Mobile Gaming - Experience Design

Barbara Grüter, Anna Mielke, Miriam Oks

Hochschule Bremen, Zentrum für Informatik und Medientechnologien,
Flughafenallee 10, 28199 Bremen
{grueter, amielke, moks}@informatik.hs-bremen.de

Abstract. Mobile gaming is changing the human-computer interaction and thereby the activity, the world and the experience of the player. We present cornerstones of our design strategy and discuss issues of experience design we are facing: the understanding of the particular form of mobile interaction as well as differences of designing interaction techniques or aesthetic experiences. Dealing with both we use activity theory as a theoretical tool and the mobile gaming experience as starting and reference point of developing mobile games.

1 Introduction

Research, development and play-testing of mobile games and game possibilities is bringing about problems and questions, which cannot be solved and answered with traditional design strategies. Mobile games change the relationship between humans and computers, which will have consequences not only for the gaming experience but also for the design of interfaces and interaction structures. The activity of the player is changing. Players do not sit in front of their computers anymore but actually move through buildings, streets and open space. They move physically and not only imaginary through virtual worlds. Beside of using the personal computer at the desktop computer they use mobile devices. They use PDAs or cell phones as a medium for information, orientation, interaction, communication and fight. The game world is changing. The player is facing her natural environment enriched by virtual dimensions. Clothes, objects and conditions of the environment are supplied with „intelligent functions". New interaction possibilities result from the interplay of real and virtual world. Physical activities of the players can have effects on the virtual world and vice versa. The gaming experience is changing. Beside goal-oriented actions emotions gain importance within digital media design. Events, the flow of motion, suspense and the emergence of new possibilities of playing in the game are issues of game design. This applies not only to mobile games. But mobile games have permeable borders to everyday life. The design of emotional touching experiences for this context is a particular challenge. Design strategies for activities at a PC cannot be transferred to those of mobile games. In this paper we present and discuss issues and experiences of the research project „Gangs of Bremen" designing mobile gaming experience at the University of Applied Sciences in Bremen since spring 2003.

2 Designing Mobile Gaming Experience

The research project „Gangs of Bremen" is concerned with the research and development of mobile game possibilities. In the first study „Gangs of ZIMT" we examined mobile play mechanics [1]. In the second study we developed the mobile game „On the Streets" in collaboration with a study project, which has been directed by Helmut Eirund. Within this game we transferred different characteristics of well-known game genre like role-playing and strategy games to the mobile game. The game event „On the Streets" will be organized in Bremen in the summer of this year. Our goal by playing the game is to gain gaming experience, to develop a concept for integrating the gamer as an author for his game and to ascertain the technological basis for mobile games [2]. With another development in 2006 we will fathom the particularities of mobile gaming experiences by developing novel game ideas.

Looking at research and development at a glance indicates that in the last few years especially the technical conditions of mobility, their effect on interaction and the consequences for design and development have been the object of studies: Smaller displays, the problem of light irradiation, different networking, positioning and communication technologies and consequently the unreliable communication. Research of mobile computing has been directed to mobile systems and „context awareness". Further research with relevance for mobile gaming has been conducted concerning virtual communities, tangible media, instrumented rooms, wearable devices and different kinds of interaction and sensorial design. General models of the use of mobile applications are in the making. Roughly the same is true for general approaches to mobile gaming, which allow the integration of the different results of research. The boundaries of mobile game possibilities are not achieved yet.

After two years we are still on the move outlining our approach. Summarizing our experiences till now we are convinced that the discovery/invention of novel particular *mobile* game possibilities is depending on the mobile gaming experience. For that we will focus in the next phase first on building a "replay-network" of players, researchers and organizers and second on the collaboration of computer-scientists and artists. What we know for sure is the basic necessity of gaming experience for the development of mobile games, what we rely on is the activity theory and what we are still building is our understanding of mobile gaming.

