Tracing Cognitive Processes At the Point of Sale: New Developments and a Comparison of Methods

Oliver B. Buettner, Georg-August-Universitaet Goettingen, Germany
Guenter Silberer, Georg-August-Universitaet Goettingen, Germany

The authors discuss two methods (thinking aloud and video-cued thought protocols) for tracing consumers’ cognitive processes at the point of purchase and present modified procedures that take advantage of recent technological developments. The reactivity of these methods was examined in a field study (N = 130) that applied a 3 (method) x 2 (motivational orientation) design. Reactivity was more pronounced in the two process tracing groups than in a control group; nevertheless, video-cued thought protocols produced less reactivity than thinking aloud. The results provide guidance for future process tracing research at the point of purchase.

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Oliver B. Büttner, Georg-August-Universität Göttingen, Germany
Günter Silberer, Georg-August-Universität Göttingen, Germany

EXTENDED ABSTRACT
Despite the common assumption that shopping behavior is highly dynamic, there is little research at the point of purchase that adopts a process oriented perspective. This might be partly attributed to the methodological challenges that researchers face when applying process tracing methods in the field. Techniques that have been developed for the laboratory cannot be transferred easily to field research because of technical limitations. Moreover, process tracing methods are claimed to suffer from reactivity. However, knowledge on how this affects shopping behavior is scarce. The research presented here addresses these issues in order to facilitate the use of process tracing methods in the field. For this, we focus on two techniques (thinking aloud and video-cued thought protocols) that have been used for tracing cognitive processes in stores and discuss modifications of the procedures that take advantage of recent technological developments. Furthermore, we will report on a study that analyzes the reactivity of the methods, which is, whether consumers’ shopping behavior is altered.

A process tracing technique that has already been applied at the point of purchase is thinking aloud (e.g., Alexis, Haines, and Simon 1968; Park, Iyer, and Smith 1989; Payne and Ragsdale, 1978; Reicks et al., 2003; Titus and Everett, 1996). It is based on verbal reports: Participants are asked to concurrently verbalize their thoughts while visiting a store. These verbalizations are recorded on tape and are analyzed for consumers’ cognitive processes such as search strategies (Titus and Everett, 1996) or purchase decisions (Payne and Ragsdale, 1978) later on. Usually, an observer accompanies the participants in order to make notes on their in-store behavior and to encourage them to think aloud.

The validity of thinking aloud, however, has been questioned: Verbalizing might commit cognitive resources and hence interfere with the shopping task (cf. Russo, Johnson, and Stephens, 1989). To overcome this problem, video-cued thought protocols have been proposed as an alternative technique (Silberer, 2005; Büttner and Silberer 2007): After giving consent, participants are followed by a cameraperson who records their behavior in the store; the resulting video is then presented to the participants afterwards and they are asked to comment it with the thoughts they remember from the shopping episode. Collecting verbal reports retrospectively eliminates the reactivity that results from verbalizing concurrently. Nevertheless, the technique introduces another problem: reactivity due to the camera observation.

Because of the problems associated with the observer/cameraperson, we modified the procedures for thinking aloud and video-cued thought protocols. In our variant of video-cued thought protocols participants wear a head-mounted camera that records the shopping episode from the participants’ point of view (cf. Omodei, McLennan, and Wearing 2005). Afterwards, the participants watch the video and comment it with the thoughts they remember. In the thinking aloud procedure, they also wear the head-mounted camera, but verbalize their thoughts concurrently while shopping: this is stimulated and supervised via a cell phone. Another function of the cell phone is to render the verbalizing task more realistically for the participants. Both modified techniques result in a video of the shopping episode that has participants’ comments on the audio track.

For analyzing the reactivity of the techniques, we drew onto the literature on verbal protocols (for an example in consumer research, see Biehal and Chakravartii 1989; for a general review, see Ericsson and Simon 1993) and on audience effects in social psychology (e.g., Bond and Titus 1983; Fenigstein, Scheier, and Buss 1975; Schlenker and Weigold 1992). Our basic premise is that the methods discussed above impose secondary tasks on the participants, thereby consuming cognitive resources (Ericsson and Simon 1993; Russo et al. 1989); this additional cognitive load impairs the shopping process because attention resources are limited (see the literature on dual task performance: Pashler, Johnston, and Ruthruff 2001; Styles 2006). Two sources for secondary tasks that are crucial to the methods discussed above were identified: verbalizing concurrently and processing social information. Whereas video-cued thought protocols can be assumed to suffer only from the latter, thinking aloud will be affected by both processes.

This was examined in a field experiment in a store. We applied a 3 (method) x 2 (motivational orientation) between-subject design. The method conditions were thinking aloud (verbalizing by phone + head-mounted camera), video-cued thought protocols (head-mounted camera only) and a silent, non-camera control group. Motivational orientation (utilitarian vs. hedonic) was induced by a shopping task the participants had to solve in the store.

In sum, the findings argue in favor of the cognitive-load-based model: Wearing a head-mounted camera as well as verbalizing one’s thoughts impaired the shopping episode. Both effects work in an additive way: Participants were more affected by the thinking-aloud procedure than by assessing video-cued thought protocols. The differences in public self-awareness imply that the impact of the head-mounted camera can be attributed to processing social information. The effects are not moderated per se by having a hedonic vs. a utilitarian shopping motivation; the impact of verbalizing on negative emotions, however, only occurred when participants had a hedonic shopping motivation.

Three contributions to consumer research at the point of sale shall be highlighted: First, the study empirically analyzes the impact of reactivity and thus goes beyond the anecdotic evidence reported in the literature (e.g. Reicks et al., 2003). The effect sizes highlight that reactivity is an issue to be aware of and that the triangulation of findings with different–preferably nonreactive–methods is highly desirable in field research at the point of purchase. Second, the study demonstrates that not only utilitarian but also hedonic aspects of shopping suffer from reactivity. Finally, at a more specific level, the study demonstrates that assessing video-cued thought protocols produce less reactivity than thinking aloud, thus replicating findings from laboratory research in other domains such as problem solving (Russo et al., 1989) or software usability (van den Haak et al., 2003). This finding qualifies video-cued thought protocols as a valuable alternative for consumer research at the point of purchase.

References