



## Experiences of learning flow among Korean adolescents



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### ABSTRACT

The purpose of this study was to explore Korean adolescents' flow experiences in learning from their perspective and to validate and expand Chen et al.'s (1999) theoretical framework of learning flow. The factors and conditions that facilitate or hinder students' flow in learning were explored. Sixteen Korean high school students completed in-depth interviews about their flow experiences in learning. Qualitative content analysis was used to identify key themes and validate the theoretical framework of flow. The following results were obtained from the analysis: the antecedents stage of flow (time conditions, learning conditions, and psychological conditions), experiences stage of flow (experience of delight in acquiring new knowledge and selective inattention toward extraneous factors), effects stage of flow (improved confidence and academic achievements), and factors that hinder flow in learning. Our findings provide a basis for developing educational strategies that enable high school students to experience flow in learning, enjoy their schoolwork, and discover their academic potential.

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### 1. Introduction

Flow is defined as a state of optimal experience in which a person derives pleasure from focusing on a task regardless of extrinsic rewards (Csikszentmihalyi, 1990). Flow is more likely to occur in autotelic individuals who have a tendency to find intrinsic motivation, rather than extrinsic motivation, in their daily activities (Asakawa, 2004). Thus, flow occurs when an individual feels that a given task is challenging and s/he has a high level of skill with which to meet the challenge (Liao, 2006; Moneta, 2004). Concentration, interest, and enjoyment in the activity are needed simultaneously for flow to occur (Admiraal, Huijzen, Akkerman, & Dam, 2011).

It is important for students to experience flow in learning in order to find enjoyment in their learning (Cheng, 2013; Schaik, Martin, & Vallance, 2012), in that the primary function of activities conducive to flow is providing enjoyable experiences (Csikszentmihalyi, 1990). Flow emphasizes positive aspects of learning. People can experience enjoyable moments when they are immersed in a task or an activity (Tobert & Moneta, 2013), and by experiencing joy in learning, students may feel less anxiety, stress, boredom, or other negative states of mind (Csikszentmihalyi, 1990). Moreover, flow enhances self-esteem, academic achievement, and the academic satisfaction of students (Joo, Joung, & Sim, 2011).

While many cognitive theories have explained learning experiences in terms of the thinking process, flow focuses on students' motivation or

self-interest in learning experiences (Csikszentmihalyi, 1990). Flow theory, developed by Csikszentmihalyi (1975, 1990, 1998), is supported by both the self-determination and expectancy-value theories of motivation. The self-determination theory postulates that human behaviors are driven by innate psychological needs, such as competence, autonomy, and interpersonal relatedness (Deci & Ryan, 2000). Thus, goal-directed activity is initiated in order to focus on an interesting activity when the learner is in a context that allows for need satisfaction (Deci & Ryan, 2000). These innate psychological needs, manifested in the form of internal motivation, probably play key roles in the experience of flow. According to the expectancy-value theory, individuals' perceptions, experiences, and beliefs, all impact on subjective task values and expectations (Wigfield & Eccles, 2000). Therefore, individuals' own expectations of success directly influence achievement (Wigfield & Eccles, 2000). Both theories of motivation stress the importance of self-expected goals, in other words, the autotelic nature of the flow experience.

A number of studies have been conducted on flow in learning and focus on a number of variables that may affect outcomes, such as motivation (J. Kim, 2005; N. H. Kim, 2005; Kuhnle & Sinclair, 2011; Kwon, 2007; Lee, 2001; Park, 2005; Yeo, Park, & Lim, 2007; Lachmann, Ponzer, Johansson, Benson, & Karlgren, 2013), autotelic experience (Lee & Lee, 2008), and intelligence (Lee, 2009). Studies on motivation and flow in learning have consistently shown that students with intrinsic motivation tend to demonstrate higher levels of flow than students with extrinsic motivation. Autotelic experience is another factor that affects flow (Lee & Lee, 2008), in that students with higher intrinsic motivation have more flow experiences in learning, which results in greater

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autotelic experiences and the subsequent reinforcement of their intrinsic motivation. A study on flow and intelligence among elementary school students has also shown that there is a relationship between higher intelligence and experiences of flow in learning (Lee, 2009).

Several studies have focused on the flow state in Web-based learning activities (Cheng, 2013; Heo & Rha, 2003; Lee, Han, Kim, & Lee, 2007; Skadberg & Kimmel, 2004; Suh, 2008). Heo and Rha (2003) showed that concentration is strongly related to the experience of flow among learners, and also that elements of Web-based instruction, such as learning content, navigation, and interactivity, are related to flow. A study of visitors' flow experiences while browsing a web site concluded that this was closely related to the interrelationships among the web page's elements (Skadberg & Kimmel, 2004), while presence in an augmented-reality interactive learning environment has also been shown to facilitate flow in learning (Suh, 2008). In education settings that employ e-learning systems, students report more flow experiences than those learning without the benefit of such systems (Lee et al., 2007). These studies imply that actions, awareness, and concentration merge during Web-based instruction.

