THE ROAD LESS TRAVELED

How the Developmental Sciences Can Prepare Educators to Improve Student Achievement: Policy Recommendations

Recommendations of the National Expert Panel commissioned by the National Council for Accreditation of Teacher Education on Increasing the Application of Knowledge about Child and Adolescent Development and Learning in Educator Preparation Programs

NCATE
The Standard of Excellence in Teacher Preparation

Table of Contents

Preface

October 2010

This report summarizes two papers commissioned by the National Council for Accreditation of Teacher Education (NCATE), with funding from the Strategic Knowledge Fund, a partnership between the Foundation for Child Development and the W. K. Kellogg Foundation. The Strategic Knowledge Fund supports projects that increase knowledge about children from birth to eight years old and their families, particularly children who are at risk for poor educational outcomes. The Strategic Knowledge Fund provided support to NCATE to promote "integration of child and adolescent development deeply and concretely into the preparation of America's teachers." The A. L. Mailman Foundation also supported this project.

NCATE conducted a reputational study and, with the support of the Foundation for Child Development, created a National Expert Panel on Increasing the Application of Knowledge about Child and Adolescent Development and Learning in Educator Preparation Programs. The Panel met four times between 2008-2009 and produced two commissioned papers. Briefs of those commissioned papers have also been produced, as well as this report, entitled *The Road Less Traveled: How the Developmental Sciences Can Prepare Educators to Improve Student Achievement: Policy Recommendations*. All are available at www.ncate.org. The papers and related materials may be downloaded from the website by clicking on "Research and Reports" in the "Public" section or ordered as publications by clicking on "Publications" at www.ncate.org.

This work was preceded by a collaboration between the National Institute of Child Health and Human Development and NCATE to determine the current level of integration of child and adolescent development in educator preparation programs and the current state of developmental sciences knowledge. The effort found gaps between what is known and what is taught in educator preparation programs. That report is available at www.ncate.org by clicking on "Research and Reports" in the "Public" section. The Foundation for Child Development then initiated the effort that produced this paper and other related materials in order to produce actionable recommendations for the education and education policy communities.

It is the strong desire of the Strategic Knowledge Fund leadership that the recommendations contained in the briefs, papers, and final report of this effort receive the utmost attention from the education and policy communities and that the organizations named in the section on policy recommendations, as well as other education stakeholders, take concerted and timely action to implement the recommendations.

This brief summarizes the commissioned papers and was prepared by

Jane A. Leibbrand
Vice President, Communications
National Council for Accreditation of Teacher Education

Bernardine H. Watson
Social Policy Consultant
Former Executive Vice President, Public/Private Ventures

Increasing the Application of Knowledge About Child and Adolescent Development and Learning In Educator Preparation Programs

National Expert Panel

James P. Comer
Co-Chair
Associate Dean, Yale School of Medicine
Maurice Falk Professor of Child Psychiatry
Yale Child Study Center
Yale University

Robert Pianta
Co-Chair
Dean, Curry School of Education
Novartis U.S. Foundation Professor of Education
Director, Center for Advanced Study of Teaching and Learning
University of Virginia

Paul Ammon
Professor, Cognition and Development
Graduate School of Education
University of California, Berkeley

Jacquelynne Eccles
McKeachie Collegiate Professor of Psychology, Women's Studies and Education
University of Michigan

A. Lin Goodwin
Professor and Associate Dean
Teacher Education and School-based Support Services
Teachers College, Columbia University

Linda Darling-Hammond
Charles Ducommun Professor of Education
School of Education
Stanford University

Randy Hitz
Dean, Graduate School of Education
Portland State University

John Johnston
Professor and Director of Assessment
College of Education
University of Memphis

Sharon Lynn Kagan
Associate Dean for Policy, Teachers College
Virginia and Leonard Marx Professor of Early Childhood and Family Policy
Columbia University
Adjunct Professor
Yale Child Study Center
Yale University

Kathleen McCartney
Dean, Faculty of Education
Gerald S. Lesser Professor in Early Childhood Education
Graduate School of Education
Harvard University

Samuel J. Meisels
President, Erikson Institute

Robert Roeser
Department of Psychology
Portland State University

Eric Schaps
President
Developmental Studies Center
Oakland, CA

Margaret Beale Spencer
Marshall Field IV Professor of Urban Education
University of Chicago

Blake West
President, Kansas National Education Association

Arthur E. Wise
President Emeritus, NCATE

Susan Tave Zelman
Consultant, Education Technology

Jennifer LoCasale-Crouch
Executive Director
Research Scientist
University of Virginia

Paula Berneking
Panel Coordination Assistant
University of Virginia

Resources for the National Expert Panel

Foundation for Child Development

Ruby Takanishi
President and CEO

Fasaha M. Traylor
Senior Program Officer

NCATE

James G. Cibulka
President

Jane A. Leibbrand
Vice President, Communications

Boyce C. Williams
Vice President, Institutional Relations

Melissa Masterson
Assistant to the President

National Institutes of Health Eunice Kennedy Shriver National Institute of Child Health and Human Development

(Collaborative effort with NCATE on child and adolescent development preceding the Strategic Knowledge Fund/Foundation for Child Development effort)

Yvonne Maddox
Deputy Director

Valerie Maholmes
Social and Affective Development/Child Maltreatment and Violence
Child Development and Behavior Branch

Introduction

"Education in our country must move beyond the rhetoric of saying that 'all children can learn' to dealing with the realities of what this actually means in terms of teaching and learning. In my opinion, the most significant question in public education is: how do we address the needs of all learners?"

