Teaching Scandinavian Interaction Design in West Africa

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Methods for interaction design have emerged and established themselves first in a Scandinavian context, later in US context and in the rest of the developed world. While good usability and good user experiences are important to all users of ICT, the question is whether the methods and techniques that were mainly developed in Scandinavia, Europe and US are suitable for ICT development in West Africa? Can ideals for user-involvement be directly transferred? This paper aims to initiate a discussion of the communication of interaction design knowledge in West Africa by discussing whether insights from Scandinavian Participatory design can be used to localize the learning process and make interaction design methods sensitive to the West African context. The paper is based on the author's reflection on his experiences teaching interaction design in West Africa.

1 Introduction

The job market for Interaction Designers, Interactive Designers and UX (user experience) specialists in Africa has an impressive volume. A search conducted June 22, 2015 at the web portal www.careerjet.co.za shows 1049 job openings with the word "UX" in the job description, 1337 job openings containing the term "UI" (user interface) and 805 job openings with the word "usability". The terms "HCI" (Human Computer Interaction) and "Interaction Design" are less frequent. The figures indicate that in developing countries ICT development also include focus on user experience, usability and interaction design.

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The numbers show that businesses that operate in Africa do need professionals that are trained to design and develop user interfaces and user-friendly systems. Now, the scope of this article is not to evaluate this job market, but to discuss how the qualifications needed for these jobs are being developed. This article is a contribution to the discussion of how the dissemination of interaction design knowledge and practice, including the focus on user involvement in the ICT design process, relates to what has been termed "the African situation" in relation to ICT design (Bidwell & Winschiers-Theophilus, 2010).

It is often being mentioned that ICT research on Africa typically lacks extensive empirical research. The aim here is not to give a complete overview of teaching activities within this field at the African continent, but to rather to initiate a discussion about the applicability of the concept 'interaction design' in a African ICT engineering context. This article builds on the author's own experiences teaching Interaction Design together with a colleague at the joint Master's Program 'MICT' – Master in Information and Communication Technologies, offered in cooperation between Aalborg University, Denmark and Ghana Technology University College, Ghana. With the point of departure in the specific encounter with the MICT students, this article offers reflections on the tensions emerging when values of Scandinavian Interaction Design are being applied on an African context.

2 Background

What is 'interaction design'? While other terms such as 'user experience design' or 'user interface design' are more frequent in the job postings above, several methodological approaches and values are inherited from the tradition of interaction design. But are methods that were developed in Scandinavia and in the US suitable in an African context? What happens when concepts from the Scandinavian tradition for interaction design are introduced to ICT-Engineering Master students in a West African context?

Interaction design both as professional and academic fields is result of a development in the 1980's and 1990's within IT- and information systems design. In the 1980's the classic system oriented approaches 'human computer interaction' and 'man-machine interaction' were challenged with a design approach (Winograd, 1996; Löwgren, 1995). This did not only question the sequential problem-solving approach embedded in software engineering models (the 'waterfall model') and other Operations Research approaches (cf.: Churchman, 1967; Rittel, 1972; Rittel & Webber 1973), but also the new approach also insisted on democratizing the ICT development by changing

the power balance. As a practical means, the future users of the system (e.g. the workers of a factory) were actively being involved in the design process as co-designers and commentators (Ehn, 1988; Kyng & Ehn, 1991). This approach to system design, emerging in Sweden, Denmark and Norway, was subsequently termed "Scandinavian participatory design tradition" (Gregory, 2003) or the "Scandinavian approach" (Spinuzzi, 2002).

As discussed by Spinuzzi (2002), the key element in the original Scandinavian approach to system development was to use the ICT-development process as a tool for the democratization of the workplace (cf. Ehn, 1988). Particularly one research project, the UTOPIA project, which was conducted in collaboration between Royal Institute of Technology, Sweden, University of Aarhus, Denmark and a trade union (Ehn, 1988), introduced a Marxist approach to the development of IT-tools for the workplace. The explicit goal was the democratic empowerment of the workers. The method aimed to give workers a voice in the IT development process by letting them prototype the future system and workflow in a simple, non-digital materials such as paper and cardboard (Ehn & Kyng, 1991; see also Mogensen, 1992). Spinuzzi (2002) compares this approach to prototyping with the way the method was adopted in the US through the "PICTIVE" method (Muller, 1991), the "CARD" method (Tudor, Muller & Dayton, 1993), and then finally formulated as customer-centered 'contextual design' by Hugh Beyer and Karen Holtzblatt (1998). Spinuzzi's point here is that in this process, also the rationale for the user-involvement changed from workplace democratization to the gathering of information valuable for the system designers. Spinuzzi (2002: 209) describes the US approach to prototyping and user involvement as "functional empowerment" where the influence on the decision-making is removed. The role of users is rather to inform the system designers with contextual insights. In some cases the purpose of user involvement rather appears to be to justify management needs than to empower the users. Keinonen (2010: 17), on the justification of user-centered design, thus quotes an employee of a global ICT company for saying "*We have a process to use users* . . .". This quote exemplifies the utilitarian approach to user-involvement.

