Gaming mirrors at play through ludic data-selves

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Abstract

The focus of the article is on data-self technology in digital entertainment - virtual entities that replicate and/or are influenced by players' behaviors and actions, working as agential mirrors on the screen. Little efforts have been done in investigating their potential in social research and educational technology; however, data-selves can serve as promising self-revealing tools toward personal identities and narrations. In order to enlighten their effectiveness, a multidisciplinary framework led by the core concepts of "narrative identity" and "discursive-practical consciousness" is advanced. The proposal has been tested (pre-post interviews and play sessions) with an empirical exploration involving n:32 participants and the video games *Black and White 2* and *Forza: Motorsprint 5*, which include data-self features. Results show that this technology can make a difference in engaging and stimulating subjects' interest and feedback, but further researches are needed to deepen its scope and range of application.

Keywords: data-self; narrative identity; qualitative methods; personal narration; self-reflexivity.

The relation between avatars and players is a key point in understanding of digital entertainment. The tie that connects individuals and their *digital selves in action* was explored from several perspectives and disciplines (e.g.,Fox, Bailenson & Tricase, 2013; Krzywinska, MacCallum-Stewart & Parsler, 2011; Yee, 2006). At first, online games represented the core analytic ground because of their social dynamics; consequentially, the awareness about an influence of the digital simulacrum on players' identity and personal narratives increased (e,g., Crawford & Gosling, 2009; Fox, Bailenson & Tricase, 2013; Klimmt, Hefner, Vorderer, Roth & Blake, 2010). The research focus usually interprets avatars as characters to identify or empathize with. However, some technologies (e.g., *Drivatar* by Microsoft) apply a different strategy, that is, providing a clone of the player's avatar moved by his/her own behaviour in game. In other words, the reference is to a dynamic replica (in the following, a *data-self*) of the *Self in action* that is able to make the player's approach manifest. Even if the aim of this mirroring feature is to train players (e.g., the ghost car in a driving simulation), in social research it could work as a powerful tool to foster reflexive instances in subjects recruited.

In the article, an investigation of such a possibility is proposed with a theoretical framework and an empirical inquiry. According to a multidisciplinary approach that draws its cornerstones from Sociology and Game Studies, two digital games with data

selves (*Forza: Motorsprint 5* for its "drivatars" and *Black and White 2* for its "creatures") were explored by involving 32 subjects in a combination of in-depth interviews and play sessions. The essay proceeds as follows: in the first paragraph, the topics of avatar, game and identity, which are fundamental premises of the study, are described; in the second, the research design is outlined and in the third the results are reported; finally, the fourth concerns conclusions and future developments.

Overview

Avatars and People

According to Nagy and Koles (2014), avatars can be depicted as "tools for achieving embodiment within virtual space, determining the physical boundaries of one's virtual identity" (1122). The process of *identification* is often associated with virtual avatars (Cohen, 2001, 2006; Hefner, Klimmt, & Vorderer, 2007; Leménager et al., 2014; Li, Kien & Khoo, 2013). Coherently, Van Looy, Courtois, De Vocht and De Marez (2012) claim that "Digital games function as a safe, private laboratory setting in which players can try out otherwise unreachable or forbidden roles and types of behaviour, thus, contributing to the development of their self-identity" (198). The choice of avatar's traits and consequent performances have been related to cultural stereotypes (Jansz & Martis, 2007; Yee & Bailenson, 2007; Companion & Sambrook, 2008; Ducheneaut, Yee, Nickell & Moore, 2006; Yee, Bailenson, & Ducheneaut, 2009), design elements (Calleja, 2011; Nagy & Koles, 2014) and identity exploration (e.g., Barnett & Coulson, 2010). Consequently, through avatars "people are able to extend their emotional horizons and social perspectives" (Van Looy, Courtois, De Vocht & De Marez, 2012, 201; see also Pena, Hancock & Merola, 2009). To summarize, the bond between player and avatar relies on a translation of individual elements (e.g., schemas, patterns, beliefs) into a virtual setting by providing an interactive layer. The identification implies a further step, that is, a mirroring process in which the player finds himself/herself in the digital character in terms of feelings, emotions and thoughts (Cohen, 2001; Klimmt, Hefner & Vorderer, 2009; Zwart & Lindsay, 2010). Consequently, the effect triggered can be of identification (*I am the avatar*) or agential empathy (*I am playing with my avatar*) (Calleja, 2011; Salen & Zimmerman, 2003). In addition, avatars interact with other characters in the virtual world such as enemies, neutral entities and companions. Rigby and Ryan (2011) have proven that "recognition happens not only through other players, but also by the virtual characters who inhabit that world" (loc. 1030). Coherently, Coulson, Barnett, Ferguson and Gould (2012) demonstrated that people can feel real emotions toward virtual entities.

