



Communication and Community in Digital Entertainment Services

Prestudy Research Report

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Executive summary

This research report introduces a theoretical tool for studying digital entertainment and games, and applies it in the form of four different case studies.

The outline of the document is as follows: The introductory chapter sets the general premises and goals of the study in detail. The three following chapters largely focus on creating a theoretical framework with the help of research literature. The second chapter discusses specifically the uses and methodological backgrounds for academic research on the field of digital entertainment. Chapter three focuses on theoretical definitions of interacting with digital entertainment, especially playing games and the pleasure and fun individuals are seeking from them. Theoretical basis for analysing user and player experiences is created through studying such notions and concepts as 'optimal experience', 'playability', and 'gameplay'. In chapter four, these distinctions are formulated into an evaluation tool consisting of four different components that are used to analyse the playability of specific products.

The fifth chapter demonstrates the above theory put into practical use. It presents the case studies and their results. The evaluation takes into account both the formal aspects, that have to do with product design and development, and the informal gameplay and community practices that emerge during the use of a product, game or an entertainment service. The cases present analyses of different products from an online chat environment to a mobile game. The cases also demonstrate how the evaluation tool aims for flexibility, i.e. being adaptable to evaluating entertainment products from different genres and their respective kinds of interaction. The needs and desires of target audiences are charted by the means of play-testing.

The final chapter presents general conclusions and outlines the future phases of the project. The evaluation tool will be employed in analysing products, both commercially released and in development. The platforms will include the PC and the video game consoles, Internet applications, mobile technologies and digital interactive television (iDTV), and cross-media products that operate in a combination of different end-user devices. The components, research methods, and evaluation documentation will be iterated on the basis of continuous case study analysis.

1. Introduction

Communication and Community in Digital Entertainment Services (CC-DES) is a future-orientated research project where new forms of communication and interaction in digital entertainment services are analysed. The project aims to produce results in the form of product analysis and user testing that can be adapted for systematic use in media studies and next generation product development.

Digital information technology has developed rapidly and become common in everyday life. On a daily basis, more and more people encounter digital texts but also music, speech, images, video clips and animations in digital form. Personal computers and networking have given birth to various communicative and communal dimensions of new media. The rise of digital forms of entertainment is significant in economic sense as well. Digital game industry has posted revenues of over 6 billion dollars. The new multi-player environments give possibilities for interaction for thousands of simultaneous players. The user base of digital games and entertainment is also becoming more heterogeneous due to user segments that are more varied regarding both age and gender (see, e.g., *IDSA State of the Industry Report 2000–2001*). Entertainment products and services (especially games) and communication (e-mail in the Internet, SMS messages in mobile phones) are two of the most popular areas of digital media use. However, as of yet there hasn't been much research where these two areas have been studied in relation to each other.

In discussions concerning information society, often the central thematic has been based on a certain kind of rhetoric of developing new technology and educating people to use it. The rates of use and development have been the central standards with which the progress has been evaluated. CC-DES approaches this progress from a different angle. The premise of the research project is based on the individual needs to communicate in an entertaining setting. More specifically, the focus is on forms of pleasure that entertainment services (i.e. digital popular culture) give possibilities to share with other like-minded individuals. The focus will be on entertainment services and products that individuals use to attain this kind of pleasure and sense of community. In practice, new forms of communication in digital entertainment services are analysed.

The central objects analysed are multi-user games and chat services encouraging sense of community. Today, successful examples can be found in the online gaming environ-

ments in the Internet, and on the other hand, in the rapidly developing mobile cultures. The project compares the online communities (formed via Internet services) and mobile communication practices in entertainment contexts, and relates them to each other. The cultural (communicative, communal) preconditions for creating rich and meaningful mobile and cross-media entertainment are studied as well.

The pre-study focuses on analysing existing commercial media products. The findings will result in a theoretical model that can be used in evaluating and classifying the forms of interaction, communication and community that specific digital entertainment products give birth to. As the project continues, the model will be iterated, as it will be used in evaluating the prototypes and concepts by partner companies (from the digital content industry) involved in the project's future stages.

Four different products from the field of digital entertainment have been chosen as case examples. The scale of the products ranges from computer games to chat and/or role-playing environments. The first emphasize direct action within the game environment, the latter social interaction with other users. In this way, the theoretical model accounts for different purposes of use, possibilities, target groups and product genres. The case studies also construct a cross-section into the different digital entertainment platforms that the audiences are presently using (PC, WWW, mobile).

Multi-user interaction and environments are what the analysed products have in common. Each case includes a compact historical perspective. The product's relationship to previous products in its genre and market (PC-multiplayer games, mobile games, chat environments) are outlined.

1.1. Case studies introduced

The case studies are:

1. *Botfighters* – a mobile game (developer: It's Alive, operated by DNA Finland) based on GSM cell positioning. The gameplay takes place by sending and receiving SMS messages and following the game's WWW forum.
2. *Return to Castle Wolfenstein* – a multiplayer PC action game (developer: Id Software, 2001). The multiplayer mode puts emphasis on teamwork and specific player roles and tasks. This encourages communication within the action-filled game environment.

3. *Dark Age of Camelot* – a multiplayer PC role-playing game (developer: Mythic Entertainment, 2002). Instead of action, the emphasis is on developing a game character and interacting socially with other players.
4. *Hotelli Kultakala / Habbo Hotel* – visual chat environment (developer: Sulake Labs, 2000–) in the World Wide Web where besides chatting the participants can play checkers and other simple games with other characters.

This report will consist of the following sections: 1) the methodological premises of the study, 2) the theoretical basis for evaluating digital entertainment products, 3) the case study analysis, and 4) the conclusions.

2. Methodological premises and definitions

Based on the case studies and research literature, a framework for the analysis of interaction – especially so-called playability – and communication is developed. The following questions are answered: What kind of structure does the product have, and how does its design affect the user experience? What possibilities and restrictions of communication and interaction are found in the products, and how are they used? Moreover, what consequences do they have for the product as a whole; does the product encourage specific sorts of interaction (gameplay, communication, performing, etc.)? The quality and nature of interaction is studied with the means of product analysis drawing from videogame theory, studies of on-line communication and participatory observation methods and ethnographies.

There have been few efforts in trying to develop systematic analysis or criticism regarding digital entertainment. Our approach differs from computer game criticism as developed by Konzack (2002) in that we focus on evaluation that is able to inform product development directly, instead of more traditional, descriptive criticism based on traditions in the humanities (e.g. literary criticism). Our premise is design-oriented, following Richard Rouse III's (2001, xx) statement: "One of the most important skills a game designer must have is the ability to analyze games that she enjoys in order to understand what those games do well." We aim to systematically conduct this task, regardless if the product is enjoyable. This report and the research project has its goals in 1) informing design and product development, i.e. companies operating in the digital entertainment industry, and 2) producing definitions and conceptualisations to help the general development of research within new media and entertainment.

The goal is a more thorough understanding of the qualities and functionalities that a product should have in order to invoke and allow 1) specific kinds of interaction and 2) specific formation and sense of community (if so desired). The community aspect has consequences to the product's life cycle as well: a functioning community transforms the product towards a service model (this is a research area which will be focused on more thoroughly in the research project's future phases). In all, the classifications produced in the prestudy also help in directing digital entertainment and games to specific target

audiences who are searching for certain kinds of possibilities for communication and belonging to a community.

The prestudy has had two broad methodological approaches. First, we are studying digital entertainment products as aesthetic objects, i.e. how they are designed and constructed and what differentiates them from other products. The second approach is one of ethnographical research, drawing its premises especially from the research done by David Hakken (1999). We put together a group of people to play *Return to Castle Wolfenstein* (ranging from 6 to 8 people in four approximately two hours-long sessions). The players had to fill a questionnaire they were asked to describe their experiences with the game, and more specific questions regarding the communal aspects of the game. Also, we provided five players with a copy of *Dark Age of Camelot* and instructions to write about their experiences in the form of a diary. We got back seven replies for the questionnaire and three diaries.

We do not claim that this material constitutes as representative of gameplay practices on a general level. That would require considerably larger research samples. Still, the material we have helps us to reach some preliminary conclusions regarding the communicative and communal aspects of the two games, and it serves as useful basis on which to build future inquiries. The gameplay sessions that were undertaken during the prestudy also served as a start to systematic and long-term development of research methods concerning digital entertainment.

2.1. From usability to social usability

The premise of this study is that in the context of digital entertainment and games, community is formed through communicating and co-operating with other users and players interacting with the same product. Therefore the functionalities that make desirable communication and interaction possible, or fail in doing so, are put under scrutiny.

The evaluation model is based on an approach we call 'social usability' and 'experience design research'. Human–Computer Interaction (HCI, as developed, e.g., by Jakob Nielsen) research has benefitted from research in cognition science, ergonomics, psychology, and informatics, among others, and focused on creating concepts and tools for evaluating specific tasks in using technologies and digital media products (from graphical user interfaces to mobile phones). Social usability refers to a broader understanding of the ways and needs to use and consume media products, and the habits and practices

associated with them. Its background is found in media and cultural studies, where the focus is on the meanings, interpretations and experiences that media products invoke in their users. Our approach presents a shift from analysing usability to studying user experiences. The goal of such experience design research is in discerning the necessary elements and methods in producing experience-rich media products, services and environments (such as games, programme concepts for digital television, or exhibition spaces enhanced by new media technologies). This general perspective is complemented with detailed analysis and application of specific concepts, such as gameplay.

In the context of this study, social usability refers to usage that is motivated by needs to be entertained and moreover, entertained in a social setting where multiple individuals are taking part in the experience and communicating (exchanging meanings and interpretations) about it. The impulses and goals are different than, e.g., in a task consisting of seeking information and using it to a specific purpose (such as purchasing commodities through a web page). The HCI tradition is well equipped to evaluate the latter, but digital entertainment and games have to be evaluated by other criteria. The usability issues do not by any means become redundant, but in the actual experience of playing they become subordinated to the interaction and audiovisual content that the service or game provides. There is a notable shift from information retrieval and usability issues to sensations, experiences, synchronous communication and so-called gameplay.¹ For example, a game has to be challenging enough to be entertaining and fun, whereas by usability standards, e.g., the interface of a web site should be as intuitive as possible (i.e. non-challenging).

¹ Nielsen (2002) has recently discussed similar notions in the context of web design, namely 'user engagement' and 'the fun factor'.

The notion of usability is present in evaluating games and entertainment, especially when analyzing control mechanisms in games and interfaces in chat solutions and entertainment services. However, usability does not suffice alone. 'A highly usable game' would present somewhat of a paradox. The product would probably be, by definition, closer to a simple toy than a game. However, both games and toys are produced in order to provide enjoyment and fun. They are supposed to entertain individuals or groups and provide experiences of particular joyful nature. Here we draw from the writings of Mihaly Csikszentmihalyi (1991) and his ideas regarding optimal experiences and certain kind of enjoyment, 'flow' in Csikszentmihalyi's terms, that individuals feel during those experiences. Our premise is that digital games and entertain-

ment are played and consumed in search of both sensually and socially rich and meaningful experiences, and it is useful to adapt Csikszentmihalyi's notions for the purposes of evaluating these kinds of products. This is not by any means a straightforward and uncomplicated task. Usability and flow must be incorporated to the notion of *playability*, which will be discussed in the following chapters. Before that, compact definitions of game and digital entertainment are in order.

2.2. Game defined

For the sake of distinguishing and evaluating digital games, we have to understand their fundamental traits and elements, such as rules. Therefore we will present a definition of game in the form of two-fold account of those fundamental elements. When defining games, one must take note of their close relatives, i.e. other forms of playing. In his sociological theory about (non-digital) games, *Les jeux et les hommes* (1958), Roger Caillois defined and categorised games and different forms of play from parlour games to games of chance, from tightrope walking to team sports.

Caillois defines playing as a free and voluntary activity that provides the participant with joy and pleasure. The activity of playing takes place usually within the boundaries between specific time and place: playing starts with a signal and ends with one. In an ideal situation, the events outside the playing field do not affect the playing. (Caillois 1961, 6–7.)

Caillois (ibid.) distinguishes play and game by the fact that the actions and events in a game, even though seemingly free and open to variation, are always bound and framed by the rules of the game: "The game consists of the need to find or continue at once a response *which is free within the limits set by the rules*. This latitude of the player, this margin accorded to his action is essential to the game and partly explains the pleasure which it excites." In the practices of play (as opposed to game), the rules and margins are looser or non-existent, or they can be spontaneously changed as the playing continues.

The tension between the restricted freedom and the margin of error set by the rules is one of the sources of pleasure that playing a game offers. As one develops skills to play the game, the freedom gets less restricted and respectively the margins of error get reduced. The latter can be restated in the form of more difficult challenges and/or opponents. This can be crucial in maintaining the desired difficulty, i.e. interest in playing the game.

According to Caillois (1961, 9–10), the following six formal qualities belong to most games: 1) freedom, 2) separateness (from events outside the rules), 3) uncertainty of the outcome, 4) non-productiveness, 5) games are governed by rules and they consist, by their nature, of 6) make-believe.

Caillois goes on to introduce four categories of games according to their nature: the competitive *agon*, games of chance, i.e. *alea*; games based on role-playing and acting, *mimicry*, and finally the games of *ilinx* that offer bodily sensations out of the ordinary (ibid., 14–26). Caillois also distinguishes between two fluxuating attitudes towards games and play, the free-form *paideia*, and the rule-bound *ludus*.

Different digital game genres combine these categories in different ways. Role-playing games (RPGs, such as *Dark Age of Camelot*, one of our case studies) emphasize *mimic* aspects but include the competitive dimension (*agon*) as well. It is implemented as the character classes and skills (according to RPG conventions). RPGs foster *paideia* in their forms of social interaction, but include a rule system and hence competition (*ludus*). Video games in their most traditional manner (i.e. *Space Invaders*, etc.) are pure *agon*, played with pure *ludus*. The competitive *agon* and chance-based *alea* are difficult to combine, as the first is based on the player's skills and the latter on luck. However, there are numerous forms of popular digital entertainment that can be classified within *alea*, such as trivia games (the platform of which can be any existing device from mobile phones to digital television).

We will take advantage of Caillois' arguments and categorisations in order to define what belongs within the field of contemporary digital games and entertainment. In conclusion, we introduce a two-fold definition of a game (cf. Järvinen 2002; Järvinen & Sotamaa 2002):

- 1) A game is a sequence of actions within formal and pre-defined rules and goals. The rules are used to govern the game for its duration. Rules define, e.g., what kinds of interaction the participants are allowed to have with the game environment. Rules both allow and confine players to make choices between different actions within the game. Combinations of rules become structures that can be knowingly used to design different gameplay experiences. A certain kind of field, the ball, 90 minutes, and 11 players per side are all part of the rules of a game we know as soccer. In similar fashion, the objects (blocks), the controller (keyboard) and the interaction design implemented in the controller and its

configuration (the means available to the player to affect the objects) are all part of *Tetris*' rules. Also, the accelerating tempo of *Tetris* belongs to its rules, as well as the fact that it is a single-player game. The rules have to be consistent so that they can be used to organise the game event for arbitrary number of times.

- 2) In a game there are definitions of winning and losing, or at least of gain and loss. These are translated into points or other quantitative indicators, leading consequently to qualitative interpretations regarding the game's progress and outcome. This leads to the fact that a game has different states. A game can be said to be a 'state machine'. The states can be divided roughly into three macro-level states: before, during and after.

'Before' refers to the state where the result of the game is not known, and the players have equal resources available to them (e.g., both chess players have equal number of pieces, or the soccer game starts with the score 0–0, or there exists a system to translate the situation into equality, as in golf).

'During' refers to the time period of the actual game event, i.e. when gameplay (see below) takes place. In this state, a soccer team might concede a goal, i.e. account one loss, which subsequently means that their opponent accounts one gain. However, as long as there is game time left, the first team can score goals, and henceforth, when the game time ends, reverse the balance between losses and gains for their benefit. In fact, the 'during' macro-level state includes numerous micro-level states that are interpreted according to the rules.

'After' refers to the state when gains and losses are translated into winning and losing (the team with more gains than losses is the winner) or the success in competing and performing within the rules of the game is evaluated with other kinds of metrics ('two over par' in golf, certain 'character class' in RPGs, or 'you have finished in 3rd position in the high score list' as in many video games).

