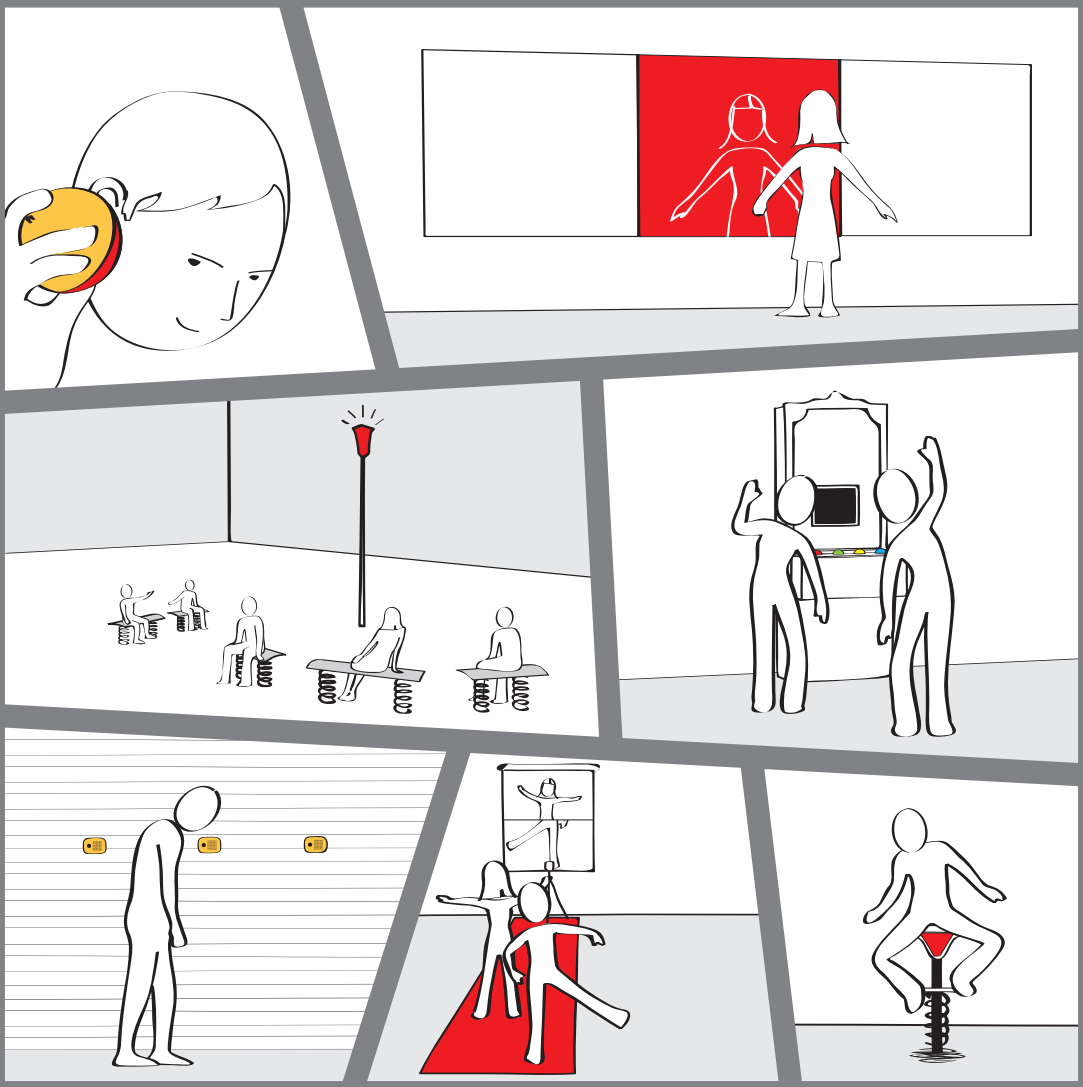
ROB TIEBEN

ACTIVATING PLAY

Playful interactions for teenagers in public spaces

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University of Technology

PlayFit

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Preface

Dear reader,

This booklet gives an overview and summary of the design and research in my 'Activating Play' PhD project. In this project, we studied how we can elicit playful interaction from teenagers in public areas.
A gallery of sixteen playful moments is presented on the following pages, varying from design explorations to long-term design studies. The playful moments have been designed by myself and/or students of Eindhoven University of Technology Industrial Design and Fontys School of ICT Serious Games. These sixteen playful moments are a selection of design research work performed within my PhD project and in the SIA RAAK-PRO Playfit project.
This booklet ends with a summary of my PhD thesis.

More information can be found in my thesis and at playfulll.com.

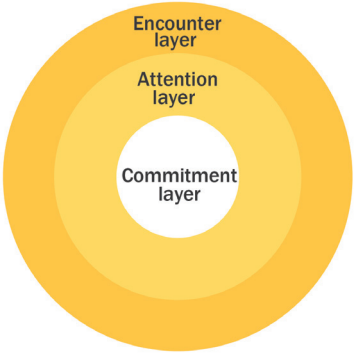
Enjoy reading!

