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Interview

An Interview with Frank Pajares

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1. What are you presently working on/researching?

My professional time these days is dedicated to journal and book editing, completing a number of research projects, and finishing a book on self-efficacy. I am associate editor for the *Journal of Educational Psychology* and coeditor with Tim Urdan of a book series entitled *Adolescence and Education*. Two volumes have now been published, and we are deep into our third. I am also at differing stages with various research projects, some dealing with self-efficacy and others with motivation constructs such as self-regulated learning, achievement goal orientations, and academic self-concept. I am still working on issues related to gender and gender orientation. And, finally, I am in the process of completing a book outlining the implications of findings related to self-efficacy for teachers and parents. The working title is *Talks to Teachers on Self-Efficacy* in honor of William James.

2. Who has influenced you and why?

These things are often difficult to trace, aren't they? No doubt my professional worldview has been profoundly, and primarily, influenced by William James. I recently wrote a chapter on James for Barry Zimmerman's and

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Dale Schunk's wonderful new book entitled *Educational Psychology: One-Hundred Years of Contributions*, and in that chapter I try to explain why James' writing has such a profound influence on me. This is what I write, and I hope it explains why James influences me with such power: "For over 30 years, I have been smitten with William James. I read him for work and for play. I read him for guidance. I read him for inspiration. I read him when my spirits are low. I read him to discover what I really think. I read him to learn. I am never disappointed. My admiration borders on adulation. How could anyone fail to see the profundity of this man's wisdom, the elegance of his thought, or the simplicity of his uncommon common sense?"

I suppose my habits of mind as regards psychology are also influenced by my affection for the writings of Maslow, Freud, Erikson, and Bruner. These days I am much enjoying Steven Pinker's new book, *The Blank Slate*.

My real affection and my most profound influences lie outside psychology, however, and I tend to turn to Italo Calvino, Voltaire, Ortega y Gasset, Baltasar Gracian, e. e. cummings, A. R. Ammons, Joan Manuel Serrat, Pablo Neruda, Garcia Lorca, Teilhard de Chardin, Alfred Schutz, or Vaclav Havel for guidance, inspiration, and, most important perhaps, direction. I also pay a great deal of attention to Cole Porter, Monty Python, George Carlin, and Saint Exupery. Let me admit that I am also deeply, deeply influenced by Calvin and Hobbes (mostly Calvin, mind you—his views on education and psychology are pretty much my own).

Two of my university professors also had a formative influence on me. John Bengston taught me to beware of formalizing, a theme that permeates my teaching and, sometimes (though not often enough I fear), my scholarship. Thankfully, William Purkey instilled in me early on Dicken's caution to "Never be mean in anything, never be false, never be cruel."

3. Tell Readers about your latest book Academic Motivation of Adolescents.

Tim Urdan and I devoted the second volume of our book series *Adolescence and Education* to academic motivation because we believe that few academic issues are of greater concern to teachers, parents, and school administrators than the academic motivation of adolescents in their care. There are good reasons for this concern. Students who are academically motivated perform better in school, value their schooling, are future-oriented in their academic pursuits, and possess the academic confidence and positive feelings of self-worth so necessary to increasing academic achievement. Because academically motivated students engage their schoolwork with confidence and interest, they drop out of school less often, suffer fewer disciplinary

problems, and prove resilient in the face of setbacks and obstacles. It is precisely because academic motivation is so essential to academic achievement that motivation has taken a place along with cognition as one of the most followed lines of inquiry in educational psychology. In this volume, Urdan and I were fortunate to gather some of the most eminent scholars on the academic motivation of adolescents. We were fortunate also that these scholars represent the varied theories and lines of inquiry that currently dominate research in this area. In that volume, readers will find Barry Zimmerman writing about self-regulated learning, Dale Schunk on self-efficacy, Allan Wigfield on expectancy-value theory, Herb Marsh on academic self-concept, Suzanne Hidi on interest, Marty Covington on intrinsic motivation, Marty Maehr and Avi Kaplan on achievement goal orientations, Rick Ryan on self-determination theory, Willy Lens on future time perspective, Joshua Aronson on stereotype threat, and Rob Roeser on a holistic perspective of motivation.

4. Tell us about "nurturing academic confidence." Why is this important? Who should do it and why?

At a particularly difficult juncture in her dissertation process, one of my doctoral students turned to me and said, "You know, Professor, I've come to the realization that, although it is important for me to believe that I can do this, it seems equally important for me to believe that you believe I can do this."

As so many of us have personally experienced, the actions of significant individuals—perhaps a teacher who came our way at just the right time—helped instill self-beliefs that influence the course and direction our lives take.

I suppose one reason why nurturing academic confidence is important is that academic success and personal growth are important. And, of course, over two decades of research shows that academic confidence is a strong determinant of academic accomplishment. In fact, one of the most powerful findings from self-efficacy research is that how students perform academically can often be better predicted by their beliefs about their own capabilities, than by what they are actually capable of accomplishing.

Who should nurture such confidence? Whoever is in a reasonable position to do so. All teachers should take seriously their share of responsibility in nurturing the self-beliefs of their pupils, for it is clear that these self-beliefs can have beneficial or destructive influences. Educators who view as their singular obligation the cultivation of their students' cognitive skills, or who believe that nurturing their students' often-fragile egos is beyond their

purview, would do well to reflect on the nature of their role as educators of youth.

Moreover, a focus on students' intellectual development is not incompatible with concern for their psychological well-being. As Bandura has argued, "educational practices should be gauged not only by the skills and knowledge they impart for present use but also by what they do to [students'] beliefs about their capabilities, which affects how they approach the future. Students who develop a strong sense of self-efficacy are well equipped to educate themselves when they have to rely on their own initiative."

Jerome Bruner suggested that the ordinary practices of schooling must be examined with a view to the contributions they make to the ingredients crucial to a student's sense of self. These ingredients should include things such as agency, confidence, and purpose.