The overall principle of either direct user-involvement in the ICT design process or a broader 'user-centric' approach, which not necessarily requires direct involvement of users in the design process, has produced a number of practical design methods and – techniques well-known to interaction design practitioners, such as the ethnographically inspired use of video to document the use context and inspire the design process (e.g.: Ylirisku & Buur, 2007; Buur, Binder, & Brandt, 2000). Also to be mentioned is the use

of "cultural probes" (Gaver, Dunne & Pacenti, 1999), paper prototyping and sketching (developing from Ehn and Kyng's (1991) 'card board computing'), the use of objects, props and role-play in collaborative design workshops (e.g.: Brandt, 2004; Brandt, 2007; Brandt & Grunnet, 2000; Brandt & Messeter, 2004). These methods all originate in a North European or Scandinavian context.

The question is whether tensions emerge when these methods are applied in a West African context? Are there any societal or cultural differences that inhibit or obstruct the application of the methods? Is the tension between the Scandinavian ideas of participatory design and the US adoption of these (Spinuzzi, 2002) echoed when the user involvement methods are applied in a West African context? In the following we will discuss these questions in relation to our own experiences with teaching and supervising interaction design and related subjects in a West African context, more specifically the continuing education Master program in ICT-engineering that our university offers in Accra, Ghana in collaboration with Ghana Technology University College (GTUC).

3 The Case

Center for Communication, Media and Information technologies (CMI) at Department of Electronic Systems, Aalborg University, Denmark has a long tradition of collaborating with Ghanaian universities, particularly Ghana Technology University College (GTUC). Besides a number of West African PhD projects at Aalborg University, the collaboration also includes a joint one year Master program (60 ECTS part-time continuing education over two years) aimed at teachers, IT- and management professionals in West Africa with a relevant Bachelors degree. Until now, two batches of students have completed the program (2008-2010 and 2010-2012). The program is based on Aalborg University's PBL model (Kolmos, Krogh & Fink, 2004), which implies that course work (in this case Interaction Design) is complimented with a larger group-based project (trimester project) that applies the course topics on a specific case. In the following we present our reflections regarding the encounter between our Scandinavian interaction design approach and the MICT students, through a critical reflective analysis of the 2 ECTS course in Interaction Design. We will concentrate our analysis on the second batch of students, in total 17 students. The teaching course encompassed five full days of classes and supervision of the students in Accra, as well as a written report submitted for exam.

The learning goals that were presented to the students were: "1) Understand the difference between: Usability/Interaction Design/User Experience, 2) Hands-ons experience with interaction design ($\neq$ engineering), 3) Experiences on Usability Testing, 4) Experiences on User Experiences & Use Qualities" (Sørensen & Sørensen, 2011). Theories, methods and techniques typically taught at Scandinavian universities, including our own, were presented via examples and cases, such as participatory design principles, iterative design processes and user involvement, using texts by Norman (1988), Winograd (1996), Schön (1983), Löwgren (2002), Löwgren & Stolterman (2004), Johnson et al. (1989) on the GUI principles, on Card Sorting (Fuccella, 1997), on Cognitive Walkthrough (Rieman, Franzke & Redmiles, 1995), on Wizard of Oz techniques (Gould, Conti & Hovanyecz, 1983), on personas and scenarios (Cooper, 1999), on usability heuristics Nielsen & Molich (1990), Nielsen (1992, 1995). Finally, three design exercises were conducted: Paper prototyping, Visionpool (Sørensen, 2005) and Silent Game (Habraken & Gross, 1988; Habraken et al., 1987).

At the last day of our stay, the assignment for the exam was announced: a written report that included both the interaction design of a service of the student's own choice, as well as the student's application of methods from interaction design. The written report was to be handed in two months later by the students individually to pass the exam. Subsequently the reports were graded on the Danish 7-grade scale. The two teachers were also involved in supervising group trimester projects that made use of the interaction design curriculum. The process of supervising and reviewing the individual interaction design reports as well as the trimester reports was conducted with the help of online tools; predominantly email and word documents, but also video- and audio conferencing tools (Skype and Polycom). The entire process spanned over approximately nine months, however with only one physical encounter with the students in the beginning of the process.

