Platform, Culture, Identities: Exploring Young People's Game-Making

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Declaration:

I, **Bruno Henrique de Paula** confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

Digital games are an important component in the contemporary media landscape. They are cultural artefacts and, as such, are subjected to specific conventions. These conventions shape our imaginary about games, defining, for example, what a game is, who can play them and where. Different research has been developed to understand and challenge these conventions, and one of the strategies often adopted is fostering game-making among "gaming minorities". By popularising games and their means of production, critical skills towards these objects could be developed, these conventions could be fought, and our perceptions of those artefacts could be transformed.

Nevertheless, digital games, as obvious as it sounds, are also digital: they depend on technology to exist and are subjected to different technologies' affordances and constraints. Technologies, however, are not neutral and objective, but are also cultural: they too are influenced by values and conventions. This means that, even if the means of production of digital games are distributed among more diverse groups, we should not ignore the role played by technology in this process of shaping our imaginary about games.

Cultural and technical aspects of digital media are not, therefore, as conflicting as it might seem, finding themselves entangled in digital games. They are also equally influential in our understanding and our cultural uses of these artefacts; but how influential are they? How easy can one go against cultural and technical conventions when producing a game as a non-professional? Can anyone make any kind of game?

In this research, I explore young people's game-making practices in non-professional contexts to understand how repertoires, gaming conventions and platform affordances and constraints can be influential in this creative process. I organised two different game-making clubs for young people in London/UK (one at a community-led centre for Latin American migrants and other at a comprehensive primary school). The clubs consisted in a series of workshops offered in a weekly basis, totalling a minimum of 12 hours of instruction/production at each research site. The participants were aged between 11 and 18 and produced a total of 11 games across these two sites with *MissionMaker*, a software that facilitates the creation of 3D games by non-specialists through ready-made 3D assets, custom audio and image files, and a simplified drop-down-list-based scripting language.

Three games and their production teams were selected as case studies and investigated through qualitative methods and under a descriptive-interpretive approach. Throughout the game-making clubs, short surveys, observations, unstructured and semi-structured interviews and a

game archive (with week-by-week saves of participants' games) were employed to generate data that was then analysed through a Multimodal Sociosemiotics framework to explore how cultural and technical conventions were appropriated by participants during this experience.

Discourses, gaming conventions and *MissionMaker*'s affordances and constraints were appropriated in different ways by participants in the process of game production, culminating in the realisation of different discourses and the construction of diverse identities. These results are relevant since they restate the value of a more holistic approach – one that looks at both culture and technology – to critical videogame production within non-professional contexts. These results are also useful to the mapping of the influence of repertoires, conventions and platforms in non-professional game-making contexts, highlighting how these elements are influential but at the same time not prescriptive to the games produced, and how game development processes within these contexts are better understood as dialogical.

Impact Statement

Discussions and findings from this thesis can have impact both inside and outside academic contexts. One relevant outcome from this research is the bridging of the gap between cultural and technical elements in game production in non-professional contexts, generating a more holistic and critical view of this practice through the reconciliation of different fields, such as Cultural Studies, Media Education, Game Studies and Platform Studies. It also contributes to the further understanding of the influential role played by cultural conventions and technical affordances and constraints in shaping our imaginaries about digital games, and how the challenge, corroboration and resignification of these conventions are not necessarily acritical, but better understood as a dialogical process.

Different concepts that can be useful to further research around digital game-making and expression were also identified by this research. Among them, I highlight the "propositive" nature of the platform and discourse translation. The propositive nature of the platform delineates how digital technologies are not simply constraining factors that we struggle against when making meaning, but how they can also work as sources of creativity, offering certain ways of realising discourses not previously envisioned. This concept can be relevant to digital media research since it shows that meaning-making processes through digital forms should be understood and investigated as dialogical, as the result of constant exchanges between designer and platform, and of the collision of different repertoires, conventions and values.

"Discourse translation" is another important concept developed in this study and it is understood as the process of adapting and realising specific discourses in a different context than the original one, often transforming them according to the available modes for meaning-making. Discourse translation is relevant to the understanding of how digital games (conventions and platforms included) might favour/hinder specific discourses, which can be made evident, partially evident or silenced by these processes of adaptation and realisation.

Outside academia, besides the production of new assets and functionalities for *MissionMaker*, a free game authoring software, an interesting impact from this research is the reiteration of the entanglement between technical and cultural aspects in digital practice-based activities. This is important, for example, for countering common views that argue for the use of digital game development to simply foster programming/technical skills, as if these activities were mere vessels for "teaching something". This research, by highlighting the deep bonds between technical and cultural aspects, brings to light an understanding that any educational initiative that aims at developing technical skills must also deal with all its embedded cultural aspects.

Dedication

To Haira, for all the love, support, companionship and intellectual challenges that keep me going.

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Chapter 1 – Introduction

Digital games occupy an ambiguous cultural position in contemporaneity. They are a significant (and under-researched) part of contemporary Cultural Industries (Hartley, 2009; Kerr, 2017). Often, reasoning on games' relevance are constructed around the size of their industry, their increasing revenues and audiences, supported through quantitative data showing not only how games are profitable, but also how their audiences are expanding (e.g. ESA, 2017). Digital games, therefore, could be seen as an example to be followed, one of the most efficient cultural engines in contemporary capitalism, in an ever-expanding scenario involving transnational conglomerates, consumption and precarious work (Dyer-Witheford and de Peuter, 2009; Kerr, 2017).

Yet, digital games are still seen in some circuits as an Other (Shaw, 2010), as a minor, childish cultural form (Newman, 2004), as a separated space where mundane – here, dare I say, an euphemism for more serious topics such as homophobia, sexism or racism – aspects have no space (Condis, 2014). Even if surveys show an increase in diversity of who plays videogames, games are still seen as property of gaming elites (Fron *et al.*, 2007), often represented in the stereotypical image of 'gamers' (Bogost, 2011; Shaw, 2013; di Salvo, 2016; Kafai and Burke, 2016), who feel entitled to define what games are, how they should be played, and to harass anyone who goes against these unspoken norms (cf. Consalvo, 2012), as exemplified by the #gamergate (cf. Chess and Shaw, 2016).

This study begins from a position that acknowledges digital games as part of contemporary culture, maybe 'one of the most relevant cultural products and objects of our time' (Muriel and Crawford, 2018, p. 4). These artefacts communicate values and worldviews; they can promote different kinds of experiences, from small, deeply personal ones (cf. Anthropy, 2012) to epic adolescent power fantasies (Bogost, 2015). Games – as any cultural artefact – can communicate meaning, can allow us to express ourselves, can help us to reflect about different realities **and** can also help us to relax, to have fun, to experience other lives, to escape to unimagined realities. The main question, however, is how to tap into this multiple communicational potential of digital games.

These different kinds of meanings are influenced not only by intentions and personal ideas, but also by broader systems of shared conventions – or, to use a more specific word, by cultures (Mayra, 2008). In that sense, the relationship between culture and meaning is deeply intricate, since culture not only frames the interpretive acts (how we make sense of things) but, in a certain way, what can be expressed and in which ways it can be expressed, defining a certain

imaginary around how games "should be", and how we "should behave" in relation to digital games.

This imaginary can be imposed in some aggressive ways, and online player culture – e.g. the hostility towards women of colour in online games (Richard, 2016) – and mainstream professional settings within the industry (Harvey and Fisher, 2015) might offer easy examples here. What might not be so evident is that this kind of imaginary can also work in less ostensive, more implicit ways, producing settings where the constant reproduction of unspoken norms can generate a process of naturalisation, even if there is nothing natural about these norms. The definition of digital games as male space after the Atari crash in the 1980's (Shaw, 2013; De Grove, Courtois and Van Looy, 2015) led towards a naturalisation – an 'inculcation' (Bourdieu *et al.*, 2014) – of games as male spaces, as the domain of 'gamers' (Bogost, 2011; Shaw, 2012, 2013) and this can shape how we experience games and what can we make with digital games. It is in that sense that Bittanti and Ito (2010) argue there are cultural codes – conventions – that shape our behaviour towards digital games. These conventions or inculcations, in other words, can limit what we can "say" through games, by teaching us the limits of the 'sayable' (Butler, 1997, 1999) through digital games.

These conventions are not only limited to "cultural" aspects of gaming, such as player culture or discourses found in gaming. Digital games are – as obvious as it sounds – digital, and different authors, such as Manovich (2002, 2016), have explored the nature of digital (or 'new') media. Others (e.g. Bogost and Montfort, 2009; Apperley and Jayemane, 2012; Apperley and Parikka, 2018) have extended these reflections about the digital to better understand games as cultural forms, which have their roots both in the history of technology developments, but are also part of and indebted to specific (cultural) systems of meanings. If we want to understand the aforementioned limits of the 'sayable' in digital games, we examine digital games through both "technical" and "cultural" lenses (Manovich, 2002). Here, however, we must – as the aforementioned research tradition does – reject the notion that digital technologies are neutral, acknowledging not only the "technical" and the "cultural", but also how the "technical" **is "**cultural", and how apparently acritical, neutral choices regarding the development of technologies can find their way of becoming part of these techniques, becoming conventions**.** These conventions, however, might be sustained by specific ideologies and, more important, might reproduce these ideologies, becoming technical codes (Grimes and Feenberg, 2013).

This relationship between game production, the tensions between technical and cultural codes, and personal ideas are central to this research. My choice here was to look beyond gaming industry – therefore, outside mainstream and even independent circuits – and explore how

young people operated within the aforementioned tensions to produce their own games. In a reflection about the importance of research about game production in non-professional contexts, Harvey (2014, p. 104) reminds us that

> Game designer is a politicized position to take just as gamer is, and henceforth too little scholarly attention has been paid to those making games outside of the dominant, professional, and industrial context. We need to address what constitutes our dominant construction of game designer and challenge those rubrics in order to understand the subversive and radical contributions of those who do not align with the normative constitution of the producer.

This research is, therefore, based in a Media Literacy tradition (Buckingham and Burn, 2007; Apperley and Walsh, 2014; Gee, 2015; Beavis, Dezuanni and O'Mara, 2017; Potter and McDougall, 2017), where critical and production competences walk hand-in-hand, rejecting the dichotomic separation between "cultural" and "technical" aspects. Besides game-making initiatives in the field of literacies, previous initiatives that aimed at enabling more people to take part in game production (Anthropy, 2012; Fisher and Harvey, 2012; Harvey, 2014; Harvey and Fisher, 2015) were also influential to this study, following a rationale that the involvement of more and more diverse people in game production can lead towards reflective processes about the aforementioned conventions and naturalisations within the field of digital games.

In this project, the exploration of non-mainstream game-making contexts allowed me to elaborate some important questions. It allowed me to investigate, for instance, how influential technical and cultural codes (including here the ones embedded in the platform used for game-making) are in relation to these non-professional game production processes. It also created opportunities to reflect about the ways in which young people with different gaming experiences appropriate and organise diverse influential aspects (e.g. previous experiences, imaginaries about what games are, technical affordances and skills) to produce their own games. It enabled me to encounter different discourses invoked by young people through these non-mainstream productions, and to explore different identities constructed by them through the realisation of these discourses.

In more explicit terms, this study aimed, through the investigation of two London-based game-making clubs organised for young people (11-18), to explore these complex relationships between context, experiences, discourses, intentions and identities raised in the paragraphs above. Therefore, my research aims within this project were twofold:

- To understand the discourses invoked and identities constructed by young people when producing their own games;

- To explore in which ways these identities are influenced by different factors, such as discourses, repertoires, the platform used for game-making, and gaming conventions.

To achieve these research aims, the following research questions were outlined:

1. What are the discourses invoked, and which identities young people construct when planning their own games?
2. In which ways do these participants translate different discourses and identities into their games throughout the game-making sessions?
3. In which ways is this game-making process influenced by game design and traditional gaming culture conventions?
4. In which ways does *MissionMaker* shape the games produced by these young people?

In the following paragraphs, I will present the structure of this thesis, in order to clarify the paths taken to understand better these aforementioned complex relationships and to outline answers to the aforementioned research questions, achieving, thus, the research aims described earlier.

Chapter 2 focus on previous studies that have laid an important path for this thesis. Game-making by young people in non-mainstream contexts – such as educational ones – will be revisited through two main lenses: Constructionism (Papert, 1980; Papert and Harel, 1991) and the recent rise of the Maker Movement (Anderson, 2013; Halverson and Sheridan, 2014; Willett, 2016), including here critiques about the historical developments within this field. Besides these reflections, I also examine previous projects that investigated game-making by young people besides solely technical aspects. My intention here was to move beyond the limited perspective that sees game-making as a path to simply develop specific skills, but that understands how these experiences with young people can have deep sociocultural implications.

In Chapter 3, I construct the conceptual framework that support this study. I firstly reflect about the relationships between discourses (Kress, 2010), identities (Hall, 2000) and repertoires (Canclini, 2001), culminating in the difference of values linked to these within a specific context and the consequent dimensions of the 'sayable' (Butler, 1997, 1999) linked to these values. To theorise these aspects, I follow Bourdieu (1984, 2014; Wacquant, 1989; Bourdieu *et al.*, 2014), approaching digital games as a field, with specific contextual norms and specific capitals, and that generates "conventions" – mediated by habitus (Bourdieu, 2014) – that organise the way we can position ourselves in relation to others, including here how we can make meanings and how these meanings will be interpreted by others. This notion of digital

games as a field – therefore, as a site of struggle where agents compete for stakes – is expanded through the notion of the institutionalisation of videogame culture (Muriel and Crawford, 2018), examining how hegemonic forces act in the field (Fron *et al.*, 2007) leading towards the naturalisation of certain – negotiable in the Gramscian (Gramsci, 1999; Cassar, 2013) sense – conventions.

Nevertheless, these conventions and limits of the 'sayable' are not only defined by the cultural layer of digital games. Technologies are also subject to specific power relations and to specific systems of meaning, therefore, they are also cultural. This means that they also have different stakes, also promote specific discourses, and are also partial; they will, therefore, contribute to the shaping of the possibilities of the field, including here these dimensions of the 'sayable'. To investigate these partial, non-neutral aspects of technology, Critical Theory of Technology (Grimes and Feenberg, 2013) and Platform Studies (e.g. Bogost and Montfort, 2009; Montfort and Bogost, 2009; Apperley and Jayemane, 2012; Leorke, 2012; Apperley and Parikka, 2018) are employed, constructing then a more holistic view of the influential aspects in relation to the expressive possibilities through digital games.

Chapter 4 is dedicated to the Methodology, bringing the rationale for this study and presenting its main aims and research questions. It is in this chapter that the main analytical framework for this project, Multimodal Sociosemiotics (Kress and Van Leeuwen, 2001a; Van Leeuwen, 2004; Kress, 2010), is defined, both in relation to its theoretical underpinnings and in how it was employed in this study. This chapter also presents a brief description of *MissionMaker*, the platform used by young people to produce their own games, including here my own work designing and implementing new functionalities that were part of young people's games produced throughout the game-making clubs. The research design of this study is presented in a chronological order, describing the two studies undertaken in this research: the pilot, carried out to test the software, methodological strategies and the analytical framework; and the main study, which generated the data analysed in this thesis. Special attention was given to the methods employed for data generation and analysis, to the contexts where the studies were carried out, and how the pilot informed the main empirical study.

Chapter 5 contextualises the data generated and analysed in this study. Here, I describe in greater detail the particularities of each research site, culminating in a general description of the three selected games. Before moving into the more analytical chapters, however, I developed a small reflection about the differences among participants across research sites, and how questions around (gaming) culture(s), access and repertoires play a significant role in this project and cannot be ignored when exploring game-makers' participation in this project.

Chapters 6 and 7 are dedicated to the analysis of game-makers' participation in this study. My option here was to divide these chapters chronologically, thus focusing on what I named as **game-as-plan** – production elements before implementation via *MissionMaker* – and **game-as-artefact** – the "materialised" version of their games in *MissionMaker*, including here the production process. In these two chapters, I support my analysis in interviews, observations and materials – e.g. storyboards, audio files, game sequences – produced during the game-making clubs. It is in these chapters that, supported by the theories and analytical framework invoked earlier, I delve into this selected data to outline some useful conceptual tools to explore the relationships between repertoires, discourses, identities and platforms, such as the **intentionality gap** or **discourse translation**.

In Chapter 8, I extend the analysis carried out in the chapters described in paragraph above. I readdress the research questions presented in Chapter 4, invoking examples, conceptual tools and theories to outline answers to these. Chapter 8 is, therefore, constructed as a space for discussing the main findings of this study, and how these can be read in relation to the main objectives that guided this research.

After readdressing the research questions, in Chapter 9 I adopt a more reflective stance towards the study conducted here, discussing limitations and possible implications for future research in relation to this thesis.

Chapter 2 – Literature Review

In the previous chapter, I argued that digital games are cultural artefacts and, as such, can communicate specific values. I also highlighted the tensions between, on the one hand, personal ideas and values and, on the other hand, cultural (Bittanti and Itō, 2010) and technical (Grimes and Feenberg, 2009) conventions. These tensions are fundamental in relation to how meaning emerge in digital games, highlighting that this is not only a result of the cohesive way in which the game has been produced, as an "internal interaction" within the work itself (Halliday and Hasan, 2000; Burn, 2008), but also the result of and engagement with broader social, economic and political factors.

In this scenario, I am particularly interested in looking at how these tensions influence and are influenced by different worldviews in non-professional, non-proficient game-making settings. My choice of investigating non-professional settings was due to its reasonably comprehensible openness, apparently freed from the constraints of mainstream markets – the 'hegemony of play' (Fron *et al.*, 2007) – and by the ideal of democratisation based on a Media Literacy perspective briefly mentioned in the introductory chapter. My aim with this project was then to explore how young people who are outside professional and proficient game development circuits – that is, who are not professionals officially part of games' industry (Dyer-Witheford and de Peuter, 2009) or indie developers (Lipkin, 2012; Pérez-Latorre, 2016; Ruffino, 2018) – deal with these different influences and values (both in cultural and technical terms) when constructing their own identities through videogames, and to understand how these identities might relate to the "cultural imaginary" that rules the field of digital games.

In this chapter, I will investigate how young people on the margins of major game development circuits have appropriated videogame production. More specifically, I will explore how previous research has engaged with this type of initiatives and which approaches have been used to study and analyse these spaces.

The Maker Movement and Game-making

Game-making is often used in academia as an umbrella term to refer to the production of games in non-mainstream contexts, especially in educational research (Kafai, 2006; Burn, 2008; Pelletier, Burn and Buckingham, 2010; Kafai and Burke, 2016). It is often understood as game development carried out by non-professionals, usually through simplified programming

languages (Kafai, 1995), using specific software (Burn, 2008) or even relying on digital games' level editors and *modding*[1] tools (Robertson and Howells, 2008).

Historically, pioneering strategies to popularise game-making were often related to the educational field, especially to Papert's (1980) constructionist ideas. Constructionism argues that learning happens through the creation (construction) of an artefact, especially if there is an affective relationship between the creator and the artefact being constructed (Papert, 1980; Papert and Harel, 1991). Having in mind the pervasiveness of games in late-modern societies, and how gaming is popular among young people (Kafai and Burke, 2016), we can understand the rationale behind the connection between game-making and construcionism.

Harel (1991) was a pioneer in taking these constructionist ideas to educational contexts and, although related to digital artefacts in general, her initiative was seminal within the field of game-making, being one of the first student-centred projects around digital creation. Using *Logo*[2], students from a primary school in Boston, USA worked through two terms to produce their own digital artefacts about fractions, which were later employed to help younger students in their Maths lessons. Inspired by this project, Kafai (1995) followed a similar methodology with *Logo* language in primary Maths lessons, but this time focusing specifically on games production rather than any kind of digital artefact. In these initial projects, researchers were interested in the process of game production, looking specifically at how to use this process to foster "regular" academic learning – such as fractions (Kafai, 1995) – and generalisable skills – such as design (Harel, 1991) or programming (Harel, 1991; Kafai, 1995; Kafai *et al.*, 1998).

Constructionism, as an approach, is criticised for having a very positive view towards programming and, more broadly, digital technologies. It considers them close to what would be a "more natural" way of learning for young people, based on an innate curiosity that is unleashed by technologies. This "natural" way of learning through curiosity and hands-on (and often individual) experiences is opposed to the school context, which is seen by Papert as an unnatural, highly hierarchical structure, based on 'dissociated learning' (Buckingham, 2007) – a disconnection between what is learnt and pupils' experiences.

Buckingham (2007) criticises Papert for overplaying the power of digital technologies in fostering learning and downplaying the importance of school, not only regarding curricular aspects, but also in broader terms, such as socialisation. Constructionism, however, keeps evolving, and recent initiatives (Peppler and Kafai, 2007a; Resnick *et al.*, 2009; Kafai and Burke,

[1] '*Modding* involves players and users making modifications to technology. This can involve modifying game chips or designing new elements of games such as cheats, interface elements, or game levels' (Bittanti and Itō, 2010, p. 241).

[2]Simplified programming language produced at the MIT to introduce young people to coding by drawing different graphical elements in a computer screen through simple written code.

2016) attribute a pivotal role to social and collaborative experiences, minimising, for instance, the criticisms regarding the favouring of individualistic approaches elaborated by Buckingham.

A central tenet of this constructionist approach is its heavy reliance on coding skills, which can explain the historical and current trends around the introduction of game-making into education. The rise of ed-tech during the 1990s favouring software-oriented ICT lessons (Kafai and Peppler, 2011; Kafai and Burke, 2013) is one of the main reasons for the dormant status of game-making until mid-2000s, transforming it in a niche activity carried out only in specific contexts by fans – modders. This dormant status was broken only by the dissemination of new facilitating tools (Kafai and Burke, 2016), such as *Scratch*, *GameMaker Studio*, *MissionMaker* and, more importantly, by the rise of the 'maker movement' (Halverson and Sheridan, 2014; Vossoughi, Hooper and Escudé, 2016; Willett, 2016), which placed game-making and other coding-related activities back into the spotlight. Here, to understand the underlying logics behind the current status of game-making, it is then important to analyse the maker movement itself.

The maker movement 'refers broadly to the growing number of people who are engaged in the creative production of artifacts in their daily lives and who find physical and digital forums to share their processes and products with others' (Halverson and Sheridan, 2014, p. 496). As it is possible to imagine, the current maker culture has in Papert's (1980, 1993) constructionism its base, being based on the already cited idea that constructing an artefact is a powerful (learning) experience.

Some authors (e.g. Anderson, 2013; Hatch, 2013) have heralded the revolutionary nature of the maker movement. Different factors, such as the availability of cheap digital tools, a disseminated and well-established sharing culture and the use of common standards that enable and facilitate collaborations, would make this a unique moment for the production of new artefacts and, consequently, for learning from these processes (Anderson, 2013). While making artefacts has always been part of human history (Halverson and Sheridan, 2014), this would be an exciting moment for making and sharing productions, virtually empowering anyone to be creative, innovate and share their new artefacts.

While some of these ideas are important to understand the maker movement as a relevant approach to the production of artefacts – and meanings – there is a considerable exaggeration in the rhetoric associated to it. Firstly, even if there are specific factors that can differentiate contemporary maker culture from previous historical moments – such as those earlier enumerated by Anderson (2013) – the bases for this movement are not new, but are at least one century old. Blikstein (2013), for instance, challenges maker culture's uniqueness by tracing its

theoretical bases to critical pedagogy scholars such as Dewey (1966), Freire (2000) and, unsurprisingly, Papert (1980, 1993), since they all remarked that what is learnt in educational contexts must be meaningful in "real" – outside classroom – contexts. It is possible to relate the rise of the maker movement in education to similar initiatives that are nowadays considered old fashioned and seen as part of an older era of education. That is the case, for instance, of the shop classes common in the 20th century USA educational system, in which students engaged with carpentry, basic electronics and other practices that would now be considered part of the maker movement (Blikstein, 2013).

Outside schools, the maker movement can be seen as the heir of previous phenomena such as the punk DIY of the 1970s and the homebrew computing and hacker scenes (Willett, 2016). This lineage helps us understand a second aspect that is overplayed in maker culture: its allegedly innate democratising nature. The development of these historical movements saw a consistent diminishing of the countercultural and anti-system stance present in maker culture predecessors – such as the zine movement of the 1970s. There is a powerful neoliberal logic underlying the presumably liberating power of the maker movement, since most of the discourses (Anderson, 2013; Hatch, 2013) are aligned to the economic agenda promoted by hegemonic capitalism, such as technological innovation and entrepreneurship (Vossoughi, Hooper and Escudé, 2016). It can be argued that, to some extent, the maker movement is a hygienised, capitalistically-endorsed version of other more politically active maker movements, such as William Morris' Arts & Crafts or Punk DIY (Willett, 2016).

Both elements – its depoliticisation and its alignment to hegemonic discourses – helped in a discursive shaping of what making is, and who can be a maker. Making is often defined in a way that favours gendered, white, middle-class cultural practices, especially if the practices are aligned to technological and commercial innovations, framing the maker movement as new and completely different from other forms of creative cultural work (Vossoughi, Hooper and Escudé, 2016). This helps us understand why the maker movement is still seen as a 'white male nerd' space (Grenzfurthner and Schneider, no date), and why some activities such as robotics are more valued than, for instance, sewing (Vossoughi, Hooper and Escudé, 2016). Cultural conventions based on technology are generated and propagated through these naturalisations found in the maker movement, generating specific ways of behaving in relation to this culture.

In a literature review of the current state of the maker movement, Papavlasopoulou, Giannakos and Jaccheri (2017) identified this favouring of technical aspects: from a universe of 43 papers, 38 of these had as the main goal either fostering programming, engineering or STEM-related skills, while few examples aimed at other topics, such as sound design or storytelling, for instance. While this prevalence of technical aspects can be justified as a means to bring more

diversity to STEM, it is important to do so in a way that does not alienate people that are not often welcome into this field. In this sense, initiatives such as that carried out by Kafai, Fields and Searle (2014) with e-textiles, combining digital technologies and traditional crafting, beyond the sole goal of developing technical skills, can be an interesting path to prevent this alienation, but still underexplored.

The same critique regarding the cultural and political connotations carried by the maker movement can be extended to some practices related to the production of games outside games' industry, such as modding. Modding is closely linked to the history of videogames and, to some extent, to the history of personal computing. Tinkering with technology in order to modify its functions and features has been integral part of the early history of personal computing (Willett, 2016) and of video game culture more specifically (Kafai and Burke, 2016), which has defined how modding is seen as a cultural form. Even nowadays, modding (as a term) still carries some of this historical trace: it is still associated to men, and often emphasizes the technical terms of the practice (Sotamaa, 2010; Steinkuehler and Johnson, 2011; Poor, 2014).

This targeting of specific groups, such as young white middle-class males, allied to the favouring of "technical" aspects in relation to creative activities such as modding or other maker activities helps us understand why the maker movement has gained so much traction in the last decade. It is noticeable an alignment between these activities and corporate agendas, supported by the dissemination of a depoliticised, individualistic neoliberal logic (Vossoughi, Hooper and Escudé, 2016). This process has informed, for instance, how programming has been introduced into basic education in some countries – such as the UK (de Paula, Valente and Burn, 2014; Williamson, 2016) – favouring a view in which maker practices, such as game-making, are considered simply as an introduction to programming (Gee and Tran, 2016; Jenson and Droumeva, 2016) or to any other activity that might yield economic success later – such as robotics (Vossoughi, Hooper and Escudé, 2016) – and still bound solely to STEM[3] (Howland, Good & Du-Boulay, 2014).

This perspective is problematic in different aspects. First, it treats coding in a very limiting sense: as Gee and Tran (2016) point out, it can associate programming to a digital media that not necessarily appeals to all potential learners. Games are then treated just as a means to achieve an allegedly more motivating goal than traditional programming lessons, similar to discussions developed by different authors (Buckingham, 2006; Burn, 2016) when criticising the use of videogames in education. More importantly, this view of game-making as a mere technique for introduction to programming leads to an under-emphasis on creative, social and

[3]Accronym for Science, Technology, Engineering, Maths.

artistic aspects of both game-making (Gee & Tran, 2016) and programming (Kitchin and Dodge, 2014; Manovich, 2016).

This critique does not mean that having coding as a target basic skill in curricula around the world or the dissemination of makerspaces and maker culture in formal and informal education are problematic *per se*. We must question, however, how they are promoted and what they promote. We must scrutinise the discourses that (consciously or not) define what counts as making (Vossoughi, Hooper and Escudé, 2016), who are the actors interested in constructing these definitions, and the role played by early adopter voices, since they are often able to constrain 'identities of participation' in maker culture (Halverson and Sheridan, 2014, p. 500), gate-keeping who can become part of it and who cannot.

One path for the democratisation[4] of the maker movement is through educational initiatives, both in formal and informal contexts. Based on Kafai, Fields and Searle (2014), Halverson and Sheridan (2014, p. 499) argue that 'informal learning settings are playing an important role in diversifying the maker movement by making tools, materials, and processes more readily available to people who may not initially self-identify as makers'. While allowing access is crucial for more democratic maker practices – involving more and more diverse people – it is not only material and technical support that different people need. The access to the 'discourses of power' involved in the production of artefacts should also be democratised (Halverson and Sheridan, 2014, p. 500), including here the challenges related to spaces that might already seem democratic or "safe" (Harvey and Fisher, 2016).

As defended by Blikstein (2013), this production of artefacts – and, consequently, of meanings – has the potential to be a Freirean (Freire, 2000) space for raising critical consciousness, through the reflection about one's own reality. It has the potential to be meaningful and empowering for makers, and that depends on the access both to material resources and discourses associated to this practice. Peppler and Kafai (2007a, 2007b), based on their work with underprivileged young people, argue that game-making activities can deliver this democratisation promise by providing a 'pathway into participation' for people that would not necessarily be openly welcomed into traditional game culture, culminating then in the reshaping of the habitus around maker culture.

Game-making can be seen as an ideal practical initiative for reflecting about and discussing (assumptions about) videogames, including their role in and as culture. This depends on how game-making is framed. If it is considered as a mere introduction to programming, or as a

[4] Here understood as an opening of the field, reducing the influence of these identities of participation that gatekeeps who can take part and what "counts" in these practices.

means for teaching academic content, such as the majority of the studies in educational game-making have done up to the moment (Kafai and Burke, 2015; Gee and Tran, 2016), this potential for critique and reflection will remain dormant. Game-making should not be seen as an acritical technical activity (Buckingham, 2003). As different authors (e.g. Zimmerman, 2013; Kafai and Burke, 2016) argue, the goal is not to produce an army of game designers or programmers, but to allow students to engage meaningfully with games as cultural forms through 'critical making' (Denham and Guyotte, 2018), and to reflect about digital games and their own realities in this process of designing, developing and debugging their own content. In sum, game-making is often pointed out as a possibility to address 'the persistent issues of access and diversity present in traditional digital gaming cultures' (Kafai and Burke, 2015), but how should we frame game-making to achieve this objective?

Some projects in this field (e.g. Kafai, 1995; Kafai *et al.*, 1998; Beavis, Prestridge and O'Mara, 2017) aimed at fostering this critical engagement while also developing other knowledge, such as specific curricular content. While this is possible – as the results from the examples cited above show – there is also a danger of transforming games in mere content-carriers rather than acknowledging them as a meaningful cultural form. In a review of the field, Gee and Tran (2016) remark how most of game-making initiatives are still subjected to either academic disciplines and/or coding, while few initiatives have explored game development by considering the importance of videogames *per se*.

The relevance of games in contemporary society as an established and popular cultural form (Burn, 2016; Muriel and Crawford, 2018) should not be ignored when fostering game-making spaces. In this sense, a Media Education perspective where critical reflection and production walk hand-in-hand seems to be a potential path to achieve this reflexive goal (Burn and Durran, 2007; Peppler and Kafai, 2007b, 2007a; Beavis and O'Mara, 2010; Dezuanni, 2010; Pelletier, Burn and Buckingham, 2010; Beavis, Dezuanni and O'Mara, 2017). Authors in this field (e.g. Burn and Durran, 2007; Peppler and Kafai, 2007a) have approached the question of game-making through a literacy-based perspective, understanding it as a sociocultural practice that can generate and disseminate meaning, something that, as discussed above, is crucial for a reflection on the influences caused by conventions and underlying logics in game-making. In the following section, I will explore the relationships between game-making and literacy, focusing on how previous research has articulated these two aspects.

Game-making and Literacy

> The learner is involved in all the design decisions and begins to develop technological fluency. Just as fluency in language means much more than knowing facts about the language, technological fluency involves not only knowing how to use new technological tools but also knowing how to make things of significance with those tools and most important, develop new ways of thinking based on use of those tools (Kafai, 1995, p. 39).

The small excerpt that opens this section is part of Yasmin Kafai's *Minds in Play*, in which she details her experience with educational game-making in the early 1990s. She establishes the idea of 'technological fluency' to remark one of the main outcomes of her project: more than simply affording an instrumental use of the tool – in her case, computer programming and games – her goal was to provide a reflection about how to produce meaningful things – 'things of significance', in her own words – with these tools. This conception of 'technological fluency' has evolved into what has been recently called as 'digital fluency' (Resnick *et al.*, 2009), and while it has strong ties with computer programming, it remarks an important aspect of game-making and, more broadly, of technology usage: it should not be treated as an instrumental skill. It should be reflective, and it should allow students to understand how these new modes of meaning-making, and the texts that they make, do work in the world[5].

Under this perspective, the idea of 'digital fluency' can be related to the conception of 'literacy' proposed by the New London Group in their Theory of Multiliteracies (Cope and Kalantzis, 2009; Gee, 2015). It remarks the exhaustion of the education that prioritises the 'alphabetic literacy' – competences to deal with written language ("reading" and "writing") – and the necessity of promoting different forms of literacy so young people can participate meaningfully in contemporary societies, and not simply reproducing sociocultural standards.

These new literacies foster individuals' engagement with texts produced and disseminated through different semiotic domains[6], including digital artefacts such as games. This perspective acknowledges the changing and dynamic processes related to texts and meaning-making in contemporary societies (Kress, 2010), and literacies are recognised as 'socially situated cultural practice[s]'(Gutierrez and Beavis, 2010, p.145), whose significance is not in fostering new textual forms – e.g. programming, games, vlogging – *per se*, but in how different people engage

[5]I am using the expression "do work in the world" following Freire's (2000) critical pedagogy, meaning that these texts are not only "functional" in the communicational sense, but that they also have potential for being transformative means for the reality of the 'readers'. In that sense, these texts not only "work" – function – but they also **do work –** transform – the world.

[6] '(...) any set of practices that recruits one or more modalities (e.g., oral or written language, images, equations, symbols, sounds, gestures, graphs, artifacts, etc.) to communicate distinctive types of meanings' (Gee, 2003, p.18).

with these forms, and in how these people are shaped by this engagement (Gutierrez and Beavis, 2010).

Therefore, approaching game-making initiatives through this literacy-based perspective can be important for the democratisation of the field. Since literacies are understood as a series of social practices related to different contexts (Gee, 2015), looking at game-making through the lenses of literacy can allow game-makers not only to produce their own games, but also to reflect about their own relationship with videogames and game culture. Since a literacy perspective can promote the 'ideological critique of hidden codes' (Zimmerman, 2013, p. 44), it can be seen as a path to rethink, for instance, the question of access related to gaming and gaming culture, or why we follow certain arbitrary assumptions that reproduce the *status quo* – e.g. the idea that games should not engage with non-normative sexualities (Condis, 2014) – without contesting them.

Making games and reflecting about this experience can, as argued by Peppler and Kafai (2007b), be the difference between being a mere consumer and a full member of what is known as the participatory culture (Jenkins *et al.*, 2009). This does not mean that the gap between media consumers and media producers has closed entirely – as a naïve reading of the participatory culture rhetoric might hint to – but that this critical perspective, allied to the capacity of producing texts, can culminate at least in the construction of a critical audience for digital games (Peppler and Kafai, 2007b).

Different projects explored this perspective to understand how youngsters engage with games and broader cultural landscapes while creating their own games. The initiatives discussed in the following paragraphs are different in many ways, in relation to the contexts where they were carried out or the tools and instruments used. They were, sometimes, divergent even in terms of their explicit goals (e.g. foster coding skills, understand how games can be integrated into the regular school curriculum, explore gaming as a literacy). However, they all shared this urgency to understand how different (young) people engaged with digital games, and to foster a more reflective and meaningful relationship with videogames, not as uncritical consumers, but developing critical and technical skills that allow them to become full members of a participatory culture (Peppler and Kafai, 2007b, 2007a).

Under this perspective, a relevant example is *Making Games*. This was a three-year long project carried out in UK in mid-2000s in which researchers, working with students from secondary schools in England, connected game-making to Arts, Media and Languages using a Media Educational approach (Buckingham and Burn, 2007; Burn and Durran, 2007; Burn, 2008; Pelletier, 2008, 2009; Pelletier, Burn and Buckingham, 2010). In order to develop their games,

students used a 3D game-authoring software developed specifically for this project – *MissionMaker*[7] – which allowed youngsters with no prior knowledge on 3D modelling or programming to easily create games.

The use of this specific software was an important difference from this project in relation to other initiatives (e.g. O'Mara, 2017; Peppler and Kafai, 2007b, 2007a) where learning how to code was essential for producing games. There, the simplified rule-based logic from *MissionMaker* allowed participants to develop their games without having to necessarily focus on programming. This afforded a greater time to engage with games in other terms, such as discussing their structure (e.g. narratives, game mechanics) and their relationship with broader societal aspects, such as gender (Pelletier, 2008) and media preferences (Pelletier, Burn and Buckingham, 2010).

The focus on the whole process of game-making (previous knowledge and gaming preferences, preparation, design, final product) was another important aspect of this research. Based on data generated in the project, Burn and Durran (2007) describe how, in one of the research sites, a group of students produced a game from scratch to publishing, from pitching ideas to programming and designing different levels to generating paratexts, such as marketing material and game guides. This scenario, where the whole process was documented through observations, interviews and game analysis, allowed researchers to explore the diverse nuances in game-making rather than just emphasizing the final products. It then enabled them to investigate several aspects related to the game-making experience, not only in terms of fostering an understanding about game production as a professional practice (Burn and Durran, 2007), but also critical aspects related to media production, including reflections about the cultural contexts where game-makers are inserted.

Pelletier's (2008) comparison between games produced by boys and girls is a prototypical example of this relationship between culture, critical engagement and creation. Through the specific lenses of gender, she describes how personal media preferences, repertoire and gendered assumptions interact in complex ways in young people's game-making practices. Participants often relied on an imagined gendered preference, even if their own gaming repertoires contradicted this standard. This becomes clearer when Pelletier (2008) looked into the game produced by Alice, one of the students that took part in this project: rather than using her previous gaming experiences (which included fast-paced platform games) as influence for her design decisions, she opted to establish a slow-paced, psychological-based narrative,

[7]The *MissionMaker* used in this study is the successor of the *MissionMaker* used in *Making Games*. While the current version was completely rebuilt in *Unity3D*, it is important to remark that it is indebted to the original, C++-based mid-2000 version.

drawing on other media forms that are often seen as "more adequate" for young women (Pelletier, 2008), reproducing normative gender aspects.

Pelletier (2008), based on Taylor (2008), argues that it is precisely this relationship between the games produced and the existing (gendered) conventions that makes participants' games playable and comprehensible, sketching then a relationship between conventions and intelligibility. This understanding does not mean, however, that game-makers are fated to simply reproducing conventions, since 'norms are never simply maintained but always remade – or made anew – in new games and new situations' (Pelletier, 2008, p. 155). Considering Kress (2003), she argues that game-makers work with conventions to achieve intelligibility and be understood, but these game-makers also appropriate these conventions to their own particular situations, modifying them (Pelletier, 2008). But how to make sense of these uses of conventions?

Buckingham and Burn (2007) propose the 3-Cs model for understanding media literacy, in which the production of a media text – as a digital game – should always be seen as cultural, critical and creative. The strength of their model becomes clear if we approach, as the authors (Buckingham and Burn, 2007; Pelletier, Burn and Buckingham, 2010) do, creativity in the same terms as elaborated by Vygotsky (2004), comprehending it as a process that depends both on imagination and rationality (Burn, 2016). An innovation, a different use of a cultural convention, is only considered creative if it is intelligible. Creative innovations are not purely subjected to free imagination, but also to the ability of organising these transformations through 'processes of rational thought' (Burn, 2016, p. 136), in structures that are comprehensible to other people (e.g. known gaming conventions, a cohesive storyline, credible characters). In that sense, reproduction and resignification of conventions work hand-in-hand, leading to creative design and eventual new meanings, which might not be expressed in a single, but through multiple modes (Burn, 2017).

Making Games, however, was not the only project that sought understanding games in terms of creativity, literacy and popular youth culture. A relevant and consistent body of research has also been produced in Australia (Beavis and O'Mara, 2010; Dezuanni, 2010; Gutierrez and Beavis, 2010; Apperley and Walsh, 2014; Dezuanni, O'Mara and Beavis, 2015), culminating in *Serious Play*, a 3-year project that investigated how the introduction of digital games in educational contexts changed the dynamics regarding, among other aspects, literacy, learning and curriculum (Beavis, Dezuanni and O'Mara, 2017). Researchers worked closely with teachers in different schools and used a wide range of approaches to generate and analyse data. Interviews, observations and textual analysis were combined to create a rich array of data reconstructing the gaming phenomenon in Australian youth culture, investigating, among

other topics, gaming practices and preferences, group dynamics during playing and game production (Beavis, Dezuanni and O'Mara, 2017).

While both projects present a similar rationale and explore the questions of literacy and youth popular practices – e.g. how critical thinking and creativity are essential components in literacy (Buckingham and Burn, 2007; Beavis and O'Mara, 2010) – there is a slight difference in their scope. Whereas game-making was the core of the British project, it was only one of the axes of the Australian one, which aimed at providing a more overarching view of games and literacy practices. The latter used a wide range of frames to investigate the relationships between games and literacy, from the role of paratexts (Apperley and Walsh, 2014) to investigating group dynamics in digital game-playing sessions (Dezuanni, O'Mara and Beavis, 2015). To some extent, *Serious Play* is an expanded version of *Making Games*, casting a wider net on the phenomenon of gaming and playing and its influence in literacy studies.

Some important insights on the nature of game-making initiatives – and, to some extent, of making artefacts – come out of this research. Beavis and O'Mara (2010), for example, reflect about the multimodal nature of videogames, and how engaging with videogames requires attention to several elements, not only sensorial (such as visual, aural) but also cultural ones – such as genre conventions, narrative structures. This comprehension of the multimodal nature of videogames is important since it highlights the necessity of approaching these artefacts using methods that afford an overarching view towards the object of study rather than favouring specific elements over others. This current research will follow this tradition, approaching (the) games (produced by participants) as 'multimodal ensembles' (Beavis and O'Mara, 2010; Jewitt, 2013) organised through orchestrating modes (Burn, 2013).

Another valuable insight comes from Dezuanni (2010). Reflecting about his experience in organising an immersive unit on videogames to promote critical media literacy, Dezuanni (2010) remarks on the unpredictable nature of digital media literacy projects. The social and cultural contexts where making happens are influential in terms of what will be produced, and how this production will occur. It is possible to link the influence of the context noticed by Dezuanni to the one described earlier by Pelletier (2008). Even if the nature of the artefacts analysed was different – reflective critical blogs about one's own gaming experience in Dezuanni, videogames produced by the participants in Pelletier – the contexts where these texts were inserted influenced how makers elaborated their productions, both in relation to the selection and appropriation of semiotic resources and in how these resources were made intelligible to their audience.

This intelligibility, however, is one of the reasons for the unpredictable nature of media production experiences, since production processes are subscribed to a specific discourses (Gee, 2015). Dezuanni, O'Mara and Beavis (2015) remark the impact of the 'social turn in literacy research', which acknowledged the role of texts and other literacy practices – such as making games – in identity construction. When one produces a specific text and chooses to whom and how it will be intelligible, one is assuming specific (cultural, social) positions. This approach helps us to understand how games and other texts produced in these non-professional, non-mainstream spaces can be read: rather than assuming any use of a convention or normative aspect as an uncritical reproduction, we must first understand the position assumed by the author, and then try to unpack why this certain position might have been assumed.

Allowing people to produce their own games is, to some extent, to give them voice to position themselves in the world, and this empowering idea often underpins the establishment of game-making spaces. That is the case, for example, of the initiative carried out by Peppler and Kafai (2007a, 2007b) named *Computer Clubhouse*, an informal after-school programme for underprivileged youngsters to promote design environments to tackle the participation gap[8] (Peppler and Kafai, 2007b; Jenkins *et al.*, 2009). Here, it is possible to identify in this initiative a clear democratic principle, enabling a group of participants perceived as excluded to critically engage with videogames. According to the authors, in order to democratise digital culture (and, more narrowly, gaming), three main issues must be tackled: 'the participation gap, the transparency problem and the ethics challenge' (Peppler and Kafai, 2007b, p. 1), and practical, non-mandatory activities were seen as one of the ways of overcoming these challenges.

The construction of a free design space, where participants can explore, learn and collaborate can help them not only to develop the needed technical skills to produce artefacts, but also to 'learn about, question and rewrite power structures found in dominant commercial texts' (Peppler and Kafai, 2007b, p. 2). This vision embodies, to some extent, the media literacy argument that permeates the projects analysed here: technical – knowing **how to** do something – and critical – knowing **why** and **about what** do something – skills should walk hand-in-hand if we want people to be able to engage meaningfully with meaning-making forms.

Peppler and Kafai (2007b, 2007a) explored the progression of these technical and critical skills through a "progressive" method: besides using observation and interviews, they also collected

[8]Defined by Jenkins and colleagues (2009, p.3) as 'the unequal access to the opportunities, experiences, skills, and knowledge that will prepare youth for full participation in the world of tomorrow'. It refers to the impact that not having access to digital media might have in individuals, especially in societies in which digital practices become progressively more ubiquitous.

different versions of participants' productions on a weekly basis, generating then a game archive. In doing that, they were able not only to explore participants' previous experiences and cultural preferences, but also to investigate the evolution of their products, tracking how ideas emerged, were developed or vanished throughout time. This kind of data afforded a richer path for tracing the evolution of skills and of ways of engaging with different concepts during the analysed period. Since this project aims at investigating complex phenomena that are not necessarily stable – how identities are constructed and mediated by cultural and technical elements – it seems reasonable to follow Peppler and Kafai's (2007b) strategy, constructing a "design archive" to map how ideas shifted throughout participants' experiences with game-making.

Another remarkable difference in this project was the role of collaboration among peers. Where this was also a crucial part of some of the works discussed before (Burn and Durran, 2007; O'Mara, 2017), here we notice the influence of the recent focus on the social in the constructionist movement, which sees collaboration as one of the key tenets of making and learning (Kafai and Burke, 2016). Peer-to-peer tutoring supported by adult facilitators was one of the strategies used to foster these collaborative skills (Peppler and Kafai, 2007b), and this scheme yielded relevant results in terms of cultural, critical and social aspects. The use of this peer-to-peer strategy was also seen as an opportunity for the researcher to access interaction dynamics and other ideas that might not become materialised in the final product. A collaborative approach meant that participants must communicate (e.g. verbalise) their thoughts among themselves, and this verbalisation can open opportunities for the discussion of unimplemented ideas. Therefore, this project also adopted a peer-to-peer collaboration stance, in order not only to create a more pleasant space for participants, but also as a research strategy that favours the access to ideas and conceptualisations that might not be materialised in the artefacts produced.

To illustrate these results, Peppler and Kafai (2007b) used a participant – Jorge – as a case study: they described how, in two years, he moved from a quiet and shy participant to a confident and helpful tutor for newcomers. Jorge's participation did not just change in terms of his confidence to participate in the group, but he also became more fluent in technology and cultural use of videogames (Peppler and Kafai, 2007b).

His production, *Metal Slug Hell Zone X,* is an example not only of his technological prowess in coding in *Scratch*, but also of the resignification of conventions discussed above. *Metal Slug*[9] is a

[9]It is currently a series of games produced for multiple platforms, whose last original game, *Metal Slug 7*, was launched in 2009. There are also several *portings* (versions) of the original game to modern platforms, such as PlayStation 4 or Xbox One.

commercial run-and-gun shooter game, in which the player has to battle against several and progressively stronger enemies. Jorge's game, although inspired by this original game, presents a very different message: while assets – e.g. character, environments – are the same, the gameplay was considerably diverse. Instead of shooting and dodging bullets, *Metal Slug Hell Zone X* presented no enemies to battle with, just a space to be calmly explored by the player. Here, despite starting with a known text as inspiration, Jorge went on to subvert it to construct new meanings. Rather than focusing on fast-paced action, contemplation and exploration. He established a relationship between his and the original game, but rather than a mere imitation – an important resource in learning, it must be said (Buckingham, 2003) – it is a new set of meanings, invoked by the parodic title (*Hell Zone X*) and the new set of rules and mechanics in the ludic mode (free exploration rather than combat).

Jorge's explanation for his version of *Metal Slug* reinforced the potential of this cultural, critical, and creative approach to making games. He considered *Metal Slug Hell Zone X* as a metaphor for his experience in the Computer Clubhouse, a space where he was able to explore technology and calmly connect with himself (Peppler and Kafai, 2007b). This can be understood, to some extent, as an indication of the possibilities from making artefacts to the promotion of reflective experiences, which might in turn lead to the raise of critical consciousness (Freire, 2000).

Jorge's case then summarises the power of making games in non-mainstream, non-professional contexts. It can work as a space for the reflection about the nature of games, to connect with technology and develop skills, but, most of all, as a space to reinterpret and produce new meanings. The examples discussed above highlight the role that making and reflecting about games can have in the production of a critical mass for games and can be seen as a path for challenging hegemonic forms of organising gaming culture. The goal here, as discussed before, is not provide professional training for individuals, but to 'open the black box' of gaming and, more broadly, of digital technologies (Peppler and Kafai, 2007b, p. 6), democratising the field.

Final thoughts

> DIY production provides opportunities for personal expression, creativity, and critical reflection on media culture, expressed through visual instead of oral or written discourse, and allows youth to reflect on their knowledge of culturally meaningful texts and dominant discourses and formulated [sic] a response through their work (Kafai and Peppler, 2011, p. 114).

In this project, I am interested in how young people can use game-making to construct different identities through the appropriation of different semiotic resources, from discourses to technical affordances and constraints. In the quote that opens this subsection, Kafai and Peppler argues that DIY production offer possibilities for this kind of personal expression; nevertheless, as discussed throughout this chapter, it would be a mistake to consider that **any** kind of DIY practice can lead towards this goal.

In this chapter I criticised the rationale behind the mainstream maker movement, often linked to a corporate agenda and neoliberal individualistic logic (Vossoughi, Hooper and Escudé, 2016). This rationale, which leads, among other, to the favouring of specific practices seen as more profitable – such as robotics – over other (Vossoughi, Hooper and Escudé, 2016), also sustains a logic that sees DIY media production more as a means to develop important technical skills, such as coding, than as a cultural practice, as found in most of existing research (Papavlasopoulou, Giannakos and Jaccheri, 2017). This limiting approach is also frequent in game-making, reducing it to a mere introduction to programming (Gee and Tran, 2016; Jenson and Droumeva, 2016), ignoring the important role played by digital games in contemporary culture (Muriel and Crawford, 2018).

To achieve the goals stated by Kafai and Peppler in the opening quote, digital media production or, more specifically, game-making, must acknowledge its dual heritage. It should recognise that there are technical skills such as coding involved in the production of digital games but should also acknowledge that games are cultural forms and, as such, are subjected to discourses, power relations and, more important, that they can communicate meanings. Therefore, a Media Education approach, which acknowledges critical analysis and critical making as two sides of the same coin. Critical and technical skills should be developed simultaneously and, as explored through the previous examples, this process can allow young people not only to critically engage with media forms – such as digital games – in theoretical terms, but also to appropriate and resignify meanings through making.

This process, however, is by no means simple. It requires a significant work with people, to foster these critical and technical skills and to understand their realities. Since media production is heavily contextual, it is important, in any kind of initiative that involves a critical media approach, to reflect about the contexts where these activities and participants are inserted. This explains why most projects discussed here lasted a considerable amount of time: comprehending who your participants are and their realities is not a simple task and requires time and trust.

In this scenario, it was my intention in this project to follow the path laid by some of the researchers discussed here: to understand how young people can make use of their previous experiences, discourses, technical affordances and constraints to construct different identities. How do they resignify other texts? How important are the constraints and affordances offered by the selected software? How do they make sense and articulate cultural, social and technical influences in their productions? In the next chapter, I will discuss the theoretical framework underpinning this project, further elaborating the key concepts that I employed in this research endeavour.

Chapter 3 – Identities, Cultures, Platforms: Key Concepts

In this study I investigate how young people outside established game development circuits appropriate cultural and technical influences when making games. In this chapter, I construct a conceptual framework – a network 'of interlinked concepts that together provide a comprehensive understanding of a phenomenon' (Jabareen, 2009, p. 51) – that brings together Multimodal Sociosemiotic approaches to discourse, identity, lived experiences, Bourdieu's work on field, habitus and taste, and Platform Studies. Here, these concepts are explicated and their contribution towards the study's conceptual framework is explained, and their relevance to the investigation is made apparent.

The conceptual framework constructed here begins in culture. In this research, culture is understood as a 'system of meanings' (Mayra, 2008, p. 13) shared among a group of individuals, allowing for a particular flow of communicative processes. This has several implications. Firstly, if culture is understood as system of meanings, this supports the idea of the existence of multiple cultures: different systems of meanings can coexist and even be contradictory. Secondly, if adopting a dynamic stance towards meaning-making, as done by Multimodal Sociosemiotics (Kress and Van Leeuwen, 2001a), where a sign is never used but always made (Kress, 2010), cultures are then not static, but unstable, negotiated, context-specific ensembles (Penix-Tadsen, 2016).

It is in culture – these unstable, negotiated, context-specific systems of meaning – that two of the central elements of this research, discourses and identities, exist. Discourses are understood here as ways of producing and organising meaning about the world (Kress, 2010). Discourses are always contextual, therefore, grounded in certain systems of meaning, and depend on the semiotic resources available for meaning-making to "be realised" (Van Leeuwen, 2004) to become tangible and interpretable by others.

Discourses, when realised, are implicated in the construction of identities. Here, I understand identity as a temporary, unstable and malleable cultural position (Hall, 2000) that emerges from the negotiation between the meaning made by someone and the interpretation of that realised discourses by others. In that sense, identities – the result of an engagement with and realisation of discourses – work in order to culturally stabilise these individuals, situating them in the cultural landscape and rendering them (more) understandable to others.

Discourses and identities are subject to contexts, including the conventions and norms that regulate what can be said, and who can say what within these contexts. But how do we navigate

these contexts? How do we choose the means to produce meaning? Answers to those questions depend, again, on culture.

Throughout our life, in the different encounters with different systems of meanings, we accumulate experiences. These experiences can be organised in specific sets, relevant to specific contexts. In this study I understand these smaller sets as different 'repertoires', following Canclini (2001). Repertoires underpin how and what discourses will be invoked to convey meaning during diverse practices, including game-making. Previous experiences with digital games, for example, such as the games participants have played or the conversations they usually have with friends about videogames, constructed specific gaming repertoires, and these repertoires will mediate each participant's view of what a digital game is, who play them and what it is normally consisted of.

Repertoires, however, are not all the same. I do not say this to reiterate that individuals are diverse and, as such, have diverse preferences (which is true), but to state that repertoires are given different values by different cultures. This means that specific kinds of repertoires (e.g. a vast knowledge on tabletop RPGs and fantasy literary texts) might be seen as more valuable than others in a specific context but ignored or considered of reduced value in other contexts.

There is usually an alignment between specific repertoires and contexts, but this "alignment" not only depends on the intention of individuals in that context. It is also linked to certain power relations that organise the relationship between those acting in a context (for example, in digital games), generating specific conventions that become naturalised within this context. In the case of digital games, some conventions – such as the normative player as a young male (Shaw, 2013; di Salvo, 2016) – can be connected to powerful actors in this context, such as the games industry (Fron *et al.*, 2007), culminating in a set of naturalisations often named as 'traditional gaming culture' (Kafai and Burke, 2015).

These power relations that organise conventions within digital games can be understood as hegemonic in the Gramscian (1999; Cassar, 2013) sense. There is an evident power asymmetry between different actors, but these relations are not simply imposed in a top-down fashion, with some negotiation between hegemonic powers and subaltern agents – or between industry and players, or between gamers and non-gamers. Digital games are a site of struggle, where meanings and conventions can be challenged and subverted, even if the means for carrying out these challenges and subversions, such as marginal game-making, are asymmetrical and often reappropriated by these hegemonic forces (Harvey, 2014; Harvey and Fisher, 2015).

These hegemonic relationships within digital games are easily noticeable when one adopts a cultural perspective towards the context being investigated (e.g. game-making). Nevertheless,

as discussed at the beginning of this chapter, in digital media "culture" and "technology" are entangled and, as such, looking at these ideas around repertoire, capital, field and conventions should also include reflections about its technological aspects.

Breaking the artificial dichotomic boundaries between these cultural and technological aspects supports then a relevant standpoint adopted in this work: hegemonic relationships in a field can generate conventions not only in cultural perspectives, but also in technical developments. For example, the field of digital games, where most productions were historically constructed around the simulation of physical activities (e.g. running, fighting, playing sports), saw the development of different techniques to detect and simulate collision between game agents in early gaming platforms, such as the Atari 2600 (Montfort and Bogost, 2009). This resulted in the normalisation of a link between collisions (technical aspect) and the optimisation of game development environments to cater to specific game design themes (cultural aspect), generating then specific gaming conventions that would be carried further in the history of game development (Flanagan and Nissenbaum, 2014). Technologies, therefore, are also cultural in the sense that they are also subjected to specific systems of meaning and to the emergence of conventions.

This brief reflection on the partial and conventional nature of technologies not only rejects their apparently rationality and neutrality (Grimes and Feenberg, 2013), but also reinforces the importance of acknowledging entanglement between "culture" and "technology" for digital games. This means that, since they are entangled, both layers are subjected to the hegemonic relationships. But what does being subjected to these hegemonic relationships entail? How do these conventions that emerge as the result of hegemonic relationships in digital gaming influence young people's game-making practice?

In the context of this study, where participants are outside the main gaming circuits and have diverse repertoires, my hypothesis was that these young people were going to engage with the game-making experience in varied ways. In other words, participants could bring repertoires that were more or less aligned to digital games; in addition, they could adopt different approaches when invoking these repertoires, trying to fit into conventions (cultural, technical or both), or assuming more antagonistic standpoints. But how to explore these participants' varied uses of their repertoires in their game-making practices, from a methodological perspective?

I approached this question by trying to comprehend their participation in the game-making experience proposed in this project through the lenses of identities. Nevertheless, since I am assuming an entanglement between culture and technology within the field of digital games, I

cannot ignore that the communication these "ways of organising meaning in the world" – the realisation of discourses – are also subjected to the technical means afforded by the mediating technologies employed to produce their games. In the context of this project, I then expected, inspired by ideas from Platform Studies (Bogost and Montfort, 2009; Montfort and Bogost, 2009; Apperley and Parikka, 2018) that the use of the a specific software, in this case, *MissionMaker,* would also influence their engagement with specific discourses and, consequently, the construction of identities when producing their games.

This brief introduction to the main concepts of my study presented several gaps, especially in relation to how these concepts will be operationalised in the sequence of this research. Therefore, in the following subsections, I will organise then the conceptual framework that was adopted in this research.

Outlining Main Concepts: Discourses, Identities and Repertoires

Discourses and identities are central concepts to this study: as described earlier, my main goal is to explore the identities constructed by young people through game-making. To define identities, however, I must take a step back and define how I understand discourses. In the context of this research, discourse is not a synonym to speech. I am approaching discourses through a Sociosemiotic perspective, as 'socially constructed knowledges of (some aspect of) reality [...] developed in specific social contexts, and in ways which are appropriate to the interests of social actors in these contexts' (Kress and Van Leeuwen, 2001a, p. 5).

Discourses, therefore, are cultural in the sense defined earlier in this chapter: they are directly related to the use of specific semiotic resources[10] within a specific context, have a history and are socially distributed (Van Leeuwen, 2004). Kress (2010, p. 110) reminds us that discourses are always produced 'from an institutional position', offering forms of representing the knowledge produced by these institutions[11] in relation to the context relevant to these.

Discourses are non-determinative representational resources: we can invoke them to represent specific aspects of a reality, but the mere summoning of a specific discourse does not define what can and what cannot be said about that specific aspect of reality (Van Leeuwen, 2004).

[10] Semiotic resources are the actions, materials and artefacts we use for communicative purposes, whether produced physiologically [...] or technologically [...] together with the ways in which these resources can be organised. Semiotic resources have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualised in concrete social contexts where their use is subject to some form of semiotic regime. (Van Leeuwen, 2004, p. 285)

[11] Kress (2010, p. 110) uses 'education, medicine, science, and family' as examples of 'institutions.

Another important aspect of this representative nature of discourses is that they pre-exist their realised form, being then reasonably free from materialised constraints.

Focusing in a specific discourse in a specific context, such as misogyny in digital games, it is possible to illustrate what I understand as discourses in this study. The non-determinative representational nature of discourses means that if I want to represent a specific aspect of a reality, such as challenge the naturalised masculinity often assumed by digital games, I must firstly engage with the existing instances of the discourses that I am familiar with – the historic-cultural nature of it described earlier – and use this knowledge to represent my standpoint. This engagement with the discourse, however, does not determine what I am going to "do" in relation to these aspects of reality: a discourse about misogyny in digital games can be realised via game mechanics that punish players that choose female playable characters, or the lack of female options as avatars, for example. It is in this sense that Van Leeuwen (2004) affirms that the same discourse can be affirmed in many ways: this refers not only to the specific design and production possibilities of "materialising" a discourse through specific modes – via speech, written text, gestures, etc. – but also in relation to the kind of meaning that will be produced (Van Leeuwen, 2004). To sum up, a discourse 'offers meanings to be realized; it shapes the world of knowledge as ideational "content"; and provides a social-conceptual location' (Kress, 2010, p. 114).

It is in the realisation of discourses, in the communication of specific realities of the world, that we construct identities. In this study, they are not clear-cut, stable ensembles, but dynamic, fluid and socially negotiated (Giddens, 1991; Hall, 1992; Canclini, 2001; Segal, 2008; Adami and Kress, 2010); they are temporary social constructs (Hall, 1992; Weber and Mitchell, 2008; Shaw, 2014) which can be easily adopted or disregarded (Potter, 2012) and are often contradictory (Hall, 1992).

Identities are here understood as the temporary cultural positions that emerge from the interpretation of realised discourses. This means that identities are always constructed by someone in relation to others (Hall, 2000). Earlier in this subsection, I used the example of misogyny in digital games to illustrate how discourses are conceptualised in this study. The result from this engagement with and further realisation of a discourse – e.g. the production of a game where players with female avatars are punished – leads towards an articulation of a specific identity, which could be that of a misogynist, as long as the interpreter can recognise that realised discourse. This identity is meaningful since it allows us to better understand this hypothetical individual – where she sits in relation to the field in question – by comprehending how she engaged with a known discourse in a specific context.

This process of identity construction through the realisation of discourses is not confined to "traditional" forms of meaning-making, such as speech or written text. Canclini (2001, p. 20), for instance, remarks how capitalist consumption can be employed as a means to identity construction: '[...] when we select goods and appropriate them, we define what we consider publicly valuable, the ways we integrate and distinguish ourselves in society [...]'. Carr (2005, p. 478), in a similar vein, argues that 'our preferences reflect what we know, who we know, what we have tried, or tired of, and what we will admit to'. These views are akin to the 'curatorship of the self' (Potter, 2012; McDougall and Potter, 2015; Potter and McDougall, 2017), which describes how young people appropriate different media forms and texts within digital environments, constructing temporary cultural ensembles and, through these ensembles, realise specific discourses and situate themselves as individuals in different contexts.

This example of consumption as a means to identity construction might give an idea that this process would be considerably chaotic and free, as if anyone could realise any discourse and claim any kind of identity. There is, however, certain logic for this process, and to understand that, we must remember that discourses – and, by consequence, identities – are contextual. To better understand this logic, however, we must reflect about how we operate (how we make and interpret meaning) within specific contexts.

My argument here is that we have a pool of experiences that we access when we are operating in specific contexts, which I, after Canclini (2001), call here repertoires. Repertoires can be understood as the combination of our experiences within different contexts and can be invoked not only to afford the engagement with specific discourses within a certain field, but also to support the sign-maker's production of identity. In other words, a repertoire can be invoked to determine the best way to realise a specific discourse within a specific field: is a game mechanic better than a popup with a meme the best way to realise a fan discourse in game-making? To take this decision and communicate the meaning, one will rely on her previous experiences, both in relation to the materialisation of that specific discourse within the field – e.g. what is culturally expected from fans within digital games? – and in relation to the realisation of that discourse outside that field – e.g. what means to be fan? This means that repertoires can be invoked across fields. One who might not have several gaming experiences, but is asked to produce a game, might use other aspects from her repertoire (other media experiences, such as her knowledge about films) to make sense and operate within that reasonably unknown field.

Even if repertoires ("natural" or "imported") can be used as resources for organising our process of discourse realisation, we are still subjected to specific contextual norms. Butler (2009, p. iv), for instance, claims that 'to be a subject at all requires first complying with certain norms that governs recognition – that make a person recognisable'. This means that our

identities must be intelligible, and this can only be achieved by being subjected to contextual norms. To understand the relationship between discourses, identities, repertoires and the norms that regulate them within a specific context, I will engage with an example briefly discussed in the previous chapter.

