

Mobile Gaming Experience – Working on an Empirical Prototype

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ABSTRACT

In the following article we tackle the theoretical and methodological issue revolving around the unification of experience with reference to an elementary prototype of mobile gaming experience we gained by means of playtesting the mobile game *On the Streets* in June 2006. We propose to dissolve the contradiction between the uniqueness of an experience and its unification by scientific concepts and methods by looking for a form of motion for both sides within the framework of the activity theory.

Author Keywords

Experience, mobile games, gaming experience, activity, uniqueness and generalization, social behavior.

ACM Classification Keywords

H.1.2 [Information Systems]: User/Machine Systems—Software Psychology

INTRODUCTION

Experience is at the core a sensation of a person. Experience is unique for the person, the situation, the space and time, in which it comes into being within and by the person's activity. Experience is constantly changing. Experience is ephemeral. Why are we interested in this phenomenon? Experience is what happens, when we touch, hurt, move a person directly or by means of the results of our work. Understanding experience means we understand the effect of our own activity as a computer scientist, a designer or a psychologist on others. But those questions for a scientific understanding of experience lead into the risk to destroy the phenomenon we are looking for. If experience is unique, how it is possible to unify experience, to quantify and to measure experience. How is it even

possible to talk about experience? Everybody knows what can happen to a feeling if we put it into words. It is changing. Experience may be defined and structured by a concept, but experience is always more than the concept. Experience has a different quality, a quality without a name (Alexander 1979). If these assumptions are valid how can we dare to work on experience, experience design and evaluation?

The research project *Gangs of Bremen*¹ focuses on mobile gaming experiences and their conceptual, aesthetic and technological foundations by exploring, developing, and playtesting mobile games. In this summer we playtested the mobile game *On the Streets* we are still developing.

In the following we tackle the theoretical and methodological issue revolving around the unification of experience with reference to an elementary prototype of mobile gaming experience. We (1) address the problem, the contradiction between generalization and uniqueness of experience and propose an approach. We (2) introduce our empirical field, a first playtest of our mobile game. We (3) define mobile gaming experience within the framework of a particular version of activity theory and present an empirical prototype of mobile gaming experience. And we demonstrate our approach with reference to the empirical prototype.

THE PROBLEM OF UNIFYING EXPERIENCE (1)

Within the last years digital media move more and more beyond the desktop and enter everyday life. The space of possibilities for human-computer interaction at the desktop was clear defined. Now this space is changing constantly. The borders become permeable for influences from the outside and the inside. Humans use media within shifting roles in shifting contexts. Their spontaneous action and

¹ The project *Gangs of Bremen* lead by Barbara Grüter started in spring 2003 and is funded by the Hochschul- und Wissenschaftsprogramm Phase II (HWPII) in Bremen for a duration of three years with two positions for PhD students since January 2004.

reaction, within a particular situation becomes an issue of design.

Usability, design and evaluation of human-computer interaction at the desk could focus on task-orientation and performance. The experience of a person in a certain situations becomes important now. Feelings and emotions guiding the concrete use of media come to the fore.

We don't have problems with the scientific understanding and the measuring of task-orientation and performance. And we don't have a problem to define explicit knowledge. But as soon as we try to define implicit knowledge we do have problems because we enter the realm of experience. Implicit or tacit knowledge is not formalized. You cannot explain it, but demonstrate it. We do have problems to define and to measure experiences. What is happiness and joy, what is attraction? By definition we make experience comparable. We abstract from that particular context within which an experience gets its particular quality, its meaning for a person. But on the other hand we cannot forgo unification. We need to talk about our experiences in experience design. We need a direction, we need guidelines and we need standards.

Within this article we propose to dissolve the contradiction between the uniqueness of an experience and its unification by scientific concepts and methods by looking for a form of motion for both sides. The form of motion for the generalized dimension and the uniqueness of experience can be provided in our view within and by activity. We define experience as an internal moment of activity, an internal moment of that process, within which a person² produces and reproduces her relationships to the world.

