

# Beyond Benchmarks and Scores: Reasserting the Role of Motivation and Interest in Children's Academic Achievement

## An ACEI Position Paper

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Children at every age and stage can be surprisingly avid learners, such as the 5-year-old with encyclopedic knowledge about a favorite animal, the 10-year-old determined to advance to the next level of an electronic game, or the young adolescent who is a repository of information about popular musicians and their songs. In these informal situations, children pursue learning for its own sake with tremendous intensity, becoming so absorbed that time seems to pass by quickly, and learning is pursued for its own sake (Cambourne, 2002; Csikszentmihalyi, 1990). Ideally, all learners would be eager about and receptive to learning the things that adults consider to be important. Yet much of the time, teachers find themselves operating under a very different set of circumstances in which one or more children are disaffected, reluctant, or even resistant toward a particular learning task. When this occurs, teachers are confronted with one of the most persistent puzzles of practice: What are effective ways to motivate groups of children to achieve academically in classrooms?

There is little question that the fundamental purpose of education—what the ancient Greeks referred to as the *telos*—is to promote student learning. For decades, both experts and the general public have agreed that any effort to improve the education system must focus squarely on optimizing student learning, motivating students to achieve, and furthering teacher professional development (Boyer, 1995; Darling-Hammond, 2006; Rose & Gallup, 2006). As clear and compelling as such goals may be, the route to attaining them is obscured by a dense fog of widely held misconceptions, conflicting expert opinion, and political agendas. What is disregarded in the frantic quest to attain higher test scores is that an emphasis on motivation, interest, and metacognition—the ability to analyze one's own learning needs and processes—make a collective and profound contribution to academic achievement. As Nel Noddings (2006) explains, "The most fundamental expectation of

schooling is that students will learn. If we want them to use their minds well, it is reasonable to help them understand how their minds function, how and why they learn. What motivates us to learn? What habits are helpful? Why do I remember some things and forget so many others?" (p. 10).

This ACEI Position Paper is an effort to respond to each of these important questions as they apply both to learners and to teachers. It begins by redefining learning and challenging widely held assumptions about the role of motivation and interest in learning. Next, it focuses on incentives used to motivate learning, and finally, it offers research-based recommendations on how to build motivation and interest in learners. The evidence used as support emanates from an interdisciplinary review of research in neuroscience, motivation theory, psychology, educational psychology, and studies of effective teaching. The three main assertions of this ACEI Position Paper are that:

- Educational initiatives and approaches need to reflect a more sophisticated, research-based understanding of the learning process.
- Children's learning is supported by task-related incentives, both intrinsic and extrinsic, that are responsive to the individual child, the domain of study, and the sociocultural context.
- Effective teaching transcends merely imparting knowledge and relies, to a considerable extent, on educators' ability to motivate students to learn. Any characterization of learning that disregards the role of motivation and interest is shortsighted at best and destructive at worst.

### REDEFINING LEARNING

Educators speak of learning all of the time, yet relatively little agreement exists about a basic definition, much less agreement about the process involved in enhancing learning. Look up the word "learning" in the glossary

of a psychology book and the definition is apt to be some version of “a change in behavior.” Invite a group of teachers to diagram the learning process and most of their depictions will be linear models (e.g., ladders, steppingstones, or building blocks), all of which imply that individual learners make incremental, evenly spaced progress toward attaining higher levels of learning. Actually, learning—both outside and inside of school—is far too complicated to be represented by concise definitions and simplistic models.

Katz (1988) provides a useful conceptualization of learning when she asserts that learning consists of four interrelated types: knowledge (acquiring information), skill (the ability to demonstrate a particular behavioral repertoire), feelings (the emotions connected with the learning), and dispositions (“habits of mind” that become internalized, such as curiosity or persistence). In any given learning situation, all four co-exist and are equally important.

Another fruitful approach to understanding learning is to identify something like the “minimum daily requirements” for effective learning experiences. Brian Cambourne’s (1995, 2001) eight conditions for learning do just that. The conditions are: immersion, demonstration, engagement, expectation, responsibility, use, approximations, and response. To illustrate how his theory operates, consider the goal of supporting early literacy. In order to accomplish it, we do all of the following at various times: put young language learners in print-rich environments (immersion); model enthusiasm and fluency by reading aloud (demonstrations); invite them into conversations about interesting books (engagement); convey confidence in their ability to succeed (expectation); allow the learners to make decisions, particularly about when to move on to the next level or challenge (responsibility); afford time and opportunity to practice in both individual and social settings (use); support children in taking the risks necessary to learn something new (approximations); and give them chances to adapt, modify, and extend their learning in the good company of teachers, peers, families, and others (response).

In addition to Katz’s categories and Cambourne’s conditions, five additional salient points about learning merit elaboration because they frequently are overlooked. First, learning is unevenly paced; second, attaining higher standards demands attention to the affective aspects of learning; third, learning is a social and cultural process; fourth, new learning is intertwined with previous learning; and fifth, expectations for learning need to be respectful of children.

### **Learning Is Unevenly Paced**

Professional wisdom and neuroscience converge to support the contention that learning is neither evenly

paced nor distributed across a lifetime (Caine, Caine, McClintic, & Klimek, 2004). For a host of reasons, there are days in every learner’s life when thinking is particularly productive and days when it is decidedly muddled. Far from being measured steps, learning often occurs in spurts, becomes stalled, or even seems to regress as we go “back to the drawing board.” Likewise, the investment of time and effort that students make in learning projects varies considerably, and the passion with which they pursue competence in an area may endure for a lifetime, slowly wane, or abruptly cease (Little, 1998).

