Policy Insights from the
Behavioral and Brain Sciences
1–8

DOI: 10.1177/2372732216655542
bbs.sagepub.com
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Interest Matters: The Importance of Promoting Interest in Education

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Abstract

Interest is a powerful motivational process that energizes learning, guides academic and career trajectories, and is essential to academic success. Interest is both a psychological state of attention and affect toward a particular object or topic, and an enduring predisposition to reengage over time. Integrating these two definitions, the four-phase model of interest development guides interventions that promote interest and capitalize on existing interests. Four interest-enhancing interventions seem useful: attention-getting settings, contexts evoking prior individual interest, problem-based learning, and enhancing utility value. Promoting interest can contribute to a more engaged, motivated, learning experience for students.

Keywords

interest, education, achievement gaps, motivation, social-psychological interventions, problem-based learning, personalization, utility value, expectancy-value, educational policy

Tweet

Discover 4 interventions that promote interest, the science behind them, and policies that put student interest at front of the class

Key Points

- Interest is both increased attention, effort, and affect toward a particular object or topic and an enduring predisposition to reengage over time.
- Integrating these two definitions guides interventions that develop or maintain interest.
- Interest interventions include attention-getting situations, contexts evoking prior individual interest, problem-based learning, and enhancing utility value.
- Student interest is essential to academic success.
- Teacher preparation, incentivizing interest interventions, and accountability for interest contribute to an engaged, motivated learning experience.

Introduction

Whether it be a "race to the top" or "no child left behind" or "every student succeeds," U.S. educational policies focus on elevating students' performance, with much less focus on sustaining students' interest. Yet, when students are interested in an academic topic, they are more likely to go to class, pay attention, become engaged, take more courses, as well as process information effectively and ultimately perform well (Hidi & Harackiewicz, 2000). Students who discover academic interests in high school and college are better prepared for satisfying careers. Interest is a powerful motivational process that energizes learning and guides academic and career trajectories (Renninger & Hidi, 2016). Can policies help instructors harness this motivation and thus help students develop interest?

Defining Interest

The term *interest* can describe two distinct (though often co-occurring) experiences: an individual's momentary experience of being captivated by an object as well as more lasting feelings that the object is enjoyable and worth further exploration. Interest is, therefore, both a psychological *state* characterized by increased attention, effort, and affect, experienced in a particular moment (*situational interest*), as well as an enduring *predisposition* to reengage with a particular object or topic over time (*individual interest*; Hidi & Renninger, 2006). This duality not only highlights the richness of the interest concept but also contributes to the complexity of defining interest precisely. Situational interest combines affective qualities, such as feelings enjoyment and excitement, with cognitive qualities, such as focused attention and perceived value, all fostered by features of the situation (Hidi & Renninger, 2006). For example, a student

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might enjoy an entertaining lecture about tsunamis, become fascinated by their power, engage more in the class, and appreciate the subject's personal relevance. Thus, being in a state of interest means that affective reactions, perceived value, and cognitive functioning intertwine, and that attention and learning feel effortless (Ainley, 2006; Dewey, 1913; Hidi, 2006). Situational interest relates to self-regulation, task engagement, and persistence (Sansone & Thoman, 2005; Smith, Wagaman, & Handley, 2009; Thoman, Smith, & Silvia, 2011).

Experiencing situational interest can directly promote learning by increasing attention and engagement. A student who sees a painting by Monet for the first time in an art history class may be captivated by the bright colors and unusual brushstrokes, and as a result, will pay more attention and engage more deeply. If that interest develops into an individual interest, the student will more likely reengage with the material over time and explore the topic further (Harackiewicz, Durik, Barron, Linnenbrink-Garcia, & Tauer, 2008). Interest, therefore, predicts traditional measures of educational success, including future course taking and performance.

Individual interest highlights individuals' stable preferences for specific content. Here, the immediate experience of interest reflects a well-developed personal preference to enjoy and value a particular subject or activity across situations. Individual interest is, therefore, a stable, underlying disposition activated in particular situations. For example, students interested in geophysics might be especially likely to be in a state of interest during a lecture on tsunamis, whether the lecture is entertaining or not, because their interest is more developed and less dependent on situational factors.