It would be similarly beneficial to examine our own ordinary practices as educators with a view to the contribution these practices make toward maximizing not only our students' intellect and scholarship but also their confidence in the very academic excellence we wish them to cultivate. Finally, why should we nurture academic confidence? Educational philosopher Nel Noddings observed that the ultimate aim of education should be to nurture the "ethical self" to produce "competent, caring, loving, and lovable people." One need only cast a casual glance at the American landscape to see that attending to the personal, social, and psychological concerns of students is both a noble and necessary enterprise. We can aid our students by helping them develop the habit of excellence in scholarship while nurturing the confidence and self-beliefs necessary to maintain that excellence throughout their adult lives. This requires not only challenging them intellectually but nurturing their fledgling self-beliefs.

5. God, the Devil and the Alfred Hitchcock Show. . . .what does all of this have to do with Educational Psychology?

When I started to deliver that address at the APA Conference, some in the audience surely wondered the same thing. The subtitle of that address was "Bridging the Gap Between Principles and Particulars in Educational Psychology," and this is what I was trying to accomplish in the talk.

What God and the devil have in common is that they each reside "in the details," which is to say in the "particulars" of a situation. Psychology typically must eschew the particular in favor of generating general universal principles about human functioning. But, of course, deriving meaning from principles in the absence of particulars, which is to say attempting to derive "laws" (of learning, motivation, behavior, and such) that can function independent of local conditions, represents one of the greatest problems facing

psychology. Jerome Bruner argued that our discipline continues entrenched in "the conventional aims of positivist science with its ideals of reductionism, causal explanation, and prediction." As a result, the aim of the authors of most of the studies populating educational psychology journals is to "discover a set of transcendent human universals—even if those universals are hedged by specifications about 'cross-cultural' variations."

The hunt for these universal principles permeates our research, our instruction, and our way of thinking. For all that we deplore decontextualism, the quest for universal truths is not only prevalent but also deeply entrenched in our educational psychology classes and teacher education programs. Although in these constructivist times no one disputes Austin's premise that "it takes a meaning to catch a meaning," more than a fair amount of what is taught in our courses consists of learning how to decontextualize—how to categorize behavior, personality, thinking styles, environmental events, and even self-beliefs in the abstract terms that theoretical formulations employ and that educational research thrives on.

Our discipline's enthusiasm for discovering and disseminating universal principles of human cognition and conduct has been called into question by other members of our own discipline, by members of disciplines other than our own, and even by the audience for whom most of the rules are intended—classroom teachers, school administrators, educational policy-makers, and parents. These voices have argued either that we have strayed too far in the direction of favoring universal understandings or that we continue to be pulled by competing views of how we should think about our discipline and about the world, how we should conduct our investigations into personal and social reality, and how we should educate our students. The gist of their discomfort clusters around two contentions. The first is that the formal, universal principles gleaned from educational psychology research and theories are neither authoritative, relevant, nor accessible. The second contention is that situation-specific understandings of individuals are the understandings required to make sense of human conduct.

In my address, I asked whether our enthusiasm for universal understandings is warranted. Should we who do psychology be concerned by the manner in which we help develop and promulgate the generalizations that form the core of the psychological theories we admire? Are we being sufficiently attentive to the particulars of situations—to the local conditions—in the creation and dissemination of these theories? Should these matters cause us to be plagued by more than a small measure of insecurity about our research, teaching, discipline, and understandings of how people teach, learn, and live?

Clifford Geertz argued that knowledge and action are always local, always situated in a network of particulars. We cannot disjoin action or

cognition from the situation in which they occur. Universal principles and particulars each operate locally. However elegant the insight or telling the action, neither can be understood fully beyond the natural boundaries provided by the local and situated conditions in which they are embedded. Or beyond the boundaries provided by the previous understandings, which we bring to novel information and with which we endeavor to make sense of them. It really does take a meaning to catch a meaning. Recall Lee Cronbach's caution that "when we give proper weight to local conditions," to details, "any generalization is a working hypothesis, not a conclusion."

But does this mean that generalizations, as universal understandings, are best abandoned altogether? Are we better off assuming that there are no universals in mental functioning, no universal themes to the human condition? Of course not. The human condition is a shared condition. Their idiographic sensibilities notwithstanding, art, music, literature, cinema, and the humanities would all be trivial without the common chord. Imagine a classic without a universal theme. Imagine advertising. Culture itself represents in part the transmission and dissemination of acquired habits of functioning that groups of individuals share in common.

What I asked, then, was whether there was some way to bridge this gap between principles and particulars in educational psychology. Whether there are ways to achieve a balance between the meanings obtained from research and theory and the meanings obtained from the details embedded in local conditions, especially since God and the Devil reside in those details in equal measure. I asked whether we have to give up theorizing scientifically about a construct in educational psychology if we give up the idea of the universal purity of that construct as embedded in one particular situation.

My answer is that the task before us may be as simple (and complex) as shifting our perspective from a focus on the primacy of universal truths, even from a focus on bridging the gap between universal and particular understandings, to a focus on the cultivation of judgment and the refinement of taste. Not simply on the cultivation of judgment, of course, (we all strive for judgment of a sort) but on the cultivation of situated judgment.

I have tried to shift my emphasis from rule-based instruction to the cultivation of situated judgment in teaching educational psychology. This has involved working to help students appreciate the usefulness and limitations of universal understandings as well as the relevance, importance, and potential mischief of the details of their particular experiences. It means also that I try to instill in them, as William James called it, the fighting impulse required to challenge both me and the literature when either of us formalizes or trivializes the complex issues that form the content of our discipline or

when we devalue the lived experience of its scholars in training. But what does Alfred Hitchcock have to do with all this? You'll have to read the full address for that. Isn't that a Hitchcock-like response?

6. Self-efficacy—why is it important and why should it be studied?

To answer this question, let me first define what self-efficacy is and try to place it within a social cognitive perspective.

