



Minutes of the 1st international ERGODESIGNFORUM

Organised by ARDI Centre du Design 8-10 June 2009, INSA, Lyon

Tools and methods, enhancements and synergies

In the beginning was the method... This could be the creed of designers and ergonomists alike. But both acknowledge that approaches vary from one country to another and that what really matters is a constant alternation between methods design and testing. This shows the importance of comparing experience, both among professionals in the two disciplines and among different countries and different cultures, and the advantage for the ergo-design approach to continually compare different approaches and experience. These questions and practices are reflected in the roundtable, new methods and new subjects.

Anamaria de Moraes, who has always advocated taking human factors into consideration in the design of products and services, believes that design and ergonomics should be combined right from the beginning of product design so that the end-user is more fully taken into account. She also says that one of the key goals is for professionals in these two disciplines to share data. In a similar vein, Laurent Bidoia believes that ergonomists and designers should consider the use value (utilisation) and the esteem value (brand) in conjunction, right from the beginning of a project. The question of "how" immediately emerges. To make it easier to consider the two together, Thomas Hofmann has designed a product-design tool that combines design and ergonomics. Finnish born Hannu Vanharanta pointed out the difficulty of modelling processes involving levers that are still imperfectly familiar, such as cultural environments or neural networks. He also mentioned how interested his Korean and North American partners were in these questions. In a more "creative" approach, Philippe Michel from Orange Vallée explained that he works on the principle of a small, multidisciplinary team, working on a small-scale, empirical basis to rapidly finalise simple products. Lastly, kansei, an approach recently arrived from Japan, uses cultural and emotional sensitivity as design tools.

The EQUID Design Process Requirements incorporate these approaches and could be of use to many designers. In addition to tools, reference processes are absolutely essential to develop cooperation between the two professions, says Michel Naël, who believes that certification of design processes should be "people-centred".

In the final analysis, whatever tools and methods designers use, "the user is the re-designer of the tool he uses," says Pierre-Henri Dejean.

Ergonomics and design in the medical and healthcare field

The very specific nature of the medical field – risk, hyper-specialised users and frail end-users – makes it particularly apt for close cooperation between ergonomics and design.

At GE Healthcare, for instance, pairs of ergonomists and designers work together on each project right from the design phase. Laurent Chuillet, for his part, incorporates ergonomics, economic constraints and user needs in the design process. For Eric Deni, ergonomists and designers complement each other and work towards the same goal, namely the patient. For Gilles Damon, ergonomics is inseparable from the project and plays a decisive role in a product's success: for example an articulated screen on a measuring device. In a complex system where each job field has access to a large body of data, ergonomics is also about presenting each user with the useful information he needs, says Ludivine Watbled. Bridges exist, or could exist, between the two disciplines. Sofia Jacobsson Warfaa explained that the ergonomists at Ergonomidesign were trying to incorporate emotional and perceptible aspects into their approach – two core concerns for designers. Users and their specific feelings, intellect and physical

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characteristics are also the focus of Harrit & Soerensen's approach. In this lesser-known avenue, some professionals concede that they are feeling their way, speak of an approach based on common sense and claim a certain empiricism. As a lead-in to its work, Loup Design works on the know-how of the companies for which it designs products, along with the products' use values, market and applications. When designing a remote control for acoustic devices, Rudolf Greger at Siemens produced four prototypes, which were tested by users against three key criteria. These questions also concern "young" designers, such as the students at ENSCI Paris. When Deci-delà was designing a watch for Alzheimer's sufferers, it made up for a lack of specific ergonomics knowledge by drawing on the skills of speech therapists and carers.

How can we make headway by overcoming the obstacles of strictly separated, hyper-specialised professions? Prodos helped design an innovative orthopaedic product produced by a multidisciplinary team, but communication between the different professions was difficult. This type of cross-disciplinary work calls for an "orchestra conductor", a sort of "director of innovation", versed in design ergonomics and marketing. Are we going to see a new profession emerge, midway between manager, designer, ergonomist and salesperson?

When we work together and take the patient into account to avoid errors, this is THE real innovation, concluded André Dittmar.

Interior design and everyday living

It is only by observing users and considering individuals from every aspect (professional, social, personal, emotional, etc.) that we can innovate in interior design and everyday living.

After observing users in their everyday life, EDF (Electricité de France) can now apply ergonomics to situations in the home. It is not by chance that a major player in the energy industry decided to look into residential interior design and approached it from an individual viewpoint: it reflects a sweeping change in practice. At the initiative of the home-improvement retail group Leroy Merlin, Leroy Merlin Source is supporting meetings and cooperative projects involving academics and professionals, and is working on taking account of individuals in their everyday life, especially those who are "oldest and most vulnerable". Some research teams from the French-based CEA's electronics department are studying video gamers while they play, with a view to upgrading the company's demonstrators for new technology applications. In Brazil, Vera Helena Moro Bins Ely is working on making historical buildings more readily accessible to disabled people, using two methods based on disabled people's life experience: the accompanied tour and the exploratory tour. In a similar field, Jessica Gheller presented a project that combines ergonomics, design and home automation to improve the conditions in which the disabled can live in, or return to, their own homes. The Umania design firm adds another dimension by taking emotional aspects into account - a core component of the design approach in conjunction with the rational aspects. But how do we measure emotions? In any case, rationality alone is not enough. In every field, players are increasingly asking themselves questions. The young designer Audrey Dodo, for instance, even says we need to invent a new method of marking products for the visually disabled, more intuitive than Braille.

