OBJECT THEATRE IN DESIGN EDUCATION

JACOB BUUR
UNIVERSITY OF SOUTHERN DENMARK
BUUR@MCI.SDU.DK

PREBEN FRIIS
UNIVERSITY OF SOUTHERN DENMARK
PFR@SAM.SDU.DK

ABSTRACT

In a quest to improve our design teaching we experiment with the theatre genre of *Object Theatre.* We employ techniques from object theatre to challenge current thinking about product agency, movement and meaning, the spatial location, and the social settings of products. At the end of the project our graduate design students create a *post-dramatic performance* that engages an audience in experiencing and exploring the product concepts they create.

Our experiences show that it helps us educate young designers in the abilities to take other perspectives than their own (in particular that of the 'object'), and to 'act before they think' rather than try to plan everything ahead. It also challenges both the students and ourselves to shift from a distanced 'aboutness' to an engaged 'withness' of how we think of design.

The work with Object Theatre seems important in two respects: It provides new theoretical perspectives on product interaction and design process; and it offers a set of very practical activities and exercises that convey these perspectives to the design students.

INTRODUCTION

Design processes deal with relationships - between humans and between humans and objects. In our research environment we have a firm tradition of engaging tangible objects in co-design: Design games, provotypes, business models etc. as boundary objects (Star 1989) that encourage innovative collaborations. In parallel, we have developed a competence of using theatre to investigate the organisational challenges of innovation with plays that in a forum theatre tradition (Boal 2000) challenge participants to look at their organisation with new eyes and experiment with changes. This work is an attempt to bring the two together. We investigate if *Object Theatre* can help us merge those two competencies. We build on the experiences from a project with 16 graduate design students. It works to our advantage that this cohort is both cross disciplinary (design, engineering, HCI, business, communication) and international, thus it is both easy to stage experiments, and the students provide solid feedback from a wide range of scientific traditions.

Object Theatre is a particular genre in which actors use everyday objects in storytelling to create a performance. Objects are utilised either as they are or they are transformed into fictional characters, to express something new. Actors use objects as triggers to improvise (like in the TV show 'Who's line is it anyway'), or as puppets, or as creative stage designs. Object Theatre belongs to a family of *post-dramatic theatre* forms, which break free of the limitations of conventional drama, such as time structure, plot and dramatic form (Lehman 2006). Post-dramatic performance, rather than working from a text, can take its starting point in, for instance, a sound, a theme, an experience, or an object. Post-dramatic theatre doesn't necessarily build on conflict; it is presentational, rather than representational. The stage becomes a generator of shared experiences by engaging the audience to interact and participate rather than to watch. On a broader level, theatre in design goes under the umbrella term *applied theatre* – theatre used outside the artistic context and institutions, for another purpose than entertainment. Usually applied theatre aims to support personal and shared learning by involving emotional and physical experiences.

THEATRE IN INTERACTION DESIGN

Theatre has served as inspiration for many years already in interaction design, primarily as a tool to create and evaluate *use scenarios* with future digital systems (Macaulay 2006). In this paper we will show how theatre – and in particular the genre of *Object Theatre* – may serve not just as a tool, but as a conceptual frame for extending our understanding of interaction design, and as a rich source of exercises for educating design students. Prior work with using theatre in design may be summarised into four streams.

Designers act users: In the early 90s a group of designers with Royal College of Art and IDEO recreated a hairdresser salon as a stage, on which they could act out future scenarios of new computer technologies in use (e.g. customer information projected onto the mirror). The designers themselves played the roles of hairdresser and customer to experience what it would feel like (Burns et.al 1994). Verplank took this kind of scenario work further in the Cartoon House project at Interval in the mid-90's in collaboration with Laurel (Laurel 1992). Here the designers recreated a full apartment with large sheets of cardboard to improvise future scenarios of computer use. These are early examples of designers acting users to both create and evaluate new interaction design ideas. This research was later developed further by Brandt & Grunnet (2000) and others. Mackay (2000) showed how the video camera can entice designers to brainstorm future ideas and use situations with their body.