In the landmark book *How We Think*, philosopher and educator John Dewey put forth the idea that individuals evaluate their own experiences and thinking through the process of self-reflection. Albert Bandura subsequently contended that this capability to self-reflect is the most "distinctly human" capability. Clearly, human beings are capable of exploring the inner architecture of their minds. To this end, we possess the self-beliefs necessary to exercise a measure of control over our thoughts, feelings, and actions. Through self-reflection, we make sense of our experiences, explore our own thoughts and self-beliefs, evaluate our own conduct and that of others, and constantly alter our thinking and behavior in light of the fruits of our reflection. In other words, it is through our own thinking that we endeavor to make sense of our lives and of the personal, social, cultural, and historical forces that act upon us. Key to the process of self-reflection are the self-perceptions that we create and develop about our own capability, about what we can and cannot do. These are our *self-efficacy* beliefs, which can be defined as the beliefs that people hold about their capability to organize and execute the courses of action required to manage prospective situations. Put more simply, self-efficacy is viewed as the confidence that we have in our own abilities.

What we know, the skills we possess, or what we have previously accomplished are not always good predictors of subsequent attainments because the *beliefs* we hold about our capabilities powerfully influence the ways we behave. Consequently, how we behave is mediated by our beliefs about our capabilities and is often better predicted by these beliefs than by the results of our previous performances. This does not mean that we can accomplish tasks beyond our capabilities simply by believing that we can, for competent functioning requires harmony between self-beliefs on the one hand and possessed skills and knowledge on the other. Rather, it means that self-perceptions of capability help determine what we do with the knowledge and skills we possess. More important, self-efficacy beliefs are critical determinants of how well we acquire knowledge and skill in the first place.

Self-efficacy beliefs provide the foundation for human motivation, well-being, and personal accomplishment. This is because unless people believe

that their actions can produce the outcomes they desire, they have little incentive to act or to persevere in the face of difficulties. Our self-efficacy beliefs are instrumental to the goals that we pursue and to the control we exercise over our world, however large or modest that world may be. A great deal of research evidence now supports Bandura's contention that self-efficacy beliefs touch virtually every aspect of people's lives—whether they think productively, self-debilitatingly, pessimistically, or optimistically; how well they motivate themselves and persevere in the face of adversities; their vulnerability to stress and depression, and the life choices they make. Self-efficacy is also a critical determinant of how individuals regulate their own thinking and behavior. The process of creating and using these self-beliefs is rather intuitive: individuals engage in a behavior, interpret the results of their actions, use these interpretations to create and develop beliefs about their capability to engage in subsequent behaviors in similar domains, and behave in concert with the beliefs created. In school, for example, the beliefs that students develop about their academic capabilities help determine what they do with the knowledge and skills they have learned. Consequently, their academic performances are in part the result of what they come to believe that they have accomplished and can accomplish. This helps explain why students' academic performances may differ markedly when they have similar ability. Researchers have suggested that these self-beliefs may play a mediational role in relation to cognitive engagement and that enhancing them might lead to increased use of cognitive strategies that, in turn, lead to improved performance. This view of self-belief as a mediating construct in human behavior is consistent with those of numerous scholars and theorists who have argued that the potent evaluative nature of beliefs makes them a filter through which new phenomena are interpreted and subsequent behavior mediated.

Self-efficacy is important for the same reasons that any belief we hold about our own self is important: because we act on these sorts of self-beliefs. It is the things we believe that determine the things we attempt. In so many ways, what we can do matters so much less than what we believe we can do. As I respond to this I think about Don Quixote battling the windmills. It doesn't matter that the windmills triumphed. If it did matter, Cervantes would have entitled his book *The Windmills of La Mancha*. All that matters is that he charged them because he believed he should. In part, that is why self-efficacy is important. Because it gives us the psychological energy required to battle windmills.

Why should we study it? If psychology doesn't concern itself with the critical psychological factors that influence human accomplishment, with what should it concern itself?

7. William James. . . .what do you see as his contributions and why should educational psychologists study him?

As I noted earlier, I wrote a chapter about this in Barry Zimmerman and Dale Schunk's recent book. I'm tempted to say that we should study him because he said nearly everything about psychological matters of consequence that needs saying and said it about as well as it can be said, but in all fairness this may be exceeding his reach, so let me go at it another way. First, what do I see as his contributions? I believe there is general agreement regarding the major ideas with which James imbued his psychology. There are, of course, the foundational ideas of functionalism, radical empiricism, and pluralism. James also emphasized self-processes and expressed a profound belief in free will, and he argued strongly for the critical role that mental associations play in the development of human functioning. There is, as well, pragmatism, a method by which ideas can be appraised. His contributions to education are well outlined in his book *Talks to Teachers*, which had a powerful influence on the progressive movement that John Dewey would bring to fruition.

Few would dispute that James's ideas have had a pronounced influence on philosophy, politics, sociology, religion and theology, literature, and, through the pragmatic philosophies of Supreme Court justices Oliver Wendell Holmes and Louis Brandeis, even jurisprudence. In each of these areas James was and continues to be widely read and studied. Many prominent figures have expressed their admiration for James and acknowledged their intellectual debt. Most prominent among these are John Dewey, George Herbert Mead, Charles Cooley, Josiah Royce, Charles Peirce, Gordon Allport, Reinhold Niebuhr, Gardner Murphy, and Henry Murray, as well as a number of James's students, including E. L. Thorndike (an admirer but not a follower), Dickenson Miller, E. B. Holt, Robert Frost, Gertrude Stein, James Angell, Walter Lippmann, and W. E. Dubois.

Why should we study him? Because he was wise and mostly right about matters of consequence. Because if we spent less time reinventing the wheel, we might build a better vehicle.

8. What now are the main directions in self-efficacy research?

In education, we are past the point of showing that self-efficacy is related to, and predictive of, academic attainment. Studies that continue to make that point in varied academic domains are simply redundant. At this point, we need to put into practice the policies, interventions, and schooling strategies that emanate from insights obtained from research findings. I would like to see self-efficacy research dedicate itself to this path.

