



Disentangling the effects of interest and choice on learning, engagement, and attitude



Terri Flowerday^{a,*}, Duane F. Shell^b

^a University of New Mexico, United States

^b University of Nebraska-Lincoln, United States

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ABSTRACT

The importance of interest and choice in motivation and learning has been the central focus of much educational and psychological research. The goal of this study was to examine the impact of choice and topic and situational interest on learning, engagement, and attitudes. Ninety undergraduate college students were randomly assigned to Choice-High Interest, No Choice-High Interest, or No Choice-Low Interest conditions, and completed reading tasks, multiple choice tests, essays, measures of situational interest, and attitude. Hypotheses were tested using path analysis. Results indicate that situational interest had strong direct and indirect effects on learning, engagement, and attitude. Topic interest had a direct effect on situational interest and indirect effect on engagement through situational interest. Choice, although having a direct effect on attitude, had no effect on situational interest, learning, or engagement. Findings confirmed the primary role of situational interest in enhancing engagement and learning, as well as positive attitudes. Topic interest appeared to work through its impact on increasing or decreasing situational interest rather than by having its own independent motivational effects. Choice made students feel more positive, but it did not produce more engagement, personal connection to the material, or learning. Implications for teaching are discussed.

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From the first day of the school year, teachers attempt to capture the interest of their students as a key strategy for increasing motivation and learning. Flowerday and Schraw (2000) found that teachers believe that giving students choices on academic tasks increases their personal interest, which in turn, will act as a catalyst for improving learning. Among teachers, this belief has been reinforced by popular psychology authors such as Kohn (1993, 1998) with whose work, teachers are often familiar. Students also believe that choice is important for motivation and performance. When asked about the desire for, and effects of instructional choices, college students indicated that choice of topic leads to increased engagement and choice of assessment increases their ability to effectively demonstrate knowledge (Flowerday & Lane, 2012). The positive effects of choice can be seen in educational research where it has been shown that choice can be used to support student autonomy and intrinsic motivation (Assor, Kaplan, & Roth, 2002; Deci, Vallerand, Pelletier, & Ryan, 1991; Patall, 2013; Patall, Cooper, & Wynn, 2010; Reeve & Jang, 2006; Reeve et al., 2004).

Although there is a perception among teachers and students that choice increases engagement, the research attempting to show links between choice and increased learning has produced mixed results

(Cordova & Lepper, 1996; Parker & Lepper, 1992; Schraw, Flowerday, & Reisetter, 1998; See review in Patall, Cooper, & Robinson). Research shows that students may lose initiative for learning when overly controlled (Flink, Boggiano, & Barrett, 1990; Grolnick & Ryan, 1987; Miserandino, 1996), and development of student autonomy in classrooms is associated with higher intrinsic motivation (Boggiano, Main, & Katz, 1988; Pintrich & Schunk, 1996; Skinner, Wellborn, & Connell, 1990; Stipek, 1993; Williams & Deci, 1996) and more effective instruction (Lepper, 1988; Stipek & Byler, 1997).

Alternately, several studies suggest that merely providing students with instructional choices may not be sufficient to promote motivation and learning. Research suggests that the effects of students' perceived level of choice, interest in the choices, and the volitional act itself should be distinguished to provide better understanding of their individual roles in motivation and learning (Flowerday, Schraw, & Stevens, 2004). Schraw et al. (1998) found that choice and no-choice groups did not differ in cognitive performance; however, the choice group reported more interest in reading a text and satisfaction with the research experience. Flowerday and Schraw (2003) found that choice did not enhance cognitive engagement, but interest had an impact on what task individuals selected when given a choice.

Reeve, Nix, and Hamm (2003) reported that increases in students' perceived choice did not correspond to increases in intrinsic motivation and d'Ailly (2004) found that students' interest level was not affected by provision of choice, nor was choice a significant factor in learning

* Corresponding author at: 113 Simpson Hall, Educational Psychology Program, University of New Mexico, Albuquerque, NM 87131, United States.

E-mail address: tflower@unm.edu (T. Flowerday).

outcomes or invested effort. Linnenbrink-Garcia, Patall, and Messersmith (2013) reported no significant effect of perceived choice on student engagement. Low achieving students have been shown to benefit less from choice than high achieving counterparts (Sweet, Guthrie, & Ng, 1998), and some students may not want choice because of increased performance anxiety (Clifford, 1991).

Two types of interest described in the motivation literature are topic interest and situational interest (Ainley, Hidi & Berndorff, 2002a; Schiefele, 1991, 1996, 1998, 1999). Topic interest is interest elicited by a word or paragraph describing the subject matter or content of material and is generally stable and content-specific. Topic interest is a manifestation of individual interest defined as a deep personal interest in a field or activity based on pre-existing knowledge, personal experiences, and emotions (Ainley, Hillman & Hidi, 2002b; Ainley et al., 2002a,b; Alexander & Jetton, 1996; Renninger, 1998; Schiefele, 1991, 1998, 1999; Tobias, 1994). Ainley et al. (2002a,b) have shown that individual interest in a domain predicts topic interest in specific texts. Situational interest is spontaneous, transitory and environmentally activated (Harackiewicz, Barron, Tauer, & Elliot, 2002; Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008; Krapp, Hidi, & Renninger, 1992; Murphy & Alexander, 2000). Situational interest appears to arise from novelty, curiosity, or salient informational content (Krapp et al., 1992; Schraw & Lehman, 2001). It may be instrumental in catching attention (Harackiewicz et al., 2008; Hidi & Renninger, 2006) and may precede and facilitate the development of individual interest, which in turn serves to hold or maintain interest (Ainley, Corrigan, & Richardson, 2005; Hidi & Baird, 1986; Linnenbrink-Garcia et al., 2013). Flowerday et al. (2004) found that topic and situational interest were positively correlated. Braten, Anmarkrud, Brandmo, and Stromso (2014) and Linnenbrink-Garcia et al. (2013) found that individual interest increased situational interest.

