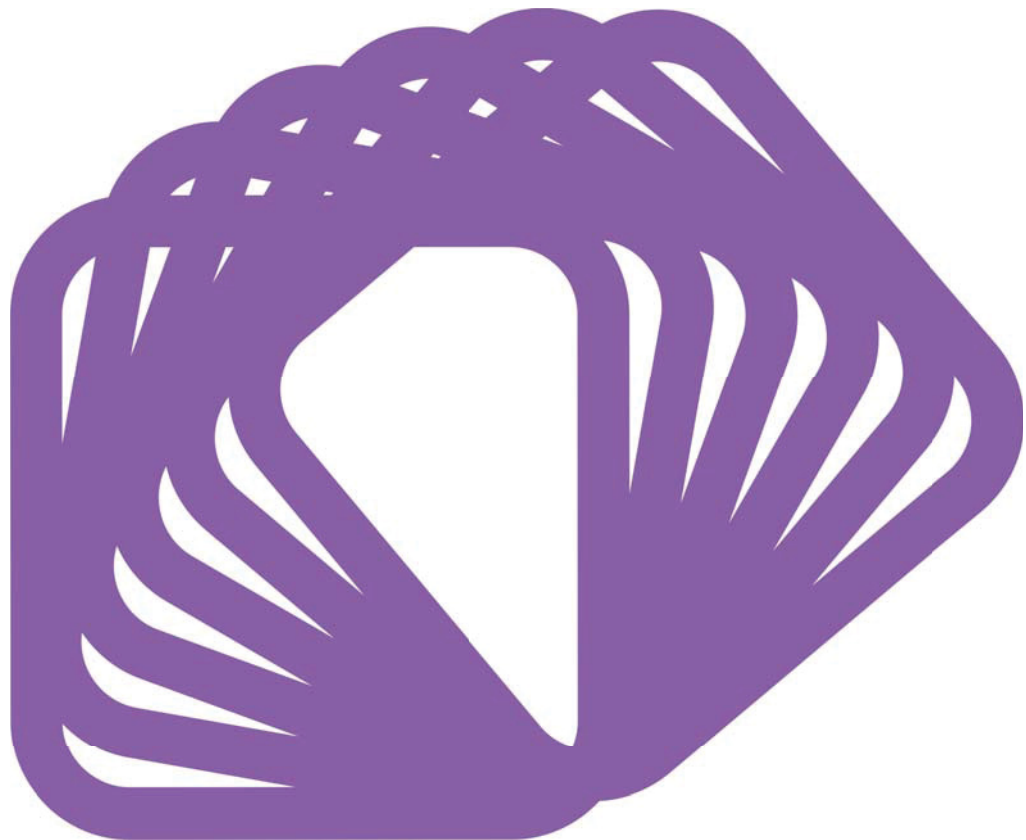




# Towards Playful Office Culture

## Final Report of the OASIS – Playful Spaces for Learning and Collaboration at Work (2014–2015) research project

Edited by  
Timo Nummenmaa  
Sampo Savolainen  
Annakaisa Kultima



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## Foreword

While we were planning the OASIS<sup>1</sup> environment and the related research projects, there were several ongoing development trends we wanted to address or challenge. The most immediate ones were related to the changes that the Finnish university system and our own university were going through. In 2010, there were 38 rather independent departments in the University of Tampere; the faculties organized the collaboration between all these small units only loosely. The restructuring that started in 2011 changed everything, as now there were only 12 Schools that integrated all degree education, research and administrative activities under the new, much broader and more interdisciplinary structures.



Figure 1. Frans Mäyrä enjoying an e-book in OASIS

For students and staff, this was time for questions regarding identity, for necessary reinvention and also the time that held potential for discovery. The changes in the university were by no means isolated incidents – rather, the speed of change is accelerating more generally in the contemporary

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<sup>1</sup> Kultima, A. (Ed.). (2014). *Rainbows, Unicorns and Hoverboards: Making of OASIS Story of a dream at the University of Tampere*, Tampereen yliopisto. Digitally available at: <http://urn.fi/URN:ISBN:978-951-44-9607-3>

society. Fate of the mobile phone business of Nokia, the former global giant in ICT sector, provides one lesson: locking down into slowly adapting structures and too long-term strategies can mean that important innovations are passed upon, and the entire business can move quickly to other, surprising directions that will prove to become unsurmountable obstacles for those too slow to change.

The principle of play and attitude of playfulness that were adopted as key starting points for the *OASIS – Playful Spaces for Learning and Collaboration at Work* (2014–2015) project are closely connected to change and innovation. One of the leading scientific explanations for why play is so pervasive relates to the evolutionary advantages it provides: those who play will gain important benefits for their capability for innovation and better adaptivity at the face of quick and surprising changes. There are also other important assets to derive from play and playfulness, as we had learned from our studies of games, players and play in cultures – benefits for informal information exchange, friendship formation and generally to health and well-being were something that we were interested in exploring further, in a practical and challenging setting of redesigning multidisciplinary working, studying and socializing environment.

If there is one central lesson that I want to highlight among the many that OASIS has provided, it is no doubt how redesigning an environment needs to be connected with and sensitive towards the cultures and priorities of the people who inhabit and use those environments. A material environment is also always a social, cultural and mental space and place. If we want to achieve positive benefits to the actual use and culture that resides in a place, we need to design activity and mindset, not only walls and technologies. That is a valuable lesson for everyone involved. – Many thanks to University of Tampere, School of Information Sciences, University Properties of Finland, and the Finnish Work Environment Fund for making this interesting work possible!

– *Frans Mäyrä*

Tampere, September 30th, 2015

## **Abstract**

In the project *OASIS – Playful Spaces for Learning and Collaboration at Work* (2014–2015), funded by the Finnish Work Environment Fund, the experience of playfulness and the incentives and thresholds of adult play at the workplace were examined. The research focused on a single academic work community, and it was closely connected to research enabled by OASIS, an informal social space for students and staff at the university and a living lab for research. The primary component of the research project comprised three playful experiments involving staff members.

The first experiment was centered around a playful art installation, a sandbox filled with dice called *There Are No Rules* created by Kati Heljakka. The installation was set up in OASIS, and user interactions with it were tracked using the camera equipment in the space. The experiment produced knowledge on methods for analyzing playful interventions.

The second experiment, which combined two outlined experiments into a single larger entity, focused on gamifying the process of forming new social connections and interactions between researchers within the community. The main component of the *OASIS Deck of Cards – House of Colleagues* experiment was a card game that aimed to facilitate playful and informal community building and strengthening. The game was played for a period of five weeks, after which community impressions were gathered using a survey instrument. The results point to a wide spectrum of experiences. For some respondents, the card game experiment increased feeling of community, activity, social interactions, and well-being within the community, created a more relaxed atmosphere, and facilitated new interactions between community members. Other respondents commented that the experiment did not have an effect on internal networking or social interactions, and it did not impact the feeling of community.

In the third experiment, leading figures of the work community participated in playful workshops where they used predetermined methods and perspectives to formulate a future vision for the community. These workshops were recorded as entertaining videos as a method for exposing the visions to the wider work community. The videos functioned as a probe instrument for investigating staff views on and attitudes towards play and playfulness in the workplace.

The outcomes of the three experiments indicate that attitudes towards and beliefs about play happening in the workplace vary widely within the examined work community. For some play in the workplace is desirable and even self-evident, whereas others would prefer to separate work and play entirely. The social aspects of play can be perceived as positive or negative, as well. In the workplace, it is easier to approach playful activity that blends in with the workplace culture, especially if the associated play is flexible and allows the player to engage in it on the terms of their own preferences and schedules. As attitudes towards and beliefs about play cover a wide spectrum, it is essential that the suitability of a playful element for a specified target community can be evaluated in advance and modified accordingly.

