Triangulating UX Methods for Targeting End-Users' Subjective Experiences of Media Content

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ABSTRACT
Our user experience research is foremost applied research targeting product development and end-user evaluation carried out in close co-operation with media content development companies. The essence of this paper is to present our exploration of methods for capturing the uniqueness of end-users' subjective experiences of media content. Both method triangulation during data collection and data triangulation during analyses are applied.

Categories and Subject Descriptors
H5.2 User Interfaces: Evaluation/Methodology

General Terms
Measurement, Design, Human Factors

Keywords
User experience, UX, triangulation, recall interview, media content development, content testing

1. INTRODUCTION
The joy-factor is a key to success for almost any media solution today. The concept of user experience (UX) emphasizes the totality of emotion, motivation, and action in a given physical and social context [1]. Users' experiences of media products and media content are affected by both product-centered aspects, such as functionality and aesthetics, as well as person-centered aspects, such as personal motivation and expectations [2]. Learning about users' subjective media experiences is a powerful tool, not to say an essential determinant for improving product design [3], which in our case implies media content creation.

Our research goals concern the understanding of end-users' media experiences. The objective is to unveil the needs, preferences, and experiences of users, viewers and consumers. One corner stone is the triangulation of methods for answering research questions related to users' attitudes, affect, actions, and reactions from media encounters. This is achieved by using a multi-method approach, in which both subjective and objective data is combined to explore the subjective experience of the end-user. The Stimulated Instant Recall (SIR) Interview is one method used to tie together other data collected during a test session. Another method is streamlining user tasks with for standardized questionnaires.

2. A MULTI-METHOD APPROACH
Earlier studies conducted at our audience research lab have confirmed that a combination of methods guarantees a broad and deep understanding of how humans experience media interactions [4]. By combining different methods (method triangulation), it is possible to study a broader range of research questions and to gain a more complete picture of end-users' experiences. It is also possible to provide stronger evidence for a conclusion through convergence and corroboration of findings (data triangulation), to increase the generalizability of the findings, and to complement any weaknesses of a single method [5, 6].

Our UX research design includes methods targeting both quantitative and qualitative data about attitudes, affect, actions, and reactions of media users. The selected methods can further be categorized into subjective and objective measurement techniques. The subjective measures include standardized questionnaires based on Likert-scales, questionnaires with open-ended questions, unstructured interviews, and various forms of structured and semi-structured interviews that are based on instant recall techniques. The objective measures include psychophysiological data collection such as monitoring heart rate, and skin conductance. Objective measures also include behavioral data recordings (e.g., eye movements, screen recordings, and recording the person within the physical environment while interacting with media content).

Figure 1 presents an outline of chosen methods and how these are distinguished regarding what they measure and what kinds of data they generate. We emphasize on method triangulation, including streamlining research methods and instruments for answering research questions in accordance with specific demands during media content development.

Methods employed for targeting emotional aspects of UX are behavioral observations (actions), psychophysiological measurement (reactions), standardized questionnaires, SIR-interviews, as well as unstructured interviews. The SIR-interviews, in which each participant is subjected to instant recall stimulated by their own replies regarding their emotions, bodily reactions, and/or behavioral actions, complement the standardized research instruments by targeting more in-depth qualities of users' emotional experiences. Stimulated recall techniques are based on an introspective research procedure for targeting the cognitive processes of research subjects. The stimulated recall triggers their memories of their thoughts during their interactions with the content [7]. For instance, eye tracking-based recall interviews

have shown to provide more verbal data than traditional think-aloud methods [8]. The validity and reliability of such eye tracking-based recall interviews has been good in HCI studies on end-user activities [9]. However, the targets of SIR-interviews and methods triangulated depend on research questions posed and the context of study, i.e. it is case dependent.

In an Attitude & Affect-Targeted Interview, for instance, questionnaire ratings are used as a recall tool during the interview. We use various techniques to highlight high and low scores, which might signal critical areas. This is a method of structuring interviews, in which a large number of questionnaire variables are down-sized into an easily manageable number. By triangulating the data gathered from questionnaires, we focus interviews in order to gain a deeper understanding of what users say about their subjective
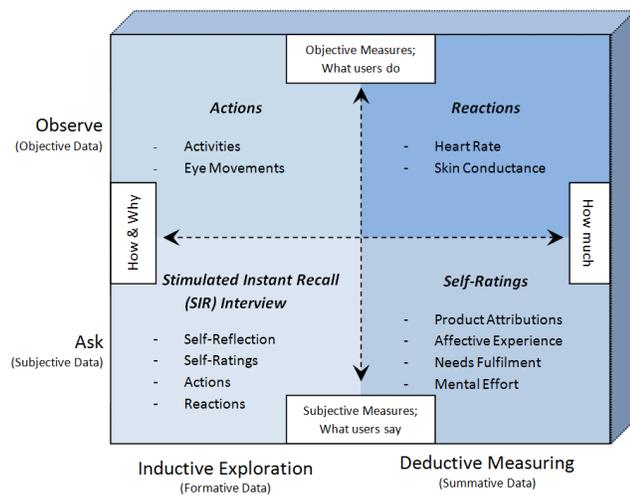experiences.

Figure 1. Method triangulation for investigating usability and user experience of media solutions, presented in relation to levels of data and research targets.

An Action & Reaction-Targeted Interview, on the other hand, is based on psychophysiological data (heart rate and skin conductance) and behavioral data (activities). Hence, the targets are what users do and how they react. Video-recordings of the user's actions and reactions during the test situation are used as a stimulus during interviews. Here the in-house developed research tool eValu8 is used, which allows a simultaneous interpretation of video-recordings/screen recordings and psychophysiological reactions. These interviews may be video-recorded in order to get as much information as possible for the analyses of stimuli of reactions and actions.

3. CONCLUSION
In the present paper, we described a multi-method approach to collect objective and subjective data for measuring users' emotional experience of media interactions. The main goal of our methods development is to guide media content development, so that the end-product answers to the needs and demands of targeted users. This is usually carried out during several phases in the development process.

The multi-method approach enables validation, triangulation and refinement of selected methods. Here, the instant recall interview technique plays a significant role. These kinds of interviews allow for method triangulation during and data collection, as well as data triangulation during analyses. It further helps us to validate findings from a wide selection of objective and subjective measurements. Our unique technique for using multiple methods and triangulating data provides a solid base for distinguishing patterns of end-users' subjective experiences, which aid the media content development.

However, we see that the applicability of existing UX methods for various content and contexts could be explored even further. The research questions raised during media content development are usually context specific. Therefore, we see the methods development as an ever continuous process in relation to targets and research questions.

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