On actual semantic and aesthetic interaction with design objects

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Abstract

A new perspective opens up, when emphasis is put on objects in the interaction between users and artifacts. The topic will be approached from a design point of view and is not dealt with in a general way. The frame of reference uses semiotic philosophy (Peirce). Accordingly, interaction includes the sensual or imaginative, the actually physical and the symbolic. Then, the conception of interaction is not reduced to either the physical or the symbolic level as is often the case in design analyses. Interaction is conceived as including both subjective and more general points of view. Habits are formed by affordances of the built environment. In order to achieve better results, designers can conceive artefacts as more than subordinated objects during interaction.

The examples show how people act in public spaces, which are dominated by the organization of artefacts.

This paper will examine how objects and people interact. A new perspective opens up, when special emphasis in the analysis is put on objects.

The topic is deliberately approached from a design point of view and is not only dealt with in a general way, i.e., the paper aims at highlighting theoretical issues inherent in the design process. The frame of reference is built on the semiotic philosophy by Charles S. Peirce (1839-1914). Accordingly, interaction between persons and artefacts takes place on many levels including the sensual or imaginative, the actually physical, and the symbolic. The approach seems to suit design, because the conception of interaction is not reduced to either the physical or the symbolic level as is often the case in design analyses. In order to achieve better results, designers may conceive artefacts as more than subordinated objects during the interaction.

The main objective of the paper is to study how objects influence human action.

Artefacts in use constitute habits of action. They seem to play a bigger role both physically and semantically (or semiotically, if you like) than they are usually given in design analyses.

(Theoretical contributions on so called design semantics during the last fifteen years are shortly examined in this paper, e.g., Krippendorff, 1989 and 1995. The difference between design semantics and design rhetoric is commented upon with reference to Buchanan, 1989 and 1995.)

Objects have earlier been studied as representations (e.g., literature survey in Vihma, 1995) and as taking part in narratives (recently by Kotro and Pantzar, 2002). More often, however, objects are conceived as serving some practical purposes and fulfilling people's practical needs. In my view, it would be important to look at the relationship the other way round, i.e., focus on how objects affect people's behaviour, their thoughts and emotions. Further, it would be helpful to study how objects take up space and influence also other objects, not only persons using them. The combination of single artefacts in a limited space is crucial for the creation of the atmosphere in the room, as we know as designers.
THEORETICAL APPROACH

In this paper, representational qualities of artefacts are studied to enhance understanding of their complex functioning. Interpretation of these qualities is conceived as analyses of references. For my further study, it is important to notice that reference relations are grounded and formed differently. Iconicity enables impressions and emotions to be studied as reference relations. Indexicality, for its part, supposes an actual and causal connection between interpretation and its object of study. In this case, the indexical connection conceives the concrete built environment and its products as hard facts. Thirdly, intersubjective agreement functions as ground for symbolic references, which then require a description of the context and explicit position of the one who carries out the interpretation. The means of approach supports interpretation to consider both the context of human action and the concrete qualities of the environment. The central argument for the chosen theory is the fact that diversity in their constitution seems to enable a study of representational qualities in their supposed complexity.

These modes of reference relations (iconicity, indexicality and symbols) were discussed to a great extent by Peirce himself (e.g., CP 2.228-253, 2.275-2.296, 2.303-307) and the philosophical scrutiny of them has been vast since Peirce’s times. However, I will not go more deeply into presenting peircean theory on signs.

The interaction between persons and things in the peircean way suggests ongoing interpretation (ad infinitum) instead of aiming at fixed qualities. In addition, interaction is conceived as including both subjective and more general points of view. The method of analysis also requires that at least some interpretation must be done on the spot. The person (or group of persons) interpreting concrete artefacts should actually be able to experience the use of, or actually use, these artefacts (as hard facts). The interpreter should have the possibility to experience them as part of their environment, experience the milieu of the activity, and so on. Especially iconic references cannot be formed otherwise.

THE DESIGN ASPECT

The second viewpoint for this study is design (i.e., the paper takes a deliberate design point of view in respect to interpretation). Therefore, the environment is conceived as a designed artefact that can be reformed and redesigned when needed. The design viewpoint in analyses of the product environment is implicitly a questioning and critical one – from its very beginnings. Designers look at how certain objects function and start professionally to produce alternative ideas to improve interaction with the objects.

Semiotics and design

The demand for concreteness within the peircean semiotic analysis, which I have already mentioned, suits the design point of view well. Especially the demand for interpretation to proceed in actual context of use is well in agreement with designerly thinking. User-centred design, for example, often emphasizes test situations in which people actually try out models and prototypes (Säde, 2001). Already since the mid-19th century, ergonomic planning has formed traditions for utilizing this kind of approach (Giedion, 1948). The height of a chair, for example, is measured according to human posture and is aimed at optimizing workload. The height of a table surface is deliberately designed with the help of anthropometric data and with a specific human activity in mind.