Another definitive trait of games has been that they have another status when compared with reality, i.e. games create a second-order reality for their duration. The events in the game do not affect the states of things outside the game. This definition explains why traffic cannot be considered a game even if it has rules: if you fail to abide the laws of traffic, the consequences often have highly material consequences out-

side the rules. However, so-called 'mixed reality' games and entertainment, which is foreseeable to become popular especially with mobile devices, does put this part of the definition to test. We return to this issue in one of our case studies, the mobile game *Botfighters*.

2.3. Digital entertainment

Entertainment is obviously a very broad category, and even focusing on digital entertainment alone, i.e. entertainment products distributed and used via digital media (such as personal computers, video game consoles, mobile phones, handheld computers, digital television) does not solve the problem entirely. Here we refer with 'digital entertainment' to products such as chats, games, virtual pets, quizzes etc. The common nominator is that these products are aimed to entertain, and this certain kind of enjoyment and pleasure is what makes people invest their time, energy and money into them. In the context of this study, the enjoyment and pleasure rises from interacting not only with the product and its formal aspects, but also with the other users and the meanings and interpretations that each user/player invests in the product. The latter we call the informal aspect. Each digital entertainment product has formal and informal qualities. With the evaluation model under development, we try to encompass both dimensions.

There exist various entertainment distributed in digital form (music, films) yet they do not, for the most part, constitute digital entertainment in the sense we understand the concept. Digital entertainment includes digital products and applications with entertainment as their *primary function*, instead of, e.g., information retrieval or completing a specific working task. There is a sense of pleasure to be found in the latter examples as well, but it is subordinate to their primary function that is something other than providing entertainment. Digital games and toys (such as virtual pets) exist mostly for the sole purpose of entertaining their users. Most importantly, they achieve this with what we call non-trivial interactive functionalities, as opposed to trivial choices such as choosing the scene in from the menu of a film distributed on DVD. We define digital entertainment as entertainment that has specific structures of gameplay and interaction. Consequently, we analyse those structures.

Social interaction, i.e. communication, is one of the structures in question. It is the primary function of chat applications and many digital entertainment products include chat

functionalities. When communicating without a deliberate intention, i.e. socializing for its own sake, it can be taken as specific kind of entertainment that is born out of the pleasure of interacting with other people and possibly belonging to a community. Similar pleasures rise from playing a multi-player game and the formation of a sense of community through playing, and the rituals that become associated with it through long-term commitment. Often the community is expanded outside the formal qualities of the product and even the technological platform it operates on. The community is renewed in rhetoric practices such as posting messages on Internet forums, or, as happened with one of our case studies (*Dark Age of Camelot*), deciding when to play together by exchanging SMS messages about the subject.

Chatting and multi-player gaming constitute a form of social entertainment. A basic chat application (e.g., IRC, Internet Relay Chat) becomes a digital entertainment product when certain kinds of functionalities are built upon the basic chat functionality. Functionalities and features such as visual environments, graphical avatar figures, mini-games, etc. are components that add layers of entertainment to a product and guide it towards plural means of experimental and experiential usage instead of one, narrowly defined functional purpose (this is in direct relation to our notion of social usability). Herein lies the research challenge of discerning certain design principles with which to attain the desired, possibly plural forms of usage.

3. Gameplay, game flow, and the components of playability

3.1. What is 'playability' and 'gameplay'?

In general, these terms have to do with the interaction between the player and the game. In non-academic gaming discourse, the terms often function as criteria in describing enjoyable games: a good game has 'good playability' or 'good gameplay'. However, until recently, few attempts have been made to define either term.

The question regarding the relation of 'gameplay' and 'playability' is central to our task. We'll use the term 'gameplay' when referring to the time period during which a game imposes its rules and its environment on the player. During gameplay, the player is able to develop skills and strategies to work for the game's goal(s) within the rules. When the product under evaluation is not game (in the sense of having rules and goals), we discuss 'interaction' instead of gameplay.

'Playability' is a qualitative term for the uses of both design and evaluation. It refers, on one hand, to the guidelines regarding how to implement the necessary elements (such as rules) to give birth to a desired sort of gameplay or social entertainment. On the other hand, 'playability' is developed here to function as a similar evaluation tool and research discipline as usability. Playability is, in this sense, a collection of criteria with which to evaluate a product's gameplay or interaction.

3.2. Gameplay

Let us look at some noteworthy efforts in trying to define gameplay. According to Chris Crawford (1982),

this elusive trait [game play] is derived from the combination of pace and cognitive effort required by the game. Games like TEMPEST have a demonic pace while games like BATTLEZONE have a far more deliberate pace. Despite this difference, both games have good game play, for the pace is appropriate to the cognitive demands of the game.

Crawford's definition is a useful start, but it is problematic to try to adapt it to the whole spectrum of contemporary digital games (let alone entertainment products such as visual chat environments). While Crawford's notion explains the 'holding power' of such games as *Tetris* quite well, it cannot

grasp the traits and popularity of, e.g., a 'Massively Multi-player Online Role Playing Game' (MMORPG), where social skills are, in many cases, more central to the game experience than purely cognitive ones. Moreover, MMORPGs do not have tempo or 'pace' in the same sense as the more abstract digital games Crawford mentions. Games like *Tempest* and *Tetris* impose a pace on the player, forcing her to comply with the games' rules, controls and boundaries (i.e. the environment the game simulates). Crawford's definition also presupposes a universal player with adequate skill in playing the game, whereas it is obvious that too difficult a combination of pace and cognitive effort would alienate most players from any game. Judging a case like this in theoretic terms would produce the result that playability is not adequate enough to produce enjoyable gameplay.

Also, a noteworthy issue is that in a game the pace is not constant but quite vice versa, it is modified according to certain phases of the game. This is what makes *Tetris* suitably challenging for any player, i.e. the pace in the beginning is slow enough to learn to play the game, but the manner in which *Tetris* dictates the tempo, accelerating it steadily, is what differentiates skilled players from less skilled ones. A varying tempo is also a fundamental trait of digital games. As Sim Dietrich (2002, 158) has noted all games feature rhythm, either an explicit or implicit one. There is a whole subgenre of games where the rules are basically rhythm-based, and therefore patterns rhythm-structured, i.e. the dance/rap games such as *Parappa the Rapper*, *Space Channel 5* etc. Sports games simulate the pace of the sport, often somewhat accelerating it in order to make the experience more eventful and dramatic. We will conceptualise the varying instances of pace and structure across digital entertainment products and also discern the variety of cognitive and social practices that can lead to enjoyable player/user experiences. Moreover, we argue that it is relevant to try to understand the gameplay experience as a sensuous whole, i.e. as an intertwined 'gestalt' of both kinesthetic and rational aspects.

Jesper Juul discusses different attempts at defining gameplay in his paper "Gameplay and emergence" (Juul 2002a). He quotes the well-known game designer Sid Meier's argument that "A game is a series of interesting choices", and goes on to study how and why this and other descriptions of gameplay are not sufficient. Juul observes that definitions (e.g., by Rouse 2001 and Saltzman 2000) tend to regard gameplay as something independent of the audiovisual implementation

² Andrew Rollings and Dave Morris (2000) have developed Meier's idea with three criteria for an interesting choice: 1) no single choice should be the best, 2) the choices should not be equally good, and 3) the player must be able to make an informed choice.

(graphics and sounds) or they cast value judgments ('interesting' as in the Meier quote).²

Juul argues that the definitions disregard the variation that emerges during a gameplay session. For example, a game might present various 'uninteresting' choices but this does not make it a bad or generally uninteresting game. For instance, when a barrel approaches your game character in *Donkey Kong*, there is only one, and therefore by definition uninteresting choice: one must correctly time the press of a button to win this particular challenge. Juul's other example is the game *Vib-Ribbon* (Sony 2000), which does not present the player with opportunities to make informed or best choices but only 'uninteresting' ones to be able to advance in the game, and yet the game can produce a positive experience. During gameplay, the rules and the agents influence each other, which creates variation. "Gameplay is interesting choices, uninteresting choices, skill, routines. It is the variation between different types of choices that makes up much of the variation in games." (Juul 2002a.) We referred to this earlier: during gameplay there emerges a pattern where the development of skills is met by raising the margin of error in the form of more skill-requiring challenges and opponents. This relates to the more abstract question of how do experiences emerge and how the necessary elements for rewarding experiences can be designed.

In conclusion, Juul states:

Gameplay does take place in a strange twilight zone between the formal, emergent properties of the games' rules and less formal and very human players who, strangely enough, actually enjoy themselves/ourselves. [...] *Games are formal systems that generate informal experiences.*" (Ibid. Italics ours.)

This is a useful definition for our purposes, because it acknowledges both the formal object and its qualities (the product) and the user (the individual[s] who plays/communicates/performs).

With our evaluation model, we try to encompass both aspects. We also try to give meaning to what Juul refers to with the phrase 'strangely enough', i.e. what individuals seek from games. In practice it means, on the one hand, studying the rules and elements that make up a game, and on the other hand, studying how the players interact with the rules (they might 'misuse' them for unexpected purposes) and what kinds of communicative practices they develop during gameplay or using the product.

The keyword here is pattern. Regardless of the varying tempos and different cognitive demands of digital games and

game genres, with their gameplay all games generate patterns. In a similar fashion, all digital entertainment products generate patterns of usage with their interaction structures. Within gameplay and interaction there emerges variation, but only to a certain extent. Once the variation begins to structure into a recognizable shape that gets repeated, we have a pattern. Our aim is to study these gameplay and interaction patterns, with establishing flow theory (see below) as a guideline for evaluating specific kinds of patterns designed into digital entertainment and emerging during their usage.

3.3. Game flow: conceptualising the optimal experience in digital entertainment

A 'game flow framework' will be developed here as an adaptation of Mihaly Csikszentmihalyi's notion for the purposes of understanding what constitutes a satisfying gameplay experience. There is much talk about 'flow' in game designer discourse (see, e.g., Saltzman 2000, 118–129) and game communities, especially among players creating maps for multiplayer games such as *Unreal Tournament* (see, e.g., Münnich 2000). These discussions do not refer to Csikszentmihalyi's notion but to a general conception among gamers that certain kind of fluency is one of the virtues of a satisfying gaming experience. This is one of the premises of our study as well, but here we will adapt the flow theory systematically.

Csikszentmihalyi defines optimal experience as a specific state of psychic energy in one's consciousness: "When the information that keeps coming into awareness is congruent with goals, psychic energy flows effortlessly." (Csikszentmihalyi 1991, 39.) 'Flow experience' is the term used to describe "situations in which attention can be freely invested to achieve a person's goals" (ibid., 40).

Obviously, flow and optimal experience have to do with enjoyment, which differs from pleasure in the following way: "[W]e can experience pleasure without any investment of psychic energy, whereas enjoyment happens only as a result of unusual investment of attention" (ibid., 46). This is highly relevant when thinking about the user experience regarding digital entertainment and games. More often than not, they require such investments of attention. This accounts for activities different than 'passively' watching a TV show, for instance, which would in this context account for pleasure rather than active enjoyment. With digital entertainment products, attention is invested both in material sense (having a physical and sensual relationship to the controlling devices)

and immaterial sense (interpreting the symbols and meanings of, e.g. a game's rules). As a dialogic process involving signs, there forms a triangle between the player, the game (software code) and the gaming peripherals.

The key issue here, in terms of designing such products, is how to provide the necessary preconditions for the flow experience; how to design products that make the focusing of invested attention flow smoothly and in the most rewarding way. We can understand these conditions better by adapting 'the elements of enjoyment' by Csikszentmihalyi for the purposes of digital entertainment and games. He discerns the following elements that constitute the flow experience: 1) a challenging activity that requires skills, 2) the merging of action and awareness, 3) clear goals and feedback, 4) concentration on the task at hand, 5) the paradox of control, 6) the loss of self-consciousness and 7) the transformation of time (Csikszentmihalyi 1991, 48–67). We'll look into each of these and see which are useful for the task at hand. The crucial issue is to discern the relevant conditions in terms of games and entertainment, and moreover, how they are in connection with not only technical design issues such as the so-called form factors (controllers, input devices in general), but contextual issues as well (for example: what kind of games would television viewing habits foster?).

3.3.1. A CHALLENGING ACTIVITY THAT REQUIRES SKILLS

It is obvious that games present challenging activities with their rule-based and competitive scenarios. Csikszentmihalyi also mentions interpretative actions (such as contemplating a painting or a sculpture) as challenging activities, but it is clear that games correspond directly to his statement that "[a]ctivities that provide enjoyment are often those that have been designed for this purpose" (Csikszentmihalyi 1991, 51). He goes on to argue that "it would be a mistake to assume that only art and leisure can provide optimal experiences." This perspective is in connection with Csikszentmihalyi's broader effort to use the notion of flow to understand the conditions for better quality of life in general. However, here our focus is on leisure products, and we will use Csikszentmihalyi's notions as tools in building our evaluation model for this specific purpose. The notion of flow relates to *doing*, i.e. taking actions in order to enjoy oneself, and we argue that this is strongly inherent in the nature of consuming digital entertainment: using and playing in this context consists of actions which affect the shape and outcome of the product, i.e. the patterns emerging

in interacting with the product and other users/players. As we will see later, these actions can be both non-trivial and trivial in their nature but yet enjoyable.

The key point regarding this element is the one Csikszentmihalyi makes on the basis of the study of different flow activities:

enjoyment comes at a very specific point: whenever the opportunities for action perceived by the individual are equal to his or her capabilities. Playing Tennis, for instance, is not enjoyable if the two opponents are mismatched. [...] Enjoyment appears at the boundary between boredom and anxiety, when the challenges are just balanced with the person's capacity to act. (Csikszentmihalyi 1991, 52.)

This is essentially what the balance of successfully implemented gameplay is about, and Csikszentmihalyi's argument comes very close to Crawford's ideas on gameplay (see chapter 3.2). In practice, this will mean evaluating the difficulty of the game and how the players' skills develop in relation to learning the rules and generally the fundamentals of gameplay. This will result in a learning curve. Regarding games the equation is more complex, however: the challenges must be structured into varying phases of difficulty and temporality, just to name a couple of aspects.

3.3.2. THE MERGING OF ACTION AND AWARENESS

Csikszentmihalyi writes:

When all a person's relevant skills are needed to cope with the challenges of a situation, that person's attention is completely absorbed by the activity. There is no excess psychic energy left over to process any information but what the activity offers. All the attention is concentrated on the relevant stimuli.

As a result, one of the most universal and distinctive features of optimal experiences takes place: people become so involved in what they are doing that the activity becomes spontaneous, almost automatic; they stop being aware of themselves as separate from the actions they are performing. (Csikszentmihalyi 1991, 53.)

In gamer discourse, 'flow' has had a name for long: the pleasurable state where you get in to the flow of the game is often called being 'in the zone'. Whether discussing this state in popular or academic terms, there are many prerequisites for it to take place: at least the five of them. The *structure and tempo* of the game produces patterns that might create desirable flow, and in many cases the *aesthetic enjoyment* of digital images and sounds affect the game flow experience. The *consistency* of a game-world, both regarding the actions it allows and the results it generates, is important (cf. Rouse

2001, 8). Inconsistency hinders flow. Moreover, there is certain flow to be gained from enjoyable *social interaction*, which reminds us of multi-user environments and role-play. These, complemented with entertainment-biased usability issues, will be outlined later in this study as the components of playability.

3.3.3. CLEAR GOALS AND FEEDBACK

According to Csikszentmihalyi, the complete involvement often results from having clear goals and getting appropriate and immediate feedback of one's actions in relation to the goals. This is very much a principle present in usability standards developed for interactive media, and it is also a significant part of the pleasure of gaming, i.e. being in seemingly direct interaction with the simulated environment the game provides and getting both aural and visual feedback of one's actions (pressing the mouse button and seeing your gun go off in *Return to Castle Wolfenstein*, for instance). However, in digital games and entertainment the immediateness and nature of the feedback is not constant but varies between the different genres (in games from fast-paced action to turn-based strategy) and their respective gameplay and interaction structures. Again, these matters are closely tied to the controlling peripherals and input devices available.