Users act themselves: In the Participatory Design field researchers developed a strong emphasis on the context in which acting could help designers – they suggested that the use scenarios ought to be enacted in the real use environment and by real users. Binder's work of inviting plant operators to act out their future work (Binder 1999) triggered a line of research, in which designers honed the skill of facilitating 'users' to act out their future work practice with ideas of digital tools in their own work environment (Pedersen & Buur 2000, Nilsson 2000, Halse 2008). The question of 'who's context' should function as backdrop for acting new ideas was challenged by Djajadiningrat (Pedersen et al. 2003) who suggested designers themselves act scenarios 'out there' in the use context of their products. Theatre was around the same time introduced on designers' 'home turf' as a way of engaging users in design workshops (Iacucci et al. 2002, Sato & Salvador 1999, Svanaes, & Seland 2004), sometimes in the form of puppet theatre to make dramatizing easier for participants not trained as actors.

Designers act products: In another string of research designers experimented with acting objects rather than people. Mueller invited workshop participants to act out components of a computer system in his *Interface Theatre* (Wildman et al. 1993), quite similar to early work of John Maeda (unpublished), who challenged students to act out hard drive, central processing unit, data etc. in a design course at Kyoto Women's University in Japan in the early 90's. In both cases the purpose was to engage participants in a bodily way with understanding the inner workings of computers, and possibly to find improvement ideas. Similarly, one of the authors directed an industry team to act out the components of a pump station in the late 1990s (Ylirisku & Buur 2007). This created a shift in perspective and a particular 'empathy' with system components.

Actors act organisations: In later works, researchers have applied theatre with professional actors to investigate change management (Meisiek 2002) and the organisation of design and innovation (Buur & Larsen 2010), in particular multi-stakeholder relations. And we have developed 'ethnographic theatre' to convey user research to designers (Buur & Torquet 2013).

OBJECT THEATRE IN DESIGN EDUCATION

We employ object theatre as a way of helping the students experience objects, and the relations between objects and humans, in different ways. It may be useful to distinguish between *theatre* (a performance by actors for an audience) and *drama* (an activity in which all involved are actors with the purpose of creating a shared experience). Much of what we do in the object theatre project would fall under the definition of drama but, as we shall see, there is an advantage of maintaining the notions of 'performance' and 'audience'. In the project we developed four different angles to explore objects:

1. Product agency: puppet theatre
2. Product interactions: movement and meaning
3. Products in space: theatre staging
4. Products in social settings: stakeholder drama

We introduced each angle with theatre and drama exercises in a half-day seminar. The students were split into four teams each with a specific interactive product to design. All four products were mundane appliances in the newly opened university campus: A lamp on student desks, an iPad sign outside each classroom door, a projector remote control, and a coffee machine. Following each seminar, we asked the students to spend the next two days exploring their own product from the angle discussed. To document their findings the students compiled *one-shot videos* (Clark 2014), i.e. video sequences simply recorded on a mobile phone in one take of about 1.5 min duration. The videos organised with a title, an introduction, acting and narration to demonstrate what each group had found. The 16 videos served as basis for design crits – and also provided us with material for this research, along with video documentation of the seminar activities. To conclude the project we asked the teams to create a *post-dramatic performance*, in which their object would play a major role. The performances should in some way involve the audience actively.

In the following we will present examples of object theatre activities for each angle, show how the students used them, and reflect on the theoretical perspectives that they help us bring into discussion.

PRODUCT AGENCY: *PUPPET THEATRE*

The understanding of how products and interactions make sense to people is core to the design profession. Product semantics, user experiences etc. all rely on the assumption that designers convey their intentions through their design. In contrast, object theatre has a rich concept of sense making in which the expression arises from the actor's explorations of what the object might 'say', rather than what the actor intends. Rather than spending too much effort on an academic discussion of whether an object has agency or not, we decided to investigate the relationship between person and object.

When we meet an object in our everyday life we tend to make immediate assumptions about what kind of an object it is, how to use it, we judge whether it is useful, practical, beautiful and so on – or actually we don't usually give it much thought at all because we know the object so well that we don't need those conscious reflections. We don't wonder what a pair of scissors is when we pick it up; we just recognise it and use it. This is important for us because if we were to experience everything again and again like for the first time it would make life difficult, if not impossible. So our behaviour is useful, but it also inhibits the interpretation of alternative perceptions and use of the object.

