

# < Entretien >

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L'enseignement supérieur du design interactif soulève de nombreuses questions. Pour en discuter, nous nous sommes entretenue avec Jörn Messeter et Jonas Fritsch, professeurs-chercheurs en design d'interaction, tous deux affiliés à des universités scandinaves reconnues pour leurs programmes d'enseignement et de recherche en design d'interaction ainsi que pour leur contribution au développement de la discipline.

**Jörn Messeter** est professeur de design d'interaction à Malmö University en Suède et à Cape Peninsula University of Technology en Afrique du Sud. C'est pendant ses études universitaires en informatique, à Lund University, qu'il acquiert ses premières expériences d'enseignement et développe un intérêt particulier pour l'interaction humain-machine. À la fin des années 1990, alors qu'il termine son doctorat, il rejoint les rangs de Malmö University et prend part à l'élaboration de la School of Arts and Communication (K3). Il siège alors au comité consultatif d'élaboration du programme de maîtrise en design d'interaction. À l'époque, il signe la

demande d'autorisation permettant à K3 de décerner des diplômes de baccalauréat et de maîtrise en design d'interaction et il cosigne celle permettant de décerner le *magister*, diplôme suédois équivalent à une année d'étude supérieure. Dès l'inauguration de K3 en 1998, il est intégré au corps enseignant en tant que chargé de cours (*lecturer*) en design d'interaction. Aujourd'hui, il y est professeur associé et s'implique particulièrement dans la maîtrise en design d'interaction, programme qu'il a participé à bâtir, qu'il a dirigé (2000-2006), qu'il a coordonné (2009-2010) et pour lequel il a obtenu l'accréditation en tant que programme international (2006). Depuis 2010, Jörn Messeter est également professeur adjoint au département de design appliqué de Cape Peninsula University of Technology où il a développé une spécialisation en design d'interaction à l'intérieur d'une maîtrise en design existante. Jusqu'à présent, il a dirigé deux doctorats (dont un est terminé et l'autre est en cours), co-supervisé un doctorat (en cours), supervisé 28 mémoires de maîtrise et participé à l'évaluation de 52 mémoires de maîtrise. Ses principaux intérêts de recherche concernent la mobilité et l'omniprésence de l'informatique, l'informatique centrée sur le lieu (*place-centric computing*) et les méthodes de co-conception en design d'interaction.

**Jonas Fritsch** est professeur de design d'interaction à Aarhus University au Danemark. Après avoir obtenu un baccalauréat et une maîtrise en *Information Studies* de Aarhus University ainsi qu'un diplôme en esthétique et communication de l'Université Sorbonne Nouvelle, il travaille un an comme consultant et chargé de cours en design. Ensuite, il entreprend un doctorat qui lui permet d'étudier l'expérience affective comme fondement théorique au design d'interaction. Il soutient sa thèse en 2011, après quoi il obtient rapidement un poste de professeur assistant à Aarhus University. Aujourd'hui, il enseigne au baccalauréat et à la maîtrise dans les programmes de *Digital Design* et d'*Information Studies* ainsi qu'à la maîtrise en *Experience Economy*. Il fait partie du iDesign teaching group et des centres de recherche CAVI (Center for Advanced Visualization and Interaction) et PIT (ParticipatoryIT) où il participe aux projets des pôles *Aesthetics of Participation* et *Local Spaces, Local Communities*. Mentionnons également son implication dans le *educational advisory board*

des programmes de *Digital Design* et d'*Information Studies* ainsi que dans le comité d'orientation du programme d'*Experience Economy*. Au cours des sept dernières années, Jonas Fritsch a enseigné près de 14 cours en design d'interaction et supervisé 10 mémoires de maîtrise. En tant que chercheur, ses principaux intérêts concernent la complexité de l'expérience sur le plan affectif. Ses efforts sont à la fois théoriques (développement d'une base théorique permettant de comprendre les personnes à qui s'adresse le designer) et pratiques (développement de stratégies permettant d'aborder ces connaissances à travers le processus de conception).