These are the words of Amber Damm, 2009 Minnesota Teacher of the Year. Damm correctly identifies the most important problem facing public education in our country today: how do we address the needs of all learners? We believe that the answer to her question can be found in recent advances in scientific knowledge about child and adolescent development. A 2007 report issued by the National Institute of Child Health and Human Development (NICHD) says, "aspects of development — neural, cognitive, social, psychological, physical and ethical — have far-reaching effects on children's ability to learn." In other words, if teachers are to address the increasingly diverse needs of all of the children that are entering today's classrooms, they need access to scientifically-based knowledge concerning student development and learning. Many educators, however — both teachers and administrators — have not been prepared to understand and apply advances in the developmental sciences in their schools and classrooms.[1]

To address this issue, in 2007, the National Council for Accreditation of Teacher Education (NCATE) convened a national expert panel to develop recommendations for strategies to increase application of the developmental sciences in educator preparation. As part of this effort, NCATE commissioned two papers designed to bring attention to this critical need.[2]

This report summarizes the key points from the commissioned papers and contains the expert panel's recommendations for key stakeholders (see page 17). A summary is as follows:

- **Educator preparation programs** should ensure that candidates possess contemporary knowledge of child and adolescent development and understand its effective application in the PreK-12 classroom.
- **Accrediting bodies** should adopt standards for educator preparation programs that incorporate specific evidence of candidates' mastery of the core competencies associated with knowledge of child and adolescent development.
- **States** should ensure that the knowledge base of child/adolescent development is integrated into all routes to teaching.
- When relevant, explicit use of "knowledge and application of the contemporary developmental sciences knowledge" should be added to review criteria for **U.S. Department of Education** grant programs, particularly those that pertain to educator preparation and evaluation and to school turn-around.

[1] The term "developmental sciences" includes the science of child and adolescent development as well as cognitive science and neuroscience.

[2] Content in this paper is drawn from *Principles and Exemplars for Integrating Developmental Sciences Knowledge into Educator Preparation*, by Jon Snyder and Ira Lit, and *Increasing the Application of Developmental Sciences Knowledge in Educator Preparation: Policy and Practice Issues,* by Robert Pianta, Randy Hitz, and Blake West. Both papers are available at www.ncate.org.

What Research Tells Us

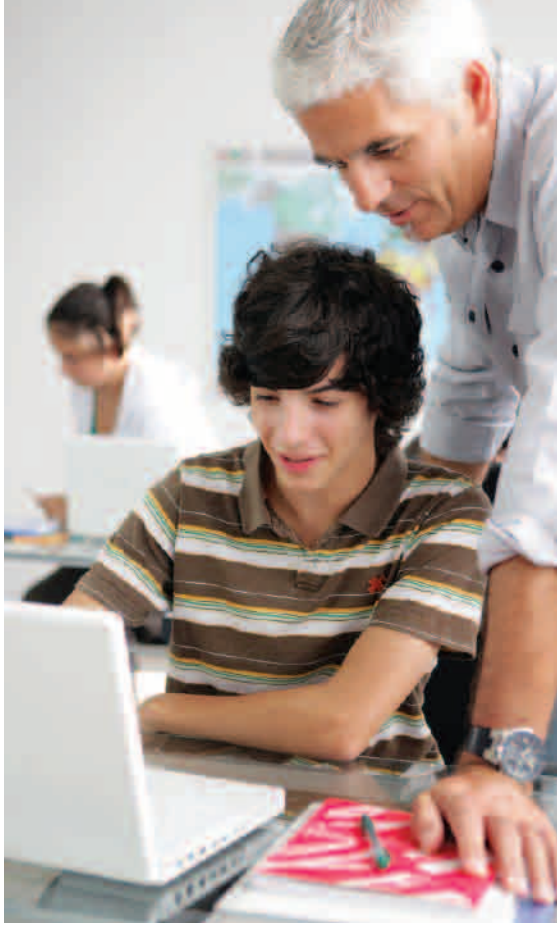
Recent reforms aimed at increasing student achievement have focused primarily on what can be termed basic academic skills. A robust research base, however, tells us that student success in school requires a combination of social, emotional, *and* academic/cognitive competencies (Durlak, Weissberg, Dymnicki, Taylor and Schellinger, in press). New common core teaching standards developed through the Council of Chief State School Officers acknowledge this triumvirate of key domains associated with learning. To maximize student achievement, teachers and schools must effectively address *all* of these aspects of development.

Educators must understand key findings from cognitive science in order to plan and implement instruction and diagnose and remediate individual learning needs. Linda Darling-Hammond and John Bransford provide an excellent overview of this knowledge base in *Preparing Teachers for a Changing World: What Teachers Should Learn and Be Able to Do* (2005).

Just as importantly, extensive developmental research indicates that effective mastery of social-emotional competencies is associated with better school performance, while failure in these areas can lead to personal, social, and academic difficulties (Eisenberg, 2006; Guerra and Bradshaw, 2008; Weissberg and Greenberg, 1998). There is a proven connection between the emotional and instructional climate for learning and student outcomes (Pianta, 2007; Eccles et al., 1999). Research indicates that teachers with a developmental background design and carry out learning experiences in ways that support student academic *and* social competence (Comer et al., 1996). The importance of successful relationships in schools (teacher to student and peer to peer) has also been correlated with positive social and academic outcomes (Hamre & Pianta, 2001; Wentzel, 2003).

A recent meta-analysis of 213 school programs implementing developmentally-focused approaches to social and emotional learning involving almost 300,000 K-12 students found an 11 percentile point gain in student achievement, reduced disruptive behavior, and increased pro-social attitudes and behaviors (Durlak, et al. in press). A 2003 meta-analysis (Borman, Hewes, Overman, and Brown, 2003) found that the Comer School Development Program, based on developmental sciences knowledge, was one of only three school reform models "to have clearly established, across varying contexts and varying study designs, that their effects are relatively robust and that the model[s], in general, can be expected to improve students' test scores."

Teacher knowledge of the social, emotional, *and* cognitive domains, coupled with the ability to effectively apply strategies based on developmental principles, translates to increased student engagement and improved learning outcomes. These improvements are observed in students of all socio-economic and ethnic backgrounds, a point of significance to policymakers anxious to close the achievement gap between more and less advantaged students. The Comer School Development Program, for example, engaged five school districts in its systemic reform process from 1998 to 2003. The U.S. Department of Education funded an evaluation of the program's impact. From 2001, when the program was first fully implemented, to 2004, the achievement gap between black students and white students closed rapidly in Asheville City Schools (Comer, J. and Emmons, C., 2006). Other similar results are evident.