Probably because of the scarcity of examples in the current game industry, a further and unexplored issue concerns what was previously defined a *data-self* - i.e., a virtual entity that replicates the avatar's behaviour. Rather than pets (e.g., *The Sims, The Last Guardian*) or allies (e.g., *Dragon Dogma*), data-selves work as a mirror by staging

a dynamic feedback about players' actions. Such a mediated self-reporting may represent an opportunity to improve the game performance and even reflect about it. For social and education researchers, it could provide a tool for deepening the relation that ties personal identities and gaming and foster Self-comprehension as well.

Identity between Theory and Assessment

Identity is a central concept in Social Sciences (Brockmeier & Carbaugh, 2001; Woodward, 2004). Therefore, it is particularly challenging to frame widespread cornerstones because of the multitude of suggestions advanced about the topic. Regardless, according to several authors (e.g, Griswold, 2005; Sciolla, 2007) and adopting a sociological perspective, two core dimensions related to identity can be traced out: *identification*, which concerns the elements of the Self that make an individual similar to others; and *individualization*, which is composed by the traits of the Self that make an individual unique.

These processes and their relation are analyzable from multiple angles. Among them, one well-established approach is the identity-as-Self-revealing (Neisser, 1981): accordingly, identity becomes a process of Self-consciousness through different steps, from ecological to conceptual phases, which occur with and within social processes. Giddens (1984) purses this line by noticing that modern being is an ongoing reflexive project, which is increasingly detached from collective labels such as religious and political ones. Cultural Studies strengthen this statement with the addition of a cultural layer: according to Hall (1996, pp. 2-3), identity is an ongoing construction based on contextual differences, that are, inner connections without intrinsic *a-priori* contents. The main way to access such a complex ground is the *discourse* about the Self as a *linearization of meaning* (Ricoeur, 1990) acted by individuals in order to make sense of their own life: people attempt to figure out a *narrative coherence* by managing inner conflicts and incongruences. This process is functional to avoid sources of anxiety and develop a better control over daily routines (Castells, 2009). Although several authors claim that current identities are fluid and centrifugal (e.g., Brubaker & Cooper, 2000; Dennett, 1991; Gergen, 2009), others like Hall (1996, 1997) and Castells (2009) argue that they are affected by shared cultural stereotypes. However, current generations are progressively becoming creative in handling cultural elements in their personal narratives, and media play a fundamental role in this process (Abercrombie & Longhurst, 1998; Couldry, 2012; Hodkinson, 2011). Nardi's researches were exemplary in framing that trend within virtual reality and gaming worlds (Kaptelinin & Nardi, 2012; Nardi, 2010); the interpretation of media practices as conscious and complex processes in which the distinction between reality and virtuality vanishes (Nardi, 2015) is coherent with the increasing importance of technology in self-reflexivity. Therefore, digital settings become lenses through which individuals relate to everyday life rather than merely escapist spaces.

Such a growing complexity means that the exploration of identity as an *interpretation of the Self* is particularly challenging. Identity dimensions are both representational (image of the Self) and operational (technology/schemas of the Self) (Di Maggio, 2009). In addition, as argued by Giddens (1984, 1991) the perception of the self is split in "practical consciousness" and "discursive consciousness"; while the former is what individuals concretely do, the latter refers to how they describe their own actions. These two processes are often incoherent with each other: people act following their interpretation and interpret according to their actions; nevertheless, the comprehension of *what I am doing* is incomplete as well as the ability to put in words actions. In social research, this difference is associable with the distinction between behavioural (what is observed) and attitudinal (what is stated) data (Kimmel, 1988). A widespread solution is the adoption of a triangulation of methods by combining qualitative and quantitative instruments in order to reach a multi-angle overview (Denzin, 2006). In game research, this approach is taking a foothold by merging game data, direct observation and subjects' reports (see Canossa, Drachen & Seif El-Nasr, 2013).