In Chapter 2, I discussed Pelletier's (2008) articulation between conventions and intelligibility through her analysis of gender in young people's game-making. To construct her arguments, she used the game produced by Alice, a participant in her study, as an example. Alice was a prolific player who designed a game that she thought it would be perceived by other participants as "more adequate" for a girl. She selectively ignored her main gaming repertoire, composed by fast-paced platformers (not adequate to a girl, according to a conventional, stereotypical view of gaming), in favour of a slow-paced mystery-type game. This stereotypical view towards gaming – the tacit norms that ruled that context in that moment – led her to selectively ignore her gaming repertoire when designing her game, since producing a game that was more "girly" could have been seen by her as the only way of realising a discourse about femininity through game-making and, consequently, of having her identity as a girl hailed by others in that moment.

Alice's example shows how contextual conventions can be highly influential in what kinds of meaning are made by different people. The existence of these norms means that, within a context, specific discourses and their realisations are not all the same in terms of acceptance, but some might be seen as more valuable than others, while certain discourses might not even be realisable in specific contexts.

This selectivity in relation to repertoires and discourses (and, consequently, identities) can be dimensioned through Butler's (2009) aforementioned ideas about intelligibility and subjection to contextual norms. It is in that sense that she discusses the "domains of the sayable" (Butler, 1997, p. 133): 'The question is not what it is I will be able to say, but what will constitute the domain of the sayable within which I begin to speak at all'.

Even if here I am extending her notion of speech to a broader notion of discourse realisation and interpretation, Butler's ideas are useful since she clearly identifies a crucial question for this work: when we enter a context, we must become subjected to its norms, and these norms can limit our expressive possibilities, such as it happened with Alice in the example above. Since I am interested in the identities constructed by young people through game-making, it becomes important to reflect about how these "domains of the sayable" rise, operate, and how influential they are in relation to participants' productions, and this will be discussed in the following section.

Logic, Capitals and Habitus: A Bourdieusian Reading of the Field of Digital Games

One way to approach these contextual norms is through Bourdieu's (1984, 1991, 2014; Wacquant, 1989; Bourdieu *et al.*, 2014) theory. In this study, the term 'context' (Kress and Van Leeuwen, 2001a) consistently employed in the previous subsection is understood as what Bourdieu names as 'field': 'a structured system of social positions' (Jenkins, 2015, p. 53) and a 'system of forces which exist between these positions' (Jenkins, 2015, p. 53). The power relations between different positions within a field are determined by their access to the stakes in the field, or capitals (Bourdieu, 1984). A field, therefore, is a site of social struggle, where agents – individuals, institutions – compete for these capitals. A field depends on legitimacy, something achieved when agents recognise the value of the capital at stake in the field, and this legitimacy is responsible for perpetuating interest in the field (Jenkins, 2015).

In this project, I understand digital games as a field in the sense defined by Bourdieu. Different agents – individuals, companies, institutions – compete for the different capitals at the stake within the field. It is important to remark here that this does not only refer to "economic" capital – something evident considering how commercial aspects are important for digital games as sociocultural artefacts and gaming as a practice (Shaw, 2013) – but also in relation to other three forms of capital listed by Bourdieu (1984): social capital, the network of relationships between an agent and others in the field; cultural capital, how much knowledge that is considered valuable in the field an agent possess; and symbolic capital, representing prestige within the field. Based on Bourdieu, Consalvo (2007) coined the term gaming capital, which is useful to explore not only how the field of digital games is shaped by agents to be experienced in certain ways, but, more importantly, to understand how different individuals engage with and "exist" within the field, and how other agents read their existence.

As the use of the term "capital" hints, a field is ruled by a logic that is similar to that of contemporary capitalism: it follows what Canclini (2001) defines as the 'logic of the market', that of struggles and limited supply of economic transactions. Agents are competing for resources and stakes, but these are limited, and the accumulation of those will yield different results, such as more prestigious positions. Canclini (2001) and Bourdieu (1984) present a similar argument when they describe this struggle for capitals within fields: these struggles are not necessarily 'for the means of production and satisfaction of material needs' (Canclini, 2001, p. 40), as in classic Marxism, but are for 'the appropriation of the means of symbolic distinction' (Canclini, 2001, p. 40), which will allow the owner of such distinction more possibilities of action within the field (e.g. an important youtuber can transform her symbolic

capital into social capital to expand her network, for instance, achieving then more symbolic capital).

This notion of distinction leading towards more possibilities of action within a field can be understood through taste (Bourdieu, 1984), the idea that some preferences are inherently better than others or, in more coherent terms, that some preferences are more valuable (as a cashable type of capital within a specific field) than others. Playing a trending game such as *Fortnite* online in a PS4, for instance, yields more gaming capital than playing *Candy Crush Saga* in a phone during a bus journey.

There is a direct relationship between taste and repertoires, which maps the possibilities of an agent within a field. To understand this relationship, the notion of aligned repertoires is useful. An aligned repertoire is one that is constituted by experiences that are considered more valuable within a field, yielding, consequently, more capital and more possibilities of action within that field. An aligned repertoire allows the agent to recognise which discourses – and which ways of realising these discourses – might be considered more valuable within a field and use these resources to carry out this practice, if it is in her interest.

Although the relation between field, capitals and taste becomes clearer through Canclini's notion of struggle for symbolic distinction, it is still not clear how the rate of capitals (what is valuable, what is not) within a field is established. To explore these questions, we must return to our main example: the field of digital games.

The current standards used to measure gaming capital are often the result of player culture, academically dubbed as 'traditional gaming culture' (Kafai and Burke, 2016). To better understand this 'traditional gaming culture', we must understand what would be a "gaming culture". Muriel and Crawford (2018, p. 19) defines it as 'the institutionalization of video game practices, experiences, and meanings in contemporary society, which places video games and video gaming as an important part of our social imaginary'.

This process identified by Muriel and Crawford led towards the construction of a social imaginary or, in other words, a naturalisation of certain practices and meanings in relation to digital games. One of these naturalised assumptions is the idea that digital games have a "core audience", often symbolised by the figure of the 'gamer':

> When talking about who plays video games, there is often a type of gamer that is held up as the traditional video gamer. These are generally people that openly identify as "gamers" or "hardcore gamers". The stereotype of these gamers is that they are young, male, White or Asian, socially awkward, and willing to devote large

> amounts of time to playing complex first person shooter, roleplaying or strategy video games (di Salvo, 2016, p. 105)

The 'gamer' was also shaped in relation to some specific traits, such as which kinds of game that should be played, how much time should be dedicated to it and how much money is spent in videogames (De Grove, Courtois and Van Looy, 2015). Being a gamer does not only mean to play a game; it means playing the correct game, in the correct platform, and in the correct manner (Kafai & Burke, 2016). But how is this logic of the field constructed and reinforced?

Shaw (2010, p. 404) reminds us how 'writers usually treat the actual definition of the term [video game culture] as common sense', as if being a 'gamer' in these aforementioned parameters had always been the natural way of engaging with videogames. The power of Shaw's statement becomes clearer if we understand her use of the term 'common sense' in the Gramscian sense, as underlying ideological impositions that shapes our everyday life (Cassar, 2013).

'Common sense' then should not be treated in a naïve way, as if it were free of values. In this specific case, the ideological bases laid by this 'traditional game culture' will in turn generate a feedback loop:

> Today's hegemonic game industry has infused both individuals' and societies' experiences of games with values and norms that reinforce that industry's technological, commercial and cultural investments in a particular definition of games and play, creating a cyclical system of supply and demand in which alternate products of play are marginalized and devalued. [...] This hegemonic elite determines which technologies will be deployed, and which will not; which games will be made, and by which designers; which players are important to design for, and which play styles will be supported. (Fron *et al.*, 2007, p. 1).

According to Fron and colleagues, the control over the field of digital games – of its contextual norms and capitals – is exercised by a hegemonic game industry, which naturalises, for example, the gamer discourse, based, among other things, in consumerism (Shaw, 2013) while alienating alternative, antagonistic ones (Harvey, 2014). While their critique is important to reflect about the nature of power relations within the field of digital games, Fron and colleagues seem to overplay the role of the industry in shaping the norms of the field. It seems clear that the industry 'infuses values and norms' in agents' experiences of digital games, but I argue that this process is more nuanced than that described here. Bourdieu's concept of habitus might present a better path to understand these norms and their influences in the discourses (and, consequently, identities) in the field of digital games.

Habitus is an embodied set of dispositions and schemes that organises and is reified by practices within a specific field (Bourdieu, 2014). The habitus would be learnt – or, in Bourdieu's term, inculcated – both through lived experience and teaching, and would be internalised by individuals, becoming a mediator of our practices throughout our social lives. This internalisation process leads towards the naturalisation and legitimation of sociocultural conventions, imposing certain systems of meaning over specific groups and obscuring the power relations that sustain this imposition through a process dubbed as symbolic violence (Bourdieu, 1991; Bourdieu *et al.*, 2014). The habitus, it is important to remark, is not the same as the field's logic – which is imposed through power or, in Bourdieu, through symbolic violence (1991) – but is the internalised set of dispositions generated through the interaction with these norms. The habitus, therefore, is not completely imposed via power; it is taught by power, and agents operating in the field are the responsible for maintaining it.

By engaging with the field of digital games, where being a gamer is naturalised through the realisation of the gamer discourse, we are internalising these naturalisations (or conventions) as a habitus. According to Bourdieu, when we operate within a field (such as digital games), we will invariably invoke these naturalisations, and these will influence how we perceive specific discourses and, consequently, which and how discourses will be realised – what identities will be constructed. This is identified in the example discussed earlier (Pelletier, 2008): it is possible to argue that Alice internalised, throughout her experience of digital games, that she is a girl, therefore, she cannot make games that are not "girly" **and** be hailed as a girl.

This means that, in relation to digital games, habitus can shape the kinds of games that are produced and, to some extent, how games are related to (popular) culture in general. From the dissemination of implicit biases, such as sexism, racism and the stereotypical depictions of cultures (Flanagan and Kaufman, 2016), to the conservative view of games as separated from mundane questions (Shaw, 2010; Condis, 2014), mainstream digital gaming acquires and reifies an exclusionary nature (Harvey and Fisher, 2015), prioritising specific discourses while making others inviable – outside or within very limited parts of the 'dimensions of the sayable' (Butler, 1997).

Although a significant concept to understand how these contextual norms influence our experience and engagement with a field, habitus has been criticised as a concept due to its overdeterministic nature: agents would be fated to reproduction (Bourdieu *et al.*, 2014), always maintaining the status quo. Extending this critique, Bottero (2010) argues that Bourdieu fails to acknowledge that practices – the production of meaning within fields, the realisation of discourses – emerge not only from the relation between agents' habitus and objective conditions within a field (the kind of experiences that will form repertoires), but also as the

'outcome of the negotiated relations between variously disposed individuals' (Bottero, 2010, p. 14). Here, the key seems to be to understand that the habitus operates not only in relation to agents' dispositions towards the field, but also among agents. This intra-agent relationship becomes clear, for instance, if we incorporate Butler's (1997, 2009) concept of 'intelligibility', since discourses are realised within a field – therefore, under the influence of a specific habitus – but **for** other agents.

This understanding of habitus as intersubjective – between agent and field **and** agent and other agents – opens space to explore the cultural horizons that circumscribe the pool of actions defined by the habitus (King, 2000). This conception of different cultural horizons mediating the relationship between discourses and identities is an important theoretical concept for the development of this research. On the one hand, it allows us to understand that the previous experiences of individuals (their repertoires) organise a universe of possibilities for them. These possibilities, however, are not necessarily definitive, and individuals have a certain degree of agency to, reflectively, engage with them, eventually leading to different discourses and the production of different positions, not necessarily those "more logical" according to the habitus of the field.

A final aspect is that these positions are not only invoked or produced in relation to the field, but they are produced in relation to the Other, therefore remarking the essentially dialogical nature of this intersubjective habitus in shaping the realisation of discourses. This entails that a specific field's norms and the habitus might not be as determinative as in Bourdieu's theory. There is, after all, space for agents to reshape the norms of the field through, for example, ironic instantiations of conventions within a masculinist discourse, leading towards a more reflective stance towards this naturalisation and, eventually, to its subversion. This reshaping of conventions is also acknowledged by Multimodal Sociosemiotics (Kress, 2003, 2010; Pelletier, 2008), since it recognises that a sign (therefore, meaning) is never used, but always made, and that meaning-makers can appropriate and resignify conventions according to their own realities.

This is why digital games are better understood as an hegemonic space in the Gramscian (1999; Cassar, 2013) sense. Through a Gramscian perspective, it is possible to maintain the political sides of the struggle for meanings in digital games. It acknowledges not only the power asymmetry between industry and the game-makers involved in a study such as this, but it also affords possibilities to move beyond the depoliticised views about diversity and accessibility used to frame activities such as the one carried out in this study (Harvey, 2014), recognising the role of power in shaping the imaginaries around gaming.

In this section, I relied on Bourdieu to articulate different conceptual tools to explore the organisation and dynamics of a field such as digital games. These concepts – field, capitals, taste, habitus – help me to understand why specific discourses thrive in a specific context, as well as to articulate the notion that repertoires might be more or less aligned to the norms of the context, and how these different alignments might yield different possibilities (and different capitalisable) results. This discussion, however, focused mostly in a single side of the coin, working mostly within the layer of "culture" (Manovich, 2002) of digital games. However important and relevant these are, we cannot ignore that they are not the only influential aspects in relation to the repertoires that can be invoked or kind of discourses that can be realised in digital games: as digital artefacts, games are dependent on platforms and software where they are produced and experienced. Moreover, we cannot ignore that these technical aspects, which might seem, at a first glance, merely based on rational and neutral technology, are also influenced – and influential – in cultural terms. In the following section, I will turn my attention to technical aspects involved in digital game-making, focusing specifically on how they are also part of this intricate web of factors that shape identities in digital games.

Games as new media: Technology and Power

Digital games can promote specific experiences (Anthropy, 2012) and, within these experiences, realise specific discourses. Studying games, therefore, can be a path to understanding deep sociocultural patterns embedded in our societies (Flanagan and Nissenbaum, 2014). To understand these patterns, however, we must explore a more complete account of these game-based communicational processes should focus on the whole apparatus that supports a game's existence. Flanagan and Nissenbaum (2014), for example, argue that games can communicate values through three different hybrid layers: expressive – e.g. graphics, narrative, music –, ludic – e.g. rules, winning conditions – and technological – e.g. game mechanics, engines, hardware, code. In that sense, to understand how discourses are realised in digital games, we have to investigate not only the layers that are 'generally visible', namely, 'art form and game', but also the opaque layer of technology, often ignored due to a naïve approach that sees technology as neutral (Flanagan and Nissenbaum, 2014, p. 9). This naïve approach is also challenged by Manovich, who reminds us about the power relations – and its hegemonic consequences – in the production of technologies, reinforcing that they are not neutral, value-free or intuitive:

> [...] the practices of computer programming are embedded within the economic and social structures of the software and consumer electronic industries. These structures impose their own set of constrains and prerogatives on the

> implementation of hardware and software controls, options and preferences [...] (Manovich, 2016, p. 223).

Technologies, therefore, are subjected to logics where different forces are in motion, and where some specific values and ideologies are favoured. But how to investigate these values and ideologies? How to avoid this flawed naïve approach towards technology? One way to move away from the conception of technology as neutral and to uncover its values is through the Critical Theory of Technology (CTT) (Feenberg, 2002; Grimes and Feenberg, 2013), understanding technology 'in terms of a larger system, a lifestyle, a collection of social values, meanings and cultural cues, some of which become inscribed in technological design' (Grimes and Feenberg, 2013, p. 123). What is relevant from this perspective is that it not only allows us to investigate how these values are going to mould users[12] by representing and favouring specific interests and rejecting other. For CTT, technology is inherently a site of struggle in the Gramscian sense (Gramsci, 1999; Cassar, 2013), where hegemonic forces express their values through technological design strategies, and subaltern groups can answer by exerting some pressure in order to influence these design processes and future forms of technology (Feenberg, 2012).

In order to understand this struggle, three core concepts of CTT are relevant. The first one is the idea of 'formal bias' of technology: it is as if the social, political and economic conditions of the context where a particular technology was produced were 'imprinted' in the technology itself, including the biases of this specific context (Grimes and Feenberg, 2013). These biases are not only determined by the technical capacity of the technology itself; social factors – including the exercise of hegemonic struggles – play a crucial role both in the development and the finality of technologies. The recent examples of sexist (Oppenheim, 2018) or racist (Crawford and Calo, 2016) Artificial Intelligence (AI) algorithms exemplify this process: they are a result of being produced in contexts in which sexism or racism are seen as acceptable (as shocking as it might seems) and normalised.

A second aspect of CTT is the principle of underdetermination: the technical properties of a technology are insufficient to define the values behind its design (Grimes and Feenberg, 2013). Using again the example of the sexist AI, merely looking at what the technology was capable of doing – in this specific case, autonomously sorting candidates' CVs according to their potential– is not enough to understand the values involved in its functioning: technical

[12] The pervasiveness of the word "user" in contemporary society is an example: under the neoliberal logic, basic services, such as public transport and health often prefer this term to refer to citizens, reinforcing the idea that this is not a basic right anymore, but a commodified relationship between the company providing the service and citizens. In other words, this is a signal of the shift remarked by Canclini (2001): the core relationships of contemporary societies are not given by citizenship, but by consumption.

limitations and economic demands also influence the design of technologies, being one side of a two-faced coin that has social factors (e.g. politics, cultural norms) on the other side (Grimes and Feenberg, 2013).

The last crucial concept of CTT is the idea of technical code, which helps us to relate technological features and the values that were influential during the design process, generating 'a background of unexamined cultural assumptions literally designed into technology itself' (Grimes and Feenberg, 2013, p. 124). As Feenberg (2002, p. 15) puts it, '[technical] codes invisibly sediment values and interest in rules and procedures, devices and artifacts that routinize the pursuit of power and advantage by a dominant hegemony'.

Under this perspective, the development of specific game engines closely related to *First-Person Shooters* (FPSs) – such as *Unreal* or *CryEngine* – could be seen as an example of technical code, in other words, the result of 'unexamined cultural assumptions' that embedded themselves in technology. There is a noticeable relationship between these technical codes and habitus, especially if we consider that technical codes are the result of "cultural naturalisations" (the 'unexamined cultural assumptions' described earlier). A logic ruling this example could be summarised by assuming that boys play more games than girls; boys like violence and competition; boys like shooters; therefore, producing a tool that facilitates the production of shooters based around violence and competition is a good development strategy.

The effects of technical codes becomes clearer when analysing which possibilities these engines offer in terms of game development: making a playable character crouch and shoot is considerably easier than making it dance or pet an animal, and these design decisions are going to grow into culture, generating later conventions that are going to shape not only which kinds of games can be made, but how games are perceived in broader cultural terms (Flanagan and Nissenbaum, 2014). These conventions, as discussed earlier, might be internalised as habitus, leading towards a naturalisation of an arbitrary sociocultural value – e.g. you can fight in games, but you cannot hug another character.

Even if technology design is a pathway for hegemonic forces to express their own values (Feenberg, 2012), Grimes and Feenberg (2013) acknowledge that there is still space for subaltern groups to challenge these agendas and establish a debate over these values that might, in turn, promote a redesign of specific technologies through democratic rationalisation (Grimes and Feenberg, 2013), the public debate and subversion of technical codes. The unpredicted use of a tool to achieve a subversive end, such as the use of *Counter Strike* graffiti customisation tool, substituting the default bellicose and taunting graffiti to pacifist ones, as done by Anne-Marie Schleiner's *Velvet Strike* (Schleiner, 2002), can be seen as a simple example

of this debate around technical codes. Rather than reiterating the bellicose, war-based discourse found in Counter Strike, Schleiner's realise a pacifist one, subverting the technical code.

CTT then is then important to comprehend that technology should not only be seen as value-free or neutral, but also as a site of struggle, in which people can appropriate ('colonise') technologies for ends that are different from the original intention of its creator(s) (Grimes and Feenberg, 2013). Technologies are not merely imposed in a top-down fashion, but there is an ongoing process of negotiation around which ones and how they are going to be used.

In that sense, it is possible to understand this process led by technical codes through Bourdieusian theory (Wacquant, 1989; Bourdieu and Wacquant, 1992; Bourdieu, 2014). Technologies inculcate dispositions on agents through technical codes, but agents having a certain degree of agency – via the intersubjectivity nature of habitus (Bottero, 2010) and reflexivity – to reorganise these dispositions and challenge these internalised logics through their practices.

Therefore, if we want to explore values and discourses communicated through digital games, it is important not only to understand the context in which these games are produced and consumed, but also the technologies that enable their creation, an aspect that is often overlooked in digital media (Bogost and Montfort, 2009; Montfort and Bogost, 2009; Leorke, 2012).

Reconciling context, technologies and reception: Platform Studies

Platform studies aims at bridging this gap between the realised discourses in digital games and the technologies employed to produce them by advocating 'the investigation of underlying computer systems and how they enable, constrain, shape, and support the creative work that is done on them' (Montfort and Bogost, 2009, p. vii). Under this perspective, computer systems are never seen as "alien machines", neutral and apolitical, but as the result of perspectives and values that shape it, promoting specific views of the world – in the authors' words, 'cultural artifacts' (Montfort and Bogost, 2009).

By using computer systems (platforms) as the stable element, platform studies affords the investigation of other relationships around it, being it material limits and technical aspects related to the component of a system – such as the implications of the use of a specific chipset in a videogame console (Montfort and Bogost, 2009) – and the political, social and economic dimensions involved in the design and manufacture of a specific platform (Apperley and

Jayemane, 2012; Leorke, 2012). In this sense, the platform itself can become a pivot for establishing this link between technical and cultural aspects or, to use Manovich's (2002) terms, to relate the 'computer' and 'cultural' layers of a new media artefact.

A relevant aspect of this 'material turn' (Apperley and Jayemane, 2012) in the study of digital games – and more broadly, new media – is that it opens up space to the understanding not only of these entanglements and mutual influences between 'cultural' and 'technical' aspects, but also of how material constraints and limits might work as influential factors in the way these platforms – and technology in general – might be used. Reflecting about Montfort and Bogost's (2009) seminal work on the Atari 2600 platform, Apperley and Jayemane (2012, p. 212) argue that platform studies allows us to explore how 'creative software coding within the constrained conditions of the platform can generate new knowledge of the possibilities of code and the optimal capacities of those platforms'. This relationship between constraints and creativity is relevant, since the former should not be considered as merely inhibitors of the latter (Leorke, 2012); on the contrary, often they shape how expressive forms organise themselves in the field. Apperley and Jayemane(2012), again based on Montfort and Bogost's work, remark how specific aesthetics associated with a specific problem-solving technique adopted to cope with material limits can embed themselves in design conventions, tracing the existence of the material constraint throughout time.

Adventure is an example to illustrate this 'aesthetical trace', since several game design conventions – such as the idea of traversing a space bigger than that of the screen, of picking up objects by running (colliding) with them – raised from this game (Montfort and Bogost, 2009). What makes these innovative aspects interesting is that they are a directly consequence of Atari VCS' material constraints, namely its unoptimized capacity of displaying text (Montfort and Bogost, 2009) when all major adventure games were textual (e.g. *Zork*). In this case, the platform limits (and affordances) led designers to envision and develop different solutions to produce *Adventure*, generating specific game design patterns that continued to be followed even after new platforms emerged and the original material limitations diminished or even vanished.

In that sense, the material limitations are not only obstacles that must be overcome, but also spaces for "creativity and contestation", while also challenging progressivism – the idea that new technologies are inherently better than older ones (Leorke, 2012). They also can help us to understand the origins of some game design patterns, since designers rely on their repertoires. Exploring platform specificities (e.g. affordances and constraints) and how they might generate conventions might help in the construction of 'game design lineages' (Bateman and Zagal, 2018), rebuilding through a historiographic approach game design influences. These influences

can be incorporated into design repertoires, becoming then constitutive elements of habitus and/or even signifiers of taste (Bourdieu, 1984), since a direct reference to a specific media text might be used as a token for a designer's "pedigree", a representation of valuable cultural capital within a field.

The role of these technical-based influences in shaping what could be labelled as solely cultural aspects is not limited to claiming specific positions within the field, but it can have direct relationship to what is valuable within a field. As discussed earlier in this chapter, practices shape and are shaped by habitus (Bourdieu, 2014), which are internalised through our experience. By incorporating these design patterns in their practice (game production), game developers are shaping habitus (cf. Adami and Kress, 2010), which might, in turn, change the relationships in the field as well as the rate of capitals within that field.

A strength of platform studies – as carried out in the same fashion set by Montfort and Bogost (2009) – is that the platform is 'produced' through this historical approach (Apperley and Parikka, 2018). In other words, it is by investigating the whole process of development and its expressive uses that the platform is understood: it is not an approach that considers that all the possible uses are given already from 'day 1' of the platform's life, but that they are gradually constructed as different people engage with it and look for different solutions to achieve specific expressive forms. In that sense, platform studies, as an area, allows us to explore not only how original design values (as described by CTT) were influential in the development of the platform, but also how they were engaged with during a platform's life, culminating in the construction of specific tastes that would, later, become constitutive elements of gaming as a field. In summary, the historical approach defended by platform studies can provide an opportunity to reflect about technical codes, and not only about how they emerge, but also about how they evolve[13].

This is an important aspect to this research: one of my research questions is related to *MissionMaker*, more specifically, to how it influences the production process of my participants. By adopting a platform-based approach, I can not only focus on the values expressed by *MissionMaker*, but also see how game-makers appropriated the platform, building then a wider overview of the possibilities and the limits offered by the software in question.

This does not mean, however, that the platform studies approach has not received criticisms. Leorke (2012), for instance, points out that while the formulaic format laid out by Montfort and Bogost (2009) led to interesting further works (e.g. Jones and Thiruvathukal, 2012; Gazzard, 2016; Altice, 2017; Arsenault, 2017), these are still bounded to a rise and fall perspective.

[13]"Evolution" here is used not in as a synonym to "improvement", but as "changing throughout time".

Leorke (2012) also points out the limits of this framework are connected with the absence of engagement with other relevant aspects that also "build" the platform, like how they are inserted in a globalised capitalist system, including the production chain and labour involved in it (Dyer-Witheford and de Peuter, 2009); and other practices that are on the margins of the commercial strand, such as modding and hacking (Apperley and Parikka, 2018). A third critique comes from how the effort to understand creativity emerging from platform constraints is carried out, since it can become a mere celebratory account of how designers and engineers overcame technological limits (Apperley and Parikka, 2018), reinforcing the creative tech genius" stereotype.

These critiques do not necessarily undermine platform studies: in fact, they are suggestions to move it further, allowing the construction of a more complete scenario of the influence of technology in the production of expressive forms through digital media. In that sense, platform studies can be seen as a relevant approach to move beyond the 'screen essentialism'[14](Montfort, no date; Apperley and Parikka, 2018) of the reception layer.

Nevertheless, while platform studies helps us understand how material limits and constraints affect expressive uses of technologies, they are only a single layer of new media (Montfort and Bogost, 2009). Like I have discussed earlier, software plays a crucial role in the digital, and it is relevant to explore how values and biases can be expressed through it. In order to extend this engagement with how games can elaborate arguments and persuade players, in the following section, I will discuss the concept of procedural rhetoric.

Procedural rhetoric: Arguing through code

According to Murray (1997), the digital is essentially procedural: it has the capacity to execute a series of sequential, unambiguous rules given through programming. This trait is considered by Bogost (2006, p. 13) as the most important one of digital environments, since it can translate 'real-world behaviours' into 'programmatic representations'. To him, this possibility will have a crucial value for expression in digital spaces in what he defines as procedural rhetoric:

> Procedurality refers to a way of creating, explaining, or understanding processes. And processes define the way things work: the methods, techniques, and logics that drive the operation of systems, from mechanical systems like engines to organizational systems like high schools to conceptual systems like religious faith.

[14]'Screen essentialism' is the understanding that our understanding of digital media is often based on visual experiences, neglecting what might be happening in other dimensions – e.g. "under the hood", as code – or what might be experienced via other modes (e.g. audio, game mechanics).

> Rhetoric refers to effective and persuasive expression. Procedural rhetoric, then, is a practice of using processes persuasively (Bogost, 2007, p. 3).

Bogost argues that procedural forms can be used to present specific arguments and values. In this sense, when thinking about games, these arguments will not necessarily be bounded to representational forms – the expressive layer (graphics, audio) of Flanagan and Nissenbaum (2014) – but can be established through processes. These processes are not confined to the technology layer, but especially also the ludic layer, where game mechanics and game rules are expressed.

The rules of a digital game are indeed programmed through algorithm(s), but they are experienced through specific game mechanics: jump on a mushroom and kill it, fall into a chasm and die, kill an innocent bystander and fail the mission. To Bogost (2006, 2007) the rules of a game are key to understand the values communicated by it; however, this is not a straightforward process.

Since "real-world behaviours" can be transformed into "programmatic representations", games can be seen as simulations, simplified and biased versions of reality – 'the gap between the rule-based representation of a source system and a user's subjectivity' (Bogost, 2006, p. 107) . While approaching games as simulations is not a new idea (cf. Crawford, 1984), Bogost's conceptualisation innovates in the sense that it highlights the importance of this "gap" between subjectivity, the "simplified" and the "real" systems, for that it is in these gaps that the player interacts with the arguments being made.

Proceduralism can be understood as a significant game design framework, especially for those interested in producing persuasive games – which use 'procedural rhetoric to support or challenge our understanding of the way things in the world do or should work' (Bogost, 2007, p. 59). On a similar note, Flanagan (2013) argues that designers can use games to offer a simplified model of real problems to people, making it easier for players to adopt a more distanced and reflexive stance about these issues, generating a more critical perspective about the real situation. Under that perspective, a game such as *Papers, Please*, by placing the player in the shoes of a border agent, could lead players to reflect about the arbitrariness and psychological violence involved in immigration control procedures. Procedural readings can be carried out not only in relation to open arguments, such as the one described in the example above, but also explored in order to eschew underlying arguments in games, such as consumerism in *Animal Crossing* or neoliberalism and race in *GTA III* (Bogost, 2007)

While procedural rhetoric is important to understand how meaning can emerge from games, we cannot ignore that it overstates the importance of the designer and downplays the relevance of

the player. Sicart (2011) argues that 'games, procedurally understood, convey messages and create aesthetic and cultural experiences by making players think and reflect about the very nature of the rules, in the way the rules allow them to'. Different authors (Sicart, 2011; Penix-Tadsen, 2016) have criticised proceduralism for downplaying the importance of the player – and of cultural contexts. While the rules are an important aspect in reception, we cannot ignore that the player's own values, beliefs and context where she is inserted play a significant role. Sicart (2011) explains that

> Procedurality explains the whys and hows of how game technology operates, and how games can aspire, as designed objects, to funnel behaviors for reflection. Play, however, is personal, individual, and communitarian, played with others, for others, in an intensely, deeply personal way. And politics and ethics are personal, too. Therefore, when a player engages with a game, we enter the realm of play, where the rules are a dialogue and the message, a conversation.

In this sense, proceduralism is a relevant concept to understand the software layer – the code – and how we experience it – game mechanics, the rule of a game – as an influential factor. Nevertheless, contrary to what a pure proceduralist reading might make it seem, this software layer is not necessarily more important than other layers. Understanding how procedural forms of expression can propose agendas, but that there is no guarantee that their users will engage with them is crucial. The importance of the critique of proceduralism is that, no matter how influential technological aspects are, we cannot ignore non-technological aspects, such as social, economic and political contexts, as well as personal values and beliefs. They will be – or at least they should be considered – always a crucial part of any kind of engagement with technological artefacts.

In relation to this research, where different participants (from different backgrounds and with different interests and repertoires) engage with game design within the same context, this more nuanced view towards proceduralism becomes essential. This is because even procedural readings are dependent on the subjective interpretation of the player/reader/researcher. In this study, readings are subjected to my interpretations and idiosyncrasies, and doing procedural readings of participants' games can be a valid source for understanding what discourses they are engaging with and where they sit in our society, but it would still be a partial reading of their game. Procedurality, then, is an important conceptual tool for this research, but it is only one more tool, which should be used in conjunction with all other elements outlined earlier to produce a more nuanced and significant account of who these participants are, what they think about the world and how they want to be seen by others.

Final Thoughts and Rationale for the Study

Identities are, as discussed in the beginning of this chapter, temporarily articulated positions always elaborated in relation to the Other: if unintelligible, an identity does not fulfil its function of situating the individual in the context where she is operating, becoming meaningless. This intelligibility was discussed in relation to the norms that construct the limits of intelligibility ('viability', in Butler's terms) within a field. This viability is influenced by the internalised conventions – habitus – constructed within a field, generating specific dispositions for agents to behave or, in more Bourdieusian terms, to exercise their practices.

This project was aligned with a perspective that aimed at exploring the degrees of influence that these conventions – or this "gaming habitus" (Bourdieu, 2014) – had in young people beyond mainstream and independent game development circuits. When discussing these conventions, I did not limit myself to those which would be naturally seen as cultural. Earlier, I remarked the entanglement between what Manovich (2002) dubs as the 'cultural' and the 'technical' layers of digital media. This implies that, as previously discussed, technologies are not neutral or inherently rational, but they also carry and communicate specific values (Grimes and Feenberg, 2013; Flanagan and Nissenbaum, 2014). This understanding helped us comprehend the complexity involved in game-making, and how both technical and representational skills are entangled: expressive processes are subjected to the digital, which, in turn, is also cultural (subjected to specific systems of meaning and power relations).

In this project, I explored how specific discourses are realised through new semiotic resources after participants' encounters with other systems of values, representation and knowledge, such as gaming discourses and practices and forms of expression favoured by the specific technology being used in this experience. I was particularly interested in how young people take part in a complex phenomenon (game-making), engage with these different influences and systems of expression, and produce a personal artefact. This process acted as a portal for understanding these designers: who were they – or, at least, how they wanted to be seen by the world – and how different elements (technical, cultural and the "cultural in the technical") influenced their process of cohesively combining repertoires and personal values into digital artefacts, articulating specific identities in this process.

The path I chose to investigate these influences and, more broadly, how different young people invoke different repertoires to make sense and situate themselves through digital games, was game design. Design in Multimodal Sociosemiotic (Kress and Van Leeuwen, 2001a) is the second strata of the communicative act, after "discourse" and before "production", the materialisation of a discourse through a mode. Design, in Multimodal Sociosemiotics, covers the choices done by a sign-maker when realising a discourse: how it will be done, through

which modes, and what can a designer say. In the specific case of **game design**[15], however, I argue that the separation is not as clear as argued in Multimodal Sociosemiotics. Although game design is a form of Design – as defined in Multimodal Sociosemiotics – we cannot ignore that it is a contextual practice. It is directly related to the field of digital games; therefore, it is already influenced by specific discourses (specific ways of representing knowledge about a reality). The conventions discussed in this chapter – often promoted by hegemonic forces such as mainstream game industries and internalised as habitus, defining the 'dimension of the sayable' through games – are influential in game design as "the" Design strata of the Multimodal model of communication. This means that game design, as a practice, can be seen as a double articulated process through Multimodal Sociosemiotics: it is Design, since it deals with the organisation of meaning-making (with the realisation of discourses); nevertheless, it is, at the same time, Discourse, a contextual, socially constructed body of knowledge about reality to organise specific meanings in the world (Kress and Van Leeuwen, 2001a; Kress, 2010), often based on the naturalised assumptions about gaming. This understanding of game design as discourse becomes clearer by retaking Kress' (2010, p. 110) definition of discourse as 'production and organisation of meaning about the world from an institutional position' and Muriel and Crawford's (2018, p. 19) definition of videogame culture, remarking it as 'the institutionalisation of gaming practices, experiences and meaning in contemporary society'.

This notion of game design as a kind of discourse **and** a means to realise other discourses is crucial to the sequence of this study. When looking at the kinds of identities being assumed by research participants during the game-making workshops, we must bear in mind that their identities are under layers and layers that have constrained, shaped and influenced them. What I will analyse in this study is not a direct account of how they see the world, but an interpreted discourse, influenced not only by their life experiences or by the traditional gaming culture that formed their own repertoire of what games are and how they should be, but also by the technological apparatuses used by them to produce their games – a PC, running a *Windows* OS, running *Unity3D*, running *MissionMaker* – and, therefore, influenced by the discourse of game design.

Each of these layers not only brings specific technical affordances and constraints, but they were also influenced by cultural, social and economic aspects, culminating in a set of influential factors that participants had to deal with to put their own ideas into practice. It is important to remark, however, that these influential factors, as argued by Montfort and Bogost (2009), might not be seen only as creativity dampeners or mere constraints, but also as spaces

[15] I limit myself to game design since this is the context researched, but it is possible to imagine that the same can be applied to other forms of meaning-making.

for creative and subversive work. And these creative, subversive works, often on the margins of mainstream gaming culture, are the ones that might be able to promote contradictions and reflections, and to challenge digital games conventions.

Chapter 4 – Methodology

My interest in this project was to investigate how participants invoked and realised discourses, constructing identities while engaging in game-making activities. I aimed at exploring how these realised discourses are transformed into new semiotic resources[16] after their encounters with other systems of values, representation and knowledge, such as gaming conventions and practices. I was particularly interested in how young people take part in a complex phenomenon (game-making), engage with different influences, such as media preferences or gaming conventions, and systems of expression (including here forms of expression favoured by *MissionMaker*, the specific platform being used in this experience), and produce a personal artefact. This game-making process might then act as a portal for exploring my participants' identities and how different elements – technical, cultural and "cultural in the technical" – influence their process of discourse realisation and identity construction through digital artefacts.

Based on the reflections built throughout my engagement with the literature and summarised above, my main goals with this research were:

- To understand the discourses invoked and identities constructed by young people when producing their own games;
- To explore in which ways these identities are influenced by different factors, such as repertoires, the platform used for game-making, and gaming conventions.

Some specific objectives can also be outlined here, which shall be understood as steps to achieve the two main goals described above:

- To develop two new modules for *MissionMaker*, one which allowed game-makers to create and incorporate into their games new customised characters, and a second one which allowed game-makers to change game perspective from first-person to third-person;
- To organise after-class, non-mandatory game-making clubs in two inner London spaces;
- To develop activities that enabled young people to achieve proficiency in *MissionMaker* and that allowed them to produce their own games;
- To investigate and reflect about the different influences that were appropriated by participants while producing their own games;

[16] 'actions and artefacts we use to communicate, whether they are produced physiologically [...] or by means of technology [...]'(Van Leeuwen, 2004, p. 3).

- To investigate the ways in which the platform – *MissionMaker* – influenced participants' game design decisions.

In order to achieve the objectives outlined above, this research was grounded on the following research questions:

1. What are the discourses invoked, and which identities young people construct when planning their own games?
2. In which ways do these participants translate different discourses and identities into their games throughout the game-making sessions?
3. In which ways is this game-making process influenced by game design and traditional gaming culture conventions?
4. In which ways does *MissionMaker* shape the games produced by these young people?

In this chapter, I will detail the methodological strategies adopted to reach these objectives and answer the questions outlined above. These answers were elaborated through data generated in different game-making clubs in London, where I followed participants' design processes to explore how identities were constructed through the games they produced.

Since I was interested in these identities, design – here understood as the decisions involved in the process of communicating meaning (Kress, 2010) – was a significant aspect to explore the positions assumed by participants in this research. In the specific case of game-making through *MissionMaker*, the software becomes a crucial part of this process, since it dictates the possibilities offered to participants in terms of game production. Regarding these possibilities, one of my initial concerns arising from previous research with *MissionMaker* (e.g. de Paula, 2016; de Paula *et al.*, 2018) were the limitations in the semiotic resources available in the software, such as the diminished pool of non-male characters or contemporary environments and objects for game-makers to incorporate into their productions.

It was with these limitations in mind that, as part of this research project, extra content and two new modules (*CharacterMaker* and *ThirdPerson*) were developed and incorporated into *MissionMaker*. While this development was, to some extent, instrumental – analysing the design process goes beyond the scope of this project, and it did not directly yield relevant data to the research aims outlined above – the expectations were that it would afford game-makers new sets of semiotic resources to work with. The main question became whether and how game-makers would explore these resources, and two different empirical studies were carried out to investigate their game-making practices.

The first, a single-day **pilot study** undertaken after the production of the new *MissionMaker* modules, was organised mainly to trial the software and methodological strategies. Through this pilot, I was able to test my session structure and the selected methods for data generation, as well as carry out a small trial of the chosen analytical framework (Multimodal Sociosemiotics) against some of the data generated by this initial experience. It is important to highlight, however, that generating data related to my research questions was never the goal of this pilot. Since I was interested in the whole process of game-making and its evolutive nuances in terms of invoked and realised discourses, identities and technical affordances and constraints, observing these nuances would be considerably difficult in a single-day game-making experience.

The pilot thus mainly informed the methodological strategies adopted in my **main study**, which consisted in organising and leading game-making clubs (where young people would be able to discuss, design and produce their own games) to investigate the research questions outlined earlier. My aim was to allow participants to engage with digital games, popular culture, different media forms and digital technologies, and to explore in which ways these young people orchestrate diverse influences (cultural and technical) to construct their games.

In the following section I will detail the Research Design that guided this investigation, including an overview on *MissionMaker*, the software employed throughout these game-making experiences. Following this outline of *MissionMaker*, I will offer more details about the **pilot** and **main** studies, focusing especially on the settings and participants. In the subsequent section on Methodological Strategies I will discuss the procedures and methods of data generation and analysis adopted for each study. That section will also address how the main study was informed by the early pilot, especially in relation to the reorganisation of data generation methods and the refinement of the analytical framework. This chapter ends with a small reflection on the ethical procedures involved in this research.

Research Design: Platform, Settings and Participants

The methodology proposed to answer my research questions and to achieve the research goals was based on a qualitative approach towards the investigation of two game-making clubs in inner London spaces. Qualitative techniques (Denzin and Lincoln, 2005; Dey, 2005; Merriam and Tisdell, 2016) were used for both data generation[17] (Dey, 2005) and data analysis. The focus

[17] I use here the term "data generation" rather than "data collection" following the idea of diverse researchers (e.g. Dey, 2005) that claim that, in social sciences, data is not ready to be collected, but is produced iteratively within the process of investigating a phenomenon, which includes empirical research and the analysis of the sources of empirical information.

on qualitative methods was related to the aims of this research: rather than obtaining numerical measurable and generalisable results, I was interested in interpretations and meanings (Merriam and Tisdell, 2016) stemming from participants' experiences in game-making.

Furthermore, as the research was carried out in a specific context, I adopted a case study approach (Merriam and Tisdell, 2016), transforming some of the games produced by the participants in specific cases (Stake, 1995, 2005). As Yin (2003) argues, case studies are often employed when qualifying (exploring the "how" and "why") phenomena in real-life contexts. Transforming some of the productive processes during the game-making clubs – including the final games – into case studies was then the chosen path to organise this investigation and its analysis.

Before moving on to the research design, I must reinforce here my position as a researcher. As the software developer and the facilitator of the game-making clubs, I cannot ignore that I was a participant-researcher in this study. As such, I must recognise that the accounts and the interpretations presented and discussed here are mediated by my own position in relation not only to the research sites, but also to games, to cultures and to the platform used. My position as a participant-researcher, at the same time attached to the research site as a participants and trying to distance myself from it as a researcher, and the situatedness of the game-making practices carried out here, in specific contexts with specific individuals (Lammes, 2007), must be acknowledged when reflecting about results stemming from this study.

In the following subsections, I will detail important elements for this project: firstly, I will introduce *MissionMaker* and the new modules produced to afford extra functionalities for participants, including a brief account of the development process. This subsection will be followed by a description of the two studies carried out to achieve my research goals: the **pilot**, a trial of the software and methodological strategies in a "real" context, and the **main** study, the central empirical element in this research.

Chosen Platform: An Overview of MissionMaker

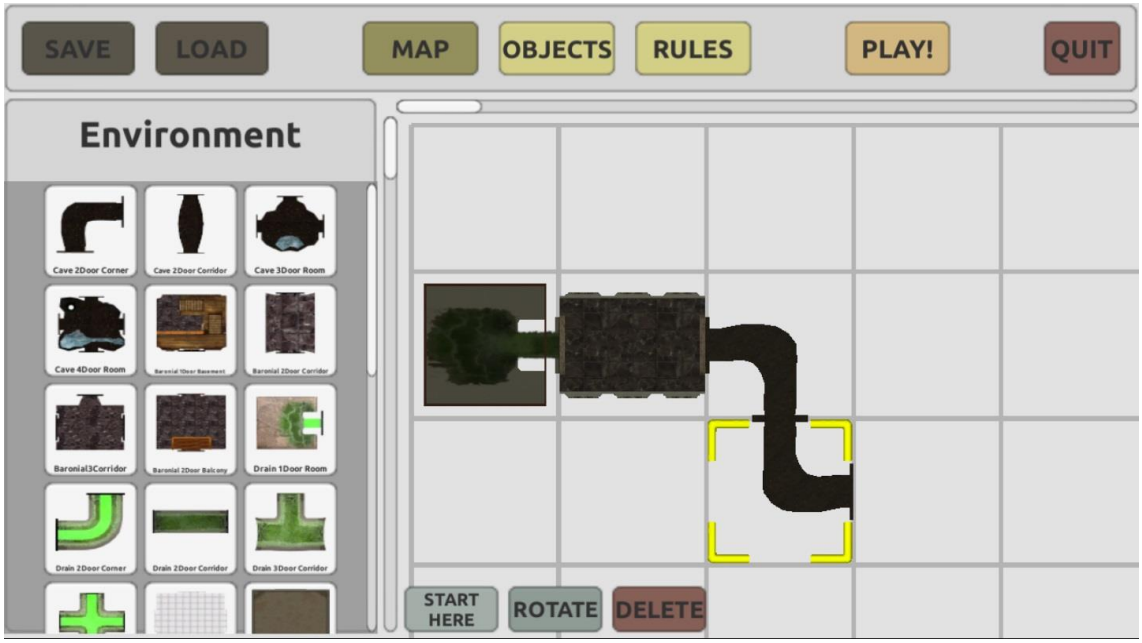
MissionMaker was originally developed in C++ in mid-2000s during *Making Games*[18] (Pelletier, 2009) to facilitate the quick production of 3D games without resorting to previous knowledge on 3D modelling or programming. The version used in this project is a customised build based on the new instalment of the software, on continuous development since 2014 through

[18] See Chapter 2 – Literature Review – for a review of *Making Games*.

Unity3D. The main logic behind *MissionMaker* lies in selecting and organising ready-made available assets, establishing logical outcomes according to the actions taken in the game through the creation of rules, affording the quick creation of 3D games. It includes different kinds of assets – such as 3D environments, props, pickups, weapons, non-playable characters (NPCs) – and generic media objects, which allow makers to import audio and/or image files into games. All objects' properties can be manipulated in two ways: (1) through the object inspector, outside the game execution cycle; and (2) dynamically, through the rule system, a context-sensitive system of dropdown-lists and input fields that can dictate programmable commands to be executed during gameplay. Additionally, the software also incorporates some computational concepts (e.g. Boolean logic), enabling game-makers to create multiple conditions and/or commands in the same rule. Figures 1 to 3 illustrate the work-pattern of *MissionMaker*.

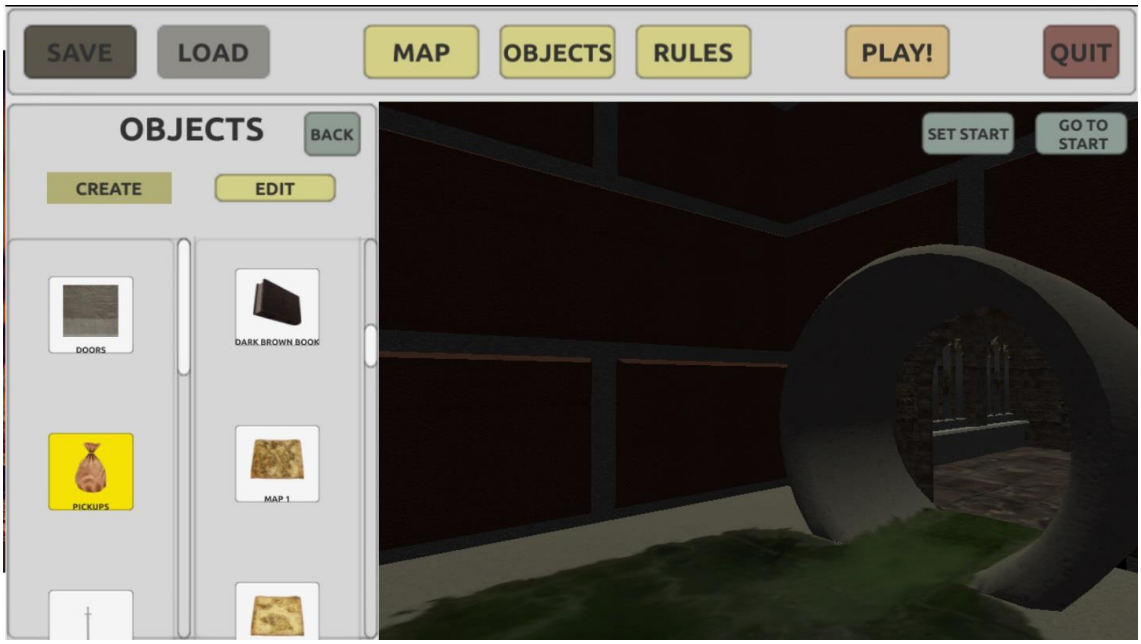
After starting a new project, game-makers enter the Map Mode. Through this interface, they can build the environment of their game by dragging different ready-made rooms from a menu list on the left hand-side of the screen into a grid, generating a top-viewed map of their game world, as in the following figure.

Figure 1: Map Mode, with some environments connected



After generating the game world, makers can populate environments by adding different objects, such as props, pickups, weapons and NPCs. This is done through Object Mode, which can be accessed via the top menu. Figures 2 and 3 illustrate, respectively, how new objects can be placed and manipulated in Object Mode.

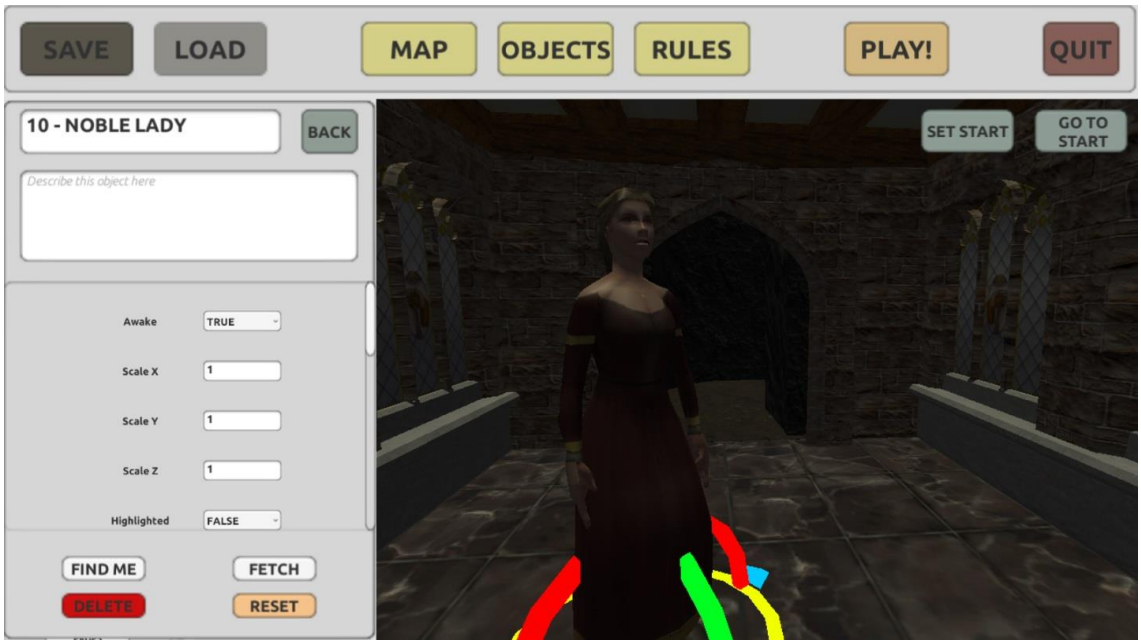
Figure 2: Placing a new object through Object Mode



In Figure 2 above, the left hand-side menu displays all available objects. Objects are separated according to categories (e.g. Doors, Pickups, Weapons, Characters) in the left panel. After selecting a category, all objects pertaining to that category are shown in the right panel. Figure 2, for instance, shows an example in which the category "Pickups" was selected.

After clicking on the desired object icon, an instance of the desired object will show up on the game world, and the left hand-side menu will display a list of this particular object's properties. Figure 3 shows an example of a NPC's list of properties, as well as the gizmo used to reposition the selected object. If a game-maker wants to place a new object, she can click on the "Back" button to open the whole object list. Clicking on a different object will open this object's specific menu, displaying its properties.

Figure 3: Manipulating an object's properties in Object Mode

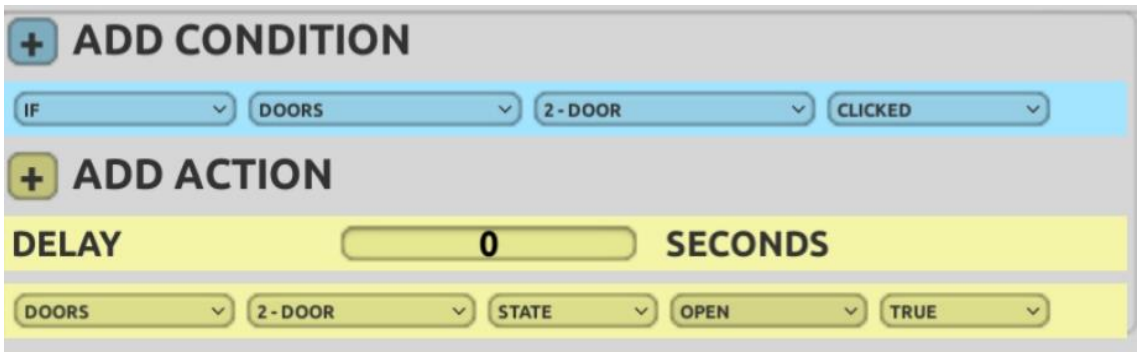


Game-makers can manipulate objects' properties through this menu – e.g. give a weapon to an NPC by changing the particular NPC's property named "Armed" to "True" – however, these changes are "static". This means that a change made outside the game, through the Object mode menu, will always be kept as such during the gameplay – if only operated through object mode, the NPC used in the example above will always be armed in the gameplay.

In order to make the game more meaningful both in ludic and narrative terms, there properties (e.g. "armed" or "unarmed" in the previous example) must be manipulated dynamically, and this is achievable through the aforementioned Rule system. The rule editor is composed by a set of at least two lines: one "condition" and one command ("action"), which will be executed if the condition specified before is met. Rules can be more complex by having several conditions (combined through Boolean logic) and multiple commands. The "coding" happens through context-sensitive dropdown lists, which means that they have a hierarchy starting from left to right: the values available to be selected in the following lists depend (and are updated accordingly) on the values selected in the previous lists. Figure 4 presents a rule, usually the first made by novice game-makers: a click on a specific object opens a specific door (technically, it manipulates the variable "Open" from the object named as "2 – Door": it sets this Boolean variable value to "True" after the object "2 – Door" is clicked on by the player[19]).

[19] Here, I changed the term to player since this rule will only be executed when the game is being played, therefore, when the game-maker (or another individual) is acting as a player, and not as a maker or designer.

Figure 4: Rule System



Rule-making (how "programming" happens in *MissionMaker*) is an important aspect for making games: as shown in Figure 4 above, game-makers must code to a constrained form of natural language, accessed through context-sensitive drop-down lists. This approach is intended to provide an easier way to grasp how to organise and communicate commands to the computer than regular – "typed" – programming language (Good and Howland, 2016). This easiness, however, cause some limitations: firstly, although the use of these drop-down lists prevents syntax errors (e.g. typos or use of words not recognised by the code interpreter), it can also limit the number of possible approaches to solve a problem, since there is a restricted pool of properties and functions that can be invoked in relation to each game object. Secondly, game-makers cannot modify (e.g. extend) methods and properties (e.g. add new variables to objects).

After placing objects and setting rules to dynamically manipulate different objects' properties, the game can be played: this is done by clicking on the "Play" option from the top menu. When entering in Play mode, the designer will be transported to the "Spawn Point" and a First-Person Perspective will be adopted, as it can be seen in Figure 5.

Figure 5: Play mode

Designers/Players can then navigate the game world and interact with objects. Players can always return to "Edit Mode" by pressing "Escape" on the keyboard, and the environment can always be edited by clicking on the Map button on the top menu.

As discussed in this section, *MissionMaker* affords different possibilities in relation to rapid game development. Nevertheless, we cannot ignore that these early developments were carried out targeting specific literary texts, such as *Beowulf* (de Paula *et al.*, 2018) and, later, *Macbeth* (Burn, 2018). This meant that, in relation to representational possibilities, assets were bounded to a specific type of European Mediaevalesque tradition, tapping into an imaginary that is often invoked in digital games. Even though different research (Shaw, 2014) has questioned the apparently straightforward relationship between textual representation and diversity in games, allowing game-makers to explore different representational imaginaries beyond the original Mediaevalesque one found in this version of *MissionMaker* could help game-makers not only to easily relate to this activity, but also to realise other discourses and to construct different identities through game production. In order to achieve this objective and to afford different expressive possibilities, I developed two new modules for *MissionMaker*, and this development process, as well as a greater account of the modules will be presented in the following sections.

Developing the new modules

The two new modules developed before the pilot and main study allowed game-makers to design and use in their games custom characters either as NPCs or as playable characters. In the first module, a standalone application, designers were able to create new custom characters

and export these characters to be later used in their games (hereby *CharacterMaker*). The second module, integrated into *MissionMaker*, allowed game-makers to change the game perspective from first-person-view to third-person-view (hereby *ThirdPerson*). Both modules were produced using *Unity 3D*, and this uniformity of the development environment resulted in a smooth integration between the main software – *MissionMaker* – and the new modules – *CharacterMaker* and *ThirdPerson*. In order to produce these modules, I relied on my previous experience as game developer and, especially, on my previous work in *MissionMaker* as part of the development team.

Throughout this experience of developing, testing and integrating both modules into *MissionMaker*, I relied on the developers' community built around *Unity3D*. I also used different resources, such as ready-made libraries available in *Unity Store* (e.g. the *Unity Multipurpose Avatar [UMA]* system as the base for *CharacterMaker*), and tutorials on 3D modelling, assets incorporation and programming techniques (e.g. approaches for developing Third Person view cameras).

I adopted a development method loosely based on the iterative design approach (Nielsen, 1993), which argues in favour of a recurrent development cycle comprised of four steps: prototyping, testing, analysing and refining the product. In order to organise this iterative approach, I employed project management techniques based on *SCRUM* (Schwaber and Beedle, 2002), one of the frameworks that support Agile software development.

Agile software development is a widely accepted practice in software development industry since late 1990s (Huo *et al.*, 2004) and is a useful method for organising software production through an empirical approach. This approach allows developers to cope with unpredictable issues raised around the development process (Brhel *et al.*, 2015), such as the incompatibility of an external library with previously-produced custom code. While these techniques afford a great flexibility to the work around development issues, they work better in multiple-person teams: one of the good practices regarding testing (a crucial component of the iterative design process) is to not have the same developer responsible for a feature testing it (Wulf, 2013).

Likewise, *SCRUM* reserves to a team member the role of "product owner" – someone responsible to critique the product as a final user[20] (Paasivaara, Heikkila and Lassenius, 2012) – and demands periodical meetings with the development team to track the current production situation (Schwaber and Beedle, 2002). Since I worked alone on the production of these new modules, I had to bypass some of these good practices: although colleagues often helped me to

[20] A possible analogy here is relating the product owner to an ombudsman in a media corporation, an insider responsible for critiquing her own team's work.

test and gave their opinions about the features produced, I was still the main tester of these new modules, trying to be as reflective as possible in terms of positioning myself as a game-maker, and not as the developer.

CharacterMaker

The first module produced was *CharacterMaker*, a standalone application that allows game-makers to produce customised humanoid characters through the orchestration of ready-made 3D assets. The decision to keep this module as a standalone application was intended to separate this specific functionality from other specific versions of *MissionMaker*, which are, as discussed earlier, closer to literary texts such as *Beowulf* (de Paula *et al.*, 2018) or *Macbeth* (Burn, 2018). Due to this aforementioned close relationship to these literary texts, assets found in previous versions of *MissionMaker* are considerably limited to a Mediaevalesque imaginary: it is possible to find mediaeval halls, armoured Vikings and Knights, peasants dressed in sacks and Noble Ladies with long puff dresses. This set of assets, to some extent, taps into a known "traditional gaming culture" convention of European Mediaeval-like environments, often found in RPGs or Action-Adventure games, incorporating then direct references to a determined genre[21] and already favouring specific discourses and identities in relation to others. Regarding characters, for example, it is noticeable the reduced number of non-male characters, and the virtual inexistence of non-white humans within *MissionMaker*'s original ranks.

By developing *CharacterMaker*, my intention was to broaden the set of semiotic resources available to designers within the platform chosen for this study. My goal was to allow participants to have a more diverse range of characters available for their games, offering some gender and ethnical diversity to game-makers, including here groups that are often underrepresented such as women and non-whites (cf. Leonard, no date; Carr, 2005; Everett and Watkins, 2008; Kafai, 2008; Everett, 2014). I aimed at providing the widest range of design choices (clothing, hairstyles, accessories) possible, but my limited amount of time and my rudimentary 3D-modelling skills restricted me to royalty-free resources found on *Unity Asset Store* that were manually adapted to fit into the development framework (UMA) being used. These new assets provided more contemporary-like options for game-makers, allowing them to go beyond the conventional Mediaevalesque universe, if desired.

[21] Understood here as a fluid set of arbitrary conventions that allow the organisation of works within a field under certain categories (Clearwater, 2011; Clarke, Lee and Clark, 2017).

Opening *CharacterMaker*, designers face the screen displayed as Figure 6 below; they have an array of options on the right and they can see the results of their choices on the left. Some of the options are presented as checkboxes (e.g. hairstyles, clothing), and can be only customised in terms of colouring, while other options are presented as a continuum, since they are controlled as numerical parameters (e.g. height, body mass, shoulder width).

Figure 6: CharacterMaker showing a character created by Pablo and Marco, participants from research site A

Bearing in mind the lack of diversity among characters discussed above, a deliberate design decision was to always start the software by presenting a female option, with all other parameters (e.g. height, skin tone, tops, bottoms, shoes, hairstyle) randomised, in a tentative to use a deliberate design decision to 'shift implicit biases' (Flanagan and Kaufman, 2016) – here, sexism – in game-making.

After creating their characters, designers could name and save it, and later they could either proceed to the creation of a different character or export these directly. Exporting characters leads to the generation of an external file, which could be imported either into *MissionMaker* (to use these characters in the games being created) or back into *CharacterMaker* to edit previous work.

ThirdPerson

The *ThirdPerson* module was produced to allow participants to change the play perspective within their games. Both the original (Pelletier, Burn and Buckingham, 2010) and the updated (de Paula *et al.*, 2018) versions of *MissionMaker* prior to this project afforded only first-person

perspective. The rationale behind the implementation of this module was that of reinforcing the need for the construction of background stories. By materialising the main character – turning it visible – it was expected that participants would engage further with the elaboration of stronger backstories and rationales to their main characters, generating then a new entry points for exploring the discourses invoked by these participants through their games.

The work on this module involved programming a new game camera that would always be centred on the selected avatar. New interface elements (e.g. menus, buttons) were also added to allow participants to select game perspective, to import external files with customised characters (created through *CharacterMaker*), and to select the playable character. It also involved the production of new animator controllers, allowing characters to carry out different actions within the games. Besides roaming around, fighting and dying, now non-playable characters could also sit, sleep and carry pickup objects, broadening again the set of available semiotic resources for game-makers.

Besides the possibility of importing customised characters and using them as avatars, I also employed some of the development time to incorporate different sets of objects (environments and props) into *MissionMaker*. These new objects were chosen through convenience – easily accessible through *Unity3D Asset Store* – and were adapted to represent other types of scenarios, such as modern apartments or urban streets, following the aforementioned intention of broadening the expressive possibilities within *MissionMaker*.

As a final note, although I aimed at making the semiotic possibilities as wide as possible, some of these new objects also tapped into (other) conventions of the field, such as outer space-like environments, sci-fi corridors and sci-fi pods. We can link this to the sourcing of these new materials: since the *Unity3D Asset Store* is a resource offered for the game development community, it is understandable why it is easier to find conventional materials (e.g. mediaeval, sci-fi, zombie-themed) than non-conventional ones (e.g. traditional African or Global South contemporary metropolis). This difference regarding the kinds of materials found in the *Asset Store* help us to understand the process of reproduction (Bourdieu *et al.*, 2014) in digital games. Different games, usually exploring an existing tradition or a successful title, tap into a specific theme (e.g. Mediaeval), transforming this into a convention (e.g. Mediaeval RPGs). More and more people might consume this game, and more games tapping into conventional themes will be produced, leading towards the multiplication and dissemination (including here the commercialisation) of assets invoking these themes within gaming circuits, maintaining then a reproductive cycle that reinforces conventions.

Even with this clear influence of the conventions of the field in the development of the new modules, to some extent *CharacterMaker* and *ThirdPerson* broadened the horizons of expressive possibilities through *MissionMaker*. The question about what participants would do with these different possibilities, however, remained and an empirical investigation of the use of *MissionMaker* and these new modules was then carried out. In the following subsection, I will start to introduce this empirical investigation by describing the settings and the young people who engaged with game-making through this new version of *MissionMaker*, both in my pilot and main study.

Setting, Sample and Structure – Pilot Study

The first empirical study in this investigation – the pilot – was organised as single day game-making workshop, carried out in mid-July 2017, just after the modules developed in this research were stable enough. It was developed in partnership with the London Connected Learning Centre (LCLC), located in south London, U.K. The LCLC offered the infrastructure (room and materials) and a convenience sampling approach was adopted by the centre, relying on their network of partner schools to recruit participants. My only request for this selection of participants was regarding diversity, especially in terms of a balanced gender ratio.