Csikszentmihalyi (1991, 57) writes: "Almost any kind of feedback can be enjoyable, provided it is logically related to a goal in which one has invested psychic energy." This argument relates to a digital entertainment product being thematically coherent with its intended use and fictional setting, i.e. one doesn't expect to get explosions as the feedback when trying to communicate with another character in *Habbo Hotel*, but this might be the case in *Return to Castle Wolfenstein*, or even role-playing games. There is also a strong relation to the highly sensual nature of digital entertainment: these products provide their feedback often in audio-visual and bodily sensations that become part of the enjoyment of gameplay experience. A case in point is games like *Rez* (Sega 2002) and different rhythm/dance games where the player explores an environment of sounds and images and consequently takes part in creating the audiovisual output of the game. In other words, audiovisual sensations function both as a feedback mechanism *and* as a form of aesthetic enjoyment. Flow theory supports these observations by pointing out that certain kind of flow experiences result namely from seeing and hearing (ibid., 107–113). In other words, there exists an aesthetic dimension

to the flow experience as well. In game flow, especially regarding certain genres, it is a very important factor, yet a simple functionality such as being able to move seamlessly in a 3D environment might be strong enough as a form of feedback to create the desired aesthetic and immersive effect.

One must also acknowledge that there exists a specific sort of feedback in a game, due to it being a rule-structured 'state machine' and having a competitive nature. This has to do with the relation of risks and rewards: the larger the risk the player takes, the bigger should be the reward. Indirect proportionality between risks and rewards appears illogical and unjust, and therefore the psychic energy invested seems wasted. Hence the risk taken might seem trivial. As a result there is a danger that the interaction does not feel enjoyable.

3.3.4. CONCENTRATION ON THE TASK AT HAND

According to Csikszentmihalyi (1991, 58), "clearly structured demands of the activity impose order, and exclude the interference of disorder in consciousness". In this way, attaining the desired flow improves the quality of experiences. However, consciousness can process information only up to a certain point, and therefore the tasks have to be designed temporally and quantitatively proportional. For instance, giving a player a 30 second time limit to explore a game environment does create a challenging and dramatic scenario, but if the environment is too large, the task becomes too difficult, and the player gets frustrated, i.e. her consciousness gets interfered and challenged in a non-desirable way. These kinds of design issues have to do with our notion of structural playability (see 4.2) and the patterns that develop in relation to the player's skills.

In the context of game design, Richard Rouse III assigns this sensation, also often described as 'immersion', as something to be sought for:

Once a player is into a game, she is in a level, she has good understanding of the game's controls, she is excited, and she is role-playing fantasy; she does not want to be snapped out of her experience. [...] [E]ach time the player is rudely awakened from her game-world fantasy, the harder it is to reimmerge herself in the game-world." (Rouse 2001, 12–13.)

Concentration can break due to inconsistency, various difficulty issues (from controllers to imbalance of risks and rewards), an audiovisual implementation that does not support the gameplay, and general usability and playability issues.

3.3.5. THE PARADOX OF CONTROL

This element of enjoyment relates to the definition of game (chapter 2.2). There lies certain enjoyment in the make-believe worlds (whether constructed in forms of fiction, board games or digital environments) that are separate from the rules and tasks of ordinary life. The flow relates to the sense of control one achieves over this second-order reality, or rather the question comes down to the fact whether one is able to *exercise* control over it (Csikszentmihalyi 1991, 61). This issue lies at the heart of meaningful and empowering interactivity. The questions to study are: What are the means and functionalities that are given to the participant (player, avatar) to exercise control over the environment, the demands of the rules, the interaction with other participants?

It is important to realise that these answers (and questions posed) vary regarding different types of users and players, and what they expect of the product. The latter is, again, influenced by habits and practices regarding media technologies and the context of use. The degree of control that a television viewer expects to have over television drama is (at least until now) minimal, whereas we can assume that a player of a narrative-driven adventure game (such as *Metal Gear Solid 2*, Sony 2001) can expect to exercise a high degree of control over the gameplay but limited (if any) degree of control over the narrative elements (e.g., cut-scenes). Then again, a player of a soccer game or *Return to Castle Wolfenstein* expects to exercise as much synchronous control as possible over the gameplay (within the rules). In turn-based strategy games, the control is structured in a different way so that immediate micro-level feedback (on the level of the game's interface) is followed by macro-level feedback (the game's state changes). Feedback is given asynchronously, e.g., after a round where each player has made a move.

To sum up, we see that the balance and degree of control is highly varied and dependent on the game or entertainment genre. Moreover, the audience's expectations are based on their conceptions of the genre conventions and familiarity with them: how easy or difficult do they expect a certain game, for instance, to be? Renewing and/or knowingly diverting from these expectations are possible design solutions to enhance the experience.

3.3.6. THE LOSS OF SELF-CONSCIOUSNESS

In the context of our study, this element of enjoyment is relevant when thinking about the roles that digital entertainment

products offer to the audience. Csikszentmihalyi argues that the losing of self-consciousness “is sometimes accompanied by feeling of union with the environment” yet being very aware, e.g., in a competitive situation, of one’s performance in relation to other competitors and the previous states of the event (Csikszentmihalyi 1991, 63). Therefore, what is lost is not the self but our concept of the self, “the information we use to represent to ourselves who we are” (ibid., 64). This leads to the fact that flow experiences offer opportunities to expand one’s concept of the self, as “being able to forget temporarily who we are seems to be very enjoyable” (ibid.).

The obvious digital equivalent of these experiences is role-playing games and chat environments, the ‘life on the screen’ as researched by, e.g. Sherry Turkle (1995). Design-wise the key argument is to adopt the following line of reasoning by Csikszentmihalyi as a general (if not very detailed) design principle: “growth of the self occurs only if the interaction is an enjoyable one, that is, if it offers nontrivial opportunities for action and requires constant perfection of skills.” Csikszentmihalyi (1991, 190–191) broadens these flow parameters to apply to communal practices as well, which is relevant in the light of the multi-user entertainment products under analysis here, especially the communicative and collaborative rituals that emerge within the user cultures of a multi-user environment. We will return later (in the chapter 4.4, on ‘social playability’) to the criteria with which to evaluate whether an individual product is able to provide ‘enjoyable interaction’ and ‘nontrivial action’ in multi-user contexts.

3.3.7. THE TRANSFORMATION OF TIME

The final element of enjoyment explains the manner in which optimal experiences transform our conception of time. “[M]ost flow activities do not depend on clock time; like baseball, they have their own pace, their own sequences of events marking transitions from one state to another without regard to equal intervals of duration.” (Csikszentmihalyi 1991, 67.) In our interpretation, Csikszentmihalyi’s argument describes how flow experiences do not necessarily adhere to the temporality familiar to us from traditional forms of entertainment, such as narratives, where there is a pre-scripted order of events on a temporal axis. In Csikszentmihalyi’s terms: the continuum of the event’s different states and their temporal relation to each other are carefully defined by the author, and the user is basically shut out from exercising control over this process.

The core question to be studied, then, is: what kind of temporal structures is it possible to design and implement into digital entertainment products, and how do they affect the user experience? The temporal nature of the user experience in digital games is essentially the time devoted to gameplay, i.e. the time period where the variations and patterns of interesting and uninteresting choices, the challenges and rewards, practices and habits, skills and strategies emerge in the interplay of the formal system of the game as a 'state machine' and the informal practices of the player. In other forms of digital entertainment there is a strong presence of 'dead time', i.e. periods of time when nothing really happens (e.g. on a chat environment). We will look into the theories of game temporality when discussing structural playability in chapter 4.2.

4. The four components of playability

We will now apply the gameflow framework into practice in the form of evaluating playability. In order to grasp the wide spectrum of contemporary digital entertainment and to take advantage of playability as an evaluation tool, it will be discussed here as a four-fold concept. The four components of playability are 1) functional, 2) structural, 3) audiovisual, and 4) social playability. These are discussed in detail below.

Regarding each component, we will analyse both the *formal* aspects (game functionalities such as rules and other gameplay elements) and *informal* aspects (the user experience, user practices). Based on these, as a conclusion of their combination we try to discern specific *patterns* that emerge in the interaction between the formal and informal aspects. This will result in an evaluation report, where the components are related to each other, producing a systematic analysis of the product and its qualities.

4.1. Functional playability

This component has to do with the functional variables that affect gameplay. These include control mechanisms and their relation to gameplay. As a concept, functional playability has a family semblance to usability in the traditional sense. Functional playability is one of the preconditions of flow experience with games. Analysing this component consists of evaluating how well the control peripheral and its configuration is suitable for the requirements of successful gameplay. In the field of digital entertainment, the peripheral can range from the restricted input mechanisms of mobile phones to the standard controllers of video game consoles, and onwards to highly specialized ones such as racing wheels or dance mattresses. If functional playability is balanced with 1) the requirements of gameplay and 2) the input peripherals of the platform, the interaction design of the product meets basic requirements.

In other words, functional playability is what Richard Rouse discusses as the input/output element of gameplay. As Rouse suggests, the input and output systems determine how steep the learning curve of a game is. (Rouse 2001, 136.) Functional playability is evaluated by analysing the controlling peripheral (and its possible configurations) in relation to the other three components. For instance, the design of the control timing should be appropriately matched with audiovisual cues to help

the player (Dietrich 2002, 158) and should be proportional to the rhythm of the game. A typical case study scenario would be to evaluate whether the interaction functionalities (which denominate certain actions on the game or, for instance, a chat world) of an individual product are suitable for adapting it to a particular environment like digital television where the controller is most likely a standard remote controller with few buttons intended for non-gaming purposes.

These kinds of research tasks are basically studying what Sim Dietrich (ibid., 159) calls orthogonality. It means that distinct actions should be separately controllable without interfering with each other, and the control set should be as minimal as possible (i.e. include the lowest number of buttons possible). Orthogonality can be complemented with reducing control complexity by contextual control schemes that relate to the characteristics of the game environment, its objects and the object/character the player controls (ibid.). When implemented carefully, contextual controls allow for transforming the controls for the needs of particular gameplay challenges yet still retaining a simple control set. We will use these concepts to evaluate control schemes in the case studies.

The results of the case study would point out how are the functionalities and mappings to be modified in order to meet the orthogonal form factors of the interface, and contextual requirements. Results of studying the formal aspects will be presented as an expert evaluation. In the project's future phases, the informal aspects will be studied more rigorously via player/user-testing. The participants will be questioned on the axis *intuitive–non-intuitive* and on their experiences on the orthogonality/contextuality of the controls. An average learning curve will be produced based on observations of play-testing.

4.2. Structural playability

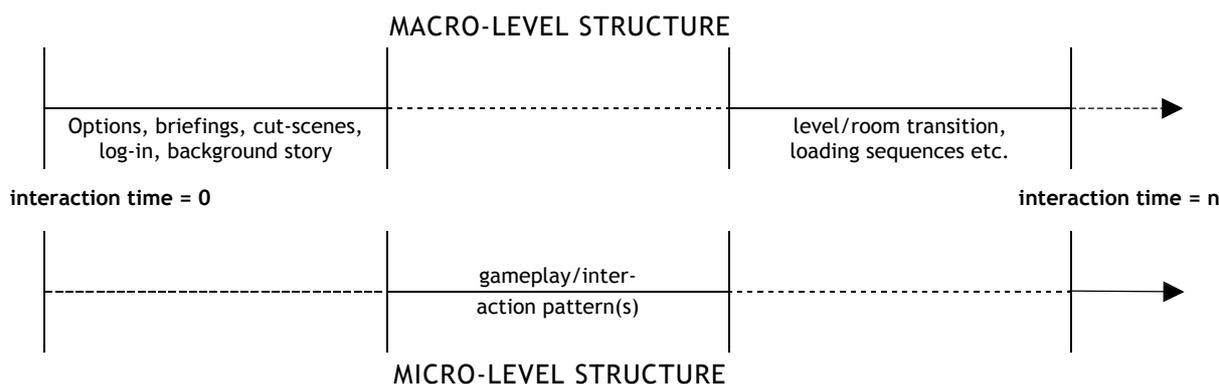
Structural playability has to do with the aesthetics of digital games and entertainment. There are at least two variables that give structure to games. First there are the rules. Gameplay patterns emerge from the interaction between the player(s) and the game rules. As Csikszentmihalyi (1991, 76) states, "the rules of games are intended to direct psychic energy in patterns that are enjoyable". In tennis, for instance, and in turn-based games in general, the actual game shapes out within the pattern that the rules impose on the players. This takes place in the forms of interacting with the ball and

the court, the opponent’s return shots and the point mechanism. In card games, the rules dictate whose turn it is, and each individual player’s actions are interpreted within the rules. The game state changes according to the pattern the rules create. In so-called platform-jumping video games (such as *Super Mario Bros.*) it is the game environment (and possibly time limit) that shapes the gameplay into certain patterns depending on how the player negotiates the challenges of the environment simulated in the game. Patterns develop into structures, and in some games, there are both micro-level structures (the actual gameplay) and macro-level structures (mission briefings and such). The latter is not part of the gameplay in the purest sense, but it does take place within the temporal sequence during which the player is focusing her psychic energy into playing the game.

The relationship between micro and macro-level structures is presented as a temporal continuum in the figure below. It also illustrates how patterns relate to structures. Rules exist as a super-structure that governs them both. The way that the macro-levels and micro-levels interact varies through different genres: in *Tetris* the macro-level structure does not exist.

The following figure presents a generic structural model of how user experiences emerge in digital entertainment. It illustrates how the informal and formal qualities combine on a temporal axis, on two levels: the macro-level and the micro-level structures.³

Figure 1. Generic structural model of the user experience in digital entertainment.



³ The macro–micro distinction is somewhat similar to the combination of diegetic and extra-diegetic elements in constructing and analysing a narrative. Another possibility would be to discuss the ‘internal’ and ‘external’ structures, but they imply a disconnectedness that really does not exist. We argue that the gameplay patterns are the micro-level events that are framed by the macro-level elements within the phenomenological gameplay/interaction experience.

However, flow theory is not completely adequate in explaining why people enjoy playing games even if they face the unenjoyable fate of losing and recurring moments of frustration, e.g., when failing in a certain task. As Juul notes, “Repetition of a trivial task can even be hugely enjoyable – such as getting 100 % score on the challenge stage in *Galaga*.” (Juul 2002b.) This does not run entirely contrary to Csikszentmihalyi’s theory, as he writes about flow’s congruency with

goals, and he notes that almost any kind of feedback can be enjoyable. Frustration and seemingly trivial repetition, which definitely belong to the emotional spectrum of various different gameplay patterns, do not necessarily contradict the above. They, too, get structured into gameplay patterns, and therefore their positive or negative effect and balance should be evaluated within the larger context of the whole product.

It is also important to note that there are micro-level elements of both enjoyment *and* frustration, and even repeating a seemingly dull and unjoyable task in a game can be satisfying as it holds the promise of progress and reward in the larger scheme of the game (enjoyment stemming from macro-level structures). This is a specific instance of the variation (discussed above) that emerges within gameplay. In terms of evaluation and design, it is the appropriate balance that matters. And the variation creates a specific pattern. The patterns take shape and follow each other according to the different phases of the game (wandering, exploring, planning, communicating, fighting, etc.). It also seems that often the most enjoyable games are, at the same time, the most frustrating ones, as the player is faced with developing skills to master more challenging scenarios and situations. Juul (2002b) notes that “frustration is a more *positive* factor than in Csikszentmihalyi’s description, since frustration may actually motivate the player to improve in order to *escape* frustration.”

This statement is backed up by studies on ‘media equation’ that state negativity as being something that feeds the intensity of the experience, and that both positive and negative experiences share the potential to arouse individuals. Arousal increases individual’s attention to their surroundings with their full capacity, which is basically the same state of psychic energy as flow (Reeves & Nass 1998, 120, 131–133). People manage their arousal when life either gets too boring or too intense, so that the level of excitement would remain optimal. People often use mediated experiences for this, because media products are designed to change our state of arousal. Mediated experiences, provided by digital entertainment in this context, are more controllable than real-life experiences. Most importantly, Reeves and Nass state that “the personal management of arousal may be particularly interesting when people are allowed more control over their use of media”, and that interactive media is especially suited to fine-tune arousal (*ibid.*, 138–139). So, whereas Csikszentmihalyi talks about “nontrivial actions” being one of the conditions of flow (see chapter 3.3.6), we see that in games also trivial actions and

negative feedback can ultimately lead to arousal and enjoyment.

For purposes of evaluation, we will establish two approaches for studying the formal and informal aspects of structural playability. The study of formal aspects will be an expert evaluation where the rules, structures and patterns of the product will be explained. In the future phases of the research project, the informal aspects will be researched with the means of player-testing. Based on our game flow framework, the following axis will be used in studying the informal aspects, i.e. the play-testers will be asked to give their evaluation on the following qualities and axis: skill (*easy–difficult*), experience (*enjoyment–frustration*), actions (*trivial–non-trivial*). Relevant questions about the structure can be presented only regarding the temporality of the product, which we will move on to next. In any case, in the case studies at hand, the study of informal aspects will mostly consist of expert evaluation.