Learning is more like climbing a mountain than climbing stairs. Whether the pinnacle is Mount Everest or academic achievement, the rate of advancement can be impressive one day and barely perceptible the next and, both for climbers and learners, each step demands a thoughtful appraisal of the next, best move. With mountain climbing, as with learning, setting the goal is the easiest part; the most challenging part is getting there. It is worth noting here that, in education, nations and states have laid claim to the goal setting while teachers are left to figure out how to attain them with diverse groups of children and limited resources. Comforting as it may be to see lists of benchmarks and curriculum guides, such neat, orderly progressions offer no support with the most difficult task: motivating students to achieve.

The following propositions may explain how motivated learners manage to overcome obstacles to achievement: they put more effort and time into learning tasks; they set high standards that emphasize competence; they learn to filter out distractions that interfere with attaining learning goals; they use effective learning strategies, including monitoring their progress; and they practice and work at the task longer and harder than other students (Pintrich, 2003; Pintrich & Schunk, 2002). Encouragingly, much of what is described here is within the teacher’s power to influence. It also points out the futility of filling up learners—students or teachers—with research-based strategies, unless we devote equal time to building the disposition to use them (Aarnoutse & Schellings, 2003; Cochran-Smith, 2004).

### **Attaining Higher Standards Demands Attention to the Affective Domain**

Ignoring the affective aspects of learning actually contradicts much of what we have gleaned from neuroscience about the role of emotions in learning (Jensen, 2006; Sousa, 2006). Learning is affective as well as cognitive; “We have to play to the emotional brain; then and only then, will we open up the intellectual brain” (Gilbert, 2002, p. 2). We also know that learning difficulties have affective as well as cognitive origins.

Early childhood educators, for example, attribute 40 to 50 percent of young children's learning problems to self-control issues rather than to cognitive difficulties (Zaslow & Martinez-Beck, 2006).

Learners amass both positive and negative feelings about learning experiences and, with time and experience, decide what generally works for them. Suppose that a group of elementary school students is given the task of building an electromagnet. Some will quickly begin to manipulate the components, some may study the directions and try to form a mental map of the circuitry, and still others might remain on the sidelines, convinced that they cannot perform the task. As the learning experience continues, they may switch to a different approach. Each of these students acquired these strategies through learning experiences that were successful and unsuccessful, including the task they are engaged in at the moment. Far from being in the background, emotions often lead the way. Feelings may assume even greater importance for young learners who, based on their limited experience, can become discouraged easily, decide that they simply are not "good at" something, or overgeneralize to conclude that they are "not very smart." Emotions influence motivation, interest, and, ultimately, academic achievement just as surely and powerfully as cognitive abilities do (Snow, Griffin, & Burns, 2005). A large body of evidence supports the contention that feelings also play a key role in short-term and long-term memory. "Everything in memory—what is known, believed, or remembered—is meaningful content, not neutral information. . . . Memory preserves meaning for future use" (Nelson, 2007, p. 15).

In most conceptualizations of learning, the process begins with "perceived support of basic psychological needs (i.e., autonomy, competence, and social relatedness)" (Muller & Louw, 2004, p. 169). The most potent formula for promoting learning is to address these affective variables within the learner and combine them with learning environments that include interested teachers, relevant content, quality of instruction, and transparency and fit of requirements (Muller & Louw, 2004). Learners feel more competent when they are involved in goal setting; when they are taught or encouraged to attribute success to effort, abilities, and effective learning strategies; when assistance is offered on an as-needed basis; and when excessive praise, particularly on easy tasks, is avoided (Okolo & Bahr, 1995).

Perceived support is embodied in the positive relationships that learners form with trustworthy and admirable teachers. Whether it is a grandparent demonstrating how to swim, a tutor helping a child with mathematics, or a master teacher working with a novice during a practicum, many of the most significant

and enduring learning experiences are accomplished when the learner is inspired to do his or her best and not disappoint.

Perhaps most important of all, attention to affective aspects of learning in schools helps to build resiliency in students when their families are too troubled, destitute, and chaotic to focus on educational goals (Willis, 2002). If the child regards school as a safe haven rather than an institution that judges his or her family, home, and community harshly, this positive affect can build and sustain a commitment to academic pursuits, despite limited family support (Nieto, 2005). Yet another way that we as educators can demonstrate our care and concern for learners is by shaping the school curriculum in ways that reflect respect for the community, its culture, and its language (Fennimore, 2007). When children and families see that they are at the center of the curriculum rather than at the margins, this builds motivation and interest.

Attention to the affective domain is not in opposition to higher academic standards; rather, it is the only reasonable route to attaining them (Egertson, 2004). Teachers who are capable of not merely surviving but of thriving in this era of accountability have learned how to make the most of the affective aspects of learning. As one beginning teacher wrote in her journal, "I can meet and even exceed the standards without having to bore them to death!!!" (Souto-Manning & Dice, 2007). For example, in studies of students' reading of text, the best predictor of ability with more challenging comprehension tasks, such as "reading between the lines" or elaborating on the information in the text, was interest, rather than cognitive ability; cognitive ability measures tended to correlate with literal, "right there in the book" types of answers. Interest also enabled secondary students to persist at reading more difficult passages of text and was correlated with long-term recall of the material (Naceur & Schiefele, 2005). If attainment of higher standards is the goal, the affective domain cannot be overlooked.