Participants came from a good[22], non-faith, mixed-sex Primary School from south London; the school's cohort is considerably multicultural, with 70% of its pupils speaking English as an additional language[23]. Twelve pupils – 8 girls and 4 boys, broadly representative of the school's multicultural community – from Year 5 (9-10 years old) took part in the workshop, which lasted 4.5 hours. All 12 participants worked in pairs, thus producing six different games. Two adults (one LCLC facilitator and I) supervised the session.

We organised the workshop in a multipurpose room at the LCLC, arranging it in two separate spaces. In the front, closer to the projector, we set a small row of chairs in order to better organise moments where we wanted to give direct instructions or hold brief discussions with participants, in a layout similar to a mini-lecturing space (a single row of chairs in front of the screen). In the back of the room, we organised 6 tables, each one with a laptop (kindly lent by the LCLC). This meant that, when working on their games, each pair had their own space to work independently.

[22] "Good", in this case, refers to the general evaluation carried out by OFSTED (Office for Standards in Education, Children's Services and Skills), the English government body responsible for inspecting and regulating services provided by educational institutions for learners of all ages. There are 4 possible results, ranging from "Outstanding" to "Inadequate", and "Good" stands for the second best.
[23] According to data found at the school's website in September 2017.

Settings, Sample and Structure – Main Study

For my main study, two different game-making clubs were established in inner London spaces: one in a Latino community-led institution based in South London (research site A), and another in a primary school based in North-East London (research site B). In both contexts, I led sessions and a minimum of 12 hours of activities were offered to all participants between the months of October/2017 and April/2018.

Research site A offers different kinds of activities[24] as a means to support Spanish and Portuguese-speaking communities, working closely with people from different age ranges, from children to elderly citizens. Very few of its members speak English as their first language, and a considerable number does not have a good command of this language. Research site B, on the other hand, is a good, non-faith, mixed sex community primary school in North-East London. Compared to the pilot research site, it is considerably less heterogeneous, with only 21% of its pupils with English as second language[25]. The main reason for finding new research sites rather than continuing the research with the school from the pilot was due to restaffing at the LCLC, breaking then the network previously established during the pilot.

In this case, it became easier to construct new contact networks. Both main study research sites were initially contacted with the help of colleagues from my research institution: research site A has a long-term relationship with some fellow PhD colleagues and was looking for volunteers to offer activities deemed as creative[26] as part of their youth programme (targeted to participants aged 14-18 years-old); meanwhile, research site B was approached via a former MA student from my research institution who introduced me to the school's ICT coordinator. Meetings with representatives from the two research sites were held in early October/2017, and an agreement was reached to develop a 12-hour game-making programme in both research sites. It is important to highlight, however, the main differences in how each institution envisioned the activity and in the cohorts of participants.

In research site A, the activities were seen as a space for helping young migrants to settle in their new life. A core aspect of the activities in this site's youth programme is related to English language development, since several of their members are newcomers to the UK and do not have a good level of proficiency in English. Making games was seen as a way not only to offer the participants the chance to develop technical and critical skills, such as writing stories, identifying gaming patterns, designing and programming a game, but also to hone participants' knowledge of English language. Therefore, the institution's programme manager saw in the

[24] From English lessons and after-class clubs to legal counselling.
[25] According to OFSTED's most recent report.
[26] Photography workshops, a drama group and website development were examples of other activities carried out in the same programme.

activities another way of introducing new language content – e.g. game-related technical vocabulary– to the participants and asked me to favour the use of English during lessons rather than Spanish[27] (the native language of virtually all participants).

On the other hand, in research site B making games was seen as an opportunity for developing different skills. The ICT coordinator – also a Year 6 teacher – described how, in the previous term, they used game-making as a transversal theme for teaching Geography and ICT (Computing). While the outcome was seen as positive by the school, it was put out that some students were frustrated that the games produced were too simple; therefore, due to their initial interest in the topic, these students would be ideal candidates for an after-class club focusing on game production.

A convenience sampling process was adopted towards the selection of participants, with both research sites being responsible for recruitment. My only requirement was, as done for the pilot, linked to diversity: the gender balance was a concern and, in both cases, I explicitly asked organisers to keep the girls/boys ratio around 1:1.

An important difference across research sites was participants' age: whereas in research site A participants were aged 14-18, in research site B they were all Year 6 students (aged 10-11). This discrepancy, however, was not a major issue to development of this project, since both game-making clubs were set independently and, with minor adaptations to cater for the different groups, the same set of activities was proposed.

Other major differences were found in terms of first language and living experience in different countries. In research site A, all participants had experienced migration: none of them was born in the U.K., virtually all of them had Spanish as first language and came from families with (at least partial) Latin American heritage, and several had lived in multiple countries before settling in London. This cultural background was considerably different from those in research site B, who were all born in the U.K., had English as first language and had only lived in England, apart from one student who had lived for in Eastern Europe. This group, however, also presented different cultural heritages: East and South Asian, Black African, Middle Eastern, and Eastern European communities.

By outlining these differences here, my intention is not to build up a cultural profiling or to stigmatise participants, but to produce a more accurate account of the context where these activities were carried out, and who these participants were. These particularities, although not

[27] This English favouring policy was reviewed and reverted after the third session on research site A. The logic underpinning this reversion, as well as the details about what led to this decision, will be detailed on the following chapter.

defining, cannot be ignored in a project such as this, where participants' practices and productions are directly related to their repertoires and preferences.

This experience was organised around a 12-hour game-making programme that was agreed upon in both settings, but these sessions were offered according to their specific schedule. In research site A, sessions would run from late October/2017 to January/2018, and eight 1.5-hour sessions would initially be offered to ten participants. In research site B, the programme would originally run from January to March/2018, comprising ten 1.25-hour sessions. Nevertheless, unforeseen circumstances – such as school closures due to severe weather conditions – led to the cancellation of some of these sessions, and the programme was extended until late April to reach the planned ten sessions. These arrangements meant that research site B offered 30 extra minutes of activities in comparison to research site A. This extra time, however, was diluted throughout the sessions due to the spaces where the sessions occurred: while in research site A we used a traditional computer lab room with desktop PCs, in research site B we used a classroom with laptops that had to be fetched and set, with at least 5 minutes being lost at the beginning of each session.

Table 1 summarises the specificities of each research site, and in the following section more details will be given about the organisation of these three game-making clubs, encompassing the pilot and main studies, and about the methods of data generation and analysis employed to investigate these experiences.

Table 1: *Summary of research sites A and B*

	Research Site A	**Research Site B**
Nature	Community-led organisation	Primary School
Location	South London	North East London
Research site's expectations for the project	English language, socialisation	Technical skills, narrative skills
Period of game-making club	October/2017-January/2018	January/2018-April/2018
Number of sessions	8	10
Duration of each session (hour)	1.5	1.25
Average number of participants per session	8	6
Participants' age	14-18	10-11
Participants' native language	Mostly Spanish	English

Research Design: Methodological Strategies

In this section, I will detail the methodological strategies adopted to carry out this study of young people's engagement with game-making, focusing on research procedures, methods for data generation and for data analysis. These strategies will be presented in chronological order: firstly, the pilot study will be discussed and after a short reflection the focus will turn onto the main study, highlighting the ways in which methodological decisions for that study were informed by the pilot.

Pilot Study

The pilot study was carried out as a single-day game-making session at the LCLC in South London, U.K. Twelve Year 5 students took part in this activity, which happened in the morning of a school-day in July 2017. After introductions and detailing the activities planned for the session, participants were asked to answer a survey about their gaming habits: some of the questions included whether they played games, which kind of games they played, in which platforms and how often they did that. The goal here was to understand participants' gaming patterns, contributing to my future analysis of possible influences on their productions. After the completion of this survey, participants started to work on the game-making activity by developing a character through *CharacterMaker*, following the process described earlier when I detailed how *CharacterMaker* operates.

Game production in *MissionMaker* started as soon as the characters were ready. This activity was organised in specific blocks: character importing, world-building, rules, challenges and media objects (audio and popups). In each block I offered a quick explanation (about 10 min) on how to use *MissionMaker* to achieve that specific goal – e.g. make a door open after it is clicked to exemplify how rules could be created – and after that participants were free to implement the techniques learnt in their game as they wished. During these periods, I roamed through the room, offering technical support when necessary.

After finishing their games, participants had the opportunity to play each other's productions in what we called "**Speed Gaming**": each pair had the chance to play all other five games for at least five minutes and, in the end, we carried out a quick feedback session on all their experiences of making and playing the games. After this quick discussion, they filled in a second questionnaire, giving extra detail about the games they made – title, main character, storyline, goals etc. – and a final feedback on the whole experience, including here comments about *MissionMaker*.

Data Generation

The main strategies for data generation employed in the pilot study were questionnaires, observations, unstructured interviews and game production. As described earlier, in the beginning of the session a small **questionnaire** consisting of open and multiple-choice questions, was applied to map basic demographics and participants' gaming preferences and experiences. This data helped to construct not only a profile of the groups in terms of basic identifiers – which, in the end, proved to be of limited relevance to the research – but also to map how participants positioned themselves in relation to gaming culture(s), useful to construct an understanding about participants' gaming repertoires.

Nevertheless, as known from previous research (cf. Burn, 2008; Pelletier, 2008), participants' claims about games known and played are not necessarily true. Therefore, **observations** and **unstructured interviews** were also carried out during the sessions to complement their responses to the questionnaire and, more importantly, to produce a richer account of the design processes employed by the participants.

The choice of using **observations** as a method of data generation was related to my interest in investigating a specific phenomenon in a specific setting – how participants of the game-making clubs realised discourses and constructed identities. I decided to employ observations since they offer, according to Merriam and Tisdell (2016, p. 137), 'a first-hand encounter with the phenomenon of interest rather than a second-hand account of the world obtained in an interview'. In this study, I assumed a "participant as observer" (Merriam and Tisdell, 2016) position, since I was leading the game-making club and interacting closely with the participants – thus being part of the group, as briefly discussed earlier in relation to the situatedness of this experience (Lammes, 2007). My focus with these observations was mostly on understanding the rapport and relationships established among the participants, on how they organised their discourses into the games they were producing, and on how the software was influencing game design decisions. In this scenario, observations were mainly related to interactions from two different perspectives: an **interpersonal** and **participant-software**.

To record my live observations (i.e. during the session), I employed a voice recorder, which worked as an aural fieldwork journal where I also left voice notes about the session to myself. Since the voice recorder was kept on the whole time, I was also able to register participant-participant conversations (interpersonal), ending up with audio-recordings that complemented my aural notes about **interpersonal** and **participant-software** interactions. Recording only audio was the result of a compromise with the LCLC: although video recorded data could have

provided me with a wider range of modes usage (e.g. gestural), the institution was not comfortable with video recording, especially since participants were underage.

Aural notes and audio-recordings of the session, however, were only one of the pillars supporting this research: grounding an entire qualitative analysis on a single (or very similar) data generation method might raise issues about its validity (Merriam and Tisdell, 2016). Moreover, it would not make sense to just record the participants during the activities without giving them the explicit opportunity to reflect and speak for themselves. Therefore, interviews were also used during this empirical phase, in a mix of unstructured and semi-structured approaches.

The use of **unstructured interviews** was based on the frequent association between this type of interviewing and observations (Fontana and Frey, 2003). By coupling these two methods, I would then be able to generate first and second accounts of the same phenomenon (Merriam and Tisdell, 2016), constructing then a more complete and solid array of data to be later analysed. These interviews were carried out as informal conversations throughout the day and were also audio-recorded with the device that I kept on with me during the session. They were mainly informed by what I was observing at that moment, including game design decisions, such as reasoning for specific character depiction choices (e.g. why a specific character produced by game-makers had a particular hairstyle or was taller when compared to other characters) or technical questions that could be related to game design (e.g. if there were any ranged weapons available to be used in the software).

Besides these unstructured interviews to explore their intentions and plans, the **produced games** were another important source of data for the analytical process in this pilot, following other research that analysed the artefacts produced by game-makers (Peppler and Kafai, 2007b; Burn, 2008). The games produced by participants during the workshop were then saved in an external device to be later analysed, as I will further discuss in the next subsection.

Lastly, a final **questionnaire about their games and about *MissionMaker*** was applied prior to the presentations of these games. This instrument consisted of a mix of open-ended, closed and Likert scale questions and its goal was to generate data about their game and, in this process, identify possible contradictions between the game itself and participants' views about it. Moreover, using different modalities (e.g. orally, visually, written) to talk about their games could allow them to explore diverse aspects behind these productions that might have been underplayed or not focused on in other moments.

The questionnaire also included some open questions regarding *MissionMaker*. Participants were asked to identify what they liked most, what they disliked most, what *MissionMaker* was

good for and something that could be enhanced. They were also asked to give suggestions on what the software should allow designers to do and to list any situation when *MissionMaker* held them back or made them change their design. To some extent, this use of the questionnaire to discuss this type of questions was complementary to other data generation methods employed during the session, especially the interviews. Nevertheless, allowing them to write down these comments without the pressure of providing a prompt answer could bring more elements to my future analysis, since they could feel more comfortable to criticise the software through this instrument instead of doing these criticisms face-to-face to one of its developers.

Data Analysis

As discussed earlier, in this study I was particularly interested in understanding how young people engage with and realise discourses, constructing different identities through game production in non-professional settings. These identities are constructed through the use of different semiotic resources to generate meanings, and these meanings are materialised under multiple – e.g. material, social, cultural – constraints (Van Leeuwen, 2004). Therefore, if meaning-making is important for this project, employing a semiotic approach to make sense of the different kinds of data generated here – from questionnaire answers to interviews; from observation notes to produced games – might be useful for this research.

More specifically, I opted to use Multimodal Sociosemiotics (Kress and Van Leeuwen, 2001a; Burn and Parker, 2003; Van Leeuwen, 2004; Kress, 2010; Jewitt, Bezemer and O'Halloran, 2016) as my main analytical framework. This analytical approach acknowledges the use of different semiotic resources to realise discourses, allowing me to investigate how participants employed the available resources – e.g. the software, the interactions in the game-making spaces – to organise and communicate meanings and, through this process, construct identities, providing then insights into how realities can be represented by these participants (Van Leeuwen, 2004). By understanding this whole game-making inception, design and production process as a 'multimodal communicative process' (Kress and Van Leeuwen, 2001a), I was able to explore how different semiotic resources were invoked and reified through different modes, generating new meanings according to these participants' intentions.

In that sense, Multimodal Sociosemiotics, by recognising the importance and the specificities of different modes, provided me with a path to analyse all data generated in this study, aiming at understanding the main discourses invoked and realised by participants. Adopting this analytical framework allowed me then to treat each of the selected games analysed here as a

specific case, in which game-makers' participations – registered through my observations, interviews, games and questionnaires – were treated as whole "semiotic ensembles", produced through the engagement with different discourses, convention and technical affordances and constraints, constructing specific identities in this process.

One of the core concepts for this approach is the mode, 'a set of socially and culturally shaped resources for making meaning' (Kress, 2014, p. 60). This theory, therefore, acknowledges the existence of different sets of resources for sign-making, such as language (either spoken or written), images, colour, sounds, gestures or game mechanics. Moreover, it challenges the dominance of language for meaning-making defended by other theories (cf. Vygostky, 1978; Saussure, 1993) arguing that there are no fixed hierarchical relationships between different modes (Kress, 2010; Pérez-Latorre, Oliva and Besalú, 2017). Multimodality can also be seen as a powerful framework for this research since it brings the concept of modal affordances (Van Leeuwen, 2004; Kress, 2010), highlighting that different modes present diverse potentialities and constraints in communicating a particular meaning. Communicating "danger" in a game can be done in different ways – e.g. using a sound cue, through a written message shown as a popup, or through the colour palette used in a particular part of the scenario – and each of the different strategies chosen might bring different results for the player (sign interpreter) in communicational terms.

Besides this acknowledgement of the different modes for meaning-making – and the different affordances they convey – Multimodal Sociosemiotics was adopted here due to its epistemological assumptions, since it argues that all signs are conventional and motivated (Kress, 2010). Motivated signs

> are the expression of the interest of socially formed individuals who, with these signs, realize – give outward expression to – their meanings, using culturally available semiotic resources, which have been shaped by the practices of members of social groups and their cultures. (Kress, 2010, p. 10)

This is a considerable diverse position when comparing to "classic" semiotics (e.g. Saussure, 1993), which also acknowledges the conventional nature of signs, but does not acknowledge that these are "motivated". Multimodal Sociosemiotics takes into account not only the "actual" sign, but also the "intention" of the sign-maker in realising a specific meaning, in a specific way within a specific context. In a project such as this, which involves different participants working within a specific context (digital games) where they are limited regarding the available semiotic resources (making a game through *MissionMaker*), to discuss identities it is important not only to acknowledge the "actual" (the realised) signs, but also explore why that specific way of realising meaning was employed. Multimodal Sociosemiotics, therefore,

offers a path to investigate motivation ("intention") in meaning-making through multiple modes.

Moreover, Multimodal Sociosemiotics acknowledges the role of the social context in shaping resources for meaning-making, taking into account these resources' past uses, as well as how these historical uses might be considered relevant by different social groups (Van Leeuwen, 2004). It therefore offers an apt path to understand how participants employed the available resources, socially and culturally shaped in very specific ways – e.g. game mechanics being shaped by traditional gaming culture; identities being shaped by gendered discourses related to gaming – to realise specific discourses and to construct different identities. In this sense, this project is particularly interested in the question of design as defined by Social Semiotics: how sign-makers recruit and arrange different semiotic resources, producing semiotic entities to fulfil particular social functions (Jewitt, Bezemer and O'Halloran, 2016).

A second element that underpins the choice of Multimodal Sociosemiotics rather than any other semiotic strand is the notion that signs are always made, and not merely used (Kress, 2010; Jewitt, Bezemer and O'Halloran, 2016). This notion is understandable if we retake the previous argument: semiotic resources are shaped by their sociocultural uses; therefore, a sign is always a new sign because, at the moment it is produced, it is simultaneously invoking certain meaning(s) and ressignifying its possible uses, laying then the path for a new sign (Kress, 2010).

It is in that sense that Pelletier (2007) highlights the difference between Multimodal Sociosemiotics and other semiotic strands, such as "classic" semiotics (Saussure, 1993). She argues that a main difference is in how sets of meaning-making resources, such as language, are seen: in the former, these are seen as systems of social meaning; in the latter, as less dynamic systems of forms.

Taking these arguments into account, Multimodal Sociosemiotics offers specific strengths for game-making research. First, it recognises that different modes have different affordances, but that they are equally important: since games can be understood as semiotic ensembles constituted by the orchestration of different modes[28] (Burn, 2008) – e.g. visual, aural, ludic – it

[28] An important point to be made here is the ongoing debate whether (computer) code **is** a mode. While this is, to some extent, beyond the scope of this work, I consider that code is both a (regular) mode **and** an orchestrating mode, similar to Burn's (2013) kineikonic mode. If we revisit Kress' definition of mode, we realise that code is a set of socially and culturally shaped semiotic resources; however, these resources – at least in relation to digital games – seldom are used as self-referential, and are always used to coordinate (or, following Burn, 'orchestrate') different sets of resources, such as audio, colours, images. In that sense, in relation to this project, it is possible to argue that, if we want to approach computer code as a mode within this project, acknowledging its orchestrating features offers a more fruitful path.

grants that the analysis of the games produced through *MissionMaker* within this study can have the same weight as other means of data generation, such as observations or interviews.

Moreover, it acknowledges the importance of context and of a larger cultural setting to the production of meanings. Games produced in these projects are heirs of more than a half-century old tradition of videogames, but they also inherit a rich tradition from the history of digital development and an even more extensive tradition of visual representation. Therefore, it is important to recognise that participants' choices regarding meaning-making are simultaneously socially and culturally shaped. Meaning is, as discussed before, made during social interactions, but never created from scratch, since it is always based on previous uses, hence the importance of conventions, of the context where these games are made and played and of reflecting about game culture, including here its dimensions of the sayable. On the other hand, it is also worth reminding that these ways of conveying meaning are malleable and can be recast to fit the meaning-maker's expectancies – they can be modified or even subverted to convey a different message.

Specifically in relation to my research, it is important to recognise this dual reality of modes and semiotic resources, since I am interested in understanding how different factors, such as technical constraints, gaming conventions, discourses, influence game-makers' choice. As discussed in the previous chapter, these different factors are culturally shaped; for instance, the possibilities for designing game mechanics in *MissionMaker* are shaped by cultural values constructed throughout the development processes of gaming industry, since it is easier to track and fight enemies than to dance with or hug a NPC. Nevertheless, these influential factors are not determinative or fixed: in the case of technical constraints, it was discussed how different agents can colonise technologies (Grimes and Feenberg, 2013), subverting its use. The same applies to other influential aspects – such as habitus – that are influential and that can shape the universe of possible actions and meanings that individuals can follow, but they are not determinative and can be employed in different (including here subversive) ways.

This approach then adds an extra layer of complexity into my analysis of game-making sessions: it offers a path to explore not only why some meaning was expressed, but also why such meaning was expressed in that specific way (e.g. which mode was used). This possibility is relevant to game-making because investigating how meaning is conveyed in games can offer some insights into how game design practices are culturally shaped and if internalised conventions can be critically approached and even challenged.

In order to trial this analytical framework, one game produced during this pilot study – *Shakira in the Castle* – was selected and analysed as a case, and preliminary findings were published as a

conference paper (de Paula, 2018). These preliminary results, while important to reassure the methodological and session organisation strategies, will not be discussed in this work. A main reason for that choice is the reduced amount of data when compared to the main study: due to the structure of the pilot, there was not enough time to produce a more comprehensive line of inquiry, including here the construction of a rapport with participants. This, to some extent, limited the findings from the pilot in relation to the main objectives of this project. Producing this kind of data through the pilot study, however, was never my aim.

In that sense, considering that the pilot was essentially carried out to test the software and, more importantly, methodological strategies (e.g. session planning, methods for data generation and data analysis) for the main study, in the following subsection I will reflect about the methodological experiences from this pilot informed the main study that followed.

Thoughts for the Main Study

The outcomes from this pilot (de Paula, 2018) informed the processes and methods adopted for the main study. An initial outcome from the strategies adopted in the pilot was a reflection about off-the-screen game design and planning: since in the pilot study the software was being tested, I did not employ off-the-screen aids to support participants in their game planning (e.g. structured storyboards, character description sheets). Nevertheless, some participants had considerable difficulties in organising their design process without these paper-based tools, especially because they had to divide their attention between learning to use the software **and** planning their games. Therefore, relying on off-the-screen materials to structure the initial design was considered as a relevant strategy to help participants, reducing possible initial technical constraints. Moreover, these off-screen elements also maximised the pool of semiotic resources available for participants – even if only in specific moments. In that case, instead of relying on digital technologies, participants could employ different modes (e.g. drawings) to convey meaning, expanding therefore the pool of semiotic resources for discourse realisation and identity construction, even if outside their digital artefacts.

The introduction of off-the-screen design in the main study would also help me to detect and explore moments when the software acted as a major influential aspect. During the unstructured interviews in this pilot, I was able to identify a considerable level of improvisation adopted by participants to implement their initial ideas (e.g. "I want this character to fall asleep after I open the door"[29]) using the affordances of *MissionMaker* (e.g. the character dies when the player opens the door, since there was no sleep state for NPCs in the software at that

[29] Andre – pseudonym – 9, explaining what was supposed to happen in his game.

moment). Having design documents – such as storyboards – would then allow me to read the games produced in different ways, exploring the differences between plans and final products. Through these differences, it became possible to build a more detailed account of the discrepancies between intention and enaction, to investigate the "motivated" nature of the signs within these game-making experiences, and to investigate the aspects (e.g. platform affordances, new cultural references, engagement with different discourses) that might have led to these gaps between plans and products.

Another important aspect was related to the use of the voice recorder: while this tool worked well when capturing my interactions with participants, especially during the unstructured interviews, employing it as an aural journal did not work as expected as my voice notes were difficult to understand due to the background noise. This meant that rather than speeding up my access to notes, it in fact slowed me down, since I had to hear the audio file multiple times, identify key moments and then produce a theme-based index for rapid access to data. Therefore, in the main study I adopted a different strategy, employing a paper-based personal journal to take quick notes or, at least, to organise these aural notes for quick access.

A third relevant aspect that emerged from the pilot study was the difficulty in balancing my roles as "tech support" and researcher. Often, I had to interrupt my unstructured interviews to support other participants who were experiencing technical issues. While it was understandable that technical issues would have happened more often in the pilot study, it became clear to me that I would need to envision different strategies (e.g. use of after-session semi-structured interviews) to avoid having data generation moments such as interviews being cut short by this sort of issues during the main study. More details about these strategies will be explored in the next section.

A final reflection stems from the data analysis process: while the Multimodal Sociosemiotics approach allowed me to look at how different modes and semiotic resources were used in the realisation of particular discourses, coordinating interviews, artefacts (games) and observations, it became clear that I would need to explore more multimodal concepts when investigating participants' productions. During my analysis of *Shakira in the Castle*, questions of genre, authenticity and self-expression came into light, and different multimodal concepts – such as modality and cohesion – could have been explored further, especially if more data and production time were available, allowing me to track down different movements and decisions throughout the game-making process.

Main Study

The main study was organised based on reflections from previous similar research (de Paula *et al.*, 2018) and, especially, from the pilot study described earlier. In this section, I will detail the sequence of activities carried out in research sites A and B as part of the game-making clubs composing the main study and methods of data generation and analysis employed to address the proposed research questions.

The first session of the game-making clubs started with introductions and an overview of our main goal (produce digital games). In both settings, participants were encouraged to work in pairs (they were free to choose their teams)[30]. The first activity of this session presented a debate about the nature of games: participants were asked to rely on their gaming repertoires to define what a game is and then to collectively build a list of essential game elements. After this activity, they were given time to play different pre-built *MissionMaker* games, and each group described what they had played and identified how some of the essential elements[31] from the collective list were represented in those games. The choice of using *MissionMaker* games – and not regular commercial games – in this activity was linked to my aim of informally introducing the participants to this software as soon as possible, especially to clarify what kind of games they would be able to create. After this exercise, participants left with an initial homework: to design a humanoid game character[32], an antagonist and think about a background story for it.

The second session began with participants describing their characters. Game-makers were given some initial time to work more on this task, so those who had not done it previously would be able to catch up. After these brief presentations, we recalled some of the game aspects identified during their quick game analysis exercise in the previous session. Each game-making team was then briefed on creating a main plotline for their game and they were also given time and supplies to storyboard it. The only requirement here was to have their protagonist and antagonist as part of this main narrative thread, along with at least one conflict. After working on this initial design, game-makers were introduced to *CharacterMaker* and asked to construct their main character and the antagonist through the module. They were also free to produce other characters that could be part of their game as NPCs, if there was available time.

After producing their characters on the module, they were formally introduced to *MissionMaker*, the main platform used in this study. In this first moment, participants were

[30] Or in trios during some specific sessions in research site A; more details can be found in Chapter 5. One student worked individually in research site B after her pair had dropped out.
[31] Examples of aspects cited: challenge, rules, main character, boss, enemies, story.
[32] The decision to limit them to humanoid game characters was in itself an element linked to the constraints of the platform, since *CharacterMaker* only allows the production of this type of characters.

taught how to import their custom characters, to build an environment and how to traverse it. This introduction to *MissionMaker* allowed them to reflect about the software's affordances and constraints, now with a better understanding of how it was supposed to work when compared to their previous contact with it in the initial session. As a final task, they had to reflect about their initial designs, adapting it to the software if needed, something that directed them towards a reflective approach in relation to their productions and to the software possibilities and limitations.

The following sessions, summarised below in Table 2, were organised around the same structure: we started with a quick review of what had been done in the previous session, and then moved on to a mini-lecture where a new *MissionMaker* technique was introduced. These new techniques were always presented firstly in technical terms – e.g. how to create a simple rule using click – and later in relation to representational terms – e.g. how to make the door open when it is clicked, because there is a treasure behind it. After this introduction, participants were free to work with *MissionMaker*, applying these new techniques and ideas to their games.

Table 2: Summary of activities per session

Session Research Site A	**Activities**	**Session Research Site B**
1	Introduction	1
	Gaming Preferences Questionnaire	
	Game Analysis	
2	Character Design & Presentation	2
	Game Planning (Storyboarding) & Presentation	
	CharacterMaker Introduction	
	CharacterMaker Production	
	MissionMaker Introduction	
	Game Planning #2	
3	Basic Coding Introduction / Review	3
	MissionMaker Technique: Basic Click Rule	
	MissionMaker Technique: Trigger Volumes + Game-making time	
4	*MissionMaker* Technique: Character States (+ Game-making time)	
	Speed Gaming + Feedback	
	MissionMaker Technique: Multiple Conditions and Actions	4
	MissionMaker Technique: Game Economies + Game-making time	
5, 6	*MissionMaker* Technique: Media Objects and Effects (Including Audio Recording) + Game-making time	5, 6
7	Free Game-Making Sessions	7, 8, 9
8	Final Presentation	10
	Questionnaires on Games made + *MissionMaker*	
	Debriefing	

This dynamic of introducing a technique, answering possible questions and supporting participants had to be slightly adapted in two moments: during session #5, when audio files were discussed, and during the **Speed Gaming** session (activity inspired by the pilot described

in the previous section). In session #6 (as seen in Table 2), game-makers were asked to write small dialogues between in-game characters, or even standalone phrases that a character could say in a specific moment. After creating these dialogues, they were moved to a different physical space[33], where these lines were recorded. In some cases, especially when the dialogues required more than two characters, colleagues from other game-making teams were invited to participate as voice actors. A small chat followed these recording sessions to understand how these files would fit into their current design, gaining then extra insights into the current state of the game being produced.

During the **Speed Gaming** session, participants had the opportunity to play each other's games and then provide them with feedback. This session, carried out half-way through the club timetable, helped them to refine some design decisions, especially to make their games more intelligible to different players[34].

There were, however, some differences between the research sites in relation to the sessions and activities. The average number of participants in research site B was lower than in research site A, and a session helper was always available to support me throughout the whole programme, making it easier for me to work with behaviour management and, to a lesser extent, technical support, allowing for a faster progress when introducing new techniques. In addition, since the game-making club in research site B was organised within the context of formal education, with the already mentioned support of a known authority (a teacher), participants in that setting followed the proposed activities more strictly, culminating in different levels of engagement with some tasks (e.g. creation of storyboards) when comparing research sites. While in both spaces activities were voluntary, participants in research site A often identified that fewer consequences were at stake when not following the proposed activities. While these differences were, to some extent, minimised due to the multiple array of tasks and sessions, their impact on these experiences will become more evident in the next chapters.

Another difference between research sites was that participants from research site B were more knowledgeable about coding and more demanding in relation to learning advanced techniques, which contributed to a faster technical progression than in research site A. This meant that content was covered faster in each session, leaving them with more time of free game-making. One of these free game-making periods became in fact a review of *MissionMaker:* due to the already mentioned unpredictable circumstances – severe weather conditions and the consequent suspension of school activities – the last three sessions in research site B were

[33] Adjacent empty rooms were used in both research sites.
[34] For example, adding specific instructions about game objectives.

cancelled and moved on to the following term. Therefore, when the game-making club was retaken after an end-of-term break, participants had to review several of the techniques learnt over the previous term.

Data Generation

The data generation methods employed in the main study were inspired by those adopted in the pilot study described earlier. Most of the methods employed here had already been trialled in the pilot: questionnaires, observations, (unstructured) interviews and game analysis. One difference between these studies was, of course, their duration. While in the pilot I had less than a full school day with participants, in the main study I had the opportunity to work weekly with these youngsters, totalising more than 10 hours of game-making sessions. This allowed me not only to build a rapport with these participants, but also to construct a more comprehensive picture of their design and production processes. This longer time span enabled me to explore the evolution of their designs, generating a more detailed account of how different aspects – e.g. repertoires, software affordances and constraints, discourses – were appropriated or ressignified throughout this process. Table 3 summarises the data generation methods used in this main study in relation to the proposed research questions.

Table 3: Summary of data generation methods according to Research Questions

Methods for data generation	**Research Question 1:** What are the discourses invoked, and which identities young people construct when planning their own games?	**Research Question 2:** In which ways do these participants translate different discourses and identities into their games throughout the game-making sessions?	**Research Question 3:** In which ways is this game-making process influenced by game design and traditional gaming culture conventions?	**Research Question 4:** In which ways does *MissionMaker* shape the games produced by these young people?
Questionnaire about gaming preferences				
Observations/Audio-recording of sessions				
Unstructured Interviews				
Semi-structured Interviews				
Game Analysis				
Questionnaire about final game and *MissionMaker*				

As described earlier, there was a considerable similarity between data generation methods employed in the pilot and in the main study. **Questionnaires** were still applied in the beginning and at the end of the game-making programme, both to map participants' gaming preferences, and to generate data about their games and about *MissionMaker*.

Observations and audio recordings were also employed similarly to the pilot, with the main difference being the addition of a research journal, where I kept small field notes (as possible) and the on-site coding practice for later organisation of the audio files. **Unstructured interviews**, often triggered by technical questions or noticeable design decisions, were also employed throughout the sessions, generating data that were relevant to all research questions.

Nevertheless, this open scenario provided by unstructured interviews was not enough to inform answers to my research questions: even though they rendered a considerable breadth and some depth to my analysis, I could not ignore the specificity of my goals with this game-making experience. In addition, as identified in the pilot, I often had to cut short unstructured interviews due to other issues, such as supporting students that encountered technical obstacles. My decision was then to employ **semi-structured interviews** to follow-up from the unstructured interviews in order to try and overcome some of these constraints of unstructured strategies.

The data generated through unstructured interviews was organised through an inductive coding process (Dey, 2005) coupled with observational data to identify emergent patterns (themes) for each team. These themes, participants' answers to the initial questionnaire, and my preliminary knowledge about their games subsequently informed the elaboration of the semi-structured interview schemes used with each team to elaborate on my investigation of each game-making process. Working with these semi-structured interviews helped me to probe for specific subjective elements during my conversation with the participants. This, in turn, allowed me to elaborate on the links between these subjective elements and whether and how they were translated into participants' games, that is, on how they worked their way through different modes to become part of the games being produced. The example below (from *Experiment Z,* one of the games analysed in this work, after I realised their reliance on science and sci-fi conventions to build their game) illustrates the types of questions explored in these interviews:

- *What kind of movies or TV shows you watch? Are you following any TV series now?*
- *Do you like sci-fi?*
- *Do you think that something like your game (a failed experiment that changes the world and kills loads of people) could happen in reality? Why?*

These semi-structured interviews were carried out prior to the start or at the end of each session, and each group was separately interviewed at least once during the programme. Some participants, who were selected as cases during the execution of the project, were interviewed at least twice. In the final session, participants had to present their game, and a final and closing conversation informed by the final versions of their games and my preliminary analysis of their whole game-making process was also carried out individually with each game-making team.

Game analysis was another important method used to generate data during this empirical phase. Analysing the games was not only important for the construction of answers to my research questions 2, 3 and 4, but they also informed, as stated before, the semi-structured interview schemes. Following other similar research (e.g. Pelletier, 2007; Peppler and Kafai, 2007b), I saved a copy of each game at the end of each session, building then a progressive game archive to show the evolution of their design – something that was not possible in the pilot, due to the single-day nature of that study. This strategy of working with different versions of the same game helped me to understand the paths followed by the participants during this experience by analysing not only the final product, but also their creative processes throughout the whole project. By doing that I was able to explore how different identities were constructed, as well as the possible ways in which *MissionMaker* interfered in this process.

Data Analysis

My analytical process for the main study started from the small initial questionnaire about gaming preferences (how often they played, which platforms they used to play, and to cite three of their favourite games). As previously discussed, the aim of this method was to explore participants' gaming repertoires to understand not only their personal gaming preferences and their relationship with broader gaming cultures, but also to look at how these preferences were aligned to *MissionMaker*'s own traditional-gaming imaginary.

From the three questions found in the questionnaire, the most significant was the one about their preferred games. This is because while the other two helped me to explore their everyday connection with games and play, it was through the third question that I was able to understand personal preferences, and how these specific preferences were linked (or not) to broader gaming cultures. In order to achieve that, data obtained from this last question were organised in two broader categories – "AAA" and "Casual" – which acted as the extreme points of a continuum that depicted whether participants' gaming repertoires (here extrapolated from

their favourite games) were more aligned to the traditional gaming experiences invoked by *MissionMaker* or to different forms of gaming.

While the reasoning underpinning the use of these broad categories – including its limitations – will be further discussed in Chapter 5, this preliminary data informed the further generation and analysis of all other types of data generated within this project. Observations, interviews (unstructured and semi-structured) and, especially, the games – both the design process and the artefacts – were explored under the light of these participants' gaming repertoires, and their answers to this questionnaire were the starting point for the understanding of these gaming preferences.

Multimodal Sociosemiotics was also the analytical framework employed in this main study. Nevertheless, while the initial (and brief) data analysis of the pilot showed that this approach was robust enough to yield relevant results, it was noticed that there was space for the development of a more complete framework to analyse the larger dataset generated by the main study. Thus, the main difference between these two studies was that, due to the longer nature of the latter, it became easier to investigate the participation of game-makers as a whole process, with clear thrusts of design and development, rather than a single block of progression.

In this scenario, the framework of Multimodal Sociosemiotics offered a progressive[35] approach to data analysis that was crucial for tracking, throughout the whole design and development process, how different aspects were invoked by participants and whether they were developed or phased out during the activities. This meant that emerging themes found in the initial analysis of generated data were explored in two main participation moments: before game production (**game-as-plan**) and during game production (**game-as-artefact**). In the first stage, my intention was to identify and explore the main discourses and influences being invoked by participants when designing their games; in the second stage, I aimed at exploring in which ways these discourses were realised into their games. This kind of analysis was only possible due to the nature of the main study, organised as a week-by-week initiative and it was also favoured by some of the data generation methods adopted here, such as the "game archive".

This more complete exploration of their participation as a process allowed me to incorporate different concepts that are significant to the Multimodal Sociosemiotics framework but that had not been explored in the pilot: the first, the conception of modality as a truth claim, and the second, textual cohesion and coherence.

[35] I am using "progressive" here in the same sense as I used "evolution" before: as something that builds-up, that is developed throughout time

Modalities can be understood as truth claims established by texts (Kress and Van Leeuwen, 2001a; Van Leeuwen, 2004), and they are more orientational than representational (Burn and Parker, 2003) and more interactive than ideational (Kress and Van Leeuwen, 2001b). In other words, modalities are better understood as "frames" through which we can judge the authenticity of a text, and these frames are socially constructed rather than individually imposed: they are negotiated. When discussing how truth claims are established, Kress and van Leeuwen (2001b) list four main modality coding orientations, which refer to the strategy – the domain invoked – to construct these claims: **naturalistic** (produced in relation to the natural world), **sensory** (appeals to emotions and sensory aspects), **abstract** (constructed through essentialisation of meanings through signs, such as scientific models) and **technological** (based on a functional relationship). These coding orientations are often combined and were essential to my analysis of the game-making experiences in both research sites, as I will further discuss in the next chapters.

A second aspect of the Multimodal Sociosemiotics framework that was relevant to the analysis of the main study are the concepts of cohesion and coherence (Halliday and Hasan, 2000; Burn, 2008). Cohesion here refers to the intratextual relationships between elements in terms of meaning that allow us to perceive it as a unified text (Halliday and Hasan, 2000), as explored previously in relation to digital game-making by Burn (2008), and that culminate in the conception of ludic cohesion. In this specific work, cohesion was linked to how game-makers were able to use the available semiotic resources to produce meanings in an organised and intelligible manner, leading towards coherence – the intertextual intelligibility of the meanings produced within a text in relation to other contexts. Discourses, a central aspect to this research, operate in the spectrum of coherence, creating logical bonds across different texts (Kress, 2010); thus, they depend on coherence to be realised in intelligible manners.

In this study, the ideas of cohesion and coherence became important when we look at the trajectory of design and production followed by participants, since their pool of choice for meaning-making through mode 'aptness' was reduced by the platform employed (*MissionMaker*). While in the first moment they had a bigger pool of semiotic resources (even if, to some extent, bounded to the conventions and imaginary invoked by "digital games" as a cultural artefact), during the production stage, they were limited to those resources afforded by *MissionMaker*. Cohesion and coherence were then relevant to the analysis of a process that I called as **discourse translation** – the process of adapting specific discourses to a different context through available modes and subjected to the conventions (norms) found in that context.

This notion of **discourse translation** acknowledges Kress' (2010) arguments about meaning-making as a process led according to a sense of "aptness" between the sign-maker's intentions and the selected mode and 'transduction', the transposition of meaning from a (set of) mode(s) to (an)other. My main interest here, however, was to explore scenarios where these processes occurred within very specific constraints: what happens to meaning when participants are transitioning from one discursive form to other (e.g. from the realm of being fans of a soap opera to digital games), from a set of modes (e.g. storyboards and speech) to other (e.g. game mechanics and 3D models)?

It is in relation to these translations that cohesion and coherence – the relationship between (cultural) forms of conveying meaning and interpretation – come to front of the analysis of the game-making experiences explored in this research, and these will be further explored in the following chapters

In order to understand how these "constraining" processes such as the one described above might have affected modality claims, cohesion and, consequently, their identities – something that could demand new meaning-making strategies – I selected at least two game sequences from each game to be comparatively analysed. The execution of this analytical process will become clearer in Chapters 6 and 7, where the selected games will be presented as **game-as-plan** and as **game-as-artefact**.

Ethical Considerations

As in any research involving human beings, an important aspect of this work was not only investigating participants' identities and practices but doing so while respecting their own wellbeing. Safeguarding participants was important in both research sites, but it was particularly critical in research site A, since participants were considered as 'vulnerable young people' due to the precarious situation in which they can find themselves as young migrants in a new country[36]. Under the light of this situation, some specific measures were taken in order to safeguard and allow these participants' an open and free space to express themselves and to play around with different discourses and identities.

A first step was to seek informed consent for their participation, both from parents/carers and from the young people involved in the study themselves. This process was carried out following the guidelines promoted by the British Educational Research Association (BERA, 2011), through written consent forms (opt-out model for participants in both research sites and for

[36] Based on the description of the broader young people project found at research site A's website.

parents in research site B; opt-in model for parents in research site A). Young people were also constantly reminded during all sessions that their participation was voluntary, and that they could withdraw their consent and/or avoid answering specific questions or taking part in specific activities at any time.

This reiteration of the voluntary nature of their participation in the activities was important in order to minimise possible ethical issues arising from the outsider-insider dichotomy (Christensen and Prout, 2002) present in the core of this research. As an outsider conducting research in a space where I did not belong, ethical issues around how embarrassed participants could had been when answering particular questions – especially regarding identity, my main research topic – could arise. In that sense, having participants in familiar environments, among their peers (and known adults, as in research site B) and having the option to choose how to work – in pairs or alone – and to opt-out from specific activities led them to a more comfortable situation, preserving their own interests.

It is important to point out that these were not the only measures taken in order to safeguard and provide a more enjoyable space for participants. Another accommodation, carried out specifically at research site A, was the already mentioned language swap throughout the sessions. Although English was originally agreed as the preferred language for the sessions, it was clear that some participants were uncomfortable about having to use this means to communicate with other game-making club members due to their limited knowledge about this language, preferring to exempt themselves from oral discussions. By allowing them to speak Spanish, it was possible to avoid possible embarrassments that could arise from their reduced English knowledge, making this a more adequate space for these participants.

Chapter 5 – A Brief Description of the Selected Games

The main objective of this project is to investigate how young people can use game-making activities as a means to engage with and realise discourses, orchestrating the available semiotic resources to construct identities. Nevertheless, we cannot ignore how videogames, as a field (Bourdieu, 2014), with its own socially constructed logic and conventions might shape design decisions, favouring specific discourses while demeaning others. These influences are not only limited to "cultural" aspects, but are also found in "technical" ones. This is also the case of *MissionMaker*, which, by itself, already incorporates specific conventions, favouring or limiting specific designs and, consequently the engagement with specific discourses through materially or socio-culturally embedded values (Bogost and Montfort, 2009; Leorke, 2012; Grimes and Feenberg, 2013; Manovich, 2016).

In this scenario, the aims of this research are to explore how this kind of identity work happens in game-making; how design influences vary from participant to participant, and where influences come from; and how *MissionMaker* has influenced their productions.

In order to discuss possible answers to these questions, I will, in the following chapters, rely on data generated in two game-making clubs targeted at young people. As argued in the previous chapter, I chose specific games as cases to establish my arguments in terms of how individuals used the available semiotic resources to invoke discourses and construct specific identities. Nevertheless, since the appropriation of semiotic resources is always contextual in order to produce meaning (Van Leeuwen, 2004), I believe that before moving onto the analysis of the cases themselves, it is important to understand better the context where these games were produced, and why these games were selected as cases.

With this chapter, my intention is to prepare the terrain for the analysis of the selected games by contextualising where and by whom these games were created. This contextualisation will be organised in two steps. Firstly, I will remark specific particularities regarding the development of activities in each research site. This understanding – treated here as a result of the proposed methodology – can help readers to understand not only the unfolding of the game-making clubs within each research site but is also useful to frame design and production decisions taken by participants, as detailed in Chapters 6 and 7.

Before moving to the selected cases, though, the second contextualisation element will be further elaborated. Participants were creating digital games and, as discussed in previous chapters, the underlying logics and conventions found in field of digital games can become influential factors in this production process. These possible influences will be discussed

through the notion of (gaming) repertoires, highlighting similarities and differences across participants in both research sites.

After this contextualisation regarding the particularities of each research space and participants' engagement with gaming culture, represented here by their gaming repertoire via their favourite games and gaming patterns, I will present the selected games. They will be presented through very brief descriptions, not only to help readers to familiarise themselves with game-makers and the theme of their productions, but also to remark why these specific games were selected as cases.

An Overview of Research Site A

As described in the previous chapter, research site A is a Latino community-led institution in South London, and the game-making club was offered as part of their wellbeing programme targeted at young people (14-18 years-old), several of them with a low level of proficiency in English language.

The main cohort for in this research site was composed by 14 participants[37], 6 female, 8 male, with ages ranging from 14 to 18 years-old, and all of them, with exception of one male participant[38], were from Latin American background. One important shared trait was that all of them had experienced migration at least once: none of the participants were born in England, and half of them were already in their second or third new country – several of them following the migration movements from Latin America to Spain between late 1980s and early 2000s (Arango, 2000), and the later moves from Spain to Northern Europe after the 2008 Economic Crisis (Lafleur and Stanek, 2017). This shared experience, combined with the work conducted by research site A, which promoted different activities for these participants at least three days per week, helped to create a sense of community among young people.

In relation to the development of the game-making club, at least two significant particularities resulted in noticeable practical challenges. A first element was a major oscillation in the number of participants: although the initial agreement with the institution was to have **up to** 10 participants, the number of participants in each session ranged from 7 at the lowest to 14 at the most. As expected in voluntary programmes, some participants dropped out, either by lack of interest in the activities or for personal reasons, such as moving to a different place or starting a new job. Nevertheless, the number of participants did not diminish as the programme was reaching its end, but increased in some sessions, something that can be explained mostly

[37]I am considering here participants that were present in at least 50% of the sessions.
[38]This participant was from Kosovar/Albanian background but had previously lived in Spain.

by the nature of the organisation and the framing of the game-making club in relation to the institution's mission.

Since research site A receives new members throughout the whole year, and the programme manager saw the game-making project as a way to improve the well-being of these new members, I was often asked to accommodate more participants than previously agreed, some of them who had just arrived in the U.K. Seven individuals joined the group for at least one session after week 2 (the last session in which a newcomer showed up was on week 4, when half of the whole club had been already carried out), and 3 of these seven late-starters were part of the group for one session only.

While I agree with the main motives for accommodating more participants in the programme (for example, helping newcomers to meet new people and socialise, easing their adaptation to a new country), I cannot say that this change of initial plans did not generate obstacles. Issues regarding this expansion of the group ranged from practical ones – physical space, already limited, became even scarcer – to ones related to pedagogical and production terms, such as having groups doing different tasks in the same sessions, and the need to offer different levels of instruction and/or time to complete tasks to some groups. The magnitude of these challenges was amplified by the fact that I was, during six of the eight sessions[39], the sole responsible for the activities, something that can have produced situations where some participants might had felt neglected for a while. Nevertheless, even though the presence of latecomers posed an extra challenge for the execution of the programme, some of the most interesting participations in this research site – some of them part of the selected cases– came from these late starters.

The incorporation of newcomers into the activities was eased due to a shared sense of community, since most of the participants knew each other from other activities carried out at the institution and held a great collective feeling, at least within this group. During the sessions, participants were in practically all cases cordial and tried to be helpful to newcomers. Even though generating disruptive behaviour sometimes during the activities – especially when whole group conversations about topics completely unrelated to the activities took place, such as asking personal questions after someone new was introduced – this "group feeling" was, in most of the cases, a positive element, since it favoured a collaborative environment. This collaborative environment was also extended to game production, with participants sharing knowledge and showing their games to each other. This sense of community also played a positive role regarding the age difference: the considerable gap among the participants – the

[39]The programme manager was present and helped me during the first and last sessions.

youngest at 14, the oldest at 18 years-old – did not prevent them from interacting with each other. While there were some clearly established affinity groups, I was not able to identify any sense of rivalry or animosity among them.

Besides the oscillation in attendance, a second practical challenge that emerged from this research site was the language employed during the sessions. Virtually all participants spoke Spanish fluently and, as previously remarked, the game-making programme was seen by the organisation as another way – besides the traditional ESOL classes – to hone the participants' command and understanding of English. Nevertheless, participants presented very different levels of English, from fluent to inexistent – especially in the case of the newcomers. During the first two lessons, the initial agreement was to have all instructions and discussions in English, and to assign "interpreters" to the participants who did not feel comfortable to communicate; however, this proved very difficult to organise since participants that were acting as "interpreters" were considerably overworked, spending more time dealing with translations between English and Spanish than actually focusing on the activities, something that was aggravated by having to help newcomers who were still involved in the earlier stages of activities.

In order to avoid this issue, we decided, as a group, to promote a mixture between English and Spanish as the official languages of our activities, asking those who were capable of using English to keep doing it, whereas those who did not know English would be asked to use mostly Spanish, as long as they also employed some constructions and expressions in English. I kept favouring instructions in English and, when required, translated what I had just spoken to Spanish to a participant who might not have understood what had been said. When Spanish was overused, or a very particular term or slang was employed, one of the participants helped the only participant who was not a native Spanish speaker, translating the message to English and thus making sure that everyone had the chance to take part in the discussions.

This language-related decision, despite having considerably increased my work as the session leader – since neither Spanish nor English are my first language[40] – minimised the pressure over the "interpreters", allowed space for solely Spanish speakers to express themselves equally in the discussions, and kept the possibility for participants to get used to listening to English and learn new vocabulary. Furthermore, since identities are key tenets of this project, it seemed fair to allow participants to use different means to express themselves, and language – with all its nuances, accents, word choices, and cadence – cannot be ignored in relation to self-expressive acts.

[40] My first language is Portuguese, which, by itself, would qualify me to speak "Portunhol" (Lipski, 2006), but I studied Spanish for 5 years, achieving a reasonably good level of proficiency.

An Overview of Research Site B

Research site B is a good, non-faith, mixed sex community primary school in North East London. The activities were offered as an after-class club for Year 6 students (aged 10-11). Differently to what happened in research site A, participation in research site B was more consistent. The programme started with a total of 9 participants (4 girls and 5 boys), and although presence was steady during most of the sessions - one girl dropped out after two sessions – our three final sessions had only half of the participants. This major drop in participation was related to a timetable problem caused by unforeseen circumstances: the initial plan was to have the programme running throughout the whole of the 2nd term (between January and March 2018); however, three sessions originally planned during this period were cancelled – two of these due to severe weather conditions, which culminated in the closure of the school. In that sense, the programme had to be extended to the following term, with the final 3 sessions happening in April. This, in turn, created a schedule clash for some of the participants, since they had already committed to different after-class clubs in Summer term, and preferred to begin the new activities rather than concluding their games.

The context also played a significant role in terms of the development of activities. A different social dynamic was in motion in research site B, especially due to the already existing relationships among participants. Differently to what happened in research site A, where individuals generally shared the same spaces only at specific times, in research site B several of the students were routinely in contact with each other. This meant that social bonds – for better or worse – were more evident in research site B, which became clearer with interactions among participants as the programme progressed. After a few sessions, it became clear that relationships were more intense in research site B, with both positive demonstrations of camaraderie, and negative examples of animosities between different students happening more often and more noticeably.

Another significant difference comparing participants' behaviour in different research sites was that in research site B behaviour management was often an issue, an aspect that, to some extent, was related to the more intense social bonds mentioned in the previous paragraph. This does not mean that all participants in research site A were always engaged in the activities, and in research site B only a few of them wanted to take part in the exercises. It meant, however, that research site B uninterested individuals adopted a much more disruptive behaviour when compared to research site A counterparts. While this kind of disruptive behaviour posed a challenge for the development of the activities, this was overcome with the support of the present teacher and with minor changes to the original plan – e.g. rather than presenting a new

MissionMaker concept by showing it working on screen, doing a small practical activity involving the uninterested student.

As described in this chapter, there were some visible differences in terms of cohort and how the general experience occurred in both research sites. This does not mean, however, that some similarities between both contexts could not be found. Even if age, cultural backgrounds, and behaviour during sessions – just to mention some aspects – were sometimes dissonant across research sites, at least one aspect was clearly noticeable as influential in both research contexts: participants relied heavily on their repertoires to organise their game-making processes. But how were these gaming repertoires contextualised in this research?

Repertoires, Conventions and the Game-Making Clubs

In this study, previous gaming experiences were organised as gaming repertoires, an extension of Canclini's (2001) notion of cultural repertoires discussed in Chapter 3. Repertoires become an important aspect to be considered when analysing the games produced here: repertoires would not only organise the kinds of discourses they would engage with and how they would realise (or not) these discourses, being therefore heavily influential in their creative process and the construction of identities. Therefore, examining participants' repertoires becomes of significant importance to better understand their games.

A small glimpse of their gaming repertoires was generated through the questionnaire applied in the first session of the workshops: they were asked to list 3 of their favourite games, which were later categorised according to the broader categories of **AAA** and **Casual**.

By **AAA**, I am referring to games that are often seen as the core of traditional gaming culture: games that are played on dedicated machines (gaming consoles) or that have a high processing power (e.g. PCs) and that require a reasonable time investment. Some of the games cited by participants that fit in this category would include, for instance, *Fortnite, FIFA, GTA, Star Wars Battlefront, LEGO Marvel* and *Just Cause 3*.

By **casual**, on the other hand, I am referring to games that often run on mobile devices or less "powerful" platforms (e.g. Web-based Flash games played on PCs) and that can be played in shorter sessions and that not necessarily require an extensive time investment. A list composed by games referred to by the participants would include, among others, *Cooking Mama, Subway Surfers, Bubble Witch 2 Saga, Homescapes* and *Candy Crush Saga*.

By invoking these two broad categories, my intention is not to propose a solid, formal approach to organise how digital games should be experienced as a field (cf. Wolf, 2002), but to

understand how these participants' gaming repertoires are constituted. Since understanding how gaming conventions are influential factors for game-makers is one of the objectives of this research, it makes sense to explore participants' general gaming preferences to comprehend whether – and how, if applicable – their gaming repertoire is invoked during their gaming production.

This reconstruction of participants' repertoire becomes even more important when we consider that *MissionMaker* itself invokes a specific kind of gaming repertoire, closer to the Action/Adventure/RPG experiences promoted by several of the games listed as AAA (e.g. *Just Cause*, *GTA*, *Fortnite*), and that share little with Casual games, such as *Cooking Mama* or *Subway Surfers*. This alignment with or distance from *MissionMaker* could have been influential in different ways and at different times: would it help participants to manipulate its interface? Would it help them to come up with ideas that are easier to be implemented through the platform? Or would a more aligned repertoire work as a "constraining factor", in the same way as gaming genres might work according to Anthropy and Clark (2014)? In that sense, having a glimpse of participants' gaming repertoire is essential for this research, and this glimpse was achieved through initially sorting their favourite games using these broad categories of 'AAA' and 'Casual' games.

Table 4 displays participants' repertoires according to the categories proposed above. Besides the two categories, the cases in which their repertoires were "mixed" (consisting of at least one game from each category) were also considered and are represented by **Both** in the following table. **None** was employed when a participant claimed to not play games, not offering any title as her favourite.

Table 4: *Participants' repertoires according to their preferred games' overarching genres*

	Participants Site A	**Participants Site B**	**Total**
AAA Only	5	4	9
Casual Only	5	1	6
Both	1	4	5
None	3	0	3
Total	**14**	**9**	**23**

As it is possible to notice, repertoires were considerably more polarised in research site A: only one (male) participant had both Casual and AAA games among his favourites. There was also a significant divide between the kinds of favourite games, with participants orbiting either Casual or AAA games, with two participants claiming to not play any games. In research site B, their repertoires were reasonably less heterogeneous: all of them played games – or claimed to – and all but one had experiences with mainstream gaming platforms among their favourites.

This difference between research sites was not only due to personal preferences, but it can also be linked to a question of access. While in research site B all participants had access to a mainstream gaming platform at home, only one of the seven participants in research site A who did not list any AAA games among her favourites had easy access to gaming consoles. Furthermore, even if some of them used personal computers to play, they never looked beyond easy access web-based games (such as Flash-based applications).

This lack of access in research site A, unfortunately, is correlated to gender. Even though the sample is quite limited and specific, it is worth highlighting that all seven participants who did not have mainstream-platform based games among their favourites were girls. This correlation between (lack of) access and gender is, unfortunately, not a novel topic within games research (e.g. Carr, 2005; Pelletier, 2008; Richard, 2016). Therefore, it is important to explore not only how these participants would respond to situations where their gaming repertoires might not be aligned to the possibilities offered by *MissionMaker* but how to support them to increase their engagement with digital games and gaming in general – moving away from something that is niche and available only for some people, to an activity that is more inclusive and plural, that is open for multiple voices.

This is, however, only one of the challenges in this study: we cannot ignore that even participants who are used to what I categorised as mainstream platforms – consoles, PCs – do not have an easy task when developing their own games. Their familiarity with conventions, genres and interfaces can be – to use a game platitude – a double edged sword: it can help their interaction with the platform but, at the same time, it can also work as a creativity inhibitor (Anthropy and Clark, 2014). Different repertoires led to different challenges in this game-making process. It was with these different challenges in mind that the three games briefly presented in the subsequent section were selected as analytical cases for this project. This succinct presentation will be followed by the analytical chapters, where I will investigate how repertoires, values and platform's affordances and constraints were organised by game-makers to realise specific discourses and, through this process, to construct identities.

Selected Games

Extrovertido

Extrovertido was a game produced in research site A by two girls, Marta (14) and Carla (15). In their game, the player is Baek Ma Ri, a young woman searching for her missing boyfriend Jung Jae Min. Ma Ri soon discovers that he was kidnapped by Ah Ra, a rival who was jealous of their relationship. Baek Ma Ri then confronts Ah Ra, but the former did not know about Ah Ra's magic powers, which are used to prevent the heroine from reaching Jae Min. Ma Ri then goes on a mission to look for clues and finally find where Jung Jae Min is being held. Figure 7 below shows a frame of the opening scene, in which Baek Ma Ri, after wandering through a forest searching for Jung Jae Min, finds him as a captive by Ah Ra and confronts her nemesis.

Figure 7: Extrovertido opening scene: Initial confrontation

I selected Marta and Carla's game as a case for different reasons. Firstly, they were some of the most engaged participants in the programme, always taking part in the proposed activities, even if Carla joined the group later. Although they struggled with the technical aspects in relation to software manipulation – especially in the initial sessions – these difficulties did not prevent them from producing an interesting and compelling game. Besides this struggle with technical aspects, which is an important aspect to be explored regarding the maker-software relationship, there were at least two other interesting elements that made their game stand out. Firstly, there was the main cultural inspiration for their game since, as hinted by characters' names, there is a great reliance on contemporary Korean popular culture. Secondly, there is a significant engagement with discourses of gender in their game, realising specific views about femininity that are interesting to be discussed in relation to gaming.

Experiment Z

In *Experiment Z*, game produced in research site A by Yerry (14) and Juan (17), the main character is Sherlock, a well-accomplished and incredibly smart scientist who seeks the truth after a terrible experiment from Mar Industries, his old company, has gone wrong. While working in Project SRX, which aimed at enhancing human and animal genetics, Sherlock's boss, Elsare, changed Sherlock's samples for a bad gene, which Sherlock injected into a DNA chain. This failed experiment created a super-resistant virus that affected all human population with the exception of those who had A-type blood, killing billions (including Sherlock's family).

Sherlock's mission, then, can be divided in two objectives: first, to reach Mar Industries' underground lab, where he would be able to look for a cure for the virus; second, to find Elsare, discover the truth about the project SRX and avenge his family. To achieve these goals, Sherlock has first to fight against a multitude of mutants to reach the secret site. There, Alejandro, a former co-worker, helps him to produce a cure. In this process, Sherlock discovers to be part of an evil experiment (*Experiment Z*, hence the name of the game) which involved creating a generation of genetically enhanced scientists and consolidate world domination. Your objective then is to stop the Elsare and save the remaining humans from a future of serfdom.

Figure 8 below presents a frame of *Experiment Z*, moments after Sherlock discovers his origins as an experiment. He is then confronted by a clone and an army of mutants, who intend to stop his crusade to save humanity.

Figure 8: Sherlock facing his clone and an army of zombies

As it happened with *Extrovertido, Experiment Z* was selected due to different factors. Yerry and Juan also presented a high level of engagement with the programme, but not in the same way as Marta and Carla. While they invested a considerable amount of time in making their game, they sometimes ignored the proposed activities, preferring to carry out their own exploration and use of the software and, more broadly, of the game-making process. Both participants were considerably tech-savvy and keen videogame players, something that played a role in their approach to the game-making sessions, offering then another perspective regarding the possible uses – and influences – of *MissionMaker* on game design. Moreover, as it becomes clear from the brief game description above, the plot is heavily inspired by sci-fi elements (laboratories, viruses, ethically questionable experiments), presenting then an interesting entry point to discuss diverse aspects, from fan practices to genre-based formats and normalised views about gender within gaming.

Noob Assassin

Designed by Stephen (11) and William (10) in research site B, *Noob Assassin* tells the story of Dave McDonald, a secret CIA experiment: he was kidnapped when a baby and injected with the powerful drug "El Nubish", transforming him into a permanent **noob**. In their original idea, Dave McDonald would be an agent recruited to assassinate US President Donald Trump, failing several times until, by a struck of luck, being able to complete his mission.

Figure 9:Dave McDonald investigating strange phenomena

Noob Assassin is a relevant case not only due to the level of commitment displayed by Stephen and William, but also due to its interesting approach. Games that delve into a militaristic tradition often rely on a sense of seriousness, but *Noob Assassin* goes in the opposite direction, with humour playing a significant role in their game. Their engagement with Donald Trump, one of the most controversial personalities of mid-2010s, was also a significant point that led towards the choice of their game as a case. A third aspect that made their game an interesting case study was their experimental relationship with *MissionMaker*. This is because *Noob Assassin* is, arguably, the game that tested *MissionMaker's* technical possibilities the most, opening then an important space to discuss it as a platform, in terms of affordances, constraints, incorporated conventions and innovation.

Chapter 6 – Different Repertoires, Different Proposals: Working Game Ideas

In the following chapters I will analyse the three games briefly described in the previous chapter. By examining some of the games created in the game-making clubs, I intend to clarify how game-makers realised discourses and constructed identities in these spaces, orchestrating, among other aspects, their repertoires and the technical means available. This analytical process will be divided into two chapters, organised in a chronological manner.

In this chapter the focus will be the initial aspects related to their design, such as their inceptive ideas, noticeable influences to pursue that design, or how characters were described and created. Here, I look at their game as a plan (**game-as-plan)**. This phase can also be understood as "pre-*MissionMaker"*, since all elements discussed here refer to their design state before being implemented through *MissionMaker*, including characters that were produced in *CharacterMaker*, but not imported into the participants' games yet.

In Chapter 7, I focus on the process of game production itself or at the **game-as-artefact**. It is the *MissionMaker* phase, since its main objective was to understand in which ways repertoires, the game-as-plan and the software were used to create semiotic ensembles in the form of a digital game.

This division between **game-as-plan** and **game-as-artefact** follows Kress and van Leeuwen's (2001a) strata of the communicative act, briefly discussed in Chapter 3: discourse, design, production and distribution. In the current chapter, the two former strata – discourse and design – are the focus of analysis, with attention paid to understanding the cultural contexts inhabited and invoked by participants (discourse) and their planning process for realising these discourses (design) – acknowledging, here, the entanglement between these two strata, as proposed in Chapter 3. In Chapter 7, the focus turns to the process of implementation (production) and how the game produced by them is played (distribution).

By working on these two chapters, I intend to highlight what I call the **intentionality gap**, the discrepancies between the **game-as-plan** and **game-as-artefact**, to understand how participants engaged with different discourses. In diverse moments, these engagements and consequent realisations of discourses were mediated by culture – including, but not only, participants' repertoires – and by material constraints and affordances offered by the software, culminating in the construction of specific identities. This **intentionality gap** allows us to understand how specific mediating aspects – platform, gaming conventions – influenced these participants' during game production, destabilising their semiotic ensembles and, consequently, the identities previously constructed by them when their games were still a **plan**.

An important aspect that must be remarked before moving to the analysis of the design and production process is that these games were not only produced "inside" culture – e.g. inside the system of meanings of videogame culture (Muriel and Crawford, 2018) – but also 'in relation to' culture (Penix-Tadsen, 2016). This means that the digital artefacts analysed here were not only constitutive part of the field of digital games, but were also produced in relation to other contexts, invoking then intertextual relationships, sometimes coherent, but always generating new motivated signs (Kress, 2010). These motivated signs are not only self-referential (enclosed to the field of digital games), but that are produced in relation to – and can be read through – different cultures.