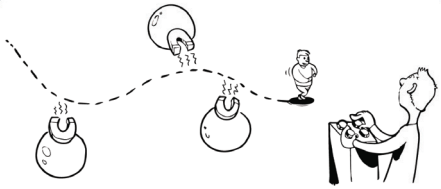
Rob Tieben
September 2015

FRAMEWORKS

LAYERS OF FREE PLAY

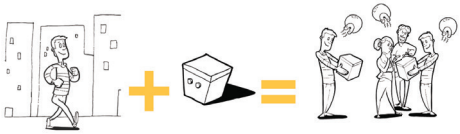
Context





many UNCONTROLLABLE FACTORS influence the USER'S BEHAVIOUR
one can only DESIGN FOR a PLAYFUL EXPERIENCE

Encounter layer



a PERSON within a CONTEXT ENCOUNTERS a PLAYFUL DESIGN and has a certain TYPE OF ENCOUNTER,
influenced by
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the PLAYFUL DESIGN has to ELICIT CURIOSITY
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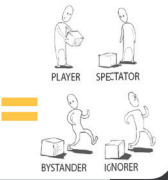
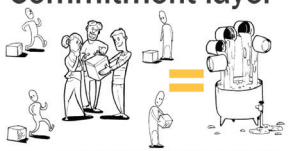
through ATTENTION and INVITATION

a PERSON can then ACT as



Commitment layer



a PLAYER can engage in different TYPES OF FREE PLAY
the PLAY EXPERIENCE is a SELF-REINFORCING and SOCIALLY DRIVEN
MIX of these TYPES OF FREE PLAY
with DYNAMIC PARTICIPATION

Types of Free Play

Active play

Players perform physical actions and bodily interactions, in order to produce a meaningful sensory experience in themselves.

Explorative play

Players experiment with action possibilities and opportunities, and actively try to work out what the installation can do and what they can do with the installation.

Negotiative play

Players define a game for themselves by creating and negotiating rules, boundaries and meaning, and try to achieve a self-determined goal such as winning, completing a task or improving their skills.

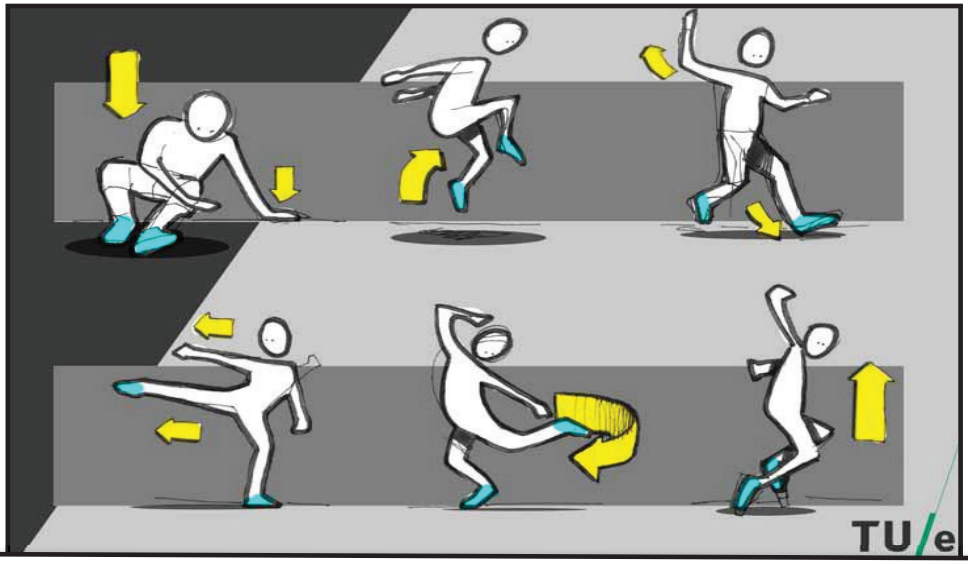
Performative play

Players create something while interacting or express themselves for an (imaginary) audience.

Communicative play

Players twist the meaning of something or exchange information to others, by manipulating game elements and through actions such as body language and gestures.

The types of free play framework presents five types of free play we identified that are common in the design and evaluation of playful interactions in public spaces.

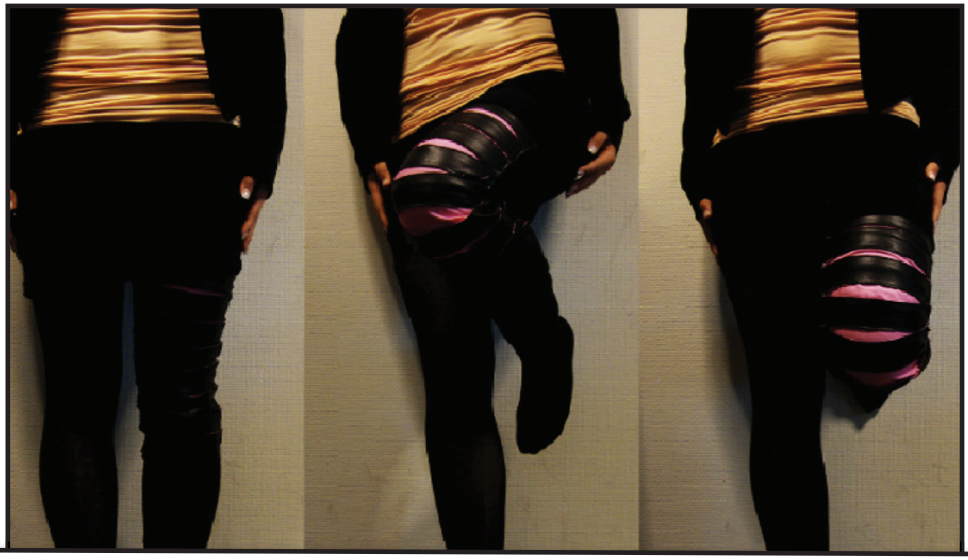


Dancing shoes

Design exploration by Tamás Fejér

Dancing Shoes are shoes with LEDs where a user can change colour, intensity and pattern of the light by performing certain actions. Walking, jumping or tapping results in cool light effects, connecting the players' actions to their appearance.

