when Stefan's father invites him to lunch, we have the option to choose between „*Throw Tea over Computer*" or „*Yell at Dad.*" By choosing the first option, all of Stefan's work is lost, and this partly results in the end of the story. However, the narrative continues to the moments before this interaction appears and forces us to choose „*Yell at Dad*" so that we can continue the plot. Once again, it contributes to a weak relationship with autonomy. Also, in two other possible endings, the producer takes a metaphorical control. When Stefan demands an answer to the question „*Who is in control?*", one of the possible answers is „*Netflix,*" leading to yet another possibility where Stefan sees himself in the recordings of the *Bandersnatch* episode itself, abruptly breaking with reality and the intentions that were being created.

44 GAUDENZI, S.: *The Living Documentary: from representing reality to co-creating reality in digital interactive documentary*. [Dissertation Thesis]. Goldsmiths : University of London, 2013, p. 41.

45 NOGUEIRA, P.: *INTERACTIVE AUDIENCES: viewers\users' engagement in National Film Board of Canada's interactive documentaries.* [Dissertation Thesis]. Porto : University of Porto, 2018, p. 209.

46 EL NAHLA, N.: Black Mirror: Bandersnatch and how Netflix manipulates us, the new gods. In *Consumption Markets & Culture*, 2019, Vol. 22, p. 2. [online]. [2020-03-15]. Available at: <https://www.researchgate.net/publication/335172351_Black_Mirror_Bandersnatch_and_how_Netflix_manipulates_us_the_new_gods>.
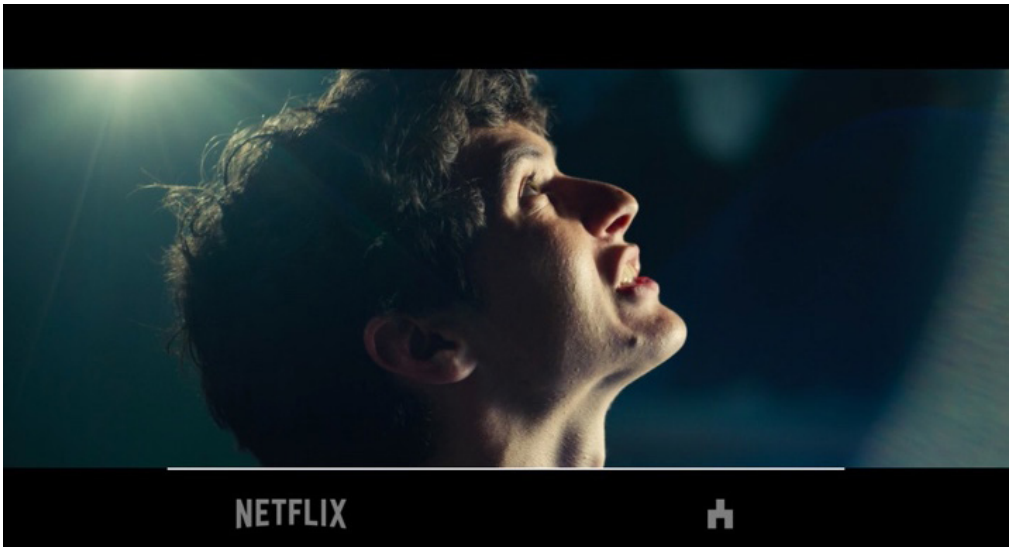
Bandersnatch frame (2018)
Source: Screenshot, Bandersnatch, 2018