For designers it is essential to be able to look at an object afresh and see how it could be developed or used in alternative ways. To train this ability we introduce well-known theatrical exercises. For instance, passing a mundane object, like a mobile phone, round in the circle of students and asking them to use it as anything but a mobile. But we also want our students to move beyond observing objects from the outside; to be able to experience an object from 'within'. For this we turned to *object puppetry.* While puppet theatre in the classic sense employs puppets specially constructed for theatrical effects, object puppetry takes everyday objects as its starting point. We aim to create an anthropomorphic transformation of an object into a subjectified character:

In the theatrical act with the puppet the performer as a subject choose to become "an object" (an engine) for a playing material, whereby the object in different ways can function as a means of expression, becoming a representation of an "independently acting subject". (Nielsen et al. 2005, p. 2)

We encourage to the students 'be one with the object' rather than regard it from outside. Even though the students are the ones managing the puppet they should also experience themselves as part of the object: that their emotions and intentions are expressed through the puppet, and at the same time that the object and the interaction with other objects influences the way the puppeteer handles and moves the object. We ask the students to pick an object (e.g. a pair of scissors or…) and explore what kind of character they find in the object – how does it move, how does it speak, how does it feel, how does it behave and what kind of role could it play? While the students work individually with their chosen object, some of them succeed in taking on the role of the object character. You can tell by the way the movement of the object-character reflects in the bodily movement of the puppeteer. A slow and heavy puppet is not just reflected in a slow and heavy movement of the hand directing it, but is also followed by heavy and slow movements of the head and torso. And when the object-character starts speaking this slowness and heaviness is reflected in the tone of voice and speed of speaking, with the emotional expression observable in the face of the puppeteer. Not all of the students manage to achieve this cohesion between puppet and puppeteer, but those who do created much livelier object-characters. The pair of scissors, for instance, – being very useful in its normal use – was transformed into an object with a new expression and meaning. It is this physical and emotional immersion we are looking for: Giving a known object new meaning – not as an intellectual decision, but as a bodily experience.

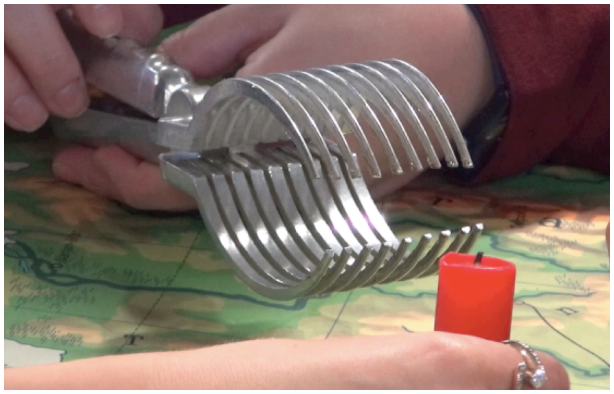

Figure 1. Two puppet objects meet.

After working individually with the objects we ask the students to meet other object-characters to find out how the object will sustain and change its character when entering into a relationship, Figure 1. We observed that two object-characters meeting in a silent improvisation works fine for a while, but when they start communicating verbally the conversation often changes from a conversation between the object-characters to a conversation between the puppeteers and then the object-character quickly 'dies' and it becomes just an object being moved around.

It takes time for students to get to grips with creating a character from an object. Our observations correspond to those of Nielsen et al.:

It is important to note that considerable time must be used to get familiar with the thing letting it become a natural extension of the performers own body and personal universe on stage. Otherwise the image will loose its focus, meaning and motivation. (Nielsen et al 2005, p. 12)

This also became clear from the one-shot videos the students produced. The door sign team, for instance, produced a surprising video in which interaction with

Figure 2. Students and IT Service as seen from the door sign point-of-view.

passers-by is seen from the point of view of the sign, Figure 2. The sign doesn't feel students and teachers are taking it serious enough and decides to stop working. Similarly, the desk lamp team produced a video of a lamp with moods that would support or annoy users. Through the work with the puppets the students found surprising angles of looking at the products.