In addition to these playful experiments, previously gathered material was analyzed and reported in the context of the project. The findings from these analyses support the findings of the experiments and revealed important information on adult play, such as the appeal of touch and discovery and the role of social capital in connection with adult playful objects.

## Tiivistelmä

Työsuojelurahaston rahoittamassa hankkeessa *OASIS - Pelillisen yhteistyön ja yhteisöllisen oppimisen tilat työssä* (2014–2015) tutkittiin leikillisyyden kokemusta työpaikan kontekstissa ja aikuisten työpaikkaleikin kynnyksiä ja kannustimia. Tutkimus keskittyi yhden akateemisen työyhteisön tutkimiseen, ja se liittyi vahvasti sekä henkilökunnan että opiskelijoiden käyttöön tarkoitetun OASIS-tilan mahdollistamaan tutkimukseen. Tutkimuksen keskeisimpänä osana toteutettiin kolme henkilökuntaa osallistavaa leikillistä kokeilua.

Ensimmäinen kokeilu keskittyi nopista koostuvan hiekkalaatikon, “There Are No Rules” -taideteoksen ympärille. Leikillinen teos oli esillä OASIS-tilassa, ja käyttäjien vuorovaikutusta sen kanssa seurattiin tilan mahdollistamien kameratallenteiden avulla. Kokeilun tuloksena syntyi tietoa leikillisten kokeilujen analysoinnin menetelmistä. Toinen kokeilu, joka yhdisti kaksi suunniteltua kokeilua yhdeksi suuremmaksi kokonaisuudeksi, pyrki pelillistämään yhteisön tutustumista ja tutkijoiden vuorovaikutusta. Tämän *OASIS Deck of Cards – House of Colleagues* -kokeilun ytimessä oli leikilliseen ja informaaliin yhteisöllisyyden rakentamiseen ja vahvistamiseen tähdännyt korttipeli, jota pelattiin viiden viikon ajan ja jonka jälkeen yhteisön näkemyksiä kartoitettiin kyselytutkimuksella. Tulokset kielivät vaihtelevista kokemuksista. Joidenkin vastaajien mukaan korttipelikokeilu lisäsi yhteisöllisyyden tuntua, aktiivisuutta, sosiaalisuutta ja hyvinvointia yhteisössä, rentoutti yleistä ilmapiiriä sekä auttoi yhteisön jäseniä tutustumaan toisiinsa; toisten mukaan taas kokeilu ei edesauttanut yhteisön sisäistä verkostoitumista tai sosiaalista kanssakäymistä eikä vaikuttanut yhteisöllisyyden tuntuun. Kolmannessa kokeilussa järjestettiin yksikössä johtotehtävissä työskenteleville henkilöille leikillisiä työpajoja, joissa luotiin henkilökunnan nähtäväksi viihteellisiä videoita tulevaisuuden visioista ennalta määritellyin leikillisin menetelmin ja näkökulmin. Syntyneitä videoita käytettiin luotaimena, jonka avulla pystyttiin pureutumaan henkilökunnan ajatuksiin ja asenteisiin työpaikkaleikkiä kohtaan.

Kokeilujen yhteentulemana todettiin, että työyhteisön asenteet ja uskomukset työpaikalla tapahtuvaa leikkiä kohtaan vaihtelevat voimakkaasti. Toisille leikki on työpaikalla itsestäänselvää ja toivottavaa, toiset taas haluaisivat pitää leikin elementit poissa töistä kokonaan. Myös leikin sosiaalisuus voi olla joko positiivinen tai negatiivinen asia. Työpaikalla leikkijän onkin helpompi lähestyä työpaikan kulttuuriin sulautuvaa leikillistä toimintaa, etenkin jos sen yhteydessä leikki on joustavaa ja rakennettu niin, että sitä voi tehdä omien mieltymysten ja aikataulujen puitteissa. Leikkimiseen kohdistuvien asenteiden ja uskomusten kattaessa laajan kirjon on oleellista pystyä etukäteen arvioimaan millainen leikillinen ratkaisu pystytään rakentamaan tietyn kohteen yhteisölle soveltuvaksi.

Näiden leikillisten kokeilujen lisäksi projektin aikana analysoitiin ja raportoitiin aikaisemmin kerättyä materiaalia projektin kontekstissa. Näistä saadut löydökset tukevat kokeilujen löydöksiä ja paljastavat tärkeää tietoa aikuisten leikistä, kuten tarpeen fyysisten esineiden koskettamiseen ja uusien asioiden oppimisen kiehtovuuden. Aikuisten leikillisiin esineisiin liittyi myös sosiaalisen pääoman kerryttämistä ja käyttämistä.



# 1. Introduction

This report describes the background and presents a summary of findings of the research project *OASIS – Playful Spaces for Learning and Collaboration at Work (2014–2015)*.

While some of the results presented here are tentative and will be reported in more detail in future academic publications, the rest have been thoroughly reported elsewhere in conference proceedings and other academic publications during the research project. Related studies from previous research projects and parallel projects are also presented. This report also provides a summary of the whole project in chapter 2 and a list of publications at the end of the report.

In addition, the chapter *Review of related work and background literature* reviews research on related work and background literature from all research and publications that were included in this study.

The *OASIS – Playful Spaces for Learning and Collaboration at Work (2014–2015)* research project has been funded by the Finnish Work Environment Fund, University Properties of Finland Ltd, and the University of Tampere.



## 2. Project Overview

This section describes an overview of the research conducted in the *OASIS – Playful Spaces for Learning and Collaboration at Work* (2014–2015) research project and a summary of the results.

### **Background**

A study on playfulness in a work context, the thresholds of play for adults, and how these aspects build towards playful communication and community learning was conducted at the University of Tampere, Tampere Research Centre for Information and Media (TRIM). Developments in the School's environment, including a social learning space and Living Lab called OASIS [2], have a central role in assisting the staff and department reorganization into the new School of Information Sciences framework. OASIS, an open space for both staff and students functions as: 1) library for books with e-readers for accessing e-books and articles, and a media and digital games library with gaming capabilities, 2) as a social space for lounging and relaxing, drinking coffee and tea, meeting students and staff, and 3) group-work area with four 40" screens, a Pixelsense multitouch table and a short-throw interactive projector as shared displays with capability to plug in own hardware and e.g. accessing collaborative cloudware. The continuing involvement of the available technological, physical, and social affordances enable ever-changing usage scenarios for the space. The space functions as a true Living Lab [1] environment where use is studied by collecting data with 24/7 web-cameras, surveys, interviews, and usage journals. Due to the constantly evolving nature of the space, experiments can be conducted within the space in such a way that they are not intrusive or in conflict with the basic philosophy of the space: OASIS is meant to be open and serve the three primary functions.

*OASIS – Playful Spaces for Learning and Collaboration at Work* (2014–2015) research project studied the effects of social and playful interventions in connection to well-being, identity building, and collaboration at work. As a Living Lab with recording cameras, OASIS provided a place and tools to conduct significant portions of this study, while other parts of the study spread out into the whole school premises.

### **Goals and Research Plan**

The main goals of the project were to answer the following research questions:

1. How is playfulness experienced in the context of the workplace?
2. What are the thresholds and incentives for adult workplace play?
3. What are the solutions that encourage informal interaction in a playful work environment?
4. How do playful solutions promote community learning?