However, we also know that these human factors do not suffice for the design of a product or an environment. In addition to its concrete qualities and practical functions, an artefact embodies (or materializes) representational features, which are interpreted. In spite of this well known fact and its importance, very little research has been
done on the topic in design. Ergonomics does not include interpretative features in its scope; they are not dealt with at all. In ergonomics, human and environmental interaction is foremost looked upon as workload optimization from both a physical and a mental (sensual) point of view. The artefact is planned and adjusted to the requirements of the human body and information processing. Moreover, planning is conceived as a one-way activity. Measures are taken towards artefacts. Feedback means correcting, as, for example, lowering or heightening the table and seat, and the like. Simplifying the topic a bit one may say that the artefact is passive and its position is conceived as subordinated to human action.

Obviously, the demands for concreteness and ergonomics function as good starting points for a design process. They also support, in my view, the interpretative act and analyses of reference relations in design contexts (which then can be conceptualized and discussed by the means of semiotic theory).

**Interpretation two-way**

When the interpretative features of design are being studied, the person-object relationship does not necessarily function only one-way. It does not even have to be one-sided (i.e. emphasizing human action towards the artefact). The things can be conceived as more than passive responses to various activities and the relation between people and things as reciprocal or mutual. The relationship becomes more interactive by giving the artefact a bigger role. The affordance of (the surface of) the artefact is an example of such an interactive role. The thing affords human action. For design purposes, one may ask *what kind* of action it affords and *how* it represents affordances.

The artefact affords bodily movements and positions, and, in addition, it provokes mental (sensual) responses, produces impressions, represents and exhibits qualities. People adjust to these affordances.

Furthermore, one may ask what *feelings* does it arouse and what qualities are experienced with it, and so on. When feelings become involved in interpretation, the analysis includes appreciation and evaluation, and it enters the realm of aesthetics. Peirce makes a distinction between aesthetic feeling and perceptual judgment. He also distinguishes emotional evaluation, such as pleasure and pain, from it. Pleasure and pain are secondary, like symptoms, like transitions (CP 1.552, see also Barnouw, 1994). Aesthetic feeling attracts or repels. It is a disposition like an open mind in a continuum, for example, when one admires something, when one leans back and listens to music, when one responds to something and sees the thing staring one in the face. Following Peirce’s thinking, such feelings supersede the ken, the range of knowledge of the person (Houser and Kloesel, 1992). However, they cannot be avoided. Appreciation or disapproval play their roles as subjective ingredients in interpretation.

**The role of things (as companions)**

The formulation *things as companions* can be deduced from the approach and frame of the ideas presented, which aim at combining experiences of the product environment and the design process. It may be more beneficial, from the design point of view, to look at the thing as being more than just something to be focused on. Qualities of the built environment and its artefacts can be studied as functioning in mutual cooperation, as companions to people, and, accordingly, design can focus more on *how* they affect persons and human behaviour. Under such circumstances the artefact takes on a more prominent role in analyses and planning than it would normally.

What kind of action does an artefact permit or restrict, and why? How do people function in a certain milieu created by artefacts? What qualities do they impose on the user? What kind of atmosphere does a room transmit?
In my earlier studies along these lines, only single artefacts have been studied, although they were placed in the context of their use and history. The next step was to broaden the focus of study to a complexity of artefacts, an interior. An example of that study dealt with the Helsinki ice stadium built in 1966 (Vihma, 1996). The methodological outcome of the study was the fact that the complexity of the object of study required several perspectives and good knowledge of the context (and sub-contexts) of its use. Sport and architecture were central perspectives, i.e., the subculture of the game played as part of the much wider modern sport culture and the architectural trend during the era in which the arena was built. In this case knowledge about Finnish architecture and building, especially in the 1960s, and the cultural situation at that time (i.e., the enthusiasm for the sport, ice-hockey as specifically Finnish activity) seemed crucial. The researcher’s familiarity with such contextual aspects is, in my view, a prerequisite for meaningful interpretation that can be shared with others.

This example did not yet conceive, however, the relationship between the user and artefact as companionship. The artefact afforded functions, but, in my analysis, it did not support, direct or restrict action clearly enough. The interpretation was still too user-centred, even though environmental and functional qualities were also described in detail. Therefore, in this paper, the example aims at looking at a public space and artefacts with a new perspective. The starting point is an interior, its furniture and its composition of artefacts.

In this case, the artefacts very clearly afford human actions; they direct and limit movement. Because nothing in this interior seems superfluous, it is clear how a person can and should act properly: take a few steps, put belongings in the cupboard, switch on the light, turn, sit and lay down, and so on. The point is that the artefacts in the room seem to control action completely and leave almost no choices. Actions have to be fully adjusted to the arrangement. Consequently, the intriguing question concerns the representational qualities of these artefacts and how they affect human actions, thoughts and feelings, how the artefacts interact, and, thereafter, from a design point of view, in what way should their ‘influence’ be changed, if needed. Habits are formed by the affordances, formations and organization of the built environment. However, habits are no fixed rules and they can be changed to improve interaction.

