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Cultural Factors of Icon Recognition

- Presentation of an ongoing research project -

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Fig. 1: Cover of Graf (1992)

Fig. 2: Langenscheidt (1999), p. 30f

Fig. 3: Pons (2009), p. 24

Fig. 4: Pons (2009), p. 6

Fig. 5: Cover of Warrink & Warrink (2007)

Why cross-cultural studies of icon recognition?

Investigations of human behaviour are often confronted with the problem of differentiating anthropological constants, i.e. features typical for the human being, from culturally specific features. Cross-cultural studies enable researchers to filter out the ones from the others - features that are prevalent across cultures can be presumed to be independent of any cultural background, whereas those, which can be found only in particular cultures, but not in others, are certainly culture-specific.

Since the 1990s, there are books based on pictures available on the book market, targeted at enabling travellers to communicate without words in foreign countries, by pointing on the pictures. However, there is a critical discourse, as even the act of pointing is a semiotically complex process with different manifestations across cultures (Schmauks, 2000, 2004, 2007).

Research context

Simplified or abstract representations are topics of various research approaches, such as Gesture Interpretation (cf. Groh, 2002) or Pattern Recognition. "Point It" (Graf, 1992) was an early pointing book, and it was based on photographs, thus being relevant for subdisciplines such as Pictorial Semiotics, Image Recognition, and Visual Perceptions. This also applies to the online dictionary <http://bildwoerterbuch.com/>. Langenscheidt's "OhneWörterBuch" (1999) uses both coloured drawings and black-and-white pictograms. In Computer Science, Hidden Markov Models have been applied to the recognition of pictograms (Müller et al., 1998). These models, representing discrete numbers of states and transitions, as well as vectors representing the probabilities of initial states and outputs, might play a future role in the pursuit of understanding the mechanisms underlying human recognition of pictograms.

The Icon Recognition Study

After obtaining permission from the authors and copyright owner, a selection of pictograms was compiled from "Icoon" (Warrink & Warrink, 2007), and a questionnaire was designed (Fig. 6).

It can be hypothesised that there are interacting factors underlying the subjects' performance - (1) complexity of the pictogram, (2) structural determinants of recognition, and (3) content attribution. Any of these factors might interact with either of the two others. However, the cross-cultural approach enables us to filter out the structural from the cultural determinants: When complexity and/or structural determinants are responsible for poor performance, then errors should be expected across cultures. When non-recognition is based upon the non-availability of culturally specific cognitive content, then correlations of poor performance should be expected with particular cultural background(s).

Data has so far been collected at the United Nations Office in Geneva from representatives of various cultures, as well as during excursion to several non-European countries. Preliminary results show enhanced error rates both for pictograms representing typical concepts of European/Industrial/Globalised culture among non-European subjects, as well as for more complex pictograms. Statements based upon solid figures are to be expected after further data collection, especially from more non-European cultures.

Fig. 6: Questionnaire

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