## Learning Is Social and Cultural

Try to picture, in your mind's eye, a scholar. Chances are you imagined a person laboring long and hard in forced isolation. True, scholars do work independently at times; even then, however, they are the products of long apprenticeships, both real and vicarious. They have undoubtedly had influential mentors along the way and they are now part of an international network of other scholars whose work they can access with a few quick key strokes. Learning, then, is "an ongoing process involving the reciprocal interplay among the learner, other individuals, social systems, and culture. . . . Individual learning is shaped by others, including peers, who function as mentors giving structure, order,

and accessibility to knowledge” (Cook-Cottone, 2004, p. 209). Of course, the social dimensions of learning also extend beyond the immediate context to incorporate the larger cultural context, because meaning is created and negotiated within a community (Bruner, 1990); in other words, children acquire human knowledge “from interacting with their elders and peers and by participating in their culture” (Astuti, Solomon, & Carey, 2004, p. 153).

When teachers are asked what they do to motivate learners, the common response is “hands-on” learning (Guthrie et al., 2006). “Hands-on” refers not to busy work but to social structures that promote active participation and the learner’s sense of agency (Box & Little, 2003). Agency refers to the learner’s feelings of belongingness in the learning situation, ability to interact with the material, and perceptions of socio-emotional support. A better term for “hands-on” might be “minds-on,” because such learning goes beyond physical interaction with materials to build the learners’ confidence and skill in advancing their understandings.

Even though learners pursue their goals by highly individual paths, there is self-report data to suggest that the basic principles of motivation and learning exist across cultures (Chirkow & Ryan, 2001; Deci & Ryan, 2002). For example, in a study of 110,991 students, 15-year-olds from 26 different countries reported comparable concepts about motivation (Artelt, 2005). To summarize, learning that lasts well after the test is over and the grades are recorded is perceived by the learner as valuable—both to the individual and to the culture—as well as emotionally satisfactory (Krapp, 2002).

### Learning Something New Depends on Prior Learning

As Dewey (1913) asserted long ago in *Interest and Effort in Education*, “The ‘principle of making things interesting’ means that subjects be selected in relation to the child’s present experiences, powers, and needs” (p. 23). As any effective teacher can attest, one recommended way to promote learning is to make connections to prior learning; this is the premise of schema theory, which argues that what a person already knows is the chief determinant of what he or she can come to know (McVee, Dunsmore, & Gavelek, 2005). A learner’s brain operates like a developmental landscape in which the processing of new experiences and the creation of new knowledge depends on the nature of the landscape formed by past experience (Cook-Cottone, 2004). A common example of this occurs when parents report that their young child appears to have learned to read naturally, meaning that no direct, formal instruction took place. Nelson (2007) explains natural learning this way:

When practiced in everyday life between people, such as parent and child . . . a slow accretion of a reconstructed whole builds up seemingly without effort. . . . The larger the structure that is built up in memory (and structures grow with use and practice), the easier it is to find meaningful slots for new and related knowledge to fit into it. . . . Organized teaching and learning, as in school, often seems difficult because educators attempt to impart larger organized domains of knowledge for which there is no prior basis in the students’ meaning memory. The meaning structure must be constructed, and that is the difficult part. (p. 266)

This begs the question, how can teachers make school learning more like natural learning? Neuroscience provides an illuminating perspective in studies of enrichment.

For many educators, the word “enrichment” elicits images of gifted and talented programs, art classes at the museum, or science study at a nature center. But research on the human brain equates enrichment with learning by defining it as “a positive biological response to a contrasting environment in which measurable, synergistic, and global changes have occurred within the brain” (Jensen, 2006, p. 158). Enrichment depends upon the contrast between a baseline behavior and the performance that occurs after the experience. Learning to read in the absence of formal, direct instruction is supported by the six conditions for enrichment: 1) an attentional mind set, in which the learner must focus and concentrate; 2) low to moderate stress, in which the learner perceives some choice or control over the task and the surrounding conditions; 3) coherent, meaningful tasks, in which the learner “buys into” the task; 4) massed practice and repetition, in which the learner ideally invests 30-90 minutes a day, three to five times per week; 5) learner-controlled feedback, in which the learner gets specific, timely, helpful input on mistakes; and 6) overnight rest between learning sessions, in which the brain is given time to consolidate, organize, and distribute learning to various areas of the brain for long-term storage (Jensen, 2006). Effective teachers are experts in supporting enrichment because they have learned how to help students make connections between what they already know, understand, and can do, and what they can come to know, understand, and do.

### Expectations for Learning Need To Be Respectful of Children

When you think about it, a double standard exists for children’s and adults’ learning (Jardine, Clifford, & Freisen, 2003). Society reflects what Sara Lawrence Lightfoot (1978) refers to as “childism”—the belief that children feel things less deeply and rebound from disappointment more readily than adults. In schools,

children are gathered together and adults insist that they achieve in all subjects, presumably because the young are still discovering their interests and talents. Even if children don't particularly like a topic or learning experience, they are expected to be polite and attentive. For example, when it comes to teaching composition, teachers quite deliberately attempt to "balance" children's writing and require them to take notes, write poetry, compose business letters, produce speeches, and so forth, across the curriculum.

Where adults' learning is concerned, some very different assumptions pertain. Grown-ups are expected to have strong likes and dislikes and, most of the time (unless they are employed to do otherwise), they have some freedom to follow their penchants. To illustrate, just think about the behavior of teachers at a mandatory, district-wide inservice meeting that they consider to be boring, irrelevant, or both. Under such forced attendance circumstances, at least some adults and educators can be expected to behave in ways that they would not tolerate from their students. Ironically, cultural expectations for the least experienced learners are more like the age-old concept of the "Renaissance man"—highly proficient in many fields—while adults are given the latitude to specialize, work to their strengths, and beg off where their weaknesses are concerned. Children, on the other hand, are given no quarter from attaining high standards across a wide range of topics, skills, and subject areas and, as they progress through the grades, we expect them to know and do things that many well-functioning adults cannot. In fact, it is doubtful that the adults who are most preoccupied with test scores and most critical of education could perform adequately on some of the tests that children—or teachers, for that matter—are required to take.