2010. Coached by: Mark de Graaf & Rob Tieben
More information, including design and evaluation details, at:
playfulll.com/ dancing-shoes



Dynamic clothes

Design exploration by Jamie Maria Schouren

Dynamic clothes is clothing that alters appearance through physical actions such as walking or dancing. Standing still, they appear normal, but physical actions cause the seams to open, revealing the colourful fabric below.

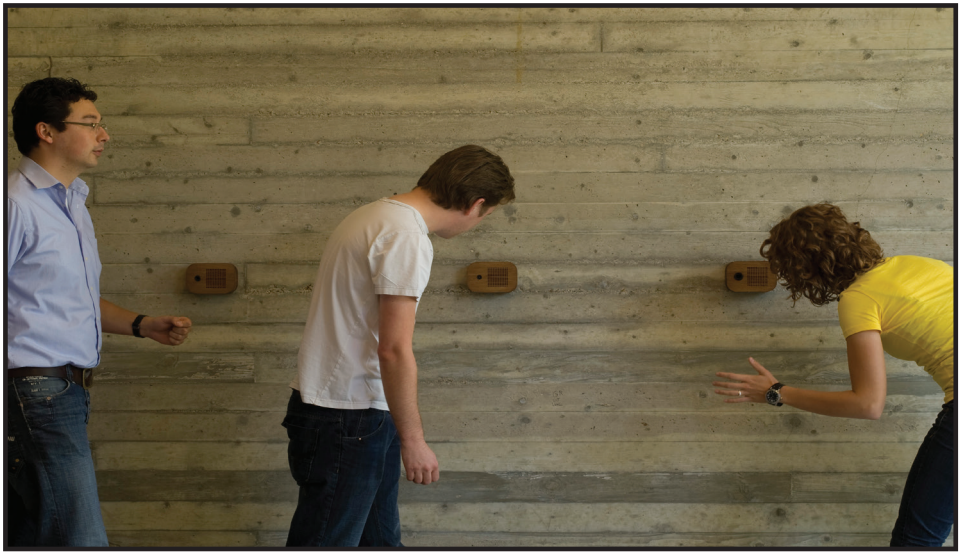
2010. Coached by: Gijs Ockeloen & Menno Deen
More information, including design and evaluation details, at:
playfulll.com/dynamic-clothes

Sway it

Design exploration by Pepijn Fens

Sway-It is a LED-coloured seat, that changes colour depending on the user's actions. Different actions such as balancing, leaning or kicking result in distinct colours.

2011. Coached by: Mark de Graaf & Rob Tieben
More information, including design and evaluation details, at:
playFulll.com/sway-it

