5 Discussion

5.1 Usability Professionals Differ from Other Stakeholder Groups

We find three main differences between usability professionals and the other stakeholder groups in their thinking about usability and UX: Usability professionals focus more on user-related constructs and subjective UX than developers and users, and they focus less on context-related constructs than users, as illustrated in Fig. 1 which shows selected information from Table 3. Below we discuss these differences.

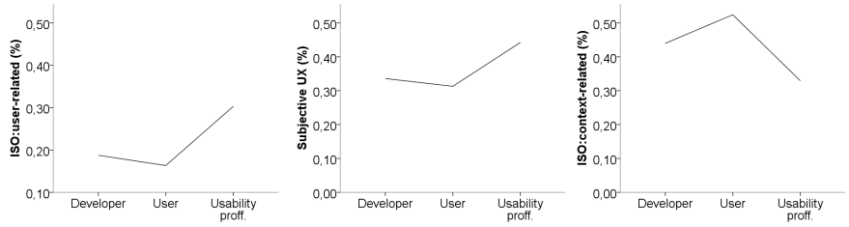

Fig. 1. Usability professionals focus more on users and subjective UX, less on context.

Usability professionals focus more on user-relatedness and subjective UX than developers. This supports the main rationale behind the profession, which is that usability professionals compared to developers have more empathy with users and their situation [20]. The implication of this is that while developers might need to be convinced to become more user centred, usability professionals are ready for more advanced theory and techniques that go beyond simply being user centred.

Usability professionals focus more on user-relatedness and subjective UX than users. This finding is somewhat against the idea of usability professionals having the same view on system use as users. Usability professionals may focus more on subjective UX, emotions, attractiveness and so forth than users, because they as professionals have a greater range of constructs to describe and distinguish between UX-related emotions. The distinction between objective performance and subjective image/impression by Han [5] appears on the surface to be similar to a distinction between utilitarian and experiential constructs. However, in this study usability professionals attended a lot to subjective aspects of UX, whereas Hertzum and Clemmensen [8] found that usability professionals made use of more utilitarian than experiential constructs. A utilitarian/experiential distinction divides usability into a utilitarian factor concerned with goal-related performance and an experiential factor concerned with satisfaction [8]. Satisfaction is, partly, about freedom from discomfort, that is, when there is no frustration there may be satisfaction [14]. In contrast, in the objective/subjective classification, the subjective dimension was inspired by Kansei-engineering and focused on the emotions actually experienced by the user: "…collecting the subjective feelings of a product in words, extracting the key feelings…" [5, pp. 478-479]. Furthermore, the subjective dimension covers both the immediate image/impression that the user gets from interacting with the product in that moment, the user's description of impressions of an interaction, and their judgment

and attitude toward this interaction [6]. Thus, a different set and range of emotional processes involved in interacting with computers may be covered by the subjective image/impression category, compared to an experiential dimension.

Usability professionals focus less on context-related constructs than users. We speculate that the difference in focus on context-relatedness may be related to the difference in focus on subjective UX. Users may be concerned with getting the work done, a context-related concern, to a larger extent than usability professionals, who in contrast focus more on the emotions experienced during use, a less context-related concern. According to Hertzum et al. [9], users associate ease of use with leisure and difficulty in use with work-relatedness, while developers express the reverse associations. The usability professionals in the present study rarely distinguished between work use and other use (e.g., "Working Tools/For Fun"). Only three of the 107 context-related construct/contrast pairs elicited by usability professionals concerned a work-leisure distinction. A possible explanation for the near absence of a distinction between work and leisure in the usability professionals' constructs may be that they consider UX-related emotions relevant to leisure as well as work. If a system is sufficiently mature in that most performance and utilitarian issues have been taken care of, the way to improve the system further may be to focus on the emotional aspects of the user experience, irrespective of whether the system is for work or leisure. This explanation may apply to our study because most of the systems selected by the participants were mature products, such as MS Word and Outlook. In addition, usability professionals may be more business-oriented than users in their thinking about usability and UX. Though we did not find any direct evidence of this, usability professionals may tend to think about how the user experience can give a product a competitive edge on the market, and therefore value emotional over context-related constructs.

5.2 Global Software Development and Inclusive UX Definitions

Stakeholder group and nationality independently influence how people think about UX, as illustrated in Fig. 2. This means that usability professionals are different from the other stakeholder groups, irrespective of nationality. The lack of significant interaction effects between stakeholder group and nationality suggests that the ways in which usability professionals differ from local user groups will be somewhat similar across national borders. This result is promising for the global IT industry because it indicates that usability professionals' competences may be globally applicable, thereby meeting a need pointed out by the global IT industry, see [19]. However, since we found clear main effects of nationality – people from different countries think differently about their system use – it seems to vary from one cultural context and country to another what exactly usability professionals do when they, paraphrasing Putnam and Kolko [17, p. 2021], "…walk in the [local] users' shoes".