4 Methodology

As method for reflecting on the encounter between two Danish teachers and the 17 African MICT students, a conversation-type semi-structured interview was conducted betweem my colleague Lene Sørensen and me. Together we taught the Interaction Design course at MICT in Ghana May 2011. By 'conversation-type interview' I indicate that interviewer also shares his experiences with the interviewee and expresses his views to provoke the discussion. The conversation method can be seen as an adaptation of Donald

Schön's (1983) concept of 'reflection on action' for professional. A question guide guided the conversation. To trigger the memory of the interviewee, a number of documents (printed as well on screen) were presented during the interview, borrowing the 'prompted recall' method from Ann Light (2006). The documents and materials used for the conversational interview session were: 1) Two PowerPoint slideshows presented in class at GTUC May 2011, 2) portrait photos of each the students, 3) program for week of visiting Ghana, 4) the 17 reports submitted for the Exam in Interaction design, including teachers' comments (approximately 500 pages), 5) the grades given to the course work, and 6) the four trimester reports submitted for the second trimester of the MICT program. The interview session took place June 2015, lasted 72 minutes and was recorded on audio. The interview was subsequently transcribed and coded thematically.

4.1 Coding and Analysis

The coding process was conducted twice by the author. In the first coding process eight themes were identified: 1) "social grouping/cliques among the students", 2) "students' perception of the usefulness of interaction design", 3) "UML – a universal language, interaction a context dependent language", 4) "user involvement violating social structures", 5) "students' fun and engagement", 6) "difficulties with comparisons", 7) "our conceptions versus students' conceptions", 8) "directions for future research".

In the seconding coding process additional seven themes were identified: 9) "societal structures/hierarchies determining interaction design" 10) "difficulties in recalling the teaching experience", 11) "similarities with the Danish students", 12) "differences to the Danish students", 13) "the idea of African-centric interaction design approaches and methods", 14) "ICT systems as change agents in organizational or societal change – the relation between ICT systems and structures", 15) "characteristics of Scandinavian interaction design". In the analysis presented below, the 15 themes are grouped in a fewer number clusters to provide a better overview. Some themes span across several clusters.

4.2 Cluster 1: Social Aspects in the Meeting between Teachers and Students (Themes: 1, 5, 6, 7, 10, 11, 12)

When asked about the physical encounter, the interviewee remembers the students' curiosity and ease of fun and laughter, but also that students grouped

around specific, possibly more powerful persons in the group. In an earlier teaching encounter also in Ghana this clustering of students were even more prominent. She also problematizes the 'set-up' of two teachers being flown to Ghana for a very short period to disseminate knowledge. Students' generally positive and curious attitude was expressed both in many questions during presentations, as well as their eager engagement in the three design exercises. The interviewee expressed that she never have experienced the same easy atmosphere in class in Denmark.

4.3 Cluster 2: Student's Perception of the Usefulness of Interaction Design Methods (Themes: 2, 3, 4, 7, 9, 14, 15)

Despite the curiosity and fun expressed in class, the impression from both classes and the written reports was that the methods we introduced were not, or only to a very small degree, being used afterwards by the students. Reasons for this can be many, e.g. a too extensive curriculum compared to students' actual level of knowledge or the lack of classes and other student-teacher interaction over a longer period of time. One should thus be careful making too firm conclusions. But of more general interest here is the question whether there is a fundamental mismatch between the interaction design ideals that we aim to communicate in our teaching, and the West African conditions for adopting the methods and thinking embedded in these ideals? Are our ideals for interaction design practice embedded with social- cultural values that are irrelevant or useless in West Africa? Do they represent a kind of cultural imperialism? A great part of the interview thus revolves around establishing hypotheses for this lack of interest. Is it due to our inability to present the topic as relevant, e.g. by not presenting cases that are relevant or understandable in a West African context? Is it because the design methods presented by us, such as user-involvement in design process, are seen as unsuitable in a West African context? Is it because good interaction design is seen as a luxury that is relevant to the students' ICT practice? Or is it because there are certain cultural- or social assumptions embedded in the praxis and theory of Interaction design that either violate West African praxis, or simply does not meet any resonance, e.g. a difference in the societal hierarchy that makes Scandinavian egalitarian democratic ideals of user involvement unable to practice?

The conversation revolved around the social- and cultural assumptions embedded in what we, the teachers see as key activity in Interaction design, namely user-involvement. We observed that the MICT students hesitated using this method in their work although encouraged several times. The interviewee

subsequently speculated that the method would be difficult to use in West Africa due more hierarchical social structures. The interviewee added that she also would feel uncomfortable to conduct user involvement in West Africa in the same way as she would in Denmark, and that other approaches must be developed.