The intentionality gap is, therefore, a meaningful concept to explore what I named as **discourse translation**. Discourse translation, in this context, can be understood as the process through which sign-makers (game-makers) use cultures (systems of meaning) in different ways. The process described here is akin to the "design" process in Social Semiotics (Van Leeuwen, 2004; Kress, 2010), which describes how sign-makers select modes according to its communicational "aptness". In the context of this study, however, sign-makers (game-makers) are already influenced by the conventions of digital games (the discourse of digital games that influences game design, as outlined in Chapter 3). Moreover, they have a very specific range of semiotic resources available to realise different discourses and are required to, in several situations, to employ modes that they are not completely familiar with. **Discourse translation**, therefore, is the name I gave to this process, in which a sign-maker will generate motivated signs through the available modes, often realising discourses that are not necessarily favoured by that domain and employing an improvisational approach, and will not necessarily assure a clear, straightforward communicational event, but can lead towards different interpretive acts.

Discourse translation is especially evident when analysing the **game-as-artefact**, where the constraints that rule possible discourses in that practice are more noticeable, since the field that they are "translating to" is always that of digital games – therefore, from a different context to the field of digital games. Nevertheless, discourse translation also happened in the early stages (game-as-plan), since participants had to organise their ideas (including repertoires) into a cohesive and coherent digital game proposal, through reasonably discernible elements such as characters, motives and rudimentary game mechanics using different modes. The following sections will be dedicated to exploring this discourse translation process in these early game-making stages, where I will explore how discourses were realised and translated from context to context. This translation and realisation of discourses led to the construction of identities, offering then possibilities to understand how participants articulated specific positions in relation to their own realities.

Extrovertido: A Globalised Tale of Latin American Fans of Korean Pop Culture

Extrovertido was the game produced by research site A participants Marta (14) and Carla (15). Marta was born in Spain to Dominican parents and has been living in London since 2016. Carla came from her native Bolivia to Spain when she was aged 5 and arrived in the U.K. just two months prior to the beginning of the game-making club. She was one of the latecomers, joining the group during Week 2. Both participants had a great command of spoken English, and they often worked as interpreters for other members of the group while this strategy was still in use.

Neither of them presented a vast gaming repertoire. Marta had among her favourite casual mobile games such as *Candy Crush Saga* and *Parchis*[41], while Carla claimed to not have a favourite game and that playing videogames was not part of her routine. As discussed earlier, this gaming repertoire is not necessarily a direct result of specific gendered preferences, but is 'an assemblage, made up of past access and positive experiences and subject to situation and context' (Carr, 2005, p. 479).

This diminished gaming repertoire – especially the lack of non-casual PC-based gaming experiences – would later affect their experience in the project, culminating, for example, in a steeper learning curve in the mastering of *MissionMaker's* functions. On the other hand, this also meant that they were not necessarily under the possible constraining effect (Anthropy and Clark, 2014) promoted by gaming conventions based on the Action-Adventure game genre invoked by *MissionMaker*.

Marta and Carla presented, therefore, what I call a **dissonant gaming repertoire**, since their gaming experiences were considerably unaligned to those favoured by *MissionMaker*. This gave them some freedom to, potentially, move beyond gaming conventions and produce an artefact that engaged with other topics or emotions. It also meant that challenges for implementing this plan could become more evident and difficult to overcome. From a design perspective, an important question was how their design process was structured, since they lacked familiarity with more traditional gaming references that could have supported the construction of their game-as-plan. Moreover, would they, while dealing with all these elements, be able to incorporate their identities and produce cultural statements through their design? In the following sections, I aim at clarifying some of these aspects by analysing their **game-as-plan**.

[41]A digital version of the traditional Indian board game *Parcheesi*.

From Dissonant Repertoires to Designed Distinction

In order to minimise some possible issues that the dissonance of repertoires could bring into the design spaces, some strategies were adopted by me throughout this project. In both research sites, the initial session was dedicated to discussions about what participants understood as games and to have them play some small pre-made *MissionMaker* demo games. These activities allowed me not only to map what they knew about games, but also to present to them some of the design possibilities that *MissionMaker* could afford. This meant that, from session one, participants such as Marta knew it would be difficult to produce a game such as those they were used to play such as *Candy Crush Saga*.

Another measure taken to reduce the role of gaming repertoire in the game-making processes was the promotion of a narrative-based approach for their game: participants were asked, as homework for Week 2, to imagine characters for their games. Their homework was to design characters, including here different traits and a backstory to contextualise their game actions. The use of this narrative-based approach helped to promote an equal starting point to all participants. While diverse levels of gaming repertoire and technical expertise were identified in the initial session, we cannot ignore that their experiences with narratives were more balanced. Narrative is regarded as universal – transhistorical, transcultural – (Barthes and Duisit, 1975), and it offered an initial structure to which different participants, such as Marta and Carla, or the more game-proficient Juan could relate to. This decision of promoting a narrative-based approach was also grounded on the idea of working "with" the platform, since *MissionMaker* was originally envisioned as a software to explore narrative-based gaming. By doing this, I was exploiting one of the strengths in the platform at the expense of other possible game design approaches (e.g. game mechanic-oriented), and here I cannot ignore my role in shaping the way participants were working in this study.

The path chosen by game-makers – led, in this case, by Marta – was to rely on an existing story as a starting point. This relationship, firstly implicit, was unveiled when I was learning about their characters. The naming pattern chosen for their characters, with all having Korean names, was a distinctive feature that was later investigated:

Excerpt 1: Marta and Carla explaining the origin of characters' names[42]

Researcher: So, where did these names come from?
Marta: [laughs] It's because I love Korea! I'd love to learn Korean and visit the country!
Researcher: Why, do you like K-Pop?
Marta: Yes, I love K-Pop!
Researcher: And are these names that you used from musicians?

[42]Unless stated differently, all dialogues were carried out in English. When Spanish was used, an English translation will be provided in the text body, and a transcription of the original exchange will be presented as a footnote.

Marta: No…
Researcher: And from where [are they]?
Marta: a [TV] series…

In Excerpt 1 above, Marta remarks the main influence for her character naming. She also states her taste for Korean pop culture products – such as music and other media texts – and hints about a specific TV show. *Orange Marmalade*, a 2015 Korean vampire-inspired teen soap opera, has Jung Jae Min and Baek Ma Ri as its main protagonists[43], and [Jo] Ah Ra as the main antagonist who closes the love triangle that is central to the plot. But why would two girls of Latin American origins living in London choose to make a game about an obscure South Korean teen soap opera? One of the possible answers to this question comes from a personal preference, invoked here to elaborate a personal identity statement based on the consumption of a specific type of media text (Canclini, 2001; McDougall and Potter, 2015; Potter and McDougall, 2017). Nevertheless, to understand this argument, we must take a step back and briefly reflect upon the scenario where this statement was produced.

Throughout the sessions in research site A, I noticed that Far East popular culture was a considerably significant part of the different media practices adopted by the participants. *Dragon Ball Xenoverse* was cited by two of them as one of their favourite games; at least two other participants wore different garments that referred to *animes* or *mangas* such as *Naruto*, *One Piece* and *My Neighbour Totoro* throughout the sessions; and, during off-session informal chats, five participants (Marta and Carla among them) listed *anime* as one of their favourite audiovisual genres. An interesting element here, however, is that even if Far East popular culture held a considerable influence among these participants, none agreed to be referred to as an *otaku*[44] when asked.

This influence of Far East popular culture among research site A participants can be read as an interesting example of how contemporary culture is not limited to a single context, geographical space or ethnicity. It demonstrates how diverse flows of people (as experienced by practically all participants in this research site), goods and especially meanings – often disseminated through what Canclini (2001) and Appadurai (1996) call mass electronic media – contribute to the production of different repertoires (different experiences, imageries, narratives, meanings). The most distinctive trait of this contemporary phenomenon is a detachment of these cultural repertoires from local identities (Appadurai, 1996; Canclini, 2001; Ito, 2010), explaining why it is not unusual to find out that London-based young people of

[43]Names are presented in the traditional Korean form, with surnames coming before given names. Throughout the text, I will often use the more casual forms 'Jae Min' and 'Ma Ri', omitting these characters' surnames.
[44]All of them had heard the term before, but still rejected the label.

Latin American heritage watch Japanese *animes*, play North American videogames and listen to Colombian *reggaeton*.

More important, however, is how those repertoires are used. By making a game based on *Orange Marmalade*, Marta and Carla were proposing a cultural statement through taste (Bourdieu, 1984). They shared some preferences with their colleagues; they claimed to be fans of *anime*; but, at the same time, they were the only participants to directly refer to a specific Asian media text[45]– and one that specifically no one else in that space knew about[46]. These participants were then positioning themselves as *connoisseurs*, as knowledgeable 'consumers' – in the sense defined by Canclini (2001) – or 'participants' (Jenkins *et al.*, 2009; Ito, 2010) of the Korean Wave (cf. Huat and Iwabuchi, 2008), showing off a repertoire that can be "cashed in" as significant cultural capital within the field of contemporary popular Asian culture through their knowledge of a niche media text. Here, it is possible to notice a logic of distinction via taste (Bourdieu, 1984) being operationalised by them, using their game-as-plan as a means to remark their (privileged) position achieved through the display of specific knowledge in relation to contemporary popular Asian culture.

Besides affording game-makers the articulation of this distinctive position through taste, this use of an existing media text as the base for their game is comprehensible if we consider the approach proposed to the participants, namely, to start their design from a narrative point. Having defined characters and a basic storyline would then help them to organise their design process around these elements by giving an objective to them. The question that follows, then, is how would participants explore their chosen media text (the soap opera *Orange Marmalade)* throughout their game-making?

One element that stands out from this process was the noticeable "rework" of the original media text by the participants. *Orange Marmalade* presents a world in which humans and vampires coexist; the narrative focuses on the latent high-school romance between the popular (male human) Jae Min and the introvert newcomer (female vampire) Ma Ri. Their relationship is often challenged by the acts of Ah Ra – the most popular girl in their school, a human – and Si Hoo – Ma Ri's best (male) friend, vampire – who have feelings for Jae Min and Ma Ri, respectively.

Marta and Carla opted to produce a game where the player controls Ma Ri, who discovers that her romantic interest, Jae Min, was kidnapped by her rival Ah Ra, something absent from the original text. The goal is to track down Ah Ra and rescue Jae Min. His time in captivity,

[45]Other participants referred to other popular narrative forms, such as Hollywood movies or telenovelas.
[46]When presenting their game in the final session, I asked other participants if the names given by Marta and Carla to their characters meant something to them, and none replied.

however, caused severe trauma and memory loss, and the final mission is then to take care of Ma Ri's potential lover until he regains his mental faculties.

This reworking of the original text allows us to read Marta and Carla's game as a remix (Sonvilla-Weiss, 2010). Their game re-combines elements from an existing media source with other traditional narrative ideas (e.g. "damsel in distress") to create a whole new piece, but keeping the references from the original source visible. In this case, they borrowed characters and some plot elements – e.g. the love triangle – from a specific media product while also adding new features to their plot, thus positioning their creation in a middle ground between something completely new and their "original" chosen text (Sonvilla-Weiss, 2010).

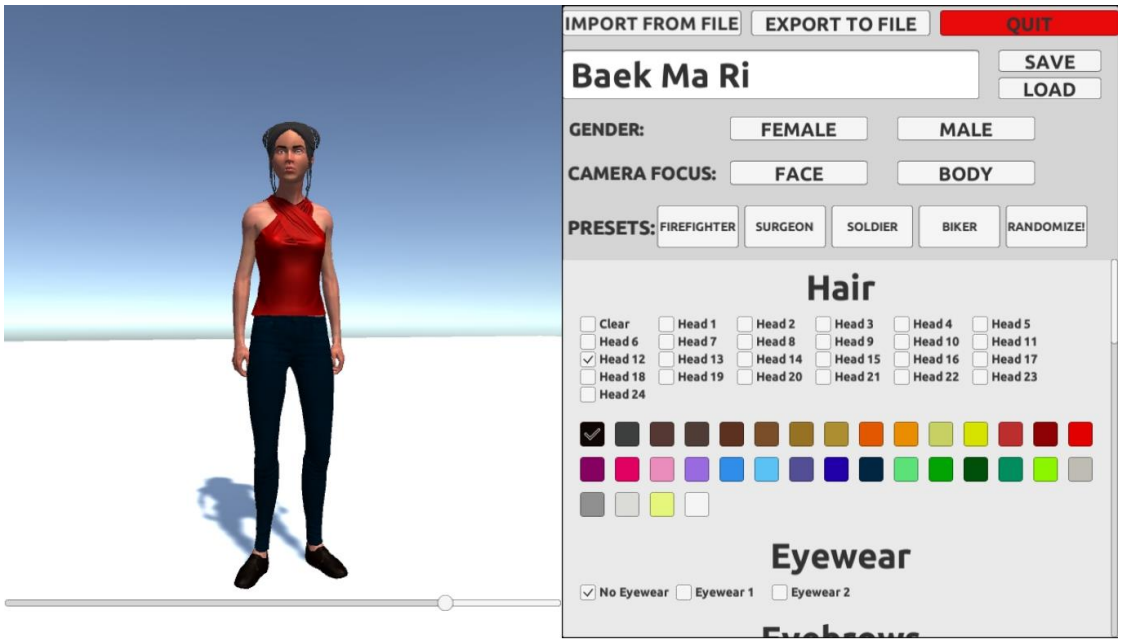
Reading their game as a remix also enables us to explore their production beyond simplistic labels such as 'original' (creative) or 'derivative' works (Ito, 2010). It opens up space to understand their use of the original text as a resource to realise different discourses, which are directly related to their curatorial process of identity construction (McDougall and Potter, 2015; Potter and McDougall, 2017). In the following sections, I will further explore their engagement and realisation of different discourses, looking at how specific meanings were created through their construction of Ma Ri as a 3D model and at how the semiotic resources available were organised to achieve a certain level of authenticity for their own text in relation to *Orange Marmalade*. This process will be analysed through the Social Semiotic concept of modality (Kress and Van Leeuwen, 2001b; Burn and Parker, 2003; Van Leeuwen, 2004), exploring how different semiotic resources can be used in communicative acts to produce specific truth claims (Kress and Van Leeuwen, 2001b; Burn and Parker, 2003; Van Leeuwen, 2004) – in Marta and Carla's case, to claim an identity by positioning themselves as distinctive, knowledgeable fans of *Orange Marmalade*.

Creating Baek Ma Ri

After planning their characters and base narrative, participants were asked to use *CharacterMaker* to produce 3D models of their game's characters. As described in Chapter 4, *CharacterMaker* offers two standard humanoid base models (a female and a male version) that can be customised through the assemblage of a series of pre-made 3D model parts (e.g. hairstyles, tops, shoes, accessories) and the manipulation of some base parameters (e.g. skin tone, hair colour, height, body mass, nose width). *CharacterMaker* also offers some pre-made clothing options, such as Surgeon or Soldier, and a "randomise" function that attributes random parameters and clothing selection to the initial base model.

Figure 10 below presents Baek Ma Ri as created by Marta and Carla. As indicated by the picture, she wears blue skinny jeans, casual black trainers and a red neck strap blouse. She is extremely thin, as designers have set the parameter "Body Mass" to the minimum. Her most distinctive features are, arguably, her deeply white skin, her dark hair arranged in an *odango* (double bun), and her light-coloured eyes.

Figure 10: Baek Ma Ri, as designed in CharacterMaker



One of the issues related to this version of *CharacterMaker* is that the options to create Asian-like characters were limited. Although one of the logics behind the development of *CharacterMaker* was that of augmenting the available set of semiotic resources in game-making through *MissionMaker*, the facial parameters available for them to emulate features that are stereotypically acknowledged as East Asian (e.g. epicanthic fold) were not available in this version of the software. This could, to some extent, undermine the sense of authenticity pursued by designers, since their character should not only be named as a Korean, but also look Korean, establishing then a stronger truth claim (Van Leeuwen, 2004).

In the face of this absence of stereotypical East Asian features in the software, this authenticity was pursued by making their digital version of Ma Ri resemble an average Korean through the choice of other elements. In the version displayed above, two main physical traits can be identified as tokens for this Koreaness: the very white skin and the hairstyle.

A clear white skin is often remarked as a sign of beauty especially in Far East societies (Li, Min and Belk, 2008), something illustrated by the amount of beauty products that claim to offer a fairer skin, such as Korean face masks. The use of a white skin here – the lightest tone available on *CharacterMaker* – can be seen as a statement made by designers, indicating their knowledge

about specific meanings in the culture that was used here as an inspiration. They also pursued a more direct resemblance between the character portrayal at the TV show and their digital version since, as seen in Figure 11, Ma Ri's skin colour is quite light.

The adoption of the double bun as Ma Ri's hairstyle works then as a complementary sign for establishing their desired relationship with East Asian cultures. *Odango* is a hairstyle often favoured in characters' representation in *anime*, *manga* and other media forms – such as *Street Fighter's* Chun Li. Different media texts enjoyed by the participants, such as *Sailor Moon*, had characters who adopted this hairstyle, and this relationship with East Asian female characters was here invoked to articulate and realise a discourse about "Koreaness/Asianess".

It is also important to remark here, however, that the line between a deliberate design decision to reinforce a perceived authenticity of their digital Ma Ri and their own personal preference was a little blurry. This is because the *odango* was also one of Marta's favourite hairdos, and she came to the sessions in that style more than once. Nevertheless, this does not necessarily invalidate the truth claim reinforcement hypothesis. On the contrary, her decision to come to the sessions in the same style as their Ma Ri can be read under the lenses of what Van Leeuwen (2004) defines as "style" in Social Semiotics: ways of organising semiotic resources in communicative interactions to construct specific identities. Her hairstyle choice, in this case, could be a communicative act through which she was claiming a specific position as a knowledgeable fan of East Asian popular culture, realising then a specific discourse of a fan/expert on Korean popular culture. It is important to remark that this strategy – employing Social Semiotics "style" to claim a specific cultural position in media production by young people – is also found in other research, such as Burn and Kress' (2018) work with digital storytelling.

A final and interesting touch is Ma Ri's light-coloured eyes. Initially, this might seem an element that decreases the modality (truth claim) of the sign (Van Leeuwen, 2004), since natural light-coloured eyes are highly rare among East Asians. Modalities, however, can be presented in different configurations, combining in the same claim (within the same "text") different signifying systems – and different representational modes (Kress and Van Leeuwen, 2001b). These notions become more significant when exploring **modality coding orientations** discussed earlier in Chapter 4 (Kress and Van Leeuwen, 2001b).

Up to now, Ma Ri's modality (truth claim) was being judged under the **naturalistic** coding orientation. In other words, the rules of the natural world are being invoked to judge whether she is credible or not (Kress and Van Leeuwen, 2001b; Burn and Parker, 2003). Following these

"natural rules", she would present low modality, since blue eyes are rare among Asians, leading to contradictory signs between her eyes colour and her "Asianess".

Nevertheless, our judgement of this truth claim changes when we examine the "original" text. In *Orange Marmalade*, Ma Ri is a vampire trying to conceal her nature, and her eyes' colour are used in the TV show as an indicative of her current active state. Her eyes are dark when her human side is dominant, and a purple-ish blue when her vampire side is dominant, as Figure 11 shows. This use of different eye colours in *Orange Marmalade* can be read in a similar way as the hyperrealisms (e.g. supersaturation of colours in photographs) described by Kress and Van Leeuwen (2001b) and Burn and Parker (2003): as ways of invoking a sense of fantasy, of a space/world that is both similar and different to our realities – in the case explored here, where vampires and humans coexist.

Figure 11: Baek Ma Ri (played by Kim Seolhyun) in human (left) and vampire forms in Orange Marmalade (2015)

(Left image: https://i.pinimg.com/originals/68/b7/62/68b76223f1c1d77c28695e591cc956fc.jpg, Right Image: https://imgix.bustle.com/rehost/2016/9/13/ec2db513-a368-43c1-9949-06f8e53ec1c4.png?w=970&h=546&fit=crop&crop=faces&auto=format&q=70)

The different signs used here to represent Baek Ma Ri can be read as an example of the semiotic process of meaning-making: Marta and Carla used the available set of resources – in this case, the options given in *CharacterMaker* – to communicate specific ideas, according to the 'aptness' of the accessible modes (Kress, 2010). In other words, they used the available semiotic resources to construct their digital version of Ma Ri as they saw necessary: the naming and the eye colour are signs made to invoke the "original" character; a sense of "Koreanness" is given by some specific design choices, such as the skin colour and the hairstyle. Her skinny frame can also be seen, in a first moment, as a direct relation between their version and the one on the TV show – where Ma Ri presents herself as a shy, introspective and fragile girl. All these signs help

Marta – the one who led the character creation process – realise a coherent discourse that established their position as fan of the TV show. The main sign that establishes this relationship between their Ma Ri and the TV show is the eye, since someone not familiar with the soap opera – like me – would probably not be capable of making sense why blue eyes were firstly chosen for Ma Ri.

Ma Ri's eyes are then an interesting element because they work as a clear message to position themselves in relation to the original text. They are only meaningful if one knows the original text. This is a good example of the nature of modality (Kress and Van Leeuwen, 2001b), since the "Asianess" of *Extrovertido's* Ma Ri has lower or higher modality depending on the repertoire of the reader, culminating in an articulation of taste and distinction via design. Fans of *Orange Marmalade* will easily acknowledge the reference to the "original" text while non-fans would not acknowledge it.

Ma Ri's eye colour can also be understood as a sign of the remix process adopted by game-makers, especially considering that, in their game, there are no other references to Ma Ri's vampirical nature. Even if elements from the original text were added or excluded in Marta and Carla's version – indicating, therefore, a rework of the original text – references to the canon such as Ma Ri's eyes are still noticeable.

This fan position was not the only one occupied by them in this game planning moment. Throughout their game-as-plan, it is possible to notice some interesting stances being assumed in relation to gender and gendered roles, and in the following section I will focus on how these different notions of gender were articulated in their game proposal.

"Chicos... *y chicas*!": Marking a Stance as Strong Women

As discussed before, Marta and Carla's game idea stems from a recurrent narrative convention – the rescue of a loved one – but with a distinctive element. Rather than following the stereotypical roles where female characters are passive trophies, just waiting for being saved from an evil antagonist by the male protagonist, we have the opposite. In their game proposal, all agency – here understood as the actions that unfold the plot (the kidnapping, the searching, the fighting, the rescue) – is given to female characters, whereas the male is completely passive. In other words, it is possible to claim that Carla and Marta designed a "reverse damsel in distress" situation, where the "trophy" is the male character. The process of character creation described in the previous section can be interpreted as a hint to the central role played by female characters: Ma Ri and Ah Ra were carefully designed, while Jae Min was produced in the remaining time, something consistent with his minor role as a passive subject.

This example of "girl power" could be attributed to both participants, but it was especially Marta who embodied this aspect more strongly. One small illustration of this strong defence of gender egalitarianism comes from a simple speech correction made by her during the fourth session – while Spanish was already being used more often.

Excerpt 2: Marta correcting my way of addressing the group[47]

Researcher: Hey, guys, now...
Marta: And girls!
Researcher: Of course! Guys and girls, now...

In Spanish – as in all Latin languages – the grammatical norm rules that, when a plural is constituted by masculine and feminine elements, the masculine form is the one to be used; therefore, since I was addressing a group composed by boys and girls, using "chicos" was grammatically accepted[48]. Nevertheless, as the small excerpt above illustrates, Marta made my starting instructions more inclusive by adding '...y chicas' ('...and girls'), clearly separating female participants and, in some sense, equalling both groups (male and female).

This example highlights, firstly, a failure in my way of addressing them, since inclusive language should always be the preferred form to not exclude participants. In that case, my limited everyday use of the Spanish language impacted my word choice, and I was fortunately presented with a better option by Marta. While this was never my intention, it is possible to argue that, to some extent, my usage of this non-inclusive form led to the reproduction of symbolic violence (Bourdieu, 1991) towards female participants, as if they were accessory participants, less important than the 'chicos' (here used as "the boys") that were taking part in the game-making club – as if I (even if unconsciously) acted in the same way as the hegemonic forces within digital games, normalising male and othering female within this context. This symbolic violence becomes even more evident considering that that was not the first time I used the term "chicos" to refer to all participants, and that Marta was not the only female participant present when it happened. Marta was, however, the only one who expressed her discomfort with this language choice, culminating in the moment when she finally corrected me. Other female participants – when asked – argued that they did not mind which form was used, or lightly preferred the more inclusive one, which can be interpreted as a sign of the internalisation of the symbolic violence process experienced by them throughout their whole life as native Spanish speakers, with these young women becoming used to the masculine-oriented language.

[47]R: Hey, chicos, ahora...
M: ¡Y Chicas!
R: Muy bien! Chicos y chicas, ahora...
[48]Using "chicos" would be similar to using "guys" in English, an informal way of calling up people.

Marta's correction denotes a deliberate choice regarding style from a Social Semiotics perspective (Van Leeuwen, 2004). This demand for a more equal use of language was aligned to Marta's view towards the role that women can play in different (e.g. social, cultural, political, economic) spaces. Rather than accepting a more conservative stance, which associates females with passivity and fragility, or that relegate them to a secondary role, subjected to men, Marta wanted to reinforce her position as someone who sees men and women as equals, and her correction – later incorporated into my speech – is a sign of that.

This view about gender equality was shared by Marta and Carla, and it was reinforced in different moments throughout the sessions. An example of this identity claiming emerges when they elaborate the reasons for having Ma Ri saving Jae Min, implying how women can perform a more active, strong role:

Excerpt 3: Marta and Carla explaining the logic behind characters' roles

Researcher: So, in your game it's Baek Ma Ri who saves Jung Jae Min?
Carla: Yes, that's it
Researcher: Is there a particular reason for that? Why not the other way around?
Marta: Because she is independent, she can do things by herself...
Carla: It's not like she was going just to be waiting for someone else to do something for her...

In Excerpt 3, Marta and Carla highlight the main character's agency, indicating that she takes the necessary measures to reach the desired end. Even Ah Ra has a more active role in the game if compared to what happens in the original text. In both cases, her wish is to undermine Ma Ri; however, while in the "original" text she does it by following an indirect and relatively passive path – bullying Ma Ri to shame her in front of others – in the game she is more direct, kidnapping Jae Min. The articulation proposed by them in relation to gendered roles assumed by the characters – Ma Ri and Ah Ra's agency – combined with the actual language correction made by Marta can be read through the lenses of postfeminism (McRobbie, 2004; Gill, 2007, 2016; Winch, 2013), a contradictory body of discourses that articulate both feminist and anti-feminist themes (Gill, 2007).

Although participants never really used specific labels (e.g. feminism, postfeminism) to describe their design decisions, or to justify characters' behaviours, I, acknowledging, here, my own values and positions, argue that it is possible to identify some stances that can be related to the contradictory nature of postfeminist ideas (McRobbie, 2004; Gill, 2007, 2016). That is the case, for instance, of their game premise: while it is clear that all characters with some level of agency are female – opposed to the "trophy" role played by the main male character – we cannot ignore that the game is built on top of the misogynistic trope of "catfight", reinforcing

the idea that two powerful women are necessarily going to become rivals rather than develop any other type of relationship (Winch, 2013).

Analysing the two main female characters (Ma Ri and Ah Ra), both of them are clearly strong, women; they know what they want, and they go after what they want. Nevertheless, their whole relationship is constructed on top of a rivalry, the catfight mentioned above, as if there were not enough space for two strong female characters in this story. This becomes even more complicated under a gender perspective when the source of the bellicose relationship between Ma Ri and Ah Ra is pinned down to a man – agency-less, but still a man. When analysing roles performed by women in reality shows, Winch (2013, p. 157) argues that 'femininity in a neoliberal postfeminist society is promoted as a performance that one wins at', and her words seem fitting to describe Ma Ri and Ah Ra's relationship, as if their feminine identity depended on winning the favours of a man, something solved only through a battle in which only one of the women can emerge victorious.

Another aspect that illustrates how contradictory is their **game-as-plan** in terms of the role played by Ma Ri is their proposed ending sequence. After rescuing Jae Min from Ah Ra, Ma Ri leaves everything behind to take care of her beloved one until he regains his mental faculties. Ma Ri is a strong, independent woman who can do whatever she wants, even if that means leaving everything aside to cater for her lover's needs. What is not clear here is to what extent this was "really" a choice, and to what extent this was what was "expected" from Ma Ri as a woman: Gill (2007) discusses, for example, how specific gendered roles are painted as personal, individual decisions, reducing the role that social and political factors might play in that decision. A lifetime of experiences seeing taking care of loved ones as a way of expressing femininity (Lawson, 1998), and its role in the construction of the "universe of possible actions" to be taken by a woman cannot be easily dismissed when examining how "agency" and "empowered choices" might present themselves as active and deliberate, when they can, in fact, be influenced by conventional experiences consistently reinforced by and reproduced through habitus.

A final example of their contradictory position regarding gender comes from the game title, since *Extrovertido* is nothing more than "extrovert" in Spanish. What is more striking is that it is in its masculine form, therefore, referring to a male character (as it is possible to imagine, to Jae Min):

Excerpt 4: Explaining Extrovertido[49]

Researcher: Why Extrovertido?
Marta: Because he was a friendly, outgoing guy…
Researcher: Jae Min?
Marta: Yes
Researcher: But why give the name of your game based on him?
Marta: Because he is the centre of the game!

As it becomes clear in Excerpt 4 above, for Marta, Jae Min is the centre of the game. To some extent, she is right, since although he has no agency in-game, he is the "motive" that triggers all in-game action. Their decision of naming their game based on a character that is central to the plot but that plays a minor role in ludic terms is not exclusive. Although they claimed to not know the game, their title choice is similar to those found in *The Legend of Zelda* game series: although Zelda is always mentioned in the title, the main character, with whom the player experience most of the game, is Link, and not her.

Their title decision (and this unintentional and unknown parallel to *Legend of Zelda*), in some sense, reinforces the idea of a reverse damsel-in-distress. Moreover, the contradictory positions regarding gender presented above by no means reduce the value of their **game-as-plan**. On the contrary, it illustrates how they were able to, at least in this planning phase, overcome the possible issues posed by their dissonant gaming repertoire, and design an interesting game, articulating references to existing cultural texts, realising specific discourses and claiming specific and complex identities through popular (Asian) culture and gender.

Experiment Z: Experimenting with Sci-Fi

The second game analysed here, Experiment Z, was also produced in research site A. Yerry (13) and Juan (17) were the designers behind this game. Both were born in Latin America (Colombia and Ecuador, respectively), and Juan had lived in Spain before moving to the U.K. When this project started, Yerry had been living in London for two years, and Juan, for one year and half. They had already achieved fluency in English, and often helped other participants during the sessions, especially in relation to software usage.

[49]Researcher: Por que Extrovertido?
Marta: Por que el era un chico simpatico, extrovertido…
Researcher: Jae Min?
Marta: Si.
Researcher: Pero por que el nombre de tu juego es basado en el?
Marta: Por que el es el centro del juego.

In terms of gaming experiences, their gaming repertoire was considerably different from Marta and Carla. Both claimed to play games very often – Yerry claimed to play every day, Juan, up to five times a week – and both had PS4 consoles at their homes. This console ownership also reflected in their list of favourite games, composed solely by games played in this platform (*Fortnite, GTA, Just Cause 3, FIFA, Call of Duty*[50] and *Bully)*.

Their games list highlights then a specific kind of gaming repertoire, constituted mostly of AAA console games, aligning their repertoires with the stereotypical "gamer" image. Both designers produced a list that not only show that they play videogames, but also that they know how to pick "good games" to be played, something that is expected of gamers (De Grove, Courtois and Van Looy, 2015; Grooten and Kowert, 2015). This repertoire is, as argued before, one of the most valuable types within the field of digital games and diametrically opposite to that displayed by the previous group, whose favourite gaming experiences were either non-existent or constituted of casual mobile games. Yerry and Juan, therefore, had more capital to accumulate or to "cash-in" in the field of digital games; in other words, they would have more possibilities of action within that field.

Another interesting element arises specifically from Juan's list of favourite games: two of them (*Bully* and *GTA*; the third was *Fortnite*) were produced by the same company, *Rockstar*. This predominance of *Rockstar* in Juan's list can be interpreted, to some extent, in a similar way as Marta's reference to *Orange Marmalade* in hers and Carla's game: a signifier of a specific taste (Bourdieu, 1984), in his case in relation to mainstream gaming culture.

Despite being arguably one of the most successful contemporary videogame companies, with productions usually well-received by videogame players[51], *Rockstar's* games differ from other similar AAA productions on way they build players' gaming experience. According to Wright (2017, p. 136), this company 'claims to draw their inspiration – and indeed, cultural legitimation – [from cinema history] for creating texts that combine the sense of movies with the possibility for player interaction and enjoyment'. By using cinema as a reference, these games can be more reliant on their narratives when compared to other AAA productions. Therefore, by choosing *Rockstar* games as his favourites, Juan was again operating in the range of consumption-based-distinction, positioning himself as a seasoned player knowledgeable about particular types of games, which explore not only players' dexterity or skill, but are also about nicely told stories.

[50]When asked, Yerry did not want to single out a game, but claimed that the whole series was good.
[51]*Red Dead Redemption 2*, its most recent game, was acclaimed as a singular masterpiece (MacDonald, 2018)

Although a *Rockstar* fan and acknowledging that playing digital games was part of his routine, Juan, when asked, deliberately rejected being labelled as a "gamer". This rejection can be considered as another distinctive process adopted by him and an initial example of curated identity (McDougall and Potter, 2015; Potter and McDougall, 2017) in relation to the gaming culture discussed in Chapter 3.

If we follow a minimal list of parameters often used to characterise what a gamer is (Shaw, 2012, 2013; Grooten and Kowert, 2015; di Salvo, 2016; Kafai and Burke, 2016; Richard, 2016), we could argue that Juan **is** a gamer. His practice would qualify him to claim a gamer identity (cf. De Grove, Courtois and Van Looy, 2015; Grooten and Kowert, 2015; Kafai and Burke, 2016), since he played regularly, in the right platforms, and several of his favourite games would be seen as good games.

Nevertheless, we cannot forget that gamer – as any cultural label – is a term heavily charged with implicit meanings. Different authors (Shaw, 2012, 2013, 2014; De Grove, Courtois and Van Looy, 2015) discuss how, depending on specific identifiers, such as age, ethnicity, gender, sexuality, individuals might or might not subscribe to the gamer label. In that sense, it is understandable why Juan, although a knowledgeable videogame player, with a high gaming capital and checking (almost all) the boxes to be considered a gamer, did not want to be acknowledged as so, since adopting a gamer identity would, in consequence, constitute a frame through which he would be read by others. By rejecting this identity, he made a clear statement about rejecting this position, preferring then that the meanings constructed by him were read (in this case, by me, since this "are you a gamer?" discussion happened in a private interview) without the cultural charge that this identity could bring.

Before moving onto their design process, it is important to briefly reflect upon gaming repertoires and their influence in design. As presented in the beginning of this section, there is a great difference in gaming repertoires when we compare this design group – Yerry and Juan – to the one previously discussed – Marta and Carla. This discrepancy is relevant when analysing the different impact of repertoire on design choices, since it allows for the elaboration of complementary images about the possible uses of the software. In the previous section, we explored briefly the role played by a repertoire dissonance in Marta and Carla's game; now, however, we have a design team whose gaming repertoire is closer to that one invoked by *MissionMaker*. Some of the games listed as their favourites – e.g. *Bully*, *GTA*, *Just Cause 3* – share, in a first moment, some clear traits with *MissionMaker* favoured repertoire: they are 3D games played in 3rd person perspective; they have a clearly defined main character; they involve environment exploration and some degree of (physical) conflict. In that sense, how would a design group with a more consonant gaming repertoire fare in this endeavour?

Distilling Gaming Repertoire in Initial Design

As detailed before, a significant part of the first session was dedicated to playing demo games in *MissionMaker*. Since that moment it was possible to notice Juan and Yerry's gaming repertoire. An indication of their large gaming experience was their fast appropriation of specific controller functions that are not even alluded to in the software, such as sprinting, jumping or crouching. Differently to what happens with some specific commands – e.g. opening the inventory or enabling the fighting system, which are hinted to in the Graphical User Interface (GUI) – these functions employed by them do not have any kind of interface aid that might help a game-maker to learn them: they are, to some extent, implicit functions.

These implicit controller functions, it must be said, exist in *MissionMaker* as **technical traces** from *Unity3D*: rather than being actively programmed – or at least tweaked to cater to *MissionMaker*'s design – they are functions that are default in the programming component (namely, the default Third Person Character Controller) used to construct the playable character's commands. These are part of *Unity3D* because engines often prioritise visual and physical experience (Bogost, 2006), being incorporated into *Unity3D*'s technical code (Grimes and Feenberg, 2013). What is more important here, however, is that due to the "alignment" between their gaming repertoire and *MissionMaker*, they imagined that conventional controllable functions – such as sprinting/walking, crouching or jumping – would exist in *MissionMaker* and tried to invoke these functions.

Excerpt 5: Using implicit controlling functions in MissionMaker

[Juan's screen – Character sprints rather than walking]
Researcher: Did you do that on purpose?
Juan: Yes
Researcher: Did you know that?
Juan: It is like Fortnite…

[…]

[Juan's screen – Character crouches]
Marco: What? Como lo hago [How do I do that]?
Yerry: Look, again!
Marco: How?!
Juan: [shows key C on keyboard]

These implicit control functions can be understood as what Perron (2014) defines as conventions: implicit, unwritten rules that can be omitted or ignored. More importantly, however, is how they are learnt about these conventions and the consequences of this learning. Based on Wilson (1990), Perron (2014, p. 81) argues that 'a gamer learns conventions through

experience and practice, an exposure to even a small number of games makes him/her familiar with the way certain video games are played and gives him/her a head start'. Excerpt 5 is an interesting example to illustrate Perron's arguments regarding conventions, since in the first part, when asked if he deliberately commanded the character to sprint and, after a positive answer, how he had done that, Juan replied referring to one of his favourite games, *Fortnite*. Although he claimed to prefer to play in his console, he later confirmed that he had already played that game in a PC, and the same key (Left Shift) is used for sprinting in *MissionMaker*, *Fortnite* and in practically every computer-based game in which there is an option to modify the character's movement speed[52]. The second part of Excerpt 5, on the other hand, corroborates Perron's final argument, since it is through the dialogue with Marco that Yerry and Juan consolidates their privileged position as players, showing greater knowledge when compared to their colleagues. Here, however, their authority as knowledgeable players is not in the same way as Marta and Carla, who explored modalities and style (Van Leeuwen, 2004; Burn and Kress, 2018) when creating their characters, but through a demonstration of situated knowledge in the exchanges with other participants, constructing a position as knowledgeable players through the realisation of a gaming discourse using speech and gestural modes. The dismissive answer – "it is like *Fortnite* – and the small show-off in a "teasing" fashion towards Marco are examples of how Juan and Yerry were in control of the situation and felt comfortable in this early engagement with *MissionMaker*.

This demonstration of authority through the existing technical traces also opens space to a deeper discussion on habitus, conventions, authority and advantage. Conventions – as described in the previous paragraph – and gaming experience are constitutive aspects of the habitus (Bourdieu, 2014) that rule digital games. The sprinting example also allows us to discuss how habitus – as a set of internalised ruling logics – can become a thoughtless bodily act, and these will generate specific dispositions in relation to practices within the field. An apparently silly – but telling – example stems from keyboard layouts and "playing postures" in a PC.

MissionMaker allows player movement through two sets of keys: game-makers/players can employ the arrow keys (centre-right of a traditional keyboard) or W, A, S, D keys (mimicking the arrows layout, meaning respectively up, left, down and right). Within the two game-making clubs – and as noticed in previous research (e.g. de Paula *et al.*, 2018) – it was noticeable that seasoned players, such as Juan and Yerry, tended to prefer the second layout, whereas those less versed in digital games tended to prefer using the arrows. Nevertheless, using the arrows

[52]In some games, Left Shift is used by default to make the character walk rather than sprint, slowing down player's movement but affording a stealthier approach to enemies.

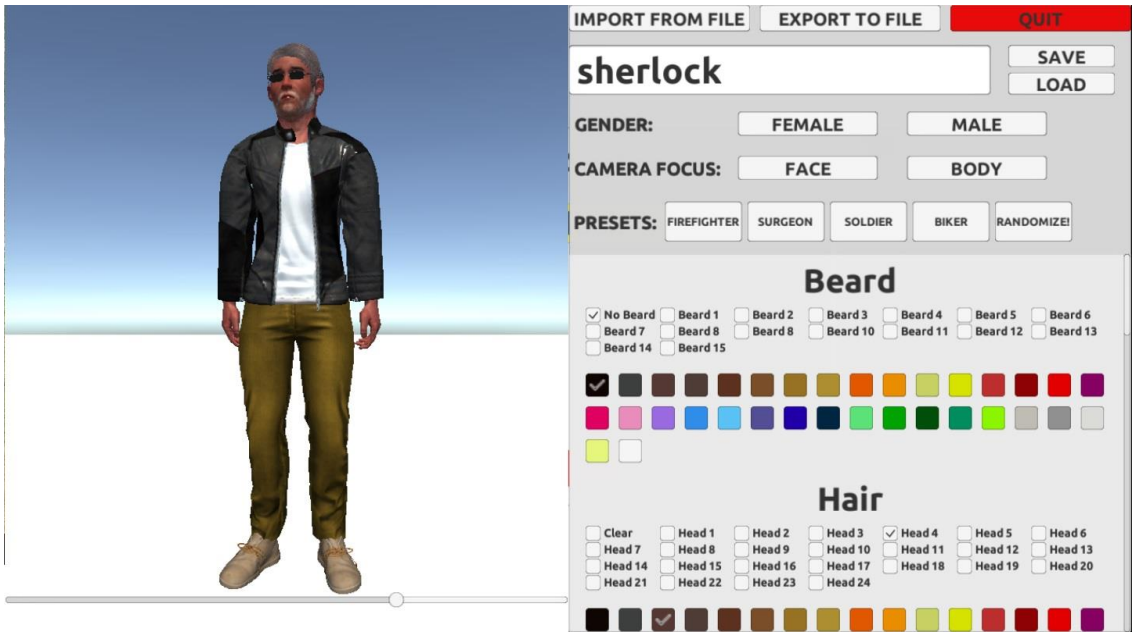
meant that it becomes humanly impossible to sprint, since players would have to press simultaneously Left Shift, at least one of the arrows and use the mouse to direct their avatar. The second "playing posture" – based on the WASD layout – has a clear advantage over the first one (since a player can simultaneously press Left Shift and direct the avatar with a single hand), and seasoned players learn this advantage through experience, later internalising it up to the point they simply reproduce it, without questioning why that is the case. It shows how the reproduction of certain practices can become almost automatic for individuals operating within specific fields, how the habitus can be seen as an internalised bodily act, and how conventions can become constitutive part of habitus.

This initial moment illustrates how repertoires and habitus cannot be ignored, especially in a complex field such as videogames, rife with conventions, expectations and constraints. There is, however, an aspect that must be considered regarding the example above: the head start described by Perron (and exemplified by the playing posture case in the previous paragraph) clearly applies to game-playing experiences; would then this wider gaming repertoire be successfully transferred into a game-making experience?

Synthetizing Experiment Z

Juan and Yerry's started their design in the same way as all other participants: developing specific characters and defining the motive that drove these main characters towards the main objective. Juan and Yerry then created then Sherlock (Figure 12). Their character was inspired by the famous detective created by Sir Arthur Conan Doyle; however, the similarities between the inhabitant of 22B Baker Street and their character are limited.

Figure 12: Sherlock in CharacterMaker



In their game, Sherlock was a well-accomplished and incredibly smart scientist. The naming, later I learnt, came not only because of their – the game character and the "original" character – highly developed deductive skills, but also because Juan was, at the time, watching the third season of the BBC show. Here, it is possible to identify a reasonably similar process to that invoked by Marta in her game-as-plan: a media text was adopted to jumpstart their character creation.

Rather than building their game around that media product, such as Marta did with *Orange Marmalade*, they opted for a different approach. Although the naming chosen by them hails towards Sherlock Holmes, something that, *per se*, could be interpreted as an identity-based positioning (Deen, Schouten and Bekker, 2015) through taste and curatorship (Canclini, 2001; McDougall and Potter, 2015), it is noticeable that this reference would have a much smaller influence in their design compared to *Extrovertido*. Their proposed game design would rely, to some extent, on a broader pool of ideas when compared to Marta and Carla's game, borrowing elements from different recognisable references, Sherlock, gaming and Sci-Fi being the most evident ones. Again, we have an interesting example of creativity (Vygostky, 2004), combining different elements in a coherent manner to create intelligible signs (Kress, 2010).

While both character-making cases (Juan and Yerry's, and Marta and Carla's) rely on naming and the abstraction of some features (e.g. Ma Ri's "Koreaness"), in Sherlock's case these abstracted features are not necessarily easily identified in the 3D model generated by Juan and Yerry as they were in Ma Ri's case (e.g. her hairstyle). This becomes clear when we look again at Figure 12, since their Sherlock has practically no resemblance to Benedict Cumberbatch's

Sherlock, or any other recent depiction of the famous literary character. On the contrary, what we have as their main character is a middle-aged man, with grey hair and beard. Yerry and Juan justified this choice by saying:

Excerpt 6: Explaining Experiment Z's protagonist name[53]

Researcher: Nice name! Is he a detective too?
Yerry: No, it's just because he is smart…
Researcher: Is that grey hair? Isn't he quite old to fight?
Juan: Fighting is not the most important …
Yerry: And he has a disease, which makes… him to age faster.

Excerpt 6 can be interpreted as a hint to the kind of game they had in mind. Rather than having an experience initially centred on physical conflict, they were aiming more at a game that involved exploration and investigation. The main character's name – especially the reason presented by Yerry for choosing that name – and Juan's dismissal of my question are small indexes of their preference for a design approach based less on physical prowess, and more focused on finding clues and understanding the facts presented throughout the designed experience. It is also interesting to notice that the character's appearance is not only justified through the kind of experience they wanted to promote, but also in representational terms: in the last sentence, Yerry offers a story-based reason for the grey-haired Sherlock, being that the result of an early aging process.

Here, it is possible to notice how designers have constructed cohesive links throughout their game-as-plan**,** storyline and assets. If directly judged in relation to other media – e.g. the reasonably recent Hollywood movies where Sherlock is played by Robert Downey Jr. or the BBC TV show – their Sherlock has a lower modality claim, since he is quite different from those depictions of the character. When we analyse their game-as-plan (storyline and character design included), however, we find a cohesive proposal for a game. This tension is similar to that identified by Burn and Parker (2003) when discussing modality claims made in Harry Potter's digital game where, based on van Leeuwen (1999), they argue that modalities can be either **representational** or **presentational**. The former case is that explored in *Extrovertido*, where their digital Ma Ri was judged as a representation of the "original" character, with her Asianess and vampiresque nature. *Experiment Z's* modality claims, however, are better understood if scrutinised as **presentational**: 'true to the spirit of the genre, and the values which underpins it in its context' (Van Leeuwen, 1999, p. 180). Truth claims in *Experiment Z*,

[53] Researcher: Me gusto el nombre! Es un investigador tambien?
Yerry: No, es porque es muy listo…
Researcher: Y tiene el pelo gris? No es un poco viejo para pelear?
Juan: Pelear no es lo mas importante…
Yerry: Y el tiene una enfermedad, que hace que… comience a envejecer más rápido.

therefore, are better understood in relation to the genre of the text – an Adventure, investigative, digital game – and this becomes clear when we revisit the reasoning process for their design of Sherlock.

These justifications, including both Juan's ludic-based and Yerry's narrative-based reasoning, can be related, to some extent, to their will to create a distinctive game, moving away from the more straightforward, combat-based games that were being produced by their colleagues. We can look at Juan and Yerry's clarifications above as a sign of the careful design process they were aiming for, such as those found in several of the *Rockstar* games (Wright, 2017) liked by both game-makers, and following an acknowledged good game-making practice (cf. Rollings and Adams, 2003; Schell, 2008): the use of narrative and ludic modes cohesively and coherently, one supporting the other (e.g. Sherlock is grey-haired because he has a disease; he might not be a good fighter due to his disease; fighting is not the most important aspect in this game).

This cohesion described in the previous paragraph can be read as a construction of the presentational modality truth claim for their game, based specifically in their experience as players. As identified in their gaming repertoire, Yerry and Juan were used to a specific type of game where storylines and ludic options are cohesive and coherent: they not only "make sense" inside the game world, but also are intelligible in relation to the broader landscape of games and other domains invoked by them, such as Sci-Fi, establishing then coherence ties. Even the type of justification chosen by them – the ageing disease affecting Sherlock – is cohesive with the parameters used to judge the credibility of their game: *Experiment Z*, as it will become clear in the following paragraphs, engages with a considerable tradition of scientific fiction, and Sherlock's ageing disease is completely plausible in an environment with DNA tests and science labs. But how did Yerry and Juan constructed their game? Why – as Juan affirmed – fighting is not important?

This preference for a game based around exploration would become clear when investigating their **game-as-plan**, constructed through a considerably complex web of facts and revelations. Their game begins with Sherlock seeking the truth after a terrible experiment from Mar Industries, his old company, has gone wrong. While working in Project SRX, which aimed at enhancing human and animal genetics, Sherlock's boss, Elsare, changed Sherlock's samples for a bad gene, which Sherlock injected into a DNA chain. This failed experiment created a super-resistant virus that affected all human population with the exception of those who had A-type blood, killing billions (including Sherlock's family).

There are two main objectives for Sherlock's. First, he must reach Mar Industries' underground lab, where he would be able to look for a cure for the virus; second, he must find Elsare, discover the truth about the project SRX and avenge his family. To achieve these goals, Sherlock must solve a series of different puzzles to reach the secret site. There, Alejandro, a former co-worker, helps him to produce a cure. After generating an antidote, Alejandro and Sherlock are confronted by Elsare, who reveals a hurtful truth: in fact, they (Sherlock, Alejandro and all other former employees of Mar Industries) are products of *Experiment Z,* hence the game title. They all were a product of genetic engineering, yielding super intelligent scientists who were thus able to create the by-products needed for Elsare to create a race of physically strong and obedient mutants.

Alejandro and Sherlock are able to flee and access the elevator, from where they see a warehouse full of clones in a dormant state, including sleeping versions of themselves. They then rush outside, intending to release the cure and stop Elsare, but they are stopped by a mutant army led by a super strong foe. It depends then on your ability to fight back and release the cure, saving the rest of humanity from Elsare's dark future.

Experiment Z presents, as it can be noticed in the paragraphs above, a considerably complex narrative, which involves the unfolding of different new developments in the story. The main structure presented here can be seen as the traditional narrative arch described by Campbell (1972) as 'The Hero's Journey', including the presentation of new facts that change the character's relationship with the past. It is, to some extent, a journey of self-discovery, reconciling Sherlock with a previously unknown part of his past.

In narrative terms, when we compare the two games presented here, it is clear that *Experiment Z* shows a higher level of complexity, involving not only solving different conflicts through player action – e.g. fighting against enemies – but also reaching different stages to learn more about the fictional world. While in *Extrovertido* the planned narrative unfolds quite straightforwardly, in *Experiment Z* it presents itself as a series of smaller puzzle pieces, which must be placed together in order to unveil what is happening in the game. A glimpse of the game structure proposed by Juan and Yerry reveals an archetypal use of the same organisation employed by AAA games when presenting quests, since it involves the introduction of new characters (e.g. Alejandro), new spaces (e.g. the lab), and new objectives (e.g. stop Elsare's plan for world domination).

In their plan, their game would progressively become more complex, not only in terms of how the plot unfolded, but also in relation to the game difficulty. This becomes more evident when

we analyse their description of the game-as-plan for the final challenge, when Sherlock confronts the final boss:

Excerpt 7: Describing the final boss[54]

> *Yerry: [...] and then, when they reach the surface, there is a new guy, a...**a** Tank, who shows up with an army of mutants. He says "No one leaves! This is the Apocalypse! You are all dead!"*

Figure 13: Tank with his mutant army (Edit Mode)[55]

Yerry's speech in Excerpt 7 above can be used not only to describe the progressive increase in the level of difficulty of their game, culminating in a challenging final battle, but it can be also as another display of their gaming repertoire. "Tank" here refers to a specific class of character, very common on team-based RPGs: it is a big, muscular character, able to take a considerable amount of damage in order to protect his teammates. This decision is also cohesive when we consider the process of constructing presentational modality truth claims through the affordances available in the software **and** the genre selected, since digital games – especially adventure ones such as *Experiment Z* – often have final bosses, and final bosses are stronger and more difficult to beat than regular enemies. By creating a character that is clearly bigger

[54]Yerry: [...] y cuando llegan a la superficie, hay un otro tipo, ... un Tanque, con un ejercito mutante. ¡El dije "Nadie va a salir! ¡Es el Apocalipsis! Estan todos muertos!"

[55] The figure presented here refers to Tank in game: this means that this figure refers to the following phase of the game production, when they were implementing their games-as-plan through *MissionMaker*. This picture was selected since it puts Tank in perspective with other NPCs, showing how he is deliberately bigger.

than other enemies, Yerry and Juan were deliberately signalling to the player that this enemy was not a regular one, but one that is more challenging.

What is interesting here is that, due to the use of an indefinite article in front of it – '**un** tanque' [**a** tank] – Yerry was using a specific knowledge to describe the final boss, a leader of the mutant army. As it happened in other situations mentioned before, these two participants not only explored their gaming repertoire during the construction of their game but have also used several opportunities to show off their knowledge about games. The use of the term Tank to describe the character above (Figure 13) is a clear example of their rich gaming repertoire, especially, during Yerry's speech, since it works as a token for the display of a very specific gaming knowledge.

Throughout the aforementioned examples, it is possible to notice an articulation of different signs that operate towards the realisation of a cohesive gaming discourse, including here the "type" of game proposed, based on mystery and a complex web of events, and the use of specialised terms to describe their game. Nevertheless, A third element that cannot be ignored and that reiterates their relationship with (mainstream/hegemonic) gaming discourses is a reproduction of a gendered space through their game, which can be read as directly influenced by the naturalisation of the male as the "gaming normal".

As it is possible to notice in the storyline presented in this section, all main characters are male. Moreover, besides a brief mention of Sherlock's wife when describing his deceased family, there are no references to female characters in *Experiment Z*. This gendered world building is not necessarily the result of deliberate misogyny by designers but related to the reproduction of specific playing experiences where male characters, in traditionally male roles (e.g. scientist, detective, world-dominating villain controlling minions) are the norm. This reproduction of the "male norm" also highlights how implicit approaches to shift biases (Flanagan and Kaufman, 2016) in game-making might be of limited value: in Chapter 4, when detailing the production of *CharacterMaker*, I made the case to have by default all custom characters as initially females in order to increase the number of female characters in participants' games. This small "incentive" towards female characters, however, was not enough, as the current example shows. This might indicate that the bond between masculinity and "traditional gaming culture" might need more deliberate, explicit and active approaches to be broken.

Gaming culture was not, however, the only element clearly present in their game plan. When we analyse the premise of their game, it is possible to notice a considerable influence of science and dystopian science fictions in it. A first example comes from the main characters'

backgrounds, since all of them– Sherlock, Elsare and Alejandro – are scientists who had all worked together in a research laboratory. Moreover, we cannot forget that the main event that contextualises their game is the failed experiment: had not all non-A blood typed humans died, Sherlock would still have his family, and there would be no cure to be researched, or truth to be sought.

Therefore, besides the gaming tradition often referred to, another significant influence of their repertoire is their reliance on other types of media texts – Yerry and Juan were, for instance, both watching *Stranger Things*[56] at the time. *Stranger Things* plays around with diverse elements that can be found in *Experiment Z*: a scientific experiment gone wrong, conspiracy theories and a story that unfolds through milestones, often introducing new narrative aspects that might help to change the perception of the viewer (or the player, in the case of their game) about characters and situations. Their decision to base their game on science fiction conventions then inevitably leads to a reflection about the role of science, fiction and conspiracy theories in their game design.

"This I can see happening": Fiction, Authenticity and the Value of Conspiracy Theories

Fiction is, as Tavinor (2014, p. 440) argues, central for an ontology of contemporary videogames, since it is through fiction that 'the game algorithm is depicted to the player'. Through Tavinor's argument, we can imply that fiction is important for any videogame; however, I defend that fiction is even more important in situations such as the ones investigated in this project, where participants' identities are at the forefront. *Experiment Z* and *Extrovertido* are different not only because they involve distinct levels of planned complexity[57] in their challenge, but because they tell different stories, and these stories allow participants to expose some of their worldviews (Anthropy, 2012). In the specific case of *Experiment Z*, it allows Yerry and Juan to engage with and realise specific discourses about science and scientific development.

While their design can be read as referential to a long tradition of connections between science fiction and digital games (Krzywinska and MacCallum-Stewart, 2009), it is interesting to notice that the way scientific knowledge and community are used in their game help to increase the modality (Van Leeuwen, 2004) of their artefact. The kind of science fiction explored by them here is not in the far future or in a distant galaxy, but it is in a time and space close to the

[56]Original TV show produced by Netflix in 2016.
[57]Since these games were still not being implemented in *MissionMaker*, I opted to use **planned** to refer to participants' intentions as noticed from their initial game plans.

present. Genetic experiments happen daily around the globe, and while they did not explain in scientific terms how exactly a "bad" gene created a mutant virus that wiped almost the whole of humanity, their narrative has a "scientific varnish" that makes it believable. This is achieved by a mix of specific details – e.g. only humans with type-A blood survived –, existing scientific practices and science fiction platitudes, such as mutants and dormant clones in liquid-filled pods.

The modality claims made by Yerry and Juan's game operate in a similar way as Marta and Carla's version of Ma Ri. They were producing a digital game (clearly a fictional work), they did not have to subject all their design to the **scientific modality orientation** (Kress and Van Leeuwen, 2001b), abstracting their meaning-making process in order to produce generalisable concepts or knowledge. On the contrary, they correctly understood that they had to operate within the broader spectre of "scientific fiction": they had to produce believable mechanisms to sustain their plot, even if these scientific mechanisms were not deliberately – and adequately – explained in scientific terms. It is, after all, the case of making a "believable" text, and not a text that would have been scrutinised by "official" scientific institutions.

Another element used to reinforce this **fictional modality claim** is their exploration of another science-fiction convention, the unscrupulous scientific corporation (Erickson, 2016). Different dystopian games have exploited this role: from Umbrella Corporation in *Resident Evil* to Faro Industries in *Horizon Zero Dawn*, diverse texts relied on the big corporation that put profit margins over society's welfare as a narrative strategy. In their case, this platitude is embodied by Elsare, their former boss, who reveals that not only the "failed" experiment was not an accident, but also that Sherlock, Alejandro and several of his former employees were a product of another morally doubtful scientific project.

Experiment Z presents a critical perspective about science not necessarily regarding the "scientific act" *per se*, but in relation to how science is carried out. In other words, theirs is not a critical position regarding the epistemic dimension of science (its sets of knowledge, rules) but to its socio-cultural dimension, in other words, it is a critical position about how scientists work and why some types of knowledge are favoured over others (Erduran and Dagher, 2014).

Even if *Experiment Z* presented this critical perspective, participants did not see their game as something possible. In other words, they considered that their plan was believable as fiction, but not in reality – at least not without governmental involvement. The following excerpt presents a brief conversation with Yerry and Juan after they told me their game's story:

Excerpt 8: Fiction and Reality in Experiment Z[58]

> *Researcher: Nice narrative! Very complex, it might be a little difficult to do everything, but I liked that you had all planned... A lot of science on that, too!*
> *Juan: Thank you...*
> *Researcher: Do you believe that something like that can happen in reality?*
> *Yerry: Like what, a company making a super-virus to kill everyone?*
> *Researcher: Yes*
> *Yerry: (thinks) ... well, it can happen, but as an accident maybe...?*
> *Juan: ...It is not like a company would make a super virus and no one do anything...*
> *Researcher: You mean, like, the government investigating?*
> *Juan: Yes, I think they would discover something like that...*
> *Researcher: And what about something like Stranger Things, with the government involved?*
> *Yerry: That I can see happening...*
> *Juan: I think it's more like a great story than something real...*

They suggest that, at least in commercial terms, it would be difficult to have this kind of a super-villain producing anything to deliberately reduce human population. Nevertheless, they hold opposite views when asked about whether a story similar to theirs could happen in real life. While Yerry presents a small inclination towards conspiracy theories involving companies and especially governments – in a similar fashion to the one depicted in *Stranger Things* – Juan seems very assertive when describing it as something not real, just a great fiction. Their fictional proposal works, partially, due to their use of a "scientific varnish" to sustain their design.

By engaging with and realising different discourses and realising these in different ways, Juan and Yerry's achieved a considerably cohesion in their game-as-plan. They explored common game design strategies and were able to construct presentational truth modality claims (Van Leeuwen, 1999) articulating gaming and scientific discourses in their game-as-plan.

An important aspect from this presentational truth modality claims is that it allowed them to articulate repertoires, identities and creativity. Their game plan clearly draws on different influential aspects – Sherlock Holmes, gaming, Sci-Fi – but these aspects are recombined in such specific ways that allow us not only to recognise the original references, but also to

[58] Researcher: Buena historia! ¡Muy compleja, creo que tal vez sea difícil hacer todo, pero me gustó mucho lo que planearan... Mucha ciencia ahí también!
Juan: Gracias...
Researcher: Y creen que algo como eso se puede pasar en realidad?
Yerry: Como... un super-virus que mate a todos?
Researcher: Si
Yerry: (thinks) ... se puede pasar, pero como un accidente tal vez?
Juan: ...creo que se alguien inténtaselo, seria descubierto...
Researcher: ¿Dices, como en una investigación de gobierno?
Juan: Si, creo que el gobierno sabría de eso...
Researcher: ¿Y algo como Stranger Things, con el gobierno... junto...?
Yerry: Eso lo creo posible...
Juan: Yo pienso que sea más una historia que algo real, que se puede pasar...

acknowledge their proposal as creative (Burn, 2016), since it subjects all these different references to the specific organising logic propagated through mainstream gaming culture.

Due to their wide gaming repertoire, Yerry and Juan's plan is, simultaneously, more complex and simpler than that proposed by Marta and Carla. It is more complex since its implementation would require more time, includes more actions, more characters and more narrative milestones. On the other hand, it is simpler in the sense that it does not challenge gaming conventions. None of the main actions and game mechanics initially envisioned by them are shunned in mainstream digital gaming as "taking care" (crucial for *Extrovertido*'s plan) is: this difference can be understood as a sign of how complexity is – no pun intended – a complex concept in digital game-making.

Noob Assassin: Humour, Global Politics and Gaming Repertoire

Noob Assassin was a game produced in research site B by two boys, William (10) and Stephen (11). Both participants were born and raised in North London to White British families, with close ties to English-speaking countries: Stephen mentioned spending the end of term break in Ireland at his grandmother's house, whereas William, when filling in the initial survey, asked whether the "Neo-Zelandish" learnt with his father could be considered a second language. Here, it is possible to notice a reasonable difference in William and Stephen's life experiences when compared to the participants whose two games were previously analysed. While participants from research site A had experienced migration at least once in their life, including the challenges of learning a new language and settling in a new country, Stephen and William had not gone through these processes, even if the world they experienced was not limited to their local borough or London.

This does not mean, however, that the design process followed by William and Stephen was completely different from those adopted in *Extrovertido* or *Experiment Z*. As explored in the previous sections, besides some differences in how specific signs were produced – e.g. the mixed use of their native Spanish and English in their games and in their speech – most of the influential aspects behind the other games came from repertoires constructed through Marta, Carla, Juan and Yerry's varied relationship with diverse media products, detached from geographical boundaries (Canclini, 2001; Ito, 2010). Despite coming from a fairly different background and not experiencing life-changing events such as migration as participants in research site A, William and Stephen's design process can be considered similar to the others, a process that included personal statements mediated by their repertoires.

Looking at William and Stephen's experience with this project, it is noticeable that videogames had a strong influence in their planning process. Both were avid players and had easy access to videogame consoles, since each of them owned a *Xbox One* at home. Their favourite game at that moment was *Fortnite*, which they often quoted during the sessions; they also shared a common interest in other several games, and *Star Wars Battlefront II* was also cited as one of their favourite games. Stephen's gaming preferences were not limited to the *Xbox*, and he also listed *Boom Beach*, a mobile real-time strategy game as one of his favourites; William, on the other hand, did not have a personal phone, thus his gaming experiences were constrained to those games available on console or computers.

William's case takes us back to the debate about access, since his universe of possible gaming experiences was limited to specific platforms. Like Carla and Marta in research site A, his gaming experiences were constrained to specific platforms, but he was constrained within the "right side" of what is considered valuable within traditional gaming culture (e.g. mainstream console games). While not having access to a smartphone restricted his universe of playable games, William could still invest in productions aligned to the traditional gaming culture, as seen in his list of favourite games.

In that sense, William and Stephen's repertoires were closer to that presented by Yerry and Juan; there was even an overlap between favourite games, with *Fortnite* being cited by both groups. Moreover, it is possible to identify some common traits among other examples of these groups' favourite games, such as high-end 3D graphics; complex controls that require significant time to master; and game mechanics centred around combat, tracking and collecting objects.

The repertoires constructed by these two design groups tapped into a significant part of mainstream gaming culture, and these shared references might be used as lenses to understand design decisions that led to some similarities between their games. This does not mean that *Experiment Z* and *Noob Assassin* were the same. As it will become clear in the following sections, a main identifiable difference in the planning processes of these games was the designers' attitudes towards their productions. While in *Experiment Z* Juan and Yerry adopted a more serious stance, aiming at a credible sci-fi based game, Stephen and William's approach was considerably more relaxed and playful.