The project was divided into four sections in order to reach the research goals:

- Preliminary staff interviews
- Playful interventions
- Literature review
- OASIS observation study
- Reporting

### ***Methods and Execution***

The project approached answering the main research questions primarily through a series of playful interventions. In addition, supporting material was gathered throughout the whole project, preliminary interviews were conducted in the beginning of the project, and previously collected data was utilized in order to reach the research goals. Furthermore, during the whole duration of the research project, background literature was actively explored.

The preliminary staff interviews were conducted in the beginning of the project to obtain important information that could be used in planning and executing the interventions. To gain information on the space throughout the project, an observational study was conducted utilizing video data from the camera setup in OASIS. In the study, usage statistics were compiled by analyzing camera footage from several observation periods over the course of 15 months. The analyzed footage also covers time before the start of the project.

One large source of previously collected data that was utilized in the context of this project was data on playful interactive MurMur seats, which were originally designed to be placed in OASIS. The work on the prototype seats themselves and their design has been created as part of the Tekes-funded project Hybridex<sup>2</sup>, but the analysis of collected data has been conducted partially within this project. The ToDiGRA journal special issue on physical and digital in games and play was also created partially as a part of this research project. The special journal issue cast light on the intersection of physical and digital play.

The playful interventions conducted in the project were: 1) A playful art installation in OASIS; 2) an experiment involving playful leadership mediated through entertaining videos; 3) a competitive school-wide card game based on community information where the design was informed by preliminary interviews; and 4) an experiment on community learning in the form of quiz events organized in connection with intervention 3. Additionally, previously gathered material on playful interactive seats in the OASIS space was analyzed in the context of the project, which became the *de facto* intervention 0.

Each of the interventions was conducted using a different methodological approach. In intervention 1, data was collected in the form of still photographs by the researchers and from social media in

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<sup>2</sup> <https://hybridex.wordpress.com/> (Retrieved 30.9.2015)

addition to utilizing OASIS video data. Interactions were identified by analyzing video data, and play behaviors and play episodes were identified by coding the still images. The video data was also utilized to further analyze play episodes. In intervention 2, data was gathered through two sets of interviews and a survey. Each of the data sets was coded by two researchers and further processed through affinity diagramming. For interventions 3 and 4, which were organized as one combined intervention, data was collected through an online survey targeted at the participants of the experiment. Here as well the data was coded by two researchers and further processed through affinity diagramming. The data in intervention 0 is a combination of observational notes from faire environments and video data from OASIS. The notes were recorded in a collaborative research diary that was analyzed. The video data was processed into a textual representation of events and then analyzed.

## ***Results***

The results provide a wide range of insights into adult play, play in the context of the workplace, acceptance of playful solutions and the effects of those solutions for the community, and the usage of a specific space.

In the preliminary interviews, it was revealed that staff members do not visit the OASIS space often due to lack of time, the lack of need (adequate alternative facilities exist), the space being too far away (the tube-like architecture of the building extends the distances between different facilities), not seeing relevance to one's personal work tasks, and perception of the space belonging to students. On the other hand, the space was touted as a positive feature of the campus even though it was not clear what it could be used for. On the occasions when staff did use or visit the space, the usual reasons were: getting to know the space, introducing it to visitors, or participating in organized events and meetings. The general tone in the responses indicated that more colleagues using the space would facilitate increased participation in the respondents as well.

The data analyzed in the observational study acted as supplemental data to other research and provided useful data that can be utilized in customizing the space and its affordances, thus encouraging the users to approach the OASIS space in new ways.

The analysis of the data gathered from the playful art piece in intervention 1 resulted in a tentative framework for analysing playful interventions. The analysis of the data from the experiment of playful videos of leading figures of the School in intervention 2 revealed the diversity of attitudes towards play within the community. The results from the experiment on playful interaction and community building through a card game and quiz events in interventions 3 and 4 showed how diverse participation in playful activities can be and also revealed contextual prerequisites for such an experiment. The results from the observations on the usage of the playful seats in intervention 0 exposed how people explored the seats and discovered functionalities, how playful objects can work as social capital, and how people have a need to touch and be close to physical objects.

## ***Conclusions and Future Work***

The overall conclusions that can be drawn from the research are the diverse range of attitudes towards play in the workplace context and the prospect of ambient play elements. The diversity of attitudes on play relate to different ways of perceiving play itself as well as the preferences of the type of play individuals wish to engage in. Social aspects play a large part in adult playful activities, which can at the same time prohibit the play of some while encouraging the play of others. In terms of the community in question, ambient play elements that invite participation and adapt to play needs show promise. Based on these conclusions, it can be seen that there is a rising need to delve deeper into the attitudes towards play in different workplace contexts. Also, challenges in designing ambient but still engaging play creates a need for further research on context aware adaptivity of playful elements.

Even after the end of this research project, OASIS is continuously evolving. One concrete step that is being taken is the continuous change in furniture and the introduction of the ballpit bathing barrel *#PalaveriPalju* to the space (see Figure 2). *#PalaveriPalju* is a wooden barrel filled with ball pit balls in order to create a playful space within a space. Being a part of the sauna culture in Finland, the barrel creates a safe place for playful activities within a serious context especially suited to the Finnish audience. In the barrel, staff and students of SIS can relax and enjoy the company of the others with smiling faces and playful attitudes. The decision to move ahead with the introduction of the barrel in the space was informed by research from within this project, and the barrel will create data for future analysis.



Figure 2. #PalaveriPalju in OASIS

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### 3. Publication Summaries

This chapter presents summaries of the eight research publications that comprise the detailed results of *OASIS – Playful Spaces for Learning and Collaboration at Work* (2014–2015) research project. The research in the first four publications has been conducted jointly with other research projects<sup>3</sup>.

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<sup>3</sup> Including collaborative research work funded by Tekes (Hybridex), SHOK strategic research programmes (RYM/Indoor Environments), and EU (Cost Action FP1104).

## 3.1 Physical and Digital in Games and Play

**Frans Mäyrä, Katriina Heljakka, and Anu Seisto (Eds.)**

In Special issue: Physical and Digital in Games and Play, ToDiGRA journal, Vol 1, No 3. 2014

Even while digital games have meant a major transformation for the landscape of games and play, it can also be argued that all games are always also physical – or hybrid – by their nature. With traditional board or card games, for example, it is obvious that the tactile quality, materials, and design of game boards, cards, and playing pieces contribute to the look and feel of the game. And yet it is also equally clear that the physical characteristics of chess pieces, for example, do not contribute to the dynamics of game play in chess in a similar way as the rules of chess do. However, if the chess pieces are designed in non-conventional ways, like by making them very heavy, huge in size, or slippery, for example, the role of physical dimensions is again brought to the forefront of our game experience.

This ToDiGRA journal special issue is a collection of papers which started their life as working papers, drawn from ongoing games research projects that were presented in the 2013 Game Research Lab Spring Seminar at the University of Tampere. Titled *Physical and Digital in Games and Play*, this seminar aimed on one hand to highlight the unique characteristics both material and immaterial aspects hold in games and play, but on the other hand to bring the digital and physical game studies into closer contact and dialogue with each other.

The selection of studies in this special issue shows that the diversity in physical-digital game studies is great, and there are several interesting directions where both experimental work, analysis, and theoretical scholarship can proceed in the future. Consequently, the issue can be read also as an invitation for “hybrid game studies” - more interdisciplinary and critically aware phase of research that would challenge the division lines in academia, and as “hybrid turn” would challenge the relative isolation of such fields as board game studies, digital game studies, transmedial or hybrid media studies, and experimental, playful design research, for example.