Looking through the reports submitted for exam, the interviewer and the interviewee noticed that many students preferred writing UML-diagrams. The formal descriptions in Universal Modeling Language diagrams, showing the proposed system and its elements, echo an understanding of system design that leave little space for design-iterations and user-centric design, cf. Löwgren (1995). The interfaces presented in the student reports were thus typically generated from the UML-diagrams, not from user involvement. Reasons for that can be multiple, e.g. that many of the students had a software background, a contributing factor could also be that the formal description of a UML diagram is a less culturally loaded, than a user interface. The system planning expressed in a UML diagram could be more cultural acceptable than user-involvement and examination of the use contexts. The students' preference for UML diagrams as design tool leads to a discussion of the relation between ICT design- and development on the one side and societal- and organizational change on the other: In which ways do ICT shape societal- and organizational development, in which ways is ICT shaped to fit development, and what is the relation between the two?

4.4 Cluster 3: Recalling and Comparing the Experience (Themes 6, 10, 11, 12)

Both the interviewer and the interviewee teach also interaction design at Aalborg University, respectively at a Masters degree program (MSc. in Innovative Communication Technologies and Entrepreneurship – "ICTE") and at Bachelor degree program (BSc. in IT, Communication and New Media – "ITCOM"). Both programs focus on design and development of IT-solutions from both a technical, user-centered and market-oriented perspective. The discussion of the teaching experience at MICT in Ghana thus takes place on the background of the teaching experiences in Denmark. A re-occurring theme is thus the relevancy of the comparisons, as well as the assumptions and implicit ideas about interaction design the African situation that are revealed through the comparisons. The conversation about the teaching experience highlighted our implicit assumptions about interaction design, as well as the distance between our ideal version of interaction design and the reality of the West African situation.

4.5 Cluster 4: Call for Action and Future Research (Themes: 8, 13, 14)

Finally, the interview pointed at actions to be made if we should teach interaction design again in West Africa. To make cases and examples more relevant, these should be collected in a West African context prior to the teaching. To make the interaction design praxis more relevant to the African students, the traditional interaction design methods must be further developed to reflect 1) The possibilities to gather user data, 2) The possible social barriers in user-involvement, 3) The technological conditions for the design and implementation of interactive services in West Africa. Additional research must examine how interaction design and related fields are being taught at other African universities. Finally, as an outcome of this, it can be discussed whether a new type of Africa-centric interaction design should be developed.

5 Related Research

Above we have presented our own experiences, but how do they relate to other experiences with disseminating interaction design knowledge in Africa? Below we will discuss two papers directly related, as well as a number of more generally relevant contributions.

In a paper titled "Assumptions Considered Harmful – the need to redefine usability" (2007) Heike Winschiers and Jens Fendler, both Dept. of Software Engineering, Polytechnic of Namibia, discuss the implicit cultural values and assumptions in usability engineering and -evaluation. Based on a thorough literature review and a smaller experiment with Namibian government officials, they conclude that an understanding of usability as universal and value-free is problematic. They identify the roots of usability engineering "in the modernist or enlightenment tradition which values rationalism, individualism, information, performance and efficiency". Their experiment shows that when the Namibian users were asked to brainstorm over the concepts "usability" and "good working environment", none of the classic terms related to "usability", such as "speed", "learnability", "memorability" or "error rates" were mentioned. Instead terms like "easy, safe, comfortable, specific, reliable, right pace, goal-oriented, and conductive" (Winschiers & Fendler, 2007: p. 457) were mentioned. Based on this experiment, backed by the authors' own usability work in Namibia, they conclude that not only may classic usability evaluation methods not produce true results, e.g. since questionnaires typically are filled with what the respondent thinks is the expected answer

instead of the actual answer motivated by "a cultural listener-satisfaction and conflict avoidance habit" (ibid. p. 454). They also find that the values being looked for in the classic US and European usability tests are less relevant in a Namibian context. They authors present a framework for culture-centric design where the "definition of quality criteria (Usability) and Cultural Models" is the foundation for both the project management, e.g. the selection and adaptation of methods and the usability evaluation in the development process (ibid. p. 458).

Bidwell & Winschiers-Theophilus (2010) describe and discuss the conditions for interaction design praxis in Africa, in an article named "Beyond the Benjamins: Toward an African Interaction Design". The paper, published in the prestigious journal "interactions" published by ACM, views the field from an educational perspective. Both authors are engaged in research and teaching activities in South Africa, respectively Namibia. Their description of African Interaction Design has three elements: 1) The conditions for teaching and disseminating knowledge on interaction design, 2) The special African context for implementing ICT solutions, 3) A larger critical discussion of the dominant influences from Europe and particularly USA on the ICT development. I shall briefly summarize their arguments in the following.