How Situational Interest Becomes Individual Interest

The four-phase model of interest development (Hidi & Renninger, 2006; Renninger & Hidi, 2016) integrates these two perspectives and their development: Particular situations trigger interest, which can then develop across situations and over time to become more enduring. First, features of the environment (e.g., novelty, ambiguity, surprise) catch the person's attention. This situational interest can last longer, beyond a single situation, if tasks seem meaningful and involving (i.e., if the student perceives the task as valuable or enjoyable). Over time, repeated experiences of triggered and maintained situational interest can develop into an emerging individual interest, such that the individual seeks opportunities to reengage with the object. For example, if the student who was originally fascinated by the Monet painting also enjoys the teacher's lecture about the Impressionist movement and then notices and appreciates the Monet reproductions on display at the dentist's office, the student may decide to Google Monet's paintings and order his biography from the library. Finally, this emerging individual interest can develop into a self-sustaining, well-developed, individual interest (e.g., the student visits art museums and majors in art history).

Progress through these phases requires an environment that supports individual pursuit of interests. For example, a school field trip to an art museum can foster a student's developing interest in art. As individuals progress through these developmental phases, their connection to the object of interest becomes more stable and generalizable. Interest development begins in a specific situation, but by the time those interests are well developed, individuals make conscious choices and pursue their interests autonomously (Renninger & Hidi, 2016). Indeed, as interest deepens across these four phases, individuals become increasingly aware of their own interest, as an important part of themselves (e.g., consider themselves Monet enthusiasts).

The four-phase model of interest development has implications for teaching practices. First, the model contends that interest develops gradually and that external support (e.g., engaging lectures, school field trips) can foster interest. This also implies that, without external support, interest can go dormant or even be abandoned. Second, the model indicates that students at different stages of interest development may benefit from different types of external support. When students are unfamiliar with a topic, teachers may be able to create environments that catch their attention (e.g., by beginning a chemistry class with a demonstration of a chemical reaction). When students enter a situation with some preexisting interest, however, teachers may be able to maintain those interests with interventions to expand their knowledge of the topic and solidify its perceived value. Thus, teachers can stimulate students' developing new interests in the first two phases (triggered and maintained situational interest), and maintain or strengthen interests for students in the second two phases (emerging and well-developed individual interest). In so doing, teachers can foster students' motivation and achievement.

Interventions to Promote Motivation

Cultivating interest should not be an afterthought to the typical learning situation: Interest is essential to academic success. Interventions to develop students' interest matter in any educational context, but may be most needed in academic domains that many students do not find initially interesting or those domains in which interest typically declines over time. For example, in middle school and high school, students' academic interests decline, particularly in science, technology, engineering, and mathematics (STEM) subjects (Brophy, 2008; Eccles et al., 1993).

There is no silver-bullet motivational intervention, and what works for one type of student or classroom context may not generalize (we return to this point later). With that said, interest theory informs two intervention approaches:

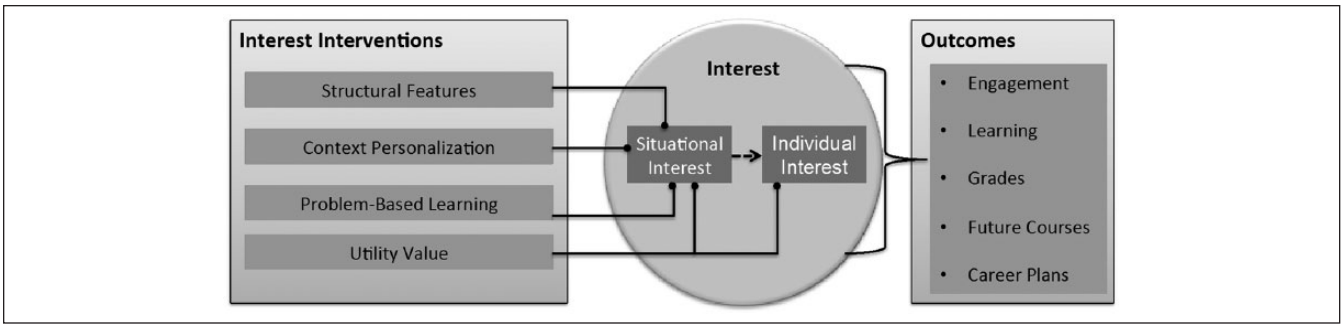

Figure 1. Conceptual model showing how interventions promote interest development and subsequent educational outcomes.

1. Trigger and maintain situational interest: Provide activities that use structural features (i.e., problems, challenges, surprise) to stimulate attention and engagement for all students.
2. Build on emerging and well-developed individual interest: Provide content and academic tasks that facilitate connecting academic topics with existing interests.