Nos entretiens avec Jörn Messeter et Jonas Fritsch se sont déroulés en anglais. Afin de préserver toutes les nuances et l'authenticité de leur propos, nous les présentons ici dans leur langue d'origine. Le contenu de nos discussions est organisé autour de quatre thèmes clés : l'approche à l'enseignement, l'arrimage entre l'enseignement et le contexte professionnel, la nature de la discipline ainsi que les défis et problématiques auxquels fait face l'enseignement supérieur du design d'interaction.

### **Approche à l'enseignement**

*What are your sources of inspiration for teaching interaction design (e.g. your professional practice, your research, your educational background, theory, etc.)?*

JÖRN MESSETER : My fundamental view on learning and pedagogy first developed during my 11 years at Department of Informatics, Lund University, in co-teaching and interaction with more experienced teachers. I then continued to develop my pedagogical skills in studio based and project based teaching at School of Arts and Communication, Malmö University, in particular from teaching the Interaction Design master's program, where I have been teaching for 15 years, mostly on master's level. In addition I have gained knowledge and experience from pedagogical courses and curriculum development. Finally, since I did my Ph.D. in the area of computer supported collaborative learning, studying the working skills of process operators at a chemical factory, I have

developed a deep interest in theories on knowledge and learning, in particular social constructionist learning, tacit aspects of knowing and Ludwig Wittgenstein's notions of praxis and rule following.

JONAS FRISTSCH : I would say that most of the teaching in Interaction Design is heavily inspired by the work of Donald Schön<sup>1</sup>. Most of our design courses are based on the idea of creating what Schön calls a 'reflective practicum', where the students can get hands-on experiences with design projects, by actually carrying out these projects in a secure/confined, academic environments 'learning by doing'. Usually, the students are given an assignment that they can work on throughout the semester – often posed by collaborators or stakeholders outside the university. So the idea of teaching design through actual engagement in design processes is at the core – and the idea of framing these projects with respect to external partners from outside the university is also core.

*Beyond skills transmission, academic contribution supposes knowledge education and acquisition. Could you target core elements that must be taught to interaction designers in terms of knowledge, know-how and social skills?*

J. M. : First, my current view of university teaching may be summarised as follows:

– Learning is not passive. Rather it builds on active engagement in a learning process.

– The learning process is a spiral movement between, on the one hand, explorative activities and application of acquired knowledge in problematic situations appropriate for learning, and on the other hand, individual and collective reflection results from such experiences.

– A teacher can, depending on the situation, take on different roles in the learning process, but the main role is that of a catalyst with the purpose of helping the learner to progress in the learning process.

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1. Schön Donald (1983). *The Reflective Practitioner : How professionals think in action*, Ashgate Publishing, Aldershot.

– There are different aspects of knowledge and the learning process takes on different forms depending on what aspect of knowledge is focused. In learning processes focusing on knowledge aspects that are difficult to fully articulate, e.g. aesthetic or ethic aspects, the example, and reflecting on it, has a particularly important role in learning.

– The learning process is individual. A teacher must, within resources available, strive to support the needs of the individual learner in her work to progress towards the particular learning goals.

To me, the most important model in Interaction Design teaching is the view of the design process as a dialogue between the designer and a design situation. Each cycle in the process starts with a ‘design move’ on the part of the designer, and is followed by a response to this design move from the design situation. Design moves span all different activities in the process: fieldwork activities, yielding knowledge about users and use; introducing a cultural probing kit, whose results are later handed in by stakeholders; presenting early concepts to stakeholders, who respond in a discussion of properties and qualities of the concepts; evaluating proof-of-concept prototypes, identifying problems and possibilities. In each cycle resources are spent to gain knowledge. It is important to develop awareness of this exchange, and in particular how to make sure for each cycle that knowledge is gained, spending a reasonable amount of resources. As experience grows, students develop on the one hand sensitivity in reading the responses from the design situation, and on the other hand precision regarding the choice and shaping of design moves. In simple terms, the knowledge needed is basic knowledge about methods and techniques, coupled with domain knowledge. The know-how relates to how to apply methods and techniques with precision, and how to read the responses with sensitivity. Finally, the social skills needed has to do with how to communicate with people, regarding performing fieldwork, presenting visions, concepts and prototypes, and actively engaging stakeholders in the design process.

