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People-centered architecture
Un'architettura per e con le persone

This paper proposes a humanistic approach to architectural design, which puts people at the center of the designer's thoughts. Understanding how the built environment influences people's behavior, emotions and activities should be the starting point of design. This implies a reflection on the way space can convey meanings – in its denotative and connotative components. Then, the techniques to collect information from the real and supposed users and to include such information in design have been assessed to highlight the advantages and the issues of putting into practice the idea of a people-centered design. The discussion is focused on the supposed loss of autonomy of designers, on the timing of introducing user's derived data, and on the consequences of including such data in normal design practices.

L'articolo propone un approccio umanistico al progetto architettonico, ponendo le persone al centro del processo di concezione. Comprendere il modo in cui lo spazio influenza il comportamento, le emozioni e le attività delle persone dovrebbe essere il punto di partenza del progetto. Ciò implica una riflessione sui mezzi con i quali lo spazio trasmette significati connotativi e denotativi. Le tecniche per raccogliere informazioni dagli utenti e per includere tali informazioni nel progetto sono state analizzate per evidenziare i vantaggi e i problemi del mettere in pratica tale approccio umanistico. La discussione finale è focalizzata sulla possibile perdita di autonomia del progettista, sulla tempistica dell'introduzione dei dati derivati dagli utenti e sulle conseguenze dell'inclusione di tali dati nelle normali pratiche progettuali.

Ricerche e progetti per il territorio, la città e l'architettura
DAPT - Dipartimento di Architettura e Pianificazione Territoriale
NUMERO 2 - giugno 2011   ISSN 2036 1602

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As designers, we should be aware that design actions do affect people's lives. The recall to a social responsibility (Alexander, 1989; Hertzberger, 2008; Schuman 1991) seems even more obvious nowadays, in a world characterized by fast and dramatic changes. This requires design to be people-centered, rather than aimed at pleasing the architects' wishes and ambitions. The built environment gains a meaning only when it is inhabited and perceived by people (Hill, 2001). Understanding such connections can bring to a deeper awareness of the design issues. This approach is not uncommon for product design, even in the ergonomic sense: furniture, clothes, even electronic devices are thought with people in mind (Jordan, 2000; Vredenburg et al., 2001). The task of including the users' needs into a physical object is easier for industrial design than for architecture, since the prototypes of products can be tested, while buildings are unique objects. Nonetheless, the development of technology allows designers to shape a virtual reality to assess the people's reactions and remarks about the proposed solutions.

This paper begins by discussing the way people are affected by their environments: since space can be bearer of meanings, designers need to understand the way this communication happens and learn to use tools to collect information from the real or supposed users (participatory design, post occupancy evaluations, etc.). Then, the advantages and the issues of including such information in project are assessed in order to propose an effective people-centered design.

UNDERSTANDING THE EFFECTS OF PLACES ON PEOPLE

HOW THE BUILT ENVIRONMENT CONVEYS MEANINGS
Most scholars hold that the space we live in communicates us some kind of information (Clark & Crossley, 2000; Eco, 1980). The way information is delivered, its real nature and contents have been object of several dis-

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cussions. Some argue that architecture is a form of language, even if nonconventional, since it's able to communicate meanings through a series of signs (Forty 2000; Roth 1993). Others disagree with the connection of architecture to a language: even having some "words", the built environment lacks a "grammar", a set of rules combining words into "sentences" (Hill, 1999). However, it is commonly accepted that space is able to convey meanings.

Without carrying on the debate about language, it is possible to state that there are two basic groups of information that the built environment can transmit to people (Eco, 1986). The first, which can be associ- ated to denotative meanings, is about the most sensible features of space, like function, shape, colors and materials. These are quite objective kinds of information that each built environment delivers to the people who experience it. Eco (1980) suggests that the first information we get from a piece of architecture is its purpose. He also points out that we understand such denotative meanings because most people in a society share a number of standards and conventions learnt from school or life experience. For example, a window is an object aimed at bringing light and fresh air into a building. The second group deals with deeper significances and departs from objective communication. The built environment, even if it cannot be considered architecture, can provoke emotions, recall memories and enhance reflection or action. For example, a window can be placed in a specific point to focus the view on a landscape. Also, the pattern of fenestration, if it is regularly arranged, can express the desire to fit quietly into the context, rather than standing out. Such "stories", expressing the connotative meanings of a given space, can be shared by a culturally and age homogenous group of people (Eco, 1980) or can be significant just for individuals, as it happens when a particular detail recalls a past personal situation. Also, it is very difficult to identify connota-

IT University of Copenhagen. Henning Larsen Tegnestue.
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tive meanings shared by everybody. Even color, which could seem the most universal carrier of meaning, doesn't convey unambiguous messages. For example, white is associated to weddings in most Western cultures, while in some Eastern countries it is the color for mourning and funerals.