9. What are some of the main findings regarding self-efficacy beliefs in academic contexts?

Since Bandura first introduced the construct of self-efficacy in 1977, researchers have been successful in demonstrating that individuals' self-efficacy beliefs powerfully influence their attainments in diverse fields. A search for the term "self-efficacy" in most academic databases reveals that, by the year 2000, over 2500 articles were written on this important psychological concept.

In the area of educational psychology, self-efficacy is especially prominent in studies of constructs such as academic achievement, attributions of success and failure, goal setting, social comparisons, memory, problem solving, career development, and teaching and teacher education. In general, researchers have established that self-efficacy beliefs, behavior changes, and outcomes are highly correlated and that self-efficacy is an excellent predictor of behavior. The depth of this support prompted Sandra Graham and Bernard Weiner to conclude in the recent *Handbook of Educational Psychology* that self-efficacy is a more consistent predictor of behavioral outcomes in education and in psychology, than other motivational self-beliefs.

Researchers have demonstrated that self-efficacy beliefs influence academic attainments by raising effort, persistence, and perseverance. Regardless of previous achievement or ability, confident students work harder, persist longer, and persevere in the face of adversity. For example, one researcher identified elementary school children of low, middle, and high mathematics ability who had, within each ability level, either high or low mathematics self-efficacy. After instruction, the children were given new problems to solve and an opportunity to rework those they missed. The researcher reported that ability was related to performance but that, regardless of ability level, children with high self-efficacy completed more problems correctly and reworked more of the ones they missed.

Other researchers have reported that self-efficacy also enhances students' memory performance by enhancing persistence. In studies of college students who pursue science and engineering courses, confident students are more likely to possess the academic persistence necessary to maintain high academic achievement. Students who believe they are capable of performing academic tasks use more cognitive and metacognitive strategies and persist longer than those who do not. General mental ability, or psychometric g, accounts for the single largest component underlying individual differences in mental ability and is typically acknowledged as the most powerful predictor of academic performances. In other words, some psychologists contend that

if you want to predict a child's academic achievement, then assess his/her intelligence. But when researchers tested the joint contribution of math self-efficacy and general mental ability, to achievement, they found that, despite the influence of mental ability self-efficacy beliefs made a powerful and independent contribution to the prediction of mathematics performance. Which is to say that it is not simply a matter of how capable you are, it is also a matter of how capable you think you are.

Psychologist Barry Zimmerman has been instrumental in tracing the relationships among self-efficacy perceptions, academic self-regulatory processes, and academic achievement. This line of inquiry has demonstrated that self-regulatory efficacy contributes to academic efficacy, which, in turn, influences academic achievement. Self-efficacy is also related to self-regulated learning. Confident students use more cognitive and metacognitive strategies. Academic self-efficacy influences cognitive strategy use and self-regulation through use of metacognitive strategies, and it is correlated with in-class seatwork and homework, exams and quizzes, and essays and reports. Paul Pintrich and Elizabeth De Groot wrote that self-efficacy plays a "facilitative" role in the process of cognitive engagement, that raising self-efficacy beliefs might lead to increased use of cognitive strategies and, thereby, higher achievement, and that "students need to have both 'will' and 'skill' to be successful in classrooms."

Studies tracing the relationship between confidence and goal setting have demonstrated that self-efficacy and skill development are stronger in students who set proximal goals than in students who set distal goals, in part because proximal attainments provide students with evidence of growing expertise. In addition, students who have been verbally encouraged to set their own goals experience increases in confidence, competence, and commitment to attain those goals. Self-efficacy is also increased when students are provided with frequent and immediate feedback while working on academic tasks and, when students are taught to attribute this feedback to their own effort, they work harder, experience stronger motivation, and report greater efficacy for further learning.

Self-efficacy beliefs also help determine the consequences of one's actions. Confident individuals anticipate successful consequences, or outcomes. For example, students who are confident of their writing capabilities anticipate high marks on writing assignments and expect their written work to reap academic benefits. Conversely, students who doubt their writing ability envision low marks before they even begin to write. The expected results of these imagined performances will be differently envisioned: academic success and greater options for the former, academic failure and curtailed possibilities for the latter.

10. Are there differences in sex, race, ethnicity, socioeconomic status and the like with regard to self-efficacy?

Self-efficacy beliefs can differ by gender or by ethnicity. Whereas recent findings suggest that gender differences in academic achievement are either diminishing or practically nonexistent, gender differences in some academic self-beliefs of American students may still be prevalent. It seems that boys and girls report similar confidence in their mathematics ability during the elementary years, but, by high school, boys are more confident and girls more likely to underestimate their capability. Even by middle school, boys rate themselves more efficacious in mathematics than do girls. Gifted girls are especially underconfident about their mathematics capabilities. In language arts, on the other hand, girls tend to report greater confidence than do boys, at least up to the high school level. Sandra Graham's summary of the literature on the motivation of African American students revealed that they "maintain undaunted optimism and positive self-regard even in the face of achievement failure." Similar findings are reported with Hispanic American students. These findings resulted primarily from studies of self-concept. In studies in which self-efficacy perceptions are assessed, the self-efficacy of African American students and of Hispanic American students tends to be lower than that of their White peers.

The import of recent scholarly findings, then, is that students' difficulties in basic academic skills are often directly related to their beliefs that they cannot read, write, handle numbers, or think well—that they cannot learn—even when such things are not objectively true. That is to say, many students have difficulty in school, not because they are incapable of performing successfully, but because they are incapable of believing that they can perform successfully. They have learned to see themselves as incapable of handling academic work or to see the work as irrelevant to their life. Consequently, taking into account students' self-efficacy beliefs is critical to the success of academic strategies and instructional interventions. Self-efficacy explains approximately one quarter of the variance in the prediction of academic outcomes beyond that of instructional influences. Lest one think that a modest contribution to the explanation of academic achievement, consider the many and varied factors that impinge on a student's experience while at school. Any psychological factor capable of explaining twenty-five percent of most academic outcomes merits attention and even a bit of awe.