J. F. : This is a really fundamental question when considering teaching Interaction Design in a university setting, something that I along with my colleagues am continuously trying to grapple with. Together with two other professors — Peter Dalsgaard and Christian Dindler — I

recently co-wrote an article on ‘Design Argumentation as a Resource in Academic Design Teaching’<sup>2</sup>. Here, we tried to show how it is possible to bridge between the requirements from an academic setting and the idea of a reflective practicum and project-based teaching. We talk about the ability to be able to argue *for* your design based on material, theoretical and empirical grounds, and about arguing *through* design, where the actual design object and project talks back to the theoretical, material and empirical investigations. The idea of arguing *for* relates to the question of knowledge, and different kinds of knowledge, which I would argue must relate to theoretical knowledge, knowledge derived by empirical investigations and knowledge derived through practical experiments. All these kinds of knowledge meet in what might be termed, using Nigel Cross’ words, a ‘designerly way of knowing’. In addition, this also involves social and collaborative knowledge about working in teams, about meeting deadlines, structuring the design work and so forth. The art of arguing *through* relates more generally to design as a way of learning about (more traditional) academic forms of knowledge.

*What is your view regarding the gap between theoretical and practical education (academic teaching vs project-based teaching) in interaction design programs at universities level?*

J. M. : My view on theory vs practice is basically that theory needs to be applied to make sense, and that reflection on practice in relation to theory is crucial for learning. We should create learning environments where the learner’s reflection on own experiences, and reflections on dialogues with other learners, teachers and professional practitioners, are in focus. This starting point is inspired by Donald Schön’s notion of a reflective practicum, and to some extent also on the Socratic dialogue as an ideal model for the communication between teacher and learner. The role of the teacher, with regards to theory, is to introduce readings for each design project that can be coupled to each particular phase or step in the project. In addition, based on my teaching experiences I argue that problem situations for learning need to have a strong connection to

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2. Peter Dalsgaard, Christian Dindler, Jonas Fritsch (2013). Design Argumentation in Academic Design Education, Actes du colloque Nordes 2013 : Experiments in design research, Nordic Design Research, Copenhagen/Malmö.

real world situations and professional practice, preferably with authentic problem owners outside academia. I therefore view this reflective practicum, not as an isolated forum, but rather as an open stage where learners can develop knowledge in dialogue with the surrounding world, alluding more to the notion of living labs than to the 'university lab' or 'design studio'. This is where I see a difference between Interaction Design and other design subjects. In contrast to the traditional views of the master-apprentice relation in studio based learning, represented also in Schön's reflective practicum, in learning Interaction Design, experience from real world situations cannot be mediated by a teacher or master in a studio or lab. The nature of exploring alternative possible futures together with users, and learning from it, requires nothing less than first-hand experience. In this regard, the later developments in design-based research (or 'research-through-design') are key to understanding knowledge production in Interaction Design. In addition, Interaction Design is a multi-disciplinary subject and a open environment for first-hand experience from exploring future technology use should not be limited to a dialogue inside the realm of Interaction Design, but rather should include contacts with other design fields as well as other related subjects, e.g. media studies and computer science.

J. F. : As I mentioned before, my colleagues and I, have been trying to show how it is possible to bridge academic and project-based teaching. We talked about the ability to be able to argue *for* your design and *through* design.