Even so, creating puppets out of objects and taking an object perspective became a way of working in the next stages of the project; so even though we could have hoped for more skilful and empathic acting with the puppets, our main aim of helping the students to shift from studying an object from the outside, to experience it from within did succeed – with some delay.

PRODUCT INTERACTIONS: *MOVEMENT AND MEANING*

Increasingly the meaning of body movements is gaining attention in interaction design. When digital technologies offer opportunities beyond button pushing, the understanding of movement and skill building becomes crucial to designers. Object theatre has a profound tradition of exploring movements.

In this part of the project we expand the experience of an object through movements with focus on qualities like surface, weight, form and texture. A simple exercise from theatre improvisations may illustrate what we mean: Imagine you have a box full of items in front of you. Decide which item you want, pick it up, and give it to the person next to you while telling him what you are giving him. Depending on what you pick up – if it's a dirty cloth, water or a crawling ladybug - your hand will be positioned in different ways. Now, instead of deciding beforehand on what you will pick up, put your hand into the box and retract something – and see what idea comes to your mind when you look at what your hand is holding. We could say that the first way of acting is 'thought before action' and the second way is 'action before thought'. Another variation of the exercise is that you take something from the box without thinking of what it is and give it to your partner, who then receives the present and treats it according to what he/she thinks it is. This adds a relational element to the exercise.

We move on to explore how ideas can come from bodily movement rather than from thinking, and how copying movements from others can inspire us, Figure 3. We do this through simple exercises like miming an object, exaggerating the movement, letting it transform into something new, and passing it on to others, Figure 3. Adding music helps give the movement speed, rhythm and sensitivity. From there we continue by relating to real objects in similar ways, giving the texture, the shape, the colour a bodily expression. This opens for an emotional experience of the object and new ideas you could not have predicted arise in the actions.

A classic exercise is to improvise movements with a mundane object, and see how the movements may change the perception of what the product 'is' or 'does'. Here the audience is important: An 'actor' may try a strange movement with the object without being explicit about what he/she is trying – but the audience can recognise something surprising by watching. The students must learn to combine conscious thought of what they are doing with spontaneous acting before they are fully aware of what they are doing and before understanding what result their efforts may lead to.

This is very similar to training actors in theatre how to make improvisations (Johnstone 1981). To improvise, actors need to learn to be present and react spontaneously to what is happening in the interactions with other people - and at the same time be conscious of what they are doing. (Friis 2004). In theatre, if we are to believe in a character, the actor and the role must be one (the actor should not be seen on the stage, only the character) – and yet at the same time the actor is *playing* the role, which means the two are separated. This is a paradox that we are trying to recreate with the students and the objects.

Improvising is a way for actors to create and develop situations, stories and incidents, which are new and interesting for them selves and for an audience. It is in the interaction between players with different intentions that the possibility of breaking well-known patterns and creating the new and not-yet-known appears (Larsen & Friis 2006). As designers the students are similarly challenged to break patterns and come up with yet unknown ideas and solutions.

The coffee machine team's one-shot video showed a flower blossoming when one filled up the water tank – not exceedingly inspirational, perhaps, but the trial takes they made to get there were much more exciting. Here

Figure 3. Copying object movements.

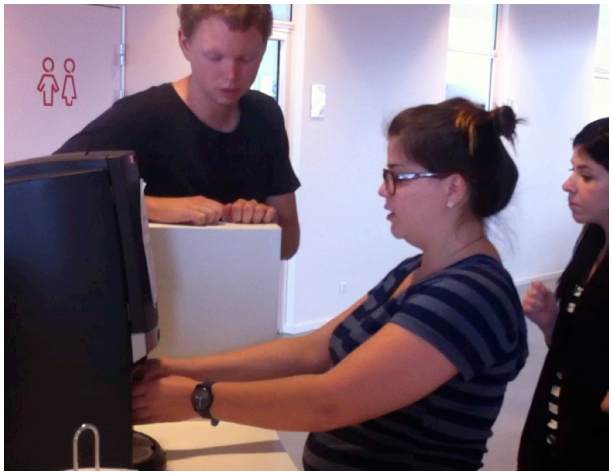

Figure 4. Milking the coffee cow.

the students explored how movements may expand our understanding of what a coffee machine is and does through a series of movement acts: Could the coffee machine sing in various moods depending on how aggressively you turn it on? Or wake you up by vibrating your finger when you push the button? Would you need to milk it as if it were a cow, Figure 4? Perhaps the students found these explorations too 'wild' to hand in.