4.2.1. TEMPORALITY OF DIGITAL GAMES AND ENTERTAINMENT

Structures unfold in time, and so do the formal structures of digital entertainment and games. We will look now into the theories of game temporality. Whereas narratives compress time, in digital entertainment and games the events take place in real time, and the user/player often influences their development and outcome. “Time of the audience matters”, as Espen Aarseth (1999, 37) has put it in his article on ‘ergodic time’, i.e. on how the non-trivial nature of interacting with a digital product is structured in time.

In another discussion about game temporality, Jesper Juul (2002b) has developed a dualistic model of game time: *play time* (denoting the time span taken to play a game) and *event time* (denoting the time of the events happening in the game world). These are the temporal dimensions that operate within the gameplay patterns in the generic structural model of user experience we introduced in chapter 4.2). Juul states his premise with the following words, which are highly relevant for our purpose – essentially Juul restates the dialogue between the formal and the informal in relation to time:

The theory primarily describes the relation between the linear, objective time of the player and the event time of the game world constructed by graphics and other cues. An obvious objection to this would be that because the playing of a game is a subjective experience, objective time is of minor importance. But this is a faulty assumption since the experience of time is strongly affected by the objective time of the game: game design and game rules work with ob-

jective time in order to create the player's subjective experiences. So examining objective time in games is, paradoxically, a way of understanding how the formal structure of a game feeds the more elusive player experience.

The play/event time relation varies through different game genres. Juul describes the relationship as mapping and discusses it in relation to the mimic aspects of digital games: "Mapping means that the player's time and actions are projected into a game world. This is the play-element of games; you click with your mouse, but you are also the mayor of a fictive city." Mapping is essentially about designing how the feedback mechanism in the product (discussed above in chapter 3.3.3) relates to changes in the game's or world's states. This can be knowingly used to design varying "transitions from one state to another without regard to equal intervals of duration" (Csikszentmihalyi above) so as to meet the temporal conditions of creating desirable flow. As Juul notes, in some games (such as *The Sims*) the player is allowed the opportunity to choose the game speed, i.e. to specify the relation between play time and event time. Another technique to tackle the problem is to move away from the time-based sequences of events and design them distance-based (cf. Birdwell 1999). This in itself pushes the enactment of the temporality towards the player and shifts the design focus towards building the rules (such as environments and functionalities) where the player/user is able to act.

Juul also notes the existence of what he calls 'dead time'. This is an aspect of time related to the unenjoyability of certain task that we referred to earlier. Juul defines dead time: "dead time is when you have to perform unchallenging activities for the sake of a higher goal." He cites such gameplay activities as making long journeys or waiting others in MMORPGS as instances of dead time, i.e. these activities make sense in the context of the game world but are essentially dull. This is true for chat applications as well, where 'being idle' on the channel or in the chat environment is very much a part of the practice of using the product.

Juul states that the weakness of flow theory (in the context of games) is that it ignores event time and only concentrates on play time (Juul 2002b). In our game flow framework, we try to stitch this gap by relating the temporal aspects of structural playability to the other components. These include the one of functional playability, which encompasses the study of how the mapping of play/event time is designed in connection with the peripheral used in playing the game.

Studying the product's temporality will result in an expert evaluation of the formal relations between play time, event time and dead time, and their subsequent effect on player experience (as described by Juul above). If deemed necessary, these parameters can be studied among the play-testers as well.

4.2.2. STRUCTURAL MODELS

Rules are not the only structural principles of games. Certain game genres, especially the so-called adventure games (even action-orientated ones) rely on pre-defined dramaturgical structures that the game designers have implemented into the game. In role-playing games, the players themselves can embark on collective journeys (as we will see) and take advantage of the environment-based rule structure of the game.

Another useful distinction for the purposes of analysis and evaluation by Juul is *games of progression* vs. *games of emergence*. Juul defines emergence as "the primordial game structure, where a game is specified as a small number of rules that combine and yield large numbers of variations, which the players then design strategies to deal with". The progression–emergence distinction is quite a general one, however. To complement it, we will introduce structural models in certain game genres. Pointing out and evaluating different structures helps us to think about how rules and the quantitative/qualitative results from taking actions within them affect each other and can be combined. This leads to better understanding of efforts in trying to create rules and emerging gameplay patterns that "direct energy in psychic patterns that are enjoyable" (Csikszentmihalyi above). Structural models also serve as a means to classify games according to their micro- and macro-level gameplay structures and patterns.

Games of emergence include card and board games and, within the field of digital games, most action and strategy games. As Juul notes, these games "tend to be replayable and tend to foster tournaments and strategy guides".

There is a common structural model that can be applied to most games: *move–change-of-the-gamestate–countermove*, and so on. Such classic games as *Pong* work within this structure. It is found in its purest form in strategy and sports games. Regarding strategy games, the structure's reciprocity usually means that the tempo of the game is slower, and changes in the states of the game are more clearly perceivable and the player is given more time to contemplate their consequences and her actions. In Juul's terms, the mapping of

play time and event time operates differently than in real-time action games. However, the so-called Real-Time Strategy (RTS) genre has deliberately aimed to raise the tempo in games following this structure by changing the mapping of play time and event time into 1:1 relation. As an example of sports game genre, fighting games (such as the *Tekken* or *Virtual Fighter* series) employ this structural model, and their attractiveness is arguably a result from the model put into work in real-time. In the midst of the gameplay, the successive moves combine into 'combos' that create, in combination with the characters' general movement, almost infinitely variable gameplay patterns. This is also true for such sports game sub-genres as skateboarding (e.g. the popular *Tony Hawk Pro Skater* series). The macro-structures in these games often involve advancing in a tournament structure and improving the character's skills (sports games). In many strategy and simulation games, the macro-structures and micro-structures are embedded (e.g. in *SimCity*) – i.e. one plays within micro-structure patterns while these patterns affect the macro-structural scenario, although the temporal mapping of play time and event time is something other than 1:1.

We will complement the common model with some variations that describe the actual nature of the gameplay. Following this logic, the most common structural model found in action games is *conflict–search–conflict*. Most typically, this is present in, e.g., the 'deathmatches' of the *Quake* series, where conflict takes the form of a simulated violent conflict. However, it can be found in shooting games like *Tie Fighter* (LucasArts 1995) as well. The following macro-structure is also typical: *task-briefing–task-completion–task-briefing*. *Grand Theft Auto III* presents an example of this structure, but its micro-structures (within task completion) consist of largely of both exploring and interacting with the game world (structures typical to games of progression, as we will see), and having gunfights and chasing around in different vehicles (a structure typical to games of emergence). Racing games' structural model highlights the fact how their rule structure is closely related to the environment simulated, i.e. usually the track. The gameplay patterns emerge in relation to the track's shape and the position of the player's vehicle/character in relation to the other participants. The resulting structural model is *steer–hold-position–steer*, and the variation within it is provided by the track and the consequent acceleration or deceleration of speed it allows or restricts. Different objects can be placed on the track to create more difficulty or rhythm to the gameplay.

With puzzle games like *Tetris*, the structure becomes largely an abstraction. In other words, the gameplay pattern becomes a chain of varying game states. As this happens, it is more difficult to discern a certain stable structure, or the structure becomes absolutely minimal in its variation. The *move—change-of-gamestate—countermove* structure does apply to a certain extent, but there are really no *countermoves* as the gameplay patterns emerge randomly. In games like *Space Invaders* and *Pac-Man* the ‘enemy’ (the aliens and the ghosts) moves within pre-set paths or boundaries, and therefore the gameplay pattern really emerges and varies *in between* the move-change of state phase. This kind of pattern helps to explain the enjoyable nature of repetition in games of emergence (cf. the point by Juul about *Galaga*) – which can become highly frustrating in games of progression, as we’ll see. In any case, this only serves to prove the aforementioned games’ status as games of emergence.

Progression, on the other hand, constitutes games where “the player has to perform a predefined set of actions in order to complete the game” (Juul 2002c, 324). Games of progression indicate stronger control over the sequence of events by the game’s designer(s). Therefore they foster detailed “walk-throughs” that guide the player in completing the game. (Ibid., 325.) This leads to the following structural model: *event—negotiation—progression*. Event refers to, for instance, the player or her character arriving into a specific location in the game world. The negotiation refers to her facing a puzzle and eventually (possibly) solving it, and hence progressing in the game. Because of a structure like this, it is characteristic to games of progression that players get stuck, i.e. the gameplay pattern reduces to the event—negotiation loop, or possibly the negotiation. This can happen both in adventure genre and platform jumping games. In trivia games, the failure in negotiation (i.e. not knowing the answer or guessing wrong) might put an end to the game altogether. In digital role-playing games the negotiation phase usually equals a quest that the player (or players) sets out to accomplish, and it often involves exploration (in the same sense as ‘search’ in games of emergence). The macro-structures focus on the development of the character(s), an over-arching storyline, and possibly open up new areas of the game world for exploration.

As a conclusion, we can observe that player experiences with games of progression shape up to be different than with emergent structures (e.g., replayability suffers and repetitive structures do not necessarily produce desired effects). In terms of analysis, games of progression present less complex

cases, because the means of interaction offered to the player tend to be less open. There apparently exists a significant number of hybrids that combine emergence and progression – Juul himself analyses the MMORPG *Everquest* as “game of emergence, with embedded progression structures” (Juul 2002c, 328). Rouse (2001, 130) notes that “Somewhere between ‘on a rail’ games and total freedom lies an ideal middle ground, where the player is left with a sense of freedom accompanied by a sense of guidance.” A game like *Grand Theft Auto III* (Rockstar Games 2001) would seem to present a case in these hybrid directions. By allowing the player to explore and complete tasks (such as acting as a taxi driver) outside the progression structures, i.e. having more varied formal structure, *Grand Theft Auto III* opens up to a plurality of different player experiences.

For the sake of evaluation, it is necessary to distinguish whether a game is one of emergence or progression, and what kind of structure does it follow. Even if the product turns out to have hybrid elements, it is necessary to evaluate whether the balance is appropriate to produce desirable player experiences. For instance, if the purpose is to use a game as a storytelling medium, the balance between emergent and progressive structures has to be carefully thought out. It is in cases like this is where the analysis of structural playability can help. Regardless of the evaluation emphasis, the results are affected by questions such as product genre, context of use, and target group that are covered by the other components.

4.3. Audiovisual playability

The audiovisual style and appearance of a game can shape the gameplay experience in a significant manner. Choosing a specific kind of audiovisual implementation tied to the functional and structural components can be beneficial in targeting a certain audience segment, such as young children. Here we employ the research on games’ audiovisual styles and elements and apply them to other forms of digital entertainment as well.

In this case, the evaluation axis runs from photorealism to caricaturism and abstractionism (based on the audiovisual styles introduced in Järvinen 2002). Also, the combination of so-called dimensionality (2D, 3D, isometric) and point of perception (1st or 3rd person) of the product is evaluated in light of the product genre and rules (in the case of a game). In practice this means analysing, for instance, whether it is appropriate for a chat application on digital television to be im-

plemented with 3D graphics and what would be the preconditions for the task. This is naturally tied to the issues of functional playability, i.e. especially the form factors and controllers. In addition, analysing the audiovisual playability of a product will include detailed observations on possible problems, such as confusing choices of color, and the possible inconsistencies of the game world, as they usually become apparent in the audiovisual implementation.

Some rules of thumb can be induced from the three audiovisual categories. For instance, puzzle games tend to be abstract both regarding their rules and their audiovisual appearance, whereas car-racing games are more or less (photo)-realistic in their implementation, both conceptually (they try to simulate the behaviour of automobiles in a racing track) and audiovisually (aural and visual realism).

The analysis will produce an evaluation of the product in relation to the other components and, for instance, the product genre and its conventions. In practice, the product will be situated in the grid introduced by Järvinen (2002, 126), and its audiovisual qualities will be evaluated based on its relation to other similar products. This will help in situating the product's audiovisual implementation and style into larger contexts of digital entertainment. This kind of expert evaluation will be complemented with questioning the users on their experiences and sensations regarding the audiovisual implementation (please see the *Return to Castle Wolfenstein* case study, chapter 5.2, for examples on this).

4.4. Social playability

The final component is used for evaluating what kinds of social practices in media use the product is suitable for, i.e. whether the functional playability is suitable for adaptation to platforms such as digital television or mobile phones with restricted input devices, and on a general level, what kind of digital entertainment is suitable for different contexts of use (e.g., the personal computer vs. the mobile phone vs. the living room environment with the television set).

Social playability is not only about the appropriate or desired contexts of use, but also about user cultures that foster an enjoyable, enticing and meaningful sense of community. Our conception of 'culture' is based on notions developed in cultural studies:

Culture and communication are closely connected. Culture is constituted by meaning-making practices, i.e. by symbolic communication. Communication is the sharing and transmission of meanings between

people, i.e. the process that constitutes culture. Culture as communication has double effects: it gathers people around a set of shared meanings, i.e. creates identity, but it simultaneously also connects selves to others, i.e. constructs difference. (Fornäs 1998.)

This means that to be able to maintain a community of users/players, a digital entertainment product will benefit from functionalities and features that encourage community formation, i.e. the “sharing and transmission of meanings between people” as the cultural scholar Johan Fornäs puts it. Notable general trends are, e.g., the reciprocity of such communication forms as SMS messaging or the highly synchronous and polyvocal nature of chatting. Because the social playability component is, for the most part, about the informal aspect, we have to operate with different theoretical tools (of video-game theory) than the ones used thus far.

The nature of communicative functionalities varies throughout different digital products that aim to entertain. In single player games, they are often secondary to the gameplay itself, i.e. off-game functionalities. These include web sites, chat forums, bulletin boards in the official Internet site, or fan sites. Off-game functionality here refers to the possibility to communicate outside the game session. Respectively, in-game refers to communication taking place during the game session and having directly to do with the game’s events. In addition, within in-game communication, there are in-role and off-role communication, i.e. communicating as the character vs. communicating off-character (for instance, discussing matters that do not have anything to do with the game events such as meeting face to face in ‘real life’).

In multi-player games, both in-game and off-game communicative functionalities can be implemented. In-game and off-game functionalities can relate to different communities: in-game relates to one’s own team, or the gameworld inhabited by the whole player population in the given time. Off-game relates to players that generally belong to the gaming or user community, i.e. use, play and discuss the same product. In practice, these communities often mix. Off-game functionalities, such as forums, can encourage players to meet and communicate in-game, and vice-versa.

4.4.1. IDENTIFYING COMMUNITIES, ACTORS AND PATTERNS OF PRACTICE

In the context of this study and the evaluation model developed, the research challenge lies in how to adapt observations about online-communities and communication to function as evaluation criteria for the purposes of analysing digital enter-

tainment products. In short, this means that the communicative functionalities of the product have to be analysed in the light of general categorizations regarding on-line communication – however, with social entertainment (chapter 2.3) especially in mind. For this purpose, we will use Nancy K. Baym’s and Thomas Erickson’s observations.

Baym (1998, 62) summarises her research on on-line communities with the following statements. The participants in computer-mediated communication 1) “develop forms of expression” that enable them 2) to “communicate social information”, 3) “to create and codify group-specific meanings”, 4) “socially negotiate group-specific identities”, 5) “form relationships that span from the playfully antagonistic to deeply romantic and that move between the network and face-to-face interaction”, 6) “create norms that serve to organize interaction and to maintain desirable social climates”. Baym also notes that a variety of outside sources, such as external contexts (habits, practices such as fandom, i.e. knowledge of other products etc.), temporal structure (synchronous/asynchronous), system infrastructure (the usability and access issues), group purposes and characteristics affect the rules and content of the interaction. These are issues that we group under the broader notion of ‘social usability’ outlined in chapter 2.1. In specific case analysis, they are brought into the study as a general, user-centred understanding of digital media.

A slightly different approach is found in Thomas Erickson’s (1997) idea of viewing long-term conversations and community as ‘participatory genre’ instead of community. In Erickson’s terms, the genre approach refers to studying on-line communication with the focus on communicative purposes, nature of the discourse community and its underlying expectations and conventions, and the reciprocal nature of a genre’s evolution between institutionalized practices and individual human actions.