As Figure 1 summarizes, these interventions target motivational processes expected to influence critical educational outcomes, and take the learner's phase of interest development into account.

Triggering Students' Situational Interest: Structural Features

One way to trigger interest is to structure learning activities in ways that catch students' attention. Dewey (1913) argued that educational activities should awaken and excite the immediate needs of the individual. Berlyne (1970) identified a number of task features, called collative variables, which affect attention and arousal. In a series of studies, he varied the novelty, complexity, surprisingness, and incongruity of visual stimuli, and found that each of these collative variables increased attention, arousal, and interest. More broadly, these principles underlie many interventions intended to promote situational interest in educational contexts, which Renninger and Hidi (2016) refer to as "triggers for interest." For example, various factors triggered situational interest in a college biology class, such as hands-on activities, novelty, surprise, and group work (Palmer, 2009). Similar factors were important in ninth-grade biology classes, where novelty proved most important, but choice, physical activity, and social involvement were also triggers.

Triggering Students' Situational Interest: Context Personalization

Another way to trigger students' interest in a new subject is to leverage their existing individual interests by presenting instruction in the context of those interests. For example, to teach math to a musician, talk about the mathematical principles inherent in music. Building content around existing interests is an intuitive approach for educators. To be sure, taking stock of each student's interests and adjusting the content accordingly is not without its practical challenges, particularly for instructors of large classes (Walkington & Bernacki, 2014). Indeed, catering to the personal interests of a heterogeneous group of students who differ in their interests can be challenging and time-consuming (Hidi & Harackiewicz, 2000).

However, advanced learning technologies that adjust content based on student preferences can provide feasible and scalable solutions for tailoring instruction to learners' needs and interests, as in context personalization (Collins & Halverson, 2009; Walkington & Bernacki, 2014). This practice matches instructional tasks with characters, objects, and themes of students' out-of-school interests (Cordova & Lepper, 1996; Høgheim & Reber, 2015). For example, in a physics class, a learner interested in extreme sports might be given a task that involves sky diving, to learn about gravity and air resistance. Even with content constraints about what students are expected to learn, the context of that content may be flexible. Personalized contexts connect new content to learner's pre-existing individual interests. Students given personalized math problems work harder and perform better (Walkington, 2013), with the most pronounced positive effects for students struggling with mathematics and among learners with low individual interest in the content area.

Personalization interventions can be characterized along three dimensions: *depth, grain size*, and *ownership* (Walkington & Bernacki, 2014). Depth refers to the quality of the connections to learners' existing interests. Here, interventions range from simple insertions of surface-level information about students' interests (e.g., a favorite movie) to elaborate contextualized tasks that relate to students' interests and hobbies. Grain size refers to the size of the reference group: It differentiates between tasks that are tailored to the interest of an individual learner or to groups of learners such as a certain age group. Here, the intervention depends upon the homogeneity of the class and whether broad categories of

personalization are relevant to a wide audience or smaller subgroups of students who would benefit from more individualized personalization. Ownership refers to the degree of autonomy in generating the personalization. Novel topics might require support from the instructor or peers to give ideas for personalization, but students can also play a role in personalizing their learning, which can create the deepest connections (Walkington & Bernacki, 2014).

For example, some groups of students (Native Americans and Latinos) benefit when the presentation of a science topic emphasizes giving back to their community, an important interest for these students (Brown, Smith, Thoman, Allen, & Muragishi, 2015; Smith, Cech, Metz, Huntoon, & Moyer, 2014; Thoman, Brown, Mason, Harmsen, & Smith, 2015). An intervention designed to integrate topics of giving back to the community in a science course would be a deep, large-grained personalization intervention because it targets the well-developed interests of a group of students. Furthermore, this intervention could be implemented with little ownership (e.g., if the instructor provides information about how science can be used to address community issues) or with a great deal of ownership (e.g., if the instructor tasks students with proposing community outreach activities). What combination of grain, depth, and ownership best connects with students' existing interests is unclear, but these concepts must inform the design of personalization interventions.