PRODUCTS IN SPACE: *THEATRE STAGING*

Product designers and interaction designers mostly have very little influence on where and how their designs will be placed in the physical spaces of the users. Even so, physical location and spatial relations have a profound impact on how people perceive products. Object theatre can help us make these aspects palpable to the design students. Space plays an important role in theatre. This is not just about scenography, but about the spatial relationship between the characters, the room and the items in the room.

English theatre director, Peter Brook suggests in his famous book "The Empty Space" that 'objects' define the space; a 'stage' is an empty place where theatre could take place but doesn't because there are so far no object that in a theatrical sense defines the space – no objects, no symbols, no human beings, no action (Brook 1968). This is counter to a Newtonian view, that space is absolute; it exists independently of whether there is any matter in it. Brook builds on Leibniz, who held that space is no more than the collection of spatial relations between objects in the world, and on Kant who claimed that both substance and relations are elements of a framework that humans use to structure their experiences.

A furnished room tells us where we are, but in an empty room it is the actions of the characters and the relationships between them, which tell us what kind of an environment we are in. For designers working with products we find this an important area to explore. Although the theme of *context* has been quite influential in participatory design literature, it is too often simplified into two locations: Design context (meaning the design studio, company meeting rooms etc.) and the use context 'out there' where people engage with the products. The huge variety of 'out there' seldom plays into the design considerations.

With the students we use theatre exercises to explore the relation between space and object. First we ask a student to place a chair in an open space and discuss what kind of images this creates for each of us. It becomes obvious that this is difficult for people without connecting the chair with something else in the room. It is not so much the chair in itself but the relation between the chair and something else in the room that triggers images. This leads to a discussion of what the image would be if the chair had been placed in a huge room, or in a wide meadow, or in a big parking lot: Loneliness? Being lost? Adding a second chair in the space creates images with different meanings, and now the chairs seem less dependent on the relations to the rest of the room. The next move is to place people that relate to the chairs in different ways, and subsequently to ask the students to enter the room of the two chairs and improvise a scene according to how they perceive the space. This again gives the space new meaning. It becomes clear to the students that we each create our own images and perceptions of objects and the relations between space, object and action. The meaning of the object does not lie in the object itself but in how we each see it, and in our mutual negotiations of meaning.

With those insights we ask the students to return to their objects of the lamp, the coffee machine, the door sign and the remote controller and move them to drastically different locations to see how that affects their perception of the items. This created new ideas like a potable coffee machine and a door sign on a bike shed, which could lock and unlock the bikes in the cycle stand. We also challenge the students to work with small variations, e.g. how far away from the door can the door sign move and still relate to the door? Playing with distance in this way fostered the idea that the door sign should show the room number in big font when you are far away and change to smaller font when you get closer and describe who is in the room for which class.

Figure 5. Taking the coffee machine for a picnic.

In the one-shot-video on staging experiments, the coffee machine was taken to the lawn outside the campus, Figure 5. The effect was later described like this: *"The space was transformed into a picnic-like moment by the coffee machine, the sunny day and the body postures of the two students. The machine itself was transformed into an "excuse" for interaction and created an atmosphere that didn't exist before, and it provoked a new role for the product when the students were acting selling coffee to strangers"* Here it became clear how much the spatial location influences the function and experience of the product.

PRODUCTS IN SOCIAL SETTINGS: *STAKEHOLDER DRAMA*

It can be quite a challenge for designers to take the perspective of the 'other'. Even if we talk about 'user centred design' there is a tendency to see products and intentions through the eyes of the designer. Object theatre provides us with tools and activities that encourage perspective taking in very literal ways.