The thesis advanced in the article is that data-selves have the potential to reduce the gap between behavioural and attitudinal data (and then between practical and discursive consciousness) in deepening identity and involve at the same time the subject, which is a desirable outcome in social research (Ferrarotti, 2007), for two main reasons: first, data-selves are the direct output of players' behaviours, thus they reduce the difference between experience per se and consequent assessment; second, avatars are an increasingly domesticated articulation of the Self because of the spread of virtual settings.

Approaching Data-selves

According to the previous interpretation of identity as inner schemata ruled by personal reflexivity, the question is which individual dimension data selves can concern and shed light on. Several criteria can be proposed, from shared life-plans (work, family, leisure time) to specific practices and feelings of belonging (e.g., affiliations, friendships, hobbies) and perceptions (e.g., ideal self, perceived self). Aside from the specific dimension deepened, personal narrations can be operationally deconstructed through frames (Goffman, 1974) – i.e., the reference layers in and through which individuals define and set themselves (e.g., the gaming passion for a player) - and scripts (Abelson & Schank, 1977) – i.e., the core performative structures that individuals apply according to frames (e.g., the concrete strategies applied by a gamer).

Although both the concepts are generically associated with human behavior, their application to personal narrations may assist researchers in analyzing individual positions.

Intuitively, digital games can address several identity issues by implying dynamics and references able to elicit frames and scripts with representational – i.e., the symbolic dimension of the game from storyline to aesthetics – and/or agential - i.e. the agential and interactive structure of the game (Mäyrä, 2008, p. 17) - features. Products like *That dragon, cancer*, *This war of mine*, and *Papers, please* are indicative of the increasing range of themes explored by the medium. Nevertheless, although digital entertainment is increasingly popular, several audiences are not familiar to it and subjects' preferences should be considered to design appealing or at least accessible experiences. Lewis, Weber & Bowman (2008) proved that the attachment to the avatar depends on gaming habits (playing time and frequency), individual engagement, and self-confidence with video games indeed.

To summarize, an identity articulation that is relevant to the subject should be outlined as well as a video game with data-selves able to remind it in an accessible way. The desired outcome is to provide alternative spaces in which individuals discover, test and improve schemes of action and thinking (Consalvo, 2009; De Certeau, 2001; Ferdig, 2014) with the assistance of a subjective report, that is, the data-self per se.

The Research

Design and Premises

The first dilemma in adopting data-selves is the small number of products that include such a feature; in research, the current *state of art* implies some restrictions in terms of tools and objects of analysis. The study described in the article is based on two video games that glaringly harness data-selves: *Forza: Motorsprint 5* (in the following, FM5) and *Black and White 2* (in the following, BW2). The first was published in 2013 for Xbox One and is fifth chapter of the acclaimed series of driving games developed by Turn 10 and published by Microsoft. From the first episode, the technology *Drivatar* (ideated by Microsoft Cambridge) was implemented and then improved in each further release. Briefly, it allows players to train a specular simulacrum that replicates their driving style. This data-self is not directly assessable but it can be visualized through its scores and results achieved in online matches with other real and/or AI competitors. The only way to play against such a *virtual student* is to switch the Xbox account and select it for a competition.

The second, which was published in 2005 for PC, is the sequel of the RTS (Real Time Strategy)-God simulator created by the famous designer Peter Molyneux. The feature that is pertinent to the study is the so-called *creature*, which is a mighty animal that supports players in their expansion and is affected by their behavior: eviler they will be, darker and more violent the creature will appear, and vice versa.

In both the cases, players teach a virtual entity how to act through their own gameplay. While the solution of FM5 is agential rather than representative (e.g., drivatars do not

reproduce the aesthetics of the cars used by players), BW2 communicates the user's *imprimatur* more through the creature's aspect.

