

Materiality, Body and Practice

ABSTRACT

In order to understand the interaction between human and technology, the relationship must be emphasized as a triangulation between materiality, body and practice. By introducing play situations from a just finished empirical study in three bigger cities in Denmark, this paper will address the interplay from the human's point of view, as a body doing a certain practice, which is constantly produced by taking approaches which comes from phenomenology and practice theory. We introduce aspects of play understood as a dynamic between materiality, body and practice with the goal of inspiring not only for new design approaches, but also to use the concept of affordance in a broader sense and to testing not being just about usability, but understanding test in a broader cultural practice.

Keywords

Play, toys, materiality, body, practice, HCI, HRI, affordance.

INTRODUCTION

This Christmas I had a pair of leather gloves. Beautiful, green – my favorite color – and according to my daughter, quite expensive, too. What makes these gloves more than just a pair of gloves, though, is their softness. They are simply so much softer than ordinary leather gloves, and therefore I cannot prevent myself from touching them, striking them, pulling them and holding them towards my cheek every time I'm about to put them on.

Interacting with things like that is not driven by sense. I don't do it because I *have* to, I just do it because I *like* to. Doing it brings me a feeling of pleasure which has nothing to do with the gloves' ability to keep my hands warm in winter. As such, this is just one example of how and why humans interact with different materialities, in an interplay which is complex and reaches beyond simpler notions of usability. Also, the interplay between the human and the materiality takes place in an ongoing practice; in this particular case a practice regarding clothes and how to use and wear them in a specific cultural context. That is, living in a part of the World in which it is cold during winter and connotating senses of luxury to the feel and touch of soft leather. In others parts of the World, wearing gloves might be understood as somehow suspicious, and some might say that wearing leather was murderous more than delicate.

The aim of this paper is to highlight the triangular relationship between materiality, body and practice, amongst other things in analyses of children's use of electronic media and Playware (which is defined as hard- or software which initiate play experiences among its users [14] in an ongoing play cultural practice. This relationship is dynamic and emergent via continuous interplay with social, cultural and material agents in the world.

The empirical analyses in the paper are based on a study of 48 Danish families in different parts of the country. The study has focused on children's play culture, their network and their uses of toys and things. The overall conclusion of the study is that childhood has undergone changes over the last 20 or 30 years, based on the demographical and sociological changes in society as such, and that these changes means different grounds for children's play and play culture. There are fewer children in each family and due to a higher degree of institutionalization; children spend more time with other children their own age, and less with children younger and older than themselves. This means that the heritage of play culture, handed down from one generation of children to another no longer exists to the same extend as before. Therefore, toys and artifacts – play media - have become more and more important in play, since play must be learned and have it's out spring in those. In this paper we will present some examples of toys and artifacts which play an important role in contemporary play culture and relate these to a theoretical discussion of the relation between human agents, play and materializations of play in for instance toys.

In HCI (Human Computer Interaction) and HRI (Human Robotic Interaction) much effort is put into describing the technological agent and its possibilities. Exceptions can be found in fields involving tangible computing, for instance in the work by Paul Dourish (2001) [5, 6]. The question as we see it is: *How can we understand the human agent as being in interplay with materialities – be it things, media, toys or remedies – and through this interplay for instance create play and intelligent systems, and at least create meaning?* The answer to this question seems to lie in an approach, which takes both the materiality and the human (materiality and/or body) into consideration. An approach, which aims at an understanding of the interaction between the human body and a concrete materiality, be it technological, digital or not. This approach has several consequences for the way tests of design products, media and toys can be made and also for the empirical and theoretical understanding and use of the term affordance, which we will return to later in the paper. All in all, we are

emphasizing the H in HCI and HRI and hopefully through that pointing towards new perspectives

PLAY AS A BODILY PRACTICE

The concept of play is a difficult concept to understand, and it seems to change its content in relation to the perspective in which it is used, as the famous philosopher of play Brian Sutton-Smith puts it: “We all play occasionally, and we all know what playing feels like. However, when it comes to making theoretical statements about what play is, we fall into silliness. There is little agreement among us and much ambiguity” [30]; for the research in psychology play is about learning and development of the human being [28. 31] for research in management theory play is about development of the company [3], for research in sociology play is about cultivating good social competences.