In light of multi-user environments, and especially the genre-driven nature of multi-player role-playing games, this seems a relevant premise and terminological option. Susana Tosca (2002, 344–345) has studied Erickson’s characterisations of community in respect to multi-user role-playing game *Everquest* (Sony 1998–) and found that they apply without problems. According to Tosca, *Everquest* (which represents quite a typical MMORPG by today’s standards) does include Erickson’s six criteria: *membership, relationships, commitment and generalized reciprocity, shared values and practices, collective goals, and duration*. Still, Tosca ends up noting that playing *Everquest* is more about advancing one’s

character than about social interaction with other participants (Tosca 2002, 352), i.e. more a game (of emergence) than a community. Therefore, it is useful to pose the question “community or participatory genre?” and moreover, “game or world?” with the above criteria case by case.

Another useful tool for our purposes is a matrix of interaction forms and agents by Lisbeth Klastrup (2002). Klastrup’s typology is a result from studying *Everquest*. She distinguishes four interaction forms. The first, *manipulation*, consists of moving and combining objects. The second is *social interaction*. It consists of “communication and play with non-verbal and verbal cues and languages, i.e. both linguistic and paralinguistic interaction” which is unique to multiplayer games or environments. The third form, *information retrieval* consists of “providing information, obtaining or storing it”. It differs from social interaction in the sense that it might also take place between human and non-human agents, i.e. so-called non-player characters (NPCs). The final and fourth form, *navigation*, consists of moving through the game world by moving one’s avatar character. (Ibid., 335–336.) Klastrup also identifies the agents (players, objects, bots, world rules) and player types (explorers, achievers, killers, socialisers) of *Everquest*. We will use Klastrup’s general categorizations, but as our goal is to develop an evaluation model that would function on a broader scale (outside role-playing games as well) we will leave the specific player types open for analysis and define them product by product in our case studies.

4.4.2. EVALUATION CRITERIA

In general, we will adapt the central finding of the research introduced above into the following evaluation criteria. Again, we will analyse both the formal and informal aspects, and the patterns that emerge in the interaction between the two. In case of prototypes, where long-term testing and community evaluation might not be possible, empirical evidence and findings from previous cases conducted will be used in pointing out general functionalities that serve as preconditions for certain emerging communal and communicative practices.

- 1) The norms and rules that organize interaction and gameplay.
 - **Formal:** Analysis of game rules.
 - **Informal:** observations on the actual interaction forms: *navigation* and *manipulation*.
 - **Patterns:** Analysis of rule interaction.

- 2) Creation of meaning through social interaction and/or gameplay.
 - **Formal:** analysis of the forms of expression the product allows for the player(s) (communicative functionalities, in-game and off-game, both verbal and non-verbal).
 - **Informal:** observations on the actual interaction forms: *social interaction* and *information retrieval* (based on research material, e.g., chat logs, ethnographies, gameplay diaries).
 - **Patterns:** analysis highlighting the social interaction, and the relation between available functionalities and the functionalities actually used. This is complemented with possible findings on creative practices both directly within gameplay and the 'off-game' activities (i.e. unexpected rule interaction, the so-called 'shadow economy' of fan sites, user-generated game levels, modding, etc.) that have emerged among the player community.
- 3) Creation of relationships, identities, and sense of community.
 - **Formal:** outline of the agents and possible community hierarchies and their organization (player groups, teams, guilds).
 - **Informal:** analysis of player types and observations on relationships and community formation.
 - **Patterns:** definitions of player types and analysis in the form of qualitative accounts of specific gameplay events where relationships are formed. Additionally, an evaluation of the sense of community with the means of Baym's and Erickson's criteria will be included. An evaluation of the importance of communication in relation to progress (in the case of a game, in relation to goals), or creation of community is produced.

4.5. The evaluation model: operation and documentation

It is important to realize that the actual product is a sum of the four components, and more often than not, larger than a sum of its parts. However, for the purpose of analysis and evaluation, the gameplay experience has to be divided into individual components. The four components also allow flexibility, i.e. in an actual evaluation process, the leverage of the different components can (and most probably will) be modified, so that when evaluating, e.g., virtual pets or chat prod-

ucts (which are not games by definition but may have game-like functionalities), the social usability component is given more leverage than the structural one, for instance. Also, regarding games the balance between the different components will be decided according to the genre the game belongs: even though a multi-player sports game might include off-game functionalities for social interaction, it is probably not relevant to study the communicative aspects of the social playability component in their entirety, especially if social interaction is secondary to the flow experience that the game desires to produce.

In general, the evaluation model should be regarded as a toolbox of concepts and classifications, rather than a rigid system. An evaluation process needs always to start with a (brief) preliminary study where the product's genre and its general qualities are analysed and established. The leverage that will be set on the components of playability, and the necessary concepts and axis chosen to be operated with will be decided on that basis. Moreover, additional research and theory will be introduced to back up the observations when deemed relevant: e.g., a case involving co-operative gameplay will probably benefit from upcoming studies in the field.

The evaluation report will consist of the following parts: First, product outline & functionalities, where the product will be described briefly and it will be situated into relevant contexts regarding the platform(s) it operates on, and the genre within digital games or entertainment. Based on this, the evaluation components and their weighting will be documented. This leads to the analysis of gameplay/interaction patterns. Conclusions will be presented in the form of pointing out the strengths, limitations and weaknesses of the product. More importantly, suggestions for future development will be offered.

5. Case studies

The case studies will illustrate how the evaluation model works in practice. We have chosen four products in different digital entertainment genres. There is a mobile game, a multiplayer action game, a MMORPG and a visual chat environment. Each case will be approached with slightly different emphasis, ranging from expert evaluation only to play-testing with a sample of users, but yet within the framework the evaluation model provides.

5.1. *Botfighters*

5.1.1. PRODUCT OUTLINE & FUNCTIONALITIES

Botfighters is a game played with mobile phones and SMS messages. (For a more thorough discussion, see Sotamaa 2002). The player takes part in the game by registering herself a robot and giving it a nickname. The goal of the game is to search and destroy other robots. Searching and shooting takes place by sending specific SMS messages and getting the relevant information in the reply message. The game is based on GSM cell positioning. So, when a player sends a 'hunt' message to the game server, she is assigned a mission to destroy the robot (represented by the player's mobile phone) that is physically closest to her at the given moment. Then the player can send a 'search' message that tells her the distance and direction in relation to the other robot. If she is within 2000 meters, there is a chance that she might hit the robot (with basic weaponry). Via the game's web forum, the player can locate 'the base' or physical location of a bot on a map, and move physically within the distance if she so desires.

Whether using the combination of web and phone or the latter alone, sending a 'shoot [bot nickname]' message will produce a reply that tells the player whether she was successful. Often, at this stage there ensues an exchange of shots, after which one of the robots loses, as its battery charge will be depleted. In that case, she is out of the game until she recharges her robot. The winner gets credits in the form of 'robbucks' with which she can buy armors, radars and weapons for her bot, making it more powerful. One is also able to take a break out of the game, so that one can choose not to be available for searching and shooting, i.e. is not taking part in the game.

Image 1. The web interface of *Botfighters*. It displays mission information: the targeted bot is 'hyper2002' whose last known location is Mannerheimintie, Helsinki. The distance between the player (approx. 200 kilometres to the north in the city Tampere) and the bot targeted is displayed in the map diagram.

In the game's WWW site, there are both national and local ranking lists. Some functionalities (such as search) can be accessed via the web site. Also, on the web site, the physical distance of two bots is visualized on a map (see image below).



5.1.2. EVALUATION COMPONENTS

In the case of *Botfighters*, the weighting of the playability components is the following: structural–social–functional–(audiovisual) playability.

In this game, structural playability is not weighted over the social one but the use of SMS messages imposes a turn-based, reciprocal structure to the gameplay. Hence the emerging social gameplay patterns are subordinated to it. There is no means available to give immediate feedback of the gameworld in the same sense as with videogames; hence the audiovisual playability does not really exist in *Botfighters*. Rather, the gameplay consists of communicative actions (the exchange of SMS messaging) structured by the game's rules. It is important to note that the communication consists of exchanges be-

tween the game server and an individual player. The players can send SMS messages to each other, but it is not encouraged in any way nor is it included in the game's rule structure. Regarding the formal structure of the game, the players do not benefit from communicating with each other – their communication relates to the informal aspect, possibly consisting of messages like "You're going down!" Therefore the actual interaction between the players consists of the 'shoot' messages. This means that there is practically no off-game communication, and the social aspect of the game gets largely reduced to the shooting. The formal structure does not inhibit co-operative teamplay, i.e. it is a potential informal structure that emerges, but does not support it in any significant way either (e.g. by an open voice channel between the teaming players). When and if it does actually emerge would present a relevant question to study with player-testing.

However, the game makes up for this with its location-sensitivity. The result of location-sensitivity in the formal sense is that one's actual physical location has meaning within the context of the rules. In the informal sense, it adds a dramatic layer to the everyday locations that the players inhabit. This is essentially what mixed-reality entertainment concepts can do, and *Botfighters* indicates that 'low-tech' solutions such as SMS messaging can be employed to achieve the desired effect.

Regarding the contextual aspects of social playability, the game potentially builds upon the popularity of SMS messaging. This also solves most of the functional playability issues, as the messages are structured following the general conventions of mobile services: there really are no orthogonal or contextual issues. Still, the fact remains that to date users have not yet adapted the practice of using mobile services, let alone mobile gaming, in a significant way. *Botfighters* has had only little more than one thousand registered players in Finland, most of them in urban areas.

5.1.3. GAMEPLAY PATTERNS AND CONCLUSIONS

A gameplay pattern in *Botfighters* that operates on the micro-level structure is the message (and reply) chain *hunt–search–shoot*. Various states affect the variation within the pattern. There are inevitable temporal variations between the phases of the message chain (the mapping of play time and event time changes, yet never is 1:1), and the information that the player receives affects the run of the chain as well: the 'shoot' phase will emerge only if the player is physically within the required distance. Our experience shows that in the

case of no opponents within distance, a gameplay session consists of a few hunt/search messages after which the game is abandoned. One way to avoid this would be to include non-player characters that the player could engage when there are no human players present. Also, the game could take more advantage of the location-sensitivity by introducing 'hot spots' and embedding them into the rule structure.

A macro-level pattern is the one that shapes out around and in between the micro-level patterns. It consists of either upgrading the robot or recharging it, and possibly taking a break out of the game. As this takes place mostly (but not necessarily) via the web forum, which has additional, community-generating functionalities such as the ranking list, it actually becomes a pattern that exists mostly off-game, during phases when the player does not have a mission to destroy a particular enemy bot.

One of the virtues of *Botfighters* is its simplicity, which is evident from the structure of the gameplay patterns as well. This goes hand in hand with general ideas about the nature of mobile gaming being based on the brevity of the gameplay session (i.e. killing time in a public location vs. playing within one's home). On the other hand, *Botfighters* takes the contextual issues regarding the usage of mobile media into account, which makes it more interesting when contemplating the future of digital entertainment. The notes about more advanced location-sensitivity, real-time access to the map and voice channel have more to do with future concepts emerging from early, innovative products like *Botfighters*.

In conclusion, *Botfighters* serves to show that while its structure, in theory, follows the *conflict–search–conflict* structure, the technological game platform (mobile phone and SMS messaging) forces the structure to another, reduced form. Due to the fact the SMS technology is turn-based, *Botfighters* becomes a game of progression, with the *event* (mission to destroy a specific bot)–*negotiation* (the exchange of messages/shots)–*progression* (robucks and better ranking list gained) structure. The location-sensitivity and lack of NPCs leads to the fact that a game session might consist of the event part only, which, interpreted within the gameflow framework, is seldom anything else but frustrating and unenjoyable.

5.2. *Return to Castle Wolfenstein*

5.2.1. PRODUCT OUTLINE & FUNCTIONALITIES

Return to Castle Wolfenstein (iD Software 2001, hereafter *RtCW*) is a so-called First-Person Shooter (FPS) for PC, set in World War II with both single player and multi-player modes. The multi-player mode is interesting because it puts emphasis on co-operative teamwork and specific roles, i.e. it adds elements of role-playing to a game genre largely dominated by 'pure' action. *RtCW* represents a FPS subgenre made popular by team-based games striving for realism such as *Counter-Strike*. In the multi-player mode, the game pits two teams, the Axis and the Allies against each other in different scenarios. Usually one team defends a base and the other team's mission is to invade or destroy the base through certain sub-tasks such as blowing defending walls out of the way.

Besides the functionalities to move around and manipulate objects (mostly weapons but also sharing medical equipment, for instance) in a 3D environment, the multi-player mode (which we'll focus on here) has chat functionalities to support communication and teamwork.

5.2.2. EVALUATION COMPONENTS

Because we focus on the multi-player mode, the weighting of the evaluation components is the following: social–structural–functional–audiovisual playability. In practice, this means studying how the communication structures are embedded within the scenario-based macro-structures in actual game sessions. Consequently the second point to study is how the communication structures are embedded in the conflict/search-based micro-structures. To achieve this, we set up a series of game sessions and surveyed the participants with a questionnaire regarding their player experiences. It must be noted that the play-testers were rather a homogeneous group who all had previous experience from playing computer games, and especially from role-playing. These facts inevitably shaped their expectations towards *RtCW*, and therefore the findings should be interpreted with that context in mind. Then again, the play-testers definitely represented the game's potential target audience. We will first take a look at the aspects of social playability, followed by the functional and audiovisual issues. The structural aspects will be analysed in connection with the gameplay patterns.

When asked general questions about what they expect and want from multi-player games, the play-testers wished for co-operative play, interesting characters, and generally action-filled entertainment that gives birth to memorable experiences. The answers gave further evidence to support our premises regarding why digital entertainment is popular, and what are the impulses that drive people to invest their time, energy and money into games, for instance.

The functional playability issues are naturally closely tied to the fluidity of communication during gameplay. *RtCW* includes both a general chat functionality through which anyone can take part in the discussion, and a team chat for the purposes of planning strategies and communicating spontaneously during the game in the context of the team's goal. Additionally, 'quick chat' commands can be accessed through keyboard shortcuts. They produce pre-set utterances, such as "Medic!" to indicate that the member of the team is injured and in need of medication. These and the general control schema are implemented according to FPS standards, i.e. using the keyboard and the mouse in combination to play the game. For the most part, the play-testers found the interface intuitive as they had previous experience from playing FPS games: the orthogonal and contextual solutions were highly conventional. As a result, there was really no learning curve regarding the controls other than using the chat functionalities. Especially the quick chat commands that were implemented in the form of key combinations presented too complex orthogonality. Still, learning to play the game had mostly to do with understanding the teamwork and scenario dynamics. This is mostly what distinguishes an expert player from a novice: the expert player has mastered the fundamentals of the interface and therefore has advantage when it comes to strategic considerations on how to succeed in reaching the game's goals (cf. Laramée 2002, 65).

The quality of *RtCW*'s social playability is evaluated on the basis of the functionalities making communication and co-operative play possible. The informal use of these formal aspects is highlighted with findings from the play-testing sessions. The play-testers felt that the communicative functionalities definitely enhanced the gameplay experience, but generally moving around the map and chatting at the same time was considered difficult. Voice messaging was something that many wished for (it is possible with additional hardware). Still, the team-based chat was used for planning strategies and informing team members about one's location on the map. According to the play-testers, chatting made one iden-

tify more strongly to the action and tasks and made the game world livelier. Whereas the team chat was used for in-game communication, i.e. relating directly to events in the game world, the general chat was used for off-game discussions about the game and the results.

We asked the play-testers a series of questions about whether playing *RtCW* gives birth to a sense of community and if so, how does it become apparent during the game. The play-testers felt that working together for a common goal was the most significant factor in creating, if not a sense of community, at least a 'team spirit'. Winning a scenario was the event that seemed to unite the team and give birth to a sense of 'us' (versus 'them'). The simple rule structure (Axis vs. Allies) in *RtCW* is, of course, designed to support this kind of identification. Communication and co-operation were seen as the preconditions for any kind of sense of community to develop, and a long-term devotion to planning strategies (also in off-game settings) was seen as something that would stitch the team together. As one of the play-testers (M75⁴) noted, the team spirit probably grows stronger if one knows the other players beforehand. A study by Rauterberg (2002) has indicated that the importance of a shared social space helps in turning a competitive gaming situation into a co-operative one, and possibility for continuous spoken communication affects the extent and stability of co-operative behaviour. Hence the play-testers' wishes for voice messaging are not to be overlooked. The play-testing sessions did take place in a classroom, i.e. a shared social space, which allowed for spontaneous off-game communication.

⁴ We refer to individual respondents with the abbreviation 'M[ale]/F[emale] [year of birth]'.

