

PREFACE

The pace of successful motivation-based interventions has accelerated considerably during the past decade. Based on diverse theoretical approaches, empirical evidence substantiates their effectiveness in promoting such beneficial student outcomes as academic performance and persistence. However, reports of this work are scattered over an array of outlets in the education and psychology literatures, which Volume 18 in the *Advances in Motivation and Achievement* series – *Motivational Interventions* – is designed to redress. We have included contributors that represent a range of perspectives and major theoretical frameworks – including attribution, expectancy-value, self-determination, social cognitive, interest and identity theories – and that apply such social-psychological principles as self-affirmation and stereotype threat.

Interventions differ in length, from extremely brief “doses” consisting of messages embedded in class material to those lasting an entire academic year or more. Some interventions are designed to counter fixed mindsets by promoting beliefs that change is possible (e.g., through effort); others establish curricular or domain relevance (e.g., that math is useful) or affirm student values to counter identity threat and social category isolation. Some interventions are based on single theories or principles while others combine several of them. Finally, as would be expected, most interventions predominantly target those in need (e.g., students with low interest, efficacy, performance, and socioeconomic backgrounds).

We begin with Perry and colleagues Chipperfield, Hladkyj, Pekrun, and Hamm, who describe their extensive programmatic work – based on Weiner’s theoretical framework – demonstrating how the attribution retraining (AR) of adults in achievement contexts influences motivation and performance. The primary goal of AR is to increase the likelihood that failure will be attributed to internal, unstable, and controllable causes (primarily insufficient effort) rather than causes that are stable, and uncontrollable (primarily low ability). Numerous studies provide evidence that AR can result in as much as a full letter-grade improvement in student performance. And as the authors emphasize, these effect sizes are many times greater

than those forming the rationale for commonly recommended biomedical interventions (e.g., aspirin and cardiac risk). Several advances are presented that explicate the AR process leading to refined AR design features that are likely to improve its effectiveness.

In the next chapter, Wigfield, Mason-Singh, Ho, and Guthrie provide substantial evidence that Concept-Oriented Reading Instruction (CORI) — based on the Guthrie and Wigfield engagement model — improves children's reading motivation and performance. The approach combines reading strategy instruction and motivation-enhancing teaching practices, which has been embedded primarily in the domain of science. Rather than the single framework that underpins AR, CORI incorporates social cognitive, interest, self-determination, and expectancy-value theories that form the basis of promotive teaching practices (including optimizing student choice, reading-related hands-on activities, texts with high interest value, and student collaboration). Substantial evidence is provided for the enhancement of reading comprehension, reading engagement, strategy use, reading motivation, self-efficacy, and both intrinsic and extrinsic motivation. Furthermore, a substantial theoretical — as well as pragmatic — contribution consists of demonstrating that beneficial effects are mediated by students' perceptions of the teachers' motivational practices and that situated motivations that occur *during* instruction are cumulative and account for changes in students' general reading motivation.

The motivational interventions described by Harackiewicz, Tibbetts, Canning, and Hyde employ aspects of expectancy-value, interest, and self-affirmation theories to promote the development of students' interest, performance and persistence in mathematics and science. A series of laboratory and field experiments successfully demonstrated higher interest among high school and college students provided with information about the utility of math and science. One exceptional study offered evidence that student enrollment in STEM courses was indirectly influenced by providing parents with information about the utility value of STEM (science, technology, engineering, math) disciplines. Similar to numerous other studies of interest, situational interest was also influenced when math material was presented using attractive features. Performance and retention also increased for college students engaged in a value affirmation exercise. Importantly, in this and other studies, effects are often strongest for students with low prior interest or performance expectations. In a theme echoed by other contributors to this volume (e.g., Silverman & Cohen), powerful effects are found despite the relative simplicity and brevity of the interventions. Reasons why they work, the way they can be combined with other interventions, and

issues involved with scaling up are discussed, as well as implications for motivation theory.