The interesting point here is that both designers and ergonomists agree that giving due consideration to all of these aspects is always decisive for how well interior design is accepted by its occupants and/or users.

Transport, urban life, universal access to public and private spaces

In the world of mobility, one subject has become a core issue: information. The relevance, collection, use and transmission of information are central to the approaches applied to transport and urban spaces.

When designing the Infomoville project, having a wide variety of sources and types of information was more important than the technology used. In the case of a real-time information exchange solution for mobile phones, the goal is to have access to the

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right sources of information as fast as possible, said Atmin Ait Hamouda, from Embedia. Where do we find the information, who sends it, to whom and when? asked Annie Pauzié from INRETS. She believes that the answer to these questions is the main ergonomics and design issue for a mobile-phone public transport information service. The same question is posed here too: what are the best sources of information? This is also what Foot Robin is wondering. In a resolutely user-centred approach, Foot Robin concluded that it was essential to involve tram drivers in designing their cabins, as poor design of a driver cabin tended to cause accidents. Another example of problematic man-machine interaction is that of a GPS system and its user. Manuela Quaresma found that a poorly-designed GPS, with non-relevant information management, also tended to cause accidents. Unfortunately, industrialisation constraints and industry standards take precedence over this notion of relevant information. Maryvonne Dejammes from CERTU noted that certain sources of information, such as feedback from visually-disabled people, are not sufficiently analysed and exploited, and could help make it easier for the visually disabled to circulate on foot in public spaces. When user feedback is put to good use, it proves to be the most valuable of raw materials for designers. Soizic Berthelot showed how ergonomics methods can be used to model the notion of comfort when designing an aircraft seat. Jairo José Drummond Câmara explained that injecting a measure of ergonomics into the design process enabled him to improve a racing car's performance. The same holds at an individual level. Régine Charvet-Pellot remarked that user perception through the five senses has a direct influence on their acceptance of a product: yet again, a question of information.

Culture, emotions and sensory perception

According to Pierre-Henri Dejean, design must make allowance for the fact that the cultural and emotional contexts have a marked effect on individuals' taste. Yet the approach is still too techno-centric: any design problem is seen as stemming from a technical problem. This is the theory put forward by Jean-François Bassereau, who wants new tools to be developed to ensure a cross-cutting application of ergonomics and design and offset the current paradoxes. Maud Dupuis believe the crux of the problem lies creating universal mediation tools that can be used by everyone. This has been achieved at the Aventure Michelin museum, built in part, around the idea of offering a cultural adventure to the disabled and in particular the visually disabled. Marc Fontoynt believes that the quality of light, more than the quantity, strongly influences the feeling of well-being. But while we can readily measure quantities, it is more difficult to measure quality. Or comfort, for that matter...

Quality of life in the workplace / Sport and leisure

Many proposals and experiences put forward the idea of "co-production" with the user. More than anywhere else, products related to the world of work, sport and leisure must involve end-users in their design.

Examples abound. Nicolas Seynaeve told of how four students had designed shock-absorbing handlebars for a mountain bike. Bertrand Barré talked about designing a fishing gun with an extended range and greater usability. When designing a new shoe, Salomon took the needs expressed by sportspeople as its starting point, then came up with the technical solutions and launched prototype. In a similar vein, when it wanted to improve the safety and performances of a kayak, Montoro Design worked from existing designs, using mock-ups and feedback from Olympic champion users. In every case, observing actual practices was vital important in the design process. Some went even further. After setting up a user-feedback tool, Raidlight noticed that its best-selling products were those on which users had given their opinion. And for Sylvia Pelayo, the ergonomics must allow for design measures to train users to use the object designed. Arnaud Tran Vann takes a different angle on the question: incorporating ergonomics into product design yields a better response to production constraints such as cost and lead times. For the Centre technique du cuir, introducing the ergonomics of the relationship with the individual's body and senses has turned a development initiative into added value. This is also the approach adopted by the Cellinov agency, which incorporated the notion of thermal comfort when it designed a sports T-shirt. Roger Ball has taken the notion even further. After observing that morphological studi

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were of prime importance in clothing design, he made this the focus for developing a set of anthropometric data on the population of China, which is drawing growing interest among manufacturers.

What if a more user-centric approach - embracing users' needs, whether expressed or implicit, emotions and physical characteristics - was the starting point for genuine collaboration between design and ergonomics? And what if this common interest in the user was the key to sharing information, collaborating as early as possible in the design process, recognising the other's expertise and one's own weaknesses?

Article written by Jean Mochon, La Belle Idée