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# Game-based HCI Methods: Workshop on Playfully Engaging Users in Design

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**Abstract**

The idea of using game elements outside of the domains of game and play is not new. Similar to the approach of participatory design games, more and more HCI researchers are adopting game design elements in their research methods, e.g. to create a safe and comfortable setting for their participants, to improve group dynamics during research, or to stimulate future thinking. This workshop aims to further experiment with using game design elements to improve HCI research, and to explore how such elements can become part of the different phases of design.

**Author Keywords**

Gamification; Game mechanics; Game dynamics; Game design elements; HCI methods

**ACM Classification Keywords**

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous

**Introduction**

In recent years, games have increasingly received attention as a source of inspiration for areas other than game and play itself. This idea to use game elements has by some been labeled as ‘gamification’ [5]. Besides gamification applied in the design of concrete products

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and applications, researchers have also explored how game design can inform educational and work practice. Gee [6], for instance, has been exploring learning principles incorporated in good games, including risk taking, a good ordering of problems and pleasant levels of frustration.

Similar to the way Gee tries to understand how learning can benefit from the use of games, one could raise the question of when and how games can be used to enhance HCI research. Indeed, the integration of game elements in HCI research methods may have several benefits. Games and play have for instance been described as "Free movement within a more rigid structure" [11]. The idea of defining such a 'structure' and 'movement' when designing a game might be a perspective that can help HCI researchers to structure their research activities.

In addition, a game-like environment can make research participants feel safe to fail [6]. Games are often understood as environments in which it is safe to experiment. As games are commonplace elements of everyday life from childhood, people know they can try out new strategies or ideas without severe implications. Similarly, creating a game-like environment that allows participants to express themselves more freely can potentially prevent socially desirable responses and in that sense be beneficial for the quality of the outcomes of the research process.

Also, games can be used to structure (group) processes [11]. Some research methods require a group setting (focus groups, workshops, etc.) in which social influences may hinder creativity [16]. Also, it is not uncommon that individual participants dominate group

conversations. The potentially casual character of a game may both act as an icebreaker in this respect and ensure a more equivalent contribution of all participants, e.g. by turn-by-turn participation or by letting participants participate from the viewpoints of different roles within a game.

Furthermore, a game can be used to introduce future experiences in a playful manner. For instance, games usually offer a narrative [10], which lowers the threshold for the introduction of futuristic elements (such as new products or services) that provide a glimpse at possible future experiences. Moreover, a game could take away some of the uneasiness participants may experience while exploring future scenarios, for instance when using enactment methods like role-playing. In this respect, game-based interactions may provide a way to design affordances that invite interaction exploration within certain boundaries.

Literature on game-based research methods and tools in HCI research is still scarce. However, HCI researchers have started to explore how to employ game design elements (defined by Mitgutsch and Alvarado [10] as content, fiction & narrative, mechanics, aesthetics & graphics and framing) to improve the ways in which they engage their users, similar to what has been a more common approach in participatory design [11].

Slegers et al. [15], for instance, described a board game that used several elements from well-known games such as the Game of Life, Monopoly, and the Game of the Goose. The aim of this board game was to understand the current experience of train passengers

as well as to identify their needs regarding a future train information system. Game design elements that were used included a track on a board, event squares and penalty squares, event cards, player teams and competition.

Huyghe et al. [7] also took inspiration from the Game of the Goose, of which they applied game design elements in a workshop method. They created a game, called Localudo, to involve families in the ideation phase of a project focusing on using sensor and display technologies for displaying interactive interventions on houses in a street. Game design elements that were used included tiles on a board, dice, surprise cards and question cards, and taking turns.

Bernhaupt et al. [3] were inspired by card games to make cultural probes more playful by adding creative cards. Their study showed that playful probes, which were added to traditional cultural probes, enhanced participants' involvement and resulted in an impressive increase in the amount of data collected with the cultural probes.

Kultima et al. [8] described a set of games that they used to structure the ideation phase for generating new games. In these games they used game design elements such as decks of cards (e.g. based on the game UNO), a game board, cooperative play and solo play, score tokens, and competition.

Blythe et al. [4] describe a board game to respond to a common criticism on design research, namely that such research is being solutionist, or only results in solutions to problems that don't really exist, or in quick fixes to important problems. The game they developed asks

players to generate design concepts for positive aging, based on age-associated predicaments and positive qualities of aging. The game incorporated several game design elements, including a board, tokens, quotation cards, technology dice, pitching ideas to other players, and earning bonus points.