On the other hand, interactions like „*Visit Dr. Haynes*" or „*Follow Colin*" result in entirely different narratives contributing to the positive relationship that users felt with the local and global effect, as well as believability, suspense, and curiosity. Here Stefan may die, or he may just be dreaming, and everything ends well, with the game being released and well received by the critics, for example.
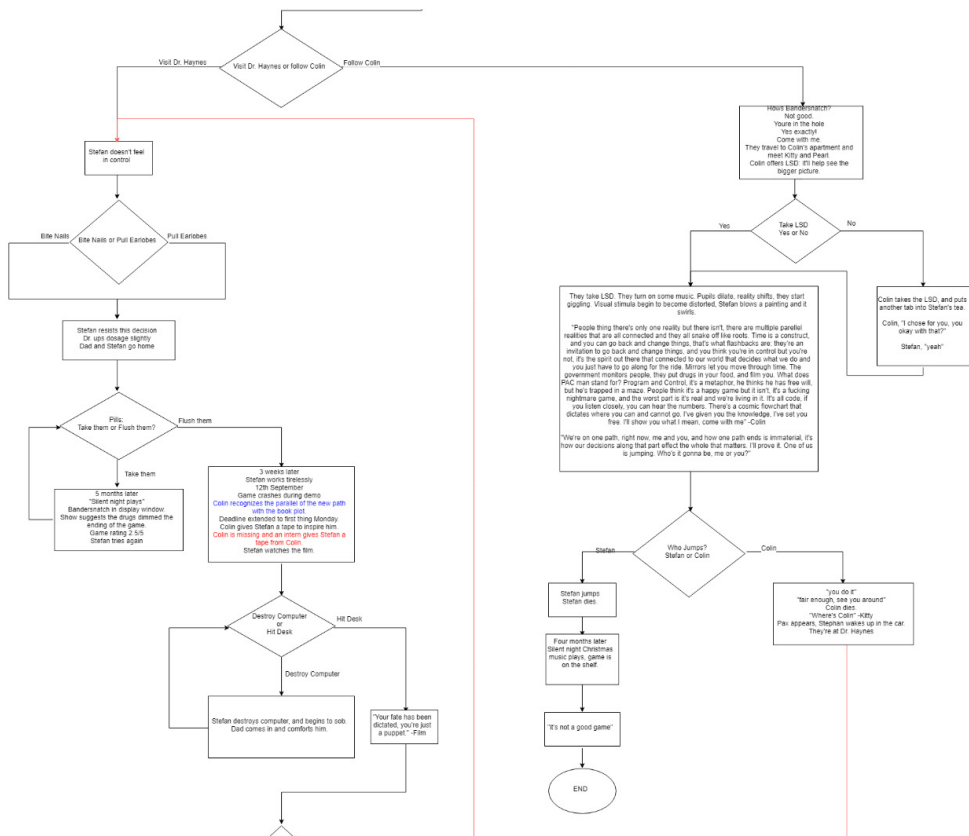
FIGURE 3: *Bandersnatch flowchart*
Source: Screenshot, reddit.com, 15.03.2020

Not being happy with any of these endings, we can try other different things, and although in one of them we are forced to kill Stefan's father, giving us no other possibility, the feeling of enjoyment is positive because of the relationship we have been building with the narrative until we get here.
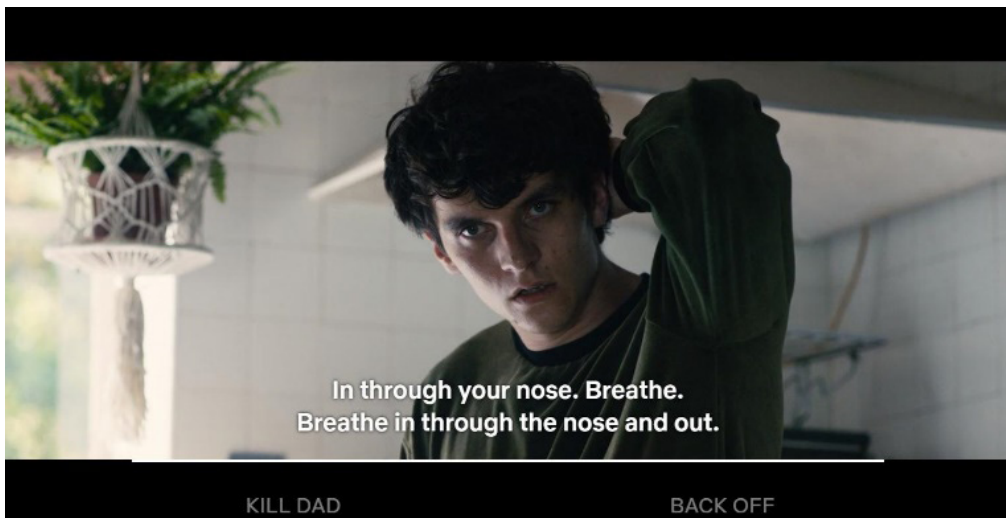
Although *Bandersnatch* is not concerning any social or cultural perspective, it is a project about personal thoughts and memories that serve to create a set of fragments of human emotions and reflections[47] - Eudaimonic Appreciation and Positive or Negative Affect. A general Enjoyment is associated, in this case, with the characteristic of play and to be part of this movement, leading through a cathartic transformation.[48]