If we have learned anything from research on multiple intelligences, it is that learning is domain-specific (Gardner, 2006). Within a single adolescent a different process exists for learning to drive a car, doing a proof in geometry, or participating in a service club—just to name a few activities. At any given time, learning in various domains can be dramatically different based on innate ability, experience, interest, motivation, and the quality of teaching. Even if it were possible to construct diagrams of an individual's learning, such schematics would no doubt be a dizzying array and overlay of wild, flowchart-like sketches.

Despite the rugged individuality of learning, there does appear to be a process that generally is well-suited to promoting deep understanding. It begins with the selection of appropriate goals. Attainment of those goals is supported by scaffolds, such as sets of contrasting cases or problem-based learning activities. Another key component in the process is self-assess-

ment, during which the learner has opportunities to evaluate his or her own progress, adjust strategies, and make the necessary revisions to concepts. Throughout the process, the learners need social support (Barron, 1998). Thus, as domain-specific as learning apparently is, educators can use a basic process that supports effective learning.

*It is ACEI's position that, as our understanding of the learning process expands, educational initiatives and approaches need to reflect a more sophisticated understanding of learning.*

## UNDERSTANDING INTEREST AND MOTIVATION TO LEARN

When 5-year-old Claire, who loves to play school, is presented with a basket filled with workbooks, stickers, a chalkboard, and other school-like materials, she says earnestly, "Wow, I'm going to get really smart!" This naïve faith that achievement results from working with information in school-like tasks and gathering up the rewards that teachers distribute is not limited to kindergarten, however. Many adults hold similarly simplistic, behavioristic, "carrots and sticks" views about the way that motivation and interest operate.

Most people tend to think of the act of teaching as largely intuitive: someone knows something and then "teaches" it to others—a fairly straightforward transmission model. . . . However, as mountains of research now demonstrate, this notion of transmission teaching doesn't actually work most of the time. The reality of effective teaching is much different: successful teachers link what students already know and understand to new information, correcting misimpressions, guiding learners' understanding through a variety of activities, providing opportunities for application of knowledge, giving useful feedback that shapes performance, and individualizing for students' distinctive learning needs. They do all this while juggling the social and academic needs of the group and of individuals, the cognitive and motivational consequences of their moment-to-moment teaching decisions, the cultural and community context within which they teach, and much more. (Darling-Hammond, 2006, p. 8)

What follows is a further discussion of topics that have vital importance to educators: interest, motivation, and appropriate incentives for learning.

### Interest Is Essential to Effective Learning

Interest is an affective state that represents learners' subjective experience of learning; it represents "an integration of feelings, motivation, and cognition" (Ainley, 2006, p. 391) and is "arguably the most important form of intrinsic motivation" (Artelt, 2005, p. 234). Interest is so fundamental to effective learning that applica-

tions of neuroscience to education begin the learning process with a motivated individual who is in a state of “relaxed alertness” (Caine & Caine, 1997). Interest is simultaneously a variable in the learning process (i.e., subject-matter specific) as well as a desired outcome of learning (i.e., a generalized concept) (Schiefele, 1991).

Research on interest can be divided into three broad topics: 1) situational interest, 2) individual interest, and 3) instructional facilitation of interest. Situational interest is a spontaneous and short-lived interest based on the experience itself. The basis for situational interest appears to be novelty, curiosity, or salient informational content. Situational interest is a way to capture attention in groups, such as the “anticipatory set” of a lesson. This context-specific type of interest appears to have a strong effect on attitudes toward and engagement in learning (Flowerday, Schraw, & Stevens, 2004). It is generally accepted that situational interest often precedes individual interest. In contrast, individual interest (also called topic or personal interest) is unique to the individual; it is an enduring preference for a specific subject, topic, concepts, or an activity (Alao & Guthrie, 1999). The basis for individual interest appears to be prior knowledge, personal experience, level of skill, and the emotions associated with the learning topic or experience (Cheng & Darst, 2002; Hidi, 2001). Instructional facilitation of interest is all about the teacher. It refers to the relative effectiveness of efforts by educators to engage the learners through attention to situational and/or individual interest (Naceur & Schiefele, 2005; Renninger & Wade, 2001).

Learners are motivated to learn when they can reconcile the perceived value (i.e., reasons for doing/learning something) with the cost (i.e., expenditure of effort and emotional investment required to accomplish the learning). In reading, for example, interest is such a powerful influence that, even when such background variables as past achievement and parental income are controlled, students’ self-initiated reading predicts their knowledge of topics as well as their proficiency in vocabulary and text comprehension (see Guthrie et al., 2006, for a review).

### **Motivation Is a Key to Achievement**

Motivation refers to the reasons that individuals take action; motivation to learn is a current or recurrent desire to gain information, develop skills, and attain mastery (Covington, 2000). Usually, a person’s reasons or objectives for learning are incidental—at least at first (Artelt, 2005). External learning incentives exist outside the learner and come into play when the learning activity is not regarded as a reward in itself. In extrinsic motivation, learners engage in the specified behavior in response to the promise of a reward or the threat of punishment (Artelt, 2005). Externally

motivated behaviors are undertaken for reasons that are separate from the actual behavior (Deci & Ryan, 2002), such as when a child memorizes the multiplication tables to pass a test or avoid disapproval from teachers and parents. By way of contrast, intrinsic motivation resides within the learner and the learning activity is rewarding in itself because it is interesting, exciting, challenging, and so forth.