In our perspective play is about playing, which means that play is about *being* in play. Mihaly Csikszentmihalyi has described the experience as “flow” and describes it like this: “People become so involved in that they are doing that the activity becomes spontaneous [...] they stop being aware of themselves as separate from the actions they are performing” [4]. To be in play, then, is a sudden way of being, a specific state of mind, which is not something you achieve without effort.

The way you are able to be in play, is by knowing play practice – how to actually do it. ”Practice theory” is not a coherent well defined theory, but a variety of different thinkers, who can be seen as adopting the practice approach. Philosophers like Michel Foucault (1979)[8], Pierre Bourdieu (1977)[2], and Antony Giddens (1984) [11] are just some of the names referred to as practice theory thinkers.

In 2002 Andreas Reckwitz tries in his article “Toward a Theory of Social Practices. A development in culturalist theorizing” to synthesize all the different elements from the above mentioned thinkers among others and defines practice as follows: “A “Practice” (Praktik) is a routinized type of behavior which consists of several element, interconnected to one another: forms of bodily activities [...], “things” and their use, a background knowledge in form of understanding how to, [...] a practice – a way of cooking, of consuming, of working” [29] – or **of playing** we could say.

From our perspective play is a repeated type of behavior done by routine, which is about doing something with things and knowing how to do it. As the core of play practice is the body and play as play practice is about being

(as) a body in a specific way. It means being capable to handle toys, things and materiality which we play according to practice, to have knowledge about different rules of play and to organize play –doing play practice is a doing which stems from our body.

The practice is learned in situations where play is taking place, which means that you learn to play while playing. It could be when you are in the school yard and you are playing with your mates, or when you are in front of the computer playing your favorite game. In that sense the access to play practice goes through imitation of practice: on one hand you imitate the practice because you want to be involved in the practice, and in another, through your imitation, you keep the practice going. It indicates that imitation of practice consists of the possibility of developing the practice [14, 15]

When children play “hide and seek”; they have to know the rules, to have knowledge about good places to hide, how to tiptoe with a very quite body close to a tree in order to see if anyone is there, to say “peek-a-boo”, if it takes to long for the others to find you – in other words, they have to know the practice if they want to play: “For play to be initiated, the children must have a preparedness acquired from tradition in the form of skills; a know how which forms an available store of expressions, genres, aesthetic and organizational techniques” [24]. It is not only about usability of the thing, like a tree, but also about how practice is done – it means that the practice do not exists in a fixed form as a product, but comes into existence through the doing practice together.

The point is that the human is understood as a bodily “being in the world”. Pointing back to philosophers like Husserl and Heidegger, the phenomenological approach as well as the practice approach sees no dichotomy between the body and the mind. The human is the body as well as the body is the human. Consciousness and body are not opposites, but are tied into each other and are each others’ requisites. According to Husserl it does not make sense to discuss any form of coordination between perception and causality. Perception is not bound at causality but at meaning, and in the phenomenological approach there is no division between signifiér and signifiant. Understanding the body in a phenomenological way does therefore not imply a descartian ‘I think, therefore I am’, but on the contrary an ‘I can, therefore I am’ 17, 20 . As Dourish (2001) puts it: “meaning, for us, arises from the ways in which we engage with and act within the world.” [5].

When having body and practice as a point of departure for understanding the relationship between things and humans, it implicates that asking about things is not only asking

about its usability. Instead the question is on one hand the “thingness” of things [9] meaning the use of things in an ongoing practice and on the other hand the relationship between the body doing the practice with the artefact, and the artefact.

HOLDING PLAY IN YOUR HAND – THE NINTENDO DS AS AN EXAMPLE

When the Nintendo DS console invites the user to blow into the microphone, the relationship between the thing and the body is radically different than when the console is just being influenced by pressing its buttons. When the human in this way must invest his or her body in the interplay with the thing, apparently blowing up rubber boats or blowing out candles in the game on the screen, the involvement takes on a different character, and the human and the digital artifact seem to melt together.

Especially in digital art these relations between the body and technology are being explored and challenged [21]. Also fields like wearable robotics (MRW) are touching upon these issues [26]. Still, in the last case, the focus is merely on making efficient, reliable systems, not (yet) to a larger intend on the experiences of the user of these systems. Still, as in Pagliarini/Hautop Lund [26] there is an emphasis on human-machine interrelation, not just interaction. The point here is that interrelation takes place on more subtle levels and with multiple artifacts, robotic or not.