What is the Importance of Integrating Developmental Sciences into Educator Preparation *Now?*

The most important answer to this question is simple: the lack of exposure to developmental sciences knowledge in educator preparation programs has a negative impact on children and youth. In spite of available new scientific knowledge, disengagement and alienation are reported by youth at an all-time high, often resulting from classroom experiences that are disconnected from developmental needs. In spite of numerous attempts at reform, many public school systems continue to fail a large percentage of our children. Evidence shows that educational approaches attempted over the past decade have not significantly improved student performance. Far too many students still fail to complete high school or are not prepared for college or work. In a national sample of over one hundred thousand sixth to twelfth graders, only 29 percent indicated that their school provides a caring, encouraging environment (Benson, 2006). Earlier Public Agenda surveys concluded the same. By high school, as many as 40 to 50 percent of students become chronically disengaged from school (Klem and Connell, 2004).

A 2009 Editorial Projects in Education nationwide study shows the average high school graduation rate in the nation's 50 largest cities is only 53 percent, signifying hundreds of failing city schools that some call dropout factories. Yet the rate is far greater in some areas. In Cleveland only 38 percent of high school freshmen graduated within four years, while in Baltimore only 41 percent of students graduate from city schools. Racial gaps in graduation rates are even more searing. A 2010 Shott Foundation report reveals that the overall 2007-2008 graduation rate for black males in the U.S. was only 47 percent. Cities perform poorly. New York City only graduates 28 percent of its black male students on time; the same can be said of Philadelphia. Some areas perform better: in Montgomery County, Maryland, for example, 68 percent of black males graduate on time. Montgomery County has long had in place a systematic, intensive strategy based on developmental principles and strategies from Pre-K through high school.

A visit to many schools will show that many of today's middle and secondary school classrooms are not settings for positive youth engagement. Youthful energy, excitement, and enthusiasm often reside in the hallways and lunchrooms — not in the classroom. Study after study reaches the same stunning conclusion: we are losing a large proportion of alienated high school students, especially in cities. Unfortunately, research also indicates that even those who do graduate often complete their school work on a superficial level, and up to one-third of students at some colleges require remedial work.

The second answer to the question "why now?" lies in the current education policy environment. As mentioned in the introduction to this report, efforts by education experts and policymakers at the state and federal levels are now underway to reassess and reform the ways in which we prepare young people for academic success, college, and/or careers.

In the most recent major effort to improve public education in this country, each state focused on setting its own high standards and measurable goals for improving students' basic skills. Currently, however, there is growing acknowledgement among education reformers that attention to basic skills alone is not enough. Today's reforms are moving past a narrow focus on basic skills to an emphasis on skills and outcomes that prepare students not only to be successful in school or at work but to function well in the larger society. These efforts are taking place at the state and national levels. For example, through the Common Core State Standards Initiative, 48 states have committed to using newly developed, common national academic standards and possibly instituting some common measures for assessing the standards. These standards are evidence-based and stress skills — such as teamwork, leadership, skilled communication, and use of digital media and technology — that will prepare students to compete in the global economy. Federal education policy initiatives, including the re-authorization of the Elementary and Secondary Education Act (ESEA), are incorporating recommendations contained in a 2009 report from the Center for Workforce Preparation. The report says that, in addition to basic skills, students will need "foundational" skills and qualities such as creative thinking and reasoning as well as personal maturity and sociability to live and compete successfully in a global society.

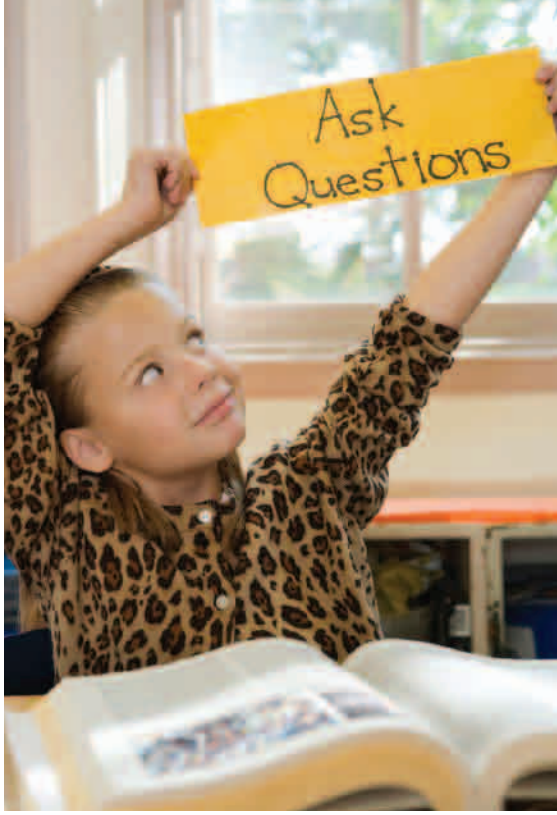
We applaud these policy initiatives and consider them steps in the right direction. Unfortunately, in spite of a decade of robust research tying developmental science to student achievement, little effort has been made to ground these reforms in the science of child and adolescent development and learning. Many education experts agree that this disconnect makes it less likely that these new policies will succeed in improving education and life opportunities for our nation's children.

We must ensure that policymakers at the federal, state, and local levels, as well as other decision makers involved in the preparation of educators, understand that developmental science is not "fluff" that can be considered optional or an add-on to an educator preparation curriculum. If we don't act now to integrate development sciences knowledge into preparation programs, we may lose another generation of learners.

How do we address the needs of all learners? Two of our most important education experts answer the question best:

We can't expect to shift paradigms if we don't re-conceive teacher preparation programs.
Sarah Brown Wessling, 2010 National Teacher of the Year.

Unlike the quick fixes often promoted, the best programs in education take time. Thoughtful implementation requires deep insight, [and] continual learning from theory to practice…
Amber Damm, 2009 Minnesota Teacher of the Year.



Effective Application of Developmental Principles Makes a Difference in Student Learning and Engagement

Two decades of research have resulted in a solid, well established body of scientific evidence on child and adolescent development and the role that classroom instruction and home experience play in that development.

This knowledge base includes discoveries about how young children develop specific skills such as early language, literacy, and mathematics, as well as information about basic developmental progress in the areas of cognition, brain development and neuroscience, physiology and endocrinology, and social development. Research from the cognitive area of the developmental sciences provides methods to guide and modify instruction based on student progress; studies have identified, for example, specific skill 'targets' (alphabet knowledge, reasoning, problem solving) that are particularly responsive to intervention and that are linked to language, literacy and math development in preschoolers (NELP, 2004).