The authors notice initially that incentives for ICT bachelor students to continue on the master level are few. For ICT bachelor students, a career in the industry is more attractive, since the costs for the bachelor education more easily can be covered, e.g. with an industry certification. Apparently, explicit industry needs define the bachelor curriculum in Namibia, leaving little space for interaction design: "higher education effort is often concentrated on a subset of core IT skills. This subset is influenced by employer perceptions of core competencies, which are tuned by power relations with the more developed world" (ibid. p. 32). Reading the article, the question emerges what teaching 'interaction design' knowledge at a bachelor's level means: Is it the scientific methods we know from HCI and usability? Is it the thoughtful reflections inspired by design studies (Löwgren & Stolterman, 2004)? Is it the craftsmanship of learning to design user interfaces, information architecture, UML-diagrams, and business workflows that are useful in a specific context, downplaying the reflections and the general knowledge? While the two former requires many academic skills from students and thus may only be suitable on a master's level, the latter is to a high degree tacit knowledge (Polanyi, 1983), meaning hands-on knowledge that effectively only can be acquired in practical design work, not from a textbook (cf.: Schön, 1983).

The second element in Bidwell & Winschiers-Theophilus (2010) revolves around a description of the African context for ICT design and implementation as different from the European or US context. The authors mobilize the concept "localization", introduced by Lucy Suchman (2002) to make a claim for "design by Africans in Africa for African situations" (Bidwell & Winschiers-Theophilus, 2010: 32). Suchman's concept describes ICT design work as a process not disconnected from the context in which the ICT systems are going to be used, but as "our participation in the various mediations that define the production and use of new technologies, and taking some responsibilities for them" (Suchman, 2002: 94).

As an example of what we could call 'an African situation', the authors present a short case story about the hassle involved in buying a bus ticket when cash-payment is not allowed and the credit card ICT infrastructure is off-line. With this example, the authors point at the particularities of the physical, technical and organizational environment in which the ICT solutions are implemented in in an African context: Power failure, lack of internet connectivity, traffic congestions, lack of competences and knowledge, lack of delegation of work, etc. The authors notice that this type of cases is not described in the HCI textbooks. Since students are reported to pay very much attention to the wisdom from textbooks, there is a risk that later in their professional life they "will support inappropriate methods in requirements gathering and usability tests" (Bidwell & Winschiers-Theophilus, 2010: p. 34). The authors call for a critical culture among students, a prerequisite for questioning the validity of textbook knowledge. The authors however also notice that is culture of critical thinking first must be introduced before "the relevancy of system design and development practices that originate in norms produced elsewhere" (ibid. p. 35) can be criticized.

This seems to calls for new textbooks. Another approach could be to question the strong focus on textbooks. I would argue that interaction design is as profession focused on practical, tacit, embodied use of ICT. Theories and methodologies should be applied to inform and enhance the practical work, not to determine or regulate it. I thus argue that the knowledge of Interaction design, in order to be operational in the industry, necessarily must be inductive and sensitive to its context. Thus interaction methods that are grounded in African situations must be developed, in the same manner as the methods and techniques today world wide known as interaction design emanates from a Scandinavian and US context. The question is however: To which extent are 'African situations' fundamentally different from other situations in which ICT is used?

The authors make the claim that the ICT solutions should be made by Africans, a claim which makes sense when the tacit knowing of the designer is valued. The paper however indicates that (young) African ICT engineers are likely to follow suggestions made by US or European ICT providers, instead of developing solutions that takes African situations into considerations. A more fundamental analysis of the interplay between hardware and software that is designed outside Africa and the 'African situation' is however necessary to understand on a more detailed level the interaction design decisions being taken: Are US and European ICT technology really embedded with non-African values thereby calling for an African way of doing ICT, or must the process of applying and implementing ICT solutions just be conceived differently? Another open question is whether the same tensions between the limitations of the ICT hardware and software, and the use contexts, not also are present in a European or US context, albeit on a higher level?

The third element in Bidwell & Winschiers-Theophilus (2010) is based on the assumption that IT systems, which are developed by American or European companies "are embedded with values and practices that differ from those of African people" (ibid.: 32–33). The HCI textbooks are also "invested with non-African values" (ibid.: 33). Unfortunately these statements are not discussed further or augmented with examples and definitions, e.g. of 'non-African values'. One interpretation could be that the problem of values rather is a problem related to applications, service design, user interface design and interaction design, than to programming languages, hardware and technical platforms. This understanding assumes that the computing and information processing itself is detached from social and cultural values, and that these rather are expressed or encountered in the use of the ICT services. On the other hand, one can argue that e.g. also hardware have embedded socio-technical values, or, if you like, the broader socio-technical implications of the dissemination of ICT, including societal change. This leads to a larger debate on the desired future society and to a discussion of ICT seen either as a neutral tool applied on societal or organizational problems, or as discourse embedded with values. Unfortunately the authors are not very specific in this matter.