Two things that work in concert to predict motivation are expectancy beliefs (i.e., how “good at” something the learner expects to be) and the learner’s interest in and the incentive value of the goal (i.e., the attractiveness of attaining mastery) (Hootstein, 1994; Pierce, Cameron, Banko, & So, 2003; Ping, McBride, & Bruene, 2006; Wigfield & Eccles, 2000). When learners see themselves as competent—or capable of becoming competent—at a task, this tends to increase their intrinsic motivation (Bordeleau, Bouffard, Marcouz, & Vezeau, 2003; Hidi & Harackiewicz, 2000; Ryan & Deci, 2000). When a learner earns rewards for attaining high standards, this creates a positive feedback loop, which increases interest and involvement, leads to high personal evaluations of performance, results in increased competence, and builds intrinsic motivation (Cameron, Pierce, Banko, & Gear, 2005; Hidi, 2001; Jinks & Lorschach, 2003).

Another often overlooked approach to building motivation is situational interest. In their research on science reading, for example, Guthrie and others (2006) used the example of dissecting an owl pellet as a stimulating task that aroused the learners’ curiosity. In order to promote reading, the task was followed immediately with texts at the students’ reading level that were directly connected to the interesting task. Situational interest is a major way of transferring interest from one task (e.g., playing a particular game outdoors) to a general interest (e.g., an enduring commitment to physical activity) (Cameron et al., 2005). Indeed, one of the drawbacks of the standards movement is that high-stakes tests on predetermined benchmarks interfere with teachers’ and children’s freedom to pursue interests and put teachers in the position of devoting considerable instructional time to coaching children on how to take objective-item tests. Likewise, continually “raising the bar” by setting higher standards eventually reaches the point of reducing the learner’s expectancy of success and discourages rather than motivates. This does not mean, however, that the opposite—activities pursued “just for fun”—are the solution. They may be pleasant diversions but would not have the desired effect on students’ motivation to complete academic tasks. The teacher survival skill of our era just may be connecting interesting tasks to worthwhile academic achievement goals and, by so doing, increasing student motivation to learn.

Another reason to be concerned about inattention to

motivation and interest is that they appear to decline across most students' school careers. Some of the students who arrive in kindergarten eager to learn inevitably become students who later say, "I hate school." Literacy offers a good example. The attitudes of young students who are beginning to read are generally positive, irrespective of income level, activity, or gender (see Baker & Scher, 2002), yet a significant and progressive decline in intrinsic motivation to attain literacy occurs across the school years (Bouffard, Boisvert, & Vezeau, 2002; Corpus, Lepper, & Iyengar, 2005). Some of this decline may be attributable to more intense demands of the content (thereby reducing expectancy of success) and social activities that compete for students' time (conflicting goals), but motivation does drop off for many students (Hidi, 2001). Teachers can stave off the motivation decline by consistently providing stimulating tasks that are connected to academically significant goals, for this increases the learners' situational interest. When the learners are interested, they are better able to focus attention, have more positive feelings about the learning experience, and are more likely to store the learning in long-term memory (Hidi & Harackiewicz, 2000).

Based on decades of research, the predictable outcomes are as follows: high ability matched with high challenge results in an optimal learning experience, low ability and high challenge results in frustration, and high ability and low challenge results in boredom (Csikszentmihalyi, 1990). The key is to set the level of difficulty at the point where the learner needs to stretch a bit and can accomplish the task with moderate support, a concept supported by Vygotsky's (2006) zone of proximal development.

### **Incentives, Both Extrinsic and Intrinsic, Matter**

An undergraduate elementary education major is beginning her teaching practicum in a 1st grade. For her first lesson plan, she selects the topic of pumpkins and her lesson consists of reading a picture book, singing the song "Five Little Pumpkins," carving a pumpkin and roasting the seeds, and playing a game with orange construction paper pumpkin shapes that requires children to match computer clip art pictures to the corresponding initial consonant. When asked why she selected this activity, the preservice teacher responds, "Because I did this when I was in kindergarten and it was fun." The experienced teacher to whom this preservice teacher has been assigned is not pleased with the lesson. Fearing for her job if her students do not perform well on the state assessments, she has adopted, in her own words, a "no nonsense approach" that pays scant consideration to children's motivation or interest. This teaching duo's assumptions about the

role of interest and motivation in children's learning hardly could be more different. The novice assumes that learning is nothing at all if it is not "fun," while the veteran has decided, under duress, that "teaching to the test" is the only reasonable course of action. To make matters worse, these clashing perspectives jeopardize their professional relationship; the inservice teacher has begun to regard the preservice teacher as frivolous, while the preservice teacher has started to wonder if the veteran ought to consider retirement. As the semester continues and the testing pressures mount, they continually find themselves at cross-purposes.

Looking at the pair in light of recent advances in cognitive psychology, neither of them is correct. Each has erred by taking an extremist stance on children's motivation and interest that is inconsistent with the research (see Deci, Koestner, & Ryan, 2001 and Hidi & Harackiewicz, 2000, for reviews). As this teaching team illustrates, educators' responses to and beliefs about the role of motivation and interest in learning can be, to say the least, diverse. Yet, even across cultures, there appear to be areas of agreement. In a study of teachers in the United Kingdom, Russia, and the United States, teachers—despite "significantly different local arrangements"—concurred that children's motivation to learn is influenced considerably by parents/families and their partnerships with schools, the way their teachers treat them, and symbolic and material rewards (Hufton, Elliott, & Illushin, 2003, p. 367). Today,

