



Interest-based text preference moderates the effect of text difficulty on engagement and learning



Sara M. Fulmer ^{a,*}, Sidney K. D'Mello ^b, Amber Strain ^c, Art C. Graesser ^c

^a Department of Educational Psychology, Counseling, and Special Education, SUNY Oneonta, Oneonta, NY, 13820, USA

^b Departments of Psychology and Computer Science, University of Notre Dame, Notre Dame, IN 46556, USA

^c Department of Psychology, University of Memphis, Memphis, TN 38152, USA

ARTICLE INFO

Article history:

Available online 24 December 2014

Keywords:

Interest
Difficulty
Engagement
Learning

ABSTRACT

Theories of motivation propose that moderate difficulty can be beneficial for student engagement and learning. However, research on the effect of difficulty has been inconsistent. The primary goal of the present study was to investigate the possibility that interest-based text preference moderates the effect of difficulty on engagement and learning. To test this hypothesis, participants studied four instructional texts on research methods topics in a 2 × 2 interest-based text preference (preferred vs. non-preferred texts) × text difficulty (easy vs. difficult) within-subjects experiment. The manipulation of interest-based text preference asked participants to rank four text titles based on their perceived interest in reading the text corresponding to each title. Engagement was assessed via self-reported affect (valence and arousal), attention (mind wandering), and reading time during the learning session. Learning and knowledge transfer were measured with knowledge tests after reading all four texts. Consistent with our predictions, interest-based text preference and text difficulty interacted to predict reading time, mind wandering, and knowledge transfer. The nature of the relationship indicated that increased text difficulty can support engagement and transfer, but only when individuals are provided with an opportunity to express their text preferences prior to reading.

© 2014 Elsevier Inc. All rights reserved.

1. Introduction

Most individuals have experienced either momentary lapses in attention or sustained periods of disengagement during learning. These declines in engagement not only have the immediate consequence of impeding comprehension, but if sufficiently frequent, can have undesirable long-term consequences such as a lack of interest in the particular domain. What characteristics of the learning activity inspire sustained engagement and deep learning, versus zoning out, quitting, and negligible learning? Theories of motivation posit that moderate difficulty has direct, positive effects on engagement and learning (Csikszentmihalyi, 1991; Deci & Ryan, 1985). However, as discussed below, empirical research on the independent effects of difficulty on engagement has been inconsistent. Thus, research is needed to identify the specific conditions under which increased difficulty helps, hurts, or has no effect.

There is a long history of research on the importance of autonomy and interest for increasing intrinsic motivation, thereby

supporting increased engagement and learning (Ainley, 2012; Ainley & Hidi, 2014; Deci & Ryan, 1985; Hidi, 1990; Hidi & Renninger, 2006; Schiefele, 1991). This led us to consider the possibility that autonomy and interest, operationalized as an interest-based text preference, would serve as a motivational resource (Hidi, 1990) to support engagement and learning while reading difficult texts. This paper tested this hypothesis by investigating the interaction between manipulations of interest-based text preference and text difficulty during learning from instructional texts. The manipulation of interest-based text preference consisted of asking participants to indicate which texts they would like to read based on their perceived interest after reading the text titles. The text difficulty manipulation included experimenter-created easy and difficult versions of the texts.

In what follows, we first discuss the operationalization of engagement adopted in the present study. We then review the literature on the effects of text difficulty and interest-based preference on engagement and learning, and our rationale for hypothesizing that interest-based text preference will moderate the effects of text difficulty on engagement and learning. In the following review, we use the general term *difficulty* to refer to research that has manipulated the objective difficulty of the task. The specific term *text difficulty* refers to studies that have manipulated the difficulty level of texts, similar to the present study.

* Corresponding author. SUNY Oneonta, 365 Fitzelle Hall, Oneonta, NY 13820, USA.
Fax: +607-436-3664.

E-mail address: sara.fulmer@oneonta.edu (S.M. Fulmer).

1.1. Operationalizing engagement

Engagement is a multidimensional construct that has been used to describe diverse behaviors, thoughts, perceptions, feelings, and attitudes (Reschly & Christenson, 2012). Fredricks, Blumenfeld, and Paris (2004) proposed three types of engagement: emotional, behavioral, and cognitive. Generally speaking, emotional engagement encompasses affective states that are experienced during learning, including mood, affect, achievement emotions, epistemic emotions, and interest (Fredricks et al., 2004; Pekrun & Linnenbrink-Garcia, 2012). Behavioral engagement is broadly defined as learners' participation and involvement in a learning task, including their effort, persistence, and concentration (Fredricks et al., 2004; Fredricks & McColskey, 2012). Finally, cognitive engagement is related to learners' investment in the task, such as how they manage and control effort directed toward learning, understanding, and mastery of the material (Newmann, Wehlage, & Lamborn, 1992; Pintrich & De Groot, 1990; Zimmerman, 1990). Recent conceptualizations of engagement further distinguish cognitive engagement (e.g., attention and memory processes) from cognitive-behavioral engagement (e.g., strategy use and self-regulation) (Pekrun & Linnenbrink-Garcia, 2012), suggesting that there is some conceptual overlap between cognitive and behavioral engagement (Fredricks et al., 2004). Accordingly, there is little consensus regarding how to operationalize and measure each aspect of engagement, so multiple measures are often recommended (Shernoff, 2013).