Triggering and Maintaining Situational Interest: Problem-Based Instruction

Problem-based learning is an instructional method that creates a need to solve an authentic dilemma (Belland, Kim, & Hannafin, 2013; Hung, Jonassen, & Liu, 2008). From an interest theory perspective, problem-based learning provides a learning environment that can trigger and maintain situational interest. First, the problem presented to students highlights a lack of critical knowledge needed to solve the problem, which can trigger situational interest. Second, the search for answers to the problem stimulates curiosity questions—self-generated questions that can promote the development of deeper interest—while requiring students to acquire and organize new knowledge about the topic, which can promote both interest and learning (Renninger & Hidi, 2016).

Previous research on problem-based learning provides insights into how to create problems that promote interest. Work with Singaporean students suggests that intriguing problems (e.g., why the Japanese were able to conquer Singapore during World War II despite being highly outnumbered) can be effective for eliciting situational interest, but that interest may decline once students discover the answer to the problem (Rotgans & Schmidt, 2014). Thus, a stimulating problem in and of itself may not be enough to promote maintained interest. In a meta-analysis, complex problems were more effective for promoting student learning than were well-structured problems (Walker & Leary, 2009). Indeed, a problem (climate change) that increased in complexity as students learned more about potential solutions repeatedly triggered situational interest across the 15-lesson unit, rather than dropping off once a potential solution was discovered (Knogler, Harackiewicz, Gegenfurtner, & Lewalter, 2015). Thus, complex problems that build on themselves and continually lead students to ask additional questions can repeatedly trigger situational interest (Walker & Leary, 2009).

Utility-Value Interventions: Integrating Situational and Individual Interest Processes

Interest theory suggests that another route to capturing and sustaining students' motivation is helping students find meaning and value in their courses (Harackiewicz & Hulleman, 2010). Extensive experimental and longitudinal survey studies have documented the importance of *value-related beliefs*, defined as perceived usefulness and relevance to the student's identity and both short- and long-term goals (Eccles, 2009; Harackiewicz, Tibbetts, Canning, & Hyde, 2014). When students perceive value in course topics, they develop greater interest, work harder, perform better, persist longer, take additional courses, and complete their degree programs (Harackiewicz et al., 2008; Hulleman, Durik, Schweigert, & Harackiewicz, 2008). Students who see the value of a field of study experience greater involvement, more positive task attitudes, and greater identification with the domain (Brown et al., 2015; Smith, Brown, Thoman, & Deemer, 2015).

Value perceptions play a key role in another prominent theory of motivation: expectancy-value theory (Eccles et al., 1983). According to this theory, people choose challenging tasks—such as persisting in a college physics course—if they (a) value the task and (b) expect that they can succeed (based on self-beliefs). Beliefs about the self and beliefs about the value of the task both predict interest, course choices, and major choice. Task value includes intrinsic value (the enjoyment an individual experiences from performing a task), attainment value (the personal importance of doing well on a task), and utility value (how useful or relevant the task is for the individual's current and future goals). Intrinsic value is of course closely aligned with situational interest, and both intrinsic and attainment values predict academic interest and persistence (Eccles & Wigfield, 2002). Utility value, however, is an ideal target for interest interventions, because it is the task value most amenable to external influence (Harackiewicz & Hulleman, 2010).

Intervening to communicate the utility of a topic improves motivation. For example, convincing parents of the utility value of math and science for their high school–aged teens should motivate parents to talk to their teens about their

courses, which would promote their teens' interest in STEM topics, and lead them to take more elective math and science courses. Indeed, when utility-value information was communicated to parents (using two brochures and a website), their teens took, on average, an extra semester of math or science in their last 2 years of high school, relative to a control group whose parents did not receive the utility-value information (Harackiewicz, Rozek, Hulleman, & Hyde, 2012). A 5-year follow-up of these students found that students whose parents were in the intervention condition were also more likely to take STEM courses in college and have STEM career aspirations (Rozek, Svoboda, Harackiewicz, Hulleman, & Hyde, 2016). Parents can promote interest, as well as customize utility-value information on an individual basis. Parents know their teens' interests and can make specific, personal connections in a way that teachers, who work with multiple students, cannot (Hyde et al., 2016).

Instructors can, however, harness the power of deep, specific utility-value connections by asking their students to generate these connections for themselves. To do this requires revising existing course assignments, as well as infusing new opportunities into the curriculum. Utility-value interventions aim to influence students' perceptions of value by using writing activities focused on course content (e.g., a homework assignment that asks students to reflect on how what they are learning might be useful in their lives). On their own and in their own terms, students generate connections between course topics and their lives—helping them appreciate the value of their coursework and promoting a deeper level of engagement. The key is having students actively work to find the value for themselves. Indeed, self-generated utility-value connections are more powerful than externally provided utility-value information (as when teachers simply tell students that material is useful) in promoting interest and performance (Canning & Harackiewicz, 2015). A utility-value intervention can help spark situational interest in a topic, and it may help students connect that topic to their own interests, which can build on individual interest.