In part devoted to extending the interventions described above, Renninger and colleagues Austin, Bachrach, Chau, Emmerson, King, Riley, and Stevens describe results of an intervention (ICAN) designed to support participants in two inquiry-based science workshops (iSTEM), in particular the potential of ICAN to develop students' topic interest, the ability to pose science questions and the use of evidence to address them. The ICAN intervention consisted of students writing open-ended responses to probes that focused on the disciplinary content and skills of the workshop and were a regular part of their laboratory work, which students retained as resources when needed. That ICAN students outperformed those in iSTEM workshops without ICAN probes, or those not in the workshops, was attributed to the frequent (daily) opportunity for consolidation of the workshop content. Evidence that knowledge gains were found irrespective of initial level of student interest was attributed to their focus "on rich content that led them to explore and continue to develop their science interest and learning at a pace and depth matched to their readiness."

Context personalization is another intervention designed to improve achievement. As described by Walkington and Bernacki, rather than presenting abstract or generic content, the fundamental principle is to "match instructional content to learners' out-of-school interests," which has the potential to increase their interest in and perceived utility of studying a specific topic. Contextualization, for example, might involve teaching algebra using examples in the domain of sports for one student and music for another. In addition to reviewing the literature on personalization, the authors describe four types of interventions that differ according to their depth, grain size, and ownership. Personalization feasible for large groups could be based on knowledge of their general interests (e.g., for sports cars) that would vary in its match to individual interests, whereas interviews – and increasingly the affordances provided by computer technology – can produce contextualization (even deriving interests from students' social networking sites) that is closely matched to individual interests. As with other interventions, evidence suggests efforts to contextualize learning are more beneficial for lower performing students and with more difficult content.

In contrast to those focused on promoting positive approach motivation, Silverman and Cohen summarize interventions that emphasize the mitigation of factors that disrupt debilitating self-narratives that interfere with learning and performance. Described as social-psychological in nature,

these “wise” interventions are designed to foster students’ narratives of security, thereby allowing them to rebound from failure experiences, feelings of exclusion, concerns about fairness, concerns about their ability, and the relevance and value of their work. Such wise interventions, including some of those described in previous chapters, have the power to reframe events in ways that lead to healthier behaviors. Included are features derived from Dweck’s implicit theories that promote the malleability of intelligence and skills, and especially self-affirmation in which students designate and write about desired values. Although the interventions are brief, they have significant and long-lasting impact on disadvantaged and lower performing students, which the authors ascribe to taking advantage of social-psychological systems and forces in tension (cf. K. Lewin) that can be influenced by what are ostensibly only minor interventions. Also stressed is the stipulation that only disguised interventions will be effective, such as the ICAN essays described previously. Additional issues regarding scaling up the interventions are suggested, including whether they can be combined, their value for non-targeted groups, and (as suggested by Harackiewicz et al.) the role of parents.

The next two chapters focus on identity. Oyserman describes the theoretical foundation and research support for Identity-Based Motivation (IBM). Expanding from the core principles of identity theories (i.e., that the self is both stable and an important influence on behavior), Oyserman adds that identity influences behavior only when the identity is salient, when it is perceived as relevant in the current context, and when it is perceived as not being too difficult to achieve. For example, a 9th grader who imagines herself as a doctor in the future may nonetheless spend the evening hanging out with friends rather than studying for her upcoming biology exam because, in the friendship context, her future self is not salient and, even if it were, the connection between her 9th grade biology grade and her future career may be perceived as too distant to affect her current behavior. After articulating the factors that influence the identity-behavior link, Oyserman reviews research documenting how identity salience, congruence between identity and behavior, and perceived difficulty of behavior can be influenced by contextual cues. This research indicates that even brief interventions can make an important difference. For example, asking students to draw a path connecting their current identities to hoped-for future selves caused them to engage in more achievement-oriented behavior than if they simply listed their hoped-for selves. In short, helping students to view achievement-oriented behaviors as congruent with achievable current and future identities can strongly encourage students’ achievement-oriented behaviors.