The debate has moved beyond the question of whether rewards are inherently harmful or beneficial. . . . Specifically, rewards have been found to increase motivation and interest in tasks that are of initial low interest. On high interest tasks, positive effects of reward are obtained when participants are verbally praised for their work, when tangible rewards are presented in an informational manner, when rewards signify competence at an activity, and when the rewards are offered and given for achieving performance standards or goals. (Cameron, Pierce, Banko, & Gear, 2005, p. 641)

The time is long overdue to treat strategies for engaging students as a range of possibilities, as part of the teacher's repertoire. One of the worst mistakes where motivation is concerned is perpetuating stereotypes and making sweeping generalizations through such remarks as, "None of the kids at our school are motivated. We have to use points, prizes, and other tangible reinforcers" or "All of the children in this school have successful parents so they are already motivated to learn. We don't use stickers and stars." For several reasons, it is far better to use a blend of intrinsic and extrinsic rewards (Greenspan, Solomon, & Gardner, 2004; Ryan & Deci, 2000; Wigfield & Guthrie, 1997). The first, and perhaps most compelling, reason is that this probably

is the closest to what we encounter in the real world outside of school. For instance, if all of our colleagues receive a salary and benefits for work, we will demand equal treatment. If, on the other hand, everyone is volunteering their time to support a good cause, we will follow suit to support the endeavor without much thought of financial compensation. There are things we will do out of kindness and compassion for free and other things that even huge rewards could not induce us to consider because they conflict with our values. Most of the time, our motivation is a mixture of intrinsic and extrinsic rewards, affected by values. Teachers don't drag themselves out of bed with a miserable cold on a dark winter morning and drive on icy roads because the financial incentives are irresistible. More often than not, it is a combination of motives—because we worry about who will be responsible for our students, because we hate to inconvenience colleagues and administrators, because it might be easier to teach ourselves than to explain what to do to someone else, and even, perhaps, because it is pay day. Thus, in the real world, motivation—including teachers' decision to stay in teaching—is decidedly an admixture of intrinsic and extrinsic rewards (Cochran-Smith, 2004; Nieto, 2003).

We now understand that “extrinsic and intrinsic motivation vary independently of each other and are by no means antagonistic. On the contrary, both are important in the regulation of actual learning behavior” (Artelt, 2005, p. 231). Although it is common to think of motivation as either extrinsic or intrinsic, it actually exists on a sort of continuum ranging from motives that are apart from the self to those that are deep within. A child can learn about the constellations to get a good (or avoid a bad) grade, to be regarded by others as a responsible student, to gain knowledge about the night sky, because she values education in general, or—what is even more likely—because of some combination of these reasons. So intrinsic motivation is not the “ideal” while extrinsic is the “real”; rather, the two can be reconciled and work in concert to motivate academic achievement.

One caveat about tangible rewards, however, concerns their relative scarcity. “In many classrooms, an inadequate supply of rewards (e.g., good grades) is distributed by teachers unequally to the best performers or the fastest learners” such that students are prompted to act

for the wrong reasons—to win over others and to avoid losing—and these reasons eventually lead to failure and resentment. In this competitive context, grades stand as a mark of worthiness, because it is assumed in our society that one is only as worthy as one's ability to achieve competitively. (Covington, 2000, p. 23)

A second caveat has to do with the appropriateness of the reinforcer (Colker, 2004). In order to be effective, incentives need to be relevant to the desired outcome (Fawson & Moore, 1999) and they need to reflect the individual and social context. For example, it makes more sense to reward budding artists with art materials than with candy.

In fact, extrinsically motivated behaviors can lead to intrinsic motivation. Suppose that a parent encourages a son or daughter to become a Boy Scout or Girl Scout because the parent valued that experience as a child. At first, the motivation may be extrinsic; if the child internalizes the values of the group and integrates them into behavior, however, the motivation becomes intrinsic. Evidently, interest bolsters the child in achieving challenging tasks: “A student's appreciation for what he or she is learning is far greater when the student is failing but interested in the task than when the same student is succeeding, grade wise, but has little interest in the subject-matter content” (Covington, 2000, p. 24). In a case study of 5th- and 6th-grade students, all of whom were not initially motivated to complete literacy tasks, students who functioned as co-researchers and presented their personal experiences not only completed the task but also produced the best quality work. When the reward was removed from the task, the children completed it just to “get it over with” and earn the extrinsic reward; those who had neither an intrinsic or extrinsic reinforcer used avoidance strategies and did not complete the task (Oldfather, 2002).

To summarize, instructional designs that promote motivation and interest emphasize three important variables: 1) autonomy—learners are given some options and leeway in the learning process so that they see the connections between their personal values and the environment; 2) competence—learners receive timely and useful feedback on their learning processes and success; 3) social relatedness—teachers accept and respect their students, thereby creating a supportive and relaxed learning atmosphere that encourages loyalty and cooperation (Muller & Louw, 2004).

*It is ACEI's position that enhancing children's learning relies on a range of motivational strategies that include intrinsic and extrinsic rewards that are responsive to the individual child, the domain, and the sociocultural context, as well as relevant to the specific task.*

## THE TEACHER'S ROLE IN MOTIVATING LEARNERS AND BUILDING INTEREST

Teaching patterns influence students' motivation and achievement (Alonso-Tapia & Pardo, 2006; Bogner,

Pressley, & Raphael, 2002; Correnti, Miller, & Rowan, 2002; Cox & Guthrie, 2001; Guthrie, Wigfield, Humenick, Perencevich, Taboada, & Barbosa, 2006). One of the most common concerns of beginning teachers is how to motivate students (DeJong, 2000).