Playing with the Initial Design

A striking difference from *Noob Assassin* to *Extrovertido* or *Experiment Z* is the style adopted by William and Stephen to elaborate their game. Humour, something reasonably absent in

previously analysed productions, plays a significant role in William and Stephen's game-as-plan. *Noob Assassin* places the player in the shoes of Dave McDonald, an underachieving secret agent. Dave was kidnapped when a child, and was part of a top-secret experiment, being injected with a dangerous substance called *ElNubish*, which, as the name might hint, makes Dave a *noob*, failing miserably in anything he tries to do. After years of epic failures, Dave finally gets a chance to redeem himself by eliminating one of the most protected human beings in the world, USA President Donald Trump.

Noob Assassin, as it happens with *Experiment Z*, also explores some game narrative conventions, such as secret experiments and the chance for the hero to redeem himself by eliminating a villain. Another similarity between these two games (*Noob Assassin* and *Experiment Z*) is the naturalisation of masculinity in games: besides the lack of gender diversity in terms of characters, *Noob Assassin* also plays around specific roles that are traditionally gendered as male, such as secret agents in assassination missions. It is, therefore, another example of the strong bond between (gendered) conventions found in digital games and the games produced in these spaces.

Nevertheless, this conventional gendered approach is not the only noticeable influential aspect in *Noob Assassin*'s plan. As the initial description presented a few paragraphs above shows, their use of another genre in their design – the comic approach – greatly contrasts with the rather sterner tone adopted by *Experiment Z* or *Extrovertido*. The role played by the main character in *Noob Assassin* is an example of this diverse approach pursued by William and Stephen. Differently to what happened in the other two games, Dave McDonald has more flaws than qualities, and part of their game-as-plan was to have him failing in multiple ways before being able to accomplish his mission. In a brief comparison, the role played by Dave McDonald in *Noob Assassin* is considerably different from Ma Ri's or Sherlock's, since he acts not only as the conduit for the unfolding of the main story, but also fulfils a comic function, bringing humour to what would be a (very) serious topic, the assassination of the US President.

Their choice of bringing humour into their production is an interesting one, since these two elements – humour and videogames – have a complex relationship. Humour is not totally alien to digital games, as Dormann and Biddle (2009) discuss in their study about players' perception of comic strategies in digital playing experiences. It is also a recognised sign of specific gaming genres, such as the parodical self-referentiality found in several Interactive Fictions, Adventures[59] and Point-and-Click games such as *The Secret of Monkey Island* (Giappone, 2015).

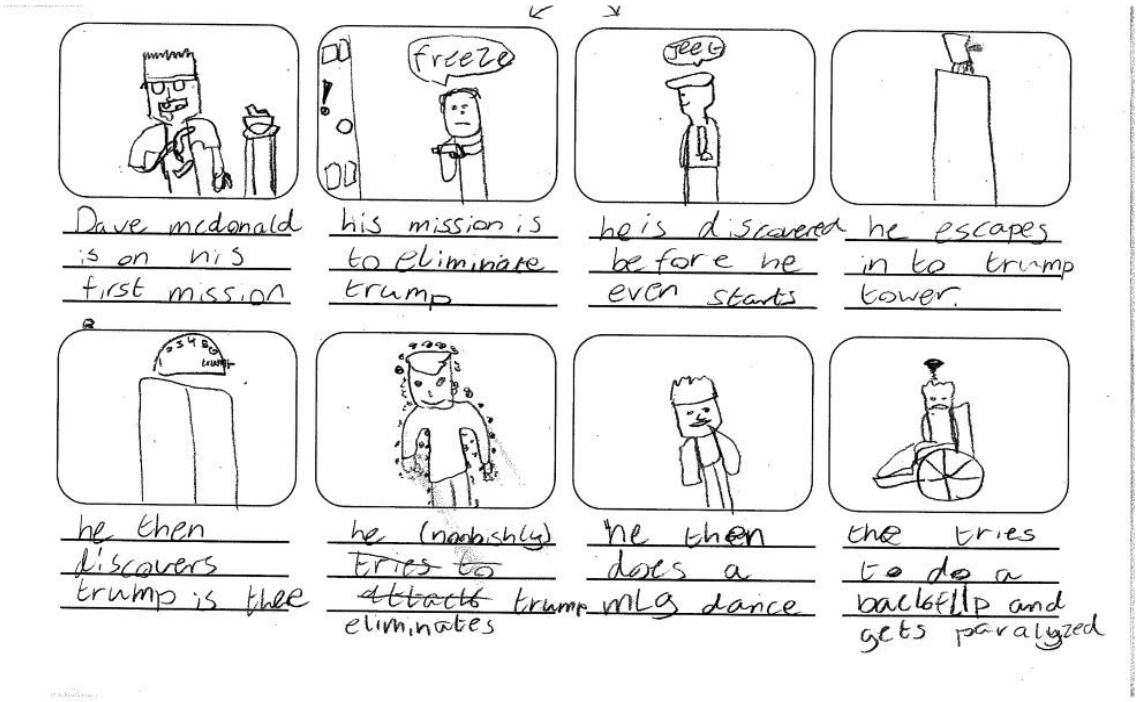
[59]Here I am referring to the 'historical' genre, heavily reliant on narrative development such as *Zork*, *The Secret of Monkey Island, Full Throttle* or Atari 2600's *Adventure*.

Despite these links, different authors (Parkin, 2014; Shaik, 2015) described how humour is still marginally exploited in games. Parkin (2014), for instance, reminds us that 'video games tend to be obsessed with triumph and victory, with overcoming the odds and averting tragedy – a typically unhelpful destination for any comedy vehicle'. Videogames – especially mainstream titles (Shaik, 2015) – favour a sense of "epicness"[60], affording power fantasies that place the player in the shoes of incredibly able individuals, capable of carrying out herculean tasks such as overthrowing a dictatorial government alone – as in *Just Cause 3* – or infiltrating a secret high-tech nuclear weapons facility in order to neutralise a terrorist threat, unsurprisingly, alone – as in *Metal Gear*.

Yet, Stephen and William's proposal plays with this game design convention, since you are still given a herculean mission, but your character – in other words, your means to achieve the objectives (Newman, 2002) – is not an incredibly agile, strong and resourceful killing machine, but someone that is nothing like that. This description, as outlined above, also taps into a traditional convention in mainstream games, since playable characters are seldom powerful or prolific from the beginning of a game. On the contrary, they tend to be quite limiting in terms of skills and whose affordances grow – either via learning or through new equipment that extends a character's affordances – as the player progresses in-game. Nevertheless, up to this moment, there was no indication of their intention to follow this convention; on the contrary, Dave McDonald is and continues to be an inefficient and unaccomplished agent, and his success in eliminating Trump is less the outcome of new skills, and more the result of a stroke of luck. A sign of this progressivism negation (represented here by the rejection of character enhancing) stems from their early proposal, here represented by the storyboard produced by them during week 2 (Figure 14 below). As it is possible to notice, succeeding in his mission does not change Dave McDonald's skills, since he continues to behave oddly – and to fail.

[60]Used here not in the literary sense, but following the casual, informal way that has transformed this term in a slang – an exceptionally long and arduous task.

Figure 14: Noob Assassin's storyboard



Due to this convention subversion (e.g. progress in the game does not mean a "more capable" character), *Noob Assassin* can be read as a parody, since it plays around the expectations towards a specific form – a genre. A parody is a creative work (Kinder, 1991) that allows the recognition of specific conventions, keeping the link between the "new" text and the "original" references accessible (Giappone, 2015) while providing different experiences to consumers. In this specific case, this parodic relationship with 'traditional' mainstream games is defined through different game elements, such as the title.

Reading the title of this game through the traditional lenses of "epicness" often exploited by digital gaming, *Noob Assassin* seems contradictory: why would anyone voluntarily choose to play a game in which the terms "assassin" and "noob" are together? Why would anyone deliberately choose to be an underwhelming, underperforming character? Juul (2013) might offer a path to answer these questions.

In *The Art of Failure*, Juul (2013) explores the diverse nuances that failures can provide to digital gaming experiences. He explores, among other topics, the differences between fictional and real failures, remarking that, in some cases, the success in a game – and, consequently, the enjoyment – comes not necessarily from a fictional success, but it can emerge from a fictional failure (Juul, 2013). This is not to say that *Noob Assassin* explores deeper aspects between storytelling and digital gaming, such as tragedy (Juul, 2013). What we have here is akin to the 'joyful discomfort of witnessing destruction' provided by games such as *Super Meat Boy*, *Burnout Paradise* or *Limbo* (Juul, 2013, p. 100). Compared to the games previously analysed here

(*Extrovertido* and *Experiment Z*), we can infer that by offering an incapable assassin Stephen and William are trying to explore different orders of experience. While they were also aiming at the regular digital play form of progression, they were also using the comic failure as a supporting strategy to construct their game.

Here, it is important to remark that this convention subversion and the comic aspirations of game-makers work in tandem as distinctive (Bourdieu, 1984) elements in their game. This articulation between Dave McDonald's inability, failing and fun becomes clear in the following dialogue, carried out right after participants had described their game to me:

Excerpt 9: Why a Noob

Researcher: Very nice idea! Liked that you put Trump there somehow...
Stephen: Yeah!
Researcher: Can I ask you something, though?
Stephen: Yes!
Researcher: Why is Dave a noob? Why not a "good" assassin?
Stephen: It would be too easy
William: ...and not too fun
Stephen: ...this is different and fun!

As discussed earlier, gaming experiences in research site B were more homogeneous than in research site A, since participants had easier access to mainstream gaming platforms. Easy access to different gaming platforms helped those participants to construct wider gaming repertoires, which were often composed by gaming conventions found in *MissionMaker*. This meant that most of participants in this research setting were used to game design conventional discourses – such as digital gaming "epicness" and power fantasies – raising the bar for anyone willing to achieve a distinct position within this group. Research site B participants sought different strategies to answer to this situation: Jessica pursued a similar path to Marta and Carla, using another media text – *Hunger Games* – as the base for her design; Mary and Tina created a game based on riddles, exploring a distinctive form to their story about finding a missing character. William and Stephen's chosen strategy was humour, adopted to distinguish themselves from the games that were being produced by their colleagues in Research site B and, to some extent, to construct a specific identity (e.g. the "funny ones"), using different semiotic resources to create their digital game.

What is interesting, though, is that humour, in this case, did not prevent them to rely on – and even to show off – their gaming repertoire, as indicated by different aspects found in these initial moments in the experience. The already discussed title of their game is a clear example: the use of the word **noob** to describe Dave is an important example, since it gives away Dave's lack of skills, but only if you are familiar enough with popular gaming terminology to identify

this meaning. By using this specific word, Stephen and William were indicating their relationship with gaming culture, including their knowledge about specific terminologies. Their use of the term "noob" is, to some extent, akin to Yerry's description of the final boss in *Experiment Z* – Tank (Figure 13) –, the incorporation of a specific gaming term into a "regular" use.

It works as a good example of Kress' (2010) 'motivated sign', since it helps Stephen and William to describe their game while also remarking "from where" they are speaking (positioning them as seasoned videogame players). Their use of the term "noob" here is not casual but is a choice that allows them to, simultaneously, signal their knowledge about games **and** that theirs is a different, humorous production.

As seen in their storyboard (Figure 14) Dave McDonald, after finally succeeding in his mission to eliminate President Trump, does a **MLG** dance to celebrate. MLG stands for "Major League Gaming" and is another game-based slang metonymically used to refer to well accomplished or skilled – professional-like – players. MLG dances became a popular phenomenon on *YouTube* gaming channels through montages that combined gaming footages and videos of different people performing funny dancing moves.

The reference to MLG works in a similar way as the title in the sense that it is used to define their close relationship with gaming culture. MLG, as a phenomenon, is much more niche than using the term "noob". A quick questioning during the first session – right after they had presented their game – revealed that Stephen and William were the only participants capable of articulating a definition to MLG. Even if the title and the reference to the MLG dance can be seen as phenomena aiming at the same ends (showing off their gaming repertoire), they operate in different orders. "**Noob**" is a gaming term, but a generic gaming term; **MLG**, however, functions as a sign not only of their specific knowledge about games, but also as a sign of the specificity of the gaming circuits that they attend. Both terms are motivated signs (Kress, 2010) that allows them to remark their position as humorous, knowledgeable players but MLG goes a little bit further, since it taps into an even more specific gaming circuit and an even more specific "kind" of game-based humour. MLG functions then as a 'semiotic import' (Van Leeuwen, 2004), using the culture-specific meaning of the semiotic resource to signal a specific cultural position – a "high value" practice, "cashable" in the field of digital games to afford a high status position. In other words, the use of MLG in a slightly diverse context – outside the circuits of competitive gaming – give to Stephen and William authority as knowledgeable players, since their use of such specific gaming term means that they know very specific gaming practices.

Another element emerging from their game-as-plan is the relationship between humour and game difficulty. In Excerpt 9, they articulate the ideas of the game "not being too easy" and "being fun". Both ideas can be seen as means to generate a certain distinction for their game, as found in previous research (de Paula, 2016). Trying to understand this scenario, Juul (2013) argues that, paradoxically, failing in games can make the experience more enjoyable. This is not only aligned to some game design theories[61] (e.g. Koster, 2014) but perceived practically through the success of specific games known for their high level of difficulty, such as *Dark Souls III* or *QWOP*. In his essay, Juul (2013) even presents anecdotal data, obtained from a small sample of players, to justify his argument, correlating difficulty, player failure and enjoyment.

While it would later become clear that William and Stephen were not necessarily opting for that kind of extremely high challenge as described by Juul, they deliberately rejected the possibility of producing an easy game. In that sense, this articulation between "not being too easy" and "being fun" can be seen, again, as a small nod towards their own gaming repertoire, realising specific gaming discourses. In other words, it shows that they were not only capable of picking the **right games** to play (De Grove, Courtois and Van Looy, 2015), but also of making the **right kind** of games.

Trump in the Tower: Humour, critique and the openness of interpretation

Besides its reliance on humour, *Noob Assassin* has at least one more distinctive feature: its characters. In the previous games different media texts worked as influential factors for character design. Marta and Carla deliberately established a direct relationship between their characters and *Orange Marmalade*, Yerry and Juan were inspired by Sherlock Holmes. Borrowing names from different (media) sources was a common strategy found in both research sites and is a identity work that should not be overlooked. Deen, Schouten and Bekker (2015) remark how naming patterns can be used to claim and represent playful identities in-game, since they can "ground" specific identification projects from outside the game into the playing experience. In *Extrovertido* and *Experiment Z*, however, the relationship between participants' selected names seem less that of a straight identification, and more that of an identity work in the sense of a curatorship of the self (Potter and McDougall, 2017), since by using specific names – e.g. Baek Ma Ri, Sherlock – participants were positioning themselves in relation to broader media landscapes, signposting to others who they were, and which kind of texts they consumed.

[61] Sometimes criticised due to an overreliance on reductionist psychological theories such as flow (Polansky, 2015)

An interesting phenomenon found in Research site B[62] was the use of real personalities as characters. Mary and Tina, for example, named their protagonist after the American pop-singer Meghan Trainor, indicating then part of their musical preferences. *Noob Assassin* makes a similar choice but exploring the controversial US President Donald Trump.

Bringing famous people into digital games is a strategy seldom used by mainstream game developers. Sports games are a known exception, since allowing players to control their favourite athletes is a feature sought by diverse companies, affording game titles a sense of authenticity. Besides this specific category, we can also notice a clear preference for historical characters: recent examples include games from the *Assassin's Creed* franchise, known for using historical characters to "spice up" its narratives, even if twisting up History (Nielsen, 2015); or History-based games such as *Civilization* and *Age of Empires*, where famous individuals are used as tokens to give a sense of verisimilitude for campaigns (MacCallum-Stewart and Parsler, 2007). There is also a noticeable preference for bringing in real characters when the role played by these is not controversial. A clear example here would be Nazis in *Wolfenstein 3D*, since depicting them is acceptable as long as they are clearly the villains and will end up terminated.

This is where Stephen and William's decision to use Donald Trump as a character in *Noob Assassin* departs from regular examples found in mainstream games. By bringing in the current president of the USA, someone responsible for many passionate and polarised reactions, they are engaging with a controversial topic. Stephen and William's use of Trump as a character, therefore, can be considered a phenomenon from a different order than those above, since it is less connected to mainstream games' use of famous (or historical) individuals' image, and closer to some of the developments around 'newsgames' (Sicart, 2008; Bogost, Ferrari and Schweizer, 2012), often described as digital heirs of political cartoons (Treanor and Mateas, 2009). This resemblance with political cartoons can be seen, for instance, in the character design pursued by Stephen and William. The following figures 15, 16 and 17 show the "real" Donald Trump and the digital version designed for *Noob Assassin*.

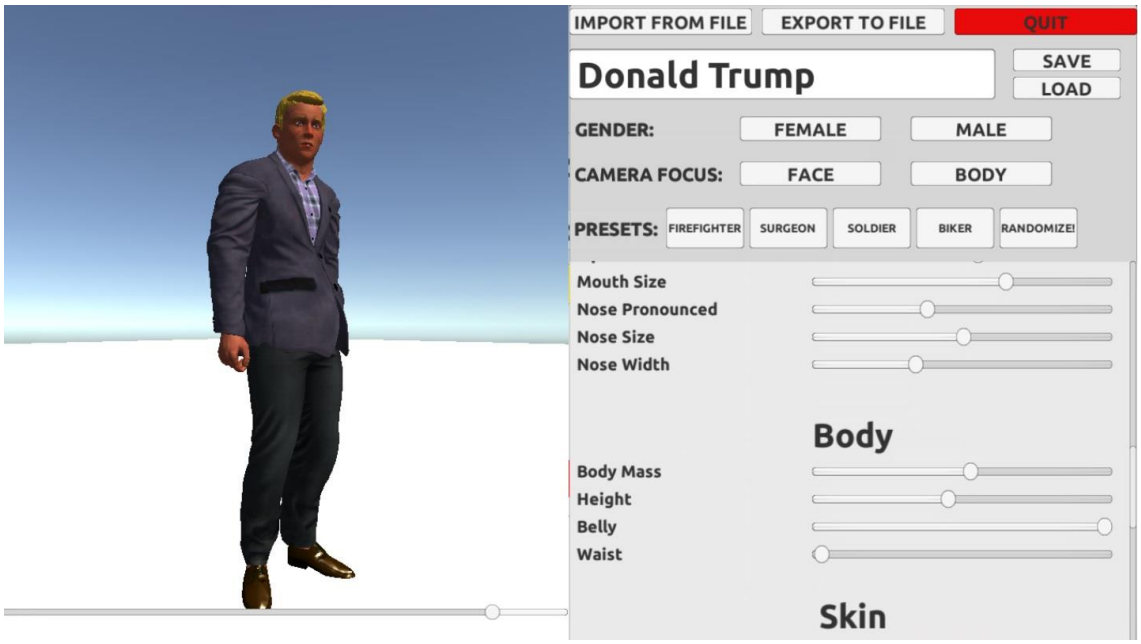
[62]This phenomenon was not found in research site A, although it happened in the pilot project, such as "Shakira" in *Escape the Castle*, as briefly mentioned in Chapter 4.

Figure 15: USA President Donald Trump (Reuters)

https://www.dailyrecord.co.uk/news/uk-world-news/donald-trumps-hideous-tan-could-11962276

Figure 16: Detail of Noob Assassin's *Donald Trump*

Figure 17: Donald Trump, as designed by Stephen and William in CharacterMaker



One of the rhetorical strategies pursued by political cartoons is the use of caricatures to represent individuals: specific physical traits are augmented not only to create a comical effect, but also to strengthen the link between the character being represented and the "real" individual. As seen above, participants used the resources available in the *CharacterMaker* to produce this caricature effect as well as possible. They piggybacked on two of the president's most distinctive physical features: his peculiar hairstyle and his artificial tan. As Figure 16 shows, the digital Donald Trump has a bright blonde hair arranged in the most similar hairstyle found in *CharacterMaker* to that of the "real" president. In addition, his skin comes in an orange-based tone that is reasonably close to the fake tan adopted by tanning shop customers, reinforcing the link between the "real"– or, at least, the caricature-based depictions of the "real" Trump – and the "digital" versions of the president.

These two features, combined with the clothes chosen to *Noob Assassin*'s Donald Trump, help to create a sense of authenticity to their design, establishing a presentational modality claim (Kress and Van Leeuwen, 2001b). Nevertheless, William and Stephen realised during this experience that while *CharacterMaker* is an interesting tool to sketch and quickly produce 3D characters, it has a very limited set of options for creating these characters. This is considerably different to the previous set of semiotic resources available to represent Trump, the storyboard in Figure 14. Here, it is possible to already notice an initial process of discourse translation, with participants having to move across different cultural forms and the ways of representing knowledge institutionalised by them. They move from the linear and, to some extent, freer

form of representation of the storyboard, closely related to that of comic books, to the digital design in *CharacterMaker* and, later, in *MissionMaker*. This effort to represent Trump using different resources (subjected to diverse affordances and constraints) helped participants to abstract some traits of the US President, such as the hair, later supporting their translation of their paper-based Trump into the digital one. In their initial representation, it was already clear to them that a total emulation (e.g. a photorealistic depiction) of Trump would be difficult to achieve. Like Marta and Carla, they looked for verisimilitude through the available resources to engage with a naturalistic coding orientation (Kress and Van Leeuwen, 2001b).

This verisimilitude was accomplished by invoking two of Trump's most distinctive features – hair style and skin tone and indicates an important understanding in relation to sign-making (Kress, 2010). Stephen and William had the ability to abstract traits and reorganise them to convey specific meanings. These processes were subjected to their ability to identify and use the available modes (and the conventional ways of using these modes) in their favour: the hair style is more identifiable in the storyboard and more improvised in *CharacterMaker*; on the other hand, skin colour is proficiently used in *CharacterMaker*, while absent in the storyboard. This shift in the use of available modes leading to the same result through different resources – representing Donald Trump – is an early example of **discourse translation.**

These new signs – e.g. the digital Trump's exaggerated tanning – are neither produced arbitrarily nor are free-floating in a vacuum. They are always created as motivated signs, according to the intentions of the sign-makers and should be read not only in relation to the discourses invoked by these sign-makers (in this case, their critical position towards Trump **and** the different ways of representing meaning in the storyboard and in *CharacterMaker*) but also as part of a bigger semiotic ensemble, that is, their game (Kress, 2010).

Earlier, I argued that there was some resemblance between their use of the US President's image in their game and newsgames in the sense defended by Treanor and Mateas (2009), especially when analysing the caricaturizing process adopted to create their version of Donald Trump. While there is an overlap between their game's and political cartoons' reliance on humour, there is also, however, an important difference, especially if we examine the style (Van Leeuwen, 2004) of their messages and the possible readings they afford. There is, however, a clear articulation between their game and the aformentioned **naturalistic modality claim** (Kress and Van Leeuwen, 2001b), since *Noob Assassin's* Donald Trump is, visually, as verisimilar as possible to the "real" one.

Political cartoons often use comic strategies as a rhetorical device to present a biased perspective regarding a topic (Treanor and Mateas, 2009). Their message tends to be clear and

unambiguous, as the author uses humour to pick a side and establish an argument in relation to a current situation. Figures 18 and 19 both engage with the same topic (Trump's proposal to build a wall on USA-Mexico border), but present diametrically opposite views about the US President. In the former, Ben Garrison presents President Trump as a strong leader, standing proudly against several perceived threats by conservatives such as traditional media outlets, big public spenders and "globalists"; in the latter, Marc Murphy criticises Trump's government, highlighting how his personal and governmental positions are contributing to the construction of an even more divisive and isolationist society.

Figure 18: Trump's Wall, by Ben Garrison

https://grrrgraphics.wordpress.com/2016/02/21/the-great-wall-of-trump-ben-garrison-cartoon/

Figure 19: Trump's Wall, by Marc Murphy

https://i.pinimg.com/originals/3b/8c/df/3b8cdf369dc334359eb7bb3efed08267.jpg

Both messages are unambiguous, and this is where the main difference between political cartoons and Stephen and William's use of Donald Trump as character lies. The mere choice of having Donald Trump in their game does not necessarily define their position towards this president. While it is possible to argue that a game where your main objective is to kill Donald Trump can hardly be interpreted as an endorsement towards him, we cannot forget that a significant part of their game-as-plan is not only dedicated to the killing of Donald Trump, but **to trying and failing** to kill him.

As discussed in the previous section, a central element of *Noob Assassin* is the inefficiency of the protagonist, Dave McDonald, who is depicted as a noob, incapable of successfully completing any given task. Considering that in their game his mission is to kill Donald Trump – therefore, he is depicted as part of Donald Trump's opposition –, that he repeatedly fails in his endeavour, and that these failures are significant part of the proposed enjoyment provided by their game, *Noob Assassin* could be read by a Trump supporter as a media text endorsing the US President. In this reading, the game would not only depict (part of) Trump opposition as underachieving simpletons, but also it could allow the player to enjoy watching the repeated failings of Trump's antagonists.

Nevertheless, it was clear from the interviews that endorsing Trump was not Stephen and William's intention:

Excerpt 10: Why Donald Trump?

Researcher: And why Donald [Trump]?
William: Because he is the worst, he is sooooo stupid.
Stephen: I don't know why people vote for him, he is so racist.

As Excerpt 10 shows, when asked why Donald Trump was picked as a character in their game, William and Stephen did not hold back in criticising the President. Their intention was not to create a game in favour of Donald Trump, but to assume a critical position towards him. Nevertheless, their comic approach might lead players towards the opposite direction, since the joke might not be on Donald Trump, but on Dave McDonald (the opposition) and his recurrent failures. This might be one of the reasons why most mainstream digital games still steer clear from humour as a rhetorical strategy: it depends on specific elements, such as language nuances and timing, that are difficult to be managed in an artefact where the interactor has a significant level of agency (Parkin, 2014).

Their plan, ambiguous messages towards Trump included, can also be used to discuss an important element that is often minimised in game studies, especially in the subfield of game design: the limits of procedurality/procedural rhetoric. Different authors, such as Sicart (2011, 2014) and Penix-Tadsen (2016) pointed out the importance of players' subjectivity for understanding the different arrays of meanings that can be conveyed by a game, including by whom and where a game is played. Meanings are always made through the realisation of discourses and in relation to specific contexts and, according to Social Semiotics, interpretation is also an active process of meaning-making (Kress, 2010). This means that, although designers can promote some specific values and discussions, as argued by Flanagan and Nissenbaum (2014) and Bogost (2007), there is always some leeway for player's subjectivity and interpretation regarding the meaning(s) of a game, especially considering how lived experience, as argued by Carr (2017), has the potential to shape interpretation in different ways.

Looking again to *Noob Assassin*, these arguments seem to hold. Even though I brought up possible ambiguities in their game when analysing its game structure, especially in relation to their stance towards Trump, it is clear from Excerpt 10 that William and Stephen had never intended to create a game in favour of this president. On the contrary, they were clear on their disapproval towards Trump (something clearer in the interview than in their game), and their game main objective, even if reached through a tortuous, funny way, was still to eliminate him, hinting to their position in the polarised debate about whether the current occupier of the White House is a good or a bad leader.

In order to better understand this game, it is then important to look at the approach chosen by William and Stephen towards game-making: this was never supposed to be a serious critique of Trump. On the contrary, it must be read as an identity exercise, through which Stephen and William were positioning themselves in relation to different cultural and social aspects. Of course, to claim this position, they engage with specific critiques towards Donald Trump, but these are clearer in their speech, becoming more diluted in their game.

Another important reflection here stems from the possibilities afforded to participants in terms of identity construction. The nature of this exercise, carried out in a non-professional context, and where participants knew that their games would be safe from the pressure to satisfy specific political allegiances or market demands also helped these designers to feel free to invoke and realise different discourses in the ways they wanted to, even if the realisation of these discourses was bounded to the context (field) of digital games.

Their game-as-plan can be seen as an interesting argument in favour of these alternative spaces: allowing young people to have their say about their world would, *per se*, be meaningful as an identity exercise. Nevertheless, the examples here analysed give us a glimpse about the richness of this initiative in relation to how participants culturally "situated" themselves. Even in a "free" activity, in which they could produce any kind of game, engaging with any kind of topic, participants opted to engage with different and complex discourses, tackling topics such as gender, ethics and science, and global politics. These game plans open opportunities not only to discuss their views on these broader cultural aspects, but also to examine some very specific topics inside gaming, such as gendered roles, ambiguity and the naturalisation of masculinity, humour, and gamer identity. These topics were not necessarily forced upon these participants but emerged during their engagement with the activities.

The emergence of these different topics was reasonably related to the nature of these workshops: they were "free" and "voluntary", but a minimum structure – a game had to be produced, characters had to be made – was proposed and participants followed it. In that sense, this design process is, to some extent, akin to the act of play (Huizinga, 1980): a free activity, subjected to specific rules, but with enough space to allow different individuals to approach it from diverse standpoints and reach different outcomes, affording different experiences outside the constraints of "real life".

Final Thoughts: Preparing Identities

In this chapter, I focused on the initial aspects related to the game-making activities carried out by the participants. It presents how different young people, from different backgrounds and

with diverse interests and repertoires organised their game plans. As discussed earlier, these three groups had different relationships with gaming in terms of preferences and knowledge, ranging from a virtual absence of these in their everyday lives and a limited appropriation of genres and game titles – as it happened with Marta and Carla – to a high level of engagement with gaming, including a great appropriation of different genres and an up-to-date repertoire, following recent mainstream gaming trends found through Juan, Yerry, Stephen and William's participation in this project.

These different gaming repertoires can be seen as an influential factor in the design approach adopted by these participants. Analysing the games-as-plans presented in this chapter, it is possible to notice that the proponents of *Extrovertido* followed a slightly different path from that pursued by the other design groups, choosing a closer reading of a specific media text to organise their game. By invoking *Orange Marmalade*, Marta and Carla were exploring a familiar structure as the foundation for their game-making process, a reasonably unfamiliar activity in a field (Bourdieu, 2014) where they might not have been completely comfortable due to their limited repertoire.

This was, to some extent, a different design decision from that taken by Juan and Yerry or William and Stephen. Although these game-makers made explicit references to elements that are not necessarily part of gaming culture – e.g. Sherlock, Trump – in their games these references are orchestrated in a freer way and mixed with other elements – e.g. conspiracy theories, the "noob". This difference in the way semiotic resources were combined can be linked to their greater expertise within gaming. By having a wider and more specific gaming repertoire, creators of *Experiment Z* and *Noob Assassin* had a "better picture" of how a game, more specifically, a game produced through *MissionMaker*, with a well-defined main character in an immersive 3D environment, should "be". In other words, they had a better understanding of digital games as a field in the Bourdieusian sense, where different conventions rule the value of certain practices, and different positions are attributed to actors according to their "existence" within the field (Bourdieu, 1984, 2014). To use another expression from Bourdieu (2014), they had a better 'feel for the game', tacit knowledge acquired throughout their experience about the best strategies to thrive within this field, culminating in a better understanding of the 'sayable' (Butler, 2009) in games (although here this 'sayable' refers more to how things "are said" within games).

If we compare the three games discussed here, it is noticeable that, on the same way as knowing more about games helped Juan, Yerry, William and Stephen to work confidently with the semiotic resources available and affording them a more fluid approach (different from Marta and Carla's, who based their game in an existing media text), it also led them towards

reproducing specific conventions without any reflection, such as the naturalisation of games as male spaces. This reproduction of gendered readings of games is noticeable not only due to the lack of female characters in their games, but due to the fact that they never showed any kind of reflection about that issue. Moreover, there is the use of some traditional roles – the secret agent, the detective, the world-dominating, minion-controlling villain – to organise their games towards this naturalisation of masculinity in *Experiment Z* and *Noob Assassin*.

This influence of conventions is significant not only in relation to gendered discourses, but also when we scrutinise these three games through the lenses of creativity (Vygostky, 2004; Burn, 2016). *Experiment Z* and *Noob Assassin*, by combining different elements from diverse cultural spheres into a cohesive game proposal, could be easily understood as creative. Nevertheless, we cannot ignore that *Extrovertido* also presents creative elements, since Marta and Carla did not simply reproduce *Orange Marmalade*, retelling events already explored by the 'canon' (Jenkins, 2006), but incorporated their own takes about the original story, combining their imagination and set elements to create their game, in a process that hints to the reflective value of mashups and challenges the dichotomy between 'creative' and 'derivative' works (Ito, 2010).

An important aspect here is that, no matter the approach (constructing their game from another media text or combining multiple influences), in all cases the games-as-plans can be read through the lenses of distinction (Bourdieu, 1984). In the three games discussed here, participants' design choices can be understood as a means for claiming identities, for positioning themselves in relation to broader culture and within the group they were working in. By choosing *Orange Marmalade* and, more important, by presenting a significant rework of the original text (Ito, 2010; Sonvilla-Weiss, 2010), Marta and Carla can be seen as knowledgeable fans of Korean popular culture, distinguishing themselves from the other fans of popular Japanese culture within that game-making club. Yerry and Juan, with their intricate game design, were reinforcing the value of their specific gaming capital. William and Stephen adopted a more humorous, comic approach to distinguish their game from the more serious productions found at research site B. Although claiming different positions (the "fans", the "knowledgeable players", the "funny ones"), these positions afford them possibilities to realise different discourses, and claim other positions – construct other identities. It becomes, therefore, a string of discourse realisations, culminating in different identities, affording them a more complete means to express themselves, as they can "say" more things.

These identities achieved through taste are only significant because they are intelligible (Butler, 1999), and they are only intelligible because the capitals at stake in the field are

recognised as valuable. The distinction described here, often achieved via taste[63], afford temporary stability to participants' meaning-making processes – identities – which becomes then discursive planks[64], from where individuals can engage with and realise other discourses, often constructed in relation to broader cultural aspects. Marta and Carla positioned themselves as fans of *Orange Marmalade*, but through *Extrovertido* (and their way of being during the sessions) they were also able to articulate discourses about gender into this experience, allowing us to reflect about their understanding of femininity and what it means to be a woman. Therefore, they employed their "fan identity" to invoke and realised discourses about gender, articulating then a "proto-(post)feminist" identity.

Similarly, Juan and Yerry positioned themselves as experienced gamers through *Experiment Z* through gaming conventions and gender (treating masculine as "natural"), but they also employed their game to display their mistrust of unscrupulous big conglomerates leading morally controversial scientific developments.

Nevertheless, comparing the three cases analysed here, *Noob Assassin* arguably illustrates the most direct engagement with a broader sociocultural question. William and Stephen constructed their game around the assassination of one of the most controversial individuals of the decade and having humour as the main rhetorical device in the game-as-plan did not prevent them from engaging in a critique of US President Donald Trump, even if their position in relation to gender aspects was that of naturalising masculinity.

It is possible to understand that these distinctive design processes allowed participants not only to construct specific identities within the immediate context where they were producing these games – the game-making clubs – but also in relation to broader contexts, invoking and realising discourses regarding more complex (and possibly more controversial) topics such as gender and politics, leading to a recursive process of identity construction through the engagement and translation of different discourses into their game-as-plan.

An important finding here is that, even without a main theme to lead the game-making experience, participants did not adopt an "anything goes" stance. It allows us to have a glimpse on how creative media production – here represented by game-making – can be a relevant path for the expression of individuals' identities, and the relationship between taste (Bourdieu, 1984), consumption (Canclini, 2001; Potter and McDougall, 2017) and cultures (Mayra, 2008; Muriel and Crawford, 2018). This was a free and voluntary activity, and the only limitation set

[63]Marta's relationship with *Orange Marmalade* and Juan's relationship with *Rockstar* are good examples of how taste can play an important role in these distinctive processes via consumption.
[64]My initial intention here was to use *platforms*, but I opted for planks since firstly, they remark the improvisational and temporary character of these identities, and second, to avoid confusion with the technical use of term platform.

to the game-makers was the design of a character-centred playful experience using *MissionMaker*. They could have chosen an "easier" path, avoiding producing specific (and possibly controversial) cultural statements, but in the three cases analysed here what we see are glimpses of how these participants see the world, and where they sit in relation to important aspects in the society where they live.

Understanding their decision to engage with these broader sociocultural themes is, arguably, the most important aspect from this game planning process. It shows the importance of spaces such as the game-making clubs discussed here, in which young people have, at the same, freedom to experiment with different media forms in the context of production, and support to engage with different discourses, articulating different identities through diverse mechanisms such as taste and consumption. In the examples discussed earlier, it is possible to read their games-as-plans as a form of 'curatorship of the self' (McDougall and Potter, 2015; Potter and McDougall, 2017), since participants carefully selected which topics they wanted to engage with, how they wanted to do so and, more importantly, showed a reasonable understanding of how engaging with these topics would place them in specific positions within the field of digital games or other specific fields, such as science (in the case of *Experiment Z*, for example).

As it was possible to notice throughout this chapter, young people, when given the chance, can construct complex identity ensembles. Different participants, with different backgrounds, interests and levels of knowledge about the field they were engaging with adopted diverse strategies to invoke and realise specific discourses, articulating different identities. Nevertheless, the process analysed in this chapter was only part of their whole experience: participants had not only to plan a game, but to implement it using *MissionMaker*. During this materialisation of their game, a new factor is brought into the process: the platform itself.

In the following chapter, I will turn my attention towards the game production itself. By exploring how the games-as-plans discussed here – including participants' engagement with broader cultural aspects – were translated into actual digital artefacts, I aim at exploring the mediating role that digital platforms can play in the realisation of specific discourses by cultural agents such as the participants in this study.

Chapter 7 – Encoding Identities: From Plan to Artefact

In the previous chapter, greater attention was given to what I have called "pre-*MissionMaker*" elements. As it became clear in previous section, repertoires played an important role in mediating participants' games-as-plans. It not only helped them to select and refine game ideas, but also allowed game-makers to invoke and realise specific discourses and construct specific identities through their game proposals. In *Extrovertido*, game-makers' position as fans of East Asian media became a noticeable aspect; in *Experiment Z*, designers played with the role of fiction and their own gaming repertoire; with *Noob Assassin*, game-makers touched upon global politics and humour. Besides these identities, all plans engaged with gender, either in a more critical (*Extrovertido*) or following the hegemonic discourse within digital games, normalising masculinity (*Experiement Z, Noob Assassin)*. Nevertheless, these plans were only the first part of their production.

Since this was a project centred around game-making, just planning – or designing in Social Semiotics terms (cf. Kress and Van Leeuwen, 2001b), choosing how meaning will be made through the available modes – a game was not enough. Participants were expected to implement these plans, creating playable artefacts. In order to do that, participants used *MissionMaker*, which, with its affordances and constraints, has led to significant changes in the games-as-plans previously discussed. The production (cf. Kress and Van Leeuwen, 2001b) of their games was mediated by two main aspects: identities – the result, as interpreted, of designers' realisation of discourses, positions that express how they understand specific realities of the world (Kress and Van Leeuwen, 2001a) – and the platform, including here its technical affordances and limitations, but also its oversighted cultural values and aspects materialised as conventions.

In this section, the focus will be on the development process, which will be understood as a constant dialogue between designers and platform. By exploring the production stratum in Social Semiotic terms (Kress and Van Leeuwen, 2001b), how their games-as-plans were translated into games-as-artefacts through *MissionMaker*, I argue that this mediating power of digital platforms cannot be ignored. It might favour, hinder or even suppress specific discourses and, consequently, prevent or favour the construction and articulation of certain identities. It is in this process of production – from plans to artefacts – employed by the participants that the **intentionality gap** becomes more evident, helping then to highlight the creative and constraining role played by the platform in the process of identity construction.

Extrovertido

Marta and Carla were the ones with the narrowest gaming repertoire: one of them claimed to not play games regularly, and the other seldom played casual puzzle games, a situation that reflects issues of access (Carr, 2005) and a gendered notion of gaming, as already explored in earlier chapters. Their game, *Extrovertido,* allowed me to understand how game-makers with a dissonant gaming repertoire would fare in using *MissionMaker*.

Nevertheless, this was not the only reason why *Extrovertido* was one of the selected games. Marta and Carla's game-as-plan was one of the most interesting proposals put forward by all participants. Their option for a role-reversal "damsel-in-distress" game based on a Korean soap-opera *Orange Marmalade* was used by them to tap into topics such as gender-based roles and representations of love, aspects that are considerably overlooked when we think about the traditional power fantasy, frequently explored within the heavily masculine realm of mainstream gaming (cf. Bogost, 2015).

The proposed ending sequence was the most distinctive element about their game. Rather than concluding it after rescuing Jae Min – exploring the "and they lived happily ever after" narrative convention – they introduced a situation in which Jae Min was recovered in a catatonic state. Ma Ri would then assume the role of his carer until he regained his mental faculties, and only then they would be able to live happily together.

Their game-as-plan was not aligned with traditional gaming conventions: would they be able to use the platform affordances and constraints to make the meanings they wanted to? Would the discourse about gender still be "viable" and noticeable in their game? And how would they fare in relation to the technical skills demanded by the platform to produce a cohesive, playable game?

In order to explore these questions, I will analyse the evolution of their game-as-artefact through two sequences of their game; the first, when the conflict is established; and the final sequence, unfolding the aftermath of Jae Min's rescue by Ma Ri.

The Catfight Evolution: From Beating a Mannequin to an Orchestrated Teleporting

In the previous chapter, I discussed the contradictory position towards gender adopted by Marta and Carla in their design. Even if their game's female characters are depicted as active, strong and resourceful, they opted for centring their game around the trope of a catfight rather than pursuing other paths, such as a cordial relationship or collaboration among them. This

decision to organise their game around physical conflict was not problematic in terms of game production. On the contrary, it was, to some extent, a reasonable one, since one of the most stable affordances of *MissionMaker* is its fighting system, which allows characters (both playable and NPCs) to easily fight each other. While it is not possible to claim that this design decision – having the altercation as a central game element – necessarily stemmed from their engagement with *MissionMaker,* we cannot ignore that the platform affordances supported this decision.

Unlike most of the participants across research sites, Marta and Carla followed most of the activities and design suggestions proposed by me, adopting a more guided stance towards the software (and to the production process) than the exploratory one adopted by other designers. This decision can be linked to their reduced level of familiarity with PC-based gaming. They often struggled with basic tasks, such as maintaining keyboard-mouse coordination to control the main character or placing objects in the environments. Their option to follow my instructions, however, meant that they were able to steadily progress with their game-building process, gaining confidence and changing attitude throughout the activity. While in the first sessions they often complained about the level of difficulty of the tasks, closer to the end they were already proposing solutions to emergent issues, even if they always sought help before trying it alone.

Marta and Carla's adoption of this guided stance also meant that they built their game around a crucial sequence (the kidnapping scene), and then developed the rest of the game by producing the other sequences that would complete the experience. They successfully followed the initial mini-lectures, learning how to make simple rules using the click function, how to operate doors, use triggers and make characters move and fight.

Despite understanding and being able to use all these techniques none of those were initially incorporated into their game. During Week 4, they had already started to build the opening sequence, in which Ma Ri would confront Ah Ra just after she had kidnapped Jae Min. but this was a quite simple sequence, composed by two rooms (dark forests with dead trees), as seen in Figure 20. The player would start in one of the rooms and would find Ah Ra and Jae Min in the next one, but nothing else had been implemented into the game by Marta and Carla at that point. The player could simply walk towards Ah Ra, beat her and Jae Min would have been saved.

Figure 20: Extrovertido's opening sequence

This extremely simple design would change for Week 5 onwards, when media files were introduced, and the current design of games was closely scrutinised. Specific criteria were given to participants – e.g. they had to create at least four rules, use at least two triggers, and present at least one obstacle for the player before the objective – avoiding possible design changes that could oversimplify their games. Another relevant criterion was related to media objects: participants were asked to design an opening dialogue for their game, which would later be recorded and used in their artefacts.

All these criteria seem to have helped participants to focus more on the production of their game, that is, on achieving a playable artefact at the end of the workshop. In addition, the dialogue became an important asset in terms of the organisation of the game: it not only gave designers the opportunity to enact and reflect about the roles they had designed for the characters, but also to contextualise to players the objectives they would be pursuing in that game. Excerpt 11 shows the dialogue produced by Marta and Carla:

Excerpt 11: Opening dialogue[65]

Ma Ri: Why have you taken my man?
Ah Ra: Because I saw him first!
Jae Min: Help!
Ma Ri: Be quiet, my prince, I do not want to harm you.

[65] B: ¿Por qué cogiste a mi hombre?
A: ¡Porque yo lo veí primero!
J: ¡Socorro!
B: Cállate, mi príncipe, no quiero hacerte daño
A: Su corazón nunca te pertencerá, puta!
B: Eso es lo que tu te crees!
J: mmmmmmm.

Ah Ra: His heart will never belong to you, bitch!
Ma Ri: This is what you think!
Jae Min: mmmmmm. [muffled scream]

They both acted in the recording and asked for Pablo's[66] help to do Jae Min's lines. Female agency and male passivity are reinforced by their dialogue, since Jae Min's lines are limited to cries for help. The tone of the dialogue – including the usage of harsh words between them – works well to contextualise the whole situation to the player and, at the same time, to demonstrate the high level of tension between the two female protagonists.

The dialogue frames the situation in which the player finds herself in the opening sequence. In the pre-dialogue version (Figure 20), during their encounter, it was not clear to the player what exactly was happening: were all three characters friends? Were they simply waiting for Ma Ri? Was it a casual encounter? With this dialogue it became clearer to the player that there was a conflict between the two women, and that Jae Min was the reason for this conflict. Here, we notice a good use of the new mode made available to them, since before the introduction of Media Objects, audio was not part of the pool of modes they could explore. The dialogue presented above represents the widening of their design possibilities, affording them a different set of semiotic resources that they could employ in their game, helping them not only to organise better their game as a playable artefact, but also producing signs that would later help them to construct specific identities.

Another meaningful aspect in their production process was their decision to slightly change the end of their initial encounter. Their original idea with the dialogue was to have Ah Ra using a gag to silence Jae Min and taking him away after she was confronted by Ma Ri. The main issue here was related to technical affordances of the software since, up to the moment, there was no way to program a character to lead another in *MissionMaker*[67]. The best that could be done was to have one character following another, but the pathfinding algorithm used could lead to bizarre behaviours such as one of the characters becoming lost and rotating forever in search of the other. Moreover, as it is possible to imagine, there is no function capable of representing this use of a gag to silence a character. The solution found by Marta and Carla was based on a technique learnt in previous weeks: making objects disappear.

[66]Another participant, whose game, "La Venganza de Daniel" (Daniel's Revenge), was not analysed in this research.
[67]It is still something that, up to date (August 2019) is still impossible to be done in *MissionMaker*.

Excerpt 12: Overcoming the kidnapping problem[68]

Researcher: Ok, so, what are you going to do then?
Carla: We changed it a bit…
Marta: Yes, now she [points to Ah Ra] uses magic
Researcher: Ok, which powers?
Carla: Jae Min disappears… and then she disappears, and you have to find them.

As seen in Excerpt 12 above, the solution proposed by them introduces different signs – e.g. Ah Ra's magic powers – to establish a stronger modality (Van Leeuwen, 2004), making their game seem more authentic and cohesive. The addition of magic powers slightly changes the genre (Van Leeuwen, 2004) of their game by incorporating fantasy, an aspect that was not completely developed earlier. While it is possible to argue that some modality claims based on fantasy were already present in their game – Ma Ri's eyes being one example – this was not clear for someone not versed on the *Orange Marmalade* canon, working more as a nod towards the original text rather than a sign of its relationship with fantasy-based conventions. Now, however, modality claims based on fantasy became clearly part of their game via Ah Ra's telekinetic powers, making *Extrovertido* a cohesive and credible fantastic space.

The teleport solution strengthens the modality claim made by their game by exploiting the affordances of the software. Now, they could justify the muffled scream not because of Ah Ra physically silencing Jae Min, but due to the effects of Jae Min being teleported somewhere else. This new proposed solution would also allow them to increase their game's level of difficulty, since rather than simply running towards Ah Ra and fighting her, the player would have to search and find Jae Min somewhere else.

Here, we have an early example of what I call the **propositive** nature of the platform. The game production process can be read as a dialogue between them and the platform. The platform can be understood as a set of affordances and constraints, and in the same way that platforms can constrain (or even silence) specific forms of meaning-making or even entire discourses, it can also propose alternatives. The substitution of the silencing sequence by the teleport is an early case of this phenomenon, since Marta and Carla were able to come up with a solution by understanding the affordances of the platform, and how they could be used in their favour. To achieve that, they had to invoke and realise a fantasy discourse, here understood as a specific way of representing knowledge about the world.

[68] Researcher: Ok, entonces, que van a hacer?
Carla: Cambiamos el juego…
Marta: Si, ahora ella [points to Ah Ra] usa magia.
Researcher: Ok! ¿Qué magia?
Carla: Jae Min desaparece… y después ella desaparece, y tu debe encontrarlos.

This also illustrates the dialogical nature of (creative) production processes, since it depends not only on the affordances of the platform or the savviness of creators, but on a combination of the two, with the platform suggesting solutions and the creator identifying them and selecting the one considered most suitable for that moment.

We cannot, however, consider that this dialogical production process will necessarily be easily carried out. In this specific case, the production of this new sequence involved a considerably complex and intricate set of rules, and Marta and Carla relied on support (offered either by me or their colleagues) during this process. Figures 21 to 26 illustrate the final result, indicating the objects used in the Edit Mode, the Rules created, and the final result as seen by the player. They placed a trigger volume just on the threshold between the two rooms and imported their dialogue as an audio file (Figure 21). The trigger is used to detect when the player enters the room where Ah Ra and Jae Min are, and when this happens, Rule12 (Figure 22) runs, playing the audio file (Excerpt 11).

Figure 21: Extrovetido Opening Sequence in Edit Mode

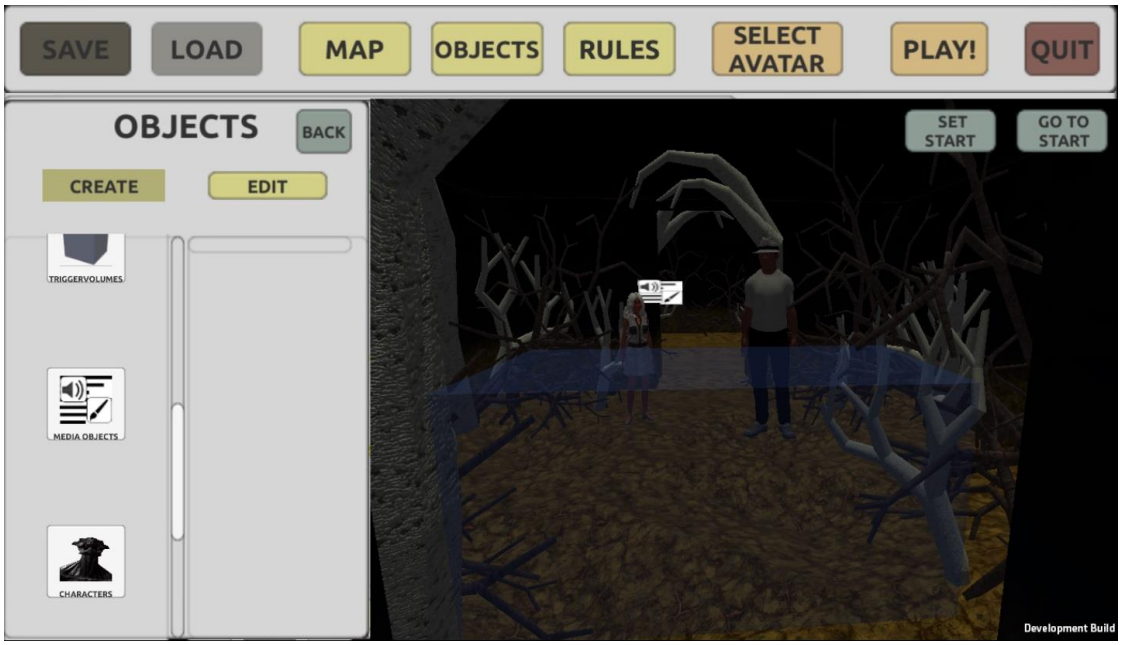
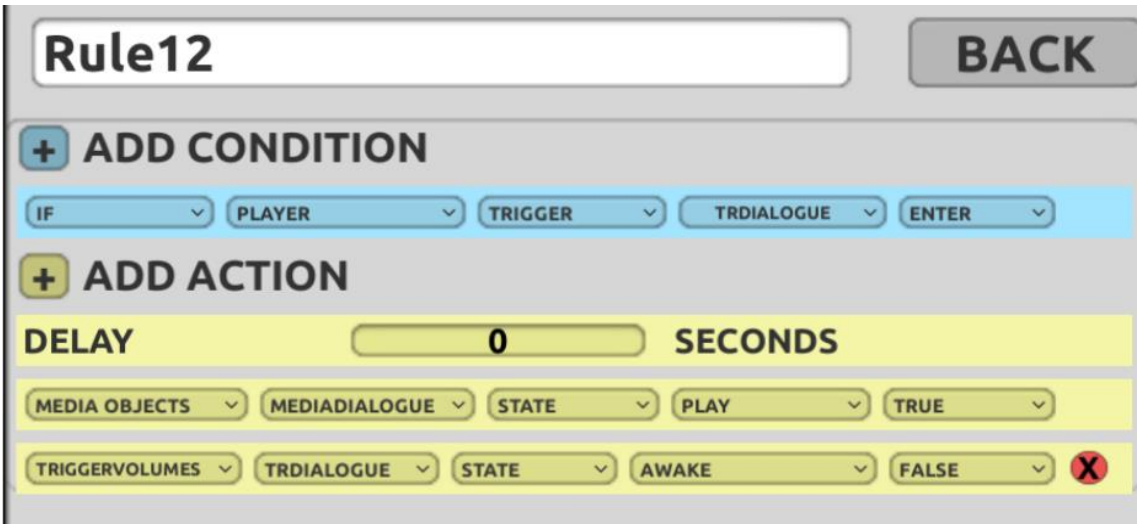


Figure 22: Playing the Audio File



In order to achieve the dramatic effect in Jae Min magic disappearance, Marta and Carla added a special effect. They also employed the Delay property, carefully timing the duration of their dialogue, so the effect would not start too soon or too late in relation to Jae Min's muffled scream. In Figure 23, they use the delay function as a timer: it starts ticking when the dialogue begins, and 9 seconds later, it will trigger the magic electricity effect; the result of this rule for the player can be seen in Figure 24.

Figure 23: Starting the Magic Effect

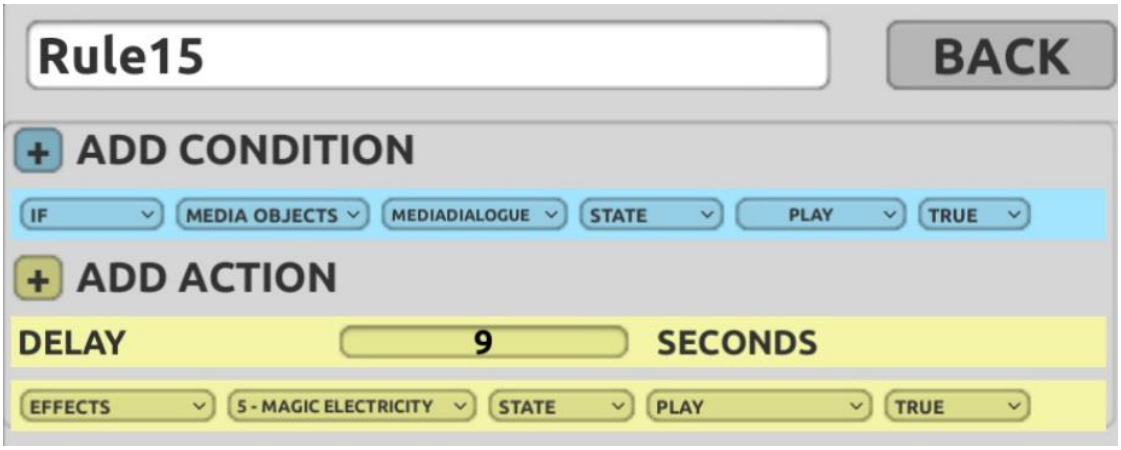


Figure 24: Magic Effect in Extrovertido– Rule15

They used the same logical reasoning to establish the stopping condition for the magic disappearance effect. A second rule (Figure 25) employs the same condition as the previous one, but uses a longer Delay and fires new consequences, making Jae Min disappear and stopping the magic effect. This means that the magic effect lasts the difference between both delays (4 seconds), and the final result of this sequence (without Jae Min or the magic effect) can be seen in Figure 26.

Figure 25: Stopping the Magic Effect and making Jae Min disappear

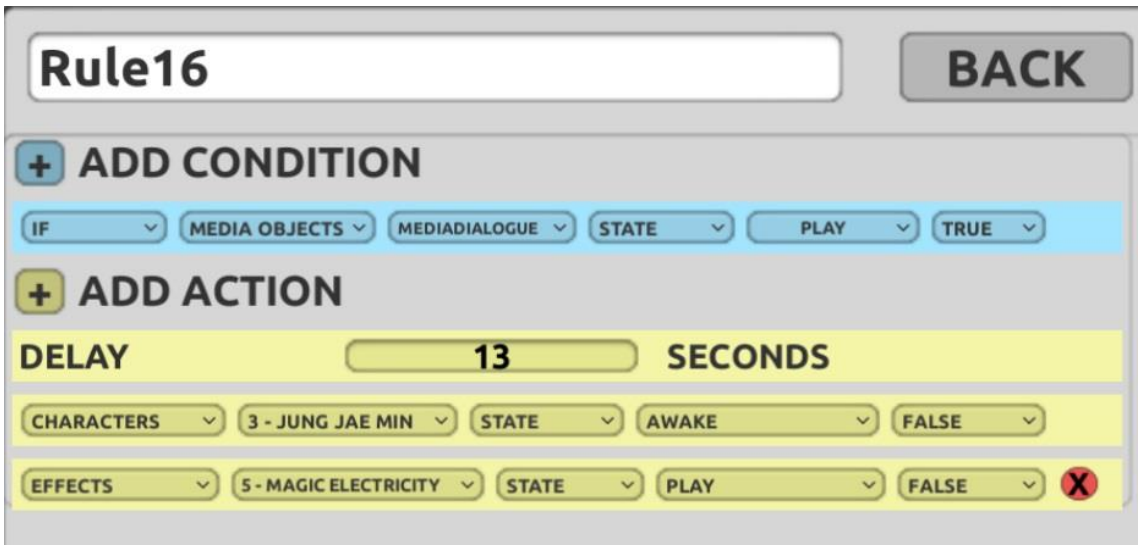


Figure 26: Stopping the Magic Effect and Making Jae Min disappear in-game – Rule16

Throughout the production of this sequence, Marta and Carla changed attitude in relation to the technical challenges posed by the use of *MissionMaker*. Although they were still insecure in their use of the platform – as they kept asking for help – it soon became clear that they were already getting used to the logics underlying *MissionMaker* rules:

Excerpt 13: Making Rule16[69]

Marta: Bruno, help...
Researcher: Ok, tell me...
Marta: How do we make him disappear... and how to make this stop?
Researcher: Ok... so, remember the other rule that make it [points to the magic effect] appear?
Carla: Another rule like that one? [Points to Delay] Longer?
Researcher: Yes.

As Excerpt 13 above shows, from a small hint Carla understood how to proceed to create the final rule in the opening sequence. This was not the only possible path – they could have used a small cascade effect and the Magic Effect play state as the condition, for example – but their logical reasoning was correct, and their rule worked as expected.

Their increasing level of familiarity with the software was evident through bug tracking and fixing. Marta, for instance, noticed that if the player returned to the threshold between the first and second rooms (where the trigger shown in Figure 21 is), the dialogue would play again.

[69] Marta: Bruno, ayuda...
Researcher: Ok, digame
Marta: Como hacemos el desaparecer... y como paramos eso?
Researcher: Ok... entonces, se acuerdan de la otra regla para que eso [points to magic effect] aparezca?
Carla: Otra regla como aquella?[Points to Delay]Mas larga?
Researcher: Eso!

After asking one of their colleagues – Yerry – for help they slightly changed Rule 12 to the version displayed in Figure 22, adding a second condition that disabled the trigger volume, preventing the replaying of the audio file at any other point in their game.

The production of the opening scene shows that Marta and Carla achieved a greater fluency (Kafai, 1995; Resnick *et al.*, 2009) in the use of the platform. This becomes clear when we realise that they were able not only to envision a solution to an authenticity problem in their game, but a specific solution that was actually possible to be implemented. The magic-based alternative can be interpreted then as an indication of a change in their relationship with the platform: despite still reluctant to produce rules on their own, Marta and Carla were capable of identifying software affordances and subject their design to those possibilities, using then the propositive platform – the "design suggestions" made by the platform – in their favour.

Their progression can be read, to some extent, through the lenses of literacy (Buckingham and Burn, 2007; Zimmerman, 2013; Gee, 2015; Beavis, Prestridge and O'Mara, 2017). This progression was not limited to a greater understanding of the software *per se*, as the mere acquisition of a skill to acritically reproduce rules and patterns, but it also involved an understanding of how to use the available modes and semiotic resources – e.g. effects, rules, characters, narrative, audio files – to produce different meanings (Kress and Van Leeuwen, 2001a). This ability to understand affordances and exploit them, however, would later face an even more complicated challenge during the implementation of the final sequence of their game.

From Trophy Boyfriend to Alien Spy

Marta and Carla's game production progressed reasonably unchanged throughout the following sessions. Although some features were added – e.g. Ah Ra's special powers described above – the main structure of their game was kept the same: find out about Jae Min's kidnapping, track Ah Ra, beat her, rescue Jae Min and take care of him until he regains his mental faculties.

During week 6, however, they faced a real challenge to their game-as-plan when the time to implement the final sequence of their game, in which Ma Ri took care of Jae Min, arrived. Excerpt 14 indicates an interaction between me and participants, when they were trying to construct the "caring" game mechanic mentioned earlier

Excerpt 14: Helping to build the caring mechanic[70]

Researcher: Ok, tell me.
Marta: We need help…
Researcher: Ok, what do you want to do?
Carla: How can we take care of him?
Researcher: Oh, this is about… ah, yes, the end of your game… what did you want her to do?
Marta: We could tuck him into a bed and…
Researcher: Hm… we cannot do that… remember what we can do here in the game… it is in actions
Carla: Yes, but that…
Researcher: What if she brings some stuff to him, like medicines…
Marta: I don't know… we will think about it.

Here, we have an example of the impact of the repertoire dissonance. As discussed earlier, our repertoires mediate our comprehension of the world, often creating shared imaginaries (Canclini, 2001; Ito, 2010). In their game-as-plan, Marta and Carla relied on an imagined form of love common in romantic teen media texts such as *Twilight*, in which one of the members of the romantic pair sacrifices herself to preserve the wellbeing of her romantic counterpart, creating a relationship that is in a grey area between selfless love and possessive, controlling obsession. By proposing the final act in their game as Ma Ri taking care of Jae Min, Marta (and Carla) were relying on a convention generated through this shared imaginary about teen love, propagated through different media texts such as the 'canonical' soap opera *Orange Marmalade*.

The issue found here is that this convention – the selfless/possessive teen love – is considerably dissonant to the conventions found in *MissionMaker*. As discussed before, we must bear in mind that videogames are not clean slates (Hayse, 2014), but the result of a historical development process that propagates specific ideologies as technical codes (Grimes and Feenberg, 2009, 2013). An important aspect to be considered here is the role played by game engines, which work as platforms for game development. Different authors (e.g. Bogost, 2006; Fiadotau, 2016) have discussed the regulatory role played by engines in game development, since they offer different modes – considering that modes are 'socially organized set of semiotic resources for meaning making' (Jewitt, Bezemer and O'Halloran, 2016, p. 71) – that

[70]*Researcher: Ok, digame*
Marta: Bruno, ayuda…
Researcher: Ok, ¿que quieren hacer?
Carla: ¿Como cuidamos de el?
Researcher: Ah, es… es el final del juego, ¿verdad? ¿Que quieren hacer?
Marta: Ponemos el en una cama y ahí…
Researcher: Hm… no se puede… acuérdate, lo que se puede hacer esta en actions…
Carla: Si, pero…
Researcher: ¿Y se ella trae cosas para él, como medicinas…?
Marta: No se… a ver…

can be appropriated by the designer. These semiotic resources are often read in terms of affordances and constraints, and engines mediate our relationships not only with easily identifiable modes (such as visual design or audio), but also with modes that might be underlying in the eyes of unaware players/makers, such as code (materialised through programming languages).

Hayse (2014, p. 445) comments about the pervasiveness of certain game mechanics, such as 'tracking, targeting, shooting, acquiring, navigating, and striking' in game play. And here we must remember that *MissionMaker* (which can be treated as an engine, since it gives a basic "vocabulary" for game design) was built on top of *Unity3D*, another engine. While *Unity3D* can be considered an universal tool (Fiadotau, 2016), we cannot ignore that certain actions – such as those listed above by Hayse – are easier to be implemented than others through this specific engine.

The set of possible actions to be carried out by characters in *MissionMaker* is, as a result, considerably limited: characters can move, jump, pick up (and drop) objects, fight, die, and "speak"[71]. These set of actions can be easily used to perform many of the game mechanics listed above by Hayse, and until the very end of their game, Marta and Carla's production was considerably aligned to this tradition – e.g. Ma Ri must track and beat Ah Ra. Their final design decision, however, led them towards a known barrier in digital gaming. By opting to explore the Ma Ri's feelings towards Jae Min, Marta and Carla were working against the grain, since 'the capabilities of game engines have been limited to visual and physical experience, rather than emotional and interpersonal experience' (Bogost, 2006, p. 64). Bogost's thoughts about game engines can be used to highlight how technical codes (Feenberg, 2002) can be used to promote specific ideologies and values (Flanagan and Nissenbaum, 2014), generating specific conventions in game design terms.