After having explored the main contents that space can communicate, the discussion will focus on the interaction between built environment and users. Sometimes the space makes the first step in establishing a communication, since the designer really intended to "tell a story" and spread some signs around the building. The Berlin Jewish Museum, by Daniel Libeskind, is a striking example of the willingness to communicate (Schneider, 1999). On the other hand, it can happen that a particular state of mind (joy, boredom) of a person starts the process, and some elements of the environment can be "read" as particular "words". This point about intentionality is aimed at showing that not only architecture at its highest levels can convey information, but also the everyday space. Also, architects do not play the most important role because, after design and construction, the building stands alone as an autonomous object (Moneo, 1986). As research shows (Groat & Canter, 1979) the information conveyed by space can also be different from what the designer meant to transmit. Anyway,

the more denotative the messages are, the lower the risk of "misunderstanding" (Eco, 1980). This doesn't mean avoiding connotative meanings, unless reducing the communication to a list of practical instructions (Habermas, 1983). Nonetheless, envisioning a user-friendly approach, designers should try to "correctly" convey a number of primary pieces of information, like wayfinding, function, and possible styles of use (Arthur & Passini, 1992).

HOW TO COLLECT INFORMATION FROM THE SUPPOSED USERS

Approaching the topic of data collection, it seems appropriate to compare architecture with product design. In particular the latter has a strong component of users-designers interaction in the definition of the final outcomes (Arhippainen, 2003). This is probably due to the investments in the research and development sector that large companies can afford. Nonetheless, architects could learn something from the user-friendly approach of product and graphic design.

The first issue is about the identification of the appropriate users. In this perspective, the task of architects seems to be easier because every project is unique and important pieces of information about the users are available (age, social groups, habits). In fact in many cases it is possible to identify the actual people who will inhabit that build-

ing: for example a house has its owners, a school its teachers and students, etc. Some scholars suggest that the real occupants should be involved at the early stages of the planning process (with strategic choices to be made), not just the representatives (local officers or the management) (Barrett & Stanley, 1999; Granath, 2001). Differently, in product design the individuation of the appropriate customers can be quite difficult (Kyng, 1994). Marketing research can help in this task, but the outcomes are not as specifically tailored as in an architectural project.

The second issue is about the techniques of data collection. In industrial design the opportunity to test the product through prototypes allows companies to receive feedbacks from the users. According to Kyng (1994) the users-designer interaction during design workshops, with the help of mock-ups, is further more significant than answers to questionnaires. Similarly, Beyer and Holtzblatt (1999) propose a method based on individual interviews with product testers, followed by design team discussions, highlighting the necessity of a multidisciplinary group.

On the contrary, when dealing about buildings or public space it is not possible to "test" the "product" in relation to people – facade or other technology components prototypes have a low relevance for inter-

activity – due to the uniqueness of every project. Participatory design is the major way of collecting data from the future users of spaces. Including the people in the design process is not only a form of social responsibility, but also a way to increase those people's sense of ownership towards their space (Sanoff, 2000). Participatory processes, though, are not easy to carry on: dialogic issues between architects and users can bring to misunderstanding or to over-defending preconceived positions (Granath, 2001). Many authors and practitioners tried to define communication strategies (Boess et al., 2008; Granath, 2001; Mefalopulos & Kamlongera, 2004), which actually are developed in specific contexts, therefore not universally applicable.

Besides participation there are other ways of taking into account users' needs, but with a lower degree of specificity. Most scholars argue that the analysis of post-occupancy evaluation data can help defining design guidelines for particular building types (Bordass & Leaman, 2005; Preiser, 1995; Vischer, 2001). Zimring and Reizenstein (1980) focus on the applicability of such results, suggesting to carefully considering the differences between the proposed building and the existing ones. This is the major obstacle to an effective use of post-occupancy evaluation data. Participation, on the contrary, is site and users tailored.

Summarizing, there are many ways for designers to "listen" what the people would like from their objects or their spaces. As discussed, the task is probably easier in industrial design, but architects can make a great step forward in that sense, especially if they are strongly motivated to interact with users and interpret their minds (Granath, 2001).