Regarding the self-dimension analyzed, *game identity* was selected as an individual articulation that both games could address. According to the theoretical premises, with *game identity* the reference is to a relevant affiliation with the game culture - i.e., the symbolic, practical and shared environment that surrounds digital games (Consalvo, 2007; Mäyrä, 2008). To sum, it is the frame of the Self (and related scripts) that concerns the subjective bond with digital entertainment. Obviously, it is significant only to some categories of people and its status is variable as well as contextual. Regardless, due to the broad scope of this definition, the spotlight of the research was directed to two different declinations of game identity: the gaming performance as (1) a goal-oriented process (gamer as a performer who is moved by competition and challenge), and (2) an ethical reasoning aside from strategic needs (gamer as a thinker beyond the game rules). This division relies on the one suggested by Sicart (2013) between instrumental and ethical gameplays. The first is rewarded and ruled by utilitarian drivers, whereas the second fosters a "ludic phronesis", which is "the practical wisdom that guides decision-making processes based on moral arguments in the context of game experiences" (31). Intuitively, FM5 and its drivatars concern the former, while BW2 and its creatures assist the later.

Timeline, Methods and Recruitment

Before the conduction of the qualitative inquiry, a survey was sent to 103 individuals already involved in a broader research on ludic cultures in Italy, in which they were recruited through gaming associations and a snowball procedure (Gandolfi, 2014). The questionnaire aimed to find familiarities with digital entertainment and the genres of the two games; it was articulated into two parts with 10 items (see Table 1), each fillable with a 1-4 point Likert scale (*false, partially false, partially true,true*).

Gaming affiliation
Item n.1: I define me a gamer (internal attribution)
Item n.2: others define me a gamer (external attribution)
Item n.3: gamer is one of the first and foremost terms for describing myself (priority of the attribution)
Item n.4: my friends are gamers (sharing of the attribution)
Genre familiarity
Item n.5: I am good at racing games (expertise)
Item n.6: I love racing games (passion)
Item n.7: I have experience with racing games (experience).
Item n.8: I am good at strategic games (expertise)
Item n.9: I love strategic games (passion)
Item n.10: I have experience with strategic games (experience).

Table 1. The survey.

The first addressed the digital gaming affiliation in general. The aim was to explore the importance of the word *gamer* (in digital entertainment) for the subjects. Coherently with the theoretical premises, the term was interpreted as a *tag* able to elicit identity feelings and narratives in specific individuals (Gandolfi, 2014). The four items were drawn from the suggestions previously reported and the distinction between individualization and identification (for a similar approach, see Kowert & Oldmeadow, 2013); they also worked as indicative parameters about the Self in the further research phase. The second concerned the familiarity with the genres of the games chosen in terms of skills, passion, and concrete experience. Consequentially, 32 subjects (N: 16 for each game) were selected because of their gaming affiliation (good/high- i.e., partially true, true - scores in internal attribution and priority) and genre familiarity (good-high scores in each related item toward driving or strategic games). Then, further criteria of selection were the social and shared dimensions, which were variable in order to obtain a variegated sample (see Tables 2 and 3).

This sub-sample was involved in the core part of the research, which was based on three progressive steps.

1. First, one-hour interviews about the role of digital games in personal narratives. Interviews represent the preferred method to explore and deepen Self-narrations and reduce researchers' influence (Silverman, 2004). The related interaction followed a defined list of topics, which were derived from the first four items of the quantitative survey and the specific gaming attitude concerning the genre (instrumental or ethical). This phase worked also as an initial control point based on traditional methods before the introduction of data-selves.
2. Second, single gaming experiences: each subject was invited to play the digital game for four 2-hour sessions and express his/her opinions and feelings during the play according to a think-aloud method (Hoonhout, 2008). Therefore, data-selves were introduced and the comparison between them and the subject stimulated; thus, previous statements were problematized.
3. Third, a final interview: this step is similar to the first one but with a focus on individual and agential dimensions of the gaming passion. The objective was to exploit the scripts emerged during the interaction with the data-self and stage a comparison with the initial control point.

Informed consent was given before both the quantitative survey and the qualitative intervention.

The criterion applied for assessing changes in Self-reflexivity from the first to the third step is the "narrative positioning" of the subject: according to Bamberg (1997), the reference is to the modality through which individuals position themselves in their own stories and descriptions. Empirically, this attitude is measurable by using frame

and narrative analyses (Goffman, 1974; Silverman, 2004; De Blasio,Gili, Hibberd &Sorice, 2007) of discursive data from interviews and think-aloud sessions.

