

The Experience of Flow During Online Searching

by

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In the 1980’s Csikszentmihalyi developed the concept of “flow” as a manner of experiencing life activities. He suggested that it included eight elements (Csikszentmihalyi, 1993):

- Clear goals for an activity, with immediate feedback about how well one is doing in achieving those goals;
- Balance between the opportunities to act in a particular situation and one’s ability to take the appropriate action (i.e., the challenge of the situation is matched by the talents of the actor);
- The merging of action and awareness: one is able to act spontaneously, without conscious effort;
- Concentration or focus on the present activity, with no sense of distraction;
- A sense of potential control;
- A loss of self-consciousness;
- An altered sense of time, in which time seems to pass faster than it actually does;
- and
- A sense that the activity is worth doing for its own sake.

In particular, he argues that people’s experiences of flow increase as their skills in the activity grow to match the challenges that the activity presents. Recent studies (e.g., Chen, Wigand, & Nilan, 1999; Novak, Hoffman, & Yung, 2000) have suggested the people using the Web experience flow, in the sense defined by Csikszentmihalyi. Measures of flow have been applied to a variety of online experiences, including learning (e.g., Shin, 2006), game playing (e.g., Wan & Chiou, 2006), shopping (e.g., Korzaan, 2003), and online searching as a precursor to shopping (e.g., Mathwick & Rigdon, 2004). Of particular interest is Chung and Tan’s (2004) study of flow during general information searching. However, any conclusions that might be drawn from it are weakened because measures of flow and other variables were based on participants’ recollection of their recent use of a specific website, rather than measurements taken during or immediately after being engaged in an information searching activity.

Ghani and Deshpande (1994; Ghani, Supnick, & Rooney, 1991) have developed a multi-faceted scale of the experience of flow that they have applied to several studies of human-computer interaction. The three dimensions of this measure are enjoyment, concentration, and control. The Open Video project team has applied two of these factors (enjoyment and concentration), through the relevant scales, in two studies of people’s interactions with video retrieval systems – the studies conducted for the TREC VID conferences in 2003 and 2005. We argue that people will experience flow when using a well-designed retrieval system, and so have used these measures of flow to evaluate the quality of the system’s interface.

At TREC VID 2003 (Wildemuth et al., 2003), we compared three systems – one based on the video features identified by other TREC VID participants, one based on the transcripts of the news videos used for the conference, and one that combined the capabilities of the features-based and transcript-based systems. People were less successful in using the features-based system, and they found the features-based system to be less useful, harder to use, and resulting in less positive perceptions of enjoyment and concentration than the other two systems. In 2005, we investigated the impacts of context and interactivity on video retrieval. Again, we compared three systems: a basic system, similar to the design of google video; one with the context of each shot provided by showing keyframes from the shots appearing just before and after the retrieved shot; and a system that builds on the previous system by offering several mechanisms of interactivity as well as the shot context. The Context + Interactive system supported better recall than the other systems, but there were no differences in precision or in the time spent conducting the searches. The participants also found the Context + Interactive system more useful, easier to use, and resulting in more positive perceptions of enjoyment and concentration than the other two systems.

In our studies thus far, measures of enjoyment and concentration have led to the same evaluative conclusions as measures of perceived ease of use and perceived usefulness (Davis, 1989). In addition, they have been consistent with measures of performance during video retrieval. It is certainly possible that flow – as indicated by measures of enjoyment and concentration – cannot be distinguished from other measures of the user’s satisfaction with or attitudes toward a particular retrieval system. However, these are theoretically-distinguishable constructs and should continue to be investigated through additional studies of people’s experiences while conducting online searches.

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