11. Why should we look at self-efficacy in terms of women in math, science, and technology?

Because women are underrepresented in each of these prestigious areas, and this is unlikely due to differences in capability. More likely, it is due to differences in the self-beliefs that men and women hold about themselves

in these domains, as well as differences in their perceptions of the domains themselves. I believe that, to an important extent, many girls and women fail to pursue careers in mathematics, science, and technology not because they lack the skills to compete with men in these areas but because they have come to *believe* that they will not, in the final analysis, possess the skills to compete. In many cases, girls and women simple underestimate what they are capable of achieving in what they perceive as male-dominated domains.

Individuals are *not* well served when their efficacy perceptions underestimate what they are capable of achieving. Lower self-efficacy perceptions result in decreased effort, low persistence, and defeat in the face of obstacles. To women pursuing careers in mathematics-related areas, low self-efficacy may be particularly detrimental because it can result in lower enrollment in advanced college mathematics and science courses, lack of participation in mathematics-related college majors, and failure to pursue mathematics-related careers. When women do not pursue the potentially lucrative mathematics-related careers for which they are capable, they also decrease their chances for a financially stable career future and cannot take advantage of the personal challenge and fulfillment that these types of opportunities represent. Moreover, a society unable to correct its inequities cheats itself out of important and meaningful contributions from a significant portion of its citizens. This is especially critical at a time when there is a proportional decline of male students in college populations and a proportional increase of female students. If this trend holds, it seems evident that American society must increasingly rely on the mathematical talents of women to maintain its scientific, technological, and economic viability.

12. How should self-efficacy influence how teachers work with students with special needs? Who has researched this area and what have they discerned?

Although research with this population of students has not been as prominent as has research with regular education or gifted students, a number of excellent studies have been conducted. I urge readers to read Rob Klassen's excellent 2002 review of the self-efficacy beliefs of students with learning disabilities (*Learning Disability Quarterly, 25*, pp. 88–102). In that review, Klassen identifies 22 studies that met the criteria for inclusion in the review and outlines the major findings to date. Perhaps a key finding is that learning disabled (LD) students tend to be more poorly "calibrated" than regular education or gifted students. In other words, there is a greater disjoint between the confidence and performance of LD students than of other students, which means that LD students tend to be less accurate about what they can and cannot do. In some cases, this disjoint is evidenced by the fact that LD students and regular education students do not differ in their self-efficacy beliefs but do differ in their achievement, with LD students obtaining lower

achievement. For example, Paul Pintrich and his colleagues found that LD students and regular education students were equally confident about their reading capabilities despite the fact that the regular education students were stronger readers than the LD students. Similar results were obtained in the area of writing. These findings have important implications. Clearly, some overestimation of what we can and cannot do is beneficial in that it propels us to attempt tasks and engage in activities with confidence and optimism. But students who strongly overestimate their capabilities may not engage in the self-regulated learning strategies necessary to succeed academically. In other words, if you erroneously believe that you know precisely what you are doing, it is possible that you may not carefully check your work. When students are overly optimistic about the skills they possess and then find themselves unable to demonstrate those skills, the motivational damage may be great.

13. Self-efficacy and self-esteem: How are they alike, and how are they different?

The beliefs are alike in that they are each self-conceptions critical to effective functioning. In other ways, self-efficacy beliefs differ markedly from self-esteem beliefs. Self-efficacy is a judgment of capability to perform a task or engage in an activity, whereas self-esteem is a personal evaluation of one's self that includes the feelings of self-worth that accompany that evaluation. Self-efficacy is a judgment of one's own confidence; self-esteem is a judgment of self-value. Because self-esteem involves evaluations of self-worth, it is particularly dependent on how a culture or social structure values the attributes on which the individual bases those feelings of self-worth. Self-efficacy is dependent primarily on the task at hand, independent of its culturally assigned value. When individuals tap into their self-efficacy or their self-esteem beliefs, they must ask themselves quite different types of questions. Self-efficacy beliefs revolve around questions of "can" (Can I write well? Can I drive a car? Can I solve this problem?), whereas self-esteem beliefs reflect questions of "being" and "feeling" (Who am I? Do I like myself? How do I feel about myself as a writer?). The answers to the self-efficacy questions that individuals pose reveal whether they possess high or low confidence to accomplish the task or succeed at the activity in question; the answers to the self-esteem questions that individuals pose reveal how positively or negatively they view themselves and how they feel in those areas.

It is important to note that self-efficacy and self-esteem need not be related. There is no fixed relationship between one's beliefs about what one can or cannot do and whether one feels positively or negatively about

oneself. Some students may readily admit to dismal self-efficacy when it comes to writing but suffer no loss of self-esteem on that account, in part, because they do not invest their self-worth in this activity. There are many things that individuals do poorly but that have no influence on how they feel about themselves. Alternatively, some students may feel highly efficacious in mathematics but without the corresponding positive feelings of self-worth, in part, because they may take no pride in accomplishments in this area. One could surmise that skilled soldiers in war may possess strong efficacy beliefs about their professional capabilities but take no pride in performing them well if plagued as by the emotional distress that accompanies the rendition of their skills. In fact, in these cases such high self-efficacy could even be the source for crippling self-esteem.

Clearly, self-esteem and self-efficacy beliefs each influence human functioning and help mediate the impact of other motivation and achievement constructs on behavior. As Bandura observed, they both contribute in their own way to the quality of human life.

14. How can academic self-confidence be nurtured?

There are many ways to nurture academic self-confidence. Perhaps the most powerful way is to nurture a student's capabilities. Not "abilities," mind you, but "*cap*abilities." An ability is something that you can do presently; a capability is something you cannot do presently but are capable of doing with appropriate instruction. I am thinking along the lines of Vygotsky's zone of proximal development. The strongest influence on self-efficacy is mastery experience, which is to say, our accomplishments. Children grow confident to the degree that they master the world around them, hence aiding them in this mastery is the surest way of developing and buttressing their confidence.