PLAYTEST OF THE GAME ON THE STREETS (2)

Mobile games are based on the bodily movement of the players in their environment, which is enriched by virtual dimensions.

The elementary prototype of an experience we present here results from the playtest of the core mechanic of the mobile game *On the Streets* at the 13th of June 2006.

The Mobile Game On the Streets

The game *On the Streets* is played in a part of a city that is divided into squares, we call fields in the following. Players are organized in gangs. One gang consists of one to five runners and a boss who is located in the home base. The goal of the game for each gang is to gain power and influence in the city by capturing as much territory as possible, fields, or even the home bases of the other gangs. A conquered home base field has a higher value than a normal field. The value of that home base field is for example ten times of the value of a normal field.

All players have a virtual map of the game territory displayed on their PDAs where they can retrieve detailed information about the field they are currently in and the eight surrounding fields.

In the game area there are also neutral, non-conquerable fields. They contain hospital buildings that can be used by all gangs. Other fields contain bank buildings. These fields can be conquered and the gang who owns it will get money on their gang account in periodical intervals. The boss can buy virtual robots with this money, so called Bots, place them on the map and let them defend conquered fields for him.

When players enter an empty field it is automatically passed into their holdings. If one player enters an occupied field both attacker and defender can choose whether to fight for it by virtual means or to flee quickly. Players fighting and being hit will lose life energy, which can be recharged in hospitals. If a player misses to recharge his energy soon enough he will become deactivated and can only reactivate himself in his home base, as long as it is in the holding of his gang.

A conquered field can be searched for items like medpacks or stroke-proof waistcoats.

In the summer 2006 we playtested *On the Streets* under varying conditions and within different environments.

The Core Mechanic of On the Streets

A core mechanic is the most reduced version of a game. Within the playtest at the 13th of June 2006 the game *On the Streets* has been reduced to four fields, two gangs each with one runner and one boss - no items, no Bots, no bank, no hospital.

The home base of gang Red has been placed in the field A1 and the home base of gang Blue has been placed at the field B2.

The runner June and the boss Paul belonged to gang Red and the runner Hank and the boss Hodi belonged to gang Blue. We organized the game around the building of the ZIMT, the Center for Informatics and Media Technologies, the location of our research project.

Thus, the general play activity of a runner consisted of two main actions

- Running, change fields and conquer them if they are empty
- Fighting against the enemy to conquering occupied fields respectively the home base of the other gang

The general play activity of a boss consisted of two main actions

- Observing the map, the movements, the fights, the status of the own runner
- Fighting against the enemy to defend the own home base.

² The actor can also be a group or an organization.

A further important play action of both members of a gang is the communication with each other by means of Walkie-Talkies.

The game process on June 13th 2006

The game lasted 7 minutes and 50 seconds (7:50). Gang Blue won the game. The runners used only three of four fields throughout the whole game: the fields A1, A2 und B2. The fourth field has never been conquered³.

For providing a coarse overview over the whole game we divide the game process into phases taking into account the score changing during the game and the activities needed to change the score. The game process consists of five phases (see Table 1). The column “Time” indicates the relative duration of each phase.

	Game Phase	Score	Time m:ss
	The game starts.	1:1	0:00
1	Red conquers the field A2	2:1	0:21
2	Red and Blue fight against each. Red wins and keeps hold of the field A2	2:1	1:51
3	Blue conquers the field A2	1:2	2:48
4	Blue and Red fight against each other. Blue wins the fight.	1:2	3:49
5	Blue and Red fight against each other. Blue wins the fight again and wins the game.	1:12	7:50

Table 1. Game phases On the Streets, June 13th 2006.

Data collection

We organized the data collection within this playtest as follows

- A visualization of all players’ movements throughout the game;
- Recordings of the communication⁴;

³ We ascribe this fact mainly to the reduced game format and the particular architecture of the game world. You could win only by conquering the other home base and the field A2 consisted of a street directly connecting the hostile home bases at field A1 and field B2.

⁴ The recordings of communication functioned only partly because of technical reasons.

- Participating film observation of the red runner and the red boss
- The capture of the PC screen of the red boss;
- Film observation from the perspective of the blue runner by means of a head camera.