As discussed earlier in this work, these conventions will not only help to shape which kinds of games can be constructed – as it happens here – but also how games are perceived in broader cultural terms (Flanagan and Nissenbaum, 2014). Stereotypical gendered preferences (Carr, 2005; Jenson and de Castell, 2008; Pelletier, 2008; Friman, 2015) in gaming are a clear example of this cultural shaping process. The combination of stereotypical views towards gender-based preferences – e.g. girls like cooperative games, boys prefer competitive ones – and the proliferation of specific technical codes – e.g. running and fighting is easier to be represented than tucking someone into bed – can reinforce specific stereotypical views about digital games

[71]The *MissionMaker*version used in this project had a rudimentary 'lipsync' function available, in which characters move (open/close) their mouth according to a wavelength sample of the audio file being played.

and hinder what can be seen as subversive – such as a game about depression (*Depression Quest*) or about the experiences of a trans woman while transitioning (*Dys4ia*) – forms of game design as well.

By aiming towards subversive game mechanics in relation to those that are favoured by the platform used, Marta and Carla's "tuck-into-bed" design highlights the role that technical codes can have in promoting specific views towards gaming, which can lead to a reflective glimpse towards gaming 'common-sense' (Gramsci, 1999; Cassar, 2013) and their own relationship with games. It also opens a path to discuss the limitations of these stereotypical views regarding gendered preferences since, as discussed in the previous chapter, their game operates within an ambiguous dynamic towards femininity, caring and nurturing, but at the same time aggressive and controlling. Here, the way these discourses were realised by them directed me towards identifying them as "(post)feminists". Nevertheless, these contradictory positions (aggressive, nurturing, controlling) culminated in the construction of a reasonably unstable and improvised position, as identities have been considered throughout this project: it "situates" them in relation to different discourses and can be employed to engage with further, different, discourses, but can be easily – and even involuntarily – disassembled.

The construction of this "(post)feminist" identity is connected to the repertoire dissonance and to the subversive game mechanics described above. Repertoire dissonance, therefore, can be understood as the difference between the repertoire recruited to organise their design process – their proposed organisation of semiotic resources to convey meaning – and the actual affordances offered by the platform. Following Social Semiotics, it can be understood as an "aptness' issue (Kress, 2010), since the meaning-maker is necessarily tied to specific modes that are not fundamentally the most "apt" to convey their desired meaning, caused in this case by a mismatch between designers' intention and the software. Excerpt 14 illustrates the idealisation of the repertoire dissonance – 'tuck him into a bed'. This does not mean, however, that this repertoire dissonance should be seen as inherently negative.

When discussing conventions in games, Perron (2014) argues that these unspoken rules might become more visible when absent or decontextualized, in a process which he names 'aberration', and repertoire dissonances can be seen through similar lenses. It is through repertoire dissonances that platform biases become clear, highlighting how the tool might be implicitly promoting specific ideologies and values. The repertoire dissonance can, therefore, be compared to the rise of sociocultural reflexive processes described by Bourdieu (Bottero, 2010): it is when our habitus – the internalised assumptions that generate dispositions which

guides our practices in the world[72] – is disrupted that we can adopt a reflexive stance. In other words, it is when we realise the arbitrariness of certain sociocultural norms and rules that we reflect – and might contest – them.

In the same way as the value of habitus disruptions might not be on its occurrences, but on the reflexive process that follows it, the value of design 'aberrations' (Perron, 2014) is not in them *per se*, but on how designers work through and around it. Here, therefore, the main question becomes how Carla and Marta would respond to that obstacle.

Since they were constrained by the affordances of *MissionMaker*, and there were not many different actions available for characters besides running, jumping and fighting, we discussed possible ways of representing Baek Ma Ri taking care of Jung Jae Min. As indicated by Excerpt 14, my suggestion was to have a series of pickup objects distributed throughout their now big game environment[73], and having the player collecting and delivering those to where Jung Jae Min was; they could even use one of the game economies to indicate Jung Jae Min's health – something that I had considered, but had yet not verbalised at that moment. As the dialogue indicates, they were not happy with that solution and I left them to reflect about it; when I came back to check how it was going, they had completely changed their game ending, as the excerpt below shows:

Excerpt 15: The New Ending[74]

Researcher: So, girls, how are things going?
Marta: So... (laughs)
Carla: We are not putting objects... we changed the game!
Researcher: Oh, that's ok, not a problem! So, what happens now when you rescue him?
Carla: When you rescue him, two men in suits and sunglasses show up and tell you to not come close to him, because he is very important... (both laughs)
Researcher: Wow, so who is he?!
Marta: You haven't seen everything yet...
Carla: In that moment, this Alien [points to the Alien icon in the object mode] shows up, and he says that in fact Jung Jae Min is a spy for the Aliens, and they both disappear. The End.
Researcher: ...!!!

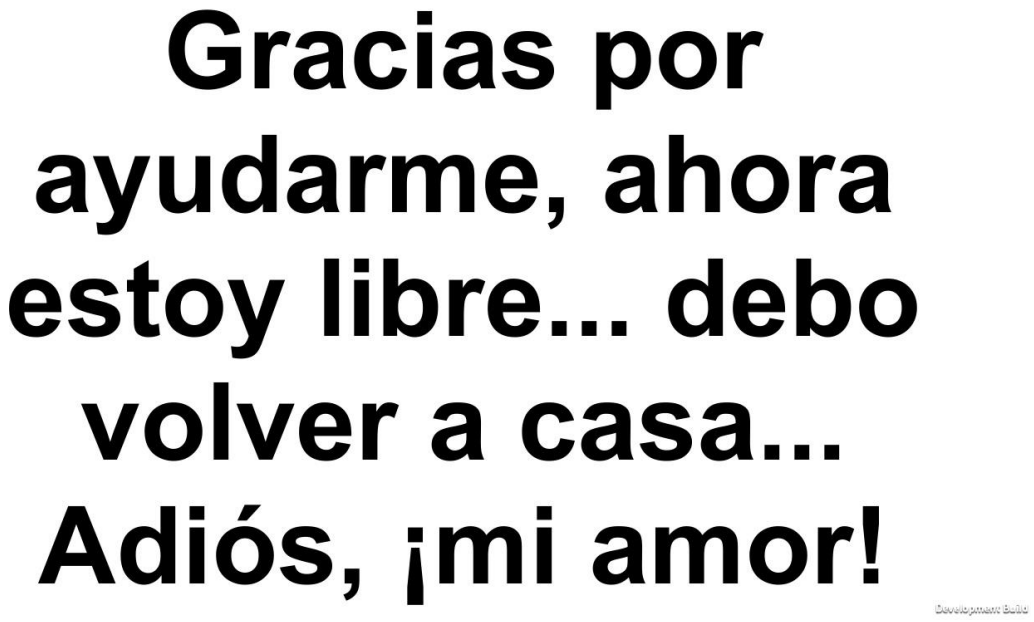
As hinted by Excerpt 14, Marta was not very keen on following my suggestion, and Excerpt 15 shows their solution. Their response to the problem posed by the repertoire dissonance described above emerged from Carla's input: she proposed a completely new ending, including

[72] A hypothetical example would be: "I am a girl; games are for boys; I will not play videogames because they are not for me." Or, to use another example already cited in this work in Chapters 2 and 3, Alice's (Pelletier, 2008) decision of making a game that would be seen as more "girly", eschewing her gaming repertoire.
[73] Since they had expanded it considerably after starting with only two rooms in Week 2.
[74] English was used throughout this whole dialogue. Since I was constantly changing languages, I often mixed them, and approached Marta and Carla at this specific time using English. They replied in English, so the conversation, at this time, carried on exclusively in this language.

a significant plot twist. After beating Ah Ra's, Baek Ma Ri would find a secret passage, accessed by a click in a control panel, which would lead her to a different room. In that room (Figure 27 below), she would find a soldier and a small alien creature, and the following message (displayed as a simple black-and-white popup) is shown:

Figure 27: The final encounter between Baek Ma Ri and Jung Jae Min

Figure 28: Extrovertido's Final Message[75]



This is the final action in their game. To some extent, the surprise factor works well: the player ends the game in a similar situation as Baek Ma Ri, shocked by the unexpected revelation. The existence of a human soldier – and not two secret agents, as suggested in Excerpt 15 – in the

[75]Thanks for helping me, now I am free... I must go back home... Farewell, my love!

same room (as seen in Figure 27) indicates that this was not only an important reconnaissance mission, but also that other humans were aware of Jae Min's true nature. This is an abrupt change in the tone of the game, adding a sci-fi twist to a love story. But how did this idea emerge? When asked about the origin of that solution, Carla mentioned that:

Excerpt 16: Why the alien[76]

> *Carla: We were thinking about what we could do... I was going through the objects and [then] I saw the alien... I said to Marta: what if he were an alien, and then he goes back to his planet?*

Excerpt 16 hints that the use of the alien as the result of Carla's engagement with the software. Rather than being the outcome of a carefully chosen process, it was part of a strategy to overcome the issues that emerged on the intentionality gap between their game-as-plan and the pool of semiotic resources available to them through the software.

This case is, therefore, another example of the propositive role played by the platform. The solution found (to transform Jae Min into an alien and having him not reappearing to Ma Ri) not surprisingly taps into cultural resources that are somewhat "closer" to *MissionMaker*: rather than performing caring actions – something that is difficult to be portrayed even in AAA games[77] – their sci-fi/mystery ending does not require an explicit demonstration of affective/emotional attachment.

This workaround to overcome the issue, however, can be related not only to the affordances of the platform, but also to Carla's take on their game. Differently to what happened with Marta, who was a keen fan of *Orange Marmalade*, Carla did not show the same interest in the romantic development of the story. This also helps to explain why the new ending came from her: Carla's attachment to the "original" text was not as strong as Marta's; thus, we can infer that it was easier for Carla not only to propose a different ending, but also to envision different possibilities – hence, the use of the Alien asset.

Here, it is important to reflect about the role that repertoires might play in relation to creativity: as discussed in previous chapters, creativity and intelligibility walk hand-in-hand (Burn, 2016) in a mix of reproduction and resignification (Burn, 2017). Their game-as-plan is

[76]Pensaba en lo que hacer... miré los objetos y vi el alienígena... dije a Marta: ¿y se el fuera un alienígena, que vuelve a su planeta?

[77]*The Last of Us*, one of the most acclaimed games in terms of emotional power, has a sequence in which the player – as Ellie – must take care of the main protagonist (Joe). This is depicted in a similar fashion as I have suggested to the girls, with Ellie carrying out scavenging missions to bring resources towards Joe. This is not the only way the game represents "caring", since Joe, throughout most of the game, plays the conventional role of an adult caring for young people, something also explored in other games such as *The Walking Dead* (Taylor, Kampe and Bell, 2015)

creative, since it "reworked" the original text, constructing a believable alternative story for the characters of *Orange Marmalade*. What happened here, however, is that Marta's specific knowledge about *Orange Marmalade* acted as a limiting factor in the end: hers was a story about the love between (the human) Jae Min and (the vampire) Ma Ri. Carla, on the other hand, was not limited by the same allegiance to the "original" media text. She was able to operate in a different level, identifying other possibilities stemming from the platform and recruiting different aspects from her repertoire to propose her "alien" solution. Her solution might not be "intelligible" (therefore, not "creative") enough for an *Orange Marmalade* fan, since there are no aliens in that text, but definitely "intelligible" enough, especially considering that it follows the path to the realm of fantasy fiction opened earlier by Ah Ra's telekinetic powers discussed in the previous section. Considering the definition of Vygotskyan creativity adopted in this project (Vygostky, 2004), hers is definitely a creative solution for this design conundrum: if there is a telekinetic young woman, why not aliens?

In addition, it is important to notice that collaboration seems to be a key factor for this creative process. Having participants collaborating among themselves – not only within the whole group, but, especially, working full-time in pairs – affords the development of technical skills (cf. Denner and Werner, 2007) as well as expands the possibilities in their designs through a combination of repertoires. Had Marta worked alone, she might have ended up stuck in the "caring" game mechanic; with Carla by her side, however, a combined repertoire was available to them, reducing the "inhibitor" factor that a very specific repertoire might have.

Carla's ending is, to some extent, a lighter ending when compared to Marta's proposal. By having Jae Min revealing his true colours as an Alien, they were able to not only bypass issues regarding the technical development of their game, but also to provide a freer, but still romantic ending. *Extrovertido* ends using the "impossible love" convention, with Ma Ri and Jae Min loving each other, but never able to end up together. Rather than having their romance being eroded by controlling and/or submissive relationships, both protagonists would be able to hold into the fond memories of their romance. This decision reflects the gender-based discourses articulated and realised by Marta and Carla during their participation in the activities, reinforcing their view on how women can be strong and independent for everything, even to love undercover aliens.

A final element that should be addressed here is Carla's honesty when explaining her design decision (Excerpt 16). This explanation can be taken as a hint to how she approached their game-making process, at least in this final moment, in a more playful manner. Salen and Zimmerman (2004, chap. 22) define play as 'free movement within a more rigid structure', and it is possible to understand their new proposal for their game ending in that way.

At least two different structures were used to organise their game design process; the initial plan and the platform. These two structures proved compatible until the very end of their game, when the **repertoire dissonance** caused the 'aberration' (Perron, 2014) that was the focus of this section. In that moment, the "free movement" characteristic of playful activities was invoked to break the deadlock generated by the dissonance between platform and their game-as-plan. Diverse approaches were considered, but Carla's alien resolution was the chosen one. This was only possible due to Carla's stance towards the "original" text, less focused on the limits established by it (e.g. Jae Min is a human, this should be a love story with a "good" ending) and more interested in offering a credible – and intelligible – ending to their game. In other words, Carla's repertoire and personal preferences seems to have given her more "freedom of movement" within the "rigid structure" constituted by their game-as-plan and *MissionMaker's* affordances.

Experiment Z: Experimenting with Sci-Fi

When compared to the designers of *Extrovertido,* Yerry and Juan had a different kind of gaming repertoire. They were used to mainstream platforms, as exemplified by their quick appropriation of *MissionMaker* implicit player commands discussed in the previous chapter, and several of their favourite games used a similar "vocabulary" to that favoured by the software used in this project. In this scenario, it was expected that theirs would be a less-steep learning curve when implementing their game through *MissionMaker*. This anticipation was not only justified by their familiarity with the kind of production environment used, but also by their consonant repertoire, since their game-as-plan was a better fit to *MissionMaker's* affordances.

This does not mean, however, that it was easy to produce *Experiment Z* through *MissionMaker*. In several moments, their game-as-plan was quite cinematographic, including deliberate descriptions of specific camera angles and movements. While this reliance on a "cinematographic language" is quite understandable due to their repertoire – including here the preference for "cinematographic" games produced by *Rockstar* (Wright, 2017) and, more broadly, the conventional use of cutscenes in digital games (Klevjer, 2014; Perron, 2014) – achieving this effect is something considerably difficult in *MissionMaker*.

This challenge was one of the aspects that made *Experiment Z* an interesting case to be analysed here: how would participants use *MissionMaker* to produce their game? Would they be able to overcome the challenge described above? How would their repertoires and game-as-plan influence this production process? Here I will rely again on two specific sequences of their

game: the first one, when Sherlock finds Elsare for the first time after the incident, and the final scene, when the protagonist and Alejandro are close to saving humanity.

Repertoire and gaming cohesion

Experiment Z aimed at providing a different kind of playing experience when compared to *Extrovertido*. Rather than a love story, it tapped into an existing imaginary about science experiments, big corporations and world domination. Another noticeable difference was their intention to produce a game with a more complex and intricate story, unfolded through a complicated series of events, something that could be linked, as discussed in the previous chapter, to their gaming repertoire – e.g. Juan's preference for *Rockstar's* games.

This difference between the two groups (Marta and Carla, and Yerry and Juan) was not only limited to their repertoires or game-as-plan, but also noticeable in the way the whole activity was approached. While Marta and Carla opted for a more guided stance in relation to *MissionMaker*, following tasks and recommendations, Yerry and Juan adopted a more exploratory approach. Although they often engaged with the mini-lectures at the beginning of the sessions, they tended to extrapolate the recently learnt techniques, applying them to their game and often asking me further questions about elements that were pertinent, but considerably specific and not covered in those sessions. One of these questionings happened in Week 3, when participants worked with Trigger Volumes:

Excerpt 17: Repulsive Triggers[78]

Researcher: Ok, tell me.
Yerry: This 'repulsive' here, what does it mean?
Researcher: Ok, remember what the trigger does?
Yerry: It detects when you enter…
Researcher: But another thing that it can do is to stop you from entering, like those invisible barriers in the end of a scenario…
Juan: Like a force field?
Researcher: Yes, as repulsive a trigger works like an invisible force field.

This kind of question illustrates not only a curiosity about the software itself, but their will to understand how different elements worked. They were interested in incorporating new

[78]Researcher: Ok, dígame.
Yerry: Ese "repulsive", ¿qué es?
Researcher: ¿Ok, se acuerdan de lo que se pasa con los trigger?
Yerry: Detectan cuando entras…
Researcher: Pero otra cosa que se puede hacer es usarlos para hacer con que no entres, como aquellas barreras invisibles en el fin de un nivel…
Juan: ¿Como un campo de fuerza?
Researcher: Si, como "repulsive" el trigger es como un campo de fuerza invisible.

resources into their production vocabulary, affording them more resources to implement *Experiment Z*. Excerpt 17 also allows us to notice the influence of their repertoire, signalled by Juan's reference to 'force fields'. Common in Sci-Fi experiences, 'force fields' are also often invoked in digital games to shape the player experience, being used either for merely functional reasons, such as preventing the player from falling from a 3D scenario into a void, or to sustain more specific design decisions, such as preventing the player from accessing a challenge that he or she cannot overcome yet or forcing her into progressing through a specific path. These more specific uses can operate within different modes and modalities (Burn, 2008)– e.g. fictional, ludic – and can be a valuable resource for game-makers.

Yerry and Juan often incorporated these more specific techniques into their actual game. One example comes from the opening scene designed during Week 5, after the introduction of media objects. The following dialogue was written and recorded by Yerry and Juan, setting the initial conflict of their game:

Excerpt 18: Opening Dialogue[79]

Sherlock: Elsare!?
Elsare: Yes.
Sherlock: You!! You are the cause of my whole disgrace! I lost my whole family!! And all this happened after that trap that you set for me!
Elsare: Ha! I do not care about that, these are small and meaningless facts…
Sherlock: Damn you!
Elsare: You cannot do anything… it is what it is.

The game begins with Sherlock in an empty street, facing a dead end and an open door to his left (Figure 29). This is one of the entrances to the *Mar Industries* building, where Elsare is waiting (Figure 30). A movement towards Elsare will make the player enter a trigger volume, which will lead to the execution of a rule that plays the dialogue (Figure 29).

[79] Sherlock: Elsare!?
Elsare: Si.
Sherlock: ¡¡Tu!! ¡Eres el culpable de toda mi desgracia! ¡He perdido a toda mi familia! ¡Y todo por aquella trampa que me habéis hecho!
Elsare: ¡Ha! Eso no me interesa, son cosas pequeñas y hechos sin sentidos…
Sherlock: ¡Maldito seas!
Elsare: No puedes hacer nada… lo hecho, hecho esta.

Figure 29: Rule that plays the dialogue when player crosses first trigger

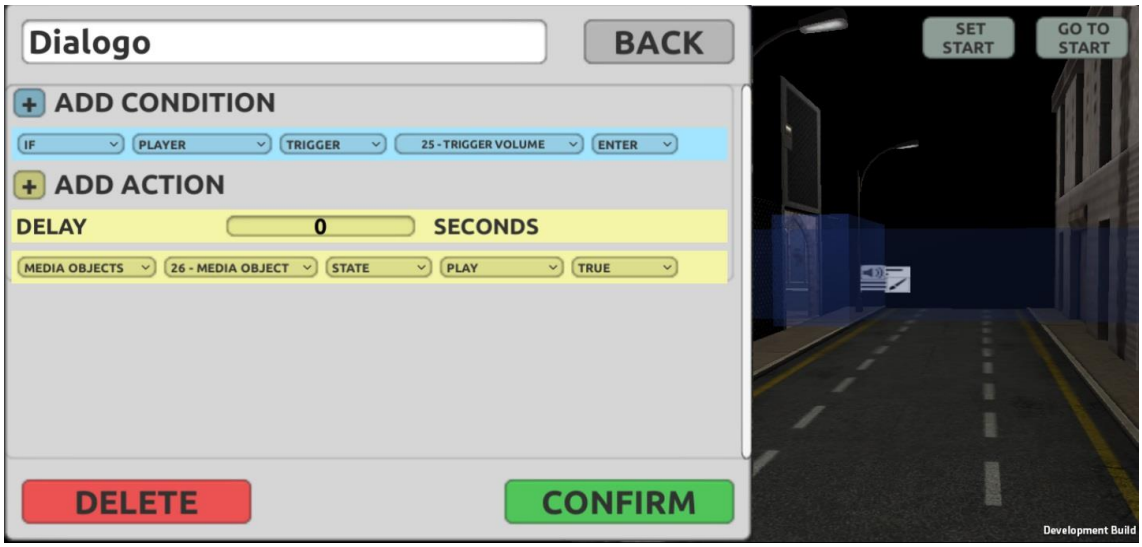


Figure 30: When the dialogue plays, Trigger24 acts as a force field preventing player to reach Elsare

In order to prevent the player from reaching Elsare – and killing him there, spoiling the game – Yerry and Juan used the repulsive function described above: another Trigger Volume (Figure 31) was programmed as "repulsive" by default. This property is changed after 26 seconds – the duration of the dialogue – as indicated by the rule in Figure 31, and the player can finally try to reach Elsare; doing this, however, will fire the rule displayed in Figure 32, which closes the door before Sherlock can cross it.

Figure 31: Rule that stops the "force field" effect, allowing player to enter the trigger

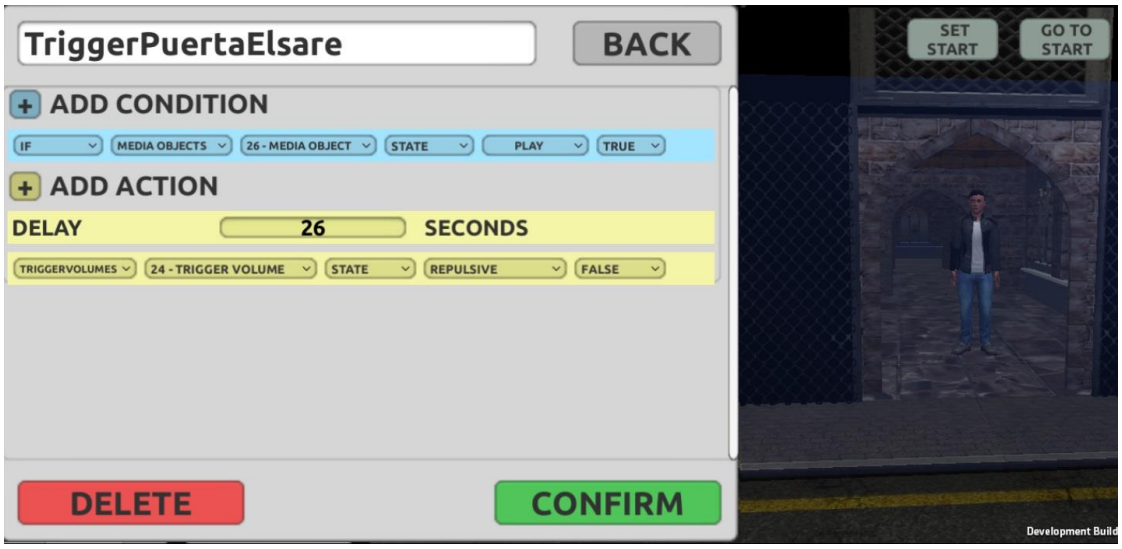
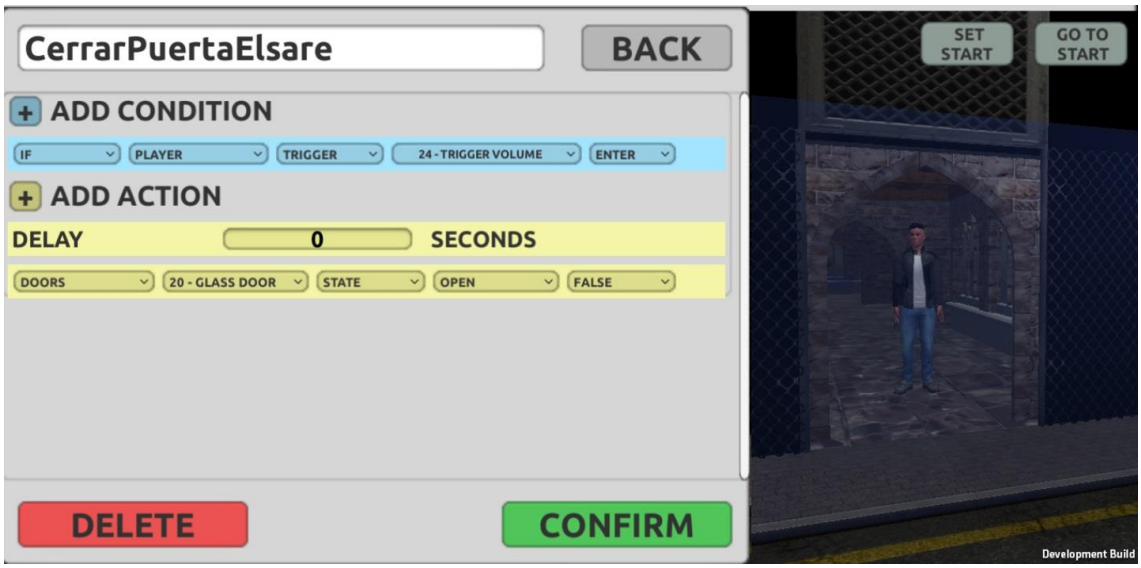


Figure 32: Rule that closes the door when player enters the trigger



The player then finds himself locked outside (Figure 33). Being unable to open the door at this moment, Sherlock is forced to turn around and follow the only available path, which leads to the beginning of the challenges of their game.

Figure 33: Door closed after player entered the Trigger – Rule "CerrarPuertaElsare"

In this example, there is a significant use of their repertoire. A complex combination of rules and triggers was adopted to organise the beginning of their proposed gaming experience, orchestrating how different modes – audio, visual, ludic – were employed at each moment. Ludic and narrative elements are combined, producing a semiotic ensemble that is cohesive and true to the genre – here, used in the Social Semiotic sense as defined by Van Leeuwen (2004)– of their production, a game, restating the presentational modality truth claim (Van Leeuwen, 1999) of their text discussed in the previous chapter. Dialogues and invisible barriers that prevent your access to a specific area at certain times and carefully timed events (e.g. the door closing just before Sherlock can cross it) were all part of their gaming repertoire and were successfully imported into this first gaming sequence, making therefore a noticeable use of the conventions (Perron, 2014) discussed in the previous chapter.

Another element that also taps into their gaming repertoire and is somewhat related to this opening sequence was another rule, later programmed into their game, that allowed the player to open this specific entrance of *Mar Industries*. During a different gaming sequence, Sherlock finds lockpicks (a pickup object in *MissionMaker*) and Yerry and Juan were careful enough to program an extra rule in their game: if the lockpicks enter the trigger volume in front of the glass door that previously hid Elsare, that door will open (the rule is presented as Figure 34, and the effect, Figure 35).

Figure 34: Rule to open doors when lockpicks are "used" – placed into the trigger

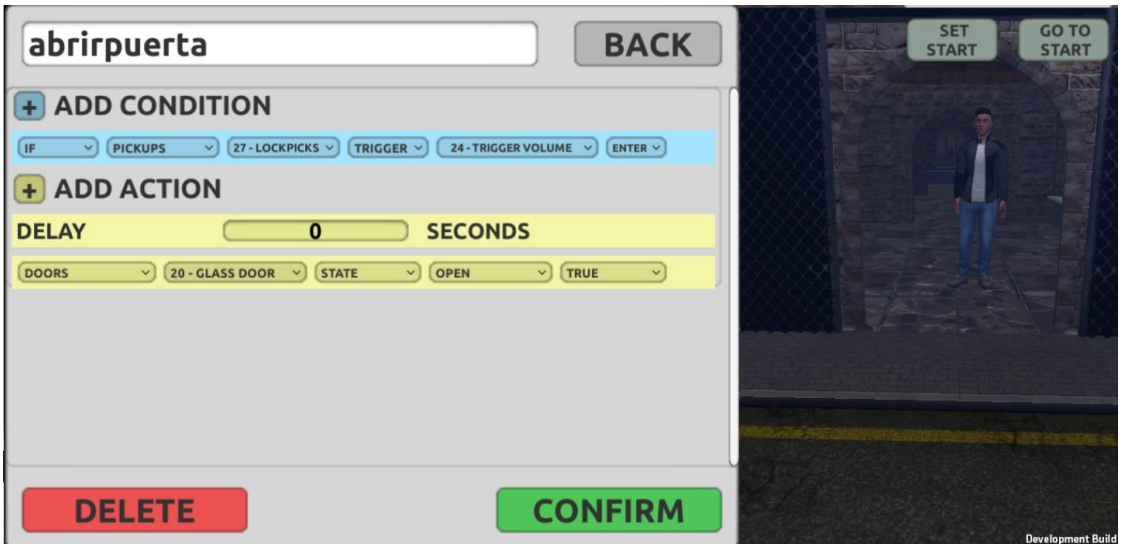


Figure 35: Lockpicks inside trigger to open door – Rule "abrirpuerta"

Their decision to add this rule indicates how cohesive (Burn, 2008) their design was, meaning that an object, even if collected in a different space and in a different moment in their game, would still function as expected in all other places in this digital environment. This careful attitude in relation to their production can be linked not only to their commitment in producing an immersive gaming experience, but also to their gaming repertoire. As discussed in the previous chapter, in different moments – e.g. when justifying Sherlock's grey hair – participants often sought to present logic reasonings to support their decisions. And this approach can be related to the kind of game that they were used to, in which game worlds tend

to be cohesive: skipping classes in *Bully* will lead into trouble with the headmaster, causing traffic accidents in *GTA* will attract the police.

Their decision, therefore, was aimed at creating a cohesive gaming world, in which the player is not misled. More important, it is a world that caters to a specific type of player, one that likes to explore and test whether game elements behave as they should, being then coherent with the broader realm of mainstream gaming culture. By programming the lockpicks to work with the first game door, participants were creating the kind of game world and, more important, the kind of experience – a meaningful, cohesive one – that they enjoyed while playing games, constructing a presentational modality to give a sense of authenticity to their game (Van Leeuwen, 1999) through genre-based conventions.

Programming climax: from cutscenes to ingame scripted events

Yerry and Juan had a clear image of the game they wanted to build. This is made explicit by the level of detail they offered during initial sessions when asked to describe their game. Some specific elements, however, were lost during their design process. The lab, deliberately described as an underground complex, is found at the same level as all other rooms[80] (although there was some effort to evoke a sense of secret space through a maze of tunnels resembling a sewer). Despite losing some previously planned elements, Juan and Yerry steadily progressed with the construction of their game during the workshops. Rules were created, trigger volumes were placed, and new keys were demanded to open specific doors.

Throughout this experience, however, the dissonance between their initial ideas – their game-as-plan – and the affordances of the software was progressively undermining their production. This undermining process can generally lead to two possible and opposite outcomes. It can either be seen as a challenge and approached in the same way as a difficult game is, as a barrier that has to be surpassed, or as a demotivational factor, leading towards frustration (Fiadotau, 2016). As it is possible to imagine, the first attitude might lead to solutions that could change completely the game (as done by Marta and Carla). The second attitude, to a game that is left unfinished.

Until the final battle, the main approach adopted by Juan and Yerry was closer to the former. Adaptations to their original design, such as the early example of the use of tunnels to mimic

[80] Until now (August 2019), there is only one two-floor room in *MissionMaker*, but it is a dead end and the entrance is found at the same level as other rooms, being therefore impossible to construct a multilevel environment.

an underground lab, were done. Accommodating, however, became more difficult during the final battle.

Excerpt 19: Releasing the cure in the final sequence[81]

> *Juan: And he leaves with the antidote in hands, when another guy, a tank […]. And then, when he throws the DNA to the floor, Elsare arrives, but half-dead, and he tells that this was not over, and prevents the antidote to fall on the ground; the camera does a close-up on Elsare's hands and the DNA intact.*
> […]
>
> *Juan: When the clone attacks Elsare, Sherlock takes the antidote and releases it: the camera opens, and it is possible to see mutants falling in a wave effect, all of them.*

In the excerpt above, Juan describes exactly how the final sequence should happen. He even details the critical moments, the climaxes of the sequence: Elsare half-dead, the antidote, the effort to prevent it touching the floor. More importantly, he describes camera movements – 'a close-up on the vial' – to illustrate how the scene should be built. The use of this specialist language to describe the scene is another example of their familiarity with games and of their use of presentational modality (Van Leeuwen, 1999) to produce an authentic game, at least in relation to what they understood as games. One of the aspects that they articulate to establish this authenticity is a common feature found in games, cutscenes.

Perron (2014) argues that, conventionally, digital games rely on cutscenes to unfold narratives. Klevjer (2002, 2014) discusses the importance of these resources by stating that they are more than rewards in narrative games, since cutscenes can help to construct a rhetorical dimension for the event to come (Klevjer, 2002). In this case, the cutscene-like description offered by Yerry and Juan taps into genre-based conventions. The dramatic confrontation with the final enemies, the close-miss opportunity to beat them (the vial stopped inches from the floor), the close-up on the almost shattered vial: they all invoke a fictional genre – in this case, action-based Sci-Fi – helping to set the parameters in which the following actions should be understood or, in Klevjer's (2002, p. 201) words, giving 'vague expectations a form'.

By acknowledging cutscenes not only as eye-candy, but as a strategical resource in digital games that is not only conventional, but also narratively functional, we can understand why Juan and Yerry described their final battle in this format. As several of the elements in their game described before, this final battle description can be interpreted as another manifestation

[81]Juan: Y el salió con el antídoto en la mano y justamente viene otro tipo, un tanque […]. En eso, al lo que tira el ADN, llega Elsare, pero semimuerto, y dice que eso no se acaba, y impide que el antídoto se caiga en el suelo, y la cámara se hace un efecto close en las manos de Elsare y el ADN entero.
[…].
Juan: Cuando el clon ataca Elsare, Sherlock recoge el antídoto y lo libera: la cámara se abre y se ve todos mutados cayendo, en un efecto hola, cayendo toditos.

of their gaming repertoire, since they were deliberately relying on gaming conventions learnt through their experiences as videogame players.

This use of repertoire becomes even more significant when we look back to Juan's distinction-based approach through taste when listing cinematic games as his favourite. By relying on cinematic language, Juan and Yerry were pursuing a similar strategy to that adopted in *Rockstar* games cited in the questionnaire. They established a closer relationship between their game and cinema and, through this process, aimed for a different level of legitimation (Wright, 2017), in a (perhaps tacit) articulation of the notion of taste as a distinctive signifier (Bourdieu, 1984) and the 'truth to genre' presentational modality claim (Van Leeuwen, 1999). They build in an extra layer of narrative tension, adding character complexity by allowing characters to "speak for themselves".

Again, there was a gap between the game-as-plan and the game-as-artefact, since *MissionMaker* did not support the construction of cutscenes[82]. The camera is always attached to the agent that represents the player in the world, and there is no way to stop or ignore player's input. In this configuration, the camera is subject to the playable character's function described above, becoming part of an apparatus that enable the player to experience the game world (Klevjer, 2012). By solely working with these player-centric cameras, *MissionMaker* then only allows for what Klevjer (2014, p. 307) names in-game storytelling, 'techniques of dramatic orchestration that make events unfold within embodied synthetic space' achieved through in-game scripted sequences.

This possibility is significantly different to the cinematic camera approach intended by Yerry and Juan, whose main function would be to 'narrate an imagined world', being subjected to specific conventions of montage, continuity and camera angles of the orchestrating mode of cinema (Klevjer, 2014, p. 306) to convey meaning. Here, the intentionality gap between their intended (cinematic) and achievable production (e.g. in-game storytelling) becomes more evident.

Although most of their gaming repertoire was aligned to that invoked by *MissionMaker*, they were expecting to find specific affordances that were not available in the platform. Even if the result caused by the dissonance between their plan and the possible *MissionMaker* game is similar to that experienced by Marta and Carla, the nature of these intentionality gaps is different. Marta and Carla knew from the beginning that they were going through "uncharted territory" and would be asked to deal with concepts and practices that they had limited familiarity with. Juan and Yerry, on the other hand, had a clear idea of what they wanted to do,

[82]This is still the case in May 2019, when this thesis is being written.

and their early successes with *MissionMaker* created expectations. As knowledgeable players, they recognised several of the references and semiotic resources incorporated in *MissionMaker*. This allowed them to progressively become more reliant on their repertoire, until that repertoire became not an asset, but a hindrance, generating ideas that could not be easily translated into a *MissionMaker* game sequence.

Marta and Carla's intentionality gap was caused by a repertoire dissonance, since their gaming repertoire was considerably different from that invoked (or favoured) by *MissionMaker*. Juan and Yerry disruption was caused by a misleading repertoire-intention relationship. They were misled by the positive feedback loop between their repertoires, game-as-plan and the implementation of their game-as-artefact. In the same way as discussed in relation to *Extrovertido*, this production problem – or, in other words, this disruption of the (gaming) habitus (Bottero, 2010) – would open space for reflection and for different uses of the platform. Therefore, it is important to understand how Yerry and Juan would react to this dissonance. In order to answer that, their implemented final scene as designed in *Experiment Z* final version will be analysed in the following paragraphs.

It starts when Sherlock leaves the underground lab through a sequence of tunnels towards an open space that represents a modern street. After crossing the threshold between these spaces (and a trigger volume), the final boss[83] and his mutant army show up. When the player gets closer to the group, the audio in which that enemy says "No one leaves! This is the Apocalypse!" is played. The tank remains still, while his mutants move forward to attack Sherlock. Figure 36 shows the moment when Sherlock gets closer to the enemy group, triggering Tank's speech and the mutants rush towards the player.

[83]If necessary, see previous chapter to understand the final boss'/Tank's role as one of the main antagonists of their game.

Figure 36: Sherlock getting closer to Tank

Even an experienced player can be overpowered by the mutants, since having five enemies rushing towards you is not something easily manageable in *Experiment Z*. Surviving the attacks is also difficult because Juan and Yerry have deliberately changed the default values that rule the damage suffered by mutants, making it practically impossible for the player to kill them. At least six hits must be achieved to kill an enemy, but the player can stand only eight hits. By defining these parameters, Yerry and Juan were emulating a specific type of battling, demanding for a different strategy. Rather than attacking the mutants, a player is better off running around, trying to avoid being hit, a strategy that is cohesive and coherent with Sherlock being bright rather than a brute. Using items collected throughout the game to restore Sherlock's health –another convention integrated into their game, is also a good strategy.

As previously argued, achieving the original winning condition turned into a challenge not only in terms of conveying all the emotional charge expected in the game-as-plan, but also in practical gameplay terms. The planned sequence described before (where Elsare prevents Sherlock from releasing the antidote by holding the vial, as well as Sherlock's clone attacking Elsare) was considerably difficult to be enacted in *MissionMaker* and ended up scrapped. Yerry and Juan then decided for a different pathway in their final game. After 15 seconds of battling against Tank's army, Alejandro arrives to the scene with the antidote vial, "gives"[84] it to Sherlock, and your goal now is to drop it on the floor to release the antidote onto the air, killing all mutants in a wave effect and winning the game.

[84] When Alejandro arrives the scene, an antidote vial shows up in Sherlock's inventory, representing Alejandro passing it to Sherlock.

The problem was how to produce this wave effect They wanted to kill all enemies when Sherlock dropped the vial anywhere, but the only way to work with object position detection in *MissionMaker* is through Trigger Volumes. Juan, in the excerpt below, indicates the knowledge accumulated during the experience, but asks if any alternative means existed:

Excerpt 20: Checking the integrity of the vial[85]

> *Juan: Is there any way to check if the vial is on the floor?*
> *Researcher: You mean on the floor? Where exactly? Can you use a trigger?*
> *Juan: A trigger? Can I make it in the whole room? Is there an easier way?*
> *Researcher: hm... sorry, no... you can use a big trigger... but maybe the game will become slow... you can try it!*

Juan showed a great level of familiarity with the software; as exemplified by the previous section, they had already used triggers before to detect whether objects could be found in specific spaces. Nevertheless, he expected a different solution for this specific situation: rather than having to place and program a trigger-based rule, he expected a function to detect an object's distance from the floor. Their suggested solution – using the trigger volume – changed their design in gameplay terms, since their game had now a specific "drop zone" for releasing the antidote; while a change from the original goal, that decision allowed them to maintain the same concept to sustain their final battle and winning condition.

A similar situation happened when programming the wave effect mentioned in Excerpt 19. Juan asked whether it was possible to create a general rule that killed all characters at once. Here, we have an interesting example of a procedural "thought" (Bogost, 2005, 2006) in motion, since Juan was able to acknowledge that, in procedural terms, all characters were part of the same category. He then speculated whether these characters could be treated in general terms, being invoked through a generic category. Even though Yerry and Juan claimed to have never had any experience with computer programming before when asked, the process they had just described is one of the key tenets of a specific programming paradigm known as 'object-oriented programming', in which all elements can be understood as, primitively, objects, and some of their properties can be manipulated through overarching functions (Bogost, 2006; Crutzen and Kotkamp, 2008). Unfortunately, this possibility is non-existent in *MissionMaker*, and all objects must be programmed individually: they were required, then, to create a rule with multiple actions, one for each character. Nevertheless, their intention to construct a generic function to

[85] Juan: Hay otra manera para saber si el ADN está en el suelo?
Researcher: En el suelo? ¿Donde? Puedes usar un trigger...
Juan: Un trigger? ¿Pero en toda sala?¿Hay otra manera más facil?
Researcher: hm... perdona, no... puedes usar un trigger grande... pero tal vez el juego se quede un poco lento... intentalo!

manipulate all enemies indicates a clear intention to build cohesion ties in their game, making sure that all of them are treated in the same way.

Their final game sequence was well-received by some of their colleagues: Marco, for instance, clearly enjoyed the wave effect after releasing the antidote. Nevertheless, designers were somewhat disappointed with the results (the "demotivational" outcome previously mentioned in relation to the intentionality gap). This final sequence involved a considerable amount of work (including the construction of complex rules that encompassed trigger volumes and delays) and presented distinct elements, such as the wave effect cited above, but it seems to have failed to fully meet their expectations. We must acknowledge that these expectations were quite ambitious, influenced by their repertoire, especially by big-budget AAA games, sci-fi conventions[86] and probably by some cinematic ideas propagated by *Rockstar* (Wright, 2017).

We cannot ignore here that the role of the misleading repertoire-intention interaction in this slightly frustrating ending of their game, since the same gaming repertoire that helped them in different moments throughout this experience also played a significant role in the gap between their expected and actual outcomes. Therefore, we have an interesting opportunity to discuss the conditions of game-making at this level.The games from which they got their inspiration are often created by big teams and involve enormous investments both in time and financial resources; they, however, were producing a game in very specific conditions, with limited resources in terms of time and technical power.

Developing games is a complex task and should always be treated as so. It is also not necessarily a linear process, and often the development process requires adaptations and involves structural changes. In this final sequence Yerry and Juan were able to adapt to the existing conditions offered (at least partially) fulfilling the narrative and ludic roles they were expecting from it. This adaptative process shows that this experience might have been an important opportunity for these two participants to become more familiar with the actual complexity involved in game development. It also shows that, even if they were not able to fully implement their game-as-plan, they adapted their ideas to still produce a cohesive and authentic artefact, if judged according to the presentational modality claims produced throughout their game.

Although departing from different standpoints (at least in relation to gaming repertoires), Yerry and Juan's production experience was not that far from Marta and Carla's. Both groups had to adapt in the transition from game-as-plan to game-as-artefact. Even if *Experiment Z*

[86] The format of the final battle, where the elimination of the "evil leader" leads towards the fall of all evil minions, explored across different media texts (e.g. the Night King and White Walkers in *Game of Thrones*) is another convention found in *Experiment Z*.

makers experienced a less steep learning curve when appropriating the platform's functions, their initial plan still relied on specific elements that were not afforded by *MissionMaker*, such as cutscenes. Juan and Yerry had, then, to pursue a different path, reworking their original idea into something doable through the platform.

With this shift from cutscene to in-game scripted events described in this session, it is possible to notice, again, the "free movement' within the 'rigid structure' (Salen and Zimmerman, 2004). When constrained by the limitations posed by the platform, Yerry and Juan adopted a more flexible attitude until a doable (and satisfactory) solution was achieved, culminating in a playful design approach akin to that found in *Extrovertido*. This shift also represents an important process of discourse translation, moving from the orchestration mode of cinema (as found in the speech present in Excerpt 19) towards the more exclusive in-game scripted events found in digital games, but maintaining the presentational modality claim that links their game to the ones they used as inspiration.

The main difference here relates to the repertoire. Since they were more knowledgeable about the kind of digital gaming experiences afforded by *MissionMaker*, Yerry and Juan depended less on drastically different insights, such as Carla's alien solution. While they were bounded to the platform to envision those new in-game possibilities, this was less in the propositional ("creative") level (in the sense that the platform gave them insights), and more in a "functional" level. In other words, ideas implemented by them were already part of their repertoire, and they just depended on knowing whether they were possible to be carried out through *MissionMaker*. Theirs is, therefore, another case that illustrates how repertoires, on the same way as platforms, can work in different ways, sometimes as "sources of creativity", sometimes as constraining factors.

Noob Assassin: Carefully calculated improvisational design

As discussed up to now, all games included modifications on their game-as-plan: Marta and Carla completely changed their ending, going, as described in that section's title, from trophy boyfriend to alien spy; Juan and Yerry reduced the complexity of their ending scene due to the repertoire mismatch caused by *MissionMaker's* camera affordances. In both games, *MissionMaker* played a significant role in that process, presenting specific constraints and affordances that challenged participants' game-as-plan. It acted as a factor that demanded a "flexibilization" of *Extrovertido* and *Experiment Z*'s plans.

If we consider the game-making processes investigated here as playful, the 'rigid structure' (Salen and Zimmerman, 2004) came from participants' game plan, organised through the

storyline employed to explain their games, and the 'free movement' inside that rigid structure was promoted by the interaction with the platform, more specifically, by the constraints and affordances offered by it. I argue here that this design regime can be defined as adaptative, since its logic is that of adaptation, with game-makers subjecting their ideas to the possibilities presented by the platform. In other words, in an adaptative regime, participants would try to fit their game plan (including its storyline) to the platform.

What makes *Noob Assassin* a relevant case is that the design process adopted by William and Stephen was different. Rather than adapting their game-as-plan to the constraints and affordances of the platform, they built their game based on the possibilities of the platform. In that case, I consider this design regime as emergent, since it is less based on a cohesive game plan that precedes their interaction with the software, and is more reliant on the semiotic resources available in the software. Thus, there is an inversion of roles of the adaptative model of playful design – based on Salen and Zimmerman (2004) – presented above: in *Noob Assassin*'s emergent design regime, the platform presents itself as the 'rigid structure', and the 'free movement' comes from the designers' ideas.

Before moving on to explore in which ways this different design regime led to the production of a different kind of game, it is important to note that these two regimes (adaptative and emergent) are not, by any means, mutually exclusive. They coexisted in all three cases presented here; the main difference, however, is that usually one regime was invoked more often than the other. In *Noob Assassin*, unlike *Extrovertido* and *Experiment Z*, participants adopted a more reactive stance towards the platform, producing a different kind of artefact. Here, I will investigate some of the reasons that might have led them to adopt this design strategy and explain how their game differed to the other two analysed in this thesis.

Instant Buttons, Visual Effects and Loads and Loads of Rooms: Improvising Game Design

William and Stephen relied on different strategies to organise their planning process. There was an articulation of specific tastes (Bourdieu, 1984) in relation to traditional gaming culture as expressed, for example, in their chosen game title (the use of the term "noob"). They also pursued a relationship between their game and real-life contemporary non-fictional topics, illustrated by the choice of Donald Trump as a central character in their game. These were some of elements from their plan that made their game distinct from the other, and their use of humour as rhetoric strategy is also remarkable, but how would this game-as-plan fare when translated into *MissionMaker?*

While the main objective of their game was aligned to conventional traditions in games – tracking and fighting enemies (Hayse, 2014) – their production required a different approach towards conflict when compared to the other two. The most difficult element in William and Stephen's game-as-plan was, arguably, the humour. As discussed in the previous chapter, humour is often overlooked or avoided by game developers due to the emergent nature of digital games (cf. Parkin, 2014): the designer has too little control over what a player will do during a game, and having little control can be fatal for humour. The challenge posed to *Noob Assassin's* designers was even bigger, since the kind of humour they wanted to promote depended on Dave McDonald's erratic performance and stunts. Crucial elements for producing some envisioned comic situations, such as the execution of an MLG dance after eliminating Trump or attempting – and failing – a backflip were not possible to be carried out in *MissionMaker*.

After facing these challenges during Week 2, Stephen and William adopted a different design stance. Rather than sticking to their game-as-plan, adapting their central ideas to the affordances of the software, they pursued a more open approach. Some of the ideas and concepts behind their game, such as Dave McDonald's "noobishness", Donald Trump as the main antagonist, and most importantly, the humour, were maintained. On the other hand, they practically ignored other parts of their game-as-plan presented in the previous chapter (e.g. MLG dance), and started to play with *MissionMaker*, constructing their game from the different ideas that were stemming from their interaction with the platform.

In this case, rather than using their narrative to organise their design process, Stephen and William opted for a more improvisational approach. This meant that, progressively, they drifted from their game plan based on the assassination attempts, moving towards a more general adventure game, amalgamating different references in the same artefact to create a kind of a 'collage' (Sonvilla-Weiss, 2010).

One clear difference between their game-as-plan and game-as-artefact is the environment where their game take part. In their initial plan, all elements hint to a game that takes part in contemporary USA. In their storyboard, Donald Trump is still the US President, and Dave McDonald, after failing in his first attempt, flees into the Trump Tower. In their actual game, however, the environment is not constructed according to the logics of a single geographical space. Looking at some elements of their game, such as the environment design in the first version of their opening sequence, seen below in Figure 37, might help to understand this process.

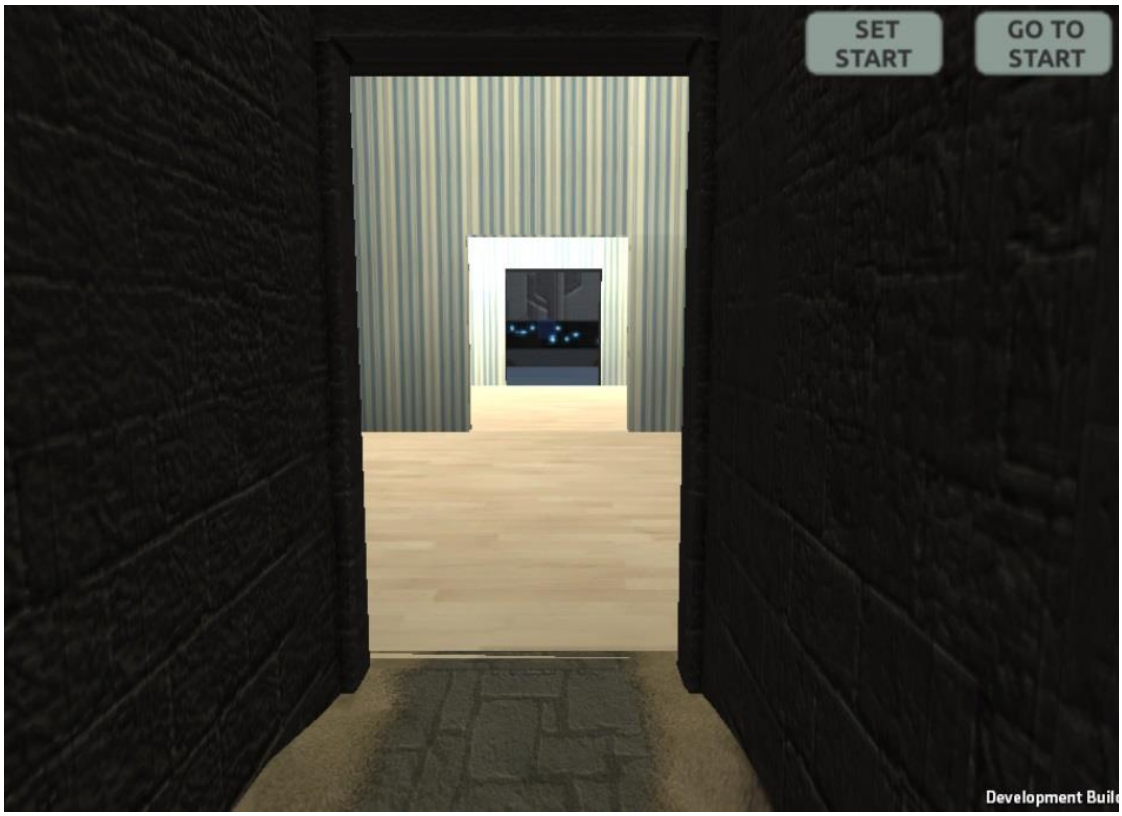
Figure 37: Screenshot of Noob Assassin's first act

Rather than following the initial instructions (to start the game with their four final rooms and then progress towards the beginning of the game, eventually increasing it if there was time available) Stephen and William opted to construct their game in a more chaotic manner, connecting different rooms and creating a big maze. Initially, they opted for a first room that could be linked to an USA-based context (as seen in Figure 37 above) – a contemporary dark alley. Nevertheless, on the opposite far end from where the Dave McDonald is standing, close to the wall, there is a small bush, and just to its right side, an entrance to a tunnel.

This is only the first radical change in room styles found in their game: the initial environments belong to the "Modern City" asset pack, while the corridor belongs to the "Sci-Fi" pack[87]. The *MissionMaker* version used in this project presented 12 different styles of rooms and *Noob Assassin* uses assets from 8 of them in their total of 31 rooms. This led to eclectic style, where a sci-fi environment is connected directly to a modern wood-floored one, linked to an ancient, stone-based, sand-filled tunnel, as seen in Figure 38.

[87]Both packs were added to *MissionMaker* with the new modules described in Chapter 4.

Figure 38: Noob Assassin's *room eclecticism example*



Their first game version was quite simple. After constructing this huge and reasonably chaotic maze, Stephen and William scattered some enemies throughout some of the rooms, and placed doors after each enemy. The only way to open such door would be by killing this enemy. Donald Trump was placed in the final room, behind a door that was only opened if all other enemies were dead.

Although this initial version was still crude and far from what they wanted, Stephen and William were able to quickly produce an initial game structure. Their improvisational design process meant that, in the worst-case scenario and if everything that they tried after this first version failed, they already had a proto-game by the end of Week 4. It was crude, difficult to understand and lacking the humorous tone they wished for their production, but it at least offered an objective for the player and clear winning and losing conditions.

This quick production of an initial structure helped them to work freely from Week 5 onwards, exploring the affordances of the platform and bringing new references into their game. They also engaged with different techniques and resources discussed during the sessions, successfully implementing some of those. After Week 4, they changed their game system by introducing a new game economy named as "Noobishness" (as seen in Figure 39), which was used to visually represent to the player how he/she had fared in helping Dave McDonald to leave behind his "total noob" state. These adaptations were also done in relation to their game:

now, the final door that protected Trump was only opened after Dave's "noobishness" had reached a level lower than 20. This was only achievable by killing all the enemies.

This use of game economies illustrates how their game design became more sophisticated throughout the weeks. This incremental sophistication was being achieved especially through the exploration of the software, with discovered functionalities being incorporated into their game at first, before cohesive ties to narratively explain these new game elements were necessarily constructed. In that sense, *MissionMaker* acted as a platform in the sense defined by Platform Studies (cf. Bogost and Montfort, 2009; Apperley and Jayemane, 2012; Apperley and Parikka, 2018) discussed earlier in Chapter 3, mediating constraints and creativity (Leorke, 2012). The propositive nature of the platform discussed earlier was never as evident as it was here in Stephen and William's design process. The aforementioned incorporation of the "Noobishness" economy is a significant example of this propositive nature of the platform, since it is through the affordances – here, an easily programmable economy – of the platform that specific conventions (Perron, 2014) that they not necessarily signalled in their game-as-plan found its way into their game-as-artefact.

Although the incorporation of new elements was transforming their production into a more sophisticated game, they had not yet found a way to incorporate humour into their production. A solution to that issue emerged in Week 5, when media objects and visual effects were introduced. Their dependency on media objects to retake (and intensify) the humorous tone in their game can be seen as a result of a cycle, composed by the 'technical code' of game engines (Bogost, 2006; Grimes and Feenberg, 2009; Flanagan and Nissenbaum, 2014; Fiadotau, 2016) that maintain conventions and the difficulty of conveying humour in games explored in the previous chapter (Parkin, 2014; Shaik, 2015). Since games usually do not deal with humour, this convention can become a technical code, being then propagated in further technological developments.

This was also noticeable during the implementation of their game. The initial strategies to convey humour in *Noob Assassin's* game-as-plan, discussed in the previous chapter (the MLG dance, the failed backflip), were not possible to be implemented in *MissionMaker*. Stephen and William pursued alternatives, and audio cues – since they do not depend on complicated game mechanics or programming techniques – was the path chosen for achieving the desired comic effects. In *MissionMaker's* case, this was viable through media objects, which, as explained before, allow players to import and play (or display) external sound or image files in their game. Audio, therefore, opened new possibilities for their game in several ways and analysing the final version of their opening sequence, represented by Figure 39 below, might be useful here.

Figure 39: Noob Assassin's opening sequence, final version

Stephen and William's use of audio was considerably different from other participants. They rejected the use of audio-based dialogues in their game, and during the sessions showed that they were not comfortable with recording their own voices to use in *Noob Assassin,* a decision that was respected.

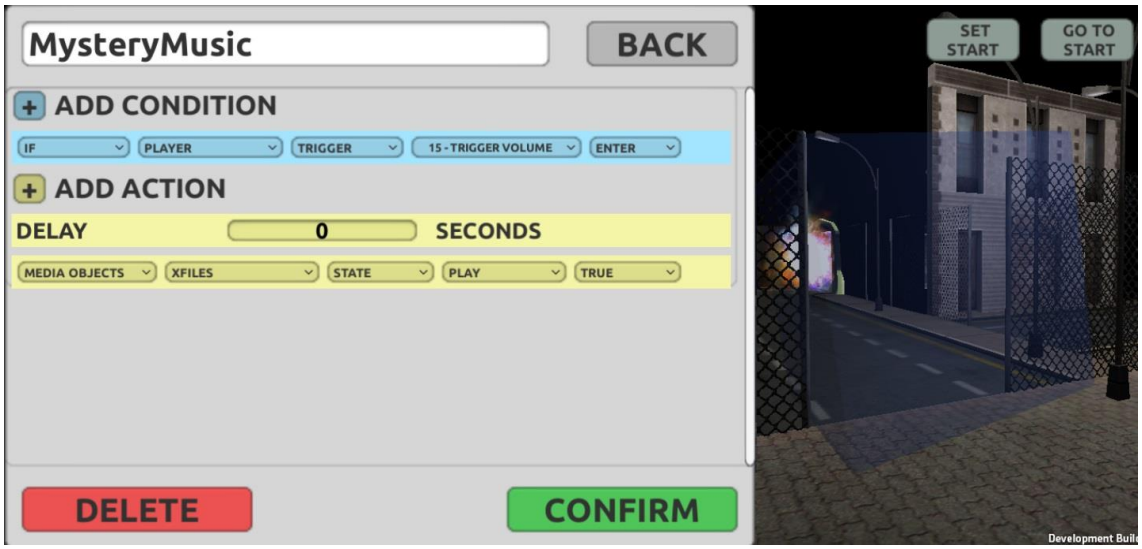
This does not mean, however, that they had completely ignored aural modality in their game: rather than working with their own or colleagues' voices, they preferred to work with sound effects and tracks that could be easily identified by a player. They heavily relied on an app named *Instant Buttons*, which provided short sound effects, ideal for puns. These sound effects were used by them to convey the comic tone that they wanted for their production and to organise the experience for the player. All sounds used in their game were then sourced from this sound bank. The sound effects in the opening sequence is a good example of this use as a comic resource.

Another major difference between the final (Figure 39) and the initial version (Figure 37) of this scene involves the use of visual effects. As it is possible to notice in the far end of the street, there is a concentration of visual effects in front of the tunnel entrance. This, however, was not the only addition to their final game version: what is not visible in that screenshot is that Stephen and William have also added a Media Object and a Trigger Volume just before the first fence. In this specific case, *Noob Assassin* designers used this media object to import an excerpt of the *X-Files* theme song. The Trigger Volume here is used to identify when the player enters the specific area delimited by it. Figure 40 shows a screenshot of the opening scene in Edit Mode.

Figure 40: Trigger Volume in Opening Sequence (Edit Mode)

The trigger volume shown in the figure above was linked to the aforementioned Media Object through a Rule, shown in Figure 41: when the player enters the trigger, the media object containing the *X-Files* song plays.

Figure 41: Rule linking Trigger Volume and X-Files song Media Object



When asked to explain how this sequence was programmed, Stephen and William argued that:

Excerpt 21: Creating the final opening scene

> *William: So... we started with the media effects, because they looked nice...*
> *Stephen: ...and we added a bunch of them, as you can see, but then it felt weird because there are these strange things happening and you don't know why...*
> *William: it is a mystery, and you have to investigate... so this song is good...*

Excerpt 21 indicates their "improvisational" approach towards game production. They began by adding the effects, just for visual pleasure, whereas the audio track was added later. Their

explanation indicates a conscious process of contextualising the situation to the player. The *X-Files* theme is the means chosen by game-makers to alert the player that there is something wrong in the scene, and that she must investigate it. This use of the *X-Files* theme shows the important role played by repertoires within this improvisational production mode. Differently to what happened to Marta, when a repertoire specialisation worked as a constraining factor, in an improvisational approach such as the one adopted by Stephen and William, different repertoires can be invoked more freely, with less expectations regarding the cohesion of the text produced. In other words, when no rigid structure – such as *Orange Marmalade* for Marta – is involved, it becomes easier to find and incorporate references from different repertoires.

The *X-Files* soundtrack couples well with the effects, creating a semiotic ensemble that establishes a dialogue with conventional meaning-making strategies in digital games. Although not elaborated in their speech above, the visual effects placed in front of the corridor act as a signal to attract the player towards a specific region. By moving towards that region, the player will inevitably enter the trigger, firing the rule that plays the *X-Files* theme.

By designing this sequence, Stephen and William orchestrate an interesting effect conventionally used in videogames (and, more broadly, in other audiovisual forms). The contrast between the silence of the beginning of their game and the *X-Files* theme can be interpreted here as a sign to alert the player that something has changed. Different authors (Van Leeuwen, 1999; Burn, 2013) have discussed the use of soundtracks to (mis)lead the spectator/player/interactor towards a specific emotional direction: high notes played in string instruments might anticipate a fearful, scaring situation in horror; deep notes in brass metal instruments might invoke the mystery of noir films; fast-tempo soundtracks are often used to signal an upcoming battle in action games. The effect sought by *Noob Assassin* designers is one from a similar order.

Audio files were heavily used in their game, often in a double function of preparing the player to the next game sequence and conveying humour. One example is their following use of media objects: just after going through the tunnel, they used another trigger to stop the previous audio file and play a small sound effect of a vinyl scratch. Figure 42 shows the rule they created, which orchestrates this change in the game audio. The scratch sound is used here as a token to indicate a transition in their game, since the mystery is left aside at this new moment, and the silence here is used as a deliberate design choice to leave the player without knowing exactly what to expect.

Figure 42: Vynil Scratch Rule

The idea of using this transition is also functional in design terms: just after turning left in the following corner, an enemy is expecting the player. The scratch sound warns a player to slow down; at least this was their intention, as mentioned by Stephen:

Excerpt 22: Using the scratch sound

> *Stephen: There is an enemy just after the corner, so it would be good to stop and prepare... and this sound is cool*

What is interesting from this design process is that these uses of the aural mode to convey specific meanings emerged not only from their own views regarding the need to communicate something to the player, but also from their exploration of *Instant Buttons*. The inspiration for the use of different sound effects – such as the vinyl scratch described above, or the use of the *Assembly of Trumpeters for Reveille* just before the encounter with Donald Trump – came directly from their relationship with the app, which worked as the initial influential factor for their incorporation into *Noob Assassin*.

These different sound effects were not randomly added to their game. They were carefully invoked in moments to which they were meaningful, creating then a sense of cohesion (and coherence, since it involves different texts) for their whole artefact. These audio files are part puns, part functional elements, since they relate both to a long tradition of sound effects/soundtracks usage in several media forms, and to some specific meaning-based function in their game: investigate the mystery; slow down; charge towards the president.

Instant Buttons, in some sense, worked as an auxiliary resource for participants to structure their game. The insights that came from their interaction with the app, combined with their increasing knowledge about how to use *MissionMaker,* helped Stephen and William to produce

a game that was more accessible to a player with some of the visual – e.g. effects in front of the tunnel – and audio cues. These elements also helped, in some sense, to achieve the humorous effect that they all wanted, even if, in cohesive terms, their production was still closer to a collage of multiple references than a game with a clear storyline and objectives.

Noob Assassin was produced through a different approach than the games analysed earlier. Stephen and William relied less on the game-as-plan described in the previous section, and adopted a more fluid, playful approach in relation to the use of the platform. This improvisational approach recruited different repertoires, allowing them to incorporate into their game a wider range of references than previous design groups. Their rigid structure was less rigid than that experienced by Marta and Carla, or Yerry and Juan. Since their game-as-plan structure was less rigid, it was often the platform that played this structuring role, allowing them to invoke their repertoires – e.g. the use of the *X-Files* theme – as the free movement that gave a "different flavour" to their game.