When we look outside the African continent and when we broaden the discussion from focusing on the challenges in communicating interaction design knowledge, we find a larger literature. The concept "cultural usability" (Clemmensen, 2009: p. 4) thus emerges out of the observation not only are interactive products being used all over the world in many different cultures thus calling for a cultural- or context sensitive understanding of usability, but too are ICT-services and interactive systems being developed at many

different places around the globe. A large research literature exists on the topic of cultural usability. In this context we will focus on few examples that can help bringing in perspectives on the question of interaction design in the African context.

Jiang, Sun, Li, et al., (2009) examine whether usability professionals' cultural background influence their understanding of central usability concepts. The authors interview 24 usability professionals from China, Denmark and India (8 from each country) to identify their personal constructs of usability through the way they describe the experience of using everyday IT-systems. The assumption is that culture could affect the thinking of the usability professionals and "thereby lead to cultural differences in usability work" (ibid. p. 2). The authors do observe cultural differences, particularly in the participants understanding of usability concepts such as "fun", "easy to use" and "customization". For our study, this research confirms the relations between different cultures and different ways of understanding the usability of ICT-systems, but the study does not suggest any directions for the teaching of usability. Should this aim for a universal understanding of usability or should the teaching conversely build on and emphasize local or cultural differences?

Hertzum et al. (2011) continue this work with an extended set of empirical data, including both a nationality perspective and a stakeholder perspective. The authors find no general significant differences across the nationalities, but observe that 'ease of use' and 'simplicity' appear more important for the Danish and the Chinese, than for the Indians. However, the authors see differences between users' and developers' understanding of 'ease of use'. Clemmensen (2009) presents viewpoints and reflections from leading Indian usability professionals. In the interview with Anirudha Joshi, associate professor in the Industrial Design Centre, IIT Bombay, the problems of user involvement are here highlighted from an Indian perspective:

"I have found that when there is a lot of cultural difference and in India we find that a lot, there is always this power distance between . . . We go to conduct a usability test somewhere in a small village, in the middle of India, in the centre of nowhere. Usually we would have taken the morning flight and landed there and by the time we reach this person. We optimize on time because we are traveling and traveling in expensive so one always tries to do that. When one lands there with a laptop and a baggage tag on your laptop bag, it sounds like very touristy and it becomes very difficult to develop a partnership with your users. So when one is doing some location based user studies we have always found it good to do diary studies because you visit the same person twice, the second time you have a huge level of partnership." (Clemmensen, 2009: pp. 33–34)

It appears here as if the design school researcher faces the same type of power-distance problem, as we faced in Ghana when communicating user-involvement to the MICT students. One can speculate that the MICT students would have experienced the same power-distance problem if they were to conduct user-involvement in the way we suggested.

An early contribution to the discussion of the cultural dimension of interaction design is Barber & Badre (1998), who suggest the term "culturability" to merge the study of culture and usability. The authors evaluate the visual aspects of web page design, thus focusing more on reception of web pages, than on advices or methods for their cultural sensitive design. Since the WWW has developed considerably since 1998, and is focused on the analysis of existing web pages this study is less relevant in our context. Other studies of the specific cultural aspects of usability include: Sun (2003) on cultural usability, Noiwan & Norcio (2006) on cultural differences in relation to animated graphics. Kamppuri, Bednarik & Tukiainen (2006) conducts a literature review of the HCI literature and conclude the dominating approach in the cultural HCI literature is comparative and based on "traditional human factors studies" (ibid. p. 408). The authors note that "the underlying cultural theory is borrowed mostly from the studies of cultural dimensions that are often considered controversial" (ibid. p. 408). The authors suggest that research instead should focus on the interplay between culture and technology, and the authors also suggest that cultures should be studied "from within" (ibid. p. 408). Finally, the "Handbook of research on culturally-aware information technology perspectives and models" (Blanchard & Allard, 2011) should be mentioned, including Clemmensen's (2010) framework for cultural usability.