A PROTOTYPE OF A MOBILE GAMING EXPERIENCE (3)

Trying to understand experience in the context of the mobile game On the Streets we take a next step. We identify the activity of the players throughout the game. Within this article we present the activity of the red runner June (see Table 2).

June’s play activity

June is a member of gang Red. We analyze her play activity on the basis of the film observation and the recording of her communication. We identify phases of her play activity by taking into account obvious changes in the conduct of her activity (see Table 2). As soon as the game starts, June moves from her home base in field A1 into the direction of the home base of gang Blue. She enters the field A2, conquers it by that movement and moves further. June starts running and then slows down and stops in front of the blue runner Hank. They communicate with each other and start fighting. June wins and keeps hold of the field A2 ... and so on. We stop at this point. For a demonstration of a prototype of mobile gaming experience this section of June’s play activity is sufficient.

	June’Play actions	Result	Time m:ss
	The game starts.		0:00
1.	June moves from A1 over A2 into the direction of B2.		0:21
2.	Entering A2	June conquers A2.	0:21
3.	June starts running		0:21
4.	June slows down		0:28
5.	June stops in front of the Blue Runner Hank		0:36
6.	June communicates with Hank		0:39
7.	Hank and June fight with each other.	June wins and keeps hold of A2	1:51

Table 2. June’s play activity as a sequence of actions

Experience and activity

For further understanding of activity and experience I stepwise introduce first a theoretical definition and then the reference to the empirical material.

Human information processing is an inseparable dimension of activity. Experiencing, sensing is the most basic form of human information processing. Our understanding of a particular experience begins with the (re)construction of the particular activity.

Each activity is defined by subjective (Person), objective (Goal) and mediating conditions (Medium) and by other persons (Others), the actor is referring to (See Figure 1).

In this case we have June (Person), her concept of the game and the empirical instances of her activity in this situation she is aware of playing the game including the PDA (Medium), the objective of her play activity - she wants to win the game (Goal), the other players and the surrounding observers (Others).

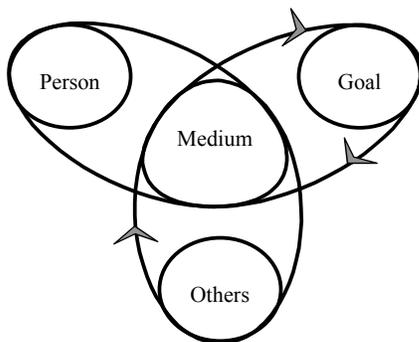


Figure 1. Activity - reproduction of the person-world relations.

Each activity has in our understanding a *double character*, a structural, cognitive as well as a contextual, intuitive dimension. The *structure* of an activity resembles an algorithm. It is an answer to the question, what do I want to do and what do I have to do to achieve that goal under the present conditions. The structure is an implication of the actor's game concept and the thereby foreseeable and generalizable properties of the activity. The structure is thus defined by the accordance of subjective and objective conditions with respect to the actor's objective.

Our conclusions about the structure of June's activity are based on our observations of her activity. June wants to win the game and therefore she is heading into the direction of the other home base. Because of the architecture of the game world, a mediating condition, she has to cross the field A2. The street connects the fields, A1 and B2 and leads through A2.

The *context* of an activity is given by the difference of subjective and objective conditions, by that what we don't

foresee, what comes into being within and by the interaction of all conditions.

The context in our case is the interaction of all activity conditions so far it is not foreseen within the game concept and the structure. Unforeseen aspects of the interaction between June, the game technology, the game goal and the blue runner Hank. Our conclusions about the context of June's activity are also based on our observations of her activity particular on the observation of unexpected aspects of her activity. For example June meets Hank. From the perspective of the game logic a fight is indicated, but they start communicating.

Against this background we define experience theoretically. Experience in a nuclear form is sensation as

- an internal moment of activity and the thereby initiated and/or maintained relations to something and somebody;
- an immediate awareness of the here and now;
- a unit of identity and conflict of different (even logical incompatible) qualities.