Examples

In the following, two examples will accompany and illustrate the theoretical discussion. The first example shows how people may act in public space, a waiting room, which is dominated by the organization of artefacts.

Many kinds of waiting rooms have been designed for various purposes, for example, a small corner in a corridor and large halls. The nature of waiting as an activity also varies according to what someone is waiting for (i.e., in a bureau, a department store, a movie theatre’s lobby, a hotel, a bank, a health centre or a bus station). The furniture is chosen to meet basic requirements of the waiting function. Some times the architecture of the building influences the choices. The slides illustrate exemplary designed interiors as waiting rooms especially from an interior architecture point of view.

However, I would claim that waiting rooms are primarily created without thought of the context of waiting as action accompanied with artefacts. And, under such circumstances, artefacts actually acquire much power in the relationship between the persons situated in the waiting room and the artefacts placed in the room.

The design of waiting rooms is perhaps not as easy a task as one would believe at first. Perhaps they are not really designed at all, but instead result from decisions of what people should do while waiting (i.e., mostly do nothing). In many rooms the central radio and television are on, even though no one cares to listen or watch. Also other kinds of information are distributed in a more or less conceivable mode. Lighting is often too bright and too even. The offered selection of reading is very limited. Standard works of art or kitsch hang on the walls, and so on.
Watching children’s actions in such places provides one with an idea of what a waiting room could look like, because children generally behave unexpectedly, and they do not care, for example, about the regular order of things. They even begin to rearrange and test artefacts according to their needs of action. They want to do things in the room, while the artefacts seem to prevent their actions and force them into limited positions or require them stand still.

Instead of being reductive and inhibiting, waiting rooms (and the equipment in them) could actually function as spaces for reflection and communication – they could afford inspiration and amusement rather than direct behaviour into limited movements and postures, passivity and dullness. The forceful discipline, control and stiffness created by furniture can influence human action also in a broader sense by dominating the whole process of waiting and, for example, affect a whole visit or journey. The waiting room can increase mental workload.

A waiting room in a bus station

In Lahti, a small town about 100 kilometres north of Helsinki, the bus station is located near the commercial centre of the city. In the middle of the room is a composition of four benches arranged around a palm tree, which, by the way, reminds me of the salon from the 19th century (see, for example, Giedion, 1948). The arrangement of objects requires that people sit with their backs to each other (and the palm tree) and look at the empty space around them or at the walls some distance away. Someone sitting on one of the benches feels that another person is sitting (not invited) close behind him/her without actually belonging to the same conversation group. The situation creates conflicting elements of intimacy and strangeness and increases discomfort and tension. A waiting room for many kinds of travellers should include flexible furniture that can be arranged according to changing needs and could even be viewed as companions.

This waiting room in Lahti is, as they often are, highly disciplined. It seems to impose all its qualities on the visitors, which are at worst cold and draughty atmosphere, isolation from other people, discomfort with respect to luggage. It does not call forth enthusiasm, relaxation or satisfaction, even though it is functionally highly recognizable.

In comparison, the waiting room of the Helsinki bus station, built in 1832 for other purposes originally (bus station from 1935, and renovated in 1994) similar benches are used, but their arrangement in the room transmits a very different atmosphere. The impression resembles that of the street with people continually passing the seated visitors in a hurry. The lay-out of the room increases such indexical signs as noise from the doors and traces of weather conditions (dirt, mud, water or snow), which for their part, support iconic impressions of street life. Both the Helsinki and Lahti waiting rooms include, among other things, kiosks, time tables and an entrance to a cafeteria. These details bring various symbols (replicas of symbols) into the room and add colour and liveliness to the grey and dull tones.

Nevertheless, from a maintenance viewpoint, the waiting room in Lahti may function well in a bus station building – as a practical interior. But, does it really have to represent the kind of order and discipline that it does, which it then forces on human action and interpretation? From a design point of view the room offers a challenging task to create a pleasant atmosphere and support the use of public transport. The chosen conceptual frame of reference seems to encourage initiatives to improve people’s functioning in a built environment, which is the aim of design. Things can be conceived as companions, and not only as meaningful tools.
References


Notes

1 a term used by James J. Gibson.

2 A perceptual judgment can be expressed as, for example, “this looks good”. An emotional evaluation can be expressed as, for example, “I like this”.

3 The collected background material, such as memos, press cuttings, and pictures gathered by the architect of the arena, were very helpful, as was an interview with him about both the planning context and the building itself.
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Biography
Senior Researcher at the Department of Visual Culture at the University of Art and Design Helsinki.
Editor of Publication Series of the University of Art and Design Helsinki UIAH since 1984.
Member of the Board of Education and Research since 1992.
External examiner for PhD dissertations at the Royal College of Art, London, University of Art and Design Helsinki, and Chalmers UT, Gothenburg.
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