6 Discussion

The existing literature primarily focus on usability, giving less advices on how the usability should be achieved though the dissemination of interaction design knowledge to developers and other professionals involved in the design of interactive services. As we learn from our own experiences as well from the Namibian case we note that alone the idea of 'dissemination' may be very problematic: With its one-way perspective on communication there is a risk that both the knowledge and practices that are already present in the societies (here African) will be ignored. There is also the risk that solutions and methods that have proven to be useful elsewhere for different reasons are either violate local social-cultural rules, or are simply not practical in the new context. More research is however needed to identify how and why different interaction

methods are applied differently around the world. The research questions could be: In which ways are project resources determining the use of methods? In which ways are ICT professionals' knowledge and practices determining? In which ways are customers' and/or end-users' implicit or explicit expectations shaping the choice of methods? Which ICT development practices serves as blueprints for education of ICT professionals in different parts of the world? To which extent is the knowledge of ICT professionals result of formal, theoretical training, and to which extent are ICT professionals influenced by colleagues' 'best practice', and/or procedures embedded in programming- and project management tools? The dynamics in the use of interaction design knowledge in ICT practice seems to have many interacting factors. These questions must be addressed empirically and comparatively.

It can be argued that ICT engineering, hereunder usability and interaction design, is influenced by more general ideals. These can, beyond contributing to human joy, health and welfare, also include desires to e.g. make processes and human interaction more efficient, more transparent, or more democratic. In our case, the goal of making processes more efficient was shared among both students and us teachers. However, the conversational interview also shows that we brought with us unspoken egalitarian and democratic value which we expected the students to adopt. We insisted on user involvement as means to achieve a democratic and equal relationship between developers, customers and end-users. The MICT students, on the other side either skipped user involvement or applied it only instrumentally to justify the suggested solution. The students preferred projecting their own or the customer's idea of the intended system without questioning this through user involvement. Either we failed to communicate the central message of interaction design – to understand the user context and apply this understanding in the iterative and reflective design of the system – or it violated unwritten rules. Spinuzzi (2002) describes the difference between 'functional empowerment' (contextual-/ customer-centered design) where users informing the design process without being directly involved as co-designers, and 'democratic empowerment' – where the goal of user involvement was to provide "a common language for designers and workers and they allowed workers to co-design the system, giving them an avenue to control the introduction of new technologies in ways that were beneficial to them" (Spinuzzi, 2002, p. 210). The background was in some cases explicitly ideological, e.g. in one central case in the history of the Scandinavian participatory design. Chapter three of Ehn's "Work-Oriented Design of Computer Artifacts (Ehn, 1988) is simply called "Emancipatory Practice – A Marxist Alternative" (ibid. pp. 82–102).

Now, my claim is that although neither I or my colleague tried to convey a Marxist world view to the MICT students, there could be an implicit understanding of emancipation embedded in many of the user involvement methods stemming from the Scandinavian participatory design tradition that we presented to the MICT students. Possibly, our possible intentions of democratic empowerment and emancipation blocked the possibility of 'functional empowerment' in student's interaction design work, since we in reality cannot assume that the MICT students subscribe to the same empowerment agenda as we, possibly without being aware of it, have done. Assumptions could be sticking to the empowerment perspective that would make us insensitive to underlying values in the West African context. Thus we first must ask which values drive African developers and interaction designers? This question points back to the research by Winschiers & Fendler (2007) discussed earlier. A productive approach could be to invite African interaction designers to formulate the higher goals and values driving their work, in the same manner as Scandinavian system developers in the 1980's decided to follow an empowering emancipatory Marxist agenda in their work. In this way genuine African interaction design praxis could emerge out of actual ICT development work in the same way as the Scandinavian participatory design tradition emerged. In the same way, African societal problems as well as problems inherited in the computer technology could be addressed via approaches and methods that still are to be developed. The basic values of the design must however first be identified before methods can be developed.

Although the Scandinavian participatory tradition and its methods may be problematic in a West African context, an important outcome of the tradition is relevant. A central finding from the participatory design research was the importance of the 'language games' (Wittgenstein, 1953), which are going on during the ICT design process, cf.: (Ehn, 1988, pp. 103–122; Brandt, 2004, 2007). The participants in the design process are confronted with the lack of a shared understanding of the use situation. This lack may be a caused by the lack of formal, abstract knowledge (textbook knowledge), or the lack of practical experiences with field. This language game is however strongly determined by the properties of the ICT systems, e.g. its interface, information architecture and structure. Users must accommodate themselves to ICT systems, since ICT systems – as clear rule-based structures – not are capable of accommodating themselves to users, at least not in a very convincing way, cf.: (Harris & Henderson, 1999). Users' have to 'learn' to use the ICT systems, and this learning process typically means abandoning existing concepts of the world and the implicit values in these concepts. The tensions between the existing

knowledge and the discourse embedded in the ICT system become thus clear whenever a user has to acquire "IT skills"; there are no or few possibilities for negotiating the language game with the ICT system.