*Should technology play a role in a higher education curriculum of an interaction designer? Should we encourage its contribution or limit it?*

J. M. : The increased malleability in digital materials, a more diverse everyday digital practice, and people's propensity to personalise technology, are some factors pointing towards a new role for technology. I believe that Interaction Design to a greater extent will focus on the fuzzy front-end of design, exploring new roles in everyday digital practice for products, systems and services. This means that we will have to shift the centre of gravity in the design process slightly backwards. The object of design becomes more open-ended, and what we deliver is to a further extent designed also in use. Arguably, the way

we introduce technology in our explorations of the future should therefore be closer to the notion of ‘technology probes’<sup>3</sup>, whose uses are open for interpretation, than to high-fidelity prototypes with determined directions for use. We should therefore definitely encourage the contribution of technology development, and teach basic properties of digital materials and how they can be shaped, but while maintaining a sound balance between functional, aesthetic and ethic aspects of design.

J. F. : Encourage it! But within the frame of a critical, thoughtful and experimental approach to Interaction Design.

### **Arrimage entre enseignement et contexte professionnel**

*What should be the linkage between interaction design higher education and the labor market reality?*

J. M. : I believe Universities of applied sciences play a particularly important role for defining the role of Interaction Design in a rapidly changing society. In many cases Interaction Design research involves exploring completely new future uses of information technology that has little relation to existing products and practices of everyday life. To me, developing an understanding about how new and innovative technology may fit into peoples lives inherently reveals fundamentally new insights about peoples desires, values and needs. These insights belong to the basic research end of the scale, but at the same time they are highly applicable in design processes to create products that fulfil these desires, values and needs, thus making distance between basic and applied research particularly small in Interaction Design research on new uses of IT, and the outcomes of such knowledge production should be channelled to the labor market through Interaction Design educations. In my own research and teaching I have constantly promoted a strong relation to industry and society. In the Interaction Design master’s programs I have been engaged in, the goal has always

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3. Hilary Hutchinson, Wendy Mackay, Bo Westerlund, Benjamin B. Bederson, Allison Druin, Catherine Plaisant, Michel Beaudouin-Lafon, Stéphane Conversy, Helen Evans, Heiko Hansen, Nicolas Roussel, Björn Eiderbäck (2003). Technology Probes: Inspiring Design for and with Families, Actes du colloque CHI 2003, ACM, Fort Lauderdale.



been to set up each design projects with external partners, preferably both local stakeholders as well as local industry. Even if experimenting with new technology for its own sake has its own merits and may broaden our repertoire of digital materials, I strongly believe that research and development of IT should not be technology driven. Furthermore, even if there are many areas in society where ethically responsible Interaction Design successfully can address identified problems, in my view Interaction Design research more often than not explores radically new applications of IT, where we cannot expect users and other stakeholders to be able to easily articulate their needs, visions or values. This highlights the value of co-design strategies, where we as researchers/designers engage in open-ended explorations of information technology in close collaboration with users and stakeholders. Through my research I have aimed to contribute to the development of new methods and techniques to facilitate an open design dialogue enabling designers, users and industry partners to mutually shape an understanding of possible technology futures, bringing together stakeholder desires, technological possibilities, and business opportunities. On a general level this aligns with a triple helix model, where university, industry and stakeholder organisations in society collaborate closely in knowledge production. Such models have a good potential of providing strong links between Interaction Design education and the skills needed in the labor market.

J. F. : This can be answered from a number of positions; first, we continuously try to keep a very visible link between our teaching in Interaction Design and entrepreneurial thinking and startups; we have a very high percentage of our students who actually start their own companies during their education, and we work to strengthen this at our university. Second, we often bring in people from private companies, the municipality and the like to either participate in critique session at the university, come to student's exhibitions of design projects, creating assignments and the like. Third, of course this question also relates to how we can best prepare students to their work life when they are done with their education. One challenge relates to the fact that we are teaching Interaction Design, the design of digital technology or artifacts, which is changing at a rapid pace. We cannot teach based on market realities or technologies alone; these factors

continuously change, so we base our teaching on the human beings who will use the technology; not because they don't change at all, but they might change at a slower pace than the technology.