## 3.2 Goofy Mus, Grumpy Mur and Dirty Muf: Talking Playful Seats with Personalities

***Annakaisa Kultima, Timo Nummenmaa, Heikki Tyni, Kati Alha, and Frans Mäyrä***

*In Proceedings of the ACE '14 Workshops, November 11 - 14 2014, Funchal, Portugal. ACM 2014*

The article discusses the concept of MurMur Moderators, talking playful seats designed to facilitate playful atmosphere and creativity at office environments. The concept of MurMur Moderators consists of five different personalities: grumpy Mur, goofy Mus, mellow Muh, sensitive Mut, and shy Mum. The article describes the experiences and reactions to two personalities, Mus and Mur. Further, a sixth personality, Muf, consisting of rejected, provocative features is detailed. Consequently, the paper discusses initial thoughts on play preferences, affordances, and thresholds in connection to adult play.

During the development of the first interactive prototype<sup>4</sup>, crude prototypes with limited functionality were created. Unlike any in the final set of prototype seats, one of the seats was colored pink (see Figure 3.). Audio design was tasked to bring the seats to life since the concept had no visual feedback. The ears were set as a touch point: when the user would touch the ear, the seat would react with a positive audio feedback. The first test was conducted with a female voice and when analyzed, the sounds initially seemed fitting to the concept. However, when they were played from within the seat (as a fast Wizard of Oz-type of prototype), the sounds gave an impression of sexual pleasure, as the sounds were high pitched and moany. As the seats were meant for use in office spaces and were to be shown publicly, and thus should not invoke a feelings of a sexual nature, the sounds of pleasure were eventually replaced with sounds of laughter. The color of the seat was also changed due to possible sexual connotations. Later, within the development of the second prototype, tactile feedback was tested in the form of vibration resulting in an effect that was more of an all-encompassing monotonous mechanical vibration that made the seat emit a sound resembling a sex toy. This effect together with other issues resulted in abandoning the vibration feedback.

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<sup>4</sup> The prototype was created in the Tekes-funded Hybridex project.



Figure 3. The MurMur personality Muf

Through experiences with Mur, Mus and - as a side track, also Muf - an initial model for play affordances, preferences and threshold of play has been created. This model is created to guide future research within the area of adult play. While the second prototype concentrates on the nature of ambient play, the third prototype is set to concentrate on the thresholds of play and the personal preferences of play through new customized, perhaps even provocative, personas. Altogether, further exploring the role of personas within the context of adult play has interesting potential for future research. Based on experiences so far, “dirty” Muf might provoke further understanding of the preferences and threshold for play and how to engage adults in playful activities. Considering the stigma of play as childish activity, at least sexual connotations provide a strong signal for saying: “This is for adults.”

### 3.3 MurMur Moderators, the Talking Playful Seats

**Timo Nummenmaa, Annakaisa Kultima, Heikki Tyni, and Kati Alha**

*In Proceedings of the 18th International Academic MindTrek Conference: Media Business, Management, Content & Services (AcademicMindTrek '14)*

This article presents the concept of MurMur Moderators, talking playful seats facilitating playful atmosphere and creativity at office environments. The article describes the design and technological composition of the first MurMur prototype<sup>5</sup> and experiences exposing the concept to audiences at two science fairs in Italy (2013) and Finland (2014). The target of the prototype has been to carry out initial investigation into the ways playfulness could be realized in an interactive seat. The prototype introduces a host of interactive features that facilitate playful behavior, and these features were tested in the two science fair settings.

Each MurMur takes the form of a fantastical creature with a distinct personality, and the original concept imagines five different personalities (the grumpy Mur, the goofy Mus, the mellow Muh, the sensitive Mut, and the shy Mum). However, only Mur and Mus were realized for the first prototype stage. Aiming for affordable DIY design, the two prototype seats were created using IKEA Alseda Stools covered with IKEA Hampen Rugs. The technology that brings MurMurs alive is a combination of several components: a Raspberry Pi single-board computer, an Arduino UNO microcontroller, an EasyAcc 12000mAh battery pack, and a Jabees Jmusic speaker. Several sensors were also used: a pushbutton, a tilt sensor, and an RFID sensor. In addition to these sensors, the Arduino UNO provides capacitive sensing capabilities. RFID tags were used with the RFID sensor.

During the three-day fair of *Maker Faire Rome 2013* (see Figure 4.) and the one-day event of *Valoa Pimeyteen*, people's reactions were observed and collected. Discussions were also conducted with the fair visitors. The reception was positive and encouraging, allowing the research team to learn new things for both further development of the concept and for refining their research perspective. Of the interactions featured in the prototype, tickling proved to be one of the most celebrated features. In addition to responses on interactions, there were also emotional reactions, e.g. towards the personalities. All in all, reception was positive and encouraging.

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<sup>5</sup> The prototype was created in the Tekes-funded Hybridex project.





Figure 4. The MurMur fair setup in Maker Faire Rome 2013

The focus of the research on a grander scale has also been to investigate the playfulness this kind of unfamiliar concept evokes in adult users and what role, if any, playfulness could have in an everyday environment such as the office. The reactions and comments of the fair visitors have proven useful in obtaining understanding concerning the design space. The prototype has led to a shift in research focus towards exploring the relation of primary vs. secondary interaction in playful products and especially towards investigating more on the ambient nature of play. The feedback from the fairs was used for generating further ideas for ambient play and furniture-as-a-service, some of which carries on to future research and the second prototype of the seat.

## 3.4 Need to Touch, Wonder of Discovery, and Social Capital: Experiences with Interactive Playful Seats

**Timo Nummenmaa, Heikki Tyni, Annakaisa Kultima, Kati Alha, and Jussi Holopainen**

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In this article, findings from a design experiment of MurMur Moderators, talking playful seats facilitating playful atmosphere and creativity at office environments, are presented. The article describes the design and technological composition of two prototypes as well as experiences from exposing the concept to audiences at science fairs and an office environment. The MurMur seat is an interactive seat (see Figure 5.) that has its own made-up language and reacts to touch by giggling or greeting the user. The first iteration of the prototypes<sup>6</sup> included two personalities, Mur and Mus, and was used in the fair settings, while the second iteration featured all of five personalities and was used in an office environment.

The prototypes were constructed using different kinds of sensors, Arduino and Raspberry Pi processors, and 'hacked' IKEA furniture. In the first iteration, the seats also greeted each other when they were stacked on top of each other, and when they were tilted upside down, they emitted a dizzy, or "sea-sick" sound. These two features were removed from the second iteration as the seats were too heavy to be moved with a reasonably small effort and it was necessary to prioritize other features during our building phase. The experiences from the first iteration also brought a new feature: as many users tried to sway on the seat to elicit reactions, this interaction was then implemented as a new rhythmic audio output. The swaying feature was implemented in such a way that it would only activate after a few sways, in order for the feature to not be annoying if actual swaying was not attempted, and also to keep it as a semi-hidden feature. The increase in numbers of the seats in the second iteration also allowed us to add two more features: singing and bellowing together.

The research focus with MurMur Moderators has been to investigate the playfulness evoked by this kind of unfamiliar concept in adult users and what role, if any, playfulness could have in an every-day environment such as the office. The reactions and comments of the fair visitors, and the observations made of the users of the social office space, have added to our understanding concerning the design space.