These skill targets are likely to be underdeveloped among at-risk students, and early intervention could boost academic achievement. Early language and literacy curriculum interventions can be used in classrooms and integrated into preparation program to address these areas directly (Justice and Ezell, 2002; Wasik and Bond, 2001). However, observational studies show little evidence that such interventions are used in many early education classrooms (Dickinson and Brady, 2005; Howes et al., 2008). In the area of literacy, where there is a wealth of information concerning the improvement of early learning, much of this knowledge has yet to penetrate teacher preparation and practice.

Teachers are not expected to know everything that specialists know in all fields related to teaching. However, this recent science forms the underpinning of interrelated developmental principles that teachers must understand and practice if they are to be effective in their classrooms, schools, and communities. Several of these principles in the social/emotional domains are outlined below, along with examples of how effective teachers are using them to improve their practice and affect the lives of children.

- **Knowing the children — individually, culturally, and developmentally — is as important as knowing the content being taught.**
- **Children are influenced by their environments, and they come to school with various supports and barriers to learning.**
- **Emotion and learning are strongly connected; emotion affects cognition (NICHD, 2007).**

Teachers who approach their task from a developmental perspective understand the importance of supporting students in the various domains of development, not simply the cognitive domain. The 2010 National Teacher of the Year, Sarah Brown Wessling, understands this. Below, she reveals her understanding of a troubled adolescent, how she was able to reach him, and through him, the rest of the students in her class.

Several years ago I taught 'New Start English'[,] where the 28 students who had failed Freshman English came to me, disengaged and disgruntled, each with a story that seemed to explain why. To stay positive, I ate lunch in my room so I could respond to a daily journal I had started with each student. One particularly troubled student, Tyler, wielded an uncanny power over his peers. He was their hero, the tough and seemingly confident person they all wanted to be. I discovered through these daily journals that Tyler loved to draw and for several weeks I invited him to bring in some of his artwork until he finally did. One day, he came into the room, angrier than usual, but calmed by his art. At the end of class he took his sketch, complex in emotion and execution, and tacked it to the bulletin board. Later, my AP class came in and aptly noticed the new addition. They immediately recognized in it the literary archetypes we'd been studying. I quickly grabbed a pile of sticky notes, asked the students to write down their thoughts and post the notes on the illustration. The next morning before school I had the office call Tyler into my classroom[,] where I had a note ready for him: "The greatest measure of an artist's worth is the impact he can make on others. Look what you've done," I nodded towards his illustration…. This didn't magically transform my 5th hour class, but those kids, Tyler especially, came and said hello nearly every day for the next two years as they struggled time and again, just to graduate.[3]

In the past, pundits might have concluded that the best teachers are born — not made. Recent research on indicators of teaching effectiveness and evidence from results of observational protocols now help identify specific effective behaviors. Sarah uses a preponderance of these. For example, researchers have derived measures of the quality of teacher-child interactions in PreK-12 settings (Pianta & Hamre, 2009). Evidence indicates that measures of specific teacher-student interactions which include social/emotional practices, organization of the classroom, and teachers' strategies to increase student learning, account for student developmental and learning gains not only on standardized tests but also on student engagement and social skills identified in new common core student standards. Using these measures, professional development, in the form of courses and coaching approaches, has been shown in experimental trials to produce more effective teaching and student learning gains (Pianta et al., 2008).

Wessling uses the developmental principle of knowing the children we teach by taking the time to understand the personal story each adolescent brings to her classroom. Because Sarah notices and uses Tyler's strength (an intentional behavior), she found a key to improved behavior, engagement, and achievement, not only for Tyler, but also for other students in his class.

[3] This example is an excerpt from Sarah Brown Wessling's Professional Biography for *2010 National Teacher of the Year. http://programs.ccsso.org/projects/national_teacher_of_the_year/state_teachers/2010/14233.php*

Connecting Emotion and Cognition

Educational experts describe three features of emotionally supportive classrooms: positive classroom environment, as evidenced both by an emotional connection between the teacher and students and by students' feelings of safety and excitement about learning; teacher sensitivity, reflected in the teacher's awareness of and responsiveness to students' academic and emotional needs; and respect for student perspectives, including the degree to which the teacher places an emphasis on students' interests, motivations, and points of view (Pianta, 2009).

As noted earlier, extensive developmental research indicates that effective mastery of social-emotional competencies is associated with better school performance, while failure in these areas can lead to personal, social, and academic difficulties (Eisenberg, 2006; Guerra and Bradshaw, 2008; Weissberg and Greenberg, 1998). A teacher who understands developmental sciences principles makes the connection between emotional development and academic growth. Sarah saw Tyler's feeling of alienation and understood that she had to find a way around it in order for Tyler to learn.

Sarah Brown Wessling,
2010 National Teacher of the Year

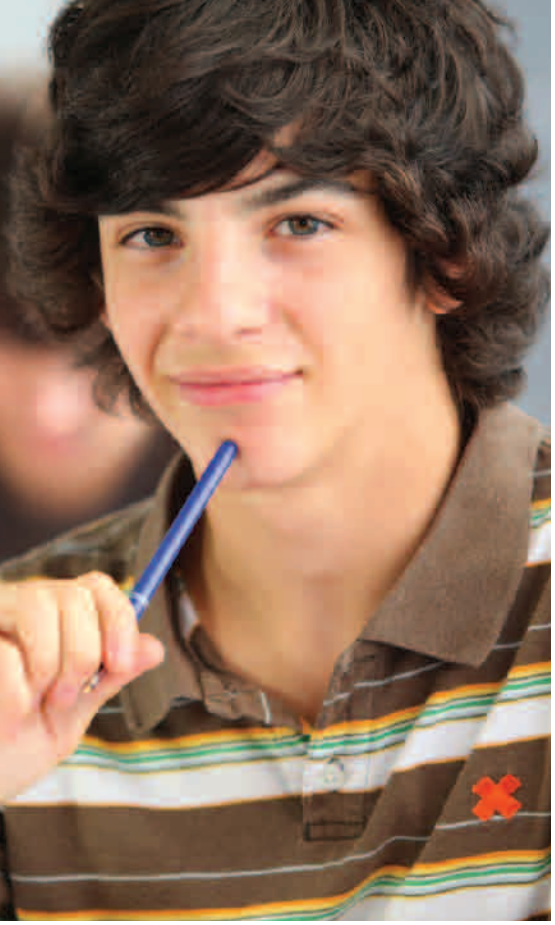
Knowing the Students We Teach

Just as effective teachers realize that classroom environments affect student's emotions and academic performance, they are also aware that home, community, and cultural experiences impact children's growth and development and use strategies to mitigate vulnerability. Effective teachers also understand that they will not truly know their students until they know their students' families. Both Sarah Brown Wessling and Amber Damm make it a point to meet with the families of each student, even if "it means meeting before or after school, on the weekends, or over dinner in students' homes." This kind of relationship-building engenders trust between the teachers and families, a necessary ingredient for real student growth and learning.