One can argue that the blind spot for usability is the denial of this tension. Typically, "ease of use" is being strived for. The 'African situation' however enriches this straightforward view with some complications: Suddenly, not 'efficiency' is demanded by the users, but 'the right pace' (Winschiers and Fendler, 2007, p. 457). This can of course be depicted as consequence of different cultures or different degrees of development, but instead of this rather normative reading, the differences in values can be seen as an indicator of the lack of acknowledging the dynamic language game going on. The cases presented above thus serve to highlight a general tension in ICT design, a tension, which cannot be removed even with endless resources for interaction design and usability. Instead it points to necessary acknowledgement of the agenda setting and educating elements in ICT systems: They shape social behavior. The design of ICT is thus not value-free, but a more explicit articulation of the implicit values may help developing a meta-language game for interaction design.

Now, having found that one must identify underlying cultural values before choosing methods for ICT development for a specific cultural context, we can turn to the question of how interaction design knowledge in the best way is created among interaction design practitioners? There are different ways to understand the field of interaction design: It can be understood as an explorative praxis, a set of practical skills, which has to been learned by doing. The reflection that contributes to the learning process is then the 'reflection in action', in the moment of work, and the 'reflection on action' that takes place in between or after the actual work (Schön, 1983). The textbook knowledge plays a little or no role in this understanding of interaction design, since learning to do interaction design ideally is 'a conversation with the material' (cf.: Löwgren & Stolterman, 2004).

Interaction design, and particularly usability practice, can also be understood as normative and theoretically guided activity where interfaces, information architectures and systems are designed from a blueprint, a manual or due to specific principles. With this approach 'reflection on action' has not much space; practice is a matter of fitting things together and produce solutions, and the textbook or the manual provides the blueprint for the solutions.

Finally, interaction design and usability can seen as a purely academic – analytical activity where the goal is a very precise description of the problem observed, and/or an analysis of the set of preconditions or constructions

determining the problem. Here 'the textbook'(s) understood as the full body of research, plays the role as the canonical collection of proven methods and techniques that makes it possible to construct classic scientific arguments and claims around observed facts. The risk is obviously that the knowledge generated will not be operational.

I would argue that it is scientific ideal behind interaction design and usability that determines the approach to the problem of interaction design in general, and the 'induction' of interaction design knowledge specifically, e.g. through teaching activities. What we could call 'the inductive approach to teaching interaction design' would start with students' very simple observations of usability- and interaction design problems in every day life. This does not require more than students' sensitivity to observation as well as a teaching culture that support encounters with students that are driven by their curiosity and reflection. The generalization of knowledge emerges as a pattern through the observations that students make. In this way, a strong link between students' experiences with actual ICT design and the proven methods in the field is made. The other approach – we could call it the 'deductive approach' – would ask students to apply the well-established methods on problems in order to prove the theory and produce analytical results. I believe that the inductive approach will be more sensitive to different cultural contexts, but I may be afraid that the ICT 'material' as well as the subject area inherits some very strong deductive elements (e.g. system thinking) that makes induction of knowledge difficult. That appears to be a basic conflict in ICT development.

7 Conclusion

I believe that Interaction design and usability teaching should contain explorative, experimental and analytical, reflective elements. A pure inductive approach to interaction design will lead to the lack of strong analyzes that can position and relate the field of user studies to the other elements in ICT design and development. The risk would then be a field of knowledge that only can point at itself as resource. A pure deductive approach leads to the risk of ignoring the actual embodiment of interaction as it is expressed in users' daily use of ICT devises and services, their problems of 'learning' how to use the ICT and their eventual resistance, frustration or tensions when confronted with ICT service.

The African case shows the necessity of an inductive approach to remain sensitive to the context. Theories and methods from the US and Europa will not necessarily capture the design situation in Africa. Winschiers and

Fendler (2007) provides with their article an illustrative case of how a very deductive and apparently textbook loyal way of understanding usability is exposed when confronted with Namibian reality. Also studies from the US or Europe could be mentioned, studies that show the same mismatch between the deductive normative approach in usability thinking and the actual reality, but the 'African situation' emphasizes particularly the problem. This paper argues that established interaction design and usability methods should be used with care whenever the designers and system developers or consultants aim for producing a solution that actually fits the context; methods should be chosen after basic values of the culture has been identified. Assuming that methods are value-free is problematic, since they always inherit values from the context in which they were conceived. By paying attention to the early findings from participatory design, which emerged in a similar situation where decision in ICT design decisions – like in West Africa – were taken so far from the actual use context that they became in-operational and the solutions dissatisfactory, the problem of adapting – or not – established methods can be countered. The key here is the acknowledgement of the language game. This approach may seem less efficient on the surface, but it is very efficient when valuable information about users and use context should be collected by interaction designers, and when the concepts and thinking behind interaction design and usability should taught to students not familiar with the concept.

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Biography

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