During the research, observations led to shifting the focus more heavily on the relation of primary vs. secondary interaction in playful products. An important topic that was also identified, is the ambient nature of play. Overall, many observations have been made during the research, and they provide insight into primary and secondary play objects, ranging from the need to touch to the wonderment of discovery and also to the effect of social capital.

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<sup>6</sup> The prototype was created in the Tekes-funded Hybridex project.

This research has served as an exploratory design study, directing research efforts to consider the seats as primary and secondary play objects with a distinct narrative. Research goal with the initial exposure was to first investigate preliminary audience reactions for the high level concept and how people interact with the prototype. This was then supplemented by testing the concept in an office environment. The collected data provides insight on the seats as primary and secondary play objects and how users touch, discover and socialize.



Figure 5. The MurMurs in OASIS



## 3.5 Towards a Framework for Analysing Playful Interventions - Lessons from a Pink Sandbox Full of Dice

***Annakaisa Kultima, Timo Nummenmaa, Sampo Savolainen, Jussi Holopainen, Katriina Heljakka, Ville Kankainen, Kati Alha, and Frans Mäyrä***

### *Tentative results*

In this summary, the tentative results from an analysis of a playful intervention called “There Are No Rules” (TANR) are presented. The analysis of the intervention features three levels: interactions, play behaviors, and play episodes. In the course of five months, students and staff of a university engaged with an art installation placed in a group work area OASIS<sup>7</sup>, which also works as a Living Lab. The experiment period was recorded on video, and interactions with the installation were photographed by the users and the research team. Combined analysis of the video data and photography data exposed a rich and successful playful intervention, positioning TANR as the centerpiece of a playful office and campus environment. The analysis provides a tentative foundation for developing a framework for future analysis of similar experiments.

The conducted experiment focuses on the art piece “There Are No Rules”<sup>8</sup>, which is a pink wooden sandbox-type construct, 1.3 meters to a side. The box is filled with approximately 10,000 small six-sided dice that have colorful dots on their sides. Essentially, the installation affords same type of play as a regular sandbox – free manipulation and arrangement of the contents – but only with far larger building blocks. The installation was set up in OASIS, an informal social and work space on a university campus, where it was implemented as a playful affordance that is a prominent feature of the physical space: the installation was located in the middle of the main floor area. Despite its prominence, TANR was an ambient element of the space; during the observation period, no formal events directly involving or relating to the installation were organized.

The data for analysis was collected from two sources: video footage and static pictures. The constantly recording video cameras in OASIS provided the video footage, while the static pictures were images tracked on Twitter and Instagram<sup>9</sup> and pictures taken by research team members (see Figure 6.). The three levels through which the artefact was examined using this data are: the level of basic interactions that the users of the artefact engage in, the level of play behaviors, and the level of distinct play episodes that emerge from the interactions. These three levels provide different views

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<sup>7</sup> Kultima, A. (Ed.). (2014). *Rainbows, Unicorns and Hoverboards: Making of OASIS Story of a dream at the University of Tampere*, Tampereen yliopisto. Digitally available at: <http://urn.fi/URN:ISBN:978-951-44-9607-3>

<sup>8</sup> Heljakka, K. (2011). *There Are No Rules*. A participatory artwork/installation first showcased at the Koetila exhibition Värjäämö Gallery, Pori.

<sup>9</sup> Official hashtag for the OASIS space is #oasisutafi, which provides easy access to social streams for the TANR.



for potential comparison of play cases and a source for finding the links between the successful interventions with their play affordances and contexts.

By analyzing the footage from two video cameras over two observation periods, user interactions with the installation were tracked and divided into 11 distinct categories. To uncover the different play behaviors and play episodes, the static images were used to analyze the traces of play and larger emerging play episodes, including such time-consuming endeavors as pixel art renditions of famous video game characters, various constructs such as pyramids or bridges, or rearrangements of all of the dice in the box.

The results from this playful intervention give insight into how a playful intervention in the form of a playful sandbox of dice can attract users of a space to play and be creative. The division of findings to user interactions, play behaviours and play episodes composes a tentative framework for analysing playful interventions, which will help in the analysis of future playful interventions.



Figure 6. Users interacting with “There Are No Rules”

## 3.6 OASIS Deck of Cards - House of Colleagues: A Playful Experiment on Community Building

**Timo Nummenmaa, Annakaisa Kultima, Ville Kankainen, Sampo Savolainen, Antti Syvänen, Kati Alha, and Frans Mäyrä**

*To be published in Proceedings of the 19th International Academic MindTrek Conference (AcademicMindTrek '15)*

This article reports a research experiment that was designed to facilitate playful interaction and community learning within The School of Information Sciences, an academic organization of about 170 employees at the University of Tampere. A 2-player card game *OASIS Deck of Cards - House of Colleagues* (DCHC) including 61 'staff character cards' and 39 question cards was implemented to be played by the relatively new community. The game period, including supporting events, ran for 5 weeks. After the experiment 59 staff members responded to an online survey on play experiences.

Each of the character cards in the game contained information about a staff member who had volunteered to become a part of the deck: their name, picture, staff position, and keywords about their research interests and hobbies. The question cards contained both questions pertaining to the information in the character cards, such as *What is the first name of this person?* or *How many affiliations does this person have?* and sentences with blank spaces in them (for example, I love the smell of \_\_\_\_ in the morning). These two categories were used in the two game modes available to players: Quiz and Fill In The Blank (see Figure 7.). Compared to the rather straight forward questions of the Quiz mode, the Fill In The Blank mode was designed to be a more humorous game mode, and it featured an added social element by requiring a third person to judge the result. The overall goal of the game was to collect as many character cards as possible, and several paths to this goal were designed into the game, including winning them from other players by winning a round of Quiz or Fill In The Blank, or through participating in supporting events such as card treasure hunts or pub quiz style Know SIS? quiz events.

The card game was launched on April 20, 2015 and at launch, each SIS staff member was delivered a starter pack of cards along with an introduction to the game and its rules via the university's internal mail service. The game officially ran until May 22, 2015 and at the end of the game period, return envelopes were distributed to all staff members, so that players could submit their card deck and choose to enter the competition for prizes as well as enter a raffle for additional prizes. At the end of the game period and after it, staff members were asked to fill in a survey about the game.

The results showed that ways of participation and means of play are more diverse in an academic work community context than as they are specified in the game rules. Indeed, of the 59 respondents, only 16 said they participated by playing the card game, but it was revealed that 45 respondents participated at least in some way. Social interaction with colleagues and a shared place and time are

important enablers for play at work. Inviting people to play sessions in OASIS was less successful than organizing the sessions in a location where staff regularly hold coffee breaks, in this case the SIS staff lounge. The major supporting activity, the Know SIS? quiz events at OASIS gathered an attendance of 28 staff members in total, resulting in the formation of 7 teams for the quiz tournament competition. At the end of the quiz events, also additional DCHC cards were delivered to the participants in order to remind about the card game.

Future research efforts should increase the emphasis on framing the game and supporting it as a continuous activity in order for it to become mainstay as a playful element in the community. This would potentially cultivate more favorable attitudes towards a playful work environment. There are, however, contextual prerequisites in an academic community that need to be addressed, such as preconceptions towards play as a part of work and challenges in communication (most of the staff work independently without centralized activities), in order for a playful practice to gain traction as a means for community building.