Amber Damm (right),
2009 Minnesota Teacher of the Year

Understanding and Overcoming Barriers to Learning

Amber Damm has taught middle school in Minneapolis, Minnesota for close to a decade. Helping her student Mohamed overcome numerous barriers to learning as he transitioned to seventh grade challenged Damm to bring all of the aforementioned developmental principles to bear.



Mohamed's transition to middle school and adolescence was a bumpy one at best. Standing 6'2" he towered over his peers, but, reading at the second-grade level, he cowered in his learned helplessness. Mohamed's struggles began long before my classroom. Ardo, his grandmother, was a refugee who fled Somalia after Mohamed's parents became civilian casualties of civil war. Reading with a tutor three times a week, Mohamed attacked his literacy. By year's end he was reading a full grade higher. Mohamed allowed himself to be vulnerable by sitting with classmates whose literacy was beyond his. Our community ensured he could feel safe with his struggles and confident in sharing his opinions, and our shared passion for literature created an equalizing force where learning flourished for all. Mohamed's countenance, his ideas, and his life changed in this environment. Courtesy, thoughtfulness, and humor replaced his former angst, defensiveness, and fear. Before his eighth grade graduation the principal asked Mohamed to address his 750 students and teachers. Instead of cowering, Mohamed stood tall at center stage and proudly READ.[4]

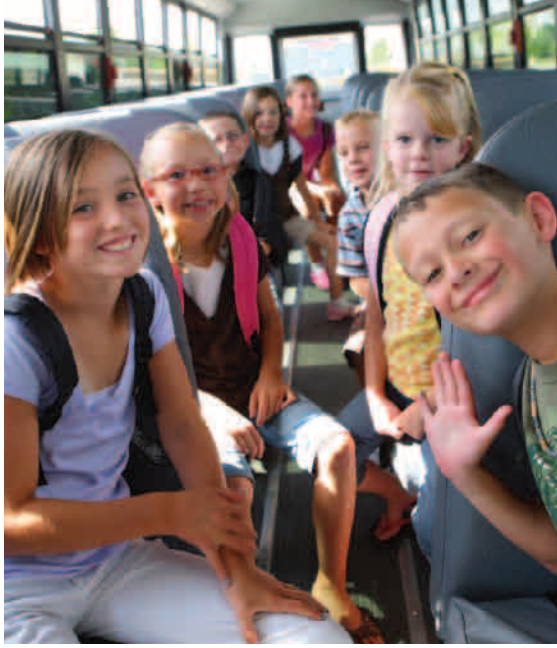
Responding to Adolescent Needs

Adolescence is an especially critical time of human development and change. Adolescents have critical needs for relationships and connections with others: they need autonomy and independence; competence and the feeling that they are successful and worthwhile; and relevance, a motivation that derives from content that relates to life experiences. Again, we draw on the experiences of teacher Sarah Brown Wessling, who considers the developmental needs of her secondary school students as she develops projects specifically for them:

I have sought ways of opening my classroom walls to the larger community in which we live. As part of an independent reading program, I invite all kinds of readers (businesspeople, clergy, government officials, public personalities) to come in throughout the year to talk about "what's on their bookshelf." As students listen, read and respond in letters, they are able to see reading as a life-long habit that respected adults enjoy. In addition to bringing in guest speakers, I've created the "Grant Proposal Project" for seniors, in which the concept of community is instrumental. Upon finishing a thematic literature unit on the American dream, student groups create non-profit organizations that would benefit those in our community who are unable to achieve their American dream. Students engage in inquiry methods that enlighten them about our city. The project culminates with community members that create a grant panel who reads the grants students have written, ask[s] the students critical questions in a group interview, and ultimately

[4] Excerpted from Amber Damm's *Philosophy of Teaching;* 2009 Minnesota Teacher of the Year documents.

determine[s] whether or not to fund their project. The result of this seven-year experience has been inspiring for me to watch. I see students becoming more altruistic because of their research. I see community members spending hours in preparation to create an authentic audience. Most importantly, I see all of us learning because of our common goal.[5]



In working with these adolescents, Sarah shows that she is aware of their specific developmental needs and develops projects aligned with those needs. This project gives students opportunities to (1) show their independence and competence; (2) connect with adults who value the students' ideas; and (3) give back to the community, making the class projects relevant to real life. Experiments in secondary classrooms show that teachers make an avoidable error when they attempt to control youthful energy with teacher-driven methods that discourage exploration and curiosity. In fact, involving students in real-world community service projects, accompanied by ongoing class discussion, has been shown to reduce failure by 50 percent, with 'profound effects' on behavior (Allen, Philliber, Herring, and Kuperminc, 1997).

The developmental principles outlined and demonstrated above can be summarized thus: Children learn best when educators are skilled in applying developmental principles effectively to maximize student academic, social, and emotional development. Developmental science tells us that a child's progress in academics cannot be separated from the emotional, social, or cognitive changes that accompany it. Emotional turmoil will affect academic effort and results, and we have seen the result of student disengagement in lackluster performance on international tests, student self-evaluation, and unacceptable dropout rates. Therefore, we need educators like Sarah and Amber, who have been trained not just to help students acquire academic information, but who can help attend to all of the needs that help make academic gains possible.

[5] This example is taken from a longer essay, "Community Involvement: Partnership of School and Community," by Sarah Brown Wessling, 2010 National Teacher of the Year.