The efficacy of the intervention for promoting interest and performance was first demonstrated in ninth-grade science classes, with the strongest benefits for less confident students (Hulleman & Harackiewicz, 2009); the intervention improved performance for these at-risk students by nearly two thirds of a letter grade, and enhanced their interest in science. Moreover, interest predicted students' science-related career plans, suggesting that this simple intervention promotes important academic outcomes.

The Special Case of Introductory Courses in Higher Education

Introductory college courses are ripe with possibility: Here, students test the waters in different fields, assess their fit, and gauge their interest in pursuing majors and careers. However, these courses also present unique challenges. For instructors, these courses are populated by large, diverse groups of students with varied levels of knowledge, interest, and motivation in the field, making it difficult to promote interest for all students. For students, introductory courses are often critical gateways to majors and careers, requiring high grades to continue in a field. Structurally, they are often large, impersonal, and overwhelming for students who may be new to the college environment. Particularly among first-year students, introductory courses may be the yardstick by which they measure their fit in college, not just in a particular field. Thus, for many students, introductory courses present high-pressure tests of their academic belonging in a particular field and college more generally, and these pressures are exacerbated for certain groups of at-risk students (e.g., first-generation and underrepresented minority students) who are more likely to doubt their belonging in college, become disengaged in large-lecture courses, or both.

What are the logistics of implementing an interest intervention in a large introductory class? Use of collative factors (novelty, surprise, humor) can grab students' attention, but can also appear gimmicky and rub college students the wrong way. In contrast, context personalization interventions meet individual students where they are and create interest in course topics by association to their own unique personal interests. At first glance, the logistics of context personalization may not seem feasible in a large-lecture setting. As coursework moves online, however, advances in adaptive learning technologies may help college professors individualize some instructional activities. Similarly, problem-based learning strategies may be ideal for middle school or high school instruction, but are not as easily implemented in large-lecture courses. These approaches might be usefully applied in smaller laboratory sections, which allow more flexibility (Freeman et al., 2014).

The utility-value intervention is well suited for introductory college courses. For example, in introductory undergraduate psychology classes, using brief utility-value writing assignments promoted interest for students who were performing poorly in the class, relative to a control group that wrote summaries of course material (Hulleman, Godes, Hendricks, & Harackiewicz, 2010). Indeed, the utility-value intervention is flexible, can reach students at varying levels of interest, and may even help underrepresented students connect what they are learning to their unique set of interests and values, with the potential to close persistent achievement gaps. As a case in point, a utility-value intervention implemented in a large introductory biology course (with three short writing assignments during the semester) was effective for all students and particularly for students who tended to struggle the most in the course: first-generation underrepresented minority students (Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2015). In fact, these students, performed about half a grade point higher in the intervention condition than in the control condition. In

addition, they became more engaged in the utility-value assignment, writing longer essays despite identical length requirements. The utility-value intervention is an essential tool, especially for undergraduate instructors, to impact student success with far-reaching positive benefits.

One Size Fits Some

No interest intervention is one size fits all. Considering students' pre-existing interest and level of competence for a given topic is imperative. Indeed, some interest triggers merely distract students who already have a well-developed interest in a topic, whereas these same triggers promote situational interest for students in the earlier phases of interest. For example, visually stimulating, catchy features such as adding color, varied fonts, and vivid pictures to math tasks enhanced situational interest for students who were low in individual interest, but had a negative effect for students who had more developed interest in math (Durik & Harackiewicz, 2007).

On the whole, utility-value interventions often improve motivation for all students (Brown et al., 2015; Harackiewicz et al., 2015; Harackiewicz et al., 2012), and the benefits are often largest for the most at-risk students (Harackiewicz et al., 2015; Hulleman et al., 2010). Yet, students who feel more competent sometimes benefit more from the most direct utility-value communications (Durik & Harackiewicz, 2007; Durik, Shechter, Noh, Rozek, & Harackiewicz, 2015). The way that utility value is communicated also differentially impacts students in different phases of interest development. Directly communicated utility value is most beneficial for students with well-developed interests, but self-generated utility value is more effective for those who are initially low in interest (Durik, Hulleman, & Harackiewicz, 2015). These nuances should inform selection of an intervention, which requires considering the specific goals of the educator, the instructional setting, and the needs of the students.