Figure 7. Examples of OASIS Deck of Cards - House of Colleagues cards

## 3.7 The Diversity of Attitudes towards Play at the Workplace - a Case of an Academic Community

***Timo Nummenmaa, Ville Kankainen, Sampo Savolainen, Annakaisa Kultima, Antti Syvänen, Juho Karvinen, Kati Alha, and Heikki Tyni***

### *Tentative results*

In this summary, tentative results from an experiment of video-mediated playful leadership are presented. The experiment consisted of workshops and the consecutive videos of leaders of an academic community playfully envisioning the future of the workplace. The videos were made public within the community and used as a probe for exposing attitudes towards play within an academic environment.

The experiment was designed with two distinct phases. The first phase was organizing playful workshops (see Figure 8.) dealing with future scenarios, a tie-in with the future vision work ongoing at the School of Information Sciences (SIS) at the University of Tampere and the second phase was to use videos created at the playful workshops to gather data from staff members. Four workshops were organized, each of which resulted in one playful video. Each of the workshops aimed at a different future scenario (*Preferable, Unpreferable, Business as usual, and "Wildcard"*) and featured a different playful method (cards with SIS keywords, improvisational performance, drawing, and toys, respectively).

The approximately 3-minute-long entertaining videos were later shown to SIS staff members at a regular staff gathering and later released online for the staff to watch. The videos were shown to staff members again at the SIS Summer Day, a recreational staff event. The videos were used as a probe for exposing attitudes towards play within an academic environment. Data on the experiment was gathered by conducting group discussions after the vision workshops, conducting individual leader interviews conducted at a later date, and collecting questionnaire responses from staff members at a SIS Summer Day recreational event. In effect, the workshops and videos worked as initiators for thoughts and discussions on play in the work context and play at the workplace.

The study revealed diverse views towards play and its role at the workplace. The views of the leaders and the community members were both versatile in nature. The topics discussed by the participants ranged from the benefits play can bring, to its obstacles and requirements, to integrating play to work and leadership, and to the different ways of understanding what play is. The rich data of interviews and surveys revealed a wide variety of opinions, experiences and conceptions towards play at work. Where the leaders were more neutral and cautious of negative tone, the community responses included some critical views among the positive and neutral ones. The community saw that leaders should have a positive outlook on the future, although forward-looking thinking might



sometimes be difficult. Future views emerging from the community itself were mixed in nature: some were optimistic and focused on opportunities while others expressed concerns over disruptive organizational changes and destabilizing uncertainties.

All in all, the main finding from the study was the very diversity of the attitudes towards play in the community, and is a finding from which we can determine that very serious attention must be directed towards research efforts looking at the attitudes of play of workers in different work contexts and different social situations. This kind of understanding is important for the successful development of playful elements for office environments.



Figure 8. Thinking hard in a playful workshop

## 3.8 Towards Reactive Work Environments

*Sampo Savolainen, Timo Nummenmaa, Ville Kankainen, Kati Alha, and Annakaisa Kultima*

### *Tentative results*

In this summary, the tentative results on an effort to observe usage pattern adaptations to changes in a physical working environment are presented. The preliminary study examined how the distribution of users in OASIS, an informal work and leisure space on a university campus (see Figure 9.) changed after the space was partially refurnished and the furniture layout was reorganized, and how the number of daily average users changed after weekly events in the space were rescheduled. These changes were employed as extended Wizard of Oz type prototyping of a reactive environment. Usage statistics were compiled by analyzing camera footage from several observation periods over the course of 15 months.



Figure 9. Users in OASIS

From the preliminary results of this experiment, we can determine that long-term observation of the users of an informal and playful working space produces useful data that can be utilized in

customizing the space and its affordances, thus encouraging the users to approach the space in new ways. The analysis made in this study focused on the number and distribution of the users; future experiments could involve aspects such as a closer examination of shared social use and solitary nonsocial use of the space and ways of facilitating them to the benefit of the users. Our preliminary results show that through utilizing longitudinal observation data, areas of high and low activity in a space can be identified and then adjusted by redistributing the most attractive affordances.

It can be considered that in the future it is possible to implement various types of automated reactivity within work environments and to turn automatically collected data into an experience, promoting a playful atmosphere. This reactivity will be informed by environmental data and people quantification, and it will manifest through moving furniture, visualizations, the storification of the users, and in other non-trivial ways. While the ways of deploying such reactivity will need to be researched further, so will the requirements for such features of a work environment. To automate or streamline the reactive features of an environment, it will be necessary to employ a big data approach to the collection and analysis of data from the environment and its users.



## 4. Review of Related Work and Background Literature

*Timo Nummenmaa and Sampo Savolainen*

This section presents a review of the related work and background literature featured in the articles produced during the project, including articles produced jointly with collaborating projects. This serves as an introduction to research on such areas as play, play in public, interactive furniture and playful objects, approaches to play in work and academic settings, leadership, community, and games and toys.

### *Play*

Johan Huizinga [26] promotes the argument that much of our culture – art, science, even war – is actually based on a play impulse. Huizinga [26] and other theoreticians have stressed that play is voluntary in nature, and thus forced play ceases to be play. It is therefore useful to distinguish between playfulness as an attitude and play as an activity (e.g. [48, 50]).

There are multiple benefits that studies have linked with a playful mind-set: playful attitude can alleviate anxieties, help to cope with depression, or promote the formation of new friendships [6, 7, 47]. Proponents of play and playfulness such as Stuart Brown emphasize that the opposite of play is not work, but depression, and that the “quality that work and play have in common is creativity” [9].

Even though being playful is associated with children in particular, there is a tradition of thought that points out how beneficial fun and play can be at work. In her review of research into this area, Jacqueline Miller [39] reported that humor at work can relieve stress, improve interpersonal skills, and foster creativity and rapid learning, among other things. Hunter et al. [27] have examined the role of play in the programming profession. They conducted a longitudinal ethnographic study of five high-tech companies in the USA and Poland, finding that the roles of play and work were tightly interwoven in a knowledge-intensive work such as programming. The play activities were important for the pacing of work activities, building of work identity, socializing, and creativity.

In 1970, play theorist Brian Sutton-Smith wrote about the need to stop framing play only as an activity of children as “[a]nything that children did, therefore, was regarded as not important, and as play.” [54]. Brian Sutton-Smith [54] also wrote about how entering play seems to involve a certain relaxation of feelings. Psychologist Michael Apter argued that this effect is due to the “protective bubble” that engagement in play activities provides; play also feels meaningful in itself (it is ‘paratelic’ rather than ‘telic’ – an end in itself, rather than means towards an end; [1,2]).

### *Play in public*

An interesting case of public, yet at the same time private playful behavior, is constituted by latrinalia, or toilet writings, which can be considered a sub-set of graffiti. As the restroom stall offers almost complete anonymity to graffitiists, contents of latrinalia are usually something people would not write

publicly. Still at the same time they are used to convey messages to other toilet users, thus creating a temporal bond between the writer and the others. [65]. In a study conducted by Trahan [58] at a university campus in the USA, the content and communicative features of 323 toilet writings were analyzed. Pictures were rare, as 97% of the graffiti were written statements. Although latrinalia contains a wide range of subjects, three popular themes emerged: sexuality, religious/antireligious statements, and humor. In the first two categories arguments often seemed to take a form where the initial, often explicitly blatant, comment was circulated with commenting graffiti. The humorous comments differed from the first two, as they never inspired arguments, and they were jokes about the physical environment or the nature of the space.

Tieben et al. [55] discuss strategies for playful persuasion in public places. They present ten design cases of playful installations with the design goal of encouraging teenagers in high school to participate more in physical activities. The authors derive three design values from their experiences of designing and evaluating the installations: elicit and seduce; emergent play; and resonate with values, emotions and activities.

