I Remember/Know/Guess What I Saw: A False 'Belief' Technique to Features Selection

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ABSTRACT

In this position paper we address issues with the primary decision problem in the Smart TV UI design – feature selection. While the existing feature selection methods that traditionally make up HCI research were not able to render what features are to be prioritised in the new TV design, we will introduce the '*False belief technique*' for this advancement. This new experimental technique will greatly enable UI/UX researchers to conduct feature selection evaluations that could effectively examine a users' schema of the smart TVs, in a rather unconscious way at the expense of extra training time, which are unimaginable before.

Author Keywords
Smart TV; feature selection; schema; false memory; DRM paradigm; new product development

ACM Classification Keywords
H.5.2. Information interfaces and presentation (e.g., HCI): User interfaces---User-centered design

INTRODUCTION
A survey by Wiggin (Guardian Weekly issued at 24.July.2013) revealed that around 62% of British TV viewers are using "Twitter" or "Facebook" during TV watching. It is interesting to see that though many smart TVs already include such built-in functions for social chatting and networking, no more than 5% of the smart TV holders have ever used the functions, the report says. This lack of adoption of the smart features have much disappointed the smart TV designers, and they now seriously question of what features should be added or deleted for the utility of smart TVs.

However, no prior user-centered design for feature selection methods (such as interview, survey, card sorting) have fully suggested the smart TV designer of how to do this. The reason is, as Thompson et al [9] claimed, that we, as buyers, seem to overestimate how often we will use the overloaded features, and that we also underestimate how easily we, as users, will figure out how to use these functions in the future, believing that designers would make the functions not that difficult to use – an erroneous assumption. Such inconsistent attitude in user's features adoption and selection has made such design decisions complicated when designers apply the current feature selection methods, so a practical technique to select appropriate features has been the key concern of the designers. The purview of position paper therefore is to introduce a practical features selection technique that implicitly utilize users' newly formed schema, so that it can support the designer in what features should be added and further developed in novel product developments.

USERS' SCHEMA AND FALSE MEMORY
In psychology and cognitive science, a schema can be described as a mental structure of preconceived ideas, a framework representing some aspect of the world, or a system of organizing and perceiving new information [1].

Memories are attributions that we make about our mental models based on our "subjective" qualities rather than "picture-like" qualities. Hence, they are often seen to be affected by our imaginative or intuitive beliefs, motives and goals, under a particular social context [4]. Bartlett [2] viewed 'schemas' as a major cause of this phenomenon.

This conception of schemas would be applicable to the first-time smart TV users. When firstly used, they would form a particular schema of the smart TV, mainly building upon a similar digital device experience or similar past events. If they do not have such existing experiences, they have to form an arbitrary schema to easily remember the features and how to use it. Thus, schema often frames

people to accept or reject new features or information, and serves as their own mental reference models.

An important note of false memory is thus further needed here. False memory can defined as remembering things that has not occurred or having a memory for an event which is distorted in some way [3]. Interesting is that the wrongly formed belief is more persistent over time than the correct memory unless it is fixed by repeated experiences or information [5, 8]. A series of the studies suggest that a *gist trace* that captures a thematic essence of the event decays more slowly, and claim that the false memory set in on the reinforcement of the thematic essence or meaning of the event or information [6]. This means that, when an event occurs, false belief in conjunction with gist memory is thought to establish a strong mental model of an event and it can be examined how this would be formed when one uses the smart TV.

THE '*FALSE BELIEF TECHNIQUE*'

The present paper addresses a practical technique to support the features selection technique using the 'false belief' theory. This is further built upon the '*Deese–Roediger–McDermott (DRM)*' paradigm [7]. The paradigm involves the visual presentation of a list of features in the target device, here, Smart TV and let the first-time users to watch tutorials of smart TV features, performed by an expert user. Like what DRM suggests, they were given a pen-and-paper recognition memory test a week later. In the recognition memory test, they were also asked to rate how confident they are about their answers as a 6 point Likert-scale. This DRM procedure would submit what the gist trace from a one-hour exploration is ready to construct the mental model of the smart TV.

During memory test, when more participants answer correctly on the 'listed' features (e.g., Internet surfing), having a full confidence with the answers and a higher mean confidence rating of the answers, one can consider the features are more likely to match with the schema the participants have formed.

In a similar vein, when more participants are hooked to the 'lured' (unlisted) features (e.g., photo sharing), having a full confidence with their answers and a higher mean confidence rating of the answers, they can be seen that the features are supported by the schema the participants have formed in a one-hour exploration of the smart TV.

Notable case is, if a lured feature is falsely recognized with high confidence rate at their recognition, that feature is called as a critical feature that should be put into smart TV, because it means that users could have chance to recollect the feature when they need to use it in the future.

DISCUSSION

The purview of this position paper is to suggest a practical feature selection technique that utilize users' newly formed schema in an unconscious way, so that it could support TV designers in what features should be added and further developed in future TV development.

We acknowledge that the process of *'False Belief Technique'* having been developed in our study is not certain nor the only way to induce participants to use their schema. Nevertheless, our proposition that designers should monitor how users build schema or related gist memories about their prior experience and should consider it for feature selection design is worth further developing. Opportunities and future developments in this area could be an interesting topic for discussion at the workshop.

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