*Beyond vocational education, is there a place for researcher's training in interaction design? Which one?*

J. M. : All design activities in a project produce knowledge that is fed back and applied directly in that design project. However, since Interaction Design often addresses future possibilities rather than factual realities, Interaction Design practice inherently has a stronger element of research, or production of knowledge that is applicable beyond the actual project, than other design disciplines.

J. F. : There is a strong need for Interaction Design research understood as radical experiments with the way in which we might live with and experience technologies beyond a market logic — not necessarily meaning that these experiments should never find their way in to the market, that is. Also, I believe it is important for research in Interaction Design to always be 15-20 years ahead in these experiments, to build up alternative visions for the future, e.g. when it comes to such value-laden and technology-driven concepts as the Smart City<sup>4</sup>.

*Who should be called to higher education in interaction design, people with initial training in design or other professional profiles? What should be the selection criteria for university students in interaction design?*

J. M. : People with background in either other design disciplines, media-related subjects or IT-related subjects, are all equally eligible for higher university courses in Interaction Design. However, successful studio based teaching on master's level can only happen in a student group with a balanced mix of the above backgrounds.

J. F. : The students who enroll at the program in Digital Design or Information Studies in Aarhus University have chosen this as their

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4. Nicos Komninou, Marc Pallot, Hans Schaffers (2013). Special Issue on Smart Cities and the Future Internet in Europe, *Journal of the Knowledge Economy*, vol. 4, n°2, p. 119-134.

primary education. In addition to these forms of education, would we like to see more students, e.g. from the private sector, choosing to supplement their degrees with an MA in Interaction Design? Yes that would definitely be interesting. And this would demand a better consideration of the selection criteria which for the BA in Digital Design and Information Studies which are mostly based on high school grades.

*Which professional profiles should be used as benchmark when deciding for an interaction design program? Are there some essential specialities?*

J. M. : I think the professional profile that should shape an Interaction Design program should be the critical designer who master's what Schön refers to as double-loop learning, i.e. the ability to constantly reflect and improve on ones own design process, and who successfully manages the dynamic interplay between technological feasibility, human desires and needs, and business goals, as well as balancing functional, aesthetic and ethical aspects of design.

J. F. : This is a very broad question. I just finished an interview study with 6 former students from Digital Design and Information Studies who are now working in different companies in the private and public sector. It was striking, to me, how neither of them would come up with concrete suggestions as to how we could think our academic educations better in terms of the professional profiles the students will have to acquire once they finish their education. They all emphasized the academic method of inquiry and research as something at the core of the competencies they were looking for, and argued that more specific profiling took place in the companies, e.g. through trainee programs. They did, however, call for better possibilities for building up portfolios as part of the university life to be used when applying for jobs, and they also suggested that we might be better at teaching students to e.g. pitch projects (and not just reflect on them academically). Further, I thought it was striking how the words holistic and user experience seemed to come up a lot in the conversations, so that might be indicative of some sought-for competencies.

### **Nature de la discipline**

*Has interaction design enough specificities to be considered as an autonomous discipline in the same way as design traditional disciplines such as industrial design and architecture?*

J. M. : As the field of Interaction Design developed, there was a period where the future of Interaction Design could be envisioned taking either of two routes; both potentially resulting in the field being dissolved as a subject of its own. One route was the convergence with other design disciplines, perhaps most notably Industrial Design through the embedding of technology in a growing range of digitally enabled consumer products. This would potentially lead to Interaction Design being absorbed by a range of neighbouring design disciplines as an extension of existing design practices. The other possible route was the division of the subject into a range of specialisations, i.e. game design, web design, mobile 'app' design, etc. In this case, one could envision the use of interactive technologies becoming so broad that any single application of technology would primarily require domain specific skills, thus diminishing the domain independent core of the subject to an extent where it no longer can sustain its on existence. However, the developments of the field over the last decade or so seem to have followed neither of these routes. Rather, some of the theoretical developments in the subject seem to indicate a solidification of a common theoretical foundation with a base in phenomenology. Some examples are: the notions of embodiment; the notion of service ecologies and how value can be created from technology culturally grounded in place; and the notion of long term, intimate relations developed between users and products of Interaction Design, in effect separating Interaction Design from Service Design.