To introduce the notion of social setting, we work with a real case, concerning the development of refrigerators for institutional use. We explain the students we want to create a story around an incident with a fridge. The set-up is a restaurant kitchen where the fridge has been leaking when the restaurant staff arrived in the morning. The question is: which voices might be involved in handling this situation? By voices we mean the opinions and influence of people, who might not be present, but never the less have an influence on how the conversation around the fridge unfolds. They suggest a designer, a refrigeration mechanic, someone in the development department, a restaurant owner (user), the one cleaning the fridge in the restaurant, health authorities and more. When improvising the scene it becomes clear how the stakeholders have diverging perspectives and interests in handling the situation and in the function of the fridge.

We may think we can contain many perspectives in our heads and weigh them up against each other. But most of us likely have the experience that we are too biased to give all perspectives equal importance. For some perspectives it is easy to see the advantages, for others the disadvantages. In the 'stakeholder meeting' each perspective is played by a character, which is focused on defending exactly one particular perspective. For the design students this method provides detailed insight into what the prejudices and expectations to other stakeholders might look like.

Figure 6. One student volunteered to act 'food' in the fridge.

While improvising the scene one student suddenly suggests she would like to be the food inside the fridge – to take an object perspective. What is interesting in this is not just how she experienced being the food in the fridge, but more so that since the designer, the user and everybody else suddenly need to relate to the opinion of the food; this changes the conversation, Figure 6. Of course all participants know that food will go bad if the temperature isn't maintained, but it is when the food starts to gasp, feeling bad and declare it is going to die that the stakeholders get emotionally involved and the conversation changes from who is to blame to what shall be done. Following this improvisation it becomes quite clear that there are differences in perspective of the fridge designer on the one hand and the users on the other – and of the food inside the fridge.

The door sign team explored in their one-shot video how the sign may relate differently to different stakeholders and personalities. Students would need to say hello and wave to unlock the door. Cleaners would need to wipe the sign. Maybe the sign would require two persons to wave together to let you in.

To distinguish between the different perspectives in design we use this simple model based on Bal (in Grimaldi 2013):

Tellabillity	**Agency**	**Narrativity**
Located in the artist/**designer**	Located in the **object**	Located in the viewer/**user**
Intention	–	Experience

We find this model useful because it clearly distinguishes three different perspectives a designer can take in a design process. And, as we have shown, it will give the designer a bodily experience from 'within' when alternating between them in a stakeholder drama.

POST DRAMATIC PERFORMANCE

To complete the two-week project we asked the students to develop a post dramatic performance, in which each team would find ways to involve the audience and provide a physical and emotional experience of the objects they have been developing. Throughout the project we have encouraged the students to shift between explorations and presentations – first through the one-shot videos and finally through this interactive live performance. We are interested in a performative presentation of their work in a format, which invites the audience to take part and calls for improvising by the students. A presentation that is to some extent open ended rather than dramatic in its form. Hence it is not just a performance but also a continuation of the exploration - now with other participants involved.

For their final performance the students produced a 16-page program for the audience explaining how the teams had worked. They called the performance: "Life of objects – in four acts".

Fig 7. Interactive lamps, and a remote control creating 3D projections.

The lamp team took the audience through a game, in which the audience could try react to different colours of light. As the game develops the audience can decide the colours of the light themselves taking over the control of the game, Figure 7.

The remote control team created a prototype of a 3D projector for studying bone fractures. The audience now pretending to be doctors could study exactly the fracture they wanted using the remote control to operate the 3D projection – looking very much like a real human being.

The door sign team made a number of 'living' door-signs, who could answer questions and react to audience inquiries – depending on the way they were addressed by the audiences – symbolising different kinds of software operating systems.

The coffee machine team created a 'live' coffee machine where the cups of coffee coming out of the machine were tied together so that you needed to interact with 3 other people while drinking your coffee - creating social interaction between the coffee drinkers, Figure 8.

The performance indeed managed to engage the audience. The students found out that too much structure and explanation made the performance slow and less engaging, while simple and open structures better called for audience participation. This experience led to reflections on the paradox of being in-control and out-of-control at the same time. Detailed preparation and a tight structure have a tendency to limit audience participation while a less restrictive planning invites to more interaction, but also demands a higher willingness to improvise.

