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# Flow on the net—detecting Web users' positive affects and their flow states

Hsiang Chen \*

*Institute of Communications Management, National Sun Yat-sen University, No. 70,  
Lein-Hai Road, Kaohsiung, Taiwan*

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## Abstract

The correlations between positive affects and flow symptoms on the Web are analyzed in an attempt to increase our understanding of the positive aspects of Web users' on-line behaviors. The digital version of the experience sampling method was employed to collect situated data from 233 Web users with a pop-up questionnaire on subjects' Web browsers. This study concludes: (1) Web users are more likely to experience positive moods on the Web; (2) positivity of affects and enjoyable feelings are consequences of flow; (3) three factors underlying Web users' flow experiences labeled as antecedents, experiences, and consequences represent the process that an individual could experience during his/her engagement on the Web. Findings in this study provide insights into Web users' internal behaviors and the process of approaching optimal flow experience. In addition, the on-line experience sampling method was proven to be a useful and practical data collection tool.

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*Keywords:* User behavior; Flow theory; Positive affects; Experience sampling method

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## 1. Introduction

The Web, a distributed multimedia environment, creates a virtual world allowing Web users to navigate, play, and experience pleasure inside that invisible space. With

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\* Fax: +886 75254969.

*E-mail address:* [hschen@cm.nsysu.edu.tw](mailto:hschen@cm.nsysu.edu.tw).

effortless movement in cyberspace, Web users may reach a state where their mind and action start to merge and their physical world begins to fade away. During these episodes, clock time ceases to be consistent with experienced time. When Web users' minds flow in virtual space they tend to forget their mind states and their problems, and they tend to integrate themselves with keyboard, monitor, and cyberspace (Chen, Wigand, & Nilan, 2000). This state has been called flow (Csikszentmihalyi, 1975), or optimal experience.

When in the flow state Web users are used to experiencing the fading away of their physical world and becoming the issue they are debating, the words they are typing, the sentences they are reading, or the machine they are working on (Chen et al., 2000). A Web user who is experiencing flow on the Web feels like there is no 'me', and that there is a merging of man and machine occurring. During flow episodes hours feel like minutes to Web users (Chen et al., 2000). These are typically enjoyable moments.

The term 'flow' or 'flow experience' first appeared in 1975 (Csikszentmihalyi, 1975). It was used to describe the most positive feelings (Csikszentmihalyi, 1975) and the most enjoyable experiences possible in human lives as 'the bottom line of existence' (Csikszentmihalyi, 1982, p. 13). By definition, flow is the psychological state in which an individual feels cognitively efficient, motivated, and happy (Moneta & Csikszentmihalyi, 1996, p. 277). As stressed by Csikszentmihalyi (1982, p. 13), if flow is absent from a person's life, 'there would be little purpose in living'. It strongly influences an individual's subjective well-being (Diener, 1984) and improves a person's happiness, life satisfaction, and positive affect.

When in the flow state people become absorbed in their activities, while irrelevant thoughts and perceptions are screened out. A flow state is characterized by enjoyable feelings, concentration, immersion, and intensive involvement. Csikszentmihalyi, (1996, 1993) defined the symptoms and phenomena of flow state as having nine dimensions: (1) clear goals, (2) immediate feedback, (3) personal skills well suited to given challenges, (4) merging of action and awareness, (5) concentration on the task at hand, (6) a sense of potential control, (7) a loss of self-consciousness, (8) an altered sense of time, and (9) experience which becomes autotelic. These nine flow dimensions may be used to describe a person's flow experience (Csikszentmihalyi, 1996).

In accordance with the flow state described above, it is expected that using the Web, in some situations, may become an autotelic experience which makes the engagement intrinsically rewarding and may generate enjoyable feelings and improve Web users' positive affects. Webster, Trevino, and Ryan (1993) has focused on the issues of the dimensionality (and correlates) of flow in human-computer interactions. They characterized flow in human-computer interaction as 'playful and exploratory' experiences and suggested that 'systems that are designed to provide more user control, focus the users' attention, and incite their cognitive enjoyment may result in more positive attitudes, more system use, and more positive work outcomes'. From a marketing perspective, Hoffman and Novak (1996) proposed that flow has a number of positive consequences, including increased consumer learning, exploratory behavior, and positive affect. According to the results of a previous flow

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