Csikszentmihalyi (1975) identified nine factors related to flow experiences: clear goals, immediate feedback, personal skills well suited to given challenges, the merger of action and awareness, concentration on the task at hand, a sense of potential control, a loss of self-consciousness, an altered sense of time, and experience that becomes autotelic. Chen, Wigand, and Nilan (1999) categorized these nine factors into three stages: antecedents (clear goals, immediate feedback, and personal skills), experiences (the merger of action and awareness, concentration, and a sense of potential control), and effects (loss of self-consciousness, temporal distortion, and experience that becomes autotelic). The antecedent stage consists of the pre-conditions for an activity and the pre-existing capacity of a student. The experiences stage depicts the characteristics perceived during a flow state, while the effects stage describes an inner experience that focuses on the effects after entering the flow state (Chen et al., 1999).

Csikszentmihalyi (1990, 1998) stated that flow effects are mainly based on individuals' internal perceptions, but many existing studies focus on the effects of learning flow during Web-based instruction or computer-based learning on academic achievement (Chae, Cho, & Kim, 2009; Kim & Kim, 2005; Seong, 2009; Suh, 2008), learning satisfaction (Park, 2010), and autotelic experience (Lee & Lee, 2008). For example, a programming Web-based instruction founded in flow theory has been shown to be effective in improving academic achievement (Chae et al., 2009), while a study on e-learning flow and performance has demonstrated that flow is positively correlated with academic performance (Seong, 2009). Additionally, there have also been studies on flow scale development (J. Kim, 2005; N. H. Kim, 2005; Kim, Lee, & Choi, 2008; Suk & Kang, 2007).

Despite their numbers, previous studies have however failed to examine the flow experiences and processes of learners and have adopted quantitative methodologies in order to reveal simple relationships among variables, or measure specific characteristics related to the concept of flow. For instance, Kuhnle and Sinclair (2011) reported that task engagement decisions are correlated with higher levels of flow and a reduction in the experience of motivational interference. Park (2010) also found that there are relationships between the authenticity of tasks, flow, academic performance, and learner satisfaction in Internet-based project learning environments.

Very few studies have focused on flow from the perspective of the learner. A qualitative study on flow (Lim, 2010) examined primary school students' classroom flow experiences and the characteristics of their teacher's pedagogical behavior. Their results revealed that students experienced a joy of learning when performing an experiment during science class and that learning flow was evident in the students' active behavior and concentration. In a learner-centered paradigm, it is necessary to capture the processes involved in the flow experience from the perspective of students (Chang & Smith, 2008; Webber, 2012). To

understand students' experiences of learning flow, qualitative research methods are needed as learning flow experiences occur within the subjective context of students' own self-interest (Bakker, 2005). Our study aimed to explore flow experiences in learning from the perspective of Korean adolescents and to validate and expand the theoretical framework of flow on the Internet (Chen et al., 1999). Furthermore, we aimed to explore the factors and conditions that facilitate or hinder students' flow in learning.

## 2. Method

### 2.1. Participants

A purposive sampling method was used. As we were studying the nature of flow in learning among students at the top of their class, participants were recruited from a top-ranked boarding school that admits the top 3% of middle school honor students in Korea. Most students in this school aim to enter the best universities, both domestically and abroad, and are proud of their school and its good reputation. Inclusion criteria were that the student maintained a GPA higher than 3.5 (out of 4.0), and experienced total immersion and joyful experiences in learning. Sixteen high school students (8 male, 8 female) participated in the study. Eight participants were eleventh grade students (4 male, 4 female), and eight (4 male, 4 female) were in the twelfth grade. The participant age range was 16 to 18 years. Ethical approval was obtained from the high school ethics committee prior to conducting the student interviews.

### 2.2. Procedure

Data were collected at a boarding school in a suburban area in Korea. Semi-structured interviews were conducted with each participant in their dormitory room or in an empty classroom on a date and time convenient for them. Each interview lasted from a minimum of 25 min to a maximum of 1 h and was audiotaped. Two authors conducted face-to-face interviews twice. Since the aim of this study was to investigate the experience of flow in learning, all interviews began with an open-ended question: "Tell me about your experiences during learning."

Interview questions were broadly structured based on three stages: antecedents, experiences, and effects (Chen et al., 1999). For each stage, the questions were structured in order to ascertain the contextual and situational factors present within participants' own learning experiences, as well as their thoughts and feelings about these factors. The antecedents of flow were examined through responses to the question "When did you completely immerse yourself in learning?" Participants were asked to describe their stage of experience through the following questions: "How would you describe the last learning experience that you enjoyed?" and "What were the factors and conditions that helped or distracted you from your learning?" The effects of flow were examined through responses to the question "What do you feel after an enjoyable learning experience?"

### 2.3. Data analysis

Both thematic (Braun & Clarke, 2006) and directed content analysis (Hsieh & Shannon, 2005) were used to analyze the data to describe the learning flow experiences of high school students. When coding took place early in the analysis, a thematic technique was used to develop various interpretations of the interview. Taped interviews were transcribed verbatim and contained all pauses, laughter, and unfinished sentences. Investigators read the transcripts repeatedly to understand the general meaning of the data, underline significant sentences related to the flow experience in learning, and conceptualize significant sentences into themes and subthemes. The authors then compared and contrasted the results of their thematic analysis.

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