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For instance, there is more to the Nintendo DS console than just mentioned. One obvious characteristic is that it is portable, and therefore easy to bring along, even for young children. This fact makes the console and the games played on it a natural focal point for children’s play practice. The

console then becomes an integrated part of a gaming practice, which in children’s play culture has been inherited and passed on for generations. Younger children learn from older and more skilled children, and through continuous practicing they develop the necessary skills themselves. As skills develop, individual children refine and specialize their flair for specific competencies, and knowledge about who is the master of different parts of different games

In an after school centre, groups of 10-20 children gather every afternoon, each of them bringing their Nintendo DS – or Game Boy – with them; playing, discussing games, borrowing games from each other and sharing tips and knowledge on how to play different games and parts of games. Sometimes, even, they sit and wait for a friend who is known to have specific, necessary knowledge. Some games also provide the possibility of playing with other console owners via a wireless connection. As such, and also through the mere physical interaction the children have with each other, the console brings together the children as bodies, necessitating physical proximity.

In itself, the console provides specific symbolic meaning through its design, shape, weight, color etc. One thing is that the console is portable, another is the way in which it fits into the hands of the users – especially younger children. Being small, with softly shaped corners and a smooth surface it provides a pleasant feeling in the hands of the user. Playing the console with its specific physical features urges the player to sit and move in a certain way, bending his or her head over the screens, using quite small or limited movements to either press the buttons or using the touch screen as a controller.

The touch screen in itself holds interesting perspectives in relation to the question of materiality and body. Simulating actual physical actions it can be said to cross or at least challenge the borders between the two. The ‘movements’ that the player must do with his or her finger or the stylus imitates real physical movement – moving an avatar around in a landscape in the game, making the Kung Fu Pandacircle- kick in a special way or simply drawing on the screen. Also the relation between the upper and the lower screens imitates real physical rules; you can for instance ‘throw’ a ball from the touch screen to the upper screen etc.

By choosing a specific color for the cabinet of the console – dark colors for boys and bright for girls, for instance – children not only show their surroundings which is their favorite; they also inscribe themselves in specific communities of practice, in this case related to gender. Sometimes children are personalizing their consoles using different covers and ‘skins’. Thereby they are transforming a quite anonymous piece of electronic equipment into an

artifact with specific meaning to them individually. Other communities of practice could be related to the actual games being played on the console, dividing children between those, who play Mario and those, who play LEGO Star Wars. The look and feel of the console, combined of course with its functional features, is therefore in itself an explanation for its success, and for the affiliation between the users and the artifact.



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THE TRAMPOLINE AS BODILY PRACTICE

In the garden of Sam and Oliver they have a big garden trampoline, which fits the space between two apple trees and a pear tree. A small ladder is guiding the boys up the trampoline. Sam is starting to jump, his arms are pulling his body into a continuing boom boom rhythm, and his feet make the surface of the mat swinging. He is laughing and he throws himself on his bottom. On one hand it means that the physical material to some extent has influence on the trampolines qualities, - the size of the space of jumping or whether it has safety net or not; but on the other hand the meaning, the qualities and the practice cannot be deflected directly from the material or physical organization, just like it is not possible to come up with an exhaustive list of all the possible doings with the material. The meaning and the material are also showed in the use – practice - of the trampoline.



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The point is that in order to understand materiality we have to understand it as a practice process. A practice process or a process of practice can – to some extent - be clarified and understood through the concept of affordance, which the American physiologist J.J.Gibson introduces in 1979: “The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, but the noun affordance is not. I have made it up. I mean by it is something that refers to both the environment and the animal in the way that no existing term does. It implies the complementarity of the animal and the environment” [10]. An affordance is a property of the environment that affords action to appropriately equipped organisms [6], which means that the trampoline affords me to jump on it. When I stand on it, the mat makes my body go up and down, small jumps, apparently almost by itself. When more than one person is on the trampoline together, the feedback changes, and in some sense also the understanding of the affordances. If the persons on the trampoline have about the same size, they will have about the same feedback from the mat when the other one is jumping. When I was with Sam and Oliver in their garden, Oliver told me, when I asked him about the qualities of the trampoline, that one of the reasons why he loved the trampoline so much was because of his body size. Oliver is a small boy, also in weigh, so when jumping around with his older brother Sam and father, he was the one, who had the most fantastic jumps of the three of them, not because he was good in jumping, but because the size and weight of the other, made his little body jump very high up in the air. In that sense the shape of the situated body also tells us something about how to deal with and understand the affordances of the material.