Interest Matters in Educational Policy

With the passage of the Every Student Succeeds Act (ESSA) in December 2015 (U.S. Department of Education, 2015), more autonomy is granted to local and state agencies to set educational assessment standards. What is more, the ESSA prioritizes use of evidence-based educational interventions. The time is thus ripe to consider the contribution of interest theory to new and existing K-12 and higher education policies, accreditation standards, and teacher licensure requirements. Teacher preparation, incentivizing, and accountability policies each may contribute to a more engaged learning experience for our nation's student body, as follows.

To get to a place where student motivation is a valued process and outcome, policies should inform the training of our next generation of educators. National accreditation boards (e.g., Council for the Accreditation of Educator Preparation), state accrediting agencies, and teacher licensing systems might want to consider tighter alignment with lessons learned from motivational science when they set teacher preparation policies and standards. One possible policy action is the proactive design of teacher preparation programs based on the principles of interest theory and the interventions that trigger and maintain students' situational interest or build on their emerging and well-developed individual interests. For example, teacher preparation policy could mandate courses on how to evaluate and adopt interest interventions in curricular, cocurricular, and even extracurricular efforts (Diekman, Weisgram, & Belanger, 2015). One promising route is to implement a core teacher-education course, and continuing education courses, on student interest development processes. Such a course could emphasize different types of interest-triggering structural features (Durik & Harackiewicz, 2007), techniques for context personalization (Walkington & Bernacki, 2014), strategies for problem-based instruction (Knogler et al., 2015), procedures for optimal communication of utility-value information (Brown et al., 2015; Canning & Harackiewicz, 2015), and optimal implementation of utility-value interventions (Harackiewicz et al., 2015). Such a course would necessarily emphasize how interest triggers foster connections and deeper processing (Walkington & Bernacki, 2014), as well as lay out the science behind how struggling and at-risk students can benefit from the different types of interest interventions (Harackiewicz et al., 2014).

Teacher preparation policies and practices are useful only insofar as they translate to action in the classroom, which suggests incentivizing the design and adoption of interest interventions and rewarding faculty for the downstream benefits of their efforts toward enhancing student motivation. Getting down into the weeds of creating instructional opportunities that promote and sustain students' interest or facilitate utility-value connections is time-consuming and requires careful attention to intervention implementation details (Yeager et al., 2016). Various evaluation policies could reward educators who use evidence-based motivational science to inform their curricula and instructional methods, for example, by providing professional development funds, creating organizational teaching awards, and other meritorious recognition for such efforts.

Finally, policies should go beyond strict performance standards and consider multiple indicators of student success that include student interest. The next step is revising existing policies that already hold administrators and instructors accountable for student learning, and expanding those policies to include fostering interest. This could begin, for example, by mandatory inclusion of ratings of the degree of interest in, or utility of, course content in student and peer evaluations of teaching that are factored into annual faculty reviews and promotion decisions. Other options are to create policies that require faculty to outline the utility value of their course content, include interest interventions as a preferred requirement for faculty job candidates, and mandate that promotion and retention dossiers include

evidence of efforts toward enhancing student motivation. Such accountability policies would set a new norm for the central role of student interest in education.

The U.S. educational system must respond to the ever-changing needs of our nation's students. Just as the medical school curriculum was revolutionized by adding a core medical ethics course in the late 1970s (Lakhan, Hamlat, McNamee, & Laird, 2009) and is now integrating coursework to help students navigate the legal and business realities of medical practice (Shah, 2008), teacher-education stakeholders should consider providing future teachers with the skill set to promote and sustain students' developing interests. Using interest theory to inform educational policy and practice is one step toward creating a future generation of students with a love for learning (Hidi & Harackiewicz, 2000; Renninger, Sansone, & Smith, 2004).

Acknowledgments

We thank Max Knogler, Ann Renninger, and Lynda Ransdell for helpful comments on an earlier version of this article.

Authors' Note

Any opinions, findings, conclusions, or recommendations expressed in this material are our own and do not necessarily reflect the views of the National Institutes of Health.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research for and writing of this article were funded by the National Institutes of Health, General Medical Sciences (Grant R01GM102703, PI: Harackiewicz; Grant R01GM098462, PI: Smith).

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