Maurer et al. [9], finally, have utilized a game and its design process in order to investigate social collaboration in cars as part of a research through design approach. They designed a collaborative, team-based, in-car game that used tangible elements in a car as game input. The game brought the study participants to collaborate as a team under time pressure, thus fostering the interpersonal communication (e.g., via talking and touching each other) within a common task/goal in order to succeed in the game. In this research, the game acted as a catalyst for social interaction (i.e., cooperative play) and was a means to create a relational artifact (i.e., the game itself) that generates a social coupling among the study participants.

This workshop aims to further explore the possibilities of integrating game design elements in HCI research, and how such elements can become part of the different phases of HCI research. Several overviews of game elements are currently available [e.g. 1, 2, 13], but it remains unclear how exactly these can be of value for HCI researchers wishing to include such elements in their research.

## **Organizers**

The organizers of this workshop all have extensive experience with organizing academic workshops within the domain of HCI (e.g. two of the organizers have

successfully organized a series of methodological workshops on codesign with persons with cognitive or sensory impairments at various HCI-conferences (PDC 2012, INTERACT 2013, CHI 2014, IDC 2014 and INCLUDE 2015) resulting in, amongst others, a special issue of the journal CoDesign [14]). All organizers have done research on games and game-based research and/or have integrated such methods in their own research approach.

*Karin Slegers (main contact person)*

Karin is a cognitive psychologist specialized in HCI and human-centered design. She is an assistant professor at KU Leuven in Belgium, and works as a senior researcher for the Centre for User Experience Research (CUO) and iMinds. Karin likes to work on novel research methodologies, such as the use of (board) game design elements in research [15] and participatory design for people with impairments. She has co-organized five workshops on the latter topic (at PDC, INTERACT, CHI, IDC and INCLUDE) and was a guest editor of a recent special issue of the journal CoDesign on the same topic [14].

*Bernhard Maurer*

Bernhard is a research fellow at the Center for Human-Computer Interaction at the University of Salzburg in Austria and has a background in game development and design. Bernhard applied his game design perspective throughout several research projects within the industrial and automotive domain [e.g. 9]. In his research he investigates how HCI can utilize and benefit from games and game design as a legitimate form of inquiry. He has experience in leading and structuring game design processes within large

interdisciplinary teams and is chairing next year's game design jam at Persuasive Technologies 2016.

*Lizzy Bleumers*

Lizzy is a user researcher at iMinds-SMIT-VUB in Belgium, responsible for projects related to gaming, learning and participatory practice. Her methodological skill set encompasses both know-how on setting up experiments and human-centered design methods. As a member of the Flemish gaming association DiGRA Vlaanderen and member of this association's executive board, she stays up to date with current gaming research and shares her own research expertise. Related to this, she organized Ludic City lectures on the mutual shaping between game-play and urban everyday life.

*Alina Krischkowsky*

Alina is a research fellow at the Center for HCI at the University of Salzburg in Austria. She has a background in sociology and was engaged in research activities within various contexts, such as assisted living, corporate social media, factories, and automotive. Within these contexts she investigates how games can be utilized as collaborative triggers to study social roles embedded in corresponding practices. She has been involved in organizing workshops at GROUP 2014 and ECSCW 2015.

*Pieter Duysburgh*

Pieter is a researcher at iMinds-SMIT-VUB in Belgium. His main research interest is in developing and applying design research techniques for ICT development that aim at involving targeted users in all stages of the development process. He has mainly been active in the domains of home care and education. He has co-

organized workshops on the topic of involvement of people with impairments in the design process (at PDC, INTERACT, CHI and INCLUDE) and was a guest-editor of a recent special issue of the journal CoDesign [14] on the same topic. Also, he has recently been working on the use of board games in HCI research [15].

#### *Mark Blythe*

Mark is Professor of Inter-Disciplinary Design at Northumbria University in the UK. He is a design ethnographer who has worked in the field of Human Computer Interaction for the last fifteen years. His research is concerned with the digital revolution we are stumbling and tumbling through and how this changes the ways we live, work, make art and grow old.

#### **Website**

The organizers will create a dedicated website for this workshop ([HCIgames.wordpress.com](http://HCIgames.wordpress.com)). On this website, candidates will find practical information (e.g. schedule, location, contact details) as well as more information about game design elements. The results of the workshop, including the participants' position papers, will be shared via this website as well.