The research took place from September to December 2014, while the frame and narrative analyses of transcriptions were supported by the software *NVivo* (v.10). Interviews and think-aloud stimuli were preferred to other methods such as virtual ethnography (e.g., Nardi, 2010) and psychometric tests (e.g., Bessière, Seay & Kiesler, 2007; Hsu, Wen & Wu, 2009) for three reasons. First, the gaming genres investigated are characterized by a single-player orientation and/or limited online features, which are traits that are not compatible with the aforementioned instruments (e.g., Banks & Bowman, 2016; Sutton, 2015). Second, data-selves are a novel object of study, thus a first exploration was required to formulate pondered quantitative inquires. Third, the focus of the intervention was on personal narrations in terms of "narrative identity" (Ricoeur, 1990); as a consequence, subjects' statements and related changes gathered with interviews and think-aloud sessions became the reference source of information (Silverman, 2004); in addition, identity dimensions are demanding to understand with quantitative methods (Fearon 1999). In short, the behavioral-oriented phase with data-selves aimed to enlighten the attitudinal data from the initial interview to the final one. The choice to stage two different interventions was because of the few products that implement data-selves, which limited the analytic range. Therefore, the different orientations of FM5 and BW2 influenced and structured the topics deepened (game identity and instrumental and ethical playstyles, which fit into their gameplay). However, the research design was planned to be simple enough (initial control point, exposure to data selves, final control point) to be replicated toward further themes and tools.

To conclude, two research questions led the analysis:

> RQ1: how is the digital games' frame relevant in Self-narrations and able to engender specific scripts according to a continuum from indifference - i.e., scripts from gaming are not peculiar - to propulsive – i.e., scripts from gaming are peculiar?
>
> RQ2: Can the intermediation of data-selves make these attributions clearer to researchers and subjects themselves in comparison with standard methods (e.g., in-depth interviews)?

Findings

Who Drives the Driver?

During the first interview, subjects (N: 16, aged 23-27, m: 25, all male) reported a relevant variety of positions concerning digital games and personal identity (see Table 2).

	N.	Social/shared dimensions	Initial statements
Group 1	6	both good-high scores.	The gaming passion is an ascribed trait that is similar to other dimensions of the Self. It appears as a general frame of references rather than a source for specific scripts. In-game scripts were described as coherent with shared life and friendship's groups, highlighting the social legitimation of this affiliation. The gaming style is claimed to be competitive and associable with "a general attitude about things and people".
Group 2	7	good-high shared dimension; low-average social dimension.	The gaming passion is an autonomous and driving identity dimension with both private and social scripts. Digital games are considered tools able to enhance self-reflexivity and problem solving in real life. Consequently, these subjects describe their gaming style as "constitutive", "curious" and "constantly under development".
Group 3	3	low-average shared dimension; good-high social dimension.	The gaming passion is a central but not totally accepted dimension. The scripts enabled by the medium are reported as "influential but not meaningful". Subjects admitted that they probably wasted their time playing so much, but by now digital gaming is part of their own identity. They label their gaming style as "average" and "without peculiarities".

Table 2. Results with FM5

During the second step, the first group started by considering drivatars virtual presences that must be defeated. Then, subjects gradually developed an attachment to them to the extent that they considered themselves "teachers", "coaches", and "dads". Every time the subjects lost against their data-selves, they expressed satisfaction ("I am feeling proud, look how it drives!"), happiness ("glad to arrive after it!") and even pride ("it is my boy!"). They saw data-selves as *students* that were dependent on their skills rather than as a direct simulacrum of the Self. However, the role of their own gaming expertise was glaring in assessing data-selves: "I am very good"; "all the time I have spent on driving games makes sense now!"; "no one follows me in such way…it is always a challenge!". In the third step, they all admitted that digital games are not as secondary as stated before and that gaming is more than a simple hobby. Two of them observed that the first statements were caused by the shared prejudices about the medium; hence, they often undervalue their passion to prevent disapprovals. Although they have interiorized this type of defence, actually such a precaution makes them uncomfortable: "if I play for myself, I am fell guilty… but I haven't to…"; "Look at my drivatar, I enjoy playing with 'me' and I was alone actually". The second phase was able to create new scripts and re-frame their passion by eliciting the counter-position that divided shared and individual dimensions: the

data-self worked as an intermediary (a simulacrum of a hypothetical audience) that was able to stage a reconciliation between these sides.