Funny Names, Easter Eggs and Glitches: Gaming the Game Design

Up to now, I presented one of the strategies explored by William and Stephen to convey humour in their game, namely, the audio cues borrowed from *Instant Buttons*. This was not, however, the only aspect explored by them to invoke comic situations. New strategies to achieve this objective would become more noticeable closer to the end of the game-making club.

From Week 8 onwards, Stephen and William seemed to be reasonably happy with their game mechanics; their last addition was a final sequence that they casually named as "The Party", where Dave McDonald would celebrate his success in eliminating Donald Trump. They then decided to stop developing new game mechanics and focused on populating some of the rooms of their humongous environment with different objects. This led to the repurpose of some environments that were previously empty in their game, and two of these sections of their maze are significant for understanding this process: the "kitchen" and the "Trump Tower", the place where the party would happen. These two rooms were populated with a different range of objects (effects, pickups and props), and they can be used as prototypical examples of other strategies explored by Stephen and William to convey humour, while also reinforcing their distinctive employment of gaming repertoire.

One of the processes that became more intense during Week 8 was the use of a funnier naming pattern for interactable objects (pickups and weapons). Differently to what happened with other groups, who did not name or named in-game objects prioritising a more functional logic

– e.g. differentiating a weapon positioned at the beginning of the game from another closer to the final battle – several of *Noob Assassin*'s objects have funny names, such as "Party Beer").

In addition, William and Stephen made great use of the description property, through which designers can explain more a particular pickup's function in-game. An object's description can play functional roles both in narrative and ludic terms, since it can offer not only a greater explanation about the world of the game, or the backstory of a specific character, but also instructions to the player about how to beat a specific enemy, or how to open a particular door. In *Noob Assassin*, however, the description was not usually employed in the functional terms described above but explored in different ways to achieve a humorous tone, ranging from ironic comments to nonsensical ones. Several of these objects were concentrated in the "Kitchen", which was located at the beginning of the game and easily accessible. There, Stephen and William created a "Kitchen" – using the kitchen set, a table and a microwave – carefully adding smoke to the oven and several pickups with hidden jokes.

Figure 43: Kitchen

There are different elements in this room: "Jub Jub Juice", "Majik Supa Dupa Apple", "Party Beer", etc., and each of them has a descriptor which ranges from ironic ('Alliteration', for "Jub Jub Juice") to something close to a funny audio cue ("Wooooooooooooooo Yeah!", for the "Majik Supa Dupa Apple"). What is the most significant is that, in this room, none but one of the objects have in-game functionality: the blue potion on the right hand-side in Figure 43 (on the top of a beam): the "Chug Jug".

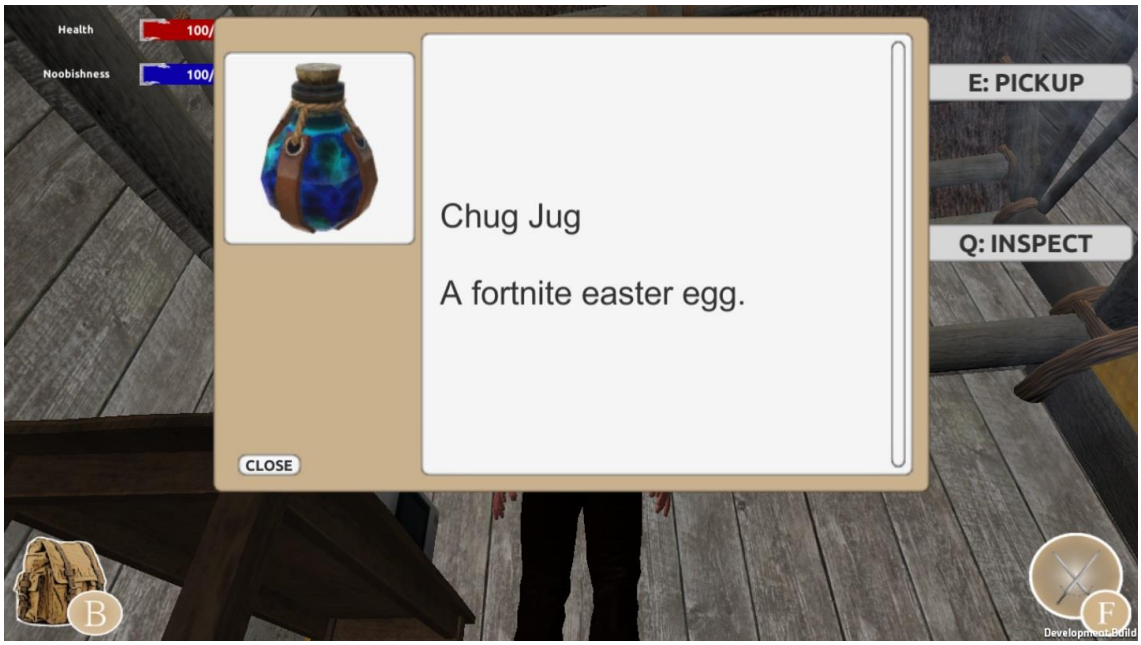
The "Chug Jug" is an important object in their game because it acts as a token of their gaming repertoire. Some of the elements discussed here in relation to the "Kitchen" are conventional

in gaming culture: secret areas filled with pickups, for example, are part of a common game design vocabulary (Anthropy and Clark, 2014). The "Chug Jug", in pure ludic terms, is also part of these conventional forms of meaning-making in games, since it acts as a consumable healing item, such as a "medikit" or a "health potion", a traditional convention in adventure-based games (Perron, 2014).

By creating an area filled with collectable objects with funny names, including a health potion, Stephen and William were making use of some gaming conventions, establishing a dialogue with the almost 40-year long tradition of adventure games, something that could be connected with their gaming repertoire. The health potion, for instance, plays a functional role: William and Stephen configured it correctly to work as a healing potion by setting its number of uses and a positive value for Economy 1 ("Health"). After being picked and used by a player, it restores its health – or, in more technical terms, it adds its economic value to the object Economy 1 ("Health").

"Chug Jug" is also the name given to a *Fortnite* rare consumable healing item. As discussed in the previous chapter, both William and Stephen had in *Fortnite* one of their favourite games, indicating that the naming of this object is not mere coincidence (Figure 44).

Figure 44: Chug Jug



By remarking the *Fortnite* reference (as seen in Figure 44) Stephen and William were carrying out a design decision to consolidate their position as knowledgeable videogame players. One of the aspects that is often used to separate knowledgeable players from "noobs" is not only their playing skills or their preferred playing platforms, but also their preferred games – or, at least, knowing how to separate 'good' from 'bad' games (De Grove, Courtois and Van Looy, 2015). By

deliberately referring to *Fortnite*, one of the most successful games at the time (Fitzgerald, 2018), they were positioning themselves as capable of making good choices.

The description text works as a guarantor of this relationship between *Noob Assassin* and *Fortnite*, allowing even players that are not that familiar to *Fortnite* to recognise the source of this reference and, in this process, acknowledge Stephen and William's fine taste – and consequently, high gaming capital (Bourdieu, 1984) – in digital gaming, constructed in a borderline tone that walks between explanatory and ironic.

An episode close to the end of Week 8 session supports this reading of this specific design decision as a distinction-based process. During that session, while working in their games, participants saw their friend Michael – who was their classmate, but not part of the game-making club – and invited him to see their game:

Excerpt 23: Showing their game to Michael

William: So, this is our game.
Michael: Cool, it looks like Minecraft.
William: Yes, but this is more fun.
Stephen: You are this guy who is a super noob, Dave McDonald, and you have to kill Donald Trump…
Michael: Ha!
William: Hey, look, a Chug Jug.
Michael: Ha, sweet!

When presenting their game to Michael, their first instinct was not to show the fighting against enemies, or even Donald Trump, but to take Dave McDonald to the "Kitchen" and to show the "Chug Jug" that they had carefully placed on the top of a beam. Their decision to show this object was an interesting one, since they both knew that there was a good chance that Michael – as a fellow *Fortnite* player – would enjoy their version of the "Chug Jug" in *Noob Assassin*. By prioritising the "Chug Jug" in their tour of Noob Assassin, William and Stephen were invoking a carefully crafted situation in order to claim a specific position as *Fortnite* fans and, consequently, knowledgeable videogame players.

A final aspect of their game that combines both gaming repertoire and comic function is their decision to finish their game in a glitch exploitation sequence. Glitches are an important part of gaming. Although sometimes seen as cheating (Consalvo, 2007), finding and exploiting glitches is a common practice between experienced players and can be considered, to some extent, a subculture within gaming circles (cf. Krapp, 2011; Apperley, 2015).

In their final version, after eliminating Trump, a final door would open, leading Dave McDonald to a secret room in the "Trump Tower", where "The Party" would occur: several visual effects

were added, Kool & The Gang's *Celebration* started playing, and a final popup in full screen would be shown. Nevertheless, when adding new pickups to other "Trump Tower" rooms, William found out that one of these pickups – the chalice – was glitched: when it was equipped (placed on the main character's hands), the character stopped to respond to player's inputs, and it would fly towards the direction set by the game camera. Rather than being frustrated with the bug found – as I, the developer who let that happen, was – William and Stephen enjoyed the situation: their peers were invited to see it happening, and they competed among themselves to see who was the fastest to "trash" the room's layout using Dave McDonald's flying version.

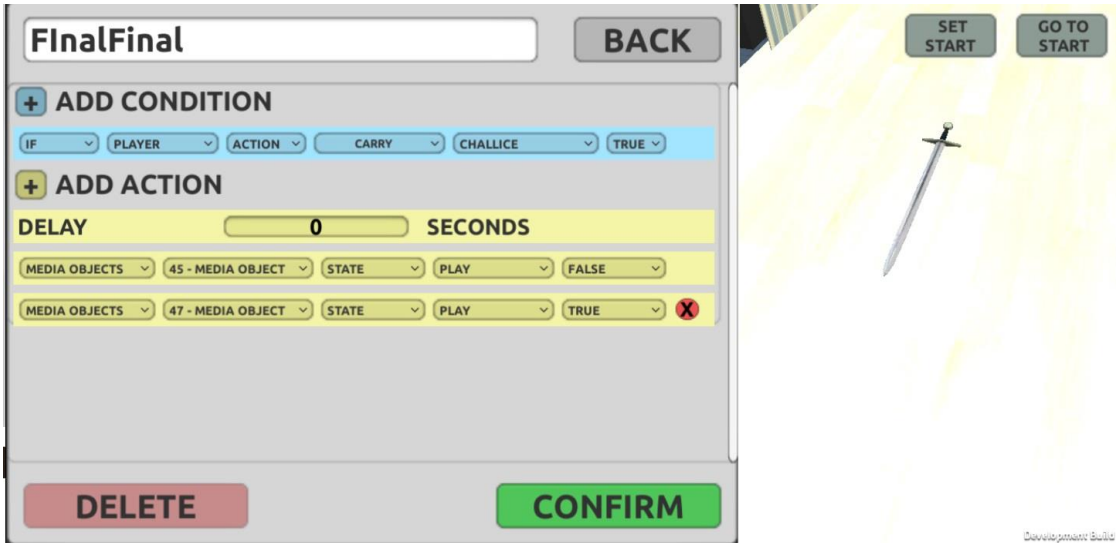
The discovery of this glitch led them to slightly change the ending of the game: after entering the "Party", there was a small table with a chalice on top of it. This time, they decided to use the descriptor in a more functional way, since it read "hold me", asking the player to "hold" (equip) the chalice and start flying. When the player equips the chalice, *Celebration* stops, and then R. Kelly's *I Believe I Can Fly* starts playing (Figure 45).

Their incorporation of the recently found glitch into their game design is a clear sign of their improvisational production process. Rather than being constrained by the predetermined design discussed in the previous chapter, William and Stephen did not hesitate in accommodating this new element into their game. This improvisational process would become clearer when we realise that, after finding and adding the glitch as a game possibility, their option was for maintaining an open ending. No final message is shown to the player, who can try to regain control of Dave McDonald while he crashes all objects in Trump Tower. Stephen justified their decision to not show a final popup or present a well-defined ending since:

Excerpt 24: No ending/finding glitches

Stephen: This glitch is so cool, and when you find a glitch you feel awesome...

Figure 45: Noob Assassin's Final Rule



William and Stephen were quite clear about where *Noob Assassin* sit in the broad gaming universe: they did not see it as "real" game, ready to be shipped or shared with a broader audience, but more as something interesting that they had done for themselves and, maybe, to some friends, as illustrated by their interaction with Michael (Excerpt 23).

Excerpt 25: Who would play Noob Assassin?

> *Researcher: So, your game is quite hard to play... how would a player know what to do in your game?*
> *Stephen: Nah, we can just tell them what to do...*
> *Researcher: And what if you were not there?*
> *Stephen: I don't think anyone would play this game without us...*

This does not mean, however, that this experience was not enjoyable to them. Their clear position about the role of their game in relation to the broader gaming universe signals about the importance of their design decisions. Through these decisions, it is possible to map how they used the available semiotic resources to overcome the challenge of producing a humorous tone within their game, reincorporating, near the end, the idea of failure (represented in the game-as-plan by the backflip and by the chalice glitch in their game-as-artefact).

Moreover, their improvisational production process still allowed them to construct specific identities. Even if their critical position towards Trump was not that evident in the artefact, their position as funny and knowledgeable players were clearly articulated here. Stephen and William were able to create a playful artefact that helps us to understand who they are (youngsters who like making jokes, playing videogames and do not like Donald Trump), if we

examine their game-making as a curating process mediated by digital media, as defined by Potter and McDougall (McDougall and Potter, 2015; 2017).

Final Thoughts: A Playful Reprogramming of Identities

In this chapter, I focused on the process of production carried out by participants; in other words, in how they used *MissionMaker* to build their games in relation to the game-as-plan explored in the previous chapter. Throughout the analysis of this process, it is clear that their game plans discussed in the previous chapter were sometimes implemented as imagined, sometimes reworked into new versions and, in some cases, scrapped in favour of new designs. Through the progressive analysis carried out in this chapter, it becomes noticeable that the games investigated in this project went under a process of evolution[88] (Arsenault, 2009). Different aspects have mediated this evolution, and, in this section, I will focus mainly on three of these elements, namely, participants' individual repertoires, their combined repertoires (the repertoire of the group, constructed through their interactions within game-making activities), and their constant interaction with and appropriation of the semiotic resources available within the platform.

These three elements were invoked in different ways during the game-making processes, playing similar roles in relation to the proposed activity. In some moments, they constrained participants, demanding the production of a different design solution. In other instances, repertoires and platform worked as inspirational devices, helping participants to incorporate diverse ideas into their games – the **propositive** nature of platforms discussed earlier is an example of this process. Take *Extrovertido*'s new ending as an example: as discussed earlier, it was a specific difficulty in sign-making – in representing "care" through the existing functionalities in the platform – that led Marta and Carla to change their game's ending. Although this change was, to some extent, triggered by a participant-platform interaction, we cannot ignore that the asymmetrical loyalty of participants to the original text (*Orange Marmalade*) also played a significant role in this process. We can only speculate whether their final decision would have been the same had Carla also been a die-hard fan of the stereotypical romantic relationship between Ma Ri and Jae Min. It is also important to remember that the change incorporated into their game stemmed, as it becomes clear looking again at Excerpt 16, from the platform. The new ending emerged from the Alien model existing in *MissionMaker* **and** from Carla's capacity to extrapolate a design solution by making a new sign (Kress, 2010).

[88]Used here not in the sense of 'betterment', but of constant mutation.

A similar process is noticeable in *Experiment Z*. Their final sequence is the result of the practical difficulties in producing a cutscene-like event in *MissionMaker*, leading to the defensive final battle fought via the antidote in the drop zone. In this case, participants combined their gaming repertoire and the perceived platform-based possibilities to produce the new final sequence. It provides a different kind of experience, which might not provide the same dramatic closure they had initially planned for their story but can be more engaging in ludic terms since it requires a different – and unexpected – defensive approach.

The two examples discussed above – *Extrovertido* and *Experiment Z*'s final sequences – can help us identify an important aspect behind how these games were produced: their main design approach was more linear, following the game-as-plan discussed in the previous chapter. It is possible to notice a pattern in their design strategy: initial ideas were organised based on their repertoires, the platform affordances challenged these ideas, and new solutions were pursued combining platform affordances and other repertoire-constitutive aspects (e.g. the Alien, or the defensive battle fought through the drop zone).

Noob Assassin is, however, an exception. Their primary game production approach was less centred on their game-as-plan, being constructed around the possibilities offered by the platform. This becomes clearer when we analyse, for example, *Noob Assassin's* opening scene.

In Excerpt 21, we can look at their idea to populate the path to be followed by the player with effects as stemming from the platform, more specifically, from the possibility of having "nice-looking effects" in their game. Their sequence was later completed with the incorporation of the *X-Files* theme, an apparently random decision linked to their use of *Instant Buttons*, bringing a different (more mysterious) and initially unintended tone to this opening scene. In this example, it is possible to identify that those influential elements (repertoire, platforms) were invoked in a different order when compared to the examples from *Extrovertido* or *Experiment Z*. William and Stephen decided to deviate from the game-as-plan and explore firstly the platform affordances (the visual effects), and later use their repertoires (and not only their gaming repertoire, invoking, for instance, *X-Files*) to complete their game sequence.

We have, therefore, two different design regimes adopted by game-makers within this project. In some cases, we have the game-as-plan over the platform; in other moments, the platform led the creation process, and different repertoires were recruited to construct cohesive gaming sequences. Although different, both design regimes (plan-oriented or platform-oriented) can be analysed through the lenses of playfulness, especially if following Salen and Zimmerman's (2004) idea of play as 'the free movement within a rigid structure'. In the three game-making processes discussed here, three elements – game-as-plan, repertoires and the platform itself –

often alternated their role in the game-making experience, at times being the "rigid structure" that constrained participants, at times being the organisational aspect for the creative "free movement".

The comparison between the design regimes (platform-oriented or plan-oriented) adopted by the participants is important because it highlights the difference between playful design and designing play. While the three production processes employed here incorporated certain degrees of playfulness, it is noticeable that Stephen and William's *Noob Assassin* development trajectory was more fluid and open when compared to other games. They often enjoyed producing their artefact, incorporating different references and creating game sequences that not necessarily compose a cohesive gaming experience. Moreover, as it becomes clear in Excerpt 25, they are conscious about that *Noob Assassin* is more an internal joke or a very personal game, rather than an artefact for wider audiences.

This is different from the process followed by Marta and Carla or Juan and Yerry. *Extrovertido* or *Experiment Z*, are easier to be played by a newcomer and are closer to the gaming experiences usually found in the field of digital games. In that sense, it is possible to argue that their less fluid approach, which incorporated changes but was mostly guided by their game-as-plan, is a prototypical example of the process of designing (cohesive and coherent) play. Game design can be understood as an indirect dialogue between designers and players mediated by the game; it has specific conventions and work with specific expectations from the audience. Their use of the game-as-plan to guide the process, adapting their ideas to the platform affordances, helped them to produce a more cohesive gaming experience. This does not mean that a more playful design approach – as the one adopted by Stephen and William – would necessarily lead towards a lack of cohesion and an incoherent gaming experience. Nevertheless, since this platform-based approach is a more exploratory one, generating a more cohesive and coherent gaming experience can be more time consuming.

The nature of the project should also be taken into account as an influential factor here, since participants were asked to produce a game, but not a game that everyone can play. We cannot ignore that questions of taste and distinction (Bourdieu, 1984) might have played a role in Stephen and William's decision to pursue a different design regime from that adopted in *Extrovertido* or *Experiment Z*, leading towards a different type of game, even if a less cohesive one.

Besides this difference of the design regimes, one of the important aspects in this research is the exploration of this "shifting" role played by platforms in relation to game-making,

sometimes being propositive, sometimes being a constraining factor. This leads towards an important discussion about how Platform Studies are (and can be) carried out.

Leorke (2012), in his review of the field, criticises some of the prototypical forms exploited in Platform Studies, such as the prevalence of "triumphalist" narratives that reinforce the "man vs machine" stereotype, often remarking successful accounts of engineers and developers that were able to overcome technical constrains to deliver inspirational artefacts. It is important to acknowledge the history of development of digital technologies, recognising people that were important for seminal breakthroughs, something acknowledged by Leorke (2012) and that helps us understand why this "triumphalist" view is often followed – my praise towards Carla's "alien solution" can be read, for example, as akin to this approach. Nevertheless, it is also important to acknowledge the value of initiatives that aimed at testing the limits of platforms, whose primary goal was to explore (and exploit) technical affordances and constraints from a loosely constructed departure point[89], a production regime akin to that adopted by Stephen and William in *Noob Assassin*. The comparison between *Extrovertido* and *Experiment Z*, (subjugating the platform to their plan, in one pole of the design regimes continuum) and *Noob Assassin* (exploring and exploiting the platform, in the opposite pole) is relevant, since it shows how the same platform can be used in different ways, leading to different productive processes and diverse outcomes.

A platform can, as it was in some of the cases discussed here, be a hindrance, a challenge that must be overcome by the designer; the case of the "caring" game mechanics in *Extrovertido,* or *Experiment Z's* cutscene-like final sequence are good examples of these platform-based constraints. Nevertheless, platform affordances can also do the opposite, opening the space for different creative solutions. *Noob Assassin's* opening sequence, William and Stephen's exploitation of glitches in the final sequence of the same game, and the transformation of Jae Min into an alien in *Extrovertido* can be interpreted as outcomes from the **propositive** role played by the platform.

Another significant aspect from the games discussed here is that, even with all the changes – voluntary or "demanded"; platform-led, maker-led or a mixture of both – most of participants' realised discourses are still noticeable in their games. In *Extrovertido*, we can have a glimpse of the "girl power" stance defended by Marta and Carla throughout their participation in the experience, even if the final message is a little bit different – and arguably, freer – than the one originally planned. *Experiment Z* taps into several aspects that constitute a AAA game and, more broadly, a pop-culture media imaginary, since it explores science fiction, mistrust in big

[89] And that might not end up in a cohesive final artefact.

corporations, carefully crafted game sequences, even if not exactly in the same way as firstly envisioned by its developers. Lastly, *Noob Assassin* integrates humour and political critique using diverse sound effects, glitch exploitation and still has Donald Trump as the main antagonist.

This reflection leads us towards an important conclusion regarding participants' realised discourses found in their games-as-plans. To some extent, game-makers were able to realise different discourses through their games, carrying out the aforementioned process of **discourse translation**. This discourse translation was only possible through an articulation between participants' repertoires and their appropriation of the platform, understanding its affordances and constraints and how these would provide specific opportunities in relation to the available set of semiotic resources that could be incorporated into their games.

It is through this articulation between repertoires and their fluency on the platform that participants were able to produce meaning in their games. This was achieved by different means, exploiting diverse elements such as game conventions, platform glitches or intertextual relations with other media texts. As discussed here, these elements were recruited in different ways, sometimes being foregrounded as the primary influential aspect in relation to the game production processes carried out by participants, sometimes lingering in the background of the games produced. What is significant here is that, in all these cases, the production of meaning – the realisation of discourses and, consequently, the construction of identities – depended on this articulation between repertoires and platform in a mutual influential relationship where each aspect (repertoires and platform) influenced not only designers' intentions and final design decisions, but also the pool of possibilities in terms of game-making. Understanding how these possibilities are identified – or how these dispositions are generated – within this combination of repertoires, habitus, conventions, and technical affordances and constraints is our main challenge in relation to this study of identities constructed through game-making, and further discussions in relation to this process will be carried out in the following chapter.

Chapter 8 – Debugging Game-Making in Non-Mainstream Contexts

In the last two chapters, I investigated how three different pairs of young people carried out their game-making processes in order to produce unique digital artefacts. Discourses, repertoires, and technical understandings and skills were among the several elements invoked and exploited by participants. In this chapter, I will summarise the main findings of this research. These findings will be discussed in relation to the research questions that guided this study, exploring how this research might contribute to debates around identities, game design and the role of platforms within game-making in non-professional game production contexts. To achieve these objectives, the following research questions - presented earlier in Chapter 4 – will be addressed:

1. What are the discourses invoked, and which identities young people construct when planning their own games?
2. In which ways do these participants translate different discourses and identities into their games throughout the game-making sessions?
3. In which ways is this game-making process influenced by game design and traditional gaming culture conventions?
4. In which ways does *MissionMaker* shape the games produced by these young people?

In the following four sections in this chapter, I will outline answers for these questions. Therefore, in the first section, I will focus on the different discourses invoked by participants when planning their games, and how the realisation of these discourses led to the construction of specific identities, with special attention to the different strategies of meaning-making adopted by them to curate specific identities. In the second section, I will turn more specifically to game production to explore in which ways these discourses and identities became part of their games, exploring whether they were emphasised, attenuated or silenced within the process of game-making through *MissionMaker*.

In the third section, I will look into possible influences of game design (and gaming) conventions in their productions: my intention here is to understand how mainstream gaming cultures were influential in these game-making processes, as well as the possible transgressive role that game-making on the margins of consolidated game development contexts[90] might have in relation to traditional gaming culture. The fourth section will be dedicated to

[90] Professional or "indie" game development circuits.

MissionMaker, to clarify the fundamental role played by technical aspects (software and platforms) in game-making. This role is important not only due to the obvious technical affordances and constraints provided by these elements, but also in cultural terms, since these affordances and constraints might end up favouring or restricting discourses (and, consequently, identities) within the field of digital games.

Identities in Design: Constructing Identities through Digital Games

One of the central goals of this project was to understand young people's uses of discourses to construct identities within the context of alternative media production, here represented by the game-making clubs. As it became clear in previous chapters, game-makers engaged with and realised different discourses throughout their participation, adopting diverse positions in relation to social, cultural and/or political aspects.

This diversity of stances is an important starting point to discuss Research Question 1 ("What are the discourses invoked, and which identities young people construct when planning their own games?"). Revisiting the cases explored in this project, it is clear that a broad range of discourses were invoked, leading to the construction of different identities: fans, gender-aware individuals, knowledgeable game players, tech-savvy, humorous, critics of Donald Trump, among others. Participants also actively rejected other identities: Marta, Carla, and practically all participants in Research site A rejected being labelled as *otaku*; likewise, Juan made clear that he did not see himself as a "gamer", just as someone who liked playing specific kinds of games.

The examples discussed here show that identities, as discussed earlier, are fluid and malleable, constituted through the realisation of discourses and in relation to the Other (Hall, 2000; Shaw, 2014). The concept of 'curatorship' proposed by Potter and McDougall (2017) thus seems relevant here to explore game-makers' participation in this project, since they approached identities as the 'temporary exhibitions of the self' described by the authors, easily constructed and dismantled according to the context and, more importantly, to the messages and values that participants wanted to promote in specific moments.

Using curatorship as lenses to explore identity construction through game-making is also significant because it invokes a sense of "complexity" in relation to individuals' semiotic ensembles. Curatorship, as Potter and McDougall (2017) argue, involves establishing 'narrative threads' between what is being exhibited, realising and articulating different discourses and constructing intertextual relationships, leading to more complex (and, sometimes, contradictory) meaning-making processes. Understanding this process of identity construction

is important because these identities – these temporary articulations – will mediate how our further realisation of different discourses are read by the Other or, following Butler (1999), how 'intelligible' we can be as subjects.

Nevertheless, in the context of this project, I would argue that the most significant aspect behind understanding this use of curatorship to frame our engagement with discourses and, consequently, to articulate identities, is that it goes beyond a celebratory perspective of individual agency. It acknowledges that this process is not only the result of "value-free" personal choices, but it is also dependent on particular cultural positions, often mediated by previous experiences (Potter and McDougall, 2017) or, in this research, repertoires.

Marta and Carla, for example, constructed specific identities through their rework of *Orange Marmalade*. We can notice a distinctive process to separate them from other Asian popular culture fans within the group, achieved through a fan discourse invoked and realised in relation to this very specific media text, generating then a distinction process based on taste (Bourdieu, 1984). This fan discourse – this way of displaying and organising meanings as fans – was combined with a clear stance regarding gender (inequalities) stemming from their own worldviews, creating then a specific curatorial ensemble that not only assisted them in claiming a specific position within the group, but that also allows us to better understand how they see the world (Freire, 2000; Rogers *et al.*, 2010; Potter and McDougall, 2017). This scenario was not exclusive to Marta and Carla, since this curatorship of the self, offering us glimpses of how participants 'read the world' (Freire, 2000) through their game proposals are also identifiable in Juan and Yerry's combination of conspiracy theories and gaming capital display, and in William and Stephen's humorous critique of Donald Trump, or in these two latter groups acritical articulations of normative masculinity as the "natural" in digital games.

The cases explored in this investigation show that participants were able to invoke several discourses and construct different identities throughout the workshops. The already mentioned free structure of the game-making clubs, allowing game-makers to engage with different topics, seems to have favoured the production of personal ensembles combining references to other media texts and perspectives regarding specific social/cultural/political aspects. And this engagement with discourses that have a broader influence on everyday life – and are not only confined to the domain of digital games – opens up space to discuss the role of games in contemporary culture.

In this scenario, one of my hypotheses in relation to Research Question 1 was that since participants were working within a specific field, this field would play a significant role in shaping their practices during this study. In other words, digital games, as a Bourdieusian field,

would influence the kinds of discourses they would engage with, how these discourses would be realised, and whether the identities constructed by them via the realisation of these discourses they would be 'intelligible' (Butler, 1999).

Aspects that dictate the "dimensions of the sayable" in digital games, the "norms" that regulate this field and that would shape participants' practices, were discussed in this study through the Hegemony of Play (Fron *et al.*, 2007). The Hegemony of Play acts not only extensively – e.g. within male-dominated mainstream game development environments (Richard, 2016) or misogynist online player cultures (Consalvo, 2012) – but also implicitly, inculcating dispositions in agents in the field of digital games, leading towards reproduction via symbolic violence (Bourdieu, 1991). It can act, for example, by limiting the types of games that are easily accessed help to construct an imaginary of the field, implicitly defining what a game "can be" (e.g. a mediaevalesque RPG) and what it cannot be (e.g. an autobiographical game about depression).

Habitus – these internalised assumptions – mediates our practices and will play a significant role in relation to the engagement with discourses and construction of identities. Here, we cannot forget that identities are only understood if they are produced by intelligible subjects (Butler, 1999), and by pursuing ideas that are not acknowledged within digital games (that are "subversive", that do not conform to those conventions), participants risk becoming unintelligible and being dismissed.

Although there was a noticeable articulation of conventional gaming discourses without further reflection – e.g. the naturalised masculine discourse in *Noob Assassin* and *Experiment* Z – a relevant finding from the three cases explored here was that these young game-makers were not, in general, restrained by these. Game-makers rehearsed an engagement with topics that are seldom incorporated (or that are shunned when incorporated) into mainstream digital games, such as gender inequalities and political critiques, as explored in the previous chapters. In this scenario, it is then important to understand the main features behind this experience, and how these features enabled them to assume these dissonant positions.

Firstly, we cannot ignore that some of the participants involved in this project were already outsiders to traditional gaming culture: several participants in Research site A, for instance, did not play regularly and, even if they had an understanding about gaming and gaming practices, these were often limited to some specific types of games or second accounts from others. This initial position as outsiders is not, however, enough to account for their engagement with non-gaming-normative identities, since even participants who had an extensive gaming repertoire and showed a high-degree level of alignment to traditional gaming culture, such as William and

Stephen, engaged with discourses that are non-aligned to traditional gaming, such as the use of a controversial real personality (Donald Trump in *Noob Assassin*).

An important strategy adopted by all participants – and not only those with a wider gaming repertoire – was, as found in other research (Pelletier, 2008), an articulation between game-subversive and game-normative aspects. Marta and Carla, for instance, incorporated violence and conflict in their game that also dealt with affect, caring and female agency; William and Stephen combined gaming references (e.g. "noob", *MLG*) with Donald Trump; Juan and Yerry mixed their intricate narrative and the display of their gaming prowess with vehement rejection of the label "gamer". Here, it is possible to identify a common strategy to realise these "subversive" discourses and still be intelligible within the field. This combination of "normative" and "subversive" gaming aspects makes their games personal, exclusive, innovative and, at the same time, familiar and recognisable.

The context where this work was carried out is also important to understand this engagement with different discourses. Even if several of these game-makers were used to mainstream gaming culture (they shared, to a certain degree, an imaginary about how games "should be"), the game-making spaces discussed here were on the margins of this mainstream gaming culture. Since these contexts were offline and constructed within existing institutions among people who already had a significant rapport, participants were reasonably free to invoke their repertoires to carry out their curatorial process, being able to adopt an experimental attitude towards game production.

The game-making clubs discussed can be seen as an example of what Potter and McDougall (2017) define as a 'third space', a space between the 'institutional' (e.g. school) and the wider 'lived experience' (e.g. home), where meaning-making can occur in a different dynamic. Understanding the game-making clubs as third spaces affords a path to grasp why "normative" and "non-normative" discourses in relation to gaming were constructed throughout the activity, since the context (between the "institutional – hegemonic – experiences", such as online player culture, and wider "lived experiences", such as their relationship to contemporary popular culture) allowed them to recruit different logics and influential elements (e.g. conventions, repertoires) and, more importantly, use these logics and influential elements in different ways to produce new signs.

Understanding the game-making clubs as a third space also helps to explore the experimental approach to the activity since this concept allows us to articulate a notion of "safety" in relation to discourse realisation. Potter and McDougall (2017) relate the boundaries between third and other ('institutional' and 'lived experience') spaces to a 'semi-permeable membrane',

through which third space participants can mediate what aspects will be brought back-and-forth when moving through different spaces. The operationalisation of this 'semi-permeable membrane' between different spaces (digital gaming as a field, participants' own experiences and game-makers participation in the clubs) becomes clear, for example, when we analyse Stephen and William's design process. They were able to invoke and articulate their gaming repertoire throughout the production of *Noob Assassin*, but they were conscious that their production – *Noob Assassin* as a game – was limited to the context of the game-making club, not being necessarily part of other dimensions – or other "spaces" – of their lives. This possibility of partially separating[91] what happened in third space from other "spaces" of their lives created then a kind of a discursive sandbox, where participants could use games to try and engage with different perspectives around social/cultural/political aspects that, in a more public or mainstream arena, they might not have wanted to explore.

A final and relevant point stemming from this discursive sandbox provided by the game-making club is that this curatorial construction of identities was not externally guided or probed, but voluntary. As it was discussed earlier, participants were free to make games about any topic, therefore, they could have opted to not engage with topics that could be seen as polemical (such as gender or Donald Trump), but they decided to do so. This hints about the importance of giving young people opportunities to engage with different discourses, elaborating their own worldviews and values through the realisation of these discourses.

In this section, I reflected about the multitude of identities assumed by participants during the planning phase of their games. It became clear that they were able to engage with different discourses and were not necessarily subjected exclusively to hegemonic discourses within the field of digital games, even if some of these were realised in different games analysed here. While this initial possibility to engage with several discourses – and to articulate different identities – is significant, it is even more important to understand how these discourses and identities became part of their games, since it could be expected that pivotal meanings could become "lost in translation" in this process. Therefore, in the following section, I will look more specifically at the games produced in the game-making clubs, in order to understand in which ways participants engaged with different discourses, realising, rehearsing or ignoring those in their productions.

[91]I am considering this as a partial separation since these participants, as discussed above, had a rapport built beyond the activities, so there was always a possibility that practices carried out in the context of the game-making club could "spill" into other spaces of participants' lives.

Programming Oneself: Translating the Game-as-Plan to Game-as-Artefact

In the previous section, I discussed how participants realised specific discourses in the context of digital games, constructing identities. These identities were not, at least initially, completely constrained by the field, that is, by the hegemonic discourses in traditional gaming culture. As explored earlier, some of these hegemonic discourses and practices were in fact employed by them – such as the "normalised masculinity" in *Experiment Z* or *Noob Assassin* – but not always at face-value. These discourses were often combined with "subversive" positions and practices, which are rarely acknowledged as part of how gaming should work by some very specific (and conservative) views within the field (cf. Condis, 2014). In this section, I will focus on how these discourses and identities were expressed in their games-as-artefacts, reflecting about Research Question 2: "In which ways are these participants' different discourses and identities translated into their games throughout the game-making sessions?"

In this section, I am particularly interested in understanding the processes of **discourse translation** employed by participants. As discussed in previous chapters, discourse translation is the process of making meaning through the limited sets of semiotic resources available, realising discourses in different contexts and often through different modes. These discourses are here considered new since they are, as argued in Chapter 3, context specific, but participants often had to transpose these discourses from one context (e.g. popular Asian culture) to another (digital games). The central aspect for this process is the limitations faced by game-makers, since they had to subject their meaning-making processes to a specific cultural form – a digital game, conventions and habitus included – produced through a specific platform – *MissionMaker*. While both limitations are connected, in this section I will focus mostly on the former (the translation of discourses from other contexts, such as popular culture, science or politics, into games/playful experiences), whereas the latter will be retaken in following sections, when I will reflect about *MissionMaker*'s influential role as a platform.

In some of the cases, this process of discourse translation – subjecting a specific discourse to the cultural form of digital games – was quite straightforward. Take Stephen and William's game as an example: their use of sound effects can easily be related to their comic aspirations, creating funny situations within *Noob Assassin*. A similar process happened in *Experiment Z*, since their criticism towards unscrupulous scientific agents (from the field of science) was easily incorporated into their game.

In other cases, discourses might not be as clearly identified by players. *Extrovertido* and the fan discourse invoked by Marta are a good illustrative point, since she used *Orange Marmalade* as

an inspiration, drawing from this media text the characters for their game; however, recognising this direct reference in her and Carla's game is not that simple. Firstly, we must bear in mind that *Orange Marmalade* is a niche media text. My own process of identifying this discourse depended not only on "reading" their game-as-plan, but also on talking to the designers, since I was able to only partially understand the reference (the names followed Korean patterns) but not where they came from.

Secondly, the recognition of this reference would be practically impossible for a player that had not followed Marta and Carla's design process. While one might be able to identify the reference through the naming pattern, there is not a single reference to any of the characters' names in the actual game. A player experiencing their production would not be aware of the Korean nature of the characters, and would be unable then to fully grasp the fan discourse that Marta wanted to incorporate into *Extrovertido*.

Based on these brief examples and in discussions from the previous chapters, we can uncover different **patterns of translation** of participants' **intended discourses** into their games: **completely evident** (e.g. the final battle and the 'seasoned players' discourse in *Experiment Z)*, **partially evident** (e.g. Marta's fan discourse in *Extrovertido;* use of *Fortnite*'s Easter Eggs in *Noob Assassin*) or **silenced** (e.g. loving/caring ending in *Extrovertido*). These different possibilities regarding discourse translation and identity expression highlight a finding for this study and, more broadly, for the expressive use of media: the interconnection between maker's agency, meaning-making strategies and the subsequent reader's interpretation. If we wish to understand how meanings are constructed and disseminated, we cannot simply look at how meaning-makers produced signs (e.g. how Donald Trump was developed in *Noob Assassin*, how Marta and Carla used *Orange Marmalade* characters to promote reflection about gendered roles), but we also need to take into account how "readers" (i.e. players) might make sense of these signs.

Interpretation is crucial for meaning-making: this is one of the reasons for Burn and Durran (2007) proposing it as the fifth strata of communication in Social Semiotics – besides the aforementioned discourse, design, production and distribution (Kress and Van Leeuwen, 2001a). Interpretation is never imposed but is always constructed through a negotiation between author and audience mediated by the (media) text. This negotiation can be understood in the dialogical terms defined by Bakhtin (2008), especially in relation to how the "texts" – the games – produced here are situated within the universe of meanings that they are part of. Combining this dialogical approach to interpretation with the discourse translation patterns discussed above (completely evident, partially evident or silenced), it is possible to discuss the limits for this dialogical meaning-making in the games produced here.

Within the scale of discourse translation pattern described above, the transitional aspect – partially evident discourses – are, arguably, the most significant in terms of **discourse translation**. This is because they can be understood, assuming the risk of being redundant here, as a partially achieved process of discourse translation, in which a part of the intertextual relationships that ground the discourse are identifiable, but whether this discourse will be recognised in the future by others is unclear, partially breaking the Bakhtinian (2008) dialogical process. The partially evident fan discourse in *Extrovertido* presented earlier is, again, a good example of how discourses might be "lost in translation" in this process, since they can be evident enough for sign-makers, but not easily readable by anyone and therefore might be dismissed.

Understanding the importance of interpretation is, therefore, crucial to any tentative to outline an answer to Research Question 2. By investigating the whole game-making process carried out by participants within this project, it became clear that discourses could be translated by the participants into their games in different ways, and these ways could then result in different outcomes in relation to the intelligibility of these intended discourses by players.

In order to better discuss this importance of interpretation for discourse recognition within games, at least two ideas must be explored here: the limits of procedurality, and my role in this research. Firstly, this question of discourse translation and players' interpretation might help us to elaborate on the limits of procedurality as an analytical framework. As discussed earlier, platform studies (Bogost and Montfort, 2009; Montfort and Bogost, 2009; Leorke, 2012) and procedurality (Bogost, 2006, 2007) are relevant for exploring discourses and identities in games, since they recognise the constitutive role technologies have, breaking the 'screen essentialism' (Apperley and Parikka, 2018) – the idea that only on-screen elements are significant regarding meaning-making within digital technologies. Nevertheless, we cannot forget that meaning-making is a two-way process (between maker and player), and proceduralism often focuses solely on one of the poles of this process, favouring production-related aspects (makers) in detriment of interpretation-related ones (players). In that sense, at least two main reflections about the limits of procedurality as an interpretative framework should be taken into account, namely, the **silenced** discourses and the role of **play** for meaning in games.

Through a "pure" proceduralist approach, analysing the games produced in this study would be enough to explore the realised discourses and constructed identities assumed by the makers, since it understands the game system (made, for example, of game mechanics) as only a result of complete and partial translations of these game-makers' discourses and identities, without taking into account the silenced ones. What we noticed in the previous chapters, however, was

that participants often found themselves in specific situations in which they were not able to realise the discourses they had previously envisioned, and often ended up changing their ideas slightly as a result, and *Extrovertido*'s ending sequence is an example of this process.

If we analyse solely the final game, ignoring the production process, we would lose nuances of Marta and Carla (the game-makers) negotiation process of different love discourses throughout their game-making activities, with Marta preferring a caring/controlling love relationship, whereas Carla favoured a more "platonic" and freer ending for Ma Ri and Jae Min. By only looking at their final game, where Carla's view was employed, players would not be able to access this important part of the process where makers discussed, tried and realised discourses about love not necessarily in a straightforward manner.

We cannot forget here that this change was triggered by the platform and its affordances and constraints, an aspect that will be further discussed later in this chapter when reflecting about the role of the software in game-making. Nevertheless, this recognition of game-maker's realised discourses does not depend solely on acknowledging the game system and its rules, but it is also related to the players' own repertoires and positions that will mediate the experience of playing these games.

By focusing on the values and meanings that a game-maker tried to convey through the different systems of meaning-making (e.g. rules, narrative, aesthetics) within a game, proceduralism can lead us to a view of games as monologues, an one-way communicational situation. Sicart (2011), however, reminds us that play is a deeply personal activity, mediated by our own repertoires, identities and idiosyncrasies. Therefore, it is less a monologue carried out by the game-maker through game system, and more a Bakhtinian (2008) dialogical relationship between player and game system, including here the previous and future textual relationships that are/might be constructed in relation to the current text (game). One cannot acknowledge the fan discourse in *Extrovertido* if she is unable to identify that it was directly inspired by a specific media text.

The cases discussed in this project then highlight how discourses and identities are substantial part of the games produced, after all, our positions in the world – our culture, our values, our political allegiances, our tastes – mediate our ways of being in the world (Flanagan and Nissenbaum, 2014; Penix-Tadsen, 2016; Carr, 2017; Potter and McDougall, 2017). This is by no means a novel aspect regarding media (or even game) production; but what seems to have not been explored enough in the field is how these mediating aspects are important during the meaning-making processes, especially in games.

Meaning-making in games have an extra level of complexity in the sense that they are dynamic, since the only way to "access" them is by playing, and play can be deeply contextual and personal (Sicart, 2014). In her reflection about textual analysis as a method, Carr (2017) reiterates the importance of the play experience by articulating the notion of reading formations (Carr, 2009, 2017), stating that 'potential meanings attributable to specific elements of a game would attain greater or lesser significance within particular contexts'(Carr, 2017, p. 11). This articulation of interpretation in games via reading formations is significant since it challenges possible universalist approaches to interpretation within games, while reinforcing the importance of play and player subjectivities. It challenges notions that certain forms of meaning generation within games should be necessarily prioritised over other (Carr, 2017) – e.g. narrative over game mechanics; graphical representation over audio. Since games are experienced through play, all meaning generation forms are equally important for the play experience and should be treated as so when interpretation is being scrutinised. It also acknowledges the role that personal identities might have in organising interpretation. Carr (2017, p. 11) reminds us that 'lived experience, including, for instance, experiences relating to class, migration, gender, ethnicity, family, work, technology, and disability [...] will generate particular kinds of knowledge, which have the potential to shape interpretation', but not necessarily as expected. In that sense, we cannot ignore that interpretation can be deeply contextual and personal, and this will play a significant role in how intelligible the discourses realised within digital games are.

This means that, in general terms, the process of translating discourses from the game-as-plan into the game-as-artefact is not straightforward, since it is contingent not only to game-makers relationship with the field, technical skills or the affordances and constraints of the platform, but also to the players' interpretive dispositions. Thus, in this section I explored how discourses and identities assumed throughout the project might have been incorporated into the games produced. As discussed here, discourses and identities can be translated into games in several ways by game-makers, but these distinct approaches can result in diverse interpretive outcomes, including a silencing of these positions depending on who is playing the game.

I also discussed procedurality and the need to pursue a dialogical approach towards it. Here, however, the issue is not related to procedurality as a theory *per se*, but to an exclusive model of game analysis that ignores the particularities of play, such as context and player's subjectivities. A possible path here is to understand procedural forms as generating 'dispositions', which nudge players towards certain interpretive directions, but can be contested/challenged.

Up to now I focused on how the participant game-makers realised discourses and constructed identities, and how these became part of their final games and of the process of game-making. Nevertheless, while communicating meanings was something intended by these young people, we cannot ignore that they were doing so within a specific field, using a specific set of resources; in other words, they were making meanings through a digital game, being developed in *MissionMaker*. In the following sections, I will re-examine the game-making processes carried out by the participants, now looking specifically at the roles played by digital games as a field and by the software throughout this experience.

Design Conventions: The Role of "Normalised" Game Design in Game-Making

Throughout this chapter, I have been exploring how participants invoked and realised discourses, constructing specific identities in the game-making clubs, and how these positions became part of their games. I also discussed the shaping role played by the field of digital games (Bourdieu, 2014) in relation to their game-as-plan, presenting itself as a potential influential factor in this process via the notions of habitus (Bourdieu, 2014) and taste, generating distinctions (Bourdieu, 1984). What I want to discuss in this section is the other side of the shaping role played by the field of digital gaming: beyond influencing which discourses can be invoked in and realised through their game-as-plan, it can also impact how these discourses will be realised in the games produced by the participants, shaping how identities will be constructed in this process.

When exploring Research Question 1, I discussed the dimensions of the 'sayable' (Butler, 1997) in relation to the field of digital games ("what" can be said); now, I am looking at the ways this 'sayable' is employed within their game ("how" we can use game-making to promote these 'sayable' discourses). Here I will then explore if and how gaming repertoires, imaginaries and conventions shaped the development of participants' games, as summarised by Research Question 3: "In which ways is this game-making process specifically influenced by game design and 'traditional gaming culture' conventions?". My goal here was to understand in which ways participants delved in their own repertoires about gaming and digital games to organise the artefacts they were producing. More specifically, I was interested in how gaming conventions were part of their games, and how these conventions interacted with discourses invoked and identities being constructed by these game-makers.

Conventions, in the way the term is used in Research Question 3, can refer to elements that can be categorised in at least two different orders. We can have conventional forms that are

manifested in a more general way, using specific modes to construct a storyline. Then, there are conventional forms closer to technical aspects of game-making, centred around ludic functions of the game. It is possible to wonder whether this division is productive – after all, as discussed earlier, both dimensions will compose the play experience that will lead towards interpretation, and we cannot assume that one is inherently more important than the other (Carr, 2017). In the context of this work, however, understanding this difference is relevant since participants' exploitation of these sets of conventions were not homogeneous.

Narrative conventions, for instance, are easily noticeable within the three cases discussed here. Games-as-plans worked around the "trophy" character waiting to be rescued, the unscrupulous corporation behind a secret scientific experiment or the clueless protagonist facing a big challenge, to mention some examples. While we can argue that these conventions, to some extent, transcend digital games – they are, after all, found across different media forms – we cannot ignore that they are also significantly explored in digital games (think about Princess Peach, Umbrella Corporation or Link). Therefore, it is understandable why participants drew on these conventions to organise their games.

The situation begins to change when we look at how ludic-based conventions were reworked by participants. Although all three games share some similar game-making traits (e.g. use of game economies and pickup objects, physical conflict as an essential means for progression), *Experiment Z* and *Noob Assassin* rely more on "gaming common-sense" than *Extrovertido*. The different game mechanics and sequences invoked by *Experiment Z* are a good example: from the use of pickups as keys (including the use of a "master key") to the existence of a final boss and the defensive final battle, Yerry and Juan relied on different game design structures to build their artefact. The same reliance on gaming structures can be identified as a design strategy in *Noob Assassin*, since the "secret room" and the direct references to *Fortnite* are examples of this "borrowing" from elements found in several games.

To create *Extrovertido*, Marta and Carla opted to extrapolate some game-design conventions. Their intention to have a game sequence in which Ma Ri takes care of Jae Min is, for example, one of these extrapolations[92], a relevant indication of the complex relationship between repertoire, game design conventions and creativity in game-making. Having a wider gaming repertoire – as it happened with Juan and Yerry – helps, since it affords a wider pool of possibilities for game design, which can, in turn, lead to longer and more complex games (as seen when we compare *Extrovertido* to *Experiment Z*). Nevertheless, throughout their design

[92]As discussed in the previous chapter, this does not mean that no game has implemented a "caring" sequence before; The Last of Us being a quite recent example. We cannot forget, however, that none of the games they knew had a similar game mechanic, what can be interpreted as a sign that their 'taking care' game mechanic did not come from their gaming repertoire.

process, Yerry and Juan mostly operated within a specific spectrum of gaming familiarity. The game structures (mechanics, characters, sequences) invoked by them would be reasonably familiar to a seasoned videogame player, resulting then in a situation where these experienced players would be able to overcome the challenges relying on their experience.

This is not necessarily the same kind of experience promoted by *Extrovertido*: while there is some gaming familiarity there (e.g. the initial conflict, the fighting), the designers' extrapolation of some game design conventions led to an engagement with a different topic (love, care) with which experienced players would not necessarily be familiarised. Here, it is possible to relate this link between gaming repertoire, game-making and creativity to debates in the field of Game Studies around (gaming) genres (Arsenault, 2009; Clearwater, 2011; Anthropy and Clark, 2014; Vargas-Iglesias, 2018). At the same time, repertoires/genres can help the creative process, offering different solutions and design ideas, and can also become constraining factors (Anthropy and Clark, 2014), preventing the engagement with elements or themes that might be seen as disruptive or alien ("dissonant") to the field where individuals are operating. Retaking Research Question 3, we can infer a relationship between repertoires and the influence they exert in the process of game-making: a larger gaming repertoire meant a larger pool of gaming conventions and patterns to borrow from, meaning that one could find ways to implement their game-as-plan and construct identities without seeking disruptive forms within the field. This larger repertoire becomes relevant especially if gaming repertoire is used as an asset to articulate a process of distinction based on a specific gaming taste (Bourdieu, 1984).

Thus, it might not be a mere coincidence that the most disruptive (dissonant) game design sequence proposal came from a group that had a reduced gaming repertoire. *Extrovertido* can be taken as an example of how allowing more people – and people that might not be used or familiar with digital games in general – can be important not only for these individuals' active participation in media production, but also for the progress of the field. Their intention to go 'against the grain' (Kotsopoulos, 2001), signalling towards the incorporation of aspects that are not often found in digital games and often leading towards the approach of ideological contradictions[93] has potential to promote a more diverse and inclusive approach towards digital game-making, supporting different kinds of experiences and discourses and giving voice to different people through games (Anthropy, 2012).

[93] One example here is the dual feminine role played by Ma Ri in Marta's silenced discourse, being at the same time a "caring/controlling" lover (highly gender-normative) **and** a powerful, independent woman.

To some extent, the initial proposal of the "caring" game mechanic can lead us to read *Extrovertido* as a kind of a naive game[94]: due to their narrower gaming repertoire – and their limited participation in the field of digital games – Marta and Carla had experienced less the processes of symbolic violence that culminates in the habitus (Bourdieu, 2014) in relation to games (or, at least, in relation to action-adventure games, the game genre invoked by *MissionMaker*). Since they had not necessarily internalised yet how a 3D third-person narrative-based game should "feel", they were, to a certain degree, freer than Juan and Yerry, for example. By not being constrained by the set of dispositions generated by a gaming habitus, Marta and Carla were able to recruit different (including dissonant) repertoires to elaborate their game, proposing then gaming experiences that are considerably different from that proposed by other groups.

There is a similarity in this interaction between game design, usage of (different) repertoire(s), new experiences and genre. Arsenault (2009) argues that one of the evolutionary processes that videogame genres go through is based on the incorporation of new elements that were not previously seen as constitutive parts of that category. Bateman and Zagal (2018) construct the idea of 'game design lineages', showing how different games borrow elements from each other across platforms and genres to innovate. *Extrovertido* provides a glimpse on the effect that non-mainstream game-making by non-gamers can have on the evolution of videogames as an expressive medium: by invoking and realising discourses from other fields, it might be a path to incorporate new values, expressing diverse identities and promoting different experiences, resulting in a progressive change in relation to the public perception of games' place in contemporary culture. I must remark here that I used the term "glimpse" here because I do not want to overstate the importance of this example: as Harvey (2014) argues in her study about *Twine* communities, we must be careful to not overplay the power of game-makers in challenging hegemonic gaming culture, or to reinforce depoliticised views such as "accessibility" or "diversity" when discussing game-making in non-mainstream, non-professional contexts. This process of challenging hegemonic gaming culture is not easy or simple to be carried out, but examples such as these – small initiatives such as this – can contribute to this challenge.

This understanding about the possible changing potential of subversive game design, by no means, reduces the importance of *Experiment Z* and *Noob Assassin* in relation to this project. Game-makers involved in the production of these two games were capable of using this exercise to realise different discourses, to remark their cultural positions, and to produce engaging artefacts. In relation to Research Question 3, it becomes clear that, in some cases,

[94] Borrowed here from naïve art.

conventions were invoked by participants to reinforce specific discourses regarding their position within the field. This is identifiable, for instance, in *Experiment Z* (e.g. the "master key") and *Noob Assassin* (e.g. the *Fortnite* Easter Egg) since, through these signs, Juan and Yerry and Stephen and William were capable of articulating different notions of taste and capital. We cannot ignore, however, that in some cases these participants (Yerry, Juan, Stephen and William) simply invoked conventions without assuming a critical stance towards it: their masculine game-world is a clear example of how habitus and conventions operate within a field, as a "naturalised" assumption that can be uncritically reproduced.

This might be a reason why *Extrovertido* seems the game that operates in a more challenging way towards the hegemonic forces constituting traditional gaming culture. Their disruptive "love" discourse was paired to a disruptive game mechanic proposal. In that sense, game design conventions were, at least initially, less explored in *Extrovertido:* while they are more common in the first sequences of the game, they fade away as different discourses, such as the gender-related one, becomes more evident.

The idea of incorporating the "caring" game mechanic in *Extrovertido* was, to some extent, subversive, since it does not conform to what is usually expected from an action-adventure game. We cannot ignore that this idea was later scrapped due to a non-agreement towards its implementation. Marta and Carla were not satisfied with the possibilities afforded by the platform and decided to pursue a different game structure. Even if we can argue that non-mainstream game-making can be disruptive and subversive in relation to hegemonic gaming culture, all this subversion and disruption will be of limited value if, in the end, these subversive games cannot be implemented. In order to materialise these artefacts, game-makers can employ different technologies.

In this project, *MissionMaker* was the platform used to implement the games envisioned by participants. The example discussed here – the rise and fall of the "caring" game sequence in *Extrovertido* – can be taken as an example of the importance of technical aspects for digital games, in relation not only to game qualities (e.g. how cutting-edge the graphics are, how good the controllers are, how well-balanced the difficulty is), but also to the messages articulated by these games; in other words, to cultural aspects. Therefore, in the following section, I will reflect about the *MissionMaker* as an influential factor within this research, remarking its role regarding cultural, technical and expressive aspects.

The Role of the Platform

One of the conceptualisations that underpins this study is the notion of software and platforms as culturally constructed ensembles, rejecting the idea that technologies are neutral or value-free (cf. Grimes and Feenberg, 2013; Flanagan and Nissenbaum, 2014). If we aim at understanding how young people appropriate digital games to realise specific discourses and perform specific identities, we cannot ignore the mediating role that technologies have in organising these processes. Technologies can be biased, favour certain meanings and kinds of experiences over other.

The platform mediates participants' game production; thus, it is important to explore how the interaction with *MissionMaker* influenced game-makers in this project. In this section, I will explore Research Question 4 ("In which ways does *MissionMaker* shape the games produced by these young people?"), proposed in this research in order to reconcile the 'computer' and 'cultural' layers (Manovich, 2002) of the game-making processes carried out throughout this research.

MissionMaker was an influential factor in the games produced here. The example that closes the previous section – the scrapping of the "caring" game sequence in *Extrovertido* – is one of the several situations in which participants decided to change their game due to a specific aspect of the software These platform-induced modifications were not necessarily caused by a narrower gaming repertoire (as it was the case with Marta and Carla). In *Experiment Z*, for example, we had the complete redesign of the final gaming sequence partially caused by the impossibility of having a cutscene in *MissionMaker*; in *Noob Assassin*, glitches found in the software led Stephen and William to construct a sequence where Dave McDonald flew around if the player followed the instructions to hold a specific pickup object (the chalice).

In the three examples described above, the platform has induced game-makers to modify their designs, either due to constraints that prevented or made the implementation of the **game-as-plan** too difficult (in the two first cases), or by presenting different possibilities that participants judged as more interesting than those previously planned (as in the case of *Noob Assassin*). The platform played a role in relation to creativity, at times constraining participants, and at times providing different ideas and opportunities for creation. The role played by *MissionMaker* was, to some extent, akin to that played by gaming repertoires discussed in the previous section. Both elements (software and repertoires) can be understood as structures that organised the game-making processes. Both elements thus shape "how the sayable can be said" within game-making.

If *MissionMaker* worked as an organising structure for game-makers' productive process, and if it acted as a moderator of discourses and identities (favouring some in detriment of other), it is important to explore why platforms can act as moderators. In addition, it is also relevant to reflect on how this moderation worked in this project, and the implications of this moderation for the "subversive" possibilities that non-mainstream game-making can have in relation to conventional gaming forms.

As discussed earlier, *MissionMaker* is a software constructed on top of *Unity3D*, an engine whose main finality is to allow developers to create digital games. *Unity3D* is the result of the historical unfolding of digital technologies related to gaming; it incorporates technical codes (Feenberg, 2002; Grimes and Feenberg, 2013) and aesthetical traces (Apperley and Jayemane, 2012, p. 12), resulting in the construction of a pool of possible choices regarding game design in which some (e.g. creating a shooter) are favoured to the detriment of others (e.g. creating a dating simulator) due to the different degrees of difficulty in implementing specific game mechanics, for example. These technical codes and aesthetical traces are part result of historical technical developments, part result of the culture around these developments. They are part tradition, part creative effort to overcome technical constraints. These aspects – the favouring and hindering of ideas – can be carried into the future unexamined, creating conventions and assumptions within the field. Platforms and software are not the result of "spontaneous generation", but are made by people, meaning that in this production process their own positions, values and biases will be invoked, even if unconsciously.

MissionMaker can be considered as a "platform over a platform", since besides its own specific features (e.g. technical codes), it also is subjected to *Unity3D*'s features – the technical trace embodied by the crouch function exploited by Juan and Yerry during the first session, described in Chapter 6, is a good example of this. This becomes clear when we examine the different possibilities game-makers have in *MissionMaker*: 3D collision detection can be easily implemented in *Unity3D*, meaning that producing a fighting system for *MissionMaker* was a reasonably straightforward task. On the other hand, a dialogue tree system, through which game-makers could design speech interactions between players and NPCs (and specific outcomes related to these), requires the programming of custom components and is more difficult to implement. This extra level of difficulty can be significantly limiting for a software that does not have a dedicated development team such as *MissionMaker*, culminating in a narrower range of possibilities for game-makers.

This means that this platform acts as a moderating factor regarding the discourses that can be invoked and realised through it. A fighting system means that incorporating physical conflict in a *MissionMaker* game is quite straightforward, strengthening discourses that might rely on this

strategy. The absence of dialogue trees, on the other hand, makes it harder for designers to create games that rely on speech-based[95] interactions with NPCs. This does not mean that it is impossible to create a game with multiple possible endings in *MissionMaker*. It means, however, that this would be much more laborious, which could explain choices seen throughout this project between pursuing one idea and scrapping it in favour of a different one, such as *Extrovertido*'s "alien" ending over the "caring" sequence.

Marta and Carla's final decision is an example of the limiting role that a platform can play within game-making, reducing the possibilities for invoking and realising different discourses during the production of the digital artefact. In the same way as the platform can become a **constraining** factor, it can be **propositive**, working as an inspirational resource for game-makers, and the actual "Alien" ending of their game proposed by Carla is an example.

As discussed in the previous chapter, it was through the Alien asset found in *MissionMaker* that Carla envisioned the implemented ending. What is most significant is that this change did not silence their gender discourse, but in fact changed how they dealt with it. Rather than a direct embracing of the traditional gendered role of female as the carer, they ended up with a freer situation, where Ma Ri was strong enough to fight for her desires, but free after discovering that her love was an impossible or boring one.

Extrovertido's ending illustrates a significant aspect of the role played by the platform in relation to the discourses. It might play a constraining role in terms of game mechanics and of how participants are able to engage and realise some discourses, but it can also allow game-makers to show a certain degree of resistance towards these constraints, overcoming them while working around with their games-as-plans. Yerry and Juan's "seasoned player" discourse and *Experiment Z*'s ending is another example of these possibilities arising from the platform: their first option was to reach that discourse through a cutscene; after understanding the high level of difficulty and improvisation demanded to implement it, they were still able to engage with it through a different strategy: the defensive battle with the drop zone.

In these two cases, the platform moderated the discourses mostly through constraining dynamics: a difficulty was found, and players looked for different possibilities. Re-addressing Research Question 4, while the platform seems to have worked as a moderator of the discourses invoked and realised by game-makers, it is also noticeable that this moderation, although modifying some (e.g. *Extrovertido* and the role of women), did not necessarily end up silencing these.

[95] Even if displayed as static texts.

We can identify another pattern of interaction between platform and designers by looking at *Noob Assassin's* production process. The participants were more interested in testing the platform than implementing their game-as-plan. This indicates a different game-making relationship, with participants foregrounding the **propositive** nature of the platform. Nevertheless, despite this different approach, centred on the platform rather on their game-as-plan, the discourses invoked by them were still mostly preserved, since they were able to display their comic intentions, an acritical view about gender in games, their relationship with *Fortnite*, their critique towards Trump. Stephen and William, in that sense, were able to exploit the platform in a different and successful way, realising discourses and constructing their identities around the platform affordances rather than the other way around. This does not mean, however, that the approach adopted by them is necessarily better than Juan, Yerry, Marta and Carla's strategies; it indicates that they were able to engage with specific discourses in a more straightforward way when compared to the previous two cases described here.

A final note that must be discussed here is the relationship between *MissionMaker*, game-making in non-mainstream contexts and hegemonic gaming culture. As argued above, it is clear that *MissionMaker*, as a "platform above a platform", is subjected to certain aspects of conventional gaming and hegemonic gaming culture. This has consequences to the limits of counter-hegemonic game-making experiences carried out through this platform: it might not favour the production of "disruptive" game mechanics, thus not necessarily promoting the production of games that directly challenge hegemonic gaming culture. Nevertheless, we cannot dismiss the importance of this experience for young people: through the production of these artefacts, the participants in this study were able to reflect not only about their own preferences, positions and allegiances, but also about games. The challenges found by these participants in the game-making processes were frustrating, but also starting points that could lead them to think about, for example, why it is easy to fight but difficult to show affection in games.

This type of reflection is a crucial starting point for a players/makers who are capable of critically engaging with this field, reflecting about the opportunities and discourses being favoured by it and capable of proposing new and different kinds of experiences.

Chapter 9 – Final Thoughts, Limitations, and Implications for Future Research

In this study, I investigated the identities constructed by young people when producing their own digital games. Throughout this research, I discussed how different elements such as repertoires, discourses, conventions, and technical affordances and constraints were invoked by young people in their creative and complex work of game-making. These productions can be understood as specific curatorial ensembles, which we can use to explore not only how these game-makers understand videogames as cultural artefacts, but also how these designers position themselves in relation to broader sociocultural aspects, hearing their voices.

It is clear that this – the relationship between discourses, identities and platforms in non-professional game-making – is a complex and intricate subject, and it would be impossible for only one project by a sole researcher to cover the whole topic. In this concluding chapter, therefore, I intend to situate this study in relation to the relevant fields of knowledge. This will be done mainly through two sections in which I will, respectively, (1) reflect about the limitations of this investigation, and (2) outline suggestions for future research and implications for different fields that were related to this project.

Limitations of the Study

To explore participants' engagement with discourses and the identities constructed through the game-making practices, I employed a methodological strategy grounded on the investigation of the whole production process, from its inception to the final version of their games. By looking at the "whole picture", I was able to explore how their games "evolved" throughout the game-making clubs, identifying then how different repertoires, discourses, conventions and technical affordances and constraints were appropriated by participants in the production of their games. The use of different methods to generate data – observations, interviews, game analysis – was essential to capture different nuances and explore how these different influential aspects were articulated by participants throughout the game-making experiences, culminating in the construction of different identities.