To these ends, students must be viewed as capable and well-intentioned. William James long ago told us that all our beliefs begin in a "plastic" state. This is the time during which we are making sense of a particular piece of our world, a time during which our beliefs about this piece are being formed. This time does not last long. Soon our beliefs become hardened structures, and time typically works to make them even harder.

As children strive to exercise control over their surroundings, their first transactions are mediated by adults who can empower them with self-assurance or diminish their fledgling, plastic, self-beliefs. Because young children are not proficient at making accurate self-appraisals, they rely on the judgments of others to create their own judgments of confidence and of self-worth. In 1902, Charles Horton Cooley introduced the metaphor of the "looking-glass self" to illustrate that our sense of self is primarily formed as a result of our perceptions of how others perceive us. That is, the appraisals

of others act as mirror reflections that provide the information we use to define our own sense of self and self-worth. Hence, to a great extent we tend to become the sort of person we believe others believe us to be. William Purkey put it this way: "We are who we think people think we are."

It is during early childhood that the metaphor of the "looking-glass self" is at its most powerful, and it is during this time that our self-beliefs are most powerfully influenced by others. In 1892, William James ended his lectures to the nation's teachers with the gentle admonition that if they could but see their pupils as young creatures composed of good intentions, and love them as well, they would be "in the best possible position for becoming perfect teachers." As this is our aim, we do well to take heed.

We should all strive to provide challenge, meaning, and encouragement to our students. Parents and teachers who provide children with challenging tasks and meaningful activities that can be mastered, and who chaperone these efforts with support and encouragement, help ensure the development of a robust sense of self-worth and self-confidence. Early mastery experiences are predictive of children's cognitive development, and there is evidence to suggest they work independently of critical variables such as socioeconomic status.

Parents and teachers should also foster *rigor*. Effective teachers know that tasks and assignments must always be at an accomplishable level of difficulty. They know also that successful completion of challenging tasks is self-rewarding and energizing whereas completion of simple tasks brings little satisfaction. Academic work should be hard enough that it energizes, not so hard that it paralyzes.

Confidence is a habit of mind, hence we should cultivate it early. School is the primary setting in which academic self-beliefs are developed and maintained. William James long ago argued that "education is for behavior, and habits are the stuff of which behavior consists." Beliefs of personal competence ultimately become habits of thinking that are developed like any habit of conduct. Teachers and parents are influential in helping students develop the self-belief habits that serve them throughout their lives.

We know that as a belief claims its place in our belief system, it tends to self-perpetuate, persevering even against contradictions caused by reason, time, schooling, or experience. We know also that the earlier a belief is incorporated into our belief system, the more difficult it is to alter it. Newly acquired beliefs are most vulnerable to change. As most of us know, belief change during adulthood is a relatively rare phenomenon. In fact, people tend to hold on to beliefs based on incorrect or incomplete knowledge even after correct explanations are presented to them. For these reasons, educators face the critical challenge of making their students' positive self-beliefs automatic and habitual as early as possible.

This means that we should help make students' self-regulatory practices automatic and habitual as early as possible. The self-regulatory processes that individuals use to make most of their decisions become automatic and are exercised primarily unconsciously. Many psychologists contend that individuals perform the bulk of their actions on autopilot, as it were, making use of "automatic self-regulation." What this means, of course, is people are, in later life, slaves to the self-regulatory practices and inclinations that they mastered in earlier years. These habitual ways of behaving exert a powerful influence on the choices people make, and on the success or failure they experience. As a consequence, habitual self-regulatory behaviors are the very stuff of which the self is made. According to William James, when sound self-regulatory practices are handed over to "the effortless custody of automatism," higher powers of mind are freed to engage academic tasks.

Interestingly, some researchers have argued that teachers should pay as much attention to students' perceptions of competence as to actual competence because it is the perceptions that may more accurately predict students' motivation and future academic choices. And recall that unrealistically low self-efficacy perceptions, not lack of capability or skill, can be responsible for maladaptive academic behaviors, avoidance of courses and careers, and diminishing school interest and achievement. As I observed earlier, given the generally lower confidence of most girls related to boys in the areas of mathematics and computer technology, it seems that young women may be especially vulnerable in these areas.

15. How else can we bolster students self-confidence?

Another important strategy in nurturing self-confidence is to help students set proximal goals. Time moves slowly in the classroom. Working toward long-term (distal) goals is a necessary ingredient of school life, but it can be tough on a student's motivation. Short-term, proximal, goals are more easily digestible for students. Proximal goals have the added benefit of raising self-efficacy. Not only do they make a task appear more manageable, but the more frequent feedback that is provided can convey a sense of mastery. Bandura and Schunk conducted an experiment in which elementary school students were given seven sets of mathematics problems to solve. One group received feedback after each set was completed, a second group received feedback when all seven sets were completed, and one group received no feedback. Students in the group that received feedback after each set experienced the greatest increase in self-efficacy and in achievement. In addition, students who are verbally encouraged to set their own goals experience increases in confidence, competence, and commitment to attain those goals.

16. Do you have any concerns or cautions about nurturing self-beliefs?

Many critics have quite rightly railed against the tyranny that can result from an unbridled self-oriented emphasis in education. It can be a short voyage from self-reflection and self-fulfillment to self-obsession, self-absorption, self-centeredness, self-importance, and selfishness. Children taught that the nurturance, maintenance, and gratification of their sense of Self is the prime directive of their own personal and social development do not easily learn to nurture others, to maintain lasting and mutually satisfying relationships, or to defer or postpone their own perceived needs.