J. F. : I definitely think we are getting there, but of course, there is still some way to go, in particular compared to e.g. industrial design and architecture which are considerably older design disciplines. But I do believe we are getting there, both in terms of practice and research, and this, I believe, is of utmost importance given that the world in which we live in is increasingly formed and made up around interactive and digital artifact — and if you look around, there is plenty of room for improvement in the design of these products, services and interfaces.

*What fundamentally distinguishes interaction design from other design disciplines?*

J. M. : A fundamental difference is that Interaction Design to a higher degree takes future possibilities rather than factual realities as its starting point.

J. F. : I would say, building on e.g. Löwgren and Stolterman, the same way we present it to our students, that “Interaction Design refers to the process that is arranged within existing resources constraints to create, shape and decide all user-oriented qualities (ethical, aesthetical, political and ideological) of a digital artifact for one or many clients”<sup>5</sup>. I think this is a great quote; and, in particular, I think the idea of Interaction Design as related to the creation of digital artifacts, to products, services, environments with a core of IT, is what distinguishes the discipline from other design practices. Not that I'm saying that it's impossible for an architect or industrial designer to work with digital artifacts; but for an interaction designer, this will always be the starting point.

*What are the similarities between interaction design and other design disciplines (industrial design, graphic design, architecture, etc.)? Are they linked in some ways?*

J. M. : The similarities shared by all design disciplines are the following characteristics of design work:

- Exploring possible futures, starting from a situation at hand.
- Intending to change the situation for the better by developing and introducing some sort of product or service, i.e., the concrete outcome of the design process.
- Considering practical and technical as well as aesthetic and ethical qualities.
- Developing an understanding of the task — the goal of the design work — in parallel with the space of possible ‘solutions’.

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5. Jonas Löwgren, Erik Stolterman (2007). *Thoughtful Interaction Design : A Design Perspective on Information Technology*, MIT Press, Cambridge, p.5.

– Thinking by sketching, building models, and expressing potential ideas in other tangible forms.

In that sense the disciplines to a reasonable extent share a common base in design practice. What differs are the design materials; the degree to which a repertoire of canonical examples and genres are developed in the disciplines; the degree of innovation in outcome; and the engagement of stakeholders in the design process. In a comparison, architecture shapes artificial and natural building materials, including landscapes, while Interaction Design shapes digital materials. Architecture has a strong repertoire of canonical examples where Interaction Design has few. Architecture is seldom innovative, i.e. shaping completely new types of dwellings, whereas Interaction Design often creates completely new products, systems and services. Finally, architecture seldom actively engage dwellers in the design process, while it is crucial in many interaction project to actively involve future users.

J. F. : I think that by basing our Interaction Design education on the work of Schön, we are acknowledging the link between these different artistic practices. Design is about creating something new, it's about dealing with what Rittel and Weber call 'wicked problems' where there is no true and instrumental solution at the beginning — and it is, as Schön says, a form of 'professional artistry' that cannot be taught, but can only be learned through participation in actual design processes. By saying this, Schön opens a way for understanding professional training by hands-on practical experiments — and one of the big challenges, as I mentioned above, is, then, how to actually integrate this into an academic setting.