Affordance then can be seen as a relationship between the player or players on the trampoline, the activity which is

jumping or something else and the environment – the trampoline space. The affordance becomes through the practice with the material; by standing on the trampoline, my body starts moving, and then the affordance: jump, shows it self. Affordance then is not something mysterious about the thing “itself” so to speak, as Norman (1988) seems to indicate, when he says: “the term *affordance* refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used [...] Affordance provide strong clues to the operations of things. Plates are for pushing. Knobs are for turning. Slots are for inserting things into” [25].

In our understanding it is precisely in the relationship between actual practice, affordance and body that the “thingness” so to speak materializes. Or we could say that the affordance might become living through the doing [8] – it also depends on the existing practice. In that sense we have to understand the affordance in relation to practice and not as pure usability. As Klemmer, Hartmann and Takayama puts “Similarly, we should not just strive to approach the affordances of tangibility in our interfaces and interactions, but go beyond what mere form offers” [22]. It is in combination with the ongoing practice and the space in which they are taking place that they have to be understood. On one hand in means that we do not really know what kind of practice the affordances will be materialized into – we only get to know that by following the material with what it offers for a longer period of time in order to realize how it will be integrated trough and with bodies, practices and realities. Practice can only be located with having temporality as a central feature of its very nature.

DOING COMPUTER PRACTICE

Dourish notes the same point when he says: “Tangible computing is of interest precisely because it is not purely physically. It is a physical realization of a symbolic reality” [6]. The point brings us to another example: Peter shows me where we are about to go in his computer game. The German soldiers, from whom we are trying to escape, are coming closer. And while he is telling me about the gravity of the situation, his hand touches the mouse very quickly and his eyes are looking at the screen. “Achtung”, says the German soldier. Peter’s game avatar is standing now and the two military tanks on the screen are driving as he planned them to do. When the fight starts, he is jumping back and forth while he is ‘shooting’ the German soldiers with the mouse. The kicking ends with a “yes – we made it”, and we are now continuing to the next position.

For the computer game the game with its structures, rules and systems, not only has a physical material, as a hand on CD-ROM or a file on the computer [6, 12, 15], but in a

sense a part of the practice around the game is also ‘afforded’ [13, 14, 15]. You learn the practice – the affordances - while playing the game, which means that you do not have to have competences before you start the game, you will get them while playing. But does it mean that all practice is materialized in the game? No, the point is that when it comes to materialization of the practice, the existing play practice, which means the practice around other games and play product will be integrated or used as an inspiration for the specific play practice also [17].

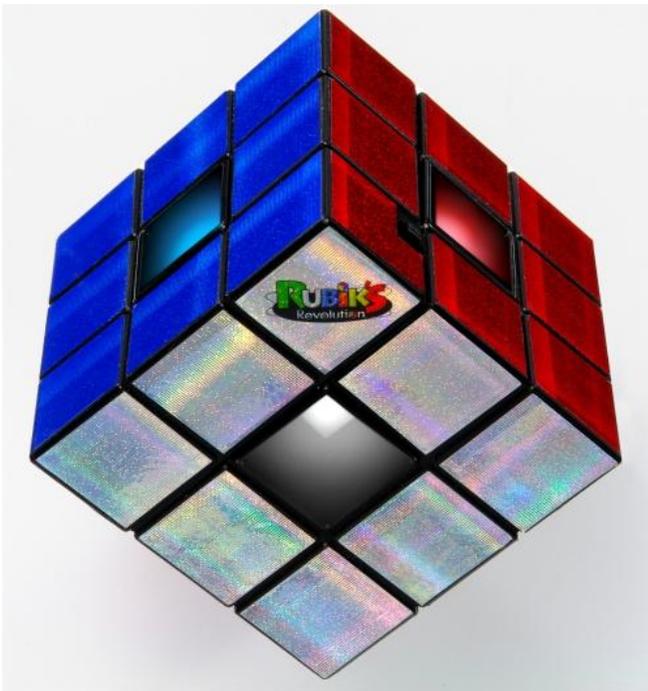
In our understanding the affordance must be seen as a possibility, which means that the practice will show us whether the affordance is realized. The material has an intended use, but we do not understand that use essentialistically, but as a *possible possibility*. By pointing the possible by the possibility we want to underline precisely the non-essentialistic approach, which means that it could be different, because it is only a possible possibility among other possibilities:”A hammer has many possible uses and at least one intended use; through the realization of the use of the hammer in a social setting the intended use becomes clear for the user. This however does not eliminate the possible uses; it only makes it clear for the user what a hammer is for in a canonical sense” [1].