The second group acted differently. They immediately identified themselves with the drivatars referring to them as "I", "me", and "my style". Conversely, when data-selves acted differently from their expectations, these subjects expressed both stupor ("this is not me, I don't drive like that") and satisfaction ("it is me, unpredictable!"). This split implied an accountability issue toward data-selves feature per se: even if they believed in the imitating technology of FM5, they could consider drivatars a fake; in that case, the risk was to lose the mirroring potential of the intervention. However, it was effective to remind subjects that data-selves are based on them (at least for a part); by doing it, the focus was preserved and the trust restored. In the debriefing phase, who felt peeved (N:3) realized that the fact of being labelled was the main reason: "I don't like to be categorized…and FM5 did that!"; "when you join a group, you lose your individuality". The fear of the social dimension as a menace for the individual emerged; their niche of belonging was considered at risk because of the popularization of the medium. The Drivatar technology triggered a profiling procedure that subjects perceived as a social and external framing of their passion; thus, they highlighted its deficiencies to prove that "I am unique"; "I play outside the target"; "I am more than a cluster". To conclude, their personal dimension is strictly tied to the collective perception as for the first group but in a counter posed manner: they need exclusive frames to feel different. Finally, two critically judged this attitude by stating that "maybe I am too focus on others, actually"; "I am reasoning like a hipster…this make me alternately mainstream, right? [laughs]". Conversely, the enthusiasts (N:4) did not visualize drivatars as a social categorization but rather as an effective replica of their own flexibility, which was not possible to frame. Therefore, the independency of their individual dimension was strengthened.

The third group represented a combination of the previous groups. All the subjects were particularly connected to their drivatars and showed pride as well as frustration in a *teacher-student* relation similar to what happened with the first group: "you [the drivatar] cannot lose in this way, I am not so bad!"; "I must teach you once again"; "in this way, good buddy!". In the third phase, they justified that approach by observing that "you must be good to legitimate your passion…above all when is not recognized"; "you have to excel at least in one thing"; this reflection partially overturned their previous statements. It occurred a sort of defensive strategy to react against the social discrimination about the medium based on excelling in the gaming practice. Drivatars were able to embody an individual dimension that struggles with a criticizing social stigma.

God as a Mirror

The sample chosen for BW2 (N: 16, aged 22-29, m: 24; 12 males and 4 females) was divisible in two main groups according to the first phase (see Table 3).

	N.	Social/shared dimension	Initial statement
Group 1	6	low shared dimension; variable social dimension.	The gaming passion is an enriching practice that is similar to other cultural consumptions (e.g., movies, literature). Therefore, digital entertainment might be a source of specific scripts able to "feed" identity. Consequently, concerning ethical play, they consider themselves "experimenter", "curious", "open to change and try something new"; traits that they extend to their whole personality.
Group 2	10	both good-high.	The gaming passion is acentral dimension for this group. Since their childhood, they have learnt peculiar scripts by playing with digital games. In addition, according to them ethical gameplays imply a process of Self-discovery rather than a chance to experiment alternative identities.

Table 3. Results with BW2.

For the first group, the second phase was particularly creative. They acted in several ways to test and deepen the creature system; two subjects re-started the game more times to verify different attitudes and tactics. They usually named the animals "companion" and "moving mirror", and they interpreted them as a "tool of inquiry" and "my sub-avatar". They overlooked the gaming progression and preferred to focus on the different alternatives made available by the game. However, they pointed out that the gameplay forced them to some conducts (e.g., evil acts that were functional to increase the war strength). In the third phase, three of them noticed that digital games are particularly effective as Self-exploring instruments. Conversely, all highlighted that the need to rule the ludic system limited the ethical reasoning by presenting moral choices more effective than others. To sum, the medium per se is limited by its goal-oriented structure, which damages the ethical freedom (even in BW2). This position explains why digital entertainment is less central than other cultural consumptions: the ethical experimentations made possible by the latter are more "pure, artistic and non-instrumental" and then easy to communicate and share; one subject argued that "for these reasons, digital games are not art". When MMO (Massive Multiplayer Online) games were suggested as a counter-posed example, they replied that also in virtual environments like those game heuristics are predominant. Therefore, digital games are not a leading reference for them despite the engaging potential. By the way, one subject observed that "maybe it is not so important to follow the rules. If we are so scared of a system or of what others think, we are not focusing enough on ourselves".