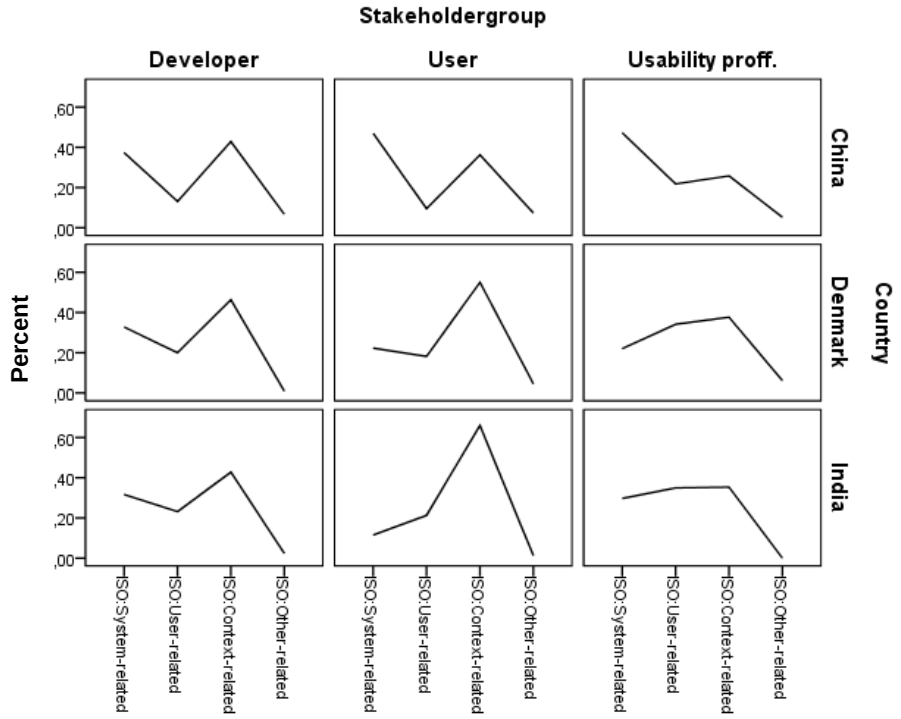

Fig. 2. Effects of stakeholder group and nationality on the ISO UX classification (%).

The present study confirms that UX is an inclusive concept. In the ISO definition, UX is a broad concept that aims to capture most, if not all, of what people experience when interacting with computer systems. ISO [10, p.3] defines the user experience as a "person's perceptions and responses resulting from the use and/or anticipated use of a product". The four UX classifications were all good or very good at capturing the 977 constructs used by the 72 participants to describe their everyday system use. All four UX classifications had better coverage (average 87%) compared to the coverage found in an earlier study [8] for the ISO usability definition (average 53%). This study provides empirical support that selected UX classifications, including the ISO definition of UX, match the variation in how core stakeholder groups think about their system use.

5.3 Limitations

Three limitations should be remembered in interpreting the results of this study. First, the stakeholder groups of developer, user, and usability professional evolve over time. In particular, the usability profession may be evolving into a UX profession with a broader or different focus. Hence, we characterize usability professionals' thinking about system use at a time when their profession is in a process of discussing its identity. Second, the Danish participants were older than the Chinese and Indian participants were, and the Indian participants were gender skewed toward males. The age

difference may reflect that in Denmark people are relatively older when they finish their education. However, we acknowledge that these issues related to the sample and recruitment of participants could have affected our results. Third, with respect to the developers and usability professionals there may be a gap between their personal constructs and their professional knowledge. While we asked participants for their personal constructs, their descriptions of their user experiences might be influenced by explicit definitions of usability and UX, learned during their education rather than experienced during the use of the selected systems.

6 Conclusion

We find differences in how usability professionals think about their user experiences, compared to developers and users. Therefore, if the usability/UX profession in the future wants to continue to claim that they are the users' advocate, it may be worthwhile to review the profession's key constructs. To meet users' concerns, it may be time for HCI researchers to revisit the context of use and focus more on the physical, social, temporal, organizational, and cultural environments in which a product is used. In addition, people's nationality influences all stakeholder groups' thinking about system use, according to our study of a sample of Danish, Chinese, and Indian people. Finally, the four UX classifications used in this study have emerged as inclusive concepts that captured nearly all the ways in which our participants thought about system use. This inclusiveness is encouraging from the point of view of devising analytic UX conceptualizations that encompass most of the variability of different stakeholders' actual user experiences.

Future research may investigate how varying levels of professional experience influence usability professionals' thinking about UX. The usability professionals participating in this study were intermediate-level to experienced usability professionals. Their thinking about UX may gradually have moved away from that of users and developers. Novice usability professionals may think more like users, or they may more directly apply textbook definitions of usability and UX.

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