Research on academic engagement has traditionally focused on the antecedents that support or suppress engagement in learning contexts that span extended periods of time (Christenson, Reschly, & Wylie, 2012; Linnenbrink-Garcia & Pekrun, 2011; Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010). However, contemporary views of engagement suggest that engagement can fluctuate during learning in ways that are sensitive to the context and features of the task. Pursuant to this view, research has moved beyond exclusive "trait" (or single time point) measures of engagement to on-task, "state" measures in order to account for its temporal, dynamic, and context-sensitive nature (Ainley, Corrigan, & Richardson, 2005; Pekrun & Schutz, 2007; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003). State engagement is defined as a state of involvement with a task that is characterized by mild positive valence, moderate arousal, and intense, focused attention (Baker, D'Mello, Rodrigo, & Graesser, 2010). It is related to, but need not involve, some aspects of Csikszentmihalyi's (1991) conceptualization of flow, such as time distortion or loss of self-consciousness. The present study adopts such a conceptualization of engagement and studied it during a shorter task, which involved learning from instructional texts for approximately 30 minutes.

1.2. Theoretical background and previous research on difficulty and interest-based preferences

There is extensive theoretical support for moderate difficulty as a favorable condition for engagement, deep cognitive processing, and learning. For example, early theories of risk-taking and exploration (Atkinson, 1957; Berlyne, 1954) suggested that individuals are more likely to seek out tasks that are unfamiliar, complex, or novel, presumably when intrinsic interest is high. These task features increase interest and curiosity because of their potential for learning something new, leading to greater arousal, persistence, and retention of information. Self-determination theory proposes a positive relationship between moderate difficulty and intrinsic motivation, such that moderate difficulty that satisfies the needs for competence and autonomy should enhance intrinsic motivation and, consequently, engagement (Deci & Ryan, 1985; Ryan & Deci,

2000). Moderate difficulty is also proposed to increase positive affect, interest, persistence, and attention (Clifford, 1990; Csikszentmihalyi, 1991; Wigfield & Eccles, 2002).

When tasks are not intrinsically motivating, it has been suggested that introducing *desirable difficulties* into the learning context can inspire deeper cognitive processing and result in greater learning and long-term retention (Bjork & Bjork, 2011; Diemand-Yauman, Oppenheimer, & Vaughan, 2011; Linn, Chang, Chiu, Zhang, & McElhaney, 2011). Examples of desirable difficulties include using distributed practice, varying the settings in which learning occurs, and presenting learning materials with minor disfluencies. The general idea is that people are "cognitive misers" in that they allocate just the appropriate amount of cognitive effort to a task. The desirable difficulties address this by reconfiguring the task context to engender deeper processing (Alter, 2013). Despite the strong theoretical support for a positive relationship between difficulty and engagement, research on difficulty is rife with inconsistent findings. For example, learners spend more time reading difficult texts by calibrating effort with respect to difficulty (Feng, D'Mello, & Graesser, 2013; Vega, Feng, Lehman, Graesser, & D'Mello, 2013). However, higher perceived difficulty of informational texts predicts greater aversion to reading informational texts, suggesting a decline in behavioral engagement with increasing perceived difficulty (Guthrie, Klauda, & Ho, 2013). Similarly, increased mind wandering (or zone outs) has been reported in easy versions of lab-based cognitive tasks (Smallwood & Schooler, 2006), but also when reading difficult compared with easy texts (Feng et al., 2013). Though more difficult texts (in terms of cohesion) provide opportunities for deeper learning, readers must be sufficiently vested and have the relevant background knowledge and skill to utilize effective reading strategies in order for these texts to enhance comprehension (McNamara & Kintsch, 1996). Finally, with respect to learners' interest and emotions, higher perceptions of difficulty have been related to lower self-reported interest (Durik & Matarazzo, 2009; Li, Lee, & Solmon, 2007), lower levels of happiness (Moneta & Csikszentmihalyi, 1996), and an increase in self-reported affective states involving negative valence, such as anxiety, anger, and boredom (Acee et al., 2010; Efklides, 2002; Efklides & Petkaki, 2005; Pekrun, Goetz, Titz, & Perry, 2002).

What is the reason for these contradictory findings? It might be the case that the proposed benefits of difficulty for engagement and learning assume that learners calibrate their attention and effort with respect to the level of difficulty. However, learners must decide whether or not to exert this additional effort, and are unlikely to do so in the absence of intrinsic motivation. The present study considers the expression of learners' interests via their text preferences as a potential motivational resource (Hidi, 1990) to foster engagement and deeper learning while studying difficult texts.

The favorable role of interest during learning has support in self-determination theory (Ryan & Deci, 2000), which posits that feeling autonomous during learning increases intrinsic motivation, which leads to enhanced performance and learning. Individuals feel autonomous when they perceive that their actions and the outcomes of these actions originate from, and are endorsed by, the self (Deci, Vallerand, Pelletier, & Ryan, 1991). Additionally, autonomy-supportive learning environments are those that acknowledge learners' inner motivational resources, including their personal interests, values, and preferences (Reeve & Jang, 2006). In line with this, the present study aims to support feelings of autonomy by offering learners the opportunity to express their preferences for texts based on their personal interests (termed "interest-based text preference"). The opportunity to communicate one's interests and preferences supports an internal locus of control by acknowledging one's inner motivational resources during the learning activity (Deci & Ryan, 1985; Krapp, 2002; Reeve & Tseng, 2011), and is expected to lead to greater engagement and deeper learning.

Download English Version:

<https://daneshyari.com/en/article/352615>

Download Persian Version:

<https://daneshyari.com/article/352615>

[Daneshyari.com](https://daneshyari.com)