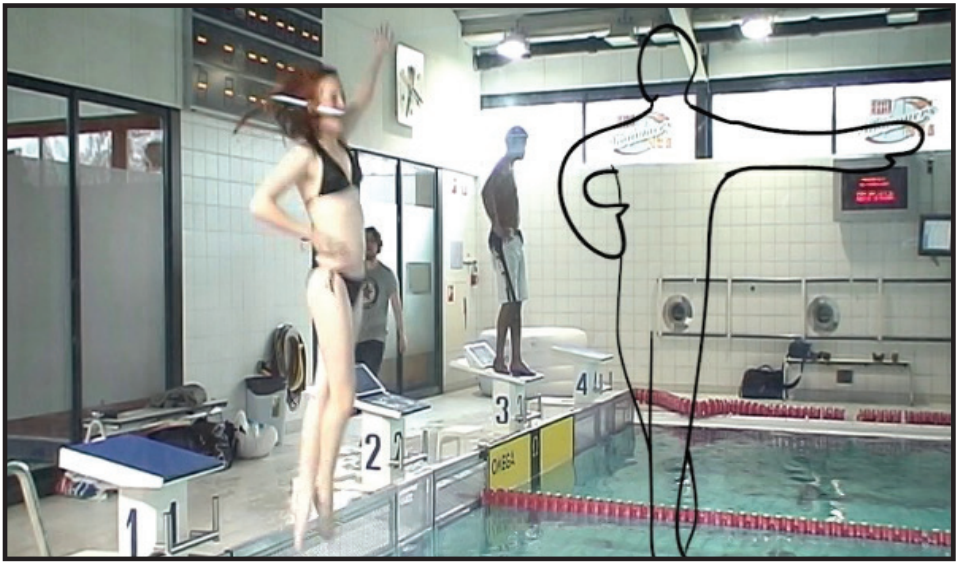


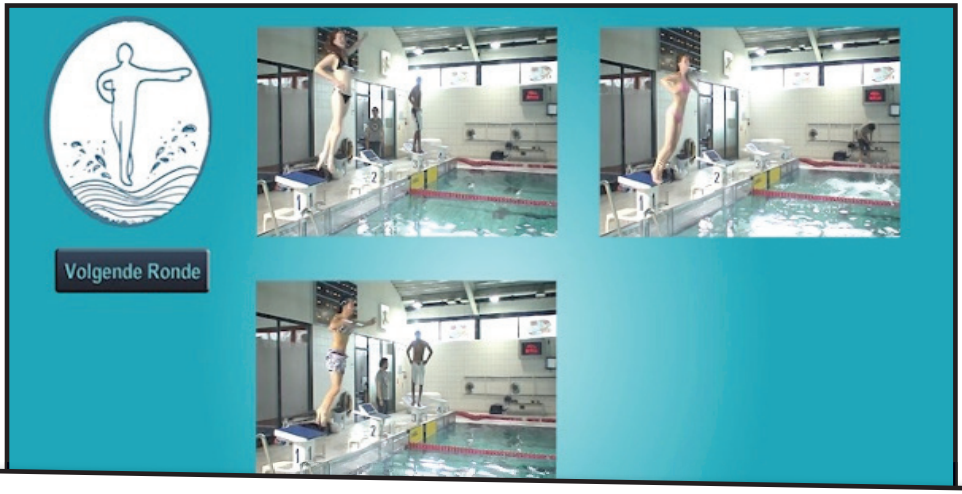
Curious-action Speakers

Design study by Rob Tieben

Six interactive speakers with an embedded webcam that transform action into sound output. Using this installation, several interaction scenarios were implemented and evaluated, e.g. when someone would walk through a corridor and pass the speakers, then he/she would hear sounds from each speaker.

2010.
More information, including design and evaluation details, at:
playfulll.com/curious-action-speakers



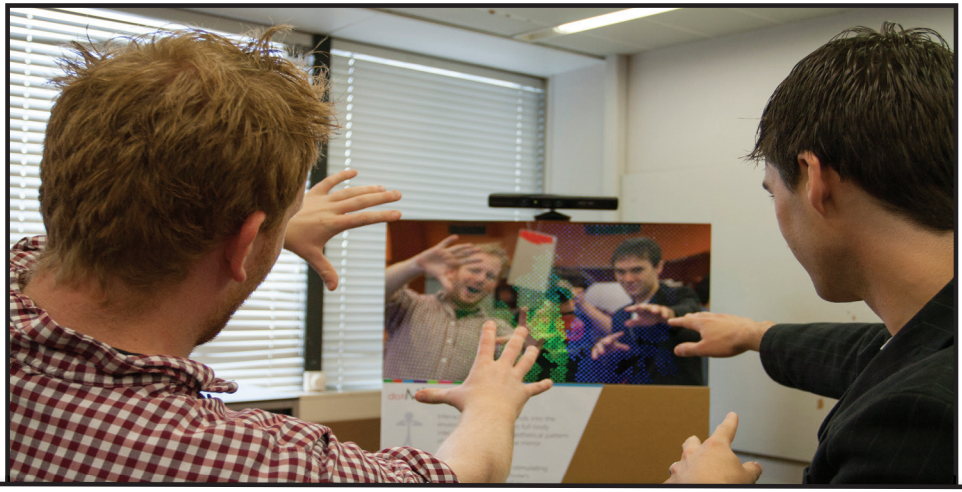


Bomb-It

Design exploration by vd Bogaard, Donkers, Jacobs, Leenders, Verhoeven and v Woelderen

Bomb-It is a game for the swimming pool, where a side-view camera records players' jumps, and displays the last four on a big display. Players can review and compare their splashes, dives, saltos or bombs in a social and active playful activity.

2011. Coached by: Menno Deen & Rob Tieben
More information, including design and evaluation details, at:
playfullI.com/ bomb-it



dotMirror

Design exploration by Troy Reugebrink

dotMirror is a mirror with an interactive layer that displays your silhouette in a magical way. Little holes in the mirror allow the projection of a camera-tracked silhouette, resulting in a beautiful effect whenever someone moves in front of the mirror.

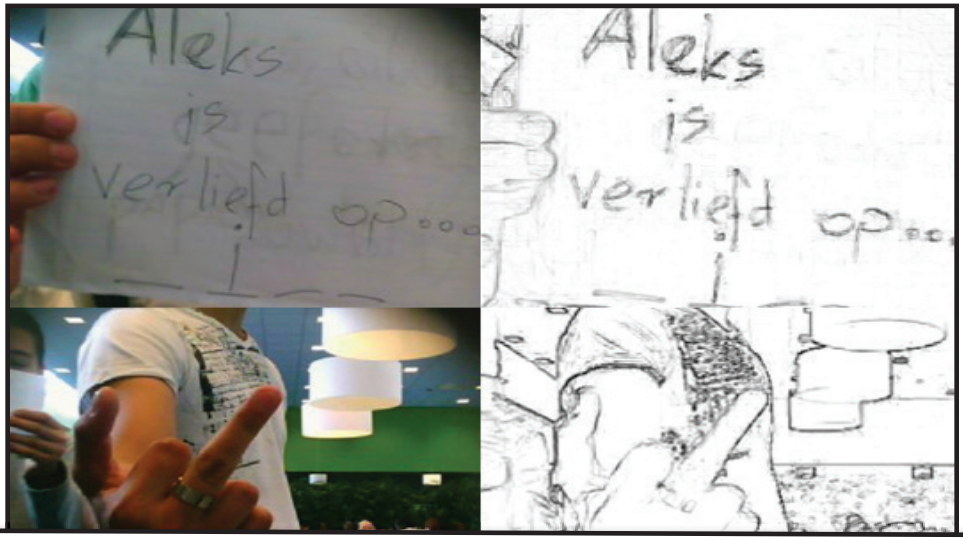
2012. Coached by: Ben Schouten
More information, including design and evaluation details, at:
playFulll.com/ dotmirror

LightScribe

Design exploration by Tamás Fejér / by Hanna Zoon

Lightscribing is a photography technique where moving light sources are used to draw beautiful light paintings. Combined with a group of teenagers or an app, lightscribing results in a social activity where physical play leads to creative results.