INTEGRATING USERS' DERIVED DATA IN THE DESIGN PROCESS

After having collected data from users – both coming from specific people and from comparable case studies – designers have to deal with the integration of such information in the project. There are several aspects that have to be taken into account to find out what are the opportunities and the difficulties of a people-centered approach.

The first topic is the architects' supposed loss of autonomy. The instances of contemporary society, in which the complexity of tasks makes multidisciplinary and team work a necessity, would suggest that designers should be no longer avant-garde artists that give shape to their visions but that they should interact with other professionals and with the users as well. According to Granath (2001) the activity of designer presents two coexisting components, "artistic" and "social". The first makes architects to be unwilling to accept the users' consid-

erations because it would mean to partially renounce to their creative power. Also, the discipline of design is strongly related to individual ideas and experiences (Boess et al., 2008; Sailer et al., 2008). On the other hand the "social" component previously mentioned should enhance architects' attention to the users' needs and requests. This is not just a humanistic regard, but also a key to a more effective outcome. In fact, designers should be aware that they do not have the "last word" about the physical and psychological features of the built environment: the transformation process of a space continues through occupation, since the users have the opportunity to customize it (Hill, 2001). Also, the data coming from interviews and questionnaires can be a very useful source of knowledge for architects, even beyond the particular project they're working on (Granath, 2001; Luck, 2003).

The second aspect is the right timing of integrating the data collected in the design process. This point has some connections with the previous one. In the field of product design, Boess et al. (2008) suggest that the information coming from users should enter the process after the first draft ideas have been drawn. This strategy should be aimed at preserving the designers' capacity to use their own mental categories for developing the concept design, while using the collected data to further detail initial

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Jewish Museum, Berlin. Daniel
Liebeskind.
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idea. This point could also be stated as follows: the earlier the information about users enter the project, the lower the design freedom. Other scholars focus more on the effectiveness of the interaction between architects and users, and reach different conclusions. Granath (2001) holds that, if users enter the process too late, their ideas could be seen as a factor of delay or cost-rise, almost an obstacle, since the design is almost complete. Also, in some projects the architects reported that with earlier briefings their approach to the specific design task would have completely changed, improving the final outcome (Sailer et al., 2008). These last two points show that, if the design team is really motivated to involve people in the planning process, the interaction should start from the earlier stages.

The third aspect regards the ways of integrating user-centered issues in normal design practices. Some authors pointed out the problem of the extra time needed for collecting, analyzing and including data in the project, if compared to a "normal" one (Boess et al., 2008; Sailer et al., 2008). This has to do specifically with the amount of information that architects have to handle. According to Boess et al. (2008) it is not usually possible for designers to include all the data collected into the project, since the information tends to be too fragmented and some requests are too specific. This

means that architects cannot "answer" directly those questions, but they need to have a more comprehensive outlook and strategically choose and interpret the data. Granath (2001) suggests that collaborative workshops during the concept design phase help to bridge the gap between architects and users, enhancing the conceptualization of people's expectations and eliminating the pointless information. Another way of dealing with the quantity of data collected is to organize the information into various categories (Boess et al., 2008). This modus operandi can connect users' wishes to the main design themes, facilitating inferences between the specific project and the architects' background experience. Therefore, well-developed techniques allow designers to work with the data collected without a sensible increase of the process duration.
Finally, in addition to the specific data collected, architects should include in their projects some general considerations about the way users interpret the built environment. The people living in a society share a series of standard and conventions about the expected style of use of particular spaces and objects (Eco, 1980; Wilson, 1968; Zhou, 1996). This knowledge generally comes from early childhood, both from teaching and from direct experience. Moreover the inclusion of the users' diversity, as suggested by Cornell et al. (1997) in their

"Universal Design Principles", is a way of facilitating everybody's life: a really user-friendly architecture communicates frankly the denotative meanings and doesn't search sophisticated "words" for the simple ideas.

CONCLUSION
The paper traced a framework for a people-centered design approach. Project-specific components and general humanistic considerations can both contribute to improve the usability and the appropriateness of a space. Understanding the way people deal with the built environment is a fundamental starting point, since it can help interpreting the their feedback when consulted. Also, the development of practical instruments for design processes is a key element for an effective integration of the users' derived data in the final outcomes.
Paraphrasing and reversing the notorious sentence by Winston Churchill, architects have to understand the effects of places on people to design space more effectively.

Fire and police station, Berlin. Sauerbruch Hutton architects. Color is used to highlight the two public institutions.
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