The same research group describes the design process and the evaluations of Wiggle the Eye, a playful installation that was used by more than 1000 users in four different settings, including two high schools [56]. Evaluation periods were up to four weeks long, and the data for the analysis was collected through covert observations, informal interviews, and group discussions. In their article, Tieben et al. [56] emphasize the importance of evaluating the playful installations *in situ*, for prolonged periods of time, and with large groups of people.

### ***Interactive furniture and playful objects***

Squeeze [41] and Tabby [60] are examples of interactive furniture with potential for playfulness, although both are also designed for home environments. Squeeze was specifically designed for exploring playful interactions with furniture in a family environment. An oversized interactive sack chair and a house camera were used to playfully construct and reconstruct the history of the home. Tabby, on the other hand, is an interactive room lamp with a soft furry lampshade that can move. The interactions were designed to be ambient and take place in the background. The brightness of the lamp and the rhythm of its “breathing” (i.e. the movement of the soft furry lampshade) are controlled by the frequency of touching the lampshade and the amount of background noise. The zoomorphic design features of being autonomous (i.e. breathing) and the soft, warm fur evoked feelings of connectedness and acted as cues for playful interaction.

A similar example of utilizing anthropo- or zoomorphic features to elicit playfulness is the Iron Horse [35]. The Iron Horse is a normal bike embedded with electronics to make it sound like a horse, for example by emitting walking, galloping, and trotting sounds when the bike is ridden. In addition, the designers included sounds that the rider cannot control, such as neighing and tail-lashing, making the Iron Horse seem autonomous. Additionally, in their ludic design experiments Nam and Kim [40] underline the importance and power of framing the interaction as it would happen with an imaginary creature.

Certain types of design approaches exist which can be useful in this area: Fernaeus et al. [15], Arrasvuori et al. [3], and Coulton [13] discuss design where the interactive artifact would elicit playful mindset or playful behavior in the users. There also exists a 'research through design' approach [67]. In addition, there are approaches designated 'Ludic design', 'ludic engagements', or 'designing for Homo Ludens', described earlier by Gaver et al. [18, 19] and Gaver [17]. Gaver et al. [19] discuss in detail the field evaluations of three prototypes (Drift Table, History Tablecloth, and Keytable), which were specifically designed for ludic engagements in home environments.

### *Playful approaches in work and academic settings*

Play and work are often opposite concepts in common language. However, it has been claimed that the opposite of play is not work, but depression [53]. Work and play actually share some important properties especially when it comes to creativity [9]. As basic human activities, both are order-making and control-seeking and take an active, transformative relation towards the environment [22]. The key difference lies in their purposes. While work is instrumental and has an external purpose, play is usually autotelic; it is done for its own sake. However, play is not always without external purposes, but the purposes are negotiable [48]. Even though the workplace is namely a place for work, it is also a place where play and work often collide. Indeed, Proyer [43] has found that adults see functions of playfulness in a wide variety of daily life situations, including playfulness at work with and without their colleagues.

There are differences in the degree of success the implementation of fun elements has met in different work sectors. According to a study by Baldry and Hallier [5], work that was generally seen as "boring" did not get more fun even when the office was decorated with murals, palm trees, and a waterfall. Then again, the moments of fun in a workplace dominated by monotonic work might be emerging in an organic rather than organized manner, taking forms such as spontaneous joking and laughing with co-workers, and thereby making working much more tolerable for everyone involved [52]. Karl et al. [31] found that trust in supervisors and co-workers is important and positively related to attitudes toward fun, and trust can even be seen as a precondition for workplace fun. A low level of trust can easily lead to resistance and cynicism.

Peter Fleming [16] describes an ethnographic study of a call center work culture where the boundaries of work and non-work were blurred with a managed "culture of fun". The youthful work environment was enhanced with interiors of bright colors and kindergarten-like elements such as cartoon character murals. The environment was further cultivated with metaphors of parties, school, and family in social activities. Even though some workers internalized this approach, rise of cynicism was observed in half of the workers interviewed. The study emphasizes the need to address the culture of fun in an appropriate way. Thus, it is important to examine what type of play and which kind of playful interventions successfully resonate with the work, its aims, and its various contexts.

In a review conducted by Miller [39], it was reported that humor at work can relieve stress, improve interpersonal skills, and foster creativity and rapid learning, among other things. Hunter et al. [27]

examined how the roles of play and work were tightly interwoven in knowledge-intensive work such as programming and found that the play activities were important for pacing of work activities, building of work identity, socialization, and creativity.

According to the findings by Warren & Fineman [62], fun at work can be described as a benign intervention, an incremental addition to wider social expectations about warm, friendly conditions of work. Depending on to what extent fun is managed from above, the employees' response to introducing fun can lead to describing fun at work as oppressive or silencing important, negative voices, and fun programmes might create spaces for collective rebellion; in short, making fun of the fun programme. Baldry & Hallier [5] differentiate two types of work in which the playful elements have different function: knowledge work, where playfulness is meant facilitate creativity, and service work, where playfulness is meant to add to the comfort of the workplace, thus increasing the effectiveness of employees.

When looking at academia specifically, Proyer [42] has noted playfulness having a positive impact on students' academic success. He argues that this might implicate that playful attitude helps to succeed in academic endeavors. Castronova [12] argues that traditional academic conferences are boring, and could be arranged more playfully. He presents the concept of Ludium, which is a gamified academic conference where discussion is inspired through play of thematically suitable board games. According to Castronova, this kind of approach has several merits over a regular conference: it is more engaging, facilitates networking, and provides a creative environment for developing new ideas.

## ***Leadership***

The role of transformative leadership has been recently studied in organizational innovation and creative organizations [14]. This type of leadership often manifests in organizations that are facing challenges, are in need of redirecting, reconstruction, and reinitiation in strategy and goals [51]. Transformative leaders are the most keen on strategic thinking invoking a creative, divergent, and synthetic mindset and associated practices [23, 29].

From the academic point of view there seems to be a contradiction in how leadership is understood. By interviewing academics Juntrasook [30] found four meanings for academic leadership: 'position', 'performance', 'practice' and 'professional role model'. As the first two meanings are easily measurable and support the hierarchical nature of organizations, institutions place more value on these understandings of leadership, although most of the interviewed academics supported the latter two meanings that place more emphasis on personal recognition and leadership achieved through professional identity. These results also support an earlier study by Macfarlane [37] in which professors from several UK universities felt that their personal priorities conflict with what universities expect of them as academic leaders. Amongst other things, they felt that their expertise was under-utilized and that they could contribute more towards the management of the institutions. Juntrasook [30] argues that there is a need for space of dialogue to find a shared understanding of leadership in order to develop the academic workplace towards a more inclusive and socially just environment.

Academic leadership has a highly contextual nature as a result of the dynamic field of work the leaders are operating in. Ramsden [46] has suggested that effective leadership in higher education entails the following dimensions:

- leadership in teaching (new ideas, creativity, exciting);
- leadership in research;
- strategic networking and vision;
- transformational and collaborative leadership;
- fair and efficient management;
- development and recognition of performance; and
- interpersonal skills.

Considering leadership and play, serious play techniques can be meaningful for leaders as means to develop their own leadership skills [25]. As Jacobs and Heracleous [29] note, the method of strategizing through playful design can be useful in complementing conventional strategic planning processes and in guiding intraorganizational discussion on specific strategic challenges. In their article on the method [29], they describe a case where managers of a private banking group participated in playful strategizing workshops. The workshops included building models from physical elements such as legos. Their conclusions of the case indicate that when appropriately structured and resourced, strategizing through playful design is effective in exploring strategic challenges and agreeing on desired directions. Furthermore, Avolio, Howell & Sosik [4] have analyzed humor as a part of a leadership style in a workplace and the impact it has on the productivity and effectiveness of work. According to their article, humor as a part of leadership style seems to have a positive effect on efficiency and results.