2010 / 2012. Coached by: Mark de Graaf & Rob Tieben / Ben Schouten
More information, including design and evaluation details, at:
playFulll.com/lightscribe

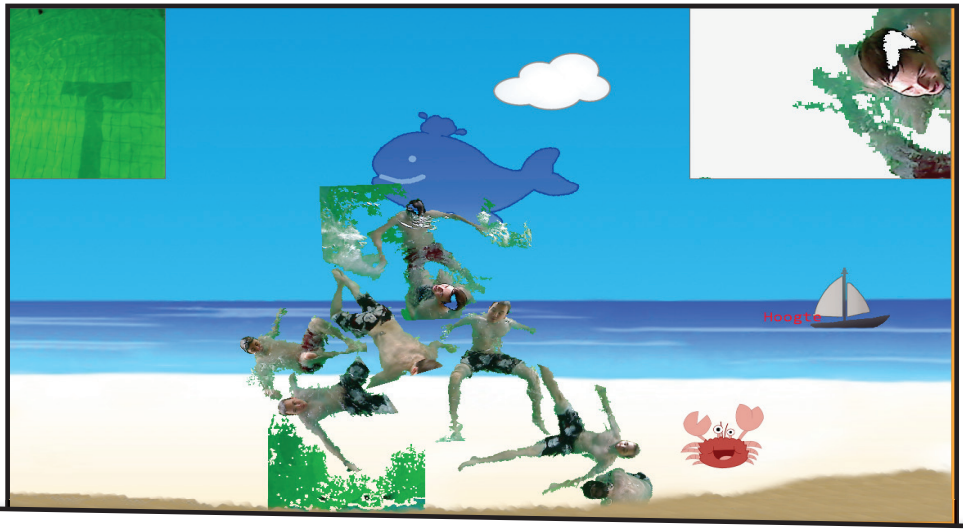


Magic Mirror

Design study by Rob Tieben

Magic mirror is an interactive video projection that alters a mirror image of the school hall with various funny video effects. Users in the hall see themselves at the large projection, in for example a comic-like way or with a transparent ghost delay. The video effects change throughout the day.

2011. More information, including design and evaluation details, at:
playFulll.com/dynamic-clothes

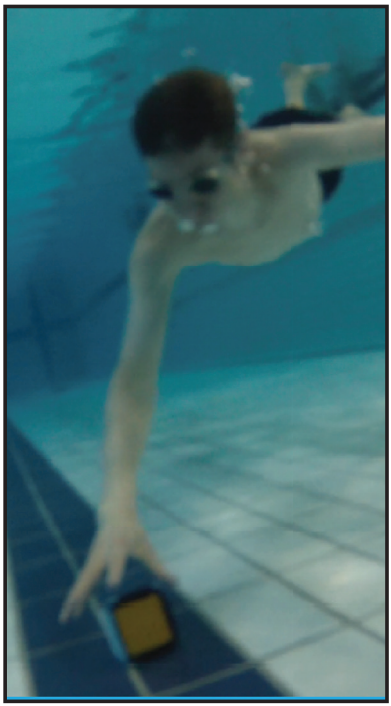


PhotoDrop

Design exploration by Jole, Lemmen, van Loon, Hoogers and vd Horst

PhotoDrop is a game for the swimming pool, where a camera above the pool records swimmers' silhouette, and displays this on a large display. This silhouette is then transformed into a Tetris-like building block, so that swimmers can build a virtual tower using their silhouettes. Players can for example try to build the highest tower.

2012. Coached by: Menno Deen & Rob Tieben
More information, including design and evaluation details, at:
playfulll.com/ photodrop