Teachers receive multiple, sometimes conflicting, messages about their roles. They are supposed to build skills while nurturing creativity and a love for learning, foster development of the “whole child” while closing their achievement gap, and respond to the individual needs of students while managing the group. The goals are overarching; one of the “givens” of being a teacher is knowing you will not be able to do all the society asks of you. (Johnson & the Project of the Next Generation of Teachers, 2004, pp. 71-72)

True, teachers cannot be expected to do it all, but they can support children in reaching their full learning potential by integrating the following research-based recommendations into daily practice.

### Establish a Rationale for Learning

Where motivation in the teaching/learning process is concerned, it is essential to demonstrate, through our own example, that something is worth learning. Learners learn best from teachers who are avid learners themselves. The teacher’s interest, selection of educationally relevant materials, quality of instruction, and clear expectations work in concert to build interest and motivation.

Current testing pressures in education tend to downplay reasons for learning and focus instead on material to be covered. From a motivational perspective, this is a serious error. “We spend a great deal of time teaching young people the *how to*, but we need to ensure that the *why to* is addressed before we even approach the *how to*” (Gilbert, 2002, p. 8). Sansone and Smith (2000) found that when students were provided with reasons for learning, they were more adept at generating strategies to make relatively boring tasks more interesting. In the field of reading, for example, “Research conducted over the past 20 years has demonstrated that both readers’ well-established individual interests and their situational interests (elicited by text segments, topics, and themes) contributed to increased comprehension and learning” (Hidi, 2001, p. 195). A review of the literature suggests that when children have to deal with dull materials, it places a drain on their ability to focus and slows down their reading and response time. Conversely, when they work with high-interest materials, it “frees up” some of their cognitive resources and makes their processing of information more efficient; this then enables them to persist at the task and retain the material better (see Ainley & Hidi, 2006).

Good reasons for learning, both informal and formal, are familiar to anyone who takes the time to really see. Children learn because they want to be more grown up, such as when they strive to learn cursive handwriting; they learn to satisfy curiosity, such as when they ask about ants on the sidewalk; they learn to belong, such as through efforts to perform a school play; they learn to satisfy their sense of accomplishment, such as when they figure out a brain teaser; and they learn as a way to avoid boredom, such as by keeping a travel journal during a family vacation. Meaningful motives—not the district’s showing on a standardized test or figuring what will help them at some point in the distant future—are what incites learners to engage in that change of behavior called learning.

### Set, Monitor, and Attain Goals

Goals are consequences or end states that a person is attempting to bring about or avoid (Johnson, 2005); goals are the desired end-point “that for the sake of which behavior occurs” (Rychlak, 1994). In order to set learners’ expectations for success, teachers need to share their goals and methods of evaluation with students and establish an emotional climate for success in classrooms (Desrochers, 2000). Despite these efforts, a major discrepancy can exist between students’ self-reported, high levels of motivation and their associated goal-related actions (Hufton, Elliott, & Illushin, 2002). For instance, a student may express a strong desire to play a musical instrument in the school band but may not be willing to invest the time necessary to practice. Evidence suggests that when achievement in a domain is attributed to effort rather than innate ability, students tend to perform better, assuming that value is attached to the goal in their society as well (Stevenson & Stigler, 1992).

One of the ways in which teachers can support children’s learning is by helping them to realize the actions and steps necessary to achieve goals (Pervin, 1996). According to control theory, humans note the discrepancies between an existing state and some goal state. When the learner detects discrepant goals, the system generates an output that attempts to reduce that discrepancy (Carver & Scheier, 1998; Johnson, 2005). Learners’ reports of their own well-being are significantly lower when they have highly unrelated or conflicting goals (Emmons, 1999). Consider the situation of an English language learner who may be caught between competing goals, stating, “I want to be just like the other kids and I don’t want them to make fun of the way I talk” but at the same time thinking, “My family is worried that I will forget our language and traditional ways.” The effective teacher is perceptive about these concerns and demonstrates to children that these seemingly incompatible goals can be reconciled

by respecting and maintaining the first language while gaining proficiency in English.

### Capture the Learners' Attention

Regarding capturing attention, recognize that

To learn, we first have to understand it: we have to make a connection to prior knowledge; and we have to want to learn it. When you take time to help students make the connections, learning happens. Begin by stating why this information or skill is meaningful and important beyond the moment. Hook into what is important for your students' lives, presently and in the future. Connect to what they already know. (Mack-Kirschner, 2005, p. 3)

Tapping into the learners' experiences and emotions generates interest because "personal and meaningful memories can be held in their brilliance while dry facts learned at school may soon fade away" (Gilbert, 2002, p. 116). For example, students who have learned to love history often attribute this interest to a teacher who made history come alive—not by requiring them to memorize names and dates, but by being good storytellers. There is ample evidence that human beings are drawn to and remember material in narrative form much better than when that same material is presented as a list of facts (Sylwester, 1995). Using powerful images—a photograph, a film clip, an artifact—is another way to focus attention, build situational interest, and make learning memorable (Rushton & Larkin, 2001). Researchers hypothesize that it is easier to remember visual images because more of our brain is dedicated to our visual sense than to any of the other four (Gilbert, 2002, p. 62). Therefore, using visual reminders is another tool that helps to sustain attention and prepare learners for the logical next steps.

Another tried and true method of engaging learners is to ask questions that are perplexing, paradoxical, or unexpected (Jones, 1980). Questions of each type about dogs might be, "How does a dog's sense of smell work and why is it so much better than a human's?" (perplexing); "If we want dogs to be our companions, why is so much emphasis placed on appearance and pedigrees instead of temperament?" (paradoxical); and "What is a dog's age in human terms?" (unexpected: the old formula of 7 dog years to one human year is inaccurate; experts say it depends on the dog's size and that the first 2-3 years are weighted more than subsequent ones). Good questions also help to build a commitment to thoughtful inquiry and reliance on authoritative sources.

