Journal of Experimental Social Psychology 53 (2014) 70–78

Contents lists available at ScienceDirect

Journal of Experimental Social Psychology

journal homepage: www.elsevier.com/locate/jesp

The role of interest in optimizing performance and self-regulation ☆

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HIGHLIGHTS

- Task performance was optimized when affect- and value-related interest were high.
- Depletion was also minimized when affect- and value-related interest were high.
- Interest supports effective and efficient engagement without depleting resources.
- Results underscore the importance of interest as a motivational variable.

ARTICLE INFO

Article history:
Received 18 April 2013
Revised 8 February 2014
Available online 22 February 2014

Keywords:
Flow
Goal pursuit
Interest
Motivation
Self-control
Self-regulation

ABSTRACT

The present research tested the hypothesis that interest functions, in part, to optimize performance while also optimizing self-regulatory resources, and that this occurs when both affect- and value-related interest are high. Study 1 provided evidence that both affect- and value-related interest support task performance such that undergraduates ($N = 153$) in the high task importance condition, who also reported high affect-related interest, demonstrated relatively superior performance on a word-forming problem set. Study 2 ($N = 88$) provided further evidence that affect- and value-related interest were associated with superior anagram performance. A subsequent task demonstrated that self-regulatory resources were optimized for participants with both high affect- and value-related interest. The present studies provide evidence that high levels of performance can be achieved while maintaining optimal self-regulatory resources, depending on affect-related interest and the task's personal significance. Implications for goal pursuit and self-regulation are discussed.

Introduction

What allows people to sustain effective engagement in their goals without wearing out? Some people can work on solving the Rubik's Cube for hours or spend a sleepless night deriving mathematical equations and feel energized by the experience, whereas others would be mentally exhausted in moments. It stands to reason that the more effort people exert, the more taxed they should feel. Indeed, research has consistently documented this effect (see Muraven, 2012; Muraven & Baumeister, 2000 for reviews), particularly with regard to the self-control required to inhibit the desire to give up on difficult goals (Burkley, 2008; Muraven, Shmueli, & Burkley, 2006; Muraven, Tice, & Baumeister, 1998). That said, it is fairly common for people to feel invigorated by challenging goals (Csikszentmihalyi, 1990). In fact, it has been suggested that interesting tasks can feel effortless (Lipstein & Renninger, 2007; Renninger & Hidi, 2002) and that interest may contribute as a mental resource (Hidi, 1990). Clearly, the latter experience of goal pursuit is more adaptive, such that it fosters deep, sustained engagement. Accordingly, the purpose of the present research was to examine the role of interest in optimizing performance while also optimizing the self-regulatory resources required for effective engagement.

Much of the extant theory and research on interest has focused on its definition (e.g., Renninger, 1992; Sansone & Harackiewicz, 1996; Schiefele, 1991, 2009; Silvia, 2008), development (e.g., Harackiewicz, Durik, & Barron, 2005; Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008; Hidi & Renninger, 2006; Hulleman & Harackiewicz, 2009; Linnenbrink-Garcia, Patall, & Messersmith, 2013), maintenance (e.g., Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997), as well as its antecedents and consequences (e.g., Ainley, Hidi, & Berndorff, 2002; Ainley, Hillman, & Hidi, 2002; Durik & Harackiewicz, 2007; Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Harackiewicz, Barron, Tauer, & Elliot, 2002; Harackiewicz & Larson, 1986; Harackiewicz et al., 2008; Linnenbrink-Garcia et al., 2013; Plass et al., 2013; Renninger, Hidi, & Krapp, 1992; Schiefele, 1991, 2001; Senko & Harackiewicz, 2005). Relatively little work, however, has focused on its function (cf. Fredrickson, 1998; Izard, 1977; Izard & Ackerman,

☆ We thank James Y. Shah, N. Pontus Leander, and Erika Patall for their insightful comments throughout the development of this manuscript. Additionally, we thank James Y. Shah and Rod Duclos for the use of their research materials.

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http://dx.doi.org/10.1016/j.jesp.2014.02.004
0022-1031/

2000; Thoman, Smith, & Silvia, 2011). Why does interest exist, and how does it help us accomplish challenging goals? Research has demonstrated its association with various beneficial outcomes, including heightened attention (e.g., Ainley, Hidi, & Berndorff, 2002; Ellsworth & Smith, 1988; McDaniel, Waddill, Finstad, & Bourg, 2000; Renninger & Wozniak, 1985; Smith & Ellsworth, 1985), the adoption of adaptive goals (e.g., Harackiewicz et al., 2000, 2008; Senko & Harackiewicz, 2002), and learning (Harackiewicz et al., 2002; Hulleman & Harackiewicz, 2009), but less is understood about the purpose of interest and its functions independent of other constructs, such as intrinsic motivation. To this end, the present research was designed to examine one possible function of interest: that it simultaneously optimizes performance and the use of self-regulatory resources.

Theoretical background

The current work draws from contemporary research and theory on interest (Hidi & Renninger, 2006; Renninger et al., 1992; Schiefele, 1991, 2009) and self-regulation (Muraven, 2012; Muraven & Baumeister, 2000). To provide the theoretical basis on which the current studies are designed, we begin by describing our theoretical perspective on interest and then turn to a discussion of research related to the expenditure of self-regulatory resources. Finally, we discuss how these two areas of research can be merged.