The second group's subjects were more coherent with their initial statement during the second phase; data-selves were considered entities connected to but different from themselves (e.g, "an indicator"; "a puppet"). They associated their play style in BW2 with previous ludic consumptions (e.g., *Dragon Age*; *Fable*) in terms of *good*/*evil* attitudes and preferences. They felt comfortable with the gameplay and they did not mention nor perceive the gap between instrumental drivers and ethical autonomy. Paradoxically, they appeared less influenced by the willing to rule the ludic system: winning the game was not the priority for them. In the third phase, five subjects clearly argued that they did not need any "parameter of success" to justify their passion. On the contrary, the previous group considered video games more external and affected by others' opinions; hence, their interpretation of digital playing is more tied to objective criteria (the game patterns that players have to follow) and comparisons with other media consumptions, which would be more popular and then easier to share.

Discussion and Conclusions

It is challenging to summarize the insights that emerged during the research. Concerning RQ1, it is noteworthy to highlight how the social stigma about digital games is a relevant driver in personal narrations. Especially with drivatars, identification seemed to have the priority over individualization despite the statements' heterogeneity, which ranged from a general defence against common prejudices to a *subcultural gamer* pride. Contrariwise, the ethical issue embodied in BW2 made the subjects' attention focused on the expressive status of the medium between a constraining achievement-orientation (first group) and a revealing potential (second group). Addressing RQ2, data-selves supported subjects in exploring their inner positions, and elicited reflexive statements with a significant outcome in terms of Self-consciousness (especially the first two groups engaged with FM5). From a research perspective, more information was gathered with this intervention than by using just qualitative interviews; even when the initial statements were confirmed (e.g., the third group with FM5 and the second group with BW2), subjects developed their positions further and more consciously.

Unexpectedly, data-selves worked as simulacra of entities different from the player himself/herself (e.g., audiences, shared representations), proving to be flexible according to subjects' interpretations. However, it can be argued that, when the connection is agential and symmetrical to the player's avatar (FM5), the identification with the data-self seems to be more direct and facilitated. Conversely, when the bond is representational and less symmetrical (BW2), the intermediation is weaker: the data-self appears disjointed from the user, who feels empathy rather than identification. Regardless, the relation with data-selves did not change significantly during the second step (except for the first group involved with FM5); a possible explanation is that the feature was able to involve the subjects and stage a connection immediately.

The implications of these results are mainly three. For social scholars, data-selves may stimulate personal narrations and feedback effectively; the comparison between Self and dependent NPCs can trigger a taking a stand able to address several individual traits. For developers, such a reflexive feature has the potential to engage people in a remarkable way; during the research, the manifestations of attachment toward data-selves were relevant to the extent that related patterns could be applied in game design. For example, a RPG in which player's virtual sons and daughters learn from his/her actions, or an online FPS (First Person Shooter) that is populated by aggregate data-selves that depend on whole clans' performances. Finally, their outcome may affect and form marketing strategies: data-selves can be associated with specific consumptions, then foster brand loyalty and orient related purchase choices. To summarize, the reference is to an *agential bridge* from data to self-perception and vice versa; consequentially, the modalities through which it can be harnessed are several.

Nevertheless, the study presents three vulnerabilities: first, the dependency on the few available games with data-selves limited the research design. Second, data-selves require further efforts toward new topics, identity-dimensions and samples in order to better outline their range of application and go beyond the first exploration staged by this analysis. Third, the group-orientation of the article's overview, which was chosen in order to facilitate the communication of the findings, entailed a little attention to the individual narrations of the subjects. Despite these issues, data-selves proved to be a promising tool that require more attention in both development and research terms. Therefore, further inquiries are required to keep exploring their range of application and related malleable factors.

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