### **Défis et problématiques actuels**

*What are the biggest challenges of higher education in interaction design?*

J. M. : To me the biggest challenge for Interaction Design is to understand how interactive products, systems and services find their role in our everyday lives. Design theorists like Klaus Krippendorff has

aimed to shift our focus to the semantic level rather than functions or aesthetics in claiming that humans “do not act on what an artifact physically is or displays but on how they sense it, what it means to them, and what they wish to accomplish”<sup>6</sup>. Together with continued increases in connectivity, bandwidth and computing power in a plethora of devices, the digital citizen has earned even more possibilities in shaping her own everyday life around digital artifacts and media. At the early-adopter end of the consumer scale, this is coupled with a strong DIY culture where various devices are hacked following instructions easily accessed in dedicated fora, and products like Microsoft Kinect becomes more important as malleable digital materials than as designed input devices. This ‘freedom’ has a flip side in that the increased complexity in the digital world around us sometimes renders unexpected consequences of simple changes or feature additions in existing systems. A mundane example, perhaps bordering the simplistic, is when Vodacom, a South African cell phone operator, introduced ad hoc discounts for every call. On an iPhone, this means that when my call is put through, I receive a message stating the discount for the call. With this extra ‘window’ on top of my phone call, I have to close the message before I can terminate the call, and if people (like me) have the habit of hanging up by pressing the top button on the phone, this does not hang up the call, causing my discount to be lost when the call continues in my pocket.

To summarise, there are at least three interlinked issues that shape current and future development in the field of Interaction Design practice, research and teaching:

– ‘Context of use’ as a concept started to become complex already with Mark Weiser’s vision of ubiquitous computing, and with ever continuing rapid developments in technology and use, Interaction Design research will have to maintain a pursuit of better understanding of, not only what people want to do with technology in the future, but also what people actually do with current technology today.

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6. Klaus Krippendorff (2006). *The semantic turn : a new foundation for design*, Taylor & Francis, p.4.

– In teaching, this stresses even more the skills of fieldwork and the need to understand people, contexts and use, and their relation to technology, across cultures and ages.

– In design methods, it means we must become more agile in appropriating methods to cultural circumstances, whether it is understanding the increasingly digitally skilled elderly, or understanding the huge new consumer markets emerging in the majority world.

J. F. : I think this is actually in part answered by the above question; bridging between the reflective practicum and traditional academic ideals and curricula. This might also be framed as a question of knowledge production, what constitutes good/valid production of knowledge in an academic setting vs. in a design studio. Brandt and Binder (2007)<sup>7</sup> have tried to conceptualize how design can be seen as knowledge production in relation to the concepts of genealogy, argument and intervention. Here, in particular, I believe that we need to continuously try to conceptualize, in particular, the intervention part; students are trained to build things, to create projects that intervene in different contexts; and it is in the actual creation of these design things that knowledge and learning is embodied — a kind of research-through-design or research-creation — and not only in the written essays and assignments that are an integral part of academia. Finding a way to bridge between the construction and reflection without resorting to a theory/practice binary, but rather showing how these things continuously resonate as different forms of knowledge production is a big — and possibly very productive — challenge, both for design teaching but also for what constitutes university education.

*The human-centered approach is dominant in our field (education and practice). Is it the best approach? Is it questionable? Is it sufficient and complete?*

J. M. : In my view, the maturing of the field of Interaction Design has not only been driven by increased mobility and connectivity through

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7. Eva Brandt, Thomas Binder (2007). Experimental design research : genealogy, intervention, argument, Actes du colloque IASDR'2007: Emerging Trends in Design, International association of societies of design research, Hong Kong.



developments in technology and infrastructure, but equally by substantial changes in the use of information and communication technology (ICT). Growing out of HCI, with a focus on systems supporting mainly work-related tasks of single users, today the subject of Interaction Design addresses all forms of interaction between people in everyday life mediated by digital artifacts, systems and services, and across all ages and cultures. Arguably, this open-ended exploration of future uses of ICT is by necessity a human-centred co-design endeavour for at least three reasons. Firstly, exploring the future naturally renders the issues addressed to be ‘wicked’ problems whose continuous re-definition in the design process is an inherent part of the search for solutions; secondly, it explores new uses of technology in real-world contexts that can only emerge from a close collaboration between designers and stakeholders affected by the solutions; and finally, it necessarily involves collaboration across disciplines to address the dynamic interplay between technological feasibility, human desires and needs, and business goals, as well as balancing functional, aesthetic and ethical aspects of design.