Artificial self-esteem is naked against adversity; unwarranted confidence is cocky conceit. When what is communicated to a child from an early age is that nothing matters quite as much as how he or she feels or how confident he or she should be, one can rest assured that the world will sooner or later teach that child a lesson in humility that may not be easily learned. An obsession with one's sense of self is responsible for an alarming increase in depression and other mental difficulties.

As is evident from the proliferation of self-esteem kits, programs, and gimmicks, complex issues related to self-esteem have been oversimplified and caricatured. Self-esteem programs of the sort that have been in fashion are ineffective in raising either self-esteem or achievement. Clearly, in most cases, efforts are better aimed at transforming schools, classrooms, and teaching practices than at altering students' psyches.

Over 100 years ago, William James cautioned his audience of teachers that "soft pedagogics have taken the place of the old steep and rocky path to learning. But from this lukewarm air the bracing oxygen of effort is left out. It is nonsense to suppose that every step in education can be interesting. The fighting impulse must often be appealed to."

Indeed, but let me emphasize that institutional, curricular, and pedagogical transformation and a focus on students' intellectual development are not incompatible with concern for students' personal, social, and psychological needs and well-being.

Alfie Kohn put it well when he argued that positive self-regard need not result in arrogant self-satisfaction. Nel Noddings observed that the ultimate aim of schools should be to nurture the "ethical self . . . to produce competent, caring, loving, and lovable people." Schools can aid their students in these pursuits by helping them to develop the habit of excellence in scholarship while nurturing the self-beliefs necessary to maintain that excellence throughout their adult lives. As Bandura argued, "educational practices should be gauged not only by the skills and knowledge they impart for present use but also by what they do to children's beliefs about their capabilities, which affects how they approach the future. Students who develop

a strong sense of self-efficacy are well equipped to educate themselves when they have to rely on their own initiative." It seems clear that many of the difficulties that people experience throughout their lives are closely connected with the beliefs they hold about themselves and their place in the world. Students' academic failures in basic subjects, as well as the misdirected motivation and lack of commitment often characteristic of the underachiever, the dropout, the student labeled "at risk," and the socially disabled, are in good measure the consequence of, or certainly exacerbated by, the beliefs that students develop about themselves and about their ability to exercise a measure of control over their environments.

And while I am on this, let me add a word about the one thing we all believe should be avoided at all costs—failure. When failure is viewed as normative, resilience is second nature. As a young man, Abraham Lincoln went to war a captain and returned a private. Afterwards, he was a failure as a businessman. As a lawyer in Springfield, he was too impractical and temperamental to be a success. He turned to politics and was defeated in his first try for the legislature, defeated in his first attempt to be nominated for congress, defeated in his application to be commissioner of the General Land Office, defeated in the senatorial election of 1854, defeated in his efforts for the vice-presidency in 1856, and defeated in the senatorial election of 1858. At about that time, he wrote in a letter to a friend, "I am now the most miserable man living. If what I feel were equally distributed to the whole human family, there would not be one cheerful face on the earth." Winston Churchill failed sixth grade. He was subsequently defeated in every election for public office until he became Prime Minister at age 62. He later wrote, "Never give in, never give in, never, never, never, never—in nothing, great or small, large or petty—never give in except to convictions of honor and good sense. Never, Never, Never, Never give up." (his capitals, mind you)

One of the characteristics that distinguishes the Lincolns and Churchills from other individuals has something to do with how they handle failure and adversity. You see, self-efficacy is not so much about learning how to succeed as it is about learning how to persist and persevere when you do not succeed. Self-efficacy does not provide the skills required to succeed; it provides the effort and perseverence required to obtain those skills.

Thomas Edison made 1,000 unsuccessful attempts at inventing the light bulb. When a reporter asked, "How did it feel to fail 1,000 times?" Edison replied, "I didn't fail 1,000 times. The light bulb was an invention with 1,000 steps."

We make a great mistake when we endeavor to prevent students from failing. Failure, after all, is the price we pay for success. Our efforts are better aimed at helping students learn how to fail when failure is unavoidable.

To this end, effective teachers treat student errors, missteps, and incorrect answers as positive contributions that lead to subsequent achievement.

17. How can self-efficacy be tested? Are there tests, and are they valid and reliable?

One of the wonderful things about self-efficacy is that it is delightfully easy to assess. Because it is context-, and sometimes even task-dependent, self-efficacy items and instruments are relatively simple to construct. In his *Guide for Constructing Self-Efficacy Scales*, Bandura outlines in specific detail how the construct of self-efficacy is assessed, and he offers a number of sample instruments and strategies. And yes, there are numerous reliable and valid assessments in the literature.

But care should be taken when assessing self-efficacy beliefs. Because judgments of self-efficacy are task- and domain-specific, global or inappropriately defined self-efficacy assessments weaken effects. Consequently, to increase accuracy of prediction, researchers attempting to predict academic outcomes from students' self-efficacy beliefs should follow theoretical guidelines regarding specificity of self-efficacy assessment and correspondence with criterial tasks. This means that self-efficacy beliefs should be assessed at the optimal level of specificity that *corresponds* to the criterial task being assessed and the domain of functioning being analyzed. In other words, the self-efficacy beliefs assessed should faithfully mirror the performance outcome with which they are compared.

Reasonably precise judgments of capability matched to a specific outcome afford the greatest prediction and offer the best explanations of behavioral outcomes because these are typically the sorts of judgments that individuals use when confronted with behavioral tasks. To this end, if the purpose of a study is to achieve explanatory and predictive power, self-efficacy judgments should be consistent with, and tailored to, the domain of functioning and/or task under investigation. This is especially critical in studies that attempt to establish causal relations between beliefs and outcomes. All this is to say that capabilities assessed and capabilities tested should be similar capabilities. If you assess an individual's confidence to drive an automobile with an automatic transmission it would not be particularly fruitful to then compare this confidence with his ability to drive a large truck with a standard transmission.

