

Situational interest and academic achievement in the active-learning classroom

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Abstract

The aim of the present study was to investigate how situational interest develops over time and how it is related to academic achievement in an active-learning classroom. Five measures of situational interest were administered at critical points in time to 69 polytechnic students during a one-day, problem-based learning session. Results revealed that situational interest significantly increased after the problem stimulus was presented. Subsequently, situational interest gradually decreased but at the end of the day increased again. Testing a path model relating the situational interest measures showed strong (directional) interrelations. Moreover, situational interest was highly predictive for observed achievement-related classroom behaviors. The latter, in turn, proved to be a significant predictor of academic achievement. Aggregating situational interest over the day led to less accurate predictions of achievement-related classroom behaviors and academic achievement. Implications of these findings for situational interest research are discussed.

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1. Introduction

Situational interest has been defined as an immediate affective response to certain conditions and/or stimuli in the learning environment that focuses one's attention on the task, which may or may not last over time (Hidi, 1990; Hidi & Renninger, 2006; Mitchell, 1992; Schraw, Flowerday, & Lehman, 2001). Most of the research in this area revolves around the question of how situational interest is *triggered*, and in particular how it is triggered by means of textual materials (Schraw & Lehman, 2001). Research findings suggest that text-based situational interest is mainly triggered by unexpectedness of information (Hidi, 1990), the extent to which a reader identifies with a main character (Anderson, Shirey, Wilson, & Fielding, 1987), the level of activity described in a text (Hidi & Baird, 1986), and by structural

aspects of a text such as coherence and completeness (Hidi & Baird, 1988; Schraw, Bruning, & Svoboda, 1995; Wade, 1992), informational complexity (van Dijk & Kintsch, 1999), suspense (Jose & Brewer, 1984), vividness (Garner, Brown, Sanders, & Menke, 1992), imagery (Goetz & Sadoski, 1995), and ease of comprehension (Schraw, 1997). Besides the research on the factors that trigger students' situational interest, relatively little is known about students' interest development during a real learning event. For instance, it is known that puzzles or challenging tasks trigger students' situational interest but how it further develops, after the trigger phase, has not been studied extensively. This is surprising because gaining insights in how situational interest develops in a real classroom and how this development is related to students' academic achievement may provide valuable motivational insights that may help regulate and maintain an optimal level of students' situational interest and learning.

Various interest researchers have suggested that situational interest has a phase in which it is triggered and a subsequent phase in which it is sustained (Dewey, 1913;

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Hidi & Renninger, 2006; Mitchell, 1992) (Dewey used the terms “catch” and “hold” instead). Most recently, Hidi and Renninger (2006) proposed a model in which they describe four phases of interest development: (a) an initial phase in which situational interest is triggered; (b) a second phase in which situational interest is sustained; (c) a third phase in which situational interest becomes less-developed individual interest (i.e., a more stable dispositional form of interest), and finally (d) a phase in which interest becomes a well-developed individual interest. The focus of the present study is on the first two phases of interest development, in particular on the second, maintenance phase that has not been studied extensively.

Mitchell (1992) administered a questionnaire to determine which elements of the classroom experience, according to learners, help maintain situational interest in secondary school mathematics. The results pointed to working with computers, puzzles, and group work as important factors in keeping students interested. Similarly, Harackiewicz, Barron, Tauer, Carter, and Elliot (2000) conducted a study with undergraduate psychology students. They were able to show that perceived meaningfulness of the task was an important factor in maintaining situational interest. In these studies, however, the extent to which situational interest is actually reinforced and develops over time was not investigated. Ainley, Hidi, and Berndorff (2002) noted that, if one is interested in understanding the stability or variability of situational interest over time, it is necessary to repeatedly administer relevant measures at different points in time to observe real-time changes in the intensity of situational interest. With the present study we adopted this measurement approach and administered a measure of situational interest repeatedly during class.

A second issue deserving attention is that, while situational interest is extensively studied in the context of text comprehension, classroom studies are not very forthcoming (Bergin, 1999; Jetton & Alexander, 2001). This is somewhat disappointing because the classroom setting in principle could provide a rich array of situational stimuli that trigger students' situational interest and maintain it. Learning from texts represents only one facet of the diversity of learning in an authentic classroom environment. For instance, other activities such as group discussions, direct instruction, and self-regulated learning activities may trigger situational interest as well (or contribute to its demise).

There are additional reasons to believe that in particular an active-learning classroom may be an appropriate context for investigating situational interest, because in those classrooms students are often provided with opportunities to formulate their own learning goals and pursue them. Deci (1992) has suggested that classrooms that promote student autonomy and choice increase intrinsic motivation and situational interest (see also Cordova & Lepper, 1996; Schraw et al., 2001). Deci, Vallerand, Pelletier, and Ryan (1991) pointed out that choice has a positive effect on interest because people have an innate psychological need for competence, belonging, and autonomy. In self-determination research, having a choice is a means of satisfying the need for autonomy. A second element deemed

important in the active-learning classroom is the use of problems or puzzles (Mitchell, 1992). The authentic character of such problems or puzzles is assumed to increase task value and be meaningful to students, which should result in increased levels of situational interest. Moreover, working in small groups seems also beneficial to maintain situational interest since it may increase the feeling of belonging and autonomy from the direct intervention of a teacher; Mitchell (1992) refers to this aspect as empowerment. The study to be discussed below was conducted in a problem-based learning curriculum that resembles most of the active-learning features mentioned here (Hmelo-Silver, 2004; Schmidt & Moust, 2000) and enabled us to study the effects of different learning activities in which students engage in such classrooms on the development of situational interest.

A third challenge for interest research is the clarification of its relation to academic achievement. Common sense suggests that if a learner is interested in a particular topic, he or she will engage more extensively with that topic than another learner who is less interested in the topic. More engagement, that is, spending more time and effort on working on the topic, should lead to higher academic achievement. However, observed correlations between interest and academic achievement are fairly small. To be able to promote interest as a variable of educational significance, as has been done recently (Boekaerts & Boscolo, 2002; Hidi, 2006; Silvia, 2008), research needs to be conducted to understand how exactly interest is related to academic achievement. Schiefele, Krapp, and Winteler (1992) were among the first who pointed to this challenge based on findings of a meta-analysis. The results of this meta-analysis revealed that the mean value of the correlation coefficients of 121 studies between interest and academic achievement was .31. The correlations observed in the interest domain are quite similar to findings in the general motivation literature.

Moreover, Rotgans, Alwis, and Schmidt (2008) argued that it is unlikely that beliefs students have about their motivation to study directly translate into academic achievement. They demonstrated that the predictive validity of self-reported motivational beliefs could be improved by using achievement-related classroom behaviors as a mediator between motivation and academic achievement. Their assumption was that motivational beliefs as measured by self-report measures must convert into observable achievement-related classroom behaviors first, before they can influence academic achievement, that is, motivation without engagement cannot influence performance. In their study, these achievement-related classroom behaviors, as observed by the teacher, consisted of three elements: (a) the extent to which students participated in group discussions, (b) the extent to which they engaged and persisted in self-directed learning, and (c) the quality of their presentations in the classroom. Achievement-related classroom behaviors seem to be initiated primarily by mastery or performance goals (Elliott & Dweck, 1988). Much of the achievement motivation research indicates that students show the most positive achievement-related behaviors when they pursue mastery goals (Meece, Anderman, & Anderman, 2006). Research suggests that with a focus on mastery goals, students

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