Before moving on to the structural issues, let us look at the issue of audiovisual playability. As the game is based on WWII scenarios and aims to create a sense of real war, it is not surprising that the audiovisual style of *RtCW* is firmly rooted in the pursuit of photorealism. It follows the FPS genre conventions in its 1st person point of perception and 3-dimensionality without exceptions. This combination is highly functional, as the subjective point of perception into a seamless 3D world maps play time and event time in 1:1 relation to each other, and even more so, as the general experience that the game aims for is the immediacy of battle in a free-form environment (instead of, e.g. an approach that a war game in the strategy genre would take). The use of sound in *RtCW* is effective in capturing this atmosphere, and there is welcome variation in the different maps in this sense also, ranging from the constant thunder of air strikes in the 'Beach' map to the occasional piano music in the indoor locations of the 'Village' map.

The play-testers were impressed by the sense of realism the game conveys, but they complained about the Axis and Allies uniforms being too similar, which caused confusion in the heat of the battle. There are certain visual cues such as the player nickname and the health bar the function of which is especially to help in spotting a teammate, but apparently the cues did not always seem to be clear enough in relation to the tempo of the game. Certain inconsistencies of the game world caused frustration, e.g. when a number of grenades or a bazooka did not blow a door open but a single explosive did. As a conclusion: the audiovisual implementation of *RtCW* supports the gameplay without major problems and even manages to make some of the inconsistencies seem less frustrating.

5.2.3. GAMEPLAY PATTERNS AND CONCLUSIONS

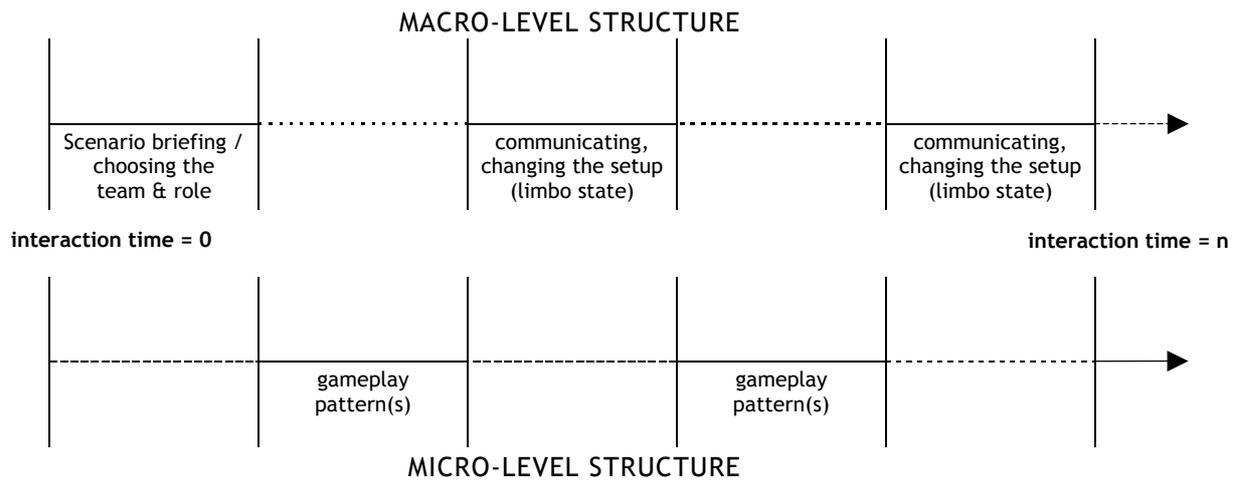
As with many action-orientated games such as the deathmatch modes of *Quake III: Arena*, the dominating gameplay pattern is *conflict–search–conflict* (as noted in chapter 4.2.2). The conflicts consist of battling with the enemy or enemies. If the player dies, she usually goes into a 'limbo' after which she will 'respawn' into another location within the game map. If she wins the battle, she will either search for weapons and health, hide and/or seek another conflict. Being successful in these games has a lot to do with knowing the map, and usually players develop practices of 'doing rounds', i.e. moving through the same route (where her favorite weapons and other pick-ups are located) again and again while the game lasts.

The gameplay elements designed into *RtCW* guide players into similar patterns, but the teamwork and roleplay aspects do make the patterns somewhat more complicated, or at least there emerges more variation. The search phase of the structure gets emphasized, because often it is not about picking up health packs and weapons (as there mostly is none) but finding specific locations and one's team mates, and more importantly, communicating about the strategy that all the actions (in an ideal situation) are part of. In *RtCW*'s limbo state, the player can change her weapons, her role or even change sides.

The following structures can be concluded from *RtCW* by adapting the generic model (see chapter 4.2): the dominating gameplay pattern is *conflict–(communication)–search–(communication)–conflict*. The brackets indicate that it is completely possible to play without communicating, but it is highly uncommon. One of our play-testers (M80) noted that without communicating with one's teammates, success in the

game becomes completely random. This differentiates *RtCW* from similar games without the teamwork aspect (e.g. death-matches where individuals battle for and by themselves). The unexpected but always present possibility of dying (and consequently respawning) is the factor that shifts the player's attention between the micro-level and macro-level structures (the limbo being the concrete in-between state). The structures are illustrated in the figure below:

Figure 2. The structural model of *Return to Castle Wolfenstein*.



RtCW's structural playability is also shaped by the different roles that the players can choose. Generally the different roles (soldier, medic, engineer, lieutenant) have special abilities and limitations. The role and the weapons one chooses affect the resulting gameplay patterns: if one plays the medic, the search phase of the generic structural model develops into searching for the injured team members and giving them medical assistance. This is intertwined in the basic task of trying to survive in the middle of the battlefield. With the engineer, one usually has the task of deploying or disarming explosives, and the search phase takes shape respectively. Playing the soldier follows the generic pattern to the fullest degree, but variety is introduced in the form of the different weapons that affect one's ability to move around (for instance: the larger and more powerful a weapon is, the heavier and therefore slower to carry around it is).

In terms of design, the roles are significant in the sense that they guide the players into co-operation: soldiers provide protection to engineers, medics aid the wounded and the lieutenant provides the others with extra ammunition, or calls air strikes. The roles also allow players with different skills and preferences to take part in the game. Most of the play-testers learned to like one particular role better (especially the medic) than the others. One of the play-testers (M75) com-

mented that he likes to play the medic because it automatically assigns him into co-operative relationship with the other players. Another observation (M76) was that even if the battle is lost, the different roles allow 'small victories' even for less skilled players, and consequently the gameplay feels more rewarding for everyone involved. On the other hand, the engineer's role was felt to be too important in certain scenarios, and one play-tester (M75) made the observation that the soldier was the only role where he felt he was playing alone.

In conclusion, it is evident that *RtCW* has numerous design solutions that work for its benefit and that can be learned from. The tried and tested multi-player FPS structure with its gameplay patterns is made more varied by introducing the different roles with abilities and limitations. One cannot underestimate the importance of the way the roles are designed to relate to each other. The design creates a framework of interaction (gameplay and communication) where meaningful teamwork is possible. As our play-testing sessions showed, the different character roles introduce necessary flexibility so that players of various skills can take part in the game. Built on top of this rule and gameplay structure, the WW II setting makes the gameplay scenarios familiar from not only history but also numerous familiar forms of popular culture and fiction. This lowers the threshold to identify to the action and its fictive context. As the audiovisual implementation and functional issues manage to support the gameplay structure more than adequately, it is not surprising that *RtCW*, and especially its multi-player mode, has been very popular.

5.3. *Dark Age of Camelot*

5.3.1. PRODUCT OUTLINE & FUNCTIONALITIES

Dark Age of Camelot (Mythic Entertainment 2001, hereafter *DAoC*) is a MMORPG for PC. In the game, players create a character and enter the fantasy on-line game world to role-play, develop their characters and take on quests according to RPG conventions. MMORPGS like *Ultima Online*, *Everquest*, *Asheron's Call*, *Anarchy Online*, and *DAoC* essentially present an audiovisual evolution from the text-based multi-user dungeons (MUDs). *DAoC*'s original aspect is the Realm versus Realm conflict and the specific rules that ensue from that. Players that belong to the same Realm cannot harm each other, but the members of the opposing Realms are enemies. One cannot communicate with them either. This solution has been designed into the game so as to prevent so-called player-

Image 2. A screenshot demonstrating the *DAoC* interface. In the bottom left corner, there is the character information window. On the middle, the chat window (divided into two parts: the game messages are displayed on the top half and the chat goes on below), and the right side of the screen is occupied by the control panel window, at the moment displaying the inventory panel. On the top left corner, there is the quick bar which can be used to access abilities, spells etc.



5.3.2. EVALUATION COMPONENTS

In the case of *DAoC*, the weighting of the playability components is social–structural–functional–audiovisual playability. Most of the analysis will consist of detailed analysis with the social playability framework introduced in chapter 4.4.2. The informal aspects will be highlighted through findings from the gameplay diaries that were provided by our test players. They were highly experienced in roleplaying but did not have any previous experience from MMORPGs. (In addition, the authors of the study spent various hours playing the game both together and by themselves.)

Norms and rules that organize interaction and gameplay

The Formal aspects of the rules include the following: The rules operate on the game environment where one can move by foot, by horseback or by water (by swimming). *DAoC* is not directly based on well-known RPG rule-systems such as *Dungeons & Dragons* but resembles systems found in traditional swords & sorcery RPGs. Rule-systems like these dictate how the characters gather experience points by completing quests and defeating hostile NPCs, among other actions. It is noteworthy that, unlike in table-top-RPGs, chatting – i.e. social and performative skills – does not accumulate points in *DAoC*. Finally, there are the Realm-based rules, such as the inability to communicate with players from another Realm.

We will study the informal aspects with observations on the actual interaction forms: First, the actual *manipulation* practices. In *DAoC*, one cannot destroy objects in the game world, but one can share loot or objects with players from one's own realm. Even if a player drops or forgets to pick up loot, only she can pick it up. One can only attack generic monsters (including animals, such as badgers and 'water beetle larvas'), not other kinds of NPCs or horses. Additional ways of manipulation include sitting on tables and 'sleeping' on beds. The appearance of the character can be customised with dying one's clothes and armours (this requires in-game currency). Objects can be traded between players, which enhances the co-operative aspect of gameplay. The 'trade skills' are character abilities with which one can manipulate objects within certain pre-designed combinatory schemes. In practice this means making items for use such as weapons, arms or clothing.

The most common form of manipulating the game world is fighting with the NPCs (mostly different monsters). Once initiated (the player targets an enemy and assumes the combat mode), the battle is an automated exchange of hits. The outcome of the battle is decided on the basis of hit points: the combatant that runs out of points first, dies. The following excerpt from a chat log illustrates how the battle unravels and how the player gains experience points and loot from winning the battle.

```
[21:16:55] You critical hit for an additional 3 damage!  
[21:16:56] The orchard nipper attacks you and misses!  
[21:16:58] You attack the orchard nipper with your  
falcata and hit for 9 damage!  
[21:17:00] The orchard nipper hits your head for 14 (+2)  
damage!  
[21:17:01] You attack the orchard nipper with your sword  
and hit for 13 damage!  
[21:17:01] You attack the orchard nipper with your  
falcata and hit for 11 damage!  
[21:17:01] The orchard nipper dies!
```

[21:17:01] You get 176 experience points. (16 camp bonus)
[21:17:01] The orchard nipper drops a small copper ring.
[21:17:01] The orchard nipper drops a red apples.
[21:17:01] The orchard nipper drops a bag of coins.

Second, there are the actual *navigation* practices: travelling by foot is the default mode of transportation, but a faster transportation method is available via horseback riding. The players are able to buy a horse from specific NPCs. The interface includes a compass to help the players navigate. Also, when travelling in groups, a player can 'auto-stick' to another character to follow her automatically.

What, then, are the patterns, i.e. the forms of rule interaction resulting from the combination of the formal and the informal?

Quests and tasks are the formal structures that guide players into certain patterns other than free-form navigating, fighting and communicating. They combine navigation, manipulation and communication, however, mostly with NPCs (which is why we categorise them under this section instead of the one analysing social interaction). Tasks differ from quests in that they must be completed within a two-hour time limit. Quests often involve acquiring and taking specific objects to NPCs. For example, one must kill bear cub and take its fur to someone. Players are motivated into completing quests and tasks in the promise of gaining valuable objects, currency and experience points. The following is an excerpt from a chat log where the player is assigned a quest by a NPC named 'Cristin'.

[21:38:16] You have been given the Cristin's Supplies quest.
[21:38:16] ##Cristin says, "I am so pleased you have agreed to help me. I will tell you the things I need, and if you are able to retrieve them all, I will pay you well. There are [three things] on the list my cousin sent me."
[21:38:19] ##Cristin says, "All three things can be found either around Lough Derg or in the Silvermine Mountains. The first object sounds strange, but it is what he has requested. I need you to get some warts from the hill toads. They are easy enough to get, don't you think? Now, for item [number two]."
[21:38:22] ##Cristin says, "My cousin has requested that I obtain for him a set of wings from a water beetle. I know I've seen them around here in Lough Derg. They shouldn't be too difficult to get. Now, for the [third item]."
[21:38:29] Halo was just killed by a fishing bear forager!
[21:38:32] ##Cristin says, "I know what he uses this third item for. Spraggonite hides make wonderful patches in torn leather. Please get a hide from a spraggonite either here in Lough Derg or in Silvermine Mountains. Once you have all three items, return to me here."

Creation of meaning through social interaction and gameplay

The formal analysis accounts for the forms of expression the product allows for the player(s), i.e. the communicative functionalities, in-game and off-game, both verbal and non-verbal. The game world has plenty of cities to encourage communal rituals such as simply gathering together to communicate. Various communication functionalities include different chat channels where specific commands are typed to address specific groups or characters: 1) the 'say/reply' is used both for player *and* NPC communication within close distance, 2) private send/reply is used for communicating one-on-one with an individual player ('send [character name]'), 3) the group chat includes group functionalities and advantages (for instance, experience and loot are shared), 4) guild chat relates to guilds in similar fashion, 5) broadcast chat is location-based general chat (every player within certain distance – e.g. in a town – hears what one says), and 6) friend messages are used only for chat, no experience and loot are shared, but the players can create a 'friend list' and consequently they are informed when the friend(s) are on-line and in the game. The different channels are color coded, the colors being completely customisable. There are also non-verbal means of communication in the form of animated emotes, which include such gestures and actions as kiss, wave, dance, clap, blush, and many others.

The informal analysis produces observations on the actual interaction forms: *social interaction* and *information retrieval*. These will be based on the chat logs and gameplay diaries of actual sessions conducted within the prestudy.