The Current Status of Child and Adolescent Development Science in Educator Preparation Programs

The benefits of integrating child and adolescent development into educator preparation programs have been supported by well established science. Principles for integrating child and adolescent development into educator preparation programs have been developed and are being practiced in some exemplary programs around the country. Still, much more can be done to integrate child and adolescent development science in educator preparation programs. Recent investigations provide evidence of a troubling gap between the understanding of developmental principles that effective educators need and what many preparation programs are currently offering. The gap includes:

- **Education programs are not providing sufficient coursework in child and adolescent development.**

In a recent survey, nine out of 10 education programs reported that candidates are required to take at least one child and adolescent development course. However, half of the survey respondents (either deans or faculty members) felt that a single course is insufficient.

- **In many programs there is a gap between theory and the classroom where candidates can practice child and adolescent development principles. Programs often lack appropriate and current curriculum materials.**

In an NCATE survey, 80 percent of programs reported that their schools of education offered courses in child/adolescent development. However, the 20 percent of programs that do not offer courses in child development either rely on psychology departments for the course, where connections to the classroom may be less likely, or forego courses altogether due to state limits on credit hours for preparation programs.

The curriculum materials currently available for developmental courses tend not to provide sufficient focus for prospective educators. These texts often provide minimal connections to classrooms and lack practical examples for helping educators apply their growing knowledge of child and adolescent development. Also, these "mixed audience" textbooks often have trouble keeping up with rapidly expanding knowledge in the field of child and adolescent development.

- **There is an overall lack of cohesion in many educator preparation programs.**

In too many programs there are limited connections between coursework, clinical experiences, and supervision. Frequently, coursework is provided by one set of faculty, clinical supervision by another set, and school-based support by still another — with limited, if any possibility for productive exchange among these educators.

The challenge to programs is clear:

- *Candidates must be provided with a depth of knowledge about the current science of child and adolescent development. Just as important, candidates must be given time in the curriculum to absorb this knowledge.*
- *Candidates must not only be exposed to this new science, but must be taught and allowed the time to apply this knowledge in schools and classrooms.*
- *There are too few tools available to guide educators in learning and/or improving developmentally sensitive instructional techniques.*

Key Principles for Integrating Child and Adolescent Development into Educator Preparation Programs

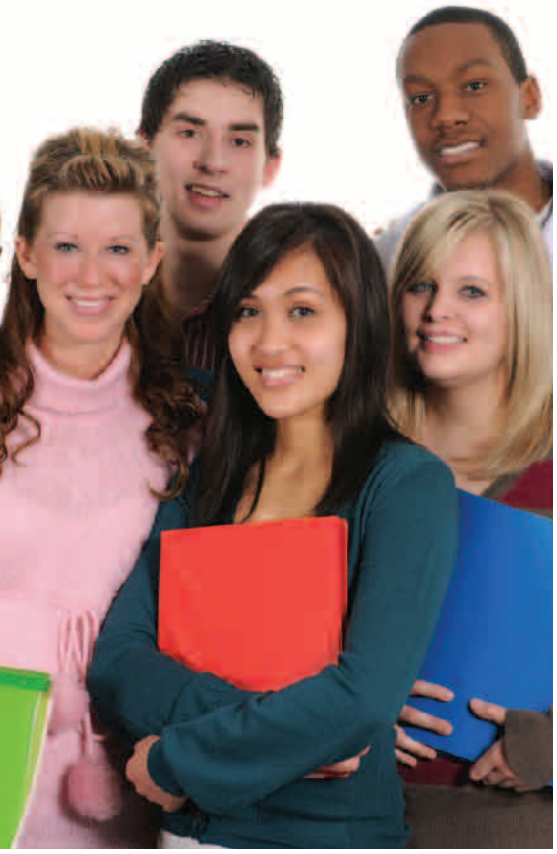
If educators are to use knowledge of child and adolescent development in their schools and classrooms, preparation programs must offer a framework based on the most up-to-date research about how students develop and learn. What follows are six principles for educator preparation programs, grounded in the tenets of child, adolescent, and adult development. Brief examples of how these principles are being practiced in existing programs are included.[6]

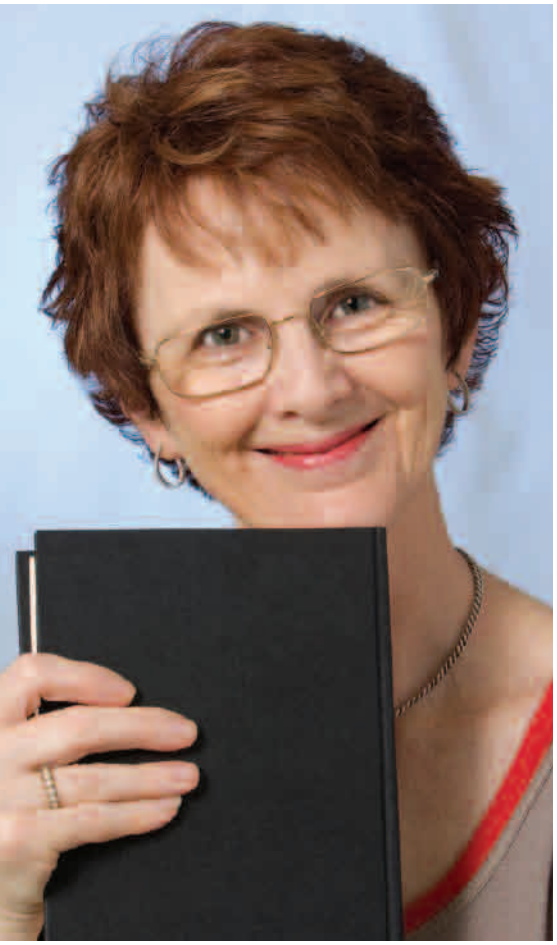
- **Consider teacher candidates as developing adult learners.**
- **Provide opportunities to learn principles of child and adolescent development by integrating developmental sciences principles throughout the curriculum.**
- **Organize experiences to apply child and adolescent development principles in classrooms, schools, and communities.**
- **Design programs with a consistent emphasis on child and adolescent development.**
- **Model professional teaching practices.**
- **Shape programs and practices through continual improvement.**

Educator preparation programs can promote candidates' knowledge of child and adolescent development by providing quality coursework along with deep and sustained opportunities for candidates to practice teaching.