You do not have to have any play competences before playing the computer game. When I asked Peter how he figured the game out, he said “I just started the game”. In that sense the game offers you part of the play practice, but it does not mean that you do not have any play competences to do something differently before you start the game. Even though the practice is offered to you, the practice around how you are dealing with the actually practice, is still an open question. In that sense we can say, that the computer game and the practice around it is an example of the ongoing dynamic between the what the material is offering and the actual practice around the material: “It is not what the things *are* but how they are practically used, forming meaning and coherence for someone in a certain context. In turn, the fact that they exist also actively influences those that use them” [8] Or as Paul Graves-Brawn puts it: “Culture exists neither in our minds, nor does it exists independently in the world around us, but rather is an emergent property of the relationship between persons and tings” [11]. A thing is not just a material; it is a thing in a situated practice [18]

DISCONTINUITY – PRACTICE AND MATERIAL

A different example of a concrete, current artifact or toy is the new, interactive Rubiks Cube, the so called Rubiks Revolution. Looking like, and through its name referring to the original toy from the 80’s, this toy proclaims an affinity between the two (www.rubrikcube.com and

www.rubiksrevolution.com). Still, the only thing the two have in common is the name and the looks. The functionality and game play of the rubiks revolution is totally different from its origin. Here, you shouldn't twist and turn the cube in order to sort the different colors on the sides of the cube. Instead, this is a fast paced game of reaction, in which buttons have to be pressed in correct order, when they light up. The action is accompanied by an electronic voice, telling the players what to do at a given time. Sometimes you have to press the lighting buttons continuously until they are turned off, sometimes you have to press just one button and then pass the cube on to the next player, who then presses the lighting button etc. At an overall level the six games, which are possible to play, are quite similar, and therefore the skills required for each of them are pretty much the same. The play dynamics occur in the interplay with the individual player, the toy and in some cases the other players, when playing a multiplayer game. The dynamic is primarily connected to reaction time, and no logical thinking skills are required as it was when playing the original rubiks cube.



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Does this make the rubiks revolution a worse or a better toy? In itself it doesn't, given the fact that the users are in most cases not familiar with the original toy, and most likely does not relate the same nostalgic feelings to it as their parents, who grew up in the 80's themselves. They do not belong or relate to an existing play practice and therefore their beforehand expectations are probably non existing or at least Also, the new toy is promoted by

teenage celebrities known from High School Musical and Hannah Montana – and who could wish for a better recommendation, when aiming at the young ones these days? The point is, that what the toy claims to be, and what I actually is, generates a contradiction, which does nothing good for the toy and its game play. The shape of a cube is unhandy to use, in many cases to heavy for a child to deal with, and there is no logical reason why this particular shape has been chosen – except, of course, for the branding values of relating to an old, well known toy. Still, for these and other reasons, it is not obvious that the rubiks revolution faces a long a bright future in the market of electronic toys and Playware.

CONCLUSION

Things and toys are not just material with affordances. To be able to understand them, we have to emphasize the triangularity between materiality, body and practice. We must understand human agents not only as beings but also as “doings”, which means someone, who has a practice around the things he or she is offered. This practice must be understood as a bodily activity, which is created through imitation and reproduction of others doing practice. When we understand the interplay between human agents, both as a bodily practice as a ‘practicing’ practice it has consequences for the use and understanding of the concept of affordance. Affordance is telling us something about usability, but it must be understood as a dynamic relation between materiality, a bodily practice and human agents taking action.

Usability is not only about a one to one relationship between the human agent and the material, but the affordance concept and the thoughts of usability must be related and put into perspective of both body and existing practice.

Consequently, when doing tests around a sudden material, the question of whether it works or not can only be answered by following the material around in the network of the players, who are doing the practice. Who use it? In what ways? In which situations? How does it fit into the existing practice? What is it combined with? What do the players do with it over time? Answering those kind of questions will show broader understanding of usability. Human beings share, feel, touch, do, and that is how we must understand agents in relation to materiality. One answer to these questions is presented in this paper, others could be found for instance in approaches like actor-network (ANT) theory.

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