However, the increased malleability in digital materials, and broader diversity in use, makes it more difficult to map everyday practice in the use of digital products, systems and services, in particular in a highly connected urban context. Earlier research in mobile technology use has already underlined the social shaping of technologies, with the unexpected ubiquitous use of Short Message Service (SMS) being a frequently used example. In fact, the development of i-mode applications in Japan has been driven more by use culture than by designers. In essence, the perspective on practice in human-centred Interaction Design still stems from the tradition of work practice studies from ethnographically inspired approaches to design. In this understanding, work practice is structured through an intersubjective, collective understanding of what is competent and appropriate behavior in a particular work setting, constructed from the work situation as well as from established craftsmanship. The rule-following is here constitutive of the practice itself. An interesting alternative is the

concept of practice described by Michel de Certeau<sup>8</sup>, who points towards a more open-ended understanding of practice, in which a multitude of behaviours, sometimes challenging rules or resisting the structuring conditions of urban life, are reflections of the endless variety of aspirations and motivations of urban citizens. Thus, concrete structures become skateboard ramps and muddy paths emerge as shortcuts across public lawns. This understanding of practice resonates well with the increased unpredictability in the use of mobile IT products.

To conclude, I would argue that a human-centred approach is absolutely necessary to avoid technology-driven design and to handle the diversity of everyday digital practices. However, we must develop a broader understanding of human practice that is not solely rooted in work settings.

J. F.: Technologies change at a more rapid pace than human experience, and that it is important to actually take as a starting point the people who are going to live with the technologies in the design processes. This, of course, is also heavily influenced by the Scandinavian Participatory Design tradition, where Aarhus University has always been at the forefront. I think actually more than ever there is a need to revisit the human-centered and participatory approaches to developing IT, which is also what we are currently investigating in the Participatory IT research centre. But I also want to stress that I am not saying here that human experience is not changing at all; I am talking about differences in speed and intensity, and there is plenty of room for experimenting with the ways in which we might live with technology that calls for a radical experimentation of new fusional and hybrid interactive environments in which we are neither adapting humans to IT, nor IT to humans. This is also part of my research into Affective Interaction Design.

*Our planet faces important environmental challenges. How interaction designers can help? How does their education should prepare them?*

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8. Michel de Certeau (1984). *The practice of everyday life*, University of California Press, Berkeley.

J. M. : All design disciplines are affected by the major challenges posed by our suffering planet, and Interaction Design is no exception. Therefore the interaction designer carries the same responsibility as other designers in making sure to contribute to environmentally responsible designs, including an awareness of environmental aspects of manufacturing, distribution, use and re-purposing/recycling of products. In addition, Interaction Design can directly contribute in our addressing those challenges by providing digital means to mediate information about energy consumption and other human behaviour affecting the environment. Therefore this should be an inherent part of Interaction Design education, mainly by setting up design projects exploring the above mentioned environmental aspects of Interaction Design.

J. F. : I would like to end here also with a quote from Jonas Löwgren and Erik Stolterman, which I repeat in every lecture on Interaction Design:

“Design is about shaping the world we live in by creating the conditions, opportunities and restrictions that will make up that world. Design means that you influence people’s work, leisure and everyday life [...] A designer has a chance to do something important.”<sup>9</sup>

I think this is both a daunting but also very real and important message; when we are designing, we are actually designing people's lives, the ways in which we can relate to each other, the world, ourselves, on a very fundamental level. This is something that needs to be at the core of teaching Interaction Design, which is why we have chosen to built it around the ideas of a reflective and thoughtful practitioner.

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9. Jonas Löwgren, Erik Stolterman (2007). Thoughtful Interaction Design : A Design Perspective on Information Technology, MIT Press, Cambridge, p.11.