Findings on the relationship between self-efficacy and academic achievement coincide on two points related to specificity and correspondence. First, when self-efficacy beliefs are "globally" assessed, prediction is diminished; when assessments are domain-specific, and especially when they are task-specific, prediction is enhanced. Second, when self-efficacy

beliefs do *not* correspond with the achievement outcome with which they are compared, their predictive value is reduced or can even be nullified. In general, there is ample reason to believe that self-efficacy is a powerful motivation construct that predicts academic achievement at varying levels but works best when theoretical guidelines and procedures regarding domain-specificity and correspondence are adhered to.

18. What is the Inviting/Disinviting Index? What relevance does it have for educational psychology and for self-efficacy?

The Inviting/Disinviting Index is an instrument designed to assess people's self-perceptions about the extent to which they are inviting or disinviting to themselves and others. Invitational theory is a movement within psychology that was initiated by the writings of William Purkey. It can be traced to a perceptual tradition in psychology that maintains that the beliefs people develop about themselves help form the perceptual lens through which they view the world and interpret new experiences. As a consequence, individuals' self-beliefs have a profound influence on their actions. Support for this view also comes from social cognitive theorists who argue that what individuals do is more likely to reflect what they believe themselves capable of accomplishing than what they are actually capable of accomplishing. The messages that people send and receive play an important role in creating the beliefs that they develop about themselves, because it is these messages that often constitute the bridge on which perception, interpretation, and meaning travel. In school settings, teachers send messages through their behavior, posture, tone of voice, and even the enthusiasm with which they approach their teaching. Invitational theorists contend that people can intentionally send uplifting and empowering messages to themselves and to others, and so they have defined invitational education as the process by which people are cordially summoned to realize their potential. According to invitational theory, the messages that people send can be either inviting or disinviting and can be directed either at oneself or at others. Inviting messages tell others that they are able, valuable, and responsible. Disinviting messages, on the other hand, tell people that they are incapable and worthless and that they are not welcome to participate in their own development.

Scholars have noted the conceptual relationships between invitations and motivation constructs such as self-efficacy. About 10 years ago I wrote that the tenets of self-efficacy theory and those of invitational theory complement each other, and I provided a model showing the hypothesized relationship between efficacy beliefs and invitations. In one study, I asked students to recall instances in their lives when invitations contributed to, or disinvitations undermined, beliefs about their writing ability. I found that invitations

created and bolstered self-efficacy beliefs whereas disinvitations destroyed and diminished them.

As do invitational theorists, social cognitive theorists argue that students' self-beliefs are created and developed in part by the messages, that is, the invitations and disinvitations, that students receive from themselves and others. Along with Amy Zeldin, I investigated the relationship between these messages and the sources of the self-efficacy beliefs of women with careers in mathematics, science, or technology. We found that the invitations the women reported receiving were important in their initial choice to pursue nontraditional careers and also formed the self-beliefs that nurtured the effort, persistence, and resilience required to overcome personal, social, and academic obstacles. It is worth noting that the invitations from others that the women received early in their development reemerged at later points in their lives as self-invitations. These findings support the contention of invitational theorists that others play a powerful role in the beliefs that students come to develop about themselves.

19. What are teachers doing wrong in terms of self-efficacy?

I am not sure they are doing anything wrong at this point, in part, because the ideas generated from self-efficacy research have not yet trickled down to practice. This is largely because self-efficacy is a relatively new psychological construct. My greatest fear, however, is that self-efficacy may ultimately suffer the same fate and be drawn into the same quagmire as has self-esteem. Regrettably, individuals tend to reduce an idea to its lowest terms, to understand that idea at its most simplistic, indeed oversimplistic, level. I fear that a self-enhancement model of the self-esteem type may infect self-efficacy, such that teachers come to believe that their primary task as regards their children's confidence is to bolster it at all costs, even if that should mean bolstering it artificially. What a pity that would be!

20. What question have I neglected to ask?

You have been most thorough. But since you offer me this chance to speak on an issue that has not been raised, I briefly discuss one of the questions with which self-efficacy theorists have been grappling. How much confidence is too much confidence?

According to social cognitive theory, successful functioning is typically best served by reasonably accurate efficacy appraisals, although the most functional efficacy judgments are those that slightly exceed what one can actually accomplish, because this overestimation serves to increase effort and persistence. Indeed, most students are overconfident about their academic capabilities. But how much confidence is too much confidence, when

can overconfidence be characterized as excessive and maladaptive in an academic enterprise, what factors help create inaccurate self-perceptions, and what are the likely effects of such in accuracy? Bandura argued that the stronger the self-efficacy, the more likely are persons to select challenging tasks, persist at them, and perform them successfully. Researchers must determine to what degree high self-efficacy demonstrated in the face of incongruent performance attainments ultimately results in these benefits.

What seems clear, however, is that we should not tinker with overconfidence. Tailhard de Chardin wrote that "it is our duty as human beings to proceed as though the limits of our capabilities do not exist." Who can ever assess a student's full potential with complete accuracy? Students surprise us all the time, just as we surprise ourselves. We should be careful about attempting to "calibrate" a student's self-efficacy beliefs. Improving students' calibration—the accuracy of their self-efficacy beliefs—is an enterprise fraught with potential dangers. Remember that the stronger the self-efficacy, the more likely are persons to select challenging tasks, persist at them, and perform them successfully. Efforts to lower students' efficacy beliefs should be discouraged. Improving students' calibration should emphasize helping them to better understand what they know and do not know so that they may more effectively deploy appropriate cognitive strategies as they perform a task. We should keep carefully in mind that the issue of "accuracy" cannot easily be divorced from issues of well-being, optimism, resilience, and optimal functioning. Research findings support the notion that, as people evaluate their lives, they are more likely to regret the challenge not confronted, the contest not entered, the risk unrisked, and the road not taken as a result of underconfidence and self-doubt rather than the action taken as a result of overconfidence and optimism. The challenge to educators on this account is to make students more familiar with their own internal mental structures without lowering confidence, optimism, and drive.