Interest

Contemporary researchers studying interest have primarily differentiated between two main forms of interest: individual and situational. *Individual interest*, also referred to as personal interest, resides within the individual and is relatively stable. It involves both a deep personal connection to the domain, activity, or content and an eagerness to reengage in the object of interest over time (Hidi & Renninger, 2006; Renninger, 1992, 2009; Schiefele, 1991, 2001, 2009). For example, an individual may have an interest in chemistry that he or she pursues or attends to reliably over time. *Situational interest*, on the other hand, emerges from, and is supported by, environmental qualities (Hidi & Baird, 1986; Hidi & Renninger, 2006; Krapp, 2002; Schiefele, 2009). For instance, a student's interest in chemistry may be piqued when his or her instructor performs exciting classroom demonstrations. While individual interest can also be supported and actualized within a particular context, it is not dependent on the context in the way that situational interest is. In the present work, we focus on individual interest and thus describe this form of interest in greater detail.

Although there are subtle variations in the conceptualization of individual interest, two central components that are shared across leading perspectives include affect and value (e.g., Eccles, 1983; Hidi & Renninger, 2006; Krapp, 2005; Renninger & Hidi, 2011; Schiefele, 2001, 2009). The affect component pertains to the feelings related to involvement with particular content or activities and is characterized by states such as enjoyment, fascination, and excitement. The value component pertains to the importance ascribed to the content, activity, or domain. For example, content that is personally relevant or meaningful. These components also overlap with aspects of the modern expectancy-value model (Eccles, 1983; Schiefele, 2009; Wigfield & Cambira, 2010; Wigfield, Eccles, Schiefele, Roeser, & Davis-Kean, 2006). Specifically, the affective component is similar to intrinsic value by focusing on enjoyment or subjective interest; whereas the value component overlaps both with utility value, in terms of whether the activity helps the individual meet future goals, and attainment value, in terms of the centrality of the domain to the self. Notably, when one focuses on actualized interest within the context of a particular task, as we do in the present work, the overlap with task value is even greater as both can be focused on the positive feelings and value associated with a particular task or activity in that moment.

Importantly although the terms 'interest' and 'motivation' are often used interchangeably, these constructs are not synonymous (Schiefele, 2009). Interest refers to a preference for and tendency to engage in particular activities or domains (Hidi & Renninger, 2006). It is content and experientially driven. Motivation, on the other hand, is a broader process referring to the desire to bring about a particular end state in a particular situation, which includes initiating and sustaining goal-related behavior (Schunk, Pintrich, & Meece, 2008). It can be shaped by interest, but also by other processes, such as motives and goals. Thus, knowing that one enjoys a particular type of task or activity, or that a particular domain or task holds personal value may lead one to initiate and sustain on-task behavior. Accordingly, in the current work, we control for chronic achievement motivation in order to analyze the unique contribution of interest.

Finally, it is important to note that interest is associated with enhanced engagement and achievement (Schiefele, 2001). However, the specific mechanisms through which interest supports engagement and achievement requires further investigation. Moreover, additional research examining the interplay between the various facets of interest (affect and value) in supporting engagement and achievement would provide further insight into how the various aspects of interest work together to support engagement. For example, Durik and Harackiewicz (2007) found that enhancing the perceived utility of the task for those individuals high, but not low, in affect-related interest was associated with higher levels of task engagement; although interest alone, regardless of utility value, supported task performance.

Self-regulatory resources

In the pursuit of challenging goals, people must often persist even when they would otherwise prefer to withdraw effort. The inhibition of this overriding desire to disengage can require self-control (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Baumeister, Muraven, & Tice, 2000; Muraven et al., 1998), which can have deleterious consequences to the pursuit of goals (see Muraven, 2012 for a review). Research suggests that people have a finite pool of self-regulatory resources, and that exertions of self-control deplete those resources (see Muraven, 2012; Muraven & Baumeister, 2000 for reviews). Thus, the resources necessary for sustaining goal engagement or the initiation of other goals may be in short supply, ultimately lessening the effectiveness of those pursuits. These resources can be restored by various methods including rest (Tyler & Burns, 2008) or experiencing positive affect (Tice, Baumeister, Shmueli, & Muraven, 2007).

For example, Baumeister, Bratslavsky, Muraven, and Tice (1998) investigated the effect of overcoming temptation on self-regulatory resources. Participants took part in what they were told was a "taste perception" study, and were presented with radishes and chocolate chip cookies and other chocolate foods. In one condition, they were instructed to eat the radishes, but not the chocolate treats. In the other condition, they were instructed to do the opposite. There was also a control condition in which participants did not take part in the "taste perception" part of the study. In a seemingly unrelated task, participants were then instructed to work on a set of problems – problems that were selected by the researchers to be impossibly difficult – and told them that they could stop at any time. The researchers found that those in the radish condition not only gave up on the task sooner than the chocolate and control conditions, but also made less attempts to solve each puzzle before giving up. Those in the radish condition had to resist a far more desirable alternative, which depleted their self-regulatory resources, ultimately decreasing their persistence and perseverance on the challenging problems that followed. In a similar study, Muraven et al. (1998) found that participants who were asked to refrain from expressing emotion while watching a humorous video subsequently held a spring-loaded handgrip closed for less time than participants who were not asked to regulate their emotions. Therefore, the depletion experienced in the pursuit of one goal can come at the cost