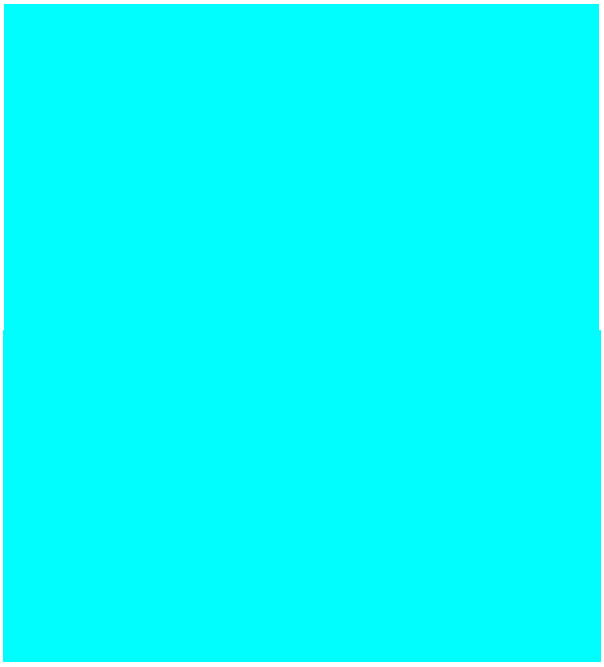

Figure 8. Social coffee drinking

DISCUSSION

What began as a fun exploration of object theatre in design has turned much more beneficial than anticipated, both for enhancing teaching and for supporting design research.

Shotter distinguishes the concepts of 'aboutness' and 'withness' (Shotter 2011). He describes 'aboutness talk' as speaking 'about' the world as if it were separate from the speaker. 'Withness talk', by contrast, begins with the felt experience of the speaker. As designer it is important to be able to speak from both positions. Being a student, there is a lot to learn and one can't learn it all through experience, so obviously much of what one learns is through aboutness talk. When talking 'about', one often tries to express the essence of what one is talking about, which leads to generalisations and abstractions. But if designing an object is about 'tellability' and 'narrativity', then generalisations and abstractions will not suffice. Designers need to be specific and talk from a personal perspective, as 'withness talk'. This is where object theatre can play a strong role:

Puppet theatre activities can potentially help students experience objects 'from within'; to take inspiration from objects themselves, rather than impose pre-conceived models on them. The exercises concerning *movement & meaning* build skills in improvisation; in acting and reacting spontaneously to each other. The *staging* experiments nurture sensitivity towards the relations between object and spatial context. The *stakeholder drama* encourages students to take different perspectives in very literal ways; even to take the perspective of objects. And, finally, in creating a *post-dramatic performance* to present their product designs, students develop their capability of switching freely between the three roles of designer, object and user, and at the same time expand their repertoire of user participation techniques.

Besides enhancing design teaching, object theatre also provides new theoretical ground for a deeper understanding of what it means to design interactive products – and techniques to challenge our understandings.

ACKNOWLEDGEMENTS

We would like to thank the cohort of IT Product Design graduate students, who engaged fearlessly in our theatre experiments. Also, we are indebted to our colleagues Merja Ryöppy, actor, and Patricia Lima, interaction designer, for co-teaching the course.

REFERENCES

Boal, A. ([1979] 2000) Theatre of the Oppressed. Pluto Press, London

Binder, T. (1999) Setting the Stage for Improvised Video Scenarios. In CHI'99 Extended Abstracts. Pittsburgh PA, ACM Press, p. 230-231

Brandt, E. and Grunnet, C. (2000). Evoking the future: Drama and props in user centered design. Participatory Design Conference, p.11-20

Brook, P., (1968) The Empty Space, Penguin Books, London

Burns, C. , Dishman, E. ,Verplank, W., Lassiter, B. (1994). Actors, hairdos & videotape: informance design, Human factors in computing systems, p.119- 120, Boston