Based on our findings, the player's in-game communication (in-character) was within the public channels (via the 'say' command) and off-character comments were private messages, or if a group chat was formed it was used for this purpose. The gameplay diaries indicate numerous cases where non-verbal communication (the emotes) is used extensively to enliven the chat. An example:

```
[03:36:34] @@<Sable grins >
[03:36:47] @@<Halbarad laughs aloud>
[03:36:54] @@Halbarad says, "And right he was"
[03:37:18] @@<Sable smiles >
[03:37:27] @@You say, "Oh, I think I turned out
          alright."
[03:37:48] @@Auscia says, "Yes, you did."
[03:37:53] @@<Auscia raises her mug>
[03:37:59] @@Auscia says, "To you, Sable."
[03:38:00] @@Halbarad says, "He has nae reason tae
          complain, I am sure"
[03:38:11] @@Halbarad says, "To you and yer dad, Sable!"
[03:38:26] @@<Auscia looks at Sable very intensely>
[03:38:26] @@<Sable shrugs, raising her cup>
[03:38:32] @@<Auscia smiles >
[03:38:41] @@<Auscia drinks deep>
```

```
[03:38:43] @@<Halbarad drinks >
[03:38:54] @@<Sable drinks >
[03:39:17] @@Auscia says, "Ahh... Good stuff, this is!
          You hear that, barkeep! "
[03:39:22] @@<Auscia chuckles >
```

An example of off-game communication as a particular instance of social interaction is demonstrated below in the form of a discussion concerning a World Cup penalty shoot out taking place at the same time:

```
[17:00:20] @@<Auscia sheds a couple of tears>
[17:00:20] @@[Guild] Fonzy: "man thats real drama
          penalties"
[17:00:25] @@Ruddyn says, "i too was damaged"
[17:00:26] @@[Guild] Fonzy: "football is drama"
[17:00:31] @@[Guild] Tusk: "=D"
[17:00:31] @@Ruddyn says, "but time is a great healer"
[17:00:40] @@Ruddyn says, "a few years ago... i felt as
          you"
[17:00:40] @@You say, "I know."
[17:00:53] Your friend, Sable, just left the game.
[17:00:54] @@Ruddyn says, "i thought theer was no way I
          could love another"
[17:01:01] @@Ruddyn says, "but I was wrong"
[17:01:09] @@Ruddyn says, "I hope you are proved wrong
          too"
[17:01:21] @@<Auscia looks away>
[17:01:25] @@You say, "Time will tell."
[17:01:38] @@Ruddyn says, "come on m'lady!"
[17:01:41] @@You say, "It's only recently that I've
          begun to let go of my past."
[17:01:43] @@Ruddyn says, "enough tak"
[17:01:45] @@[Guild] Fonzy: "First penalty: robbie
          keane"
[17:01:53] @@[Guild] Fonzy: "tension...."
[17:01:56] @@Ruddyn says, "there is no rush"
[17:01:57] Mono was just killed by a lunantishee!
[17:02:02] @@[Guild] Fonzy: "GOAAAAAAAAAAL"
[17:02:04] @@[Guild] Xero: "GWAN"
[17:02:05] @@Ruddyn says, "I am a patient man"
[17:02:06] @@You say, "Things will change, and my heart
          will heal, but it will take time."
[17:02:07] @@[Guild] Fonzy: "1-0"
[17:02:07] @@[Guild] Menion: "yea, with teh amount of
          crying that goes in a normaly football game,
          ud think its a drama :/"
[17:02:14] @@Ruddyn says, "i can wait"
[17:02:21] @@[Guild] Oculus: "lol"
[17:02:28] @@[Guild] Fonzy: "hierro"
[17:02:28] @@<Auscia smiles a little>
[17:02:29] Puffo was just killed by a lunantishee!
[17:02:34] @@[Party] Ruddyn: "BRB phone call"
[17:02:38] @@[Guild] Fonzy: "1-1"
```

Forms of *information retrieval*, i.e. providing information, obtaining or storing it, takes mainly place in *DAoC* by talking to the NPC characters or asking fellow players for directions and other hints.

We will now highlight the social interaction and the functionalities actually used to generate certain gameplay and interaction patterns. The following three excerpts from chat logs (by two different players) illustrates how the private messages and different chat channels (indicated by the brackets) intertwine into actual gameplay patterns within the macro-

structures of moving around the environment, completing tasks and so on. The first excerpt ends by pointing out one important function of in-game communication, i.e. informing other players about one's location ("we're back in nog" refers to Tir Na Nog, a city in the Realm of Hibernia). The private message by character called Auscia also demonstrates a practice that this particular group of players developed, i.e. making a rhetorical gesture of sending messages via sparrow hawks while in fact using the standard private message ('send') functionality.

```
[00:39:02] You sit down. Type '/stand' or move to stand up.
[00:39:15] @@<Sable smiles >
[00:39:17] Talwraith bows to you.
[00:39:33] @@Talwraith says, "You crept up on me there m'lady"
[00:39:35] @@Auscia sends, "A sparrow hawk circles and lands on your shoulder, bearing a message. "Should you need me again, my friend, do not hesitate to send a messenger hawk to me. - Auscia""
[00:39:48] @@[Chat] Sable: "You seemed to be busy..."
[00:39:58] @@You say, "YOu seemed to be busy..."
[00:40:09] @@[Chat] Ruddyn: "we're back in nog"
```

Besides the color codes, different chat channels are indicated with the '[channel]' prefix: [Party] and [Guild] are such in the following excerpt.

```
[01:58:51] @@[Party] Auscia: "Shall we wait?"
[01:58:56] @@[Party] Halbarad: "give me another minute please"
[01:59:03] @@[Party] Drizza: "rdy, I'll pill this one"
[01:59:07] @@[Party] Halbarad: "aye, let's not go too deep"
[01:59:10] You target [the underhill compatriot]
[01:59:10] You examine the underhill compatriot. It is friendly.
[01:59:13] @@[Party] Auscia: "Wait!"
[01:59:15] Drizza shoots the the rock sprite with his bow!
[01:59:15] @@[Guild] Myrianda: "nomore purple in rvr =)"
```

One of the norms organising communication has to do with what are appropriate channels for certain kinds of discussions. In the end of the following excerpt, the character called 'Talwraith' informs the other player about these norms:

```
[22:29:51] @@Lifegad says, "If anyone got some reinforced armour (sleeves, boots or/and helmet) i am intrested. Af should be at +30 and absorb 19% or better....."
[22:30:00] @@You say, "We were just talking artisans -- add Auscia to the list as one damn fine flecher."
[22:30:06] @@Lifegad says, "I can pay a little"
[22:30:08] @@Auscia says, "I have some."
[22:30:15] Lifegad bows to Auscia.
[22:30:31] @@[Guild] Talwraith: "Try and keep game mechanics on the Guild Channel, Main is for roleplaying :-)"
```

The creation of relationships, identities, and sense of community

The formal community structures include the agents and community hierarchies and their organization. In the case of *DAoC*, the most mundane hierarchical system is the level system that basically differentiates novices from experts, and shapes the outcome of battles and interactions accordingly. When forming guilds and groups, the players' levels are the most significant factor, at least among those playing the game with the emphasis on gaining levels for their character ('achievers' according to Klastrup's categories).

The actual formal community hierarchies are player groups and guilds. Forming a group is both a practical arrangement to be able to communicate within the group channel, and if the group engages in a fight, the experience and loot are shared. In practice, it is not useful to form a group with heterogeneous character levels for fighting purposes, as the lower-level players do not benefit from the experience points.

There are two large-scale community hierarchies: the Guild rank and the Realm rank. The Guild Master (the one who has created the guild) controls the Guild rank, and it is used for giving different status within the Guild, such as who is able to recruit new members or bear the Guild emblem. The Realm rank is a formal structure embedded within the rules: it accumulates from taking part in the player versus player battles between the Realms.

The informal community structures are those that actually emerge during gameplay. The informal practices associated with these formal structures arguably vary. We will present observations on relationships and community formation based on our research material. The gameplay diaries indicate that at least one informal practice results from the Guild rank: the one who has the highest rank has more influence on the actions and decisions of lower-rank members. Another informal practice that emerged from Guild membership, other than asking for general assistance, was that extra loot or objects were offered to Guild members first and only after that to other players. The following is a chat log excerpt from such exchange:

```
[23:07:02] You examine Talwraith. He is a member of the
          Blademaster class in your realm.
[23:07:05] You accept the trade.
[23:07:06] You have accepted the trade.
[23:07:06] Talwraith has accepted the trade.
[23:07:06] Trade Completed. 1 items for 0 items.
[23:07:20] @@[Guild] Kasey: "sorry was afk"
[23:07:35] @@[Guild] Sable: "grifonhead cloakpin, char
          +3, quick +6"
[23:07:38] @@[Guild] Kasey: "thx"
[23:07:40] @@[Guild] Venia: "many thanks jode :)"
```

```

[23:07:45] @@[Guild] Venia: "hello all"
[23:07:55] @@[Guild] Talwraith: "Anyone want Siabrian
Sword Baldric +3 dex +6 hits?"
[23:08:05] @@[Guild] Talwraith: "Greetings Venia"
[23:08:11] @@[Guild] Kasey: "jakoran try these"
[23:08:22] @@[Guild] Auscia: "Tal, let me see..."
[23:08:33] @@[Guild] Jakoran: "thx Kasey, they look good
..."
[23:08:46] @@[Guild] Kasey: "i have more i'm sure"
[23:09:16] @@[Guild] Sable: "also rogue captain pendant,
dex+3, quick +3, stealth+1"
[23:09:18] Oober dances!
[23:09:20] @@[Guild] Auscia: "No good for me, so I'll
pass it a long."
[23:09:26] @@[Guild] Talwraith: "Okay remember everyone,
if you get drops you dont want offer them
out to the guild, someone will probably need
them"

```

Our play-testers reported hearing from several players that the social dimension of Guild membership was their only reason for playing *DAoC*. For our play-testers, who were inclined to role-play rather than gain levels, the Guild provided an organisation for interacting and co-operating with like-minded players. Guilds foster commitment, and therefore are an efficient yet simple community-generating structure within the game. The function of the Realm rank seems to be a form 'symbolic capital' and hence a higher sense of appreciation within the Realm members.

Image 3. A screenshot of a Guild meeting.



We will present the resulting patterns as a general (schematic) analysis of player types and gameplay impulses, and evaluate the sense(s) of community that the product is able to give birth to.

First of all, according to our findings, there exists a definite drift in the *DAoC* world between those who prefer to role play, i.e. use rhetorical skills in developing their character, and those who prefer gathering experience points to advance in the game. It appears that prevailing gameplay practices in *DAoC*, too, are about advancing one's character (so-called 'level-hunters') and not about interacting socially with other players and engaging in role-play. We referred earlier to Susana Tosca's similar observation regarding another MMORPG, *Everquest*. Also, according to our observations, the number of role players seems to be marginal in comparison to the number of 'level-hunters' playing *DAoC*. Similar evidence is found in other studies of MMORPGs: in Nicholas Yee's study of *Everquest*, the respondents ranked 'gaining a level' as the single thing that gives most satisfaction, and when creating a player-character, it is the strategic abilities to act within the rules, i.e. win fights, that matter the most (Yee 2001, 19, 23).

This directly influences the sense of community that the game potentially produces, or at least divides the player community as a whole into two opposing camps. The diary notes demonstrate that the main reason for this is miscommunication: the level-hunters communicate with acronyms and codes, discussing how to master the rules and gameplay mechanics, whereas role players try to develop their characters and the sense of community with more sophisticated rhetorical means. As a result, the two do not understand each other, which would be the minimal prerequisite of communal activities. For both separate communities, communication is essential to foster a sense of group (or guild) spirit, but the communicative expressions remain decidedly different in nature (functional vs. rhetorical). The use and creation of a language mainly consisting of deletions, abbreviations and shortenings has been observed in studies of online communication (see, e.g., Cherny 1999, 85–95) as a typical means to generate a sense of community. These practices apply to the Realms of *DAoC* as well.

Furthermore, this leads to the fact that neither Erickson's nor Baym's criteria for on-line communities do not apply very well to *DAoC*, at least not at the scale of the player community as a whole. Obviously the role players do not find the social climate of the level-hunter dominated world desirable, as one of Baym's criteria would require. The values and prac-

tices, as Erickson suggests for participatory genre, are not shared between the two factions, which affects other criteria directly: the forming of relationships suffers, there are no (universal) collective goals, and so on. However, evidently the small-scale community structures, especially guilds, do provide a haven for players with shared preferences towards gameplay. Hence, our playtesters joined guilds whose members valued role-play over level-hunting.

Whereas the sense of community fostered within the role players has to do with creating and sustaining a believable fictitious presence and narrative context (both regarding the character and the world she inhabits), the level-hunter community is based on interacting with the rule structures and the communication is mostly off-game and off-character in its nature. The sense of community can vary from weak to strong in both cases, but the point is that the two types of player communities do not combine. According to our findings, level-hunters either dismiss the role players' attempts at communication with acronymic jargon or develop a sarcastic attitude towards them, as the following quote by a level-hunter suggests: "I'll just hang around until I get tired of your rpgish". The level-hunters' attitude towards the game is clearly the one of *ludus* (see chapter 2.2), i.e. they regard the game as rule-based, competitive structure to be mastered. The role players' attitude follows *paideia*, focusing on social interaction and mimicry. As a result, the player experiences become rather opposed, which is not necessarily problematic, but can turn out to be undesirable and off-putting for marginal player groups, such as the role-playing community in this case. In product development, these issues come down to defining target groups and based on that, either designing products that foster plural gameplay and interaction practices or going for more rigid solutions that can be designed and controlled more thoroughly but leave less space for player/user creativity. If implemented systematically, the first solution produces a game of emergence, the latter a game of progression. However, as we have seen, a hybrid structure can produce the desired results.

Functional and audiovisual playability

Implementing all the functionalities into the combination of mouse and keyboard is not simple, and this shows in *DAoC* as a considerably steep learning curve. In addition, the game world is modelled in 3D, which makes the control scheme more complex. As a result, *DAoC* has complex orthogonality *and* contex-

tual controls, and some problems result from that. Our experiences and the gameplay diaries indicate that before interaction with other players was at all possible, it required mastering many other controls, such as moving, controlling the point of perception and finding the necessary keyboard shortcuts. The possibility to customise the controls and the interface layout turned out helpful. In any case, as long as the interface remains an obstruction, the chance to gain a rewarding and meaningful player experience is nearly impossible.

DAoC's functional playability does not consist entirely of audiovisual interface issues but also the other input/output systems, such as the means of communication. In the context of NPCs, the text parser and the required syntax can become an issue. There appeared problems with some of the quests, as the NPCs seemed to understand only quest-related keywords and they were not always able to pick them out from complete sentences. This has to do with the consistency of the game world as well: if the NPC does not have a quest for the player, virtually no communication is possible.

The audiovisual appearance of the swords and sorcery fantasy world of *DAoC* is implemented following illusionistic photorealism, i.e. trying to represent fictive environments, objects, and characters as they had real-life counterparts. The game has an option between 1st and 3rd person points of perception, the first making the controls and combination of dimensionality and Point of Perception familiar to FPS players. However, at least based on numerous screenshots on the game's fan sites, the 3rd person PoP seems to be more popular.

DAoC's audiovisual implementation manages to push some of the functional issues to the background. The Realm worlds with realistic landscapes of illusionary environments, simulated weather and the day's cycle are able to provide aesthetic feedback and sensations that enhance the player experience. However, the time of day or weather does not affect the player in any formal way, i.e. these audiovisual effects do not have meaning within the formal structures.

5.3.3. GAMEPLAY PATTERNS AND CONCLUSIONS

Structural playability regarding *DAoC* has mostly to do with how the simulation of the fictive world is organised and designed, i.e. the believability and consistency that it either achieves or fails to achieve. In practice this means that the formal structures (environment, rules, NPCs) should guide the informal gameplay practices and patterns. This serves to illus-

trate how important the design of the game environment (in practice, the map/level design) is.

Our evidence suggests that between the *DAoC* Realms there are differences that foster different gameplay practices. During the time period the study was done, the Realms of Hibernia (via the Excalibur server in UK) and Albion (via the Prydwen server) were virtually devoid of role players, yet the Realm of Albion had elements that supported role-play better: inns where one could order food and beverages and gather in empty rooms for the night, and so on. However, few players seemed to take advantage of these functionalities that are clearly designed and implemented as community-enhancing features.

The character development is clearly the central formal macro-level progression structure that runs throughout the game. Although MMORPGs cannot be completed or won, i.e. there is no clear end to the game of progression, they do offer certain replay value in the form of alternative or 'secondary' characters. In *DAoC*'s case the players are able to have four different characters in each game server. As the servers (and therefore characters) are dedicated to certain Realms, playing in a different Realm is only possible by deleting all the old character(s) and by creating a new one.

In the on-line world of *DAoC* play time and event time are constantly in 1:1 relation to each other. This means that (outside character development) there are no clearly distinguishable micro and macro-level structures, as quest briefings and such are integrated into the gameplay patterns. The only macro-level structure is the interface with the inventory and skill windows etc., which (as was indicated above) can make the gameplay experience frustrating at times.

As a result of the combinatory structure, the gameplay patterns become at once both more varied (e.g. fighting vs. chatting) and less isolated from each other. The auto-stick and auto-run features allow navigating from one place to another to become subordinated to communicating at the same time (which is very different from the rather distinct patterns of moving and communicating in *Return to Castle Wolfenstein*, for instance).

One technique to dictate the players' actions, i.e. structure the gameplay, is the placement of monsters and other NPCs into the game world. These are necessary so that the rules (especially the experience points and character levels) have any meaning, and they give the players something to do besides exploration. For a novice player, the gameplay structure follows largely the *search–conflict–search* pattern, with

possible in-between chat sessions. As the player gets into the game and begins to accept quests and so on, the search phase gets emphasised and more varied: it cannot be reduced to conflicts only. Communication, whether in/off-game or in/off-character, gets more frequently inserted within the pattern, and gameplay sessions can also consist of communication only.

