

# Specific Eye-gaze Metrics as a Construct in a Holistic Causal Model of Online Shopping Behavior

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Electronic commerce has grown rapidly in recent years. However, the success of an online store depends on several factors like trust, aesthetics, attitude, perceived costs and so forth (e.g. Schlosser et al. or Hall and Hanna, 2004). Besides these latent constructs, it is indisputable that the usability of an online store is a crucial prerequisite for gaining good sales.

According to DIN EN ISO 9241-11, usability is defined as “the extent to which a product can be used by specific users to achieve specified goals with effectiveness, efficiency and satisfaction in a specific context of use.” For the assessment of usability, different methods (mostly in combination) will be used: (1) heuristic evaluation: this is a holistic examination of a web shop based on specific rules (Wild & Macredie, 2000), (2) cognitive walkthrough: an evaluation method which is task-specific (Blackmon et al., 2002), and (3) user testing: an evaluation method that involves users to accomplish specific tasks and to answer an appropriate questionnaire afterwards – sometimes in combination with eye-gaze measurement techniques (e.g. Konradt et al., 2003, Nielsen & Pernice, 2010).

However, irrespective of the complexity of usability, this construct is just one factor in a holistic causal model for explaining online shopping behavior. So, if somebody is going to confirm a theoretically established causal model (see Figure 1), he has to deal with an enormous amount of items, which leads to participants’ fatigue, frustration, and boredom (Robins et al., 2001). As a result, respondents have just low cognitive participation and the probability of invalid answers increases dramatically (Stanton et al. 2002). All this reduces the validity of such studies.

As aforementioned, eye-gaze-measurement in combination with questioning is an often used technique to assess usability from the user’s perspective. Especially if somebody wants to derive clues to improve the page layout from the information, as to how people look at a page. However, this approach neglects the influence of all other factors on the buying-intention. If somebody wants to include all these factors to a holistic model, he has to administer an appropriate usability questionnaire with all the necessary indicator questions, which are necessary for a valid measurement model. So, if eye-gaze technique is used anyway, it would be helpful to fall back on specific eye gaze metrics to measure usability holistically. In doing so, this should reduce the number of items significantly. This is exactly the focus of a scheduled study: I try to validate specific eye-gaze metrics for the measurement of usability in a holistic

causal model to explain the coherences of online shopping behavior.

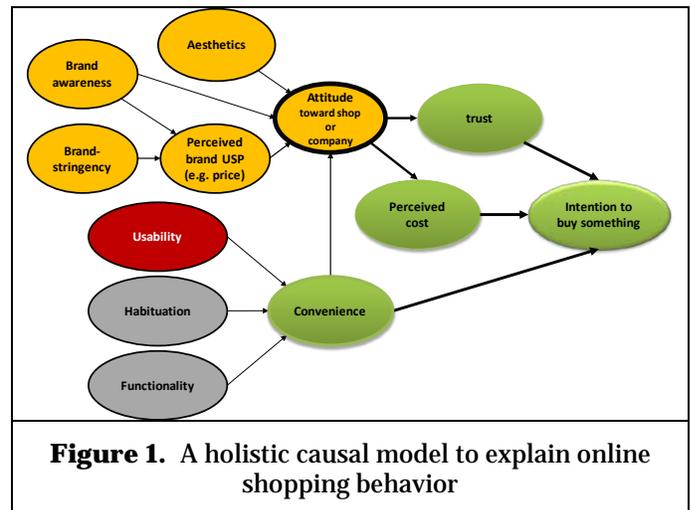


Figure 1. A holistic causal model to explain online shopping behavior

I will do a pilot study by May. So it would be possible to present the developed methodology and preliminary results at the NeuroIS 2013. Furthermore I would appreciate a vital discussion about this new approach.

## REFERENCES

- ❖ Blackmon, M. H. Polson, P.G. Muneo, K & Lewis, C. (2002) Cognitive Walkthrough for the Web CHI 2002 vol.4 No.1 pp463–470
- ❖ Hall, R.H., Hanna, P., 2004. The impact of web page text-background colour combinations on readability, retention, aesthetics and behavioural intention. Behaviour & Information Technology 23, 183–195.
- ❖ Konradt, U., Wandke, H., Balazs, B., Christophersen, T., 2003. Usability in online shops: scale construction, validation and the influence on the buyers’ intention and decision. Behavior & Information Technology 22, 165–174.
- ❖ Nielsen, J., Pernice, K. (2010): Eyetracking Web Usability, New Riders, Peachpit.
- ❖ Robins, R.W., Hendin, H.M., Trzesniewski, K.H., 2001. Measuring global self-esteem: construct validation of a single-item measure and the Rosenberg self-esteem scale. Personality and Social Psychology Bulletin 27, 151–161.
- ❖ Schlosser, A.E., Barnett White, T., Lloyd, S.M., 2006. Converting web site visitors into buyers: how web site investment increases consumer trusting beliefs and online purchase intentions. Journal of Marketing 70, 133–148.
- ❖ Stanton, J.M., Sinar, E.F., Balzer, W.K., Smith, P.C., 2002. Issues and strategies for reducing the length of self-report scales. Personnel Psychology 55, 167–194.