Buur, J and Torguet, R. (2013). Ethnographic Findings in the Organizational Theater. Ethnographic Praxis in Industry Conference 2013, London, UK

Buur, J. and Larsen, H. (2010) The quality of conversations in participatory innovation. CoDesign, 6(3), p.121-138

Clark, B. (2014) One-Shot Video. Interactive Institute Stockholm. https://www.tii.se/one-shot-video

Friis, P. (2004) 'The Relevance of Theatre and Improvisation to Consulting for Organizational Change', MA by Research thesis, University of Hertfordshire

Grimaldi, S. (2013). Story of Use: Analysis od Film Narratives to Inform the Design of Object Interactions. Proceedings of Nordes 2013, Copenhagen

Halse, J. (2008): Design Anthropology: Borderland Experiments with Participation, Performance and Situated Intervention. PhD Dissertation, IT University, Copenhagen

Iacucci, G. , Iacucci, C. and Kuutti, K. 2002. Imagining and experiencing in design, the role of performances, Proceedings of the second Nordic conference on Human-Computer Interaction, Aarhus, Denmark

Johnstone, K. (1981) Impro: Improvisation and the Theatre, Eyre Methuen, London

Larsen H & Friis. P. (2006) Theatre, Improvisation and Social Change. In R. Stacey and P. Shaw (eds.) Experiencing Risk, Spontaneity and Improvisation in Organizational Change, Routledge, London

Laurel, B. (1992). Computers as Theatre. Addison-Wesley, New York

Lehmann, H.-T. (2006). Postdramatic Theatre. Routledge New York.

Macaulay, C., Jacucci, G., O'Neill, S., Kankaineen, T., Simpson, M. (2006). Editorial: The emerging roles of performance within HCI and interaction design, Interacting with Computers, 18(5), p.942-955.

Mackay, W. E., A. V. Ratzer, and P. Janecek. (2000). Video Artifacts for Design: Bridging the Gap between Abstraction and Detail. In Proc. 3rd Conf. Designing Interactive Systems: Processes, Practices, Methods, and Techniques, p.72–82. Brooklyn, NY. ACM Press.

Meisiek, S. (2002) Situation drama in change management: Types and effcts of a new managerial tool, Int. Journal of Arts Management, 4, p.48-55.

Wildman. D, White, E. and Muller, M.J. (1993). Participatory Design Through Games and Other Techniques. Tutorial. Proc. ACM INTERCHI'93 Conference on Human Factors in Computing Systems, p.235

Nielsen K., Lund, J. and Callesen. J. (2005). Design for Breakdown – tools and methods for responsive Stage Design, Paper for International Federation for Theatre Research Conference, Amsterdam

Nilsson J, Sokoler T, Binder T, Wetcke N. (2000) Beyond the Control Room – Mobile Devices for Spatially Distributed Interaction on Industrial Process Plants. Proc. Handheld and Ubiquitous Computing, 2. Int. Symposium, HUC 2000, Bristol, UK

Pedersen, J. and Buur, J. 2000. Games and Movies – Towards an Innovative Engagement with Users. CoDesigning Conference, Coventry, UK

Pedersen, J; Buur, J. and Djajadiningrat, T. (2003). Field Design Sessions: Augmenting whose Reality? Special Issue: Augmented Reality. Int. Journ. Human-Computer Interaction, 16(3)

Sato, S. and Salvador, T. (1999) Methods & tools: Playacting and focus troupes. Interactions, 6(5), p.35- 41, Sept.- Oct.

Shotter, J. (2011) Getting it: Withness thinking and the dialogical – in practice, Hampton Press

Star S. L. (1989). The structure of ill-structured solutions: Heterogeneous problem solving, boundary objects and distributed artificial intelligence. Distributed Artificial Intelligence, 2, p.37-54, San Mateo, CA, Morgan Kaufman

Svanaes, D. and Seland, G. 2004. Putting the users center stage: role playing and low-fi prototyping enable endusers to design mobile systems. Proc. SIGCHI Conf. Human Factors in Computing Systems,Vienna, Austria

Ylirisku, S. and Buur, J. 2007. Designing with Video: Focusing the user- centred design process, Springer