### Understand the Role of Choice in Learning

Many teachers assume that giving children a wide array of choices will lead to greater engagement and academic

achievement; however, both the research and practical experience suggest that this is not necessarily the case (Reeve, Nix, & Hamm, 2003). To illustrate, suppose that the goal is to get a finicky preschooler to eat her breakfast, and so we ask, "What do you want to eat?" This could be overwhelming for the child or it could result in a decision that we do not support, such as ice cream or hot dogs. In the classroom, being bogged by choice can occur when students who are accustomed to more structured and prescriptive assignments in their previous schools or cultures are directed to choose any topic they like. Choice involves making a judgment and, in the absence of information on how to render that decision, a huge range of options can backfire, causing students to disengage and rush through the task just to get it over with. One reason that choice is overrated is that research has tended to confound the variables of choice and interest (Flowerday, Schraw, & Stevens, 2004). In studies of choice, learners usually select something that interests them. Therefore, the positive effects on achievement attributed to choice may actually be attributable to interest.

The other problem with overemphasizing choice and interest is that, in order to respond to them, teachers assume that it will be necessary to identify and respond to all the possible interests of an entire group of students—a daunting task, to say the least. Contrary to popular opinion, completely individualizing the curriculum is not the only way. It often is preferable to make the course of action—rather than topic—the place where students exercise the most choice. For instance, if 5th-graders are given the task of planning an anti-litter campaign, they are free to choose *how* to accomplish this—poster, brochure, radio spot, and so forth. The advantage of making the process open-ended is that it gives learners more opportunity to regulate their own behavior.

### Build Students' Skill in Self-evaluation

A middle school student has been practicing her dodgeball serve at home. She does so, not out of intrinsic motivation or for the love of the game—far from it. Her determination to improve performance is extrinsic; she seeks to avoid the ignominy of being chosen last for the team or being battered by the forceful hits of the ball. Thus, voluntarily spending time on something is not a reliable indicator of intrinsic motivation (Ryan, Koestner, & Deci, 1991). Although this young adolescent's motivation is not purely intrinsic, she still is driven to achieve a higher level of mastery as she continually asks herself, "Am I better than I was yesterday?" (Gilbert, 2002, p. 29).

Self-evaluation is a major mechanism for building intrinsic motivation. If learners exercise control over when to move on to the next challenge, it helps to build

confidence and avert failure. This is one explanation for children's passion for electronic games; these learning situations put children in control and allow them to adjust and evaluate their performance (see Gee, 2005). A good example of the role of self-evaluation in learning comes from studies of homework completion. Strategies that were successful in encouraging students with disabilities to complete their homework emphasized self-evaluation, such as coloring in a graph of homework completion, designing/using attractive homework planners, planning homework completion with peer study teams, and selecting assignments with personal relevance (e.g., primary students practicing telling time by listing the start and end times of favorite television programs) (Bryan & Burstein, 2004).

Overall, several behaviors—in addition to the basics of strong subject-matter knowledge and pedagogical effectiveness—spell success for teachers. Interestingly, many of them have to do with motivating students by making learning relevant and engaging. Nieto's (2005) list of traits for effective teachers includes:

- Connecting learning to students' lives
- Holding high expectations for all students, even those whom others may have given up on
- Staying committed to students despite obstacles
- Placing a high value on students' identities (culture, race, language, gender, and experiences, among others) as a foundation for learning
- Viewing parents and other community members as partners in education
- Creating a safe haven for learning
- Daring to challenge the bureaucracy of the school and district
- Remaining resilient in the face of difficulties
- Using active learning strategies
- Continuing to experiment and "think on their feet"
- Viewing themselves as lifelong learners
- Caring about, respecting, and loving their students.

*It is ACEI's position that effective teaching transcends merely imparting knowledge and relies to a considerable extent on educators' ability to motivate students to learn. Any characterization of learning that disregards the full range of influences on learning—such as motivation, interest, engagement, and dispositions—is shortsighted at best and destructive at worst.*

## Conclusion

It is no mistake that ACEI's standards for the evaluation of elementary teacher education programs begin, first and foremost, with "Development, Learning, and Motivation" and establish, in Standard 1, that candi-

dates need to "know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students' development, acquisition of knowledge, and motivation." At least two decades of research exists to document that interest exerts a powerful influence on the learning of both children and adults (Hidi, 2001).

Many contemporary educators have expressed concern about the growing insistence that measurable increases in students' scores on standardized tests are the only satisfactory indicator of student achievement and, in turn, of teaching effectiveness (Gallas, 2003; Meier, 2003; Morrow, 2004; Westheimer & Kahne, 2003).

Somewhere along the way—in the midst of the current push for accountability and high-stakes testing—government officials, business executives, and others who would dictate teaching strategies to professional educators have forgotten what we educators all know deep in our bones: Without motivation there is no learning.

There are many, many ways to teach a given skill. Some are pleasurable and interesting; others are deadly dull. Those teaching strategies that tap into students' interests have the best chance of yielding the outcomes that we desire. And, in today's test-happy climate, we overlook that fact at our peril. (Gough, 2002, p. 566)

As the empirical evidence of this ACEI Position Paper asserts, the erroneous assumptions that pervade public and political discussions about learning call into question whether the most strident voices for "evidence-based" teaching are at all familiar with critically important bodies of research; namely, research on learning, motivation, interest, and effective teaching. It is attention to these dimensions that makes the difference between teachers who merely follow the book and teachers who lead children to do their best, between children who trudge through the curriculum and those who acquire a lifelong passion for learning, and between institutions that warehouse children and those that truly educate them.

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