With the definition of experience as the awareness of the here and now, we emphasize that experience is inseparable from the person and the context. Separate experience from the context and you will gain knowledge and lose the particular quality of the experience.

With the definition of experience as a unit of identity and conflict of different (even logical incompatible) qualities we return to the problem of unifying experience at the theoretical level. The definition of experience provided here reflects on both dimensions: the generalization and the uniqueness at the same time. What we want to do now is to demonstrate the meaning of this definition for supporting an empirical understanding of experience.

Experience as a unit of identity and conflict of different qualities reflects on experience as a time-based phenomenon. Experience is a phenomenon unfolding in time within the activity cycle. There is a difference between desire and fulfillment, between the goal and the result. And we try to grasp this difference and to understand the particular form of motion (the Identity) for the conflict of the different qualities.

June's mobile gaming experience

Of particular interest for the understanding of mobile gaming experience are the transitions between the actions of June's play activity (see Table 2). Actions are goal-oriented and are therefore mainly defined by the structure of an activity. The change of the mode of an action is in difference to that often context motivated.

The transition from 1 to 2 is only a structural implication of the game logic. The following transitions are different: June changes in these cases the mode of her action (see Table 3).

Within the transition from 2 to 3 we are looking for now she changes from walking speed to running speed.

The structure of her whole activity is mainly defined by the basics of the game logic, as she understands it: for winning you have to gain fields, particular the other home base. The first two actions are defined by the sub goal: move into the direction of the other home base. The mode of her movement – walking speed is not structural defined. Why is she speeding up?

We find the answer in the context of her activity – she suddenly sees Hank in the far distance running towards her

	June's play actions	Context	Time m:ss
	The game starts.		0:00
1.	June moves from A1 into the direction of B2	June sees far away Hank running	0:21
2.	June enters A2 and moves on		0:21
3.	June starts running		0:21
4.	June slows down	June and Hank approach each other. Hank stops	0:28
5.	June stops in front of the Blue Runner Hank	The game system reacts unexpected	0:36
6.	June communicates with Hank		0:39
7.	Hank and June fight with each other.	As soon as the fight dialog is displayed	1:51

Table 3. June's play activity – actions and context

and changes her mode. The context in this situation is defined by the particular quality of her encounter with Hank. Within their encounter (transition 3 to 4) both runners adapt to the movement of the other. She slows down. He also slows down and stops to look at the display of the PDA. She approaches him and stops too (transition 4 to 5).

We can summarize June's mobile gaming experience in this situation. It encompasses:

- The old structure of activity: striving for the game goal 'attack the other home base', consequently her movement towards the other home base from field A1 to field A2 in

the direction of field B2; movement in walking speed seems sufficient from her perspective;

- The new structure of activity: striving for the game goal 'attack the other home base', consequently her movement towards the other home base from field A1 to field A2 in the direction of field B2; movement in running speed seems to be indicated;
- The context: Seeing the other runner Hank running towards her from far away

The old and the new structure have different qualities. Both qualities are mediated within and by June's experience at the transition point.

Further transitions happen from 5 to 6 and from 6 to 7. The encounter of both gamers is defined first by a communication about the game. This seems to be induced by the retarded and for the players unexpected reaction of the game system. Hank is looking at her PDA and together they try to make sense of the situation. But suddenly they change their behavior - they concentrate now on fighting. The structure of June's action in this situation is given by the sub goal to understand the real and the virtual situation displayed. Also this transition from 6 to 7 is motivated by the context. The start of the fight dialog by the system induces the change of her dominant focus from communicating to fighting.

What we see in these small events here is the particular value the direct social encounters and interactions have for the emergence of game tension and for the framing of the magic circle (Salen and Zimmerman, 2004) within player communication.

The acceleration of June's speed indicates a new quality of game tension. Obviously June feels animated by Hanks behavior.

The magic circle separates the game world from the surrounding environment. It is defined not only by the game system but also by the players' activity. In this situation the system disturbs the gaming experience and the player compensate for that by mutually understanding of the current situation.