Snyder and Lit (2010) describe exemplary programs that ground candidates in knowledge and application of child and adolescent development principles for their work in PreK-12 classrooms. The programs demonstrate the six principles above in their preparation of educators.

[6] More extensive discussion of exemplary programs where these developmental principles are being used is included in Snyder, J. and Lit, I. (2010). *Principles and Exemplars for Integrating Developmental Sciences Knowledge into Educator Preparation*. Washington, D.C. National Council for Accreditation of Teacher Education. That paper is available at www.ncate.org.





Policy Issues and Challenges: Integrating Child and Adolescent Development Science into Educator Preparation

As indicated in this report, some exemplary preparation programs are working to integrate knowledge of developmental sciences into their curricula. However, it is not enough for a few programs to make use of this knowledge: systemic change is needed to prepare educators for the challenges they face in today's classrooms and schools. At the same time, there are policy issues and challenges that must be resolved — in educator preparation programs, in accreditation agencies, and at the state and federal levels — before child and adolescent development science can be effectively integrated into educator preparation. These issues and challenges are discussed below.

Educator preparation programs

The vast majority of teachers in the United States are prepared in educator preparation programs in institutions of higher education, with about 70 percent of them prepared in professionally accredited programs. These programs can and should be the main mechanisms for integrating knowledge about child and adolescent development science and practice into the classroom. However, this infrastructure, consisting of a vast array of institutional, personnel, and programmatic resources, is unwieldy, complex, and often resistant to change, and it has been increasingly the focus of criticism for its failure to provide evidence of benefits to graduates and the students they serve in PreK-12 classrooms. In fact, the fundamental nature of university-based educator preparation poses barriers to policy implementation that are critical to address if the full benefits of key policy shifts are to be realized.

Issues and challenges

Offering coursework in developmental science: The challenge of adequately preparing candidates for the classroom within a time-limited program is understandable, particularly since candidates must obtain a deep understanding of the subjects they will teach as well as the knowledge and skills necessary to help all students learn. Courses vary considerably in nature and quality. What is clear is that educator preparation programs must determine the best strategies for making child and adolescent development science an explicit, fundamental part of their

curricula. This necessitates decisions on content, skill development, practice approaches, and skill assessment strategies woven throughout the programs.

Faculty capacity: Perhaps one of the greatest challenges to increasing emphasis on contemporary knowledge in child and adolescent development in the educator preparation curriculum is the way program faculty are deployed and the roles various faculty play in the program. Most educator preparation programs have different groups of faculty, each with a different status in the institution and a different role in and influence on the curriculum. These distinctive faculty roles present a challenge to the creation of a coherent, effective, and efficient curriculum. In addition, many educator preparation programs employ large numbers of adjunct faculty, which makes reaching agreement on goals and curriculum priorities and communicating these effectively to all instructors much more complicated. This raises the question of whether the current faculty capacity and structure of most educator preparation programs is appropriate for the task of integrating child and adolescent development science into curricula.

Instructional resources and partnerships:
Field experiences and student teaching are crucial parts of the development of any new teacher. Coursework in child and adolescent development must be integrated with ongoing opportunities to experience key principles firsthand. Developing these types of rich practice opportunities for candidates will be a challenge for many programs. For field experiences to be most effective, they must reflect a coherent design and implementation — a design that requires placement sites and cooperating teachers to align classroom experiences carefully with developmental concepts and coursework. Programs must not only address the learning and experiences of the candidate but also provide ongoing development and support for field supervisors and cooperating teachers.

In order to provide rich practice opportunities for candidates, educator preparation programs must identify and select PreK-12 school placements that already reflect an understanding of developmental issues. The way in which university structure and policy are now arranged hinders faculty members from having the time or resources to develop collaborations with field placement sites. It is, however, attention to the quality of collaboration between preparation programs and PreK-12 schools that will result in child and adolescent development becoming a central component of the new teacher's preparation.

Further, whether through use of video or visits to classrooms, candidates should have the opportunity to see and discuss teaching and learning strategies so they can begin to experiment with their own planning and instructional delivery. At present, there is a dearth of such opportunities.

Even more important, however, is the need to establish a set of evidence-based "common denominators" that identify effective practices and are applied consistently in all candidate observation sessions. If candidates do not see common developmental principles being applied consistently, whether through classroom observation or on video, it is unlikely that these principles will take sufficient hold. This requires that PreK-12 schools and university partners share a common understanding of key principles to be observed and collaborate to

design meaningful opportunities for candidates to experience those principles in action. Further, extensive and intensive opportunities must exist to practice skills such as identifying the needs of students, adjusting instruction to meet individual needs, and reflecting on practice.

National accreditation agencies

Every profession must clearly define the knowledge required to perform competently in that field and must certify that professionals have mastered that knowledge in contemporary forms. Professionals are routinely prevented from engaging in practice and enjoying the benefits of a profession when they fail to demonstrate knowledge or skill related to that profession's standards. The teaching profession lags far behind many others in the creation and regulation of knowledge and skill standards, leaving most regulation to states and certifying organizations. The teaching profession needs to reach clearer consensus on how to measure standards directly and with appropriate stakes attached, and the consequences of either success or failure to attain standards. This must include not just the developmental sciences knowledge but also the ability to use the principles of development in teaching.

Issues and challenges

Setting professional association standards: National accreditation is widely accepted and expected in medicine, pharmacy, law, engineering, nursing, architecture, and social work. But in education only around 70 percent of all schools of education are nationally accredited; fewer than 50 percent of the top *U.S. News and World Report* schools of education are nationally accredited. National accreditation, as well as clear, measurable knowledge and performance assessments for contemporary developmental sciences, would be a major move forward in the preparation and certification of educators. The oldest and largest national accrediting body for teacher education, NCATE, has six broad unit standards that have fairly widespread acceptance in the education field. However, none of these standards makes reference to candidate knowledge of child and adolescent development or the ability to apply it (although it is referenced in a few rubrics, including one on PreK-12 student learning). Thus it is conceivable that educator preparation programs can meet NCATE standards and not actually prepare candidates to understand and apply knowledge of child and adolescent development.