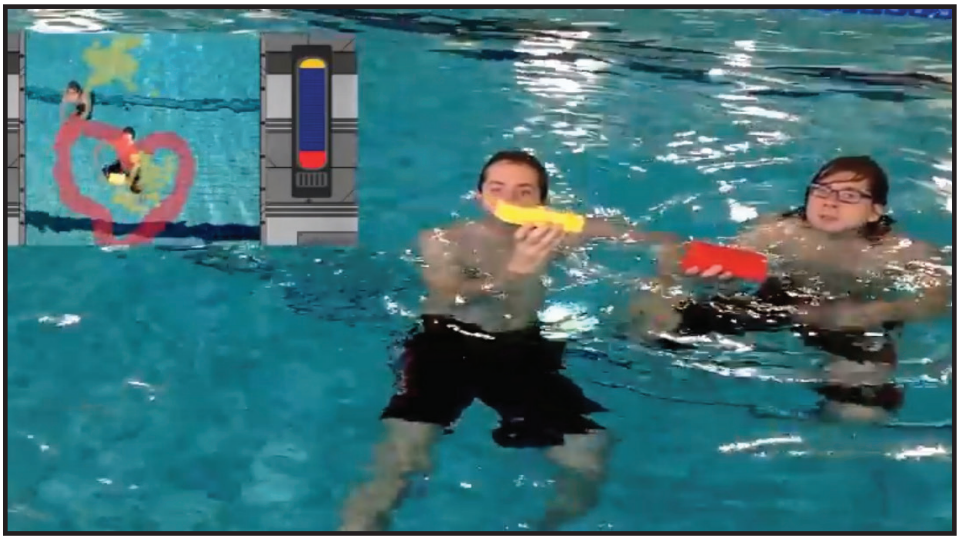


Treasure Race

Design exploration by Gommans, Hoogers, van Dam, Titulaer.

Treasure Race is a game for the swimming pool, which uses floating objects, a display, and RFID readers. A series of floating objects (treasures) are thrown into the pool; teams of players then have to find and scan the objects to eventually find a hidden treasure, competing in a treasure hunt race. Playing rules and strategy are left undefined, to be decided by the players themselves.

2012. Coached by: Menno Deen & Rob Tieben
More information, including design and evaluation details, at:
playfulll.com/treasure-race



WaterDraw

Design exploration by Blok, van Gastel, Pauwels and Voeten

WaterDraw is another game for the swimming pool, where players can virtually paint on a display. Players swim around with coloured blocks, and are recorded via a top-side camera. Every object virtually paints with a specific colour; the system also responds to other coloured items such as swimming suits. This way, players can create their own drawings, or play a 'fill-the-map' game, where the goal is to fill the entire screen with a colour.

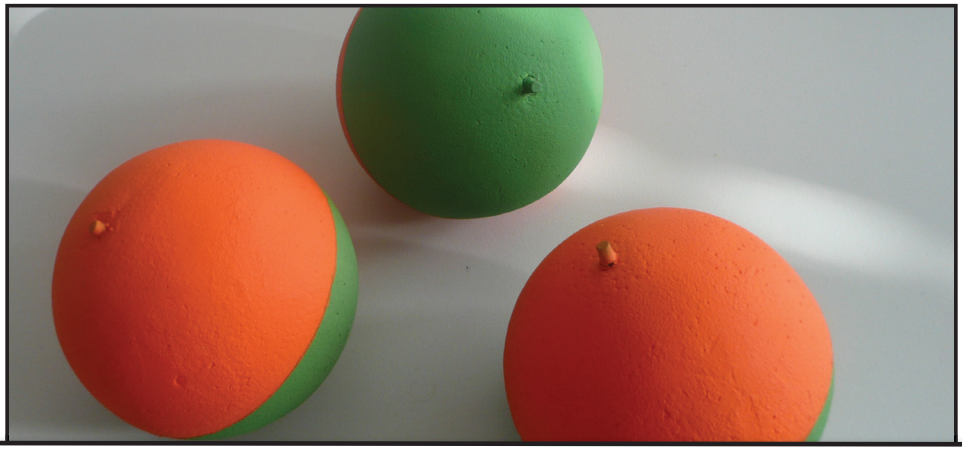
2012. Coached by: Menno Deen & Rob Tieben
More information, including design and evaluation details, at:
playFulll.com/waterdraw

TeaSeat

Design exploration by Abdeli, Janssen, Kersteman and Scheffer

TeaSeat is a set of seating elements in a schoolyard; on the seats, several physical actions can be performed such as wiggling or hanging to one side. These actions are then translated to the other seat, which tilts or vibrates as a result. The goal of TeaSeat was to elicit active social play during the lunch break, such as teasing and flirting between seated users.

2012. Coached by: Gijs Ockeloen & Rob Tieben
More information, including design and evaluation details, at:
playfulll.com/teaseat



WhisperBalls

Design exploration by Rob Tieben

Whisperballs are interactive balls that allow players to record audio messages by squeezing them. Another player can then squeeze the ball again, to listen to the message. Users can throw balls with messages to each other, or leave them to be found for someone else.

2011
More information, including design and evaluation details, at:
playfulll.com/whisperballs

Photo Vault

Design study by Rob Tieben

The Photo Vault is an interactive installation that consists of a wooden cabinet, a display, a camera, and four big buttons. In its initial state, the installation asks for an access code; when a button is pressed, the users see themselves through the camera, altered by a video effect. When a code has been entered, i.e. all four buttons have been pressed, then the code is checked, and feedback is given through mastermind-like clues. When users manage to enter the correct code, the installation counts down, and a picture of the users is taken.