Form of Motion

The basis for unifying and generalization of experience is in our view the structure of an activity. We have worked so far only with generalization by definition. Further forms are quantitative analyses. But a quantitative analysis of experiences makes sense in our view only if the relationship to the data source and thereby to the context is maintained. The reconstruction of the concrete meaning of an experience is the basis for interpreting the quantitative results.

The form of motion between the generalization and uniqueness of a singular case is provided within and by the activity cycle.

What is, what happens with the experience during the activity cycle? The experience is changing. We perceive something as relevant in whatever respect and pay attention. Experience at this point may be structured and/or spontaneous and mainly context motivated.

We analyze the situation, use standards and control our feelings to getting a clear understanding. Experience at this point is structured and controlled.

We act according to our goal and the results of orientation with respect to the varying situational conditions. Experience at this point is a movement within a given structure, a space of possibilities.

We experience the difference between goal and effect of our action and reflect on that (Piaget 1975). Experience at this point may become a boundary experience accompanied by insecurity and ambivalence.

We use the results of the foregoing steps for reproduction and risk the achieved status of our relationships. Within and by reproduction novel possibilities may emerge, but this is never certain. Experience at this point may be a crossing boundary experience. The feeling in this situation may be joy but can also be mourning because of the loss of the old.

METHODOLOGICAL ISSUES

For studying time-based phenomena we follow a process-oriented approach.

Concept and Use⁵

A core issue of a process-oriented method can be described if we take into account the double character of activity and work with the difference of concept and use applied to the person-world-relation in the case of a player. The concept level is given then, if you study the process by reducing meaning to the player's goal definition and look for specifications of that within the process. The use level is given, if you study the same process with reference to the player's use of her goal definition and look for the interaction of the goal definition and situational conditions, the player is referring to within the process.

The difference of concept and use can also be applied to the researcher-case-relation. Both levels of the case A Mobile Gaming Experience can also be studied on the concept level of the researcher, that means within the limitations of a theoretically pre given definition, and they can be studied on the use level of the researcher. On the *concept level* the researcher is representing the process as a sequence of stills, datasets, which are empirical representatives of the pre given definition. On the *use level* the forming impact of the concept on the research process and the modifying impact of the research situation or the presentation situation on the meaning of the concept are focused.

⁵ A first version of this paragraph has been published in Grüter & Valsiner 1997

Subjects are using definitions all the time, but they are seldom fully aware of all the implications of that use. Both applications can and must be separated analytically, but in practice they are combined and inseparable. We concentrate in the beginning of our empirical studies on both forms of application for developing our own understanding.

The distributed game event and the clapboard

A mobile game like On the Streets is a distributed event. The game starts as soon as each gang arrived at the own home base field. Each gang consists of some runners moving around and a boss sitting at a PC. There is the system administrator, there is the game master and there is the game audience. Everybody has some insight in the game, but nobody has an overview over the whole game. The methodological problems to identify the game process, to get access to the process and maintain the relation of the data to the original source are immense.

For the data collection we worked with different data streams (see above). As within motion picture and videotape production we encountered the problem of synchronizing the different data streams. Our idea was to start the data recording at a common location with the clapboard.

CONCLUSION

Starting with the project in Spring 2003 we never imagined the difficulties we are facing on the conceptual, technical, theoretical, methodological and the aesthetical level. At the core of all those levels we find experience as a time-based phenomenon. We proposed a form of motion for the contradiction between generalization and uniqueness of an experience within the framework of the activity theory and demonstrated this with reference to a prototype of a mobile gaming experience.

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REFERENCES

1. Alexander, C. The Timeless Way of Building. Oxford University Press, Oxford, 1979.
2. Grüter, B., & Valsiner, J. Concept, Meaning and Use - A Single Case Study of developmental Change. Paper presented at the 13. Tagung Entwicklungspsychologie in Vienna, Austria, Sept. 21 - 24, 1997
3. Salen, K. & Zimmerman, E. Rules of Play. Game Design Fundamentals. The MIT Press, Cambridge, Massachusetts, 2004