Both topic and situational interest have been found to increase positive attitudes about reading, promote personal engagement in tasks (Flowerday et al., 2004; Schraw & Lehman, 2001) and increase learning and understanding of text (Schiefele, 1996; Wade, Buxton, & Kelly, 1999). Situational interest has been shown to increase reading comprehension (Alexander & Jetton, 1996), computer performance (Azevedo, 2004; diSessa, 2000; Edelson & Joseph, 2004) and learning (Harackiewicz et al., 2008; Mitchell, 1993; Schraw, Bruning, & Svoboda, 1995; Schraw & Dennison, 1994). However, neither situational nor topic interest appears to significantly effect shallow processing (Alexander & Jetton, 1996; Hidi, 1990; Schiefele, 1999).

Relationships among individual, topic, and situational interest and the provision of choice remain unclear (Linnenbrink-Garcia et al., 2013). Most previous studies on choice have not addressed the inherent confound between the effect of the student's "act of choosing" and the effect of the student's interest in the task. Is it the sense of autonomy (fulfilling a basic psychological need) one gains from being allowed to choose that benefits motivation or does having choices lead to an increase in interest? Topic interest may lead to choice of that topic; thus, it may be the heightened interest that increases motivation rather than the choice fulfilling a need for autonomy. Alternately, the act of choosing itself may trigger subsequent situational interest (e.g., I am more interested and invested because I chose this. I have "buy in") that mediates the effect of choice. These distinctions are important to understand because if choice is being mediated by interest, and interest does not increase, will there still be motivational benefit from choosing?

Flowerday et al. (2004) found that when participants were asked to choose a text without knowledge of the topic, it was situational interest triggered by the text, not the act of choosing, that drove reading engagement (Flowerday et al., 2004). Choice produces small effects on attitude (Flowerday & Schraw, 2003), whereas situational and topic interest produce large effects on attitude (Flowerday et al., 2004; Schraw & Lehman, 2001) and moderate effects on reader engagement and learning (Flowerday & Schraw, 2003; Flowerday

et al., 2004). Ainley et al. (2005) found that topic interest only enhanced choice to continue reading when situational interest was present. Linnenbrink-Garcia et al. (2013) reported that perceived choice was a predictor of situational interest and that a student's level of individual interest at the beginning of a science course predicted individual interest and situational interest at the end of the course. Patall (2013) found that students given a choice of trivia game activities reported an increase in interest, but only if they had high initial interest for trivia games.

1. The present study

Current theoretical formulations of choice and interest postulate specific influence paths among topic interest, choice, situational interest and outcomes. These are depicted in Fig. 1. Both choice and topic interest are hypothesized to influence situational interest. Choice, topic interest, and situational interest are hypothesized to influence learning, engagement, and attitudinal outcomes, with choice and topic interest having indirect influences on outcomes through situational interest. All of these theoretically hypothesized influence paths have received mixed support in prior research; however, past studies have typically looked at outcomes separately. Choice, interest, and their interaction have been examined primarily in separate regressions or ANOVA for each potential outcome variable. There has not been examination of the entire set of hypothesized paths as a single model.

Although not overtly stated in most theoretical discussions of choice and interest, there is another set of hypothesized influences depicted in Fig. 1. Consistent with learning and self-regulation theories (Shell et al., 2010; Zimmerman, 2001) and theories of engagement (Fredricks & McColskey, 2012), engagement should influence learning outcomes. Thus, a model of influences on learning needs to account for this path. Choice, topic interest, and situational interest would be hypothesized to have indirect influences on learning outcomes through their influences on engagement. This set of influences has not been examined in prior studies.

This study's purpose was to test the theoretical model in Fig. 1 using path analysis. Operationalization of this model is shown in Fig. 2. The study task was a reading passage. Outcomes were (a) factual learning, measured with a multiple choice recall test, and (b) reader response (Many & Wiseman, 1992) measured with an essay scored for thematic, critical, and personal responses following procedures in Flowerday and Schraw (2003), Flowerday et al. (2004), and Schraw et al. (1998). Attitudes toward the study were measured with an attitude checklist that assessed reactions to the study procedures, emotional reactions, and motivation. Engagement was measured with passage reading time and essay writing time that reflect time on task, a common behavioral component of engagement (Braten et al., 2014; Fredricks & McColskey, 2012). Situational interest after reading was measured with a situational interest inventory.

Choice and topic interest were manipulated. Topic interest was operationalized consistent with a number of prior theoretical formulations and studies (Ainley et al., 2002a,b; Flowerday & Schraw, 2003; Hidi, 1990; Schiefele, 1991, 1998; Schraw et al., 1998; Shell et al., 2010). These formulations treat topic interest as a manifestation of deeper individual interest that is highly personal; therefore, it cannot be assumed that all participants would find any specific text interesting or not interesting. To accommodate this individual aspect of topic interest three study passages were used. Participants were first asked to rate their interest in the topics of the three study texts. For the *no choice* conditions, participants in the high interest-no choice group were presented with their highest rated passage and participants in the low interest-no choice group were presented with their lowest rated passage. For the *choice* condition, participants self-selected from the three passages.

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