Kaplan, Sinai, and Flum report the results of three interventions based on the process of identity exploration, which is relevant to – but distinct from – such other motivational constructs as interest, mastery goals, task value, and self-determined regulation. In one intervention, the process of exploration was designed to promote content relevance, facilitate a sense of safety, and scaffold behavior to establish values, attitudes and beliefs that promote environmental sustainability. Importantly, identity changes (e.g., toward the environment) can have far reaching and long-lasting consequences, in addition to those that result from the exploration process itself. Similar to other interventions, one activity involves students' written reflections about course content (to promote personal relevance). Why the desired exploration outcomes were not successful for some students was attributed to these activities' failure to promote identity exploration strategies, their lack of readiness to engage in the process, and lack of prior content knowledge. Kaplan and colleagues stress the multifaceted factors that must be considered for the success of such interventions, and that non-deterministic outcomes are "an inherent characteristic of motivational phenomena."

We then turn to extended interventions that target teachers' instructional strategies that promote adaptive student motivation, framed within self-determination theory (SDT). Reeve and Cheon introduce an Autonomy-Supportive Intervention Program (ASIP) focused on facilitating teachers' use of autonomy-supportive teaching practices in order to enhance student engagement (behavioral, cognitive, emotional, agentic) and decrease student amotivation. The intervention is designed to promote teachers' use of instruction delivered in an autonomy-supportive rather than a controlling motivational style, which is likely to be perceived by students as informative rather than controlling. Examples are giving students more choice and "providing explanatory rationales, displaying patience to allow students time to work in their own way and at their own natural pace, and acknowledging students' expressions of negative affect and accepting that such complaining may be a valid reaction to a teacher-imposed request." Experimental studies provide evidence, including substantial effect sizes, that ASIP changes both teachers and students. Reeve and Cheon include several complementary "add-on" strategies (including mastery-oriented practices), which they emphasize are more effective if delivered in a way that is autonomy-supportive.

Turner's interventions also focus on teachers rather than students. They are designed to close the gap between motivation theory and the day-to-day requirements of teaching practice. As she points out, while theory consists

of general principles based on systematic empirical research, practice is based on the craft knowledge that teachers acquire through experience in uncontrolled, concrete, and sometimes chaotic classroom contexts. According to Turner, there is a need for research examining how motivation theory can be translated into classroom practice. Turner has chosen the motivation principles of competence, belongingness, autonomy (as in SDT), and meaningfulness. Her goal of connecting motivation principles to practices was conducted first with a small group of math teachers over one year, then with an entire middle school over three years. Turner employed a dynamic systems approach that involved extensive coding of student and teacher interactions, using state-space grids to track adaptive teacher affordances and student responses to them. Evidence indicates the effectiveness of such theory-based interventions, and the required supportive conditions are noted, such as the role of the educational, school and teacher culture in what is a highly complex system.

In the final paper, Roeser provides a perspective on the emerging sciences of mindfulness and the applications and benefits of mindfulness-based interventions (MBIs) in education. Included are descriptions of advances in contemplative developmental science and contemplative education, basic mindfulness practices, and the results of research with adults and children on how mindfulness training can benefit school leaders, teachers, students, and school communities, especially students' academic and social-emotional development. Evidence indicates that MBIs reduced teachers' stress and burnout and that school-based secular MBIs and mindful yoga have a number of beneficial outcomes (e.g., stabilizing attention and improved adjustment) for children and adolescents. Although acknowledged as in its nascent stage, there is considerable promise, especially once further studies verify the components of models of how MBIs function to reduce stress through enhanced attention and emotion regulation.

Taken together, the contributions to this volume represent an exciting direction in motivation research. Researchers from a variety of disciplines, both within and beyond psychology, are designing creative ways to apply basic research principles to solve persistent motivational problems in education. From brief interventions based on social-psychological principles to multi-year collaborative projects with teachers, each of the chapters in this volume describe theory-driven projects that produce genuine benefits for students and teachers. As these and other intervention efforts gain attention, replication, and variation, new questions have begun to emerge. Can these interventions be "scaled up" to benefit a larger number of students? Will some of them lose power as they lose novelty? How will these interventions

work with other innovations and changes in education, such as the widespread adoption of the Common Core? And how well will interventions that have been found effective with some populations (e.g., college students in the United States) generalize to other students (e.g., high school students, college students outside of the United States)? As several of the authors reminded us, these interventions work best when they are targeted to a specific group at a specific point in their educational careers. So scalability and generalizability are empirical questions that will undoubtedly be examined in the years to come. By compiling research on motivational interventions from across a range of disciplines, we hope that this volume will move this process forward.