2.1 Interaction and Mobility

The basis for the mobile gaming experience is the physical movement of the player. This can be by running, sneaking, dancing, jumping or this very peculiar way of „urban drifting", wandering around the city, without destination, neither going to work nor consuming, wasting time. Starting from the physical movement we can get an understanding for the distinguishing quality of mobile interaction. The body and its movement become an input device. The elementary form is the continuous localization of the players' position, which has effect on the progress of the game. The position of a player can mark closeness and distance to game instances, which positions are also determined and taking effect in the game. They can warn and indicate enemies in the game. They can become a measure for the achievement of game goals. One more advanced form is "context awareness". Dey and Abowd define

context as "any information that can be used to characterize the situation of an entity" and they go on "An entity is a person, place, or object that is considered relevant to the interaction between a user and an application, including the user and applications themselves". The authors define context-aware computing as the "use of context to provide task-relevant information and/or services to a user". According to the authors the "use of context" by media-applications is "particularly important for applications where the user's context is changing rapidly, such as in both handheld and ubiquitous computing". Following from this we identify three behaviors of a game-system within mobile gaming: the presentation of information, items and action possibilities, the automatic execution of a game possibility and the tagging of context for later game cycles. Context-aware computing is one form of providing mobile game event-possibilities either for interaction with physical and/or virtual objects and environments or with persons. For developing context-aware building blocks of a mobile game the designer has to situate the game (see below). Another more advanced form is distributed collaboration of gamers. One dimension of the physical movement of a player and thus for mobile game design is further the distance & proximity relationship. First of all it is a physical relationship of players to objects and other players indicated in the virtual world. But beyond of that it is a metaphor, which reflects on different aspects of game actions, especially cognitive and/or social distance and emotional proximity, which also can be indicated physically and virtually [3].

2.2 Real and Virtual World

The particular quality of mobile gaming is also related to the relationship of real and virtual worlds. To conceptualize the virtual dimensions of a mobile game one has to start by taking into account the target group and its relation to their natural environment, they live in. We differentiate between mobile games, which are loosely connected to their environment as for example our game "On the Streets". The virtual world in this case consists of a map of the game area, items, tokens, virtual buildings and characters, and indicates context related game possibilities. This game can be played everywhere. Other mobile games are deeper rooted within that context, they are designed for. You can play them only in that location or they have to be re-designed. These games we call situated games. Situating a game means to look for the history of the city, its legends and tales and the emotional dimensions of life for that group within that city the game is designed for. One beautiful example for this approach is The Songs of North [4], which is deeply connected with the Finnish national epic Kalevala.

2.3 Interaction Techniques versus Aesthetic Experience

In the beginning our design was conducted by the computer scientists and influenced by the student experiences of computer games. Computer scientists have other design strategies than artists and designers have. Computer scientists search for, find, and develop interaction techniques, which concern different levels of input, output, and processing. They develop basic forms of interaction like „pick and drop" pieces of virtual information and more complex forms that have a content-based meaning for

the flow of the game: speech act, configuration of game scenarios and levels by the graphical design of textures and the choice of options, interactive design of the game course. Artists and designers design interaction in difference to that with the aesthetic experience in mind. Even more their design approach is a kind of an aesthetic experience. We only stepwise get an understanding of the aesthetics of mobile game design. Controversially discussed until today is in this context the dramatic arc. Is the dramatic arc denying the freedom of agency for the gamer? Or is it possible to design interaction structures in a way that the dramatic arc is realized as the own flow of motion and development? Another topic is the relation between seeing and hearing, visual and sound design, which might be introduced by artists and designers with the goal of irritation, provocation or intensification. By this they can take a totally different shape as when being applied to distinguish vague information or help by orientation. Sensorial design on both levels is relevant for mobile games because we are facing specific design problems as for example the visual attention, which has to be paid for traffic situations or the small displays, which restrict complex visual information. For the creation of game ideas, which develop the potential of mobile gaming we count on the collaboration of art, design and media computer sciences.

3 Conclusion: Playing and Play-testing

The basis for the development of mobile games is the mobile gaming experience. In the context of a further project „Mobile Gaming in Bremen" we will organize (1) game events, (2) a public discussion and establish (3) the "replay-infrastructure", a network of game instances, gamers, organizers, researchers and developers, which allows to organize regularly gaming events and to combine playing and play-testing in Bremen.

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