There were, however, limitations to the study. Some of these were directly related to practical aspects, such as my role within the game-making clubs. As discussed in different moments, in both research sites I was simultaneously leading the workshops **and** generating data for my research, a combination that often put me in positions where I had to choose between supporting a group of participants to overcome technical challenges, or use that time to ask another group about their design decisions, generating more data for the research. In most

cases, my decision was to cut short speech-based data generation; after all, I could try to discuss relevant topics with participants later. Guiding my rationale here was also a sense of responsibility towards these participants: it would be unfair to invite them to produce digital games and not provide enough support for them to achieve this goal. Therefore, my practical stance was that of using more often my "session leader" hat than my "researcher" one, in order to better manage participants' expectations and minimise possible frustrations emerging from the activity. My decision to prioritise technical support was also based on the fact that this would not only help game-makers to progress with their games, but also lead me towards the generation of relevant data, comprising, for instance, how participants' use and achieved fluency on *MissionMaker* influenced their game production processes.

Not all technical issues found by participants were of the same nature. Some of these issues ended up generating rich data, especially those related to participants' platform usage. Marta and Carla's discussion about whether it was possible to tuck a character into a bed is a good example, since it opened up space for a broader discussion about their repertoires in relation to digital games as an established field, with specific habitus, conventions and expectations (Bourdieu, 2014). Even "more mundane" technical issues – related, for example, with login passwords, launching applications and commands inside and outside *MissionMaker* – had their value, since they allowed me to understand participants' positions within the field of digital games and, more broadly, of digital technologies. Supporting them with everyday technical aspects allowed me to explore their repertoires, both in technical and cultural terms (at least in relation to digital media).

This stance of favouring participant support over informal interview data generation had an impact on the research process. Often, I was not able to discuss and probe for in-depth reflection about design decisions during sessions since my time with participants was somewhat limited. In order to minimise the possible negative impact that this lack of "reflective research time" could have on this research, some methodological decisions were made to overcome these challenges (e.g. creating an interview schedule and asking participants to turn up a little bit earlier to answer some questions about their games). These extra data generation strategies were important for creating new lines of inquiry. This format also provided us (participants and me) with opportunities to revisit different subjects at different times, allowing then game-makers to approach and progressively engage with different discourses, in a more reflective construction process than simply engaging with themes only once during their game-making process.

A second limitation of my research is the methodological approach towards data analysis, and my own role as participant-researcher. My option to use Multimodal Sociosemiotics (Kress and

Van Leeuwen, 2001a; Van Leeuwen, 2004; Kress, 2010), justified mostly in Chapter 4, was grounded on the possibility to employ a framework that afforded a similar approach to any kind of data generated – e.g. speech, drawings, game mechanics, code. Nevertheless, we cannot ignore that Multimodal Social Semiotics is, after all, an interpretive approach (Pérez-Latorre, Oliva and Besalú, 2017), and this might raise questions about bias and validity of the findings and arguments raised with support of data generated in the game-making clubs. As discussed in this study, play is personal (Lammes, 2007; Sicart, 2014; Penix-Tadsen, 2016; Carr, 2017); this mean that, in relation to the objectives of that research, adopting a framework that acknowledges the centrality of interpretation – including, here the its contextual nature – becomes essential.

Therefore, I cannot ignore the role I played within this project, as *MissionMaker*'s developer, during the game-making sessions and as analyst. My own repertoires and idiosyncrasies were also part of the interpretive framework adopted to engage with participants' discourses – constructed through their games, but also through their participation in the game-making clubs. Interpretation, in this sense, is also a dialogical process (Bakhtin, 2008), since the meaning that is made from the productions depends not only on the sign-makers' intentions and effort, but also on the interpreter, including the context where this interpreter is inserted in. Multimodal Social Semiotics (Kress and Van Leeuwen, 2001a; Kress, 2010; Pérez-Latorre, Oliva and Besalú, 2017) was the path chosen for this research because it acknowledges its own interpretive nature, rejecting an "universality" in relation to meaning-making, and recognising its specificities directly related to context.

The main question here was how to bridge my own repertoires and particularities and participants' identities, how to acknowledge the discourses realised by them, how to "capture" their intentions? The methodological choice of investigating the whole process of game-making – and not only the final artefact – is an attempt to bridge this gap. By looking at the whole process (despite the limitations regarding data generation discussed above), participants had more opportunities to engage with and realise discourses, constructing specific identities inside and in relation to their games. This allowed me to build interpretive lenses (e.g. approach *Noob Assassin* as an "internal joke" for Stephen, William and his friends) that were useful not only when analysing their speeches or "offline" participation, but especially when looking at their games. These interpretive lenses allowed me to produce more contextualised readings, acknowledging participants positions when interpreting the data, affording a more dialogical position instead of imposing my own understandings over game-makers' productions.

A final limitation of this project is related to sample size, since the results discussed here were based on data generated on only two game-making clubs. Here, it is important to single out that this research was exploratory, less focused on producing overarching generalisable claims, and more interested in understanding small-scale phenomena linked to the appropriation of platforms for subjective expression through digital games. Participants from different age groups, different backgrounds and within different contexts. Even with these contextual differences, some emerging patterns were found across research sites, hinting to the validity of some arguments raised in this project. These arguments will be re-addressed in more detail in the following section, when I will explore the main implications of this research project for (necessary) future research on this subject.

Contributions and Implications of the Study for Future Research

Throughout this thesis, I argued that game-making activities with young people can allow them to construct different identities, expressing their worldviews and values. Game-making can provide opportunities to young people not only to develop technical skills or learn about different cultural forms, as research has shown before, but it can also promote reflection about their own position in the world and, more importantly, to express these positions. Participants' productions can be understood as personal curatorial ensembles, which can be read as a set of identities (Potter and McDougall, 2017) assembled through the articulation and realisation of multiple discourses throughout their participation in this project.

As extensively discussed in this work, these identities are not necessarily accessible or available for anyone but are subjected to specific norms and rules constructed through culture. Bourdieu's (1984, 1991, 2014; Bottero, 2010) and Butler's (1997, 1999, 2009) theories were articulated here in order to explore the complex relationships between fields, conventions, distinction, taste and intelligibility. These complex relationships were also discussed in relation to contemporary consumption (Canclini, 2001; Kress, 2010), understood here as a prototypical means for identity production via the appropriation of cultural texts.

Identities are, therefore, mediated by culture and by power relations found within our societal organisations. How the articulation and realisation of discourses (and, consequently, the construction of identities) happen within culture is a common objective of media education, especially in relation to critical media production and literacies (cf. Kress, 2003; Gee, 2015; Beavis, Dezuanni and O'Mara, 2017; Potter and McDougall, 2017), exploring, among other aspects, how young people can appropriate different cultural forms to express their identities.

This project is indebted to this tradition and, to some extent, follows the path laid by some of the research cited above.

In relation to this tradition, it is important to point out that by no means this study has exhausted this line of inquiry. On the contrary, as this research – and the aforementioned projects – indicates, the possibilities regarding identities and critical media production are immense, since context and previous experiences, to mention only two factors, can be significantly relevant in relation to which kind of games are produced, and with what finality. Although measures to diversify participants were taken, more research, with different participants and throughout longer timespans can only help us to better comprehend these complex relationships between repertoires, identities and media production.

Discourses are mediated by culture and power relations. When realised, they are also mediated by techniques and materiality. In relation to digital games, player culture and gaming conventions are significant factors in the dimensions of the 'sayable' (Butler, 1997) but that technologies are also part of this definition of the 'sayable'. Platform Studies (Montfort, no date; Bogost and Montfort, 2009; Apperley and Jayemane, 2012; Leorke, 2012; Apperley and Parikka, 2018) play a significant role here, calling for a different perspective towards technologies, considering them as culturally constructed artefacts that incorporate values and aesthetics, therefore, are not neutral.

If technologies are not neutral, it is important to explore how different technologies play a significant role in the discourses that can be realised through digital games, and which identities can be claimed in this process. What would happen if the platform used in this study favoured casual or mobile games rather than AAA productions? What if participants had to design games using physical interfaces and controllers rather than PC-based games? In that sense, further research on how diverse material and technical constraints affect discourse production are important.

It is possible to identify gaps that further research can explore both in relation to "cultural" and to "technical" aspects. This also point to a significant strength of this research, bridging this artificial gap between these two ("cultural" and "technical") aspects. By reconciliating Cultural Studies, Media Education and Platform Studies, it is possible to construct a more holistic and critical view of videogame production. We can understand videogame production not only in the dichotomic terms of the partial, subjective layer of 'culture' (e.g. representation in games) and the neutral, rational layer of 'technology' (e.g. construction of game mechanics through engines) (Manovich, 2002), but also to acknowledge that "culture", including its subjective values and conventions, always finds its way into the "technical" (Grimes and Feenberg, 2009,

2013), rejecting therefore this dichotomous separation **and** the neutrality of processes deemed as predominantly "technical". The main question – and the main implications of this research – are related to how young people producing games in non-mainstream contexts can appropriate cultural forms to realise discourses and construct identities, and what the identities that they construct tell us about these participants and, to some extent, about digital games as a field in the Bourdieusian (2014) sense.

Through this work, it is possible to identify some concepts and analytical categories that might be useful to better understand this appropriation process. To organise my analysis, I have divided participants' game-making processes in two distinct phases, named as **game-as-plan** and **game-as-artefact** design. **Game-as-plan** referred to participants' games prior to their implementation through *MissionMaker*. **Game-as-artefact** was linked to their games as materialised through the platform. The former, therefore, was about ideas; the latter, about implementation.

A first useful concept emerging from the analysis of the three cases discussed in this thesis is what I named as the **intentionality gap**. As the name might signal, the intentionality gap is the difference between plans and actual games. With the intentionality gap, I wanted to expose how designs evolved throughout the experience, and that these "mutations" in their games were not necessarily caused by a single aspect (e.g. technical constraints), but they were a result of a multitude of factors undermining their games-as-plans, including the emergence of a new idea considered as more interesting by game-makers. As discussed before, further research understanding how different factors (e.g. cultural backgrounds, technical affordances and constraints, specific game-making briefings) might lead to new intentionality "breaches" or "bridges" can shed more light on the specificity of game-making as means of expression, including here the relationship between games, conventions, and how they are perceived in contemporary culture.

The intentionality gap is relevant because it is within it that we can explore the second concept emerging from this study, **discourse translation**. Here, I understand discourse translation as the process of adapting specific discourses to the available modes and to a different context. Juan and Yerry's articulation of a scientific discourse to articulate ideas about socio-institutional dimensions of science was a good example of discourse translation, since they had to adapt it to a different domain (in their case, digital games), through the limited set of semiotic resources afforded by that context and, more specifically, by *MissionMaker*. Kress (2010) describes meaning-making as being organised by the sign-maker through a sense of "aptness", a fit between the meaning one wants to convey and the selected mode. The concept of **discourse translation** here acknowledges the 'transduction' process described by Kress but

is interested in understanding what happens to that meaning when modes (resources) are limited. This process is of utmost importance, especially when considering the aforementioned mediating role played by (cultural) conventions and platforms. A discourse aligned to specific conventions could be easily expressed, becoming **evident**; certain discourses could posit a challenge of implementation in a *MissionMaker* game, demand a certain degree of rework and become **partially evident**; and, finally, some discourses could be considerably unaligned to the conventions of the field – including here those incorporated into the platform – becoming **silenced**. Identifying these changes is important because it can lead to new lines of inquiry into why some discourses were invoked in one moment (plan or implementation), but not in the other, and why identities might have fallen or risen (became more or less evident), relating back to questions about, for example, (cultural and/or technical) conventions or distinction within the field.

By exploring the whole production process – from conception to finalisation – I was able to follow the trajectory of different identities, understanding how they rose and how participants dealt with them throughout the experience. This process of **discourse translation** demands a more holistic view towards the process. In other words, it is only possible to claim that certain discourses are only **partially evident** or **silenced** because I could identify them at some point, and their status changed throughout the project. Here, again, it is important to remark the exploratory nature of this research, as well as the already mentioned challenges of carrying out a demanding study such as this alone. Other discourses might have been elaborated and might have changed throughout the project, but I could not have possibly identified all of them – hence, the importance of further research within longer timespans, allowing greater exchanges between researchers and participants. Even so, **discourse translation** (and its different possible outcomes) is a relevant conceptual tool to explore the complex relationships between culture, platforms and identities.

A final aspect that must be explored here is the **propositive** role of the platform. As noticed in the cases discussed earlier, *MissionMaker* not only constrained participants, (partially) silencing their discourses, but also helped game-makers to produce different (and unimagined at that point) gaming sequences after semiotic resources available in the software. This indicates an important result in relation to critical media production and literacies, after all, it can be argued that participants were becoming proficient in using the platform. This **propositive** role of platforms, combined with the notion of these platforms being culturally-constructed structures, opens up an important line of inquiry into the aforementioned relationship between culture, platforms and identities. If platforms – in the same way as "cultural" aspects – can propose ways of conveying meaning, we need to investigate what expressive possibilities are

being favoured. Are platforms reinforcing existing stereotypes? Are platforms inclusive enough? Understanding their propositive role, as well as the outcomes of these possibilities, is another relevant step towards challenging the false neutrality of technologies, and further research in different contexts, with different means for game-making are crucial for extending this discussion.

As discussed especially in the previous section, this was an exploratory research. Time and resources were limited, and the field investigated is too big to be fully covered in a small-scale research. Even with these limitations, it was possible to notice throughout the examples explored here that different discourses were constructed and several "translation strategies" were pursued by participants. Game-makers were capable of constructing particular curatorial ensembles, through which we can understand their position in the world, their values, allegiances and how they want to be seen by others. Critical media production, here represented by game-making, has the power to put in motion important reflexive processes that can help participants to better understand the world where they live (Freire, 2000).

Besides this self-reflexive potential, the kind of game-making developed here is also relevant for digital games as a field (Bourdieu, 2014). Following other similar initiatives with non-mainstream game development groups, (Anthropy, 2012; Fisher and Harvey, 2012; Harvey, 2014), my argument is that through the production processes found in these contexts, it is possible not only to reflect about digital games as a field, highlighting the role that different conventions and practices have in shaping an imaginary around these cultural artefacts, but also about how different people can appropriate (the cultural form of) digital games. These appropriations can support them in the construction of specific identities through the articulation of different discourses, which might not only reconfigure these new designers' relationship with the field in question, but also the relationships among different agents within the field. This reconfiguration, in a field where hegemonic forces (Fron *et al.*, 2007) still exert a considerable power in how and what is produced, consumed and discussed, can be a possibility for constructing more reflective, critical and challenging agents for the field of digital games.

Bibliographical References

Adami, E. and Kress, G. (2010) 'The social semiotics of convergent mobile devices: new forms of composition and the transformation of habitus', in *Multimodality: a social semiotic approach to contemporary communication*. London: Routledge, pp. 184–197.

Altice, N. (2017) *I AM ERROR: the Nintendo Family Computer / Entertainment System Platform*. Cambridge: MIT Press.

Anderson, C. (2013) *Makers: The New Industrial Revolution*. London: Random House Business.

Anthropy, A. (2012) *Rise of the videogame zinesters: how freaks, normals, amateurs, artists, dreamers, dropouts, queers, housewives, and people like you are taking back an art form*. New York: Seven Stories Press.

Anthropy, A. and Clark, N. (2014) *A Game Design Vocabulary: Exploring the Foundational Principles Behind Good Game Design*. Upper Saddle River: Pearson Education.

Appadurai, A. (1996) *Modernity At Large: Cultural Dimensions of Globalization*. Minneapolis: University Of Minnesota Press.

Apperley, T. (2015) 'Glitch Sorting: Minecraft, Curation and the Postdigital', in Berry, D. M. and Dieter, M. (eds) *Postdigital Aesthetics: Art, Computation and Design*. London: Palgrave Macmillan UK, pp. 232–244. doi: 10.1057/9781137437204_18.

Apperley, T. and Jayemane, D. (2012) 'Game studies' material turn', *Westminster Papers in Communication and Culture*, 9, pp. 5–25.

Apperley, T. and Parikka, J. (2018) 'Platform Studies' Epistemic Threshold', *Games and Culture*, 13(4), pp. 349–369. doi: 10.1177/1555412015616509.

Apperley, T. and Walsh, C. (2014) 'What digital games and literacy have in common: a heuristic for understanding pupils' gaming literacy', *Literacy*, 46(3), pp. 115–122. doi: 10.1111/j.1741-4369.2012.00668.x.

Arango, J. (2000) 'Becoming a Country of Immigration at the End of the Twentieth Century: the Case of Spain', in King, R., Lazaridis, G., and Tsardanidis, C. (eds) *Eldorado or Fortress? Migration in Southern Europe*. London: Palgrave Macmillan UK, pp. 253–276. doi: 10.1057/9780333982525_12.

Arsenault, D. (2009) 'Video Game Genre, Evolution and Innovation', *Eludamos. Journal for Computer Game Culture*, 3(2), pp. 149–176.

Arsenault, D. (2017) *Super Power, Spoony Bards, and Silverware The Super Nintendo Entertainment System*. Cambridge: MIT Press.

Bakhtin, M. (2008) *The Dialogic Imagination*. 17th edn. Austin: University of Texas Press.

Barthes, R. and Duisit, L. (1975) 'An Introduction to the Structural Analysis of Narrative', *New Literary History*, 6(2), pp. 237–272. doi: 10.2307/468419.

Bateman, C. and Zagal, J. P. (2018) 'Game Design Lineages: Minecraft's Inventory', *Transactions of the Digital Games Research Association*, 3(3). doi: 10.26503/todigra.v3i3.77.

Beavis, C., Dezuanni, M. L. and O'Mara, J. (2017) *Serious Play : Literacy, Learning, and Digital Games*. New York: Routledge.

Beavis, C. and O'Mara, J. (2010) 'Computer games – pushing at the boundaries of literacy', *Australian journal of language and literacy*, 33(1), pp. 65–76.

Beavis, C, Prestridge, S. and O'Mara, J (2017) 'Games as Text and Games as Action: English, Literacy and Digital Games', in Beavis, Catherine, Dezuanni, M. L., and O'Mara, Joanne (eds) *Serious Play : Literacy, Learning, and Digital Games*. New York: Routledge.

BERA (2011) 'Ethical Guidelines for Educational Research'. BERA. Available at: https://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf?noredirect=1 (Accessed: 28 February 2019).

Bittanti, M. and Itō, M. (2010) 'Gaming', in Itō, M. (ed.) *Hanging out, messing around, and geeking out: kids living and learning with new media*. London: MIT Press, pp. 195–242.

Blikstein, P. (2013) 'Digital Fabrication and 'Making' in Education: The Democratization of Invention.', in Walter-Hermann, J. and Buching, C. (eds) *FabLabs: Of Machines, Makers and Inventors*. Bielefeld: Transcript Publishers.

Bogost, I. (2005) 'Procedural Literacy: Problem Solving with Programming, Systems, and Play', *Telemedium: Journal of Media Literacy*, 52(1–2), pp. 32–36.

Bogost, I. (2006) *Unit operations: an approach to videogame criticism*. Cambridge: MIT Press.

Bogost, I. (2007) *Persuasive games: the expressive power of videogames*. Cambridge: MIT Press.

Bogost, I. (2011) *How to do things with videogames*. Minneapolis: University of Minnesota Press.

Bogost, I. (2015) *How to talk about videogames*. Minneapolis: University of Minnesota Press.

Bogost, I., Ferrari, S. and Schweizer, B. (2012) *Newsgames: journalism at play*. Cambridge: MIT Press.

Bogost, I. and Montfort, N. (2009) 'Platform Studies: Frequently Questioned Answers', in *Digital Arts and Culture 2009 Proceedings*. *Digital Arts and Culture*, Irvine. Available at: http://nickm.com/if/bogost_montfort_dac_2009.pdf (Accessed: 31 October 2018).

Bottero, W. (2010) 'Intersubjectivity and Bourdieusian Approaches to "Identity"', *Cultural Sociology*, 4(1), pp. 3–22. doi: 10.1177/1749975509356750.

Bourdieu, P. (1984) *Distinction: a social critique of the judgement of taste*. Cambridge: Harvard University Press.

Bourdieu, P. (1991) *Language and symbolic power*. Cambridge: Polity Press.

Bourdieu, P. *et al.* (2014) *Reproduction in education, society, and culture*. Los Angeles: Sage.

Bourdieu, P. (2014) *The logic of practice*. Stanford: Stanford University Press.

Bourdieu, P. and Wacquant, L. (1992) *An Invitation to Reflexive Sociology*. Chicago: Polity Press.

Brhel, M. *et al.* (2015) 'Exploring principles of user-centered agile software development: A literature review', *Information and Software Technology*, 61, pp. 163–181. doi: 10.1016/j.infsof.2015.01.004.

Buckingham, D. (2003) *Media education: literacy, learning, and contemporary culture*. Cambridge: Polity Press.

Buckingham, D. (2006) 'Studying Computer Games', in Carr, D. et al. (eds) *Computer games: Text, narrative and play*. Cambridge: Polity.

Buckingham, D. (2007) *Beyond technology: children's learning in the age of digital culture*. Cambridge: Polity.

Buckingham, D. and Burn, A. (2007) 'Game literacy in theory and practice', *Journal of Educational Multimedia and Hypermedia*, 16(3), pp. 323–349.

Burn, A. (2008) 'The Case of Rebellion: Researching Multimodal Texts', in Coiro, J. et al. (eds) *Handbook of research on new literacies*. New York: Lawrence Erlbaum, pp. 149–177.

Burn, A. (2013) *The kineikonic mode: Towards a multimodal approach to moving image media*. Working Paper. London: NCRM. Available at: http://eprints.ncrm.ac.uk/3085/ (Accessed: 1 February 2017).

Burn, A. (2016) 'Liber ludens: games, play and learning', in Haythornthwaite, C. et al. (eds) *The SAGE Handbook of E-learning Research (Second Edition)*. London: Sage.

Burn, A. (2017) 'Games, films and media literacy: frameworks for multimodal analysis', in Knobel, M. and Lankshear, C., *Researching New Literacies: Design, Theory, and Data in Sociocultural Investigation*. New York: Peter Lang.

Burn, A. (2018) 'Playing Macbeth', *D.A.R.E.*, 15 November. Available at: https://darecollaborative.net/2018/11/15/playing-macbeth/ (Accessed: 11 April 2019).

Burn, A. and Durran, J. (2007) *Media literacy in schools: practice, production and progression*. London: Paul Chapman Publishing.

Burn, A. and Kress, G. (2018) 'Multimodality, Style and the Aesthetic: the case of the digital werewolf.', in Tønnessen, E. and Forsgren, F. (eds) *Multimodality and Aesthetics*. London: Routledge.

Burn, A. and Parker, D. (2003) *Analysing Media Texts*. London: Continuum.

Butler, J. (1997) *Excitable Speech: A Politics of the Performative*. New York: Routledge.

Butler, J. (1999) *Gender trouble feminism and the subversion of identity*. New York: Routledge.

Butler, J. (2009) 'Performativity, Precarity and Sexual Politics', *Revista de Antropologia Iberoamericana*, 4(3), pp. i–xiii.

Campbell, J. (1972) *The hero with a thousand faces*. Princeton: Princeton University Press.

Canclini, N. G. (2001) *Consumers and citizens: globalization and multicultural conflicts*. Minneapolis: University of Minnesota Press.

Carr, D. (2005) 'Contexts, gaming pleasures, and gendered preferences', *Simulation & Gaming*, 36(4), pp. 464–482. doi: 10.1177/1046878105282160.

Carr, D. (2009) 'Textual Analysis, Digital Games, Zombies', in *Proceedings of the 2009 DiGRA International Conference: Breaking New Ground: Innovation in Games, Play, Practice and Theory*. *DiGRA 09*, Brunel University, London, UK.

Carr, D. (2017) 'Methodology, Representation, and Games', *Games and Culture*, pp. 1–17. doi: 10.1177/1555412017728641.

Cassar, R. (2013) 'Gramsci and Games', *Games and Culture*, 8(5), pp. 330–353. doi: 10.1177/1555412013493499.

Chess, S. and Shaw, A. (2016) 'We Are All Fishes Now: DiGRA, Feminism, and GamerGate', *Transactions of the Digital Games Research Association*, 2(2), pp. 21–30. doi: 10.1080/08838151.2014.999917.

Christensen, P. and Prout, A. (2002) 'Working with Ethical Symmetry in Social Research with Children', *Childhood*, 9(4), pp. 477–497. doi: 10.1177/0907568202009004007.

Clarke, R. I., Lee, J. H. and Clark, N. (2017) 'Why Video Game Genres Fail: A Classificatory Analysis', *Games and Culture*, 12(5), pp. 445–465. doi: 10.1177/1555412015591900.

Clearwater, D. (2011) 'What Defines Video Game Genre? Thinking about Genre Study after the Great Divide', *Loading...*, 5(8), pp. 29–49.

Condis, M. (2014) 'No homosexuals in Star Wars? BioWare, "gamer" identity, and the politics of privilege in a convergence culture', *Convergence: The International Journal of Research into New Media Technologies*, pp. 1–15. doi: 10.1177/1354856514527205.

Consalvo, M. (2007) *Cheating: gaining advantage in videogames*. Cambridge: MIT Press.

Consalvo, M. (2012) 'Confronting Toxic Gamer Culture: A Challenge for Feminist Game Studies Scholars', *ADA: Journal of Gender New Media & Technology*, (1). doi: doi:10.7264/N33X84KH.

Cope, B. and Kalantzis, M. (2009) '"Multiliteracies": New Literacies, New Learning', *Pedagogies: An International Journal*, 4(3), pp. 164–195. doi: 10.1080/15544800903076044.

Crawford, C. (1984) *The art of computer game design*. Berkeley: Osborne/McGraw-Hill.

Crawford, K. and Calo, R. (2016) 'There is a blind spot in AI research', *Nature News*, 538(7625), p. 311. doi: 10.1038/538311a.

Crutzen, C. and Kotkamp, E. (2008) 'Object Orientation', in Fuller, M. (ed.) *Software Studies: A Lexicon*. Cambridge: MIT Press, pp. 200–206.

De Grove, F., Courtois, C. and Van Looy, J. (2015) 'How to be a gamer! Exploring personal and social indicators of gamer identity', *Journal of Computer-Mediated Communication*, 20(3), pp. 346–361. doi: 10.1111/jcc4.12114.

Deen, M., Schouten, B. and Bekker, T. (2015) 'Playful identity in game design and open-ended play', in Frissen, V. et al. (eds) *Playful Identities: The Ludification of Digital Media Cultures*. Amsterdam University Press, pp. 111–130.

Denham, A. R. and Guyotte, K. W. (2018) 'Cultivating critical game makers in digital game-based learning: learning from the arts', *Learning, Media and Technology*, 43(1), pp. 31–41. doi: 10.1080/17439884.2017.1342655.

Denner, J. and Werner, L. (2007) 'Computer Programming in Middle School: How Pairs Respond to Challenges', *Journal of Educational Computing Research*, 37(2), pp. 131–150. doi: 10.2190/12T6-41L2-6765-G3T2.

Denzin, N. K. and Lincoln, Y. S. (2005) *The SAGE handbook of qualitative research*. Thousand Oaks: Sage Publications.

Dewey, J. (1966) *Democracy and education: an introduction to the philosophy of education*. London: Collier-Macmillan.

Dey, I. (2005) *Qualitative data analysis: a user-friendly guide for social scientists*. London: Routledge.

Dezuanni, M. L. (2010) 'Digital media literacy : connecting young people's identities, creative production and learning about video games', in Alvermann, D. (ed.) *Adolescents' Online Literacies : Connecting Classrooms, Media, and Paradigms*. New York: Peter Lang Publishers.

Dezuanni, M., O'Mara, J. and Beavis, C. (2015) '"Redstone is like electricity": Children's performative representations in and around Minecraft', *E-Learning and Digital Media*, 12(2), pp. 147–163. doi: 10.1177/2042753014568176.

Dormann, C. and Biddle, R. (2009) 'A Review of Humor for Computer Games: Play, Laugh and More', *Simulation & Gaming*, 40(6), pp. 802–824. doi: 10.1177/1046878109341390.

Dyer-Witheford, N. and de Peuter, G. (2009) *Games of Empire*. Minneapolis: University of Minnesota Press.

Erduran, S. and Dagher, Z. (2014) *Reconceptualizing the Nature of Science for Science Education: Scientific Knowledge, Practices and Other Family Categories*. Dordrecht: Springer Netherlands.

Erickson, M. (2016) 'Science Fiction', in *Science, Culture and Society: Understanding Science in the Twenty-First Century:*. 2nd edn. Cambridge: Polity Press, pp. 190–214.

ESA (2017) *2017 Essential Facts About the Computer and Video Game Industry*, *The Entertainment Software Association*. Available at: http://www.theesa.com/wp-content/uploads/2017/09/EF2017_Design_FinalDigital.pdf (Accessed: 9 October 2017).

Everett, A. (2014) 'Race', in Wolf, M. J. P. and Perron, B. (eds) *The Routledge Companion to Video Game Studies*. New York: Routledge.

Everett, A. and Watkins, S. C. (2008) 'The Power of Play: The Portrayal and Performance of Race in Video Games', in Salen, K. (ed.) *The ecology of games: connecting youth, games, and learning*. Cambridge: MIT Press, pp. 141–166.

Feenberg, A. (2002) *Transforming Technology: A Critical Theory Revisited*. 2nd edn. New York: Oxford University Press USA.

Feenberg, A. (2012) 'Introduction', in Friesen, N. and Feenberg, A. (eds) *(Re)Inventing the Internet*. Sense Publishers, pp. 3–17.

Fiadotau, M. (2016) 'Game Engine Conventions and Games that Challenge them: Subverting Conventions as Metacommentary', *Replay: The Polish Journal of Game Studies*, 1(3), pp. 47–65.

Fisher, S. J. and Harvey, A. (2012) 'Intervention for Inclusivity: Gender Politics and Indie Game Development', *Loading...*, 7(11), pp. 25–40.

Fitzgerald, T. (2018) *Is 'Fornite' The Most Popular Game Ever? It's Beating TV And Movies*, *Forbes*. Available at: https://www.forbes.com/sites/tonifitzgerald/2018/07/24/is-fornite-the-most-popular-game-ever-its-beating-tv-and-movies/ (Accessed: 18 February 2019).

Flanagan, M. (2013) *Critical play radical game design*. London: MIT Press.

Flanagan, M. and Kaufman, G. (2016) 'Shifting Implicit Biases with Games Using Psychology: The Embedded Design Approach', in Kafai, Y. B., Richard, G. T., and Tynes, B. H. (eds) *Diversifying Barbie and Mortal Kombat: Intersectional Perspectives and Inclusive Designs in Gaming*. Pittsburgh: ETC Press, pp. 219–233.

Flanagan, M. and Nissenbaum, H. (2014) *Values at play in digital games*. Cambridge, MA: MIT Press.

Fontana, A. and Frey, J. H. (2003) 'The Interview: From Neutral Stance to Political Involvement', in Denzin, N. K. and Lincoln, Y. S., *The Sage Handbook of Qualitative Research*. 3rd edn. London: SAGE, pp. 695–727.

Freire, P. (2000) *Pedagogy of the oppressed*. New York: Continuum.

Friman, U. (2015) 'The Concept and Research of Gendered Game Culture', in *Proceedings of DiGRA 2015. Digital Games Research Association 2015*, Luneburg: Digital Games Research Association (DiGRA).

Fron, J. *et al.* (2007) 'The Hegemony of Play', in *Proceedings of DiGRA 2007. DiGRA 2007: Situated Play*, Tokyo.

Gazzard, A. (2016) *Now the chips are down: the BBC Micro*. Cambridge: MIT Press.

Gee, E. R. and Tran, K. M. (2016) 'Video Game Making and Modding', in Guzzetti, B. J. and Lesley, M. (eds) *Handbook of research on the societal impact of digital media*. Hershey: IGI Global, pp. 238–267.

Gee, J. P. (2015) *Literacy and education*. New York: Routledge.

Giappone, K. B. R. (2015) 'Self-Reflexivity and Humor in Adventure Games', *Game Studies*, 15(1). Available at: http://gamestudies.org/1501/articles/bonello_k (Accessed: 7 February 2019).

Giddens, A. (1991) *Modernity and self-identity: self and society in the late modern age*. Stanford: Stanford University Press.

Gill, R. (2007) 'Postfeminist media culture: Elements of a sensibility', *European Journal of Cultural Studies*, 10(2), pp. 147–166. doi: 10.1177/1367549407075898.

Gill, R. (2016) 'Post-postfeminism?: new feminist visibilities in postfeminist times', *Feminist Media Studies*, 16(4), pp. 610–630. doi: 10.1080/14680777.2016.1193293.

Good, J. and Howland, K. (2016) 'Programming language, natural language? Supporting the diverse computational activities of novice programmers', *Journal of Visual Languages & Computing*, pp. 78–92. doi: 10.1016/j.jvlc.2016.10.008.

Gramsci, A. (1999) *Selections from the Prison Notebooks*. Edited by Q. Hoare and G. Nowell-Smith. London: ElecBook.

Grenzfurthner, J. and Schneider, F. A. (no date) *Hacking the Spaces*. Available at: http://www.monochrom.at/hacking-the-spaces/ (Accessed: 23 November 2018).

Grimes, S. M. and Feenberg, A. (2009) 'Rationalizing Play: A Critical Theory of Digital Gaming', *The Information Society*, 25(2), pp. 105–118. doi: 10.1080/01972240802701643.

Grimes, S. M. and Feenberg, A. (2013) 'Critical Theory of Technology', in Price, S., Jewitt, C., and Brown, B., *The SAGE Handbook of Digital Technology Research*. London: SAGE Publications Ltd. doi: 10.4135/9781446282229.n9.

Grooten, J. and Kowert, R. (2015) 'Going Beyond the Game: Development of Gamer Identities Within Societal Discourse and Virtual Spaces', *Loading... The Journal of the Canadian Game Studies Association*, 9(14), pp. 70–87.

Gutierrez, A. and Beavis, C. (2010) '"Experts on the field": redefining literacy boundaries', in Alvermann, D. (ed.) *Adolescents' Online Literacies : Connecting Classrooms, Media, and Paradigms*. New York: Peter Lang Publishers.

Hall, S. (1992) 'The Question of Cultural Identity', in Hall, S., Held, D., and McGrew, A. (eds) *Modernity and its futures*. Cambridge: Polity, pp. 273–326.

Hall, S. (2000) 'Who needs identity?', in Du Gay, P., Evans, J., and Redman, P. (eds) *Identity: a reader*. London: SAGE Publications and The Open University, pp. 15–30.

Halliday, M. A. K. and Hasan, R. (2000) *Cohesion in English*. London: Longman.

Halverson, E. R. and Sheridan, K. M. (2014) 'The maker movement in education', *Harvard Educational Review*, 84(4), pp. 495–504. doi: 10.17763/haer.84.4.34j1g68140382063.

Harel, I. (1991) *Children designers: interdisciplinary constructions for learning and knowing mathematics in a computer-rich school*. Norwood: Ablex Pub. Corp.

Hartley, J. (2009) 'Creative Industries', in Hartley, J. (ed.) *Creative Industries*. Malden, Mass.: Blackwell.

Harvey, A. (2014) 'Twine's revolution: Democratization, depoliticization, and the queering of game design', *GAME: The Italian Journal of Game Studies*, (3), pp. 95–107.

Harvey, A. and Fisher, S. (2015) '"Everyone Can Make Games!": The post-feminist context of women in digital game production', *Feminist Media Studies*, 15(4), pp. 576–592. doi: 10.1080/14680777.2014.958867.

Harvey, A. and Fisher, S. (2016) 'Growing pains: feminisms and intergenerationality in digital games', *Feminist Media Studies*, 16(4), pp. 648–662. doi: 10.1080/14680777.2016.1193295.

Hatch, M. (2013) *The Maker Movement Manifesto: Rules for Innovation in the New World of Crafters, Hackers, and Tinkerers*. New York: McGraw-Hill Professional.

Hayse, M. (2014) 'Ideology', in Wolf, M. J. P. and Perron, B. (eds) *The Routledge Companion to Video Game Studies*. New York: Routledge, pp. 442–450.

Huat, C. B. and Iwabuchi, K. (eds) (2008) *East Asian Pop Culture: Analysing the Korean Wave*. Hong Kong: Hong Kong University Press.

Huizinga, J. (1980) *Homo ludens: a study of the play-element in culture*. London: Routledge & K. Paul.

Huo, M. *et al.* (2004) 'Software quality and agile methods', in *Proceedings of the 28th Annual International Computer Software and Applications Conference, 2004. COMPSAC 2004. Proceedings of the 28th Annual International Computer Software and Applications Conference, 2004. COMPSAC 2004.*, pp. 520–525 vol.1. doi: 10.1109/CMPSAC.2004.1342889.

Ito, M. (2010) 'Mobilizing the Imagination in Everyday Play: The Case of Japanese Media Mixes', in Sonvilla-Weiss, S. (ed.) *Mashup Cultures*. Mörlenbach: Springer-Verlag, pp. 79–97.

Jabareen, Y. R. (2009) 'Building a Conceptual Framework: Philosophy, Definitions, and Procedure', *International Journal of Qualitative Methods*, 8(4), pp. 49–62.

Jenkins, H. (2006) *Convergence culture: where old and new media collide*. New York: New York University Press.

Jenkins, H. *et al.* (2009) *Confronting the challenges of participatory culture: media education for the 21st century*. Cambridge: MIT Press.

Jenkins, R. (2015) *Pierre Bourdieu*. 2nd edn. London: Routledge.

Jenson, J. and de Castell, S. (2008) 'Theorizing gender and digital gameplay: Oversights, accidents and surprises', *Eludamos. Journal for Computer Game Culture*, 2(1), pp. 15–25.

Jenson, J. and Droumeva, M. (2016) 'Exploring Media Literacy and Computational Thinking: A Game Maker Curriculum Study', *Electronic Journal of e-Learning*, 14(2), pp. 111–121.

Jewitt, C. (2013) 'Multimodal Methods for Researching Digital Technologies', in Price, S., Jewitt, C., and Brown, B. (eds) *The Sage Handbook of Digital Technology Research*. London: SAGE, pp. 250–265.

Jewitt, C., Bezemer, J. J. and O'Halloran, K. L. (2016) *Introducing Multimodality*. Oxon: Routledge.

Jones, S. E. and Thiruvathukal, G. K. (2012) *Codename revolution the Nintendo WII platform*. Cambridge: MIT Press.

Juul, J. (2013) *The art of failure: an essay on the pain of playing video games*. Cambridge, Mass.: MIT Press.

Kafai, Y. B. (1995) *Minds in play: computer game design as a context for children's learning*. Hillsdale: L. Erlbaum Associates.

Kafai, Y. B. *et al.* (1998) 'Game Design as an Interactive Learning Environment for Fostering Students' and Teachers' Mathematical Inquiry', *International Journal of Computers for Mathematical Learning*, 3(2), pp. 149–84.

Kafai, Y. B. (2006) 'Playing and Making Games for Learning Instructionist and Constructionist Perspectives for Game Studies', *Games and Culture*, 1(1), pp. 36–40. doi: 10.1177/1555412005281767.

Kafai, Y. B. (2008) *Beyond Barbie and Mortal Kombat: new perspectives on gender and gaming*. Cambridge: MIT Press.

Kafai, Y. B. and Burke, Q. (2013) 'Computer Programming Goes Back to School', *Phi Delta Kappan*, 95(1), pp. 61–65. doi: 10.1177/003172171309500111.

Kafai, Y. B. and Burke, Q. (2015) 'Constructionist Gaming: Understanding the Benefits of Making Games for Learning', *Educational Psychologist*, 50(4), pp. 313–334. doi: 10.1080/00461520.2015.1124022.

Kafai, Y. B. and Burke, Q. (2016) *Connected gaming: what making video games can teach us about learning and literacy*. Cambridge: MIT Press.

Kafai, Y. B. and Peppler, K. A. (2011) 'Youth, Technology, and DIY: Developing Participatory Competencies in Creative Media Production', *Review of Research in Education*, 35(1), pp. 89–119. doi: 10.3102/0091732X10383211.

Kafai, Y., Fields, D. and Searle, K. (2014) 'Electronic Textiles as Disruptive Designs in Schools: Supporting and Challenging Maker Activities for Learning', *Harvard Educational Review*, 84(4), pp. 532–556. doi: http://dx.doi.org/10.17763/haer.84.4.46m7372370214783.

Kerr, A. (2017) *Global Games : Production, Circulation and Policy in the Networked Era*. Oxon: Routledge. doi: 10.4324/9780203704028.

Kinder, M. (1991) *Playing with power in movies, television, and video games: from Muppet Babies to Teenage Mutant Ninja Turtles*. Berkeley: University of California Press.

King, A. (2000) 'Thinking with Bourdieu against Bourdieu: A "Practical" Critique of the Habitus', *Sociological Theory*, 18(3), pp. 417–433. doi: 10.1111/0735-2751.00109.

Kitchin, R. and Dodge, M. (2014) *Code/Space: Software and Everyday Life*. Cambridge: MIT Press.

Klevjer, R. (2002) 'In defence of cutscenes', in Mayra, F. (ed.) *Proceedings of Computer games and digital cultures conference*. *Computer Games and Digital Cultures*, Tampere, pp. 191–202.

Klevjer, R. (2012) 'Enter the Avatar: The Phenomenology of Prosthetic Telepresence in Computer Games', in Sageng, J. R., Fossheim, H., and Larsen, T. M. (eds) *The Philosophy of Computer Games*. Springer Netherlands (Philosophy of Engineering and Technology, 7), pp. 17–38. doi: 10.1007/978-94-007-4249-9_3.

Klevjer, R. (2014) 'Cut-Scenes', in Wolf, M. J. P. and Perron, B. (eds) *The Routledge Companion to Video Game Studies*. New York: Routledge, pp. 301–309.

Koster, R. (2014) *A theory of fun for game design*. Sebastopol: O'Reilly.

Kotsopoulos, A. (2001) 'Reading against the grain revisited', *Jump Cut: A Review of Contemporary Media*, (44). Available at: https://www.ejumpcut.org/archive/jc44.2001/aspasia/againstgrain1.html (Accessed: 20 June 2019).

Krapp, P. (2011) *Noise channels: glitch and error in digital culture*. Minneapolis: University of Minnesota Press.

Kress, G. (2003) *Literacy in the New Media Age*. London: Routledge.

Kress, G. (2014) 'What is a mode', in Jewitt, C. (ed.) *The Routledge handbook of multimodal analysis*. 2nd edn. London: Routledge, pp. 60–75.

Kress, G. R. (2010) *Multimodality: a social semiotic approach to contemporary communication*. London: Routledge.

Kress, G. R. and Van Leeuwen, T. (2001a) *Multimodal discourse: the modes and media of contemporary communication*. London: Oxford University Press.

Kress, G. R. and Van Leeuwen, T. (2001b) *Reading images: the grammar of visual design*. London: Routledge.

Krzywinska, T. and MacCallum-Stewart, E. (2009) 'Digital Games', in Bould, M. et al. (eds) *The Routledge Companion to Science Fiction*. Oxon: Routledge, pp. 350–361.

Lafleur, J.-M. and Stanek, M. (2017) 'EU Migration and the Economic Crisis: Concepts and Issues', in Lafleur, J.-M. and Stanek, M. (eds) *South-North Migration of EU Citizens in Times of Crisis*. Cham: Springer International Publishing (IMISCOE Research Series), pp. 1–14. doi: 10.1007/978-3-319-39763-4_1.

Lammes, S. (2007) 'Approaching game-studies: towards a reflexive methodology of games as situated cultures', in *Proceedings of DiGRA 2007*. *DiGRA 2007*, Tokyo: Digital Games Research Association (DiGRA), pp. 25–30.

Lawson, V. A. (1998) 'Hierarchical households and gendered migration in Latin America: feminist extensions to migration research', *Progress in Human Geography*, 22(1), pp. 39–53. doi: 10.1191/030913298677526732.

Leonard, D. J. (no date) 'High Tech Blackface - Race, Sports Video Games and Becoming the Other', *Intelligent Agent*, 4(4). Available at: http://www.intelligentagent.com/archive/Vol4_No4_gaming_leonard.htm.

Leorke, D. (2012) 'Rebranding the platform: The limitations of "platform studies"', *Digital Culture and Education (DCE)*, 4(3), pp. 257–268.

Li, E. P. H., Min, H. J. and Belk, R. W. (2008) 'Skin Lightening and Beauty in Four Asian Cultures', *ACR North American Advances*, NA-35. Available at: http://acrwebsite.org/volumes/13415/volumes/v35/NA-35 (Accessed: 15 January 2019).

Lipkin, N. (2012) 'Examining Indie's Independence: The Meaning of "Indie" Games, the Politics of Production, and Mainstream Cooptation', *Loading...*, 7(11). Available at: http://journals.sfu.ca/loading/index.php/loading/article/view/122 (Accessed: 8 November 2018).

MacCallum-Stewart, E. and Parsler, J. (2007) 'Controversies: Historicising the Computer Game', in *Proceedings of DiGRA 2007*. *DiGRA 2007*, Tokyo: Digital Games Research Association (DiGRA). Available at: http://www.digra.org/dl/db/07312.51468.pdf (Accessed: 8 February 2019).

MacDonald, K. (2018) 'Red Dead Redemption 2 review – gripping western is a near miracle', *The Guardian*, 25 October. Available at: https://www.theguardian.com/games/2018/oct/25/red-dead-redemption-2-review-western-playstation-xbox-rockstar (Accessed: 16 February 2019).

Manovich, L. (2002) *The language of new media*. Cambridge: MIT Press.

Manovich, L. (2016) *Software takes command*. New York: Bloomsbury.

Mayra, F. (2008) *An introduction to game studies: games in culture*. London: SAGE.

McDougall, J. and Potter, J. (2015) 'Curating media learning: Towards a porous expertise', *E-Learning and Digital Media*, 12(2), pp. 199–211. doi: 10.1177/2042753015581975.

McRobbie, A. (2004) 'Post-feminism and popular culture', *Feminist Media Studies*, 4(3), pp. 255–264. doi: 10.1080/1468077042000309937.

Merriam, S. B. and Tisdell, E. J. (2016) *Qualitative research: a guide to design and implementation*. 4th edn. San Francisco: Jossey-Bass.

Montfort, N. (no date) *Continuous Paper: The Early Materiality and Workings of Electronic Literature*. Available at: https://nickm.com/writing/essays/continuous_paper_mla.html (Accessed: 31 October 2018).

Montfort, N. and Bogost, I. (2009) *Racing the beam: the Atari video computer system*. Cambridge, Mass. A: MIT Press.

Muriel, D. and Crawford, G. (2018) *Video games as culture: considering the role and importance of video games in contemporary society*. New York: Routledge.

Murray, J. H. (1997) *Hamlet on the holodeck: the future of narrative in cyberspace*. Cambridge: MIT Press.

Newman, J. (2002) 'The Myth of the Ergodic Videogame', *Game Studies*, 2(1). Available at: http://www.gamestudies.org/0102/newman/.

Newman, J. (2004) *Videogames*. London; New York: Routledge.

Nielsen, H. (2015) 'Reductive, superficial, beautiful – a historian's view of Assassin's Creed: Syndicate', *The Guardian*, 9 December. Available at: https://www.theguardian.com/technology/2015/dec/09/assassins-creed-syndicate-historian-ubisoft (Accessed: 8 February 2019).

Nielsen, J. (1993) 'Iterative User-Interface Design', *Computer*, 26(11), pp. 32–41. doi: 10.1109/2.241424.

O'Mara, J. (2017) 'Narratives come to life through coding: Digital game-making as language and literacy curriculum', in Beavis, C., Dezuanni, M., and O'Mara, J. (eds) *Serious Play: Literacy, Learning and Digital Games*. New York: Routledge, pp. 102–114.

Oppenheim, M. (2018) 'Amazon scraps "sexist AI" recruitment tool', *The Independent*, 11 October. Available at: https://www.independent.co.uk/life-style/gadgets-and-tech/amazon-ai-sexist-recruitment-tool-algorithm-a8579161.html (Accessed: 29 October 2018).

Paasivaara, M., Heikkila, V. T. and Lassenius, C. (2012) 'Experiences in Scaling the Product Owner Role in Large-Scale Globally Distributed Scrum', in *2012 IEEE Seventh International Conference on Global Software Engineering*. *2012 7th IEEE International Conference on Global Software Engineering (ICGSE)*, Porto Alegre: IEEE, pp. 174–178. doi: 10.1109/ICGSE.2012.41.

Papavlasopoulou, S., Giannakos, M. N. and Jaccheri, L. (2017) 'Empirical studies on the Maker Movement, a promising approach to learning: A literature review', *Entertainment Computing*, 18, pp. 57–78. doi: 10.1016/j.entcom.2016.09.002.

Papert, S. (1980) *Mindstorms: children, computers, and powerful ideas*. New York: Basic Books.

Papert, S. (1993) *The children's machine: rethinking school in the age of the computer*. New York: BasicBooks.

Papert, S. and Harel, I. (1991) 'Situating Constructionism', in *Constructionism*. Norwood: Ablex Publishing Corporation.

Parkin, S. (2014) *Can video games ever be funny?*, *BBC Future*. Available at: http://www.bbc.com/future/story/20140320-are-these-video-games-funny (Accessed: 7 February 2019).

de Paula, B. (2016) 'Discussing Identities through Game-Making: A Case Study', *Press Start*, 3(1), pp. 66–85.

de Paula, B., Valente, J. A. and Burn, A. (2014) 'Game-Making as a Means to Deliver the New Computing Curriculum in England', *Curriculo sem Fronteiras*, 14(3), pp. 46–69.

de Paula, B. H. *et al.* (2018) 'Playing Beowulf: Bridging computational thinking, arts and literature through game-making', *International Journal of Child-Computer Interaction*, 16, pp. 39–46. doi: 10.1016/j.ijcci.2017.11.003.

de Paula, B. H. (2018) 'Shakira in the Castle: Curating identities through game-making'. *Transmedia Literacy*, Universidad Pompeu Fabra - Barcelona.

Pelletier, C. (2007) *Learning Through Design: Subjectivity and Meaning in Young People's Computer Game Production Work*. Doctoral Thesis. Institute of Education, University of London.

Pelletier, C. (2008) 'Gaming in Context: How Young People Construct Their Gendered Identities in Playing and Making Games', in Kafai, Y. B. (ed.) *Beyond Barbie and Mortal Kombat: new perspectives on gender and gaming*. Cambridge: MIT Press, pp. 145–160.

Pelletier, C. (2009) 'Games and Learning: What's the Connection?', *International Journal of Learning and Media*, 1(1), pp. 83–101.

Pelletier, C., Burn, A. and Buckingham, D. (2010) 'Game Design as Textual Poaching: Media Literacy, Creativity and Game-Making', *E-Learning and Digital Media*, 7(1), pp. 90–107. doi: 10.2304/elea.2010.7.1.90.

Penix-Tadsen, P. (2016) *Cultural code: video games and Latin America*. London: MIT Press.

Peppler, K. A. and Kafai, Y. B. (2007a) 'From SuperGoo to Scratch: exploring creative digital media production in informal learning', *Learning, Media and Technology*, 32(2), pp. 149–166. doi: 10.1080/17439880701343337.

Peppler, K. A. and Kafai, Y. B. (2007b) 'What Videogame Making Can Teach Us about Literacy and Learning: Alternative Pathways into Participatory Culture', in *Proceedings of DiGRA 2007 Conference*. *DiGRA 2007*, Tokyo: Digital Games Research Association (DiGRA).

Pérez-Latorre, Ó. (2016) 'Indie or Mainstream? Tensions and Nuances between the Alternative and the Mainstream in Indie Games', *Anàlisi*, 0(54), pp. 15–30. doi: 10.7238/a.v0i54.2818.

Pérez-Latorre, Ó., Oliva, M. and Besalú, R. (2017) 'Videogame analysis: a social-semiotic approach', *Social Semiotics*, 27(5), pp. 586–603. doi: 10.1080/10350330.2016.1191146.

Perron, B. (2014) 'Conventions', in Wolf, M. J. P. and Perron, B. (eds) *The Routledge Companion to Video Game Studies*. New York: Routledge, pp. 74–82.

Polansky, L. (2015) 'Against Flow', 4 August. Available at: http://sufficientlyhuman.com/archives/995 (Accessed: 7 February 2019).

Poor, N. (2014) 'Computer game modders' motivations and sense of community: A mixed-methods approach', *New Media & Society*, 16(8), pp. 1249–1267. doi: 10.1177/1461444813504266.

Potter, J. (2012) *Digital media and learner identity: the new curatorship*. New York: Palgrave Macmillan.

Potter, J. and McDougall, J. (2017) *Digital Media, Culture and Education - Theorising Third Spaces Literacies*. London: Palgrave Macmillan.

Resnick, M. *et al.* (2009) 'Scratch: Programming for All', *Commun. ACM*, 52(11), pp. 60–67. doi: 10.1145/1592761.1592779.

Richard, G. T. (2016) 'At the Intersections of Play: Intersecting and Diverging Experiences across Gender, Identity, Race, and Sexuality in Game Culture', in Kafai, K., Yasmin B., Richard, G. T., and Tynes, B. M. (eds) *Diversifying Barbie and Mortal Kombat: Intersectional Perspectives and Inclusive Designs in Gaming*. Pittsburgh: ETC Press, pp. 71–91.

Robertson, J. and Howells, C. (2008) 'Computer game design: Opportunities for successful learning', *Computers & Education*, 50(2), pp. 559–578. doi: 10.1016/j.compedu.2007.09.020.

Rogers, T. *et al.* (2010) 'From image to ideology: analysing shifting identity positions of marginalized youth across the cultural sites of video production', *Pedagogies: An International Journal*, 5(4), pp. 298–312. doi: 10.1080/1554480X.2010.509473.

Rollings, A. and Adams, E. (2003) *Andrew Rollings and Ernest Adams on game design*. Indianapolis, Ind.: New Riders.

Ruffino, P. (2018) *Future Gaming: Creative Interventions in Video Game Culture*. London: Goldsmiths Press.

Salen, K. and Zimmerman, E. (2004) *Rules of play: game design fundamentals*. Cambridge: MIT Press.

di Salvo, B. (2016) 'Gaming Masculinity: Constructing Masculinity with Videogames', in Kafai, Y. B., Richard, G. T., and Tynes, B. H. (eds) *Diversifying Barbie and Mortal Kombat: Intersectional Perspectives and Inclusive Designs in Gaming*. Pittsburgh: ETC Press, pp. 105–117.

Saussure, F. (1993) *Course in general linguistics*. London: Duckworth.

Schell, J. (2008) *The art of game design: a book of lenses*. Amsterdam: Elsevier/Morgan Kaufmann.

Schwaber, K. and Beedle, M. (2002) *Agile software development with Scrum*. Upper Saddle River: Prentice Hall.

Segal, L. (2008) 'After Judith Butler: Identities, Who Needs Them?', *Subjectivity*, 25(1), pp. 381–394. doi: 10.1057/sub.2008.26.

Shaik, Y. (2015) 'Subversive Humor & Games', *First Person Scholar*, 15 September. Available at: http://www.firstpersonscholar.com/subversive-humor-games/ (Accessed: 7 February 2019).

Shaw, A. (2010) 'What Is Video Game Culture? Cultural Studies and Game Studies', *Games and Culture*, 5(4), pp. 403–424. doi: 10.1177/1555412009360414.

Shaw, A. (2012) 'Do you identify as a gamer? Gender, race, sexuality, and gamer identity', *New Media & Society*, 14(1), pp. 28–44. doi: 10.1177/1461444811410394.

Shaw, A. (2013) 'On not becoming gamers: moving beyond the constructed audience', *ADA: Journal of Gender New Media & Technology*, (2). doi: doi:10.7264/N33N21B3.

Shaw, A. (2014) *Gaming at the edge: sexuality and gender at the margins of gamer culture*. Minneapolis: University of Minnesota Press.

Sicart, M. (2008) 'Newsgames: Theory and Design', *Lecture notes in computer science.*, (5309), pp. 27–33.

Sicart, M. (2011) 'Against Procedurality', *Game Studies*, 11(3). Available at: http://gamestudies.org/1103/articles/sicart_ap (Accessed: 22 April 2018).

Sicart, M. (2014) *Play Matters*. Cambridge: MIT Press.

Sonvilla-Weiss, S. (2010) 'Mashup, Remix Practices and the Recombination of Existing Digital Content', in Sonvilla-Weiss, S. (ed.) *Mashup Cultures*. Mörlenbach: Springer-Verlag, pp. 8–23.

Sotamaa, O. (2010) 'When the Game Is Not Enough: Motivations and Practices Among Computer Game Modding Culture', *Games and Culture*, 5(3), pp. 239–255. doi: 10.1177/1555412009359765.

Stake, R. E. (1995) *The Art of Case Study Research*. Thousand Oaks: SAGE.

Stake, R. E. (2005) 'Qualitative Case Studies', in *The Sage handbook of qualitative research*. Thousand Oaks, CA: Sage Publications Ltd, pp. 443–466.

Steinkuehler, C. and Johnson, B. Z. (2011) 'Computational Literacy in Online Games: The Social Life of Mods', *Discoveries in Gaming and Computer-Mediated Simulations: New Interdisciplinary Applications*, pp. 218–231. doi: 10.4018/978-1-60960-565-0.ch012.

Tavinor, G. (2014) 'Fiction', in Wolf, M. J. P. and Perron, B. (eds) *The Routledge Companion to Video Game Studies*. New York: Routledge, pp. 434–441.

Taylor, N., Kampe, C. and Bell, K. (2015) 'Me and Lee: Identification and the Play of Attraction in The Walking Dead', *Game Studies*, 15(1). Available at: http://gamestudies.org/1501/articles/taylor (Accessed: 21 October 2015).

Taylor, T. L. (2008) 'Becoming a Player : Networks, Structures, and Imagined Futures', in Kafai, Y. B. and Heeter (eds) *Beyond Barbie and Mortal Kombat: New Perspectives on Gender, Games, and Computing*. Cambridge: MIT Press, pp. 51–66.

Treanor, M. and Mateas, M. (2009) 'Newsgames: Procedural Rhetoric Meets Political Cartoons', in *Proceedings of DiGRA 2009*. *DiGRA 2009: Breaking New Ground: Innovation in Games, Play, Practice and Theory*, Brunel University, London, UK. Available at: http://www.digra.org/wp-content/uploads/digital-library/09300.09505.pdf.

Van Leeuwen, T. (1999) *Speech, Music, Sound*. 1999th edn. Basingstoke: Palgrave.

Van Leeuwen, T. (2004) *Introducing Social Semiotics*. London: Routledge.

Vargas-Iglesias, J. J. (2018) 'Making Sense of Genre: The Logic of Video Game Genre Organization', *Games and Culture*, pp. 1–21. doi: 10.1177/1555412017751803.

Vossoughi, S., Hooper, P. K. and Escudé, M. (2016) 'Making through the Lens of Culture and Power: Toward Transformative Visions for Educational Equity', *Harvard Educational Review*, 86(2), pp. 206–232. doi: 10.17763/0017-8055.86.2.206.

Vygostky, L. S. (1978) *Mind in society: the development of higher psychological processes*. Cambridge: Harvard University Press.

Vygostky, L. S. (2004) 'Imagination and Creativity in Childhood', *Journal of Russian and East European Psychology*, 42(1), pp. 7–97.

Wacquant, L. J. D. (1989) 'Towards a Reflexive Sociology: A Workshop with Pierre Bourdieu', *Sociological Theory*, 7(1), pp. 26–63. doi: 10.2307/202061.

Weber, S. and Mitchell, C. (2008) 'Imaging, Keyboarding, and Posting Identities: Young People and New Media Technologies', in Buckingham, D. (ed.) *Youth, identity, and digital media*. Cambridge: MIT Press, pp. 25–48.

Willett, R. (2016) 'Making, Makers, and Makerspaces: A Discourse Analysis of Professional Journal Articles and Blog Posts about Makerspaces in Public Libraries', *The Library Quarterly*, 86(3), pp. 313–329. doi: 10.1086/686676.

Williamson, B. (2016) 'Political computational thinking: policy networks, digital governance and "learning to code"', *Critical Policy Studies*, 10(1), pp. 39–58. doi: 10.1080/19460171.2015.1052003.

Wilson, R. R. (1990) *In Palamedes' Shadow: Exploration in Play, Game and Narrative Theory*. Boston: Northeastern University Press.

Winch, A. (2013) *Girlfriends and Postfeminist Sisterhood*. New York: Palgrave Macmillan.

Wolf, M. J. P. (2002) 'Genre and the Video Game', in Wolf, M. J. P. (ed.) *The Medium of the Video Game*. Austin: University of Texas Press, pp. 113–134.

Wright, E. (2017) 'Marketing Authenticity: Rockstar Games and the Use of Cinema in Video Game Promotion', *Kinephanos - Journal of media studies and popular culture*, 7(1), pp. 131–164.

Wulf, A. (2013) 'Programmers Should Not Test Their Own Code', *The Codist*, 6 February. Available at: http://thecodist.com/article/programmers_should_not_test_their_own_code (Accessed: 8 January 2019).

Yin, R. K. (2003) *Case Study Research: Design and Methods*. Thousand Oaks: SAGE Publications, Inc.

Zimmerman, E. (2013) 'Gaming Literacy: Game Design as a Model for Literacy in the Twenty-First Century', *Intersemiose*, 2(4), pp. 155–165.

Games and Other Media Products Cited

Adventure (1979). Atari, Sunnyvale: Atari.

Age of Empires (videogame series) (1997). Ensemble Studios, Redmond: Microsoft.

Animal Crossing (2002). Nintendo, Kyoto: Nintendo.

Assassin's Creed (videogame series) (2007). Ubisoft, Montreuil: Ubisoft.

Boom Beach (2014). Supercell, Helsinki: Supercell.

Bubble Witch 2 Saga (2014). King, London: King.

Bully (2006). Rockstar Games, New York: Rockstar Games.

Burnout Paradise (2008). Criterion Games, Redwood City: Electronic Arts.

Call of Duty (videogame series) (2003). Infinity Ward, Santa Monica: Activision.

Candy Crush Saga (2012). King, London: King.

Civilization (videogame series) (1991). Activision, Sunnyvale: Activision.

Collins, S. (2008) *Hunger Games*. New York: Scholastic.

Cooking Mama (videogame series) (2006). Cooking Mama Limited, Tokyo: Square-Enix.

Counter Strike (2000). Sierra Studios, Bellevue: Valve.

CryEngine (2019). Crytek, Coburg: Crytek.

Dark Souls III (2016). FromSoftware, Tokyo: Bandai-Namco.

Depression Quest (2013). Quinn, Z., [s. l.]: The Quinnspiracy.

Dragon Ball: Xenoverse (2015). Dimps, Tokyo: Bandai-Namco.

Dys4ia (2012). Anthropy, A., [s. l.]: [s. n.].

FIFA (videogame series) (1994). Electronic Arts, Vancouver: EA Sports.

Fortnite (2017). Epic Games, Cary: Epic Games.

GameMaker Studio (2019). YoYo Games, Dundee: YoYo Games.

Grand Theft Auto (videogame series) (1997). Rockstar Games, New York: Rockstar Games.

Grand Theft Auto III (2001). Rockstar Games, New York: Take Two Interactive.

Homescapes (2017). Platrix, Vologda: Playrix.

Horizon Zero Dawn (2017). Guerrilla Games, San Mateo: Sony Interactive Entertainment.

Just Cause 3 (2015). Avalanche Studios, Tokyo: Square-Enix.

LEGO Marvel (2013). TT Games, Burbank: Warner Bros. Interactive Entertainment.

Limbo (2010). Playdead, Copenhagen: Playdead.

Logo (1967). Papert, S., Feurzeig, W., and Solomon, C., Cambridge: BBN.

Metal Gear (videogame series) (1987). Konami, Tokyo: Konami.

Metal Slug (videogame series) (1996). SNK, [s. l.]: SNK.

Meyer, S. (2005) *Twilight*. New York: Little, Brown and Company.

My Neighbor Totoro (1988). Miyazaki, H., Toho.

Naruto (anime series) (2005-2009). Studio Pierrot, and Aniplex, Japan: Cartoon Network.

One Piece (anime series) (1999). Toei Animation, Tokyo: Fuji TV.

Orange Marmalade (TV Series) (2015). KBS N, Seoul: KBS2.

Papers, Please (2013). Pope, L., [s. l.]: 3909.

QWOP (2008). Foddy, B., [s. l.]: Bennett Foddy.

Resident Evil (videogame series) (1996). Capcom, Osaka: Capcom.

Sailor Moon (anime series) (1992). Sato, J., Tokyo: Asashi TV.

Scratch (2003). MIT Media Lab, Cambridge: MIT.

Sherlock (2010). Gatiss, M., and Moffat, S., London: BBC.

Star Wars Battlefront II (2017). Electronic Arts, Redwood City: EA DICE.

Stranger Things (2016). Duffer Brothers, [s. l.]: Netflix.

Street Fighter (videogame series) (1987). Capcom, Osaka: Capcom.

Subway Surfers (2012). Kiloo, Aarhus: Kiloo.

Super Meat Boy (2010). Team Meat, [s. l.]: Team Meat.

The Legend of Zelda (videogame series) (1986). Nintendo, Kyoto: Nintendo.

The Secret of Monkey Island (1990). Lucasfilms Games, San Francisco: Lucasfilms Games.

Trello (2019). Atlassian, [s. l.]: Atlassian.

Unity 3D (2017). Unity Technologies, San Francisco: Unity Technologies.

Unreal Engine (2019). Epic Games, Cary: Epic Games.

Wolfenstein 3D (1992). id Software, Dallas: id Software.

X-Files (TV Series) (1993). Carter, C., USA: Fox.