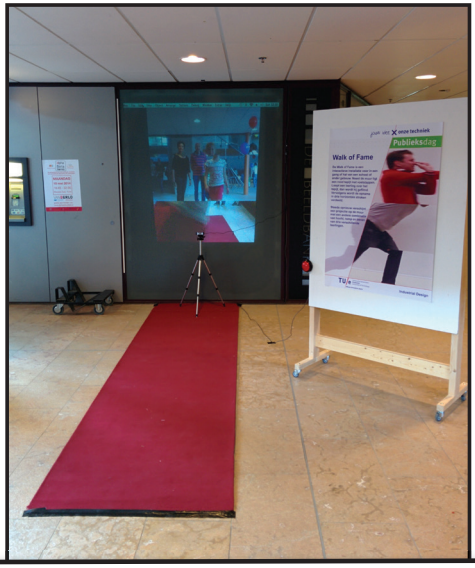
2012
More information, including design and evaluation details, at:
playfulll.com/photo-vault

Wiggle the Eye

Design study by Rob Tieben, Pepijn Rijnbout and Linda de Valk

Wiggle the Eye is a playful installation that elicits physical and social play. By sitting and wiggling on one of the interactive seats, players control the central streetlight and the vibration motors in other seats. This novel outcome stimulates players to be physically active while sitting, in order to discover what is possible with the installation. The installation is public, so one's actions influence the experience of other players, resulting in strong social interaction.

2013 & 2014
More information, including design and evaluation details, at:
playfulll.com/wiggle-the-eye



Walk of Fame

Design study by Rob Tieben

Walk of Fame is a playful installation which frames moving through space in a performative way. By moving through the camera's view, the image of a player is recut on top of another recording, creating an unexpected and ludicrous video composition. This novel outcome stimulates players to move their bodies in different ways to create new configurations. The installation is public, so the act of playing and the resulting recordings are visible for others to see, which adds a social and performative quality to the experience.

2013 & 2014
More information, including design and evaluation details, at:
playfull.com/walk-of-fame

Activating Play

A design research study on how to elicit playful interaction from teenagers

Playing is beneficial to people of all ages: through playful activities, people can e.g. develop skills, engage in physical activity, or improve cooperation and social interaction. The valuable qualities of play are often inherent to the playful activity; people enjoy themselves, while inherently developing skills and being physically and socially active.

The main goal of this design research project was *activating play*: learning and showing how we can stimulate physical and social play for teenagers using interactive technology in public spaces. Stimulating teenagers to engage in moments of physically and socially active play throughout the day can have many benefits, such as decreasing sedentary behaviour while increasing social interaction, creativity and autonomy.

To achieve this goal, a *design research* process has been used: an iterative process of design, evaluation and analysis. Four design research cycles were executed in this project, each building on the results of the previous cycles. In these cycles, many prototypes were designed, implemented and evaluated with teenagers in public spaces.

Three design research questions were answered through the design research cycles in the thesis:

1. What type of social and active play is enjoyable for teenagers in daily life?

2. How can we recurrently elicit this type of playful activities through interactive installations in public spaces?

3. How can we conduct design research about such playful activities for teenagers in public spaces?

“Stimulate physical and social play for teenagers using interactive technology in public spaces”

Picture: Design study by Rob Tieben – Curious-Action Speakers

Through the iterations, a design vision of enjoyable social and active play for teenagers in daily life was developed and grounded in building blocks of design-relevant knowledge. This *design vision* is about *free play* that resonates with teenager's interests, activities and contexts. Free play is creative and autonomous play, without predetermined structure or meaning, that continually evolves through the actions and interactions of the players. The free play design vision, together with the interactive installations and user evaluations, answer the first design research question.

The first three design research cycles focused on exploring, activating and designing for free play in public spaces, and resulted in a series of intermediary frameworks, design explorations and proofs-of-concept. The fourth and last design research cycle focused on free play for longer periods, and on developing and synthesising the design knowledge in a summative framework.
Wiggle the Eye and Walk of Fame are high-fidelity prototypes developed in cycle four that were evaluated for periods of a month, with hundreds and respectively thousands of players. By studying these installations and the behaviour they elicited, we were able to articulate the implicit design knowledge from the design research cycles, which manifested in the *layers* and *types* of *free play frameworks*. These frameworks show, together with the designed installations and evaluated moments of play, how we can recurrently elicit free play through interactive installations in public spaces: by designing for five types of free play from an encounter, attention and commitment perspective. This is the answer to design research question two: the frameworks explain how to design for free play, teenagers and public spaces, and the designs illustrate how this conceptual design knowledge can be applied to interactive installations in real life contexts.

The design research approach described in the thesis, and the methodological discussion in the last chapter, answer the third design research question. Designing and studying playful activities for teenagers in public spaces is complex: there are numerous factors that influence the actions and experience of the players, and most of these factors are outside the designer's control. In these complex situations, one can only design for a specific experience: the actual experience emerges from the interaction of the players with the installation, the context, other players, etc. As a designer, one can tweak certain design elements, place the installation in the real world, and see what happens: the combination of the design, users and all the situational factors creates the specific experience.
Only by iteratively exploring, experimenting and studying many designs and evaluations from a holistic perspective can one gather intermediary design knowledge, which can inform future design iterations and can eventually lead to new theory. With holistic we mean by reference to the whole, as the parts of an experience are intimately interconnected and cannot be evaluated individually.

"In these complex situations, one can only design for a specific experience"

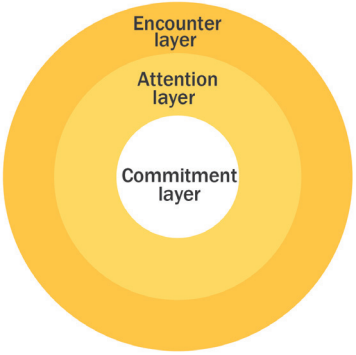
A combination of design exploration, implementation and evaluation in several iterations is required in order to understand the complex design and research space. Evaluation methods and approaches have to be adapted for teenagers, public spaces and playful experiences and especially for the combination of these three fields.