#### **Pre-Workshop Plans**

The workshop will be promoted and participants will be recruited through various HCI newsletters, mailing lists and social media. Researchers and designers can apply to participate by submitting a concise position paper (1000 words max.), on how games might be of methodological use in HCI research. They will be asked to elaborate on issues such as the research phases for which they believe games might offer benefits, and the type of game design elements they think could be particularly useful and how these could be incorporated

in HCI research activities in a meaningful way. While candidates are allowed to briefly report on their own research experiences in this paper (and to share additional material about this, e.g. in the form of videos), we foresee that today very few HCI researchers have experience with making methodological use of games. Hence, we also allow candidates to discuss potential game-based HCI research methods that they have not yet put into practice. From the applications, the organizers of the workshop will select those candidates (max. 20) who have clear ideas about implementing game design elements in HCI research.

To prepare for the workshop, selected participants will be asked to read the position papers of 3 or 4 other participants. Participants who have read each others' papers will form small teams in the first part of the workshop.

#### **Workshop Structure**

##### *Part one: Exploring game elements (180 min.)*

After a brief presentation discussing the workshop goals and a round of participants' introductions, the workshop starts with familiarizing participants with existing game design elements (i.e. content, fiction & narrative, mechanics, aesthetics & graphics and framing [10]). In small teams (see above), participants are presented with an overview of game elements in the form of a quiz. Teams will compete in guessing which game design elements are described by the workshop organizers. The teams will also be asked to think of concrete examples of the elements. This quiz will be organized in such a manner that all game design elements in the overview are discussed, also when none of the teams is able to guess the correct answer.

After the quiz, still in the small teams, participants will briefly discuss their position papers amongst each other. In doing this, participants are encouraged to relate to the first part of the workshop by explaining which of the game design elements from the quiz they have touched upon in their papers. Also, they will discuss which of the elements that were unknown to them before the workshop seem interesting.

To finalize the first part of the workshop, the small teams will report the game elements they discussed and consider to be important to the whole group. The organizers will take notes by creating an overview of the elements discussed by all teams.

#### *Part two: Prototyping HCI games (120 min.)*

After the lunch break, participants will create a prototype of a game-based method or tool that can be used in HCI research, hereafter referred to as 'HCI game' (this can be a complete game but also game elements that can be included in HCI methods). To this end, the participants are divided into new teams that will each focus on a common research phase in HCI research (e.g. analysis, ideation, conceptualization, design, evaluation). Within these teams, the participants first agree on a project and a research question which they wish to use as a starting point for creating an HCI game. This could be an existing research project of one of the group members or a new project idea or research question. If the group members have strongly differing ideas on the project and research question to create an HCI game for, teams are allowed to split up into smaller teams. The organizers will provide basic scrap material (paper, pens, markers, tape, scissors, ...) for the creation of the HCI game prototypes. An overview of the game

design elements as presented in the first part of the workshop will be available for the participants while creating the HCI game.

#### *Part three: Discussing HCI games (60 min.)*

The third and final part of the workshop is a plenary session. All HCI games (or HCI game elements) created in part two are presented by one of the team members who will explain (amongst others) the game design elements that were used, the difficulties encountered during the creation of the HCI game, and the added value of the HCI game compared to more traditional HCI research methods.

The workshop organizers will add the game design elements that have been used to the overview they started to create in part one. After all games have been presented, the participants will go over the elements that have not been used in the HCI game prototypes and discuss the reasons why these were not used (Was this a coincidence or are these elements really less valuable for HCI research?). The elements that were used in the prototypes will also be discussed (What is the expected effect of the game elements on research procedures and outcomes? How will those elements affect the social dynamics during research? How will the social interactions between research subjects affect the game dynamics?). In this last part of the workshop, the organizers aim to obtain a first overview of the potential use of specific game design elements for HCI research purposes.

### **Post-Workshop Plans**

After the workshop, the short term plan is to write a workshop report to prepare a joint publication with all participants of the workshop. On the long term, the

integration of game design elements in the work of the participants may lead to a special issue of a relevant journal focusing on HCI research methods.

### **Call for Participation**

This workshop brings together researchers and designers to share experiences and ideas for integrating game design elements in HCI research activities. It will focus on how existing game design elements (e.g. content, fiction & narrative, mechanics, aesthetics & graphics and framing) could be employed to improve HCI research.

You can apply by submitting a concise position paper (1000 words max.) elaborating on your ideas and/or findings on how games can be of methodological use in HCI research. We ask you to elaborate on issues such as the research phases in which you believe games might offer benefits, and the type of game design elements you think could be useful and how these could be incorporated in HCI research activities in a meaningful way. We encourage brief reports on your own experiences regarding the use of game design elements (and sharing additional material about this, e.g. in the form of videos). If you don't have such experience yet we look forward to your ideas about the possible use of game elements in your future research.

More information about game-based HCI research can be found on the workshop's website. Please send your submission to [e-mail address].

All workshop participants must register for both the workshop and for at least one day of the main conference.

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