5. Conclusions

Interactive digital narratives constitute an expressive and emerging form, based on procedural rules and presenting a cognitive function, which is reproduced in a variety of ways, being a *„forgiving, flexible cognitive frame for constructing, communicating, and reconstructing mentally projected worlds."*[49] They offer a dramatic agency, giving to the IDN the ability to influence the development of characters, the sequence of events or even the final result, and can be interactive videos, museum installations, location-based games, electronic literature, or augmented reality,[50] among others.

We have decided to analyze the new readings incited in the relationship between subject and system, which can arise from the aesthetic qualities of Agency, Immersion, and Transformation presented in the IDN.

When a user engages with the *system*, a *process* is created, with a form defined by the actions carried out by the user, as well as the opportunities given by the *system*. The resulting *product* describes the different results that come from the same source (*system*) through the

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47 KWASTEK, K.: *Aesthetics of Interaction in Digital Art*. Cambridge, Mass., United States : The MIT Press, 2015, p. 254.

48 Ibid., p. 259.

49 HERMAN, D.: *Story logic: Problems and possibilities of narrative*. Lincoln : University of Nebraska Press, 2004, p. 49.

50 MURRAY, J.: Research into Interactive Digital Narrative: A Kaleidoscopic View. In CARDONA-RIVIERA, R. E., SULLIVAN, A., YOUNG, R. M. (eds.): *Interactive Storytelling, 11th International Conference on Interactive Digital Storytelling*. Little Cottonwood Canyon, UT, USA : Springer, Cham, 2018, p. 14. [online]. [2020-02-25]. Available at: <https://link.springer.com/chapter/10.1007/978-3-030-04028-4_1>.

participatory process. Hence, IDN assume interaction in which a participant engages with the computer program to produce the *output:*[51]

> *„The resulting product of interactive digital narrative — a single walkthrough — represents an instantiated narrative. Given the participatory process and the procedural nature of IDN, very different narrative products can originate from the same system—any concrete product represents only one particular instantiation."*[52]

The aim of this *output* is fundamentally a question of language and not any kind of language but the specific language utilized by developers and users.[53] This way is not only made of words and programming conventions but also personal desires, prejudices, cultural assumptions, and social beliefs.

Nonetheless, in this cultural-technological approach, any physical device or psychological characteristic positioned between the user and the digital environment, provide by McLuhan's[54] vision, an extension to the human body, in which "the user experiences a transforming encounter with the world via the direct experience and interpretation of the technology itself".[55] Regardless, and according to the post phenomenological approach, it is possible to explore the relationship between body and technology and how the latter induces bodily experiences of interacting with it and, consequently, shapes how the human beings perceive the world.[56]

Additionally, they reflect upon one another - new modes of communication and intersubjectivity. Intersubjectivity is a reflexive operation and a process whereby *„the audience shifts between subjective and objective states, and in the first place, it was defined as interactions that happen between two or more human beings in the physical world."*[57] However, they started to be also studied as exchanges that occur between the conscious agents of the work (primarily characters, but in whichever form they take), and between the interlocutor and those same agents (which is also, in essence, interaction with the creator).[58] We understand this meaning-making process from a cognitive perspective, where narratologies such Herman, Bordwell or Marie-Laure Ryan said that the process of giving meaning to a narrative is a cognitive construct, or mental image, built by the interpreter in response to the narrative construct.[59]

Since the felt perceptual and narrative immersion, the control and autonomy over the actions taken, as well as the responsibility and the meaningful and pleasant relationship built with the object, IDN are a vehicle of influence in future behaviours that promote a different scheme of representations, capable of helping to overcome antagonisms.

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[52] Ibid., p. 98.

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