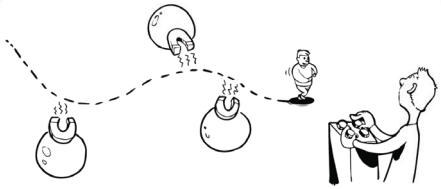
Many prototypes were designed, developed and evaluated in this design research project. The *Swimgames* projects for example are interactive games in the swimming pool that show how active and negotiative play can be elicited in a swimming pool. *The Photo Vault* is an interactive photo cabinet where funny pictures can be taken if players find the secret code, stimulating communicative and explorative play. *Wiggle the Eye* transforms a schoolyard into a social and active sitting area through interactive seats and a streetlight. *Walk of Fame* elicits performative and communicative play by projecting and recomposing expressive actions in a corridor of a school.
These designs are an integral part of the thesis: they illustrate and embody the design knowledge of the frameworks, communicate the free play design vision, and serve as proofs-of-concept. The combination of the designs and design knowledge is the main contribution of the thesis. Together, they explain and illustrate how we can stimulate physical and social play for teenagers using interactive technology in public spaces.

FRAMEWORK

LAYERS OF FREE PLAY

Context





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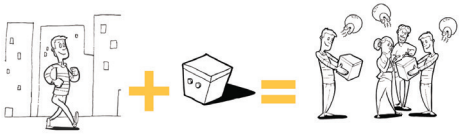

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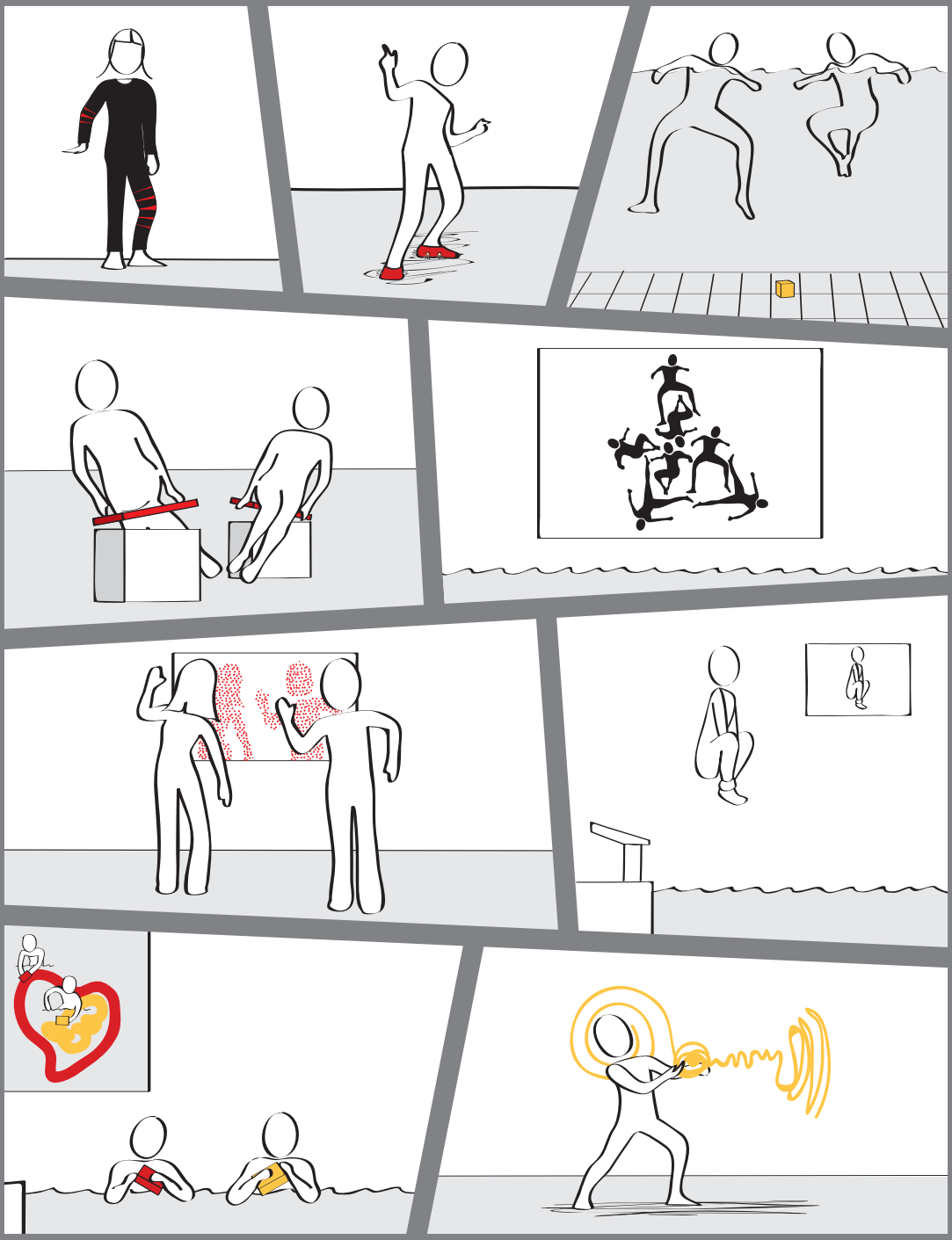

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