It has also been noted [5] that if playful elements are imposed from above, employees might perceive them as directing behavior or limiting free playfulness, thus being a threat to the established social identity in the workplace context. Likewise, it matters to employees how workplace play and playfulness are structured and by whom.

### ***Community***

Development of collective identity has been recognized as a key success factor and one that shared conversations and interaction can produce [21]. This can help participants to identify with their partners in a subsequent collaboration and provide rationale for cooperation, which is essential to its effectiveness [20]. Some suggest that the workplace can be considered as a new source for sense of community in modern societies [10]. According to Kuntz [34], institutional practices have been seen to restrict the collaboration in an academic workplace. More collaborative atmosphere was asked for, but academics felt that institution rewarded isolated over collaborative work. It was argued that adding more collaborative spaces into campuses could change attitudes to be more favourable toward collaborative working.

Johan Huizinga [26] proposed that a "play-community generally tends to become permanent even after the game is over", and that while "not every game of marbles or every bridge-party leads to the foundation of a club", "the feeling of being 'apart together' in an exceptional situation, of sharing something important, of mutually withdrawing from the rest of the world and rejecting the usual norms, retains its magic beyond the duration of the individual game." For Huizinga, the "magic", the sense of community, is related to play being an activity which creates a temporary order in a world that is otherwise complex and even chaotic (see also [22]).

Vyas et al. [61] have studied playful interactions in an academic work environment from the perspective of enhancing social awareness and community building. They developed organizational probes, sets of participatory investigation tools based on self reporting, and gave them to 10 employees at their department. Space and place, social aspects, interpersonal aspects and instrumental aspects were recognized affecting the playful behaviour. Based on the results, two playful designs were developed to further support the community building and social interaction in work environments.

### *Games and Toys*

One way to introduce playful elements to professional communities is by using games, such as the Metagame [66]. Another example are conference games: through them, activities in a conference can be embedded with the goals of increasing the engagement of the participants and turning passive tasks into active tasks [36, 45]. This process can be called gamification, "a process of enhancing a service with affordances for gameful experiences in order to support user's overall value creation" [28]. Korhonen et al. [32] have found that game experiences can include almost any human emotion.

Games differ from free form of play – *paidia* – in their rule-based nature. Compared to games, toys usually do not come with given rules. Thus, games belong to the area of *ludus*, as stated by Roger Caillois [11]. Games can be distinguished from play by the presence of external rules. However, the existence of rules is not a clear-cut criterion for distinguishing play and games [49]. Related to this difference is the use of the term "Ludification" by Raessens [44] and Bouça [8].

Sociability has been found to be one of the main sources of enjoyment in board games [63]. The material aspects and seemingly needless tasks needed to keep a track of a game can act as a stimulant for social interaction while playing the game [64]. Furthermore, material game objects can be considered as cultural artefacts [24], which can inspire social interaction [38].

Trammel [59] conducted an ethnographic study among a Magic: The Gathering player community that explored preference for physical rather than virtual play. Toivonen and Sotamaa [57] have also noted how in digital gaming the material game objects, such as game boxes, are displayed at home much like books or records, and as such they are used in creating a gamer identity and gathering subcultural capital. Correspondingly, it has been noted [33] that game experiences are not determined only through direct interaction with the game system, but that they are affected by the wider frame of the artefact including information retrieval, enabling, preparation, afterplay, and even disposal activities

connected to the game. For players, it is vital how the game can be accessed, what type of preparation is needed and how they can manage the game as part of their everyday lives, or as in the case of this experiment, as a part of their work environment.

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## 5. Conclusions and Acknowledgements

This research project report has summarized the findings from the research conducted in the *OASIS – Playful Spaces for Learning and Collaboration at Work* (2014–2015) project. Summaries of the project publications have also been presented, as well as a summary of the related work and background literature utilized in analysis and framing of the research results.

The main findings from the *OASIS – Playful Collaboration in the Workplace* (2014–2015) project are as follows: The attitudes on play in the workplace context are diverse in nature. The diversity of attitudes on play relate to different ways of perceiving play itself as well as the preferences of the type of play individuals wish to engage in. Social aspects play a large part in adult playful activities, which can at the same time prohibit the play of others while encouraging the play of others. In terms of the work community that was the target of the research in the project, ambient play elements creating flexible and opportunistic play affordances show promise.

Looking to the future, there is a definite need to further explore the context dependent nature of the attitudes towards play in different work environments and communities. In order to promote ambient yet engaging play, the adaptivity of play elements to their environment requires further research.

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## 6. List of Publications

Frans Mäyrä, Katriina Heljakka & Anu Seisto (Eds.). (2014). *Special issue: Physical and Digital in Games and Play*, ToDiGRA journal, Vol 1, No 3 (2014): <http://todigra.org/index.php/todigra/issue/view/3>

Kultima Annakaisa, Nummenmaa Timo, Tyni Heikki, Alha Kati, Mäyrä Frans. (2014). *Goofy Mus, Grumpy Mur and Dirty Muf: Talking Playful Seats with Personalities*. To be published in Proceedings of the ACE '14 Workshops. New York, NY, USA: ACM <http://dx.doi.org/10.1145/2693787.2693790>

Timo Nummenmaa, Annakaisa Kultima, Heikki Tyni, and Kati Alha. (2014). *MurMur moderators, the talking playful seats*. In Proceedings of the 18th International Academic MindTrek Conference: Media Business, Management, Content & Services (AcademicMindTrek '14). ACM, New York, NY, USA, 231-237. DOI=10.1145/2676467.2676505 <http://doi.acm.org/10.1145/2676467.2676505>

Timo Nummenmaa, Heikki Tyni, Annakaisa Kultima, Kati Alha, and Jussi Holopainen. (2015). *Need to Touch, Wonder of Discovery, and Social Capital: Experiences with Interactive Playful Seats*. To be published in Proceedings of the 12th Conference on Advances in Computer Entertainment Technology (ACE '15). ACM, New York, NY, USA.

Annakaisa Kultima, Timo Nummenmaa, Sampo Savolainen, Jussi Holopainen, Katriina Heljakka, Ville Kankainen, Kati Alha, and Frans Mäyrä. *Towards a Framework for Analysing Playful Interventions – Lessons from a Pink Sandbox Full of Dice*. Unpublished draft.

Timo Nummenmaa, Annakaisa Kultima, Ville Kankainen, Sampo Savolainen, Antti Syvänen, Kati Alha, and Frans Mäyrä. (2015). *OASIS Deck of Cards – House of Colleagues: A Playful Experiment on Community Building*. To be published in Proceedings of the 19th International Academic MindTrek Conference (AcademicMindTrek '15). ACM, New York, NY, USA. <http://dx.doi.org/10.1145/2818187.2818296>

Timo Nummenmaa, Ville Kankainen, Sampo Savolainen, Annakaisa Kultima, Antti Syvänen, Juho Karvinen, Kati Alha, and Heikki Tyni. *The Diversity of Attitudes towards Play at the Workplace – a Case of an Academic Community*. Unpublished draft.

Sampo Savolainen, Timo Nummenmaa, Ville Kankainen, Kati Alha, and Annakaisa Kultima. *Towards Reactive Work Environments*. Unpublished draft.