Although *DAoC* has plenty of NPCs and quests, these formal structures are not dynamic enough to produce a sense of consistent, causal world. If the player completes the quest, it does not have any effect on the game world other than indirectly through the experience points or objects the player gains. For instance, a quest that involves killing an infamous elf, although completed successfully, is recreated for the next player (in practice, the elf is reborn). Admittedly, this design issue has to do with so-called online persistency (Sikora 2002, 255–256). Complete causality would require that the player(s) would not log-off at all and play 24 hours a day. The reproduction of the enemies etc. for the other players is basically a solution with which to acknowledge this fact and a means to work around the problem. The fact that the other player might not be playing while another tackles the same (already defeated) enemy allows for taking design shortcuts even if the overall consistency would suffer.

As noted already above, there are really no concrete ways to leave one's mark to the game world: carrying the Guild emblem is one of the few possibilities in doing that, and rather trivial one at that. One's interaction with the enemies is reduced to fighting, and hence it oscillates on the axis between death and victory. The background setting with the war going on between the Realms does not have any influence on the average player who does not want to engage in player versus player combat. Our play-testers also observed that all the NPC enemies are basically similar to each other: they fight with one tactic only, the lone difference being magic powers that they might possess.

In conclusion, there is danger that the means to act in the game world start to feel trivial. When the formal structures provide virtually no means to affect the game world, non-trivial interaction has to result from the informal structures, i.e. what the players do. This is not necessarily a problem, but the question is whether the pre-designed formal structures are balanced with the informalities, i.e. what the players want to do and with what purposes and impulses have they began to play the game. For level-hunters the lack of consistency and non-triviality does not seem to matter, as they enjoy the trivial and repetitive actions that generate experience points (and

consequently character levels), but role-players try to compensate for the triviality with rhetorical means. The communication functionalities, Guilds and the possibility to add a character history are the pre-designed structures to assist on the role-playing practice. Therefore it is up to individual players' or groups' narrative competency how enjoyable the role-play and general player experience turns out to be.

At the time of writing, *DAoC*'s European servers are about to be updated with a pre-designed event structure familiar from other MMORPGS (especially *Asheron's Call* and *Anarchy Online*). According to Mythic Entertainment, the events and campaigns are supposed to bring variation to the 'daily routine' of the players and promote role-play.

5.4. *Habbo Hotel / Hotelli Kultakala*

5.4.1. PRODUCT OUTLINE & FUNCTIONALITIES

Hotelli Kultakala ('Hotel Goldfish') was launched in Finland by Sulake Labs in 2000. It is an audiovisual chat environment in the WWW that can be accessed by a web browser with the *Shockwave* plug-in. A version for the international market, *Habbo Hotel*,⁵ was launched later. It is basically the same service but with more rooms and some extra functionalities such as the 'mobile link' within UK. The service is described in the site as follows: "Habbo Hotel is a chill-out space where you can hang out with your friends. Guests are represented in the hotel by a personal figure called a Habbo." According to Sulake Labs, Habbo has 2.2 million registered users. A new user is registered every 11 seconds, and the average duration of a visit is 35 minutes. Most users fall within the age range of 12 to 18 years. (Haro 2002.)

⁵ <http://www.habbohotel.com/>

We noted that *Dark Age of Camelot* presented a case of evolution from multi-user dungeons to audiovisual MMORPGS. *Habbo Hotel* threads a similar path: it belongs to the same historical context of digital multi-user products (e.g. LucasFilm's *Habitat*, see Morningstar & Farmer 1991), but without the game elements. There are no formal goals or rule systems, only informal ones resulting from users interacting with each other and the environment. The user generates a character and enters the environment where one can move around, chat, dance and play checkers, for instance. The environment shapes the user experience in a significant way, which is why we will devote more space to analysing how do social and audiovisual playability combine in this case. *Habbo Hotel* pre-

sents a case of popular digital entertainment, and to be more specific, a case of social entertainment.

The interaction functionalities in *Habbo Hotel* are simple. One can communicate verbally in three 'tones' of voice: say, shout and whisper. The utterances are displayed in speech bubbles, and the chat is contextual in the sense that one's character has to be close enough in physical distance to another character in order to 'hear' (i.e. see) what the other is saying (see the screenshot below). There is non-verbal communication in the form of 'dancing' which results in an animation of the character dancing, i.e. the functionality is basically an animated emote command (in *Hotelli Kultakala*, there is also a 'wave' command).

Besides the public rooms, *Habbo Hotel* provides personal rooms for any user. The revenue model of the service is based on decorating these rooms with pre-designed objects (furniture etc.) that are paid for with Habbo credits. Originally, in *Hotelli Kultakala* the objects were paid and ordered with SMS messages. In *Habbo*, 14 different ways to obtain credits are implemented.

Image 4. The chill-out room of Club Mas-siva at *Habbo Hotel* with numerous characters. On the bottom of the screen, there is the window where one can type the text that appears on the chat bubble on top of one's character's head. The bubbles roll up and away from sight after a certain period of time. On the bottom right corner, there are the icons for the Habbo Console, the Hotel Navigator, the Habbo credits, and the Habbo help.



5.4.2. EVALUATION COMPONENTS

In our analysis the playability components will be weighted as follows: social–audiovisual–structural–functional playability. As the *Habbo* environment is largely freeform and easily mastered (in the sense that it does not require game-like skills or provide game-like challenges), the latter two components are largely subordinated to the social and audiovisual ones. The audiovisual environment (i.e. the rooms) structures the interaction, and the functional issues (besides general usability issues) have to do with navigating in the environment. Therefore we will focus especially on the creation of meaning through those forms of social interaction that have both been encouraged by formal structures and emerged because or despite of them.

The ways with which the *Habbo* environment can be manipulated are trivial in the formal sense: the *habbo* characters can sit at tables and interface with the guest room generators, billboards and other static objects. *Habbos* can manipulate objects in the following ways: decorate guest rooms with objects and colour the walls, order drinks or food from the bars and restaurants, use the different information kiosks and billboards (to create one's own room, gain credits, and so on). The *habbos* can also trade objects they have purchased. With the guest rooms, the user can choose whether other *habbos* can place objects and move them around in one's own room. The guest room is a feature that has both aesthetic and community value: it can be decorated to one's own liking and/or used for parties and meetings with fellow *habbos*. The number of possible furniture etc. amounts to countless combinations, thus allowing the users to personalise their guest room interiors. Same applies for character creation: the user provides a nickname and a 'motto', and optionally a profile where she can state different preferences regarding food & drink or music, among other things. Regarding the visual appearance of the character, the different body parts and their variations that one can choose are numerous. As a result, *Habbo* gives the user an important communication 'tool' (cf. Friedl 2002, 244) in the form of a personalised graphical avatar.

These aspects demonstrate how significant *Habbo Hotel's* visual implementation is. *Habbo's* audiovisual playability is built upon the isometric dimensionality and third person point of perception. Due to these solutions, individual rooms are visible in their entirety. The rooms are also structured into a grid. These design solutions make navigation within and between the environments simple. A notable fact is also that the graphics are represented in twice the size in the guest rooms.

Habbo's audiovisual style, with its with decidedly stylised pixel aesthetic, belongs to the category of caricaturism. It is not surprising that the creators have listed computer games such as *Head over Heels* (Ocean Software, 1987), and the Playmobil and Lego toy characters as influences for the *Habbo* visuals. However, the chat environment is largely silent. According to the developers there were plans to include streaming music into the rooms but they were abandoned during production (Haro 2002). The result is that *Habbo* has only off-game sounds, i.e. signals informing the user of specific interface events such as receiving a message. There are no sounds resulting from in-game world actions. This means that *Habbo* produces largely a visual user experience.

5.4.3. INTERACTION PATTERNS AND CONCLUSIONS

For the most part, the generic structural model (introduced in chapter 4.2) can be applied to *Habbo*. The micro-level structures consist of navigating in an individual room and interacting with the objects and other *habbos*. The log-in, room transitions, loading screens (with advertisements) make up the macro-level structures.

The primary community-generating feature of *Habbo* is the environment itself: in its entirety, *Habbo Hotel* simulates a 'lounging' area built for social entertainment. An important feature is the distance-sensitive chat functionality, as it guides users to gather around others in order to be able to take part in the conversation. Other such functionalities include the 'Habbo Console' ('Kultakalastin' in *Hotelli Kultakala*) that relays non-synchronous messages either to the console, to e-mail or via SMS to their mobile phone. The 'Habbo Hotel Happenings' is a news magazine and/or e-mail newsletter that includes features on events organised in the hotel etc. It is the most visible part of the community management conducted by Sulake Labs.

Besides lounging in the various lobbies, restaurants, etc., and the guest rooms, *Habbo Hotel* has game rooms. However, the games are simple versions of board games that can only be played one-on-one. In *Hotelli Kultakala* there is a swimming pool area where one can purchase tickets to dive to the pool. Diving presents a sub-game where one can do different tricks while in the air, and the dive is shown in the big screen next to the pool. However, multi-player games or missions encouraging co-operation based on, e.g., the different hotel locations have not been organised.

Most NPCs in Habbo are waiter-bots in the bars and restaurants, but there are also hotel moderators called 'Hobbas' who can be alerted via the help menu in case of harassment etc. The function of the NPCs is therefore limited: they haven't been employed for the purposes of structuring the interaction in other ways, but the users have largely taken care of this themselves, organising trivia competitions with furniture as prizes, and so on. These competitions have developed into a form of gambling, as users bet their belongings in the hope of gaining more. Beauty contests and dance competitions are other regular events, where the audience rates the contestants' performances, even though there only exist one kind of animated dance emote and no special poses besides walking. The contestants have developed a habit of complementing the animated emotes with typed-in descriptions.

Numerous informal practices have emerged in the *Habbo/Kultakala* communities. The gangs and different groups are the most visible result. For instance, in *Hotelli Kultakala*, there is a gang called Suomen Armeija ('the Finnish Army') who started to use the grid structure of the environment for their own purposes, i.e. jamming and blocking other users way by placing their characters in the necessary adjacent squares. Generally gangs or 'mafias' use their headquarters and guest rooms (such as the numerous 'Dark Fox' rooms in *Habbo*) for recruiting new members and giving them tasks. The tasks, such as stealing furniture, earn the habbo social capital within the gang, i.e. her rank increases. Gangs develop dress codes and hierarchies within their ranks. The latter is often indicated in the character's nickname with specific syntax, as in '[name of the gang] rank: x'. The gang's order of conduct and other relevant information (the leader, the rank hierarchy) are usually inscribed into 'Post it' messages in the headquarter walls.

There have also been hacking attempts where users (and hacker gangs dedicated for this activity) have managed to edit the software code in order to, for instance, to make the character's heads invisible or modify the furniture. The moderator 'Habbos' and other measures have been taken into account in the community management to prevent scams, such as users giving out their passwords.

In conclusion, it is important to note that *Habbo* does not have pre-designed formal community hierarchies (such as the class levels or Parties and Guilds in *Dark Age of Camelot*). The only differences are found in the chat environment, ranging from public spaces (the lobbies, restaurants, etc.) to semi-private ones (guest rooms without password entrance) to private

(guest rooms protected by password). Still, the gang hierarchies that have emerged serve to point out that a basic environment with customisable elements (most importantly the guest rooms, the character appearance and nickname) are sufficient to foster the emergence of such communicative and communal structures. In fact, as we've seen, the *Habbo* user base, and especially the gangs, has projected many RPG-related rules and hierarchies onto the formal structures, using informal methods. In the case of *Habbo*, the audiovisual implementation has an effect on the efficiency and probability of such user activities. If the audiovisual implementation in combination with adequate functional issues is attractive to the users, as *Habbo*'s popularity indicates, the threshold of coming up with creative, user-generated practices (such as the dance competitions and gambling) becomes considerably lower. The 'shadow economy' that has emerged around *Habbo* and *Kultakala* would present their own future case of study.⁶

⁶ For user-generated materials such as comics, screenshots of memorable events, etc., see <http://afrokala.cjb.net/>.

Generally the emergence of these kinds of practices indicates that the freeform formal structure feeds imagination outside the direct manipulation of the *Habbo* environment, i.e. the formal means given to the user. This results in meaningful interaction. This can be explained as a dialogue of the formal and informal structures: the formal structures are enjoyable, playable and pleasing enough to invite commitment and investment of meaning into the product. Commitment leads to what Markus Friedl (2002, 242) calls in his article on online interaction patterns as persistence, i.e. the users being able "to establish reputations (and their consequences). It forms the basis for such complex behaviors as triumph, trust, competition, betrayal, and cooperation". Community is formed and reproduced by rhetorical means within the framework (chat and character as forms of expression, environment) that the features and functionalities provide. The formally trivial and highly generic means of interaction become non-trivial, i.e. complex and meaningful through these processes.

6. Conclusions and future research

The prestudy has presented an integrated theory of evaluating digital entertainment and a cross-section of actual products from that field in the form of four case studies. Each case study demonstrated different aspects of on-line communication, community, and gameplay.

One notable aspect of how the player experiences vary between the products is the temporal commitment that they at once both foster and require. The mobility of *Botfighters*, with gameplay session of short duration, is considerably different practice of consuming digital entertainment than the role-play of *Dark Age of Camelot* where, as our research material indicates, a game session can last hours upon hours. *Return to Castle Wolfenstein* and *Habbo Hotel* are situated somewhere between these two extremes. The analysis indicated that the variations are inscribed into the technologies and formal structures only to a certain extent. Their actual effects can only be seen and evaluated by studying the informal patterns and practices associated with the product.

Outside direct gameplay practices there remains the unpredictable phenomenon of user-generated content. This definitely presents a future research challenge. The results can point out common traits from various existing entertainment products that have given birth to versatile forms of fan material. These can be further classified into general trends that can be taken into account when designing the community aspects, and especially planning the community management of a product in development.

The case studies demonstrated how each of the playability components introduced here is put into use in actual evaluation practice. Multi-user products emphasize the social aspects, but it is important to realise that structural playability issues, such as the formal gameplay structure, influence the emergence of social practices and subjective user experiences. Moreover, if the design solutions regarding functional playability are not proportional to the ones of the other components, or vice versa (as with devices with restricted form-factors such as mobile phones or remote controllers) the attractiveness of the product will most likely suffer. The reason that audiovisual playability seems to end up as the component with minor leverage has to do with the nature of the case products under analysis – most single-player video games would require a considerably more detailed audiovisual analysis, complemented with player-tester feedback.

Our goal was to develop analytical tools not only for research purposes but also to inform design practices and product development. We argue that conceptualising these kinds of issues is in the heart of research that tries to discern the necessary elements that can be used to design engaging, fun, and meaningful experiences. The cases will without doubt be heterogeneous regarding both the methodology and focus of analysis, and not directly commensurate with each other. This fact goes to testify for the various forms of digital entertainment and the different nature of consuming them and playing with them. The components of playability, based on the flow framework, were developed to be flexible exactly on these grounds.

In future study, we will continue to evaluate digital entertainment products and develop research methods associated with them. The evaluation components and axis will be iterated, and we will aim for larger user/player samples and therefore more representative results regarding the informal dimension. Individual product histories will be taken under analysis as well. For instance, by examining the long-term evolution of MMORPGs one can discern more clearly 1) what functionalities have been supportive of communal and communicative practices that the players have sought for, 2) what kind of conceptualisations and functionalities have been popular among players (and thus become an integral part of the game experience and sense of community), and 3) what functionalities have been unsuccessful and hence abandoned from later versions.

In the future phases, the development of innovative research methods will also continue. For instance, studying the informal aspects of a mobile game can be conducted with the combination of player-tester diaries (as with *Dark Age of Camelot*) and server logs provided by the operator (documenting SMS/MMS traffic, for instance). This will help in distinguishing how the structural models unfold in time. With consequent analysis, guidelines for guiding the player(s) into certain patterns can be pointed out. Additionally, the case studies that accumulate during the project's specific phases will be used as an empirical database. It serves to sketch out a larger picture of digital entertainment as a whole, and the dominant and successful features and functionalities of different product genres. For instance, the community potentials of product prototypes can be evaluated in light of findings from previous case studies on products with similar functionalities and target groups.

As the project operates in close connection with research projects having to do with similar subjects and fields, the evaluation model will be next employed in evaluating products and conceptualising prototypes for gaming in gaming in iDTV environment (as a part of the *Future Interaction Television* research project⁷). The focus will be on the social playability issues of the television setting and the functional ones associated with remote controllers and the set-top-box, and how do these issues lay ground to relevant formal and informal structures.

⁷ <http://www.futureinteraction.tv/>

To end with, we would like to thank all the players who participated in our game sessions, and especially our *Dark Age of Camelot* devotees who provided us with valuable information on various aspects of the game.

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