

**Human Factors
for Ergonomic ITs:**

**Remarks and Highlight for Chinese
Users and some Comparisons**

by Jesús Aparicio de Soto

1. Chinese Cultural Changes and Hofstede's Model

I believe that recent changes in China can be interpreted by different models, only partly, as it is an abstraction of some cultural traits upon a generalization over a group of people. This said, China has been receiving strong influences from the rest of the world due to globalization. This global phenomenon homogenizes cultural traits.

In their scale, Hofstede, Hofstede & Minkov (2010) assess cultural traits in China and reveal a masculine, collective mindset, with strong ties, where power distance is well tolerated and people have a long term mindsets. I believe these characteristics may be changing.

In a global world these characteristics might tend to average, but especially those which people can see in the media or relate in personal lives. If more foreign games, TV shows, movies, and companies seek to reach the market in China, the messages and archetypes they send, like individualism, egalitarianism, hedonism and short term gain, may permeate. For example, "Zhang and Shavitt (2003) found that ads in China often emphasized individualism-related values (...) targeted at young, educated, high income individuals. (...) The advertised products were likely to be purchased for personal (...) [use, and some] conjecture that the younger generation of Chinese tend to have a more accessible interdependent self-construal" (Wyer, Hong, & Hong, p. 626).

Regarding tolerance for ambiguity, one can imagine that with the rapid pace in which changes are happening across the world, it will be hard for any culture to increase "the extent to which the members of groups or categories feel threatened by uncertain or unknown situations" (Rau, Gao & Liang, 2008, p. 288). Plus, media messages seem to push social discourses towards valuing more the tolerance of uncertainty.

On the other hand, masculinity might be changing very slowly, at a global level. A “Chinese sample in Taiwan for the Masculinity Index indicated [in contrast,] an extreme feminine tendency” in a comparison of Hofstede’s cultural dimensions made by Rau & Liang (2003, p. 489). Masculinity and role rigidity are traits that one would expect to transform gradually on to flexibility and femininity as roles overlap and gender distinctions blur. Yet, media still uses messages based on gender roles and stereotypes in order to sell products. It would be interesting to compare this trait not only in time, but also between generations and rural/urban locations. One can expect that, amongst almost all nations, the index has been and will continue to be gradually shifting, in long term processes concerning woman’s rights and sexual liberation movements.

2. Think Aloud Methods for Probing Usability in China

Think aloud (TA) methods to evaluate usability are a widespread way to gain a deeper approach to the participants’ experience. It is based on the shared verbalized thought of a user, while (or immediately after) having the experience, making the information obtained more valid as it seeks a degree of sociological «verstehende» built upon the users own narrative. Yet, as with any qualitative method, the evaluator has to pay careful attention to the process because, when taking a more active role, he may and will inevitably distort the data to some extent.

TA has some disadvantages such as this unavoidable interpretative partiality, selection biases, or essentialisms. Overall, Clemmensen et. al. (2009) have pointed out that TA allows valuable information under certain presuppositions, for example, that the user is being true and understands instructions. Cultural differences on the part of both user and evaluator then play a huge role and could even undermine this basic assumptions when not carefully taken into consideration.

Different people can be influenced differently when having to speak aloud what they are doing, what they are achieving or failing to achieve. Some may feel the situation more or less unnatural or even stressful.

When it comes to consider performance and its evaluation using TA, this fact “simultaneously affects both (...) One possible solution to these problems is retrospective think-aloud (RTA)” (Ji & Rau, 2019. p. 1) but even then, the cultural foci, the ways of constructing knowledge and the ways of transmitting it present their own challenges.

This, and other cultural effects heavily compromise comparisons between cross-cultural users' experiences evaluated using TA. In fact, according to Clemmensen et. al., (2009), comparatively, “TA is so difficult for Easterners that it impairs their task performance” (p. 215). On the other hand, Westerners, could even increase their performance when allowed to speak aloud their actions and thoughts. This kind of effects must be recognized and taken care of when designing a TA test for Chinese users.

These is so that Clemmensen et. al. (2009) have even pointed out Easterners think in a more relational way, recurring more to context to convey meaning (p. 219). One can infer that knowing then the particularities of the Chinese culture plays a key role when interpreting information from this users, and when it comes to giving them instructions that are adequately contextualized in a relevant manner. Furthermore, in a more abstract level, Easterners even order information using relationships in a greater degree that Westerners, who tend to categorize by recurring to analytic-essentialist taxonomies and hierarchies. This makes the first group harder to read and less prone to surprise than the latter, for example, when it comes to encountering discrepancies or things they did not expect (Clemmensen et. al., 2009).

In fact, these distinctive ways of thinking go way back. For example “the cognitive differences between ancient Chinese and Greeks can be loosely grouped under the heading of holistic versus analytic (...) [where] holistic approaches rely on experience-based knowledge rather than on abstract logic and are dialectical, meaning (...) a search for the «Middle Way» between opposing propositions” (Nisbett et. al., 2001, p. 293). This also affects the TA method because, from the holistic perspectives, it will be important to balance out information referring to each of the actors, involved parts and opinions. For example, when an evaluator adds a

comment on the performance, or tries to reconfirm some information with someone who thinks holistically, he may be distorting the experience or answers. The holistic participant will deliberately seek some degree of truth in the evaluator's comments whereas someone naive to that processing mechanism may disregard the new information provided by the evaluator, consider it false or even completely true. In China, this holistic pattern is much more frequently employed by users, something that must be considered when designing TA methods for them.

3. Chinese and German Users Comparison When Interacting with Robots

Considering that "German participants reported lower evaluations of robot likability, trust, and credibility, and (...) felt more confident (...) Chinese were (...) more likely to change, which is a natural outcome for members of a collective culture (...) German's less preference for implicit communication is explained by the low-context" (Rau, Li & Liu, 2013, p. 594), I would agree. I have worked with Chinese and German providers and feel that the way in which they understand timelines and date programming, for example, is very different.

Germans rarely change delivery times and do not allow to change order quantities so easily. They have very strict procedures that disallow certain things even when they could be possible. Chinese on the other hand change and update delivery times every now and then. They will be much more flexible when it comes to adding products to the order if it is still possible and sometimes are quicker to solve problems that require nonstandard or nonprocedural actions.

More personally, I think agreements and interactions, when working with Germany, feel more terminant and more rigid, while they feel more flexible and contingent when making business with Chinese. This is why the results of the investigation make a lot of sense to me: they reflect something inherent in the way of ordering social relationships, agreements and knowledge in both cultures.

4. Bibliography

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