Developing a shared vision: In addition to the six standards, NCATE requires that each school of education create a conceptual framework for its program which "establishes a shared vision for the school's efforts to prepare educators to work in PreK-12 schools." This is a very broad requirement that currently lacks explicit reference to child and adolescent development knowledge. Requirements for the framework need to be strengthened to expect schools of education to specifically articulate the ways in which contemporary knowledge of child and adolescent development will ground all instructional and preparation experiences.

Specialized professional association standards: NCATE also includes in its accreditation system 21 sets of disciplinary standards developed by specialized professional associations. Some of these standards already focus heavily on child and adolescent development, such as those for early childhood, elementary, and middle schools. Many others, including some secondary and specialty areas, do not include clear expectations for the application of child and adolescent development knowledge. Because many states utilize these disciplinary standards as a basis for approval of preparation programs, it is critical that contemporary knowledge of child and adolescent development be explicitly reflected in the standards. This includes attention to assessment and instruction as well as knowledge.

State education policy

Much policy pertaining to educator preparation and performance is made at the state level. For the most part, there is a close and coordinated connection between state policy requirements for educator certification, licensure, and preparation and the work of major accrediting organizations such as NCATE.

Issues and challenges

Evaluation of education professionals: States play a major role in driving the preparation and quality of educators through the ways in which they evaluate the performance of teachers and other school professionals. Appraisal of educators' professional practice is typically required by policy at the state level and designed and implemented at the district/local level. There is little evidence that knowledge of child and adolescent development, or its application, is present in these state evaluation systems. Currently there are two widespread, scientific efforts to extend the developmental sciences knowledge into teacher performance assessment: the Gates Foundation's "Measures of Effective Teaching" study and the William T. Grant Foundation's efforts to develop assessments of the quality of settings serving youth. In both of these efforts, there is a pronounced focus on developing rigorous assessments of teachers' actual performance in classrooms that, at least in part, reflect their understanding and application of child and adolescent development. To the extent these large-scale rigorous studies yield assessments that are reliable and valid, they hold promise for state certification and licensure systems to integrate knowledge of child and adolescent development into their assessments.

Tiered licensure systems: The Interstate Teacher Assessment and Support Consortium (INTASC) at the Council of Chief State School Officers (CCSSO) has released model core teaching standards in 2010 for field comment. These standards, if adopted, represent a step forward in recognizing the importance of integrating principles from the developmental sciences in educator preparation and in the PreK-12 classroom. We urge all states to adopt these model core teaching standards. CCSSO is working across states to adopt a national system of teacher assessment that builds on the work of Connecticut's Bureau of Educator Standards and Certification (BEST) and California's Performance Assessment for California Teachers (PACT) programs. Such a model implemented in state policy might include assessments for licensing, career growth, and National Board certification. NCATE, the National Board for Professional Teaching Standards, the National Education Association, the American Federation of Teachers, and the National Commission on Teaching and America's Future could, and perhaps should, come together to design and advocate for a national system of teacher assessments and a tiered licensure system. However, unless the system

explicitly articulates the content of child and adolescent development for which educators are responsible, as well as standards for measuring that knowledge and its application, this promising reform could easily fall short of expectations and fail to change educators' performance or children's learning.

Federal education policy

As mentioned above, a number of federal education reform efforts are currently underway. Unfortunately, almost none of the criteria for receiving federal funding explicitly requires states, school districts, or preparation programs to advance educators' understanding of developmental sciences and practices. We believe this means the education reforms being proposed will not be strong enough to have the desired impact on student outcomes.

Issues and challenges

Implementing new standards and assessments: There is nothing in the Race To The Top (RTTT) criteria to prevent states from including child and adolescent development science in new academic content standards and standards for educators' knowledge and practice. At the same time, there is nothing explicit in the request for proposals to the states that mentions the need to include developmental sciences knowledge in new standards and assessment practices or the link between these practices and improved student performance. The National Expert Panel believes this is a lost opportunity.

Improving teacher effectiveness: RTTT requires states to improve teacher effectiveness by adopting a definition that is linked to student achievement. This is a move in the right direction but will only be a true advance if states, local education agencies, and schools use multiple measures of effectiveness and include in those measures authentic assessments of teachers' knowledge of the developmental sciences. These assessments should not be limited to basic knowledge of child development, but should include knowledge of the complex factors involved in child development and the ability to apply developmental sciences knowledge in classroom practice. Current RTTT law and criteria for funding do little to link teacher effectiveness to the knowledge of developmental sciences.

Improving data systems: To qualify for RTTT funds, states must develop data systems that have the ability to create links between and among teachers and principals, student performance data, and in-state educator preparation programs. States need the ability to review and use data from all of these sources to create preparation and credentialing programs that successfully produce effective teachers and principals who understand and can apply principles from the developmental sciences.

Turning around low-performing schools: RTTT requires states to develop plans to turn around low-performing schools. Presently, most turn-around models focus on issues of management, data use, leadership, and school organization to achieve results. However, there is ample evidence that if school environments are to be successful in meeting the education challenges of high-poverty, high-need communities, they must be grounded in culturally specific knowledge of child and adolescent development. Failure to require that turn-around proposals be grounded in a developmental approach to school design and management continues the cycle of alienation already present in these schools.

Policy Recommendations

Given the issues that have been discussed in this paper, there is a clear need for policies that will advance educators' knowledge of developmental sciences — as well as a need to apply that knowledge in the preparation, certification, licensing, and practice of educators. Therefore the Panel makes the following recommendations:

Recommendation 1: Educator preparation program role

A. Through dean or program director leadership,[7] educator preparation programs should ensure that the contemporary knowledge base of child and adolescent development is a fundamental part of educator preparation. This knowledge base should be reflected in the college/school of education or other preparation provider's conceptual framework and assessment system and also in that of individual programs within the college/school of education or other preparation provider's structure.

B. Through dean or program director leadership, educator preparation programs should ensure that candidates possess contemporary knowledge of child and adolescent development and its effective application in the PreK-12 classroom. Assessments of related proficiencies should include measures of candidate performance in the classroom and should require demonstration of candidates' skills in interacting with students and families, in cultural competence, in classroom management, in developing a positive and supportive learning environment, and in other key areas informed by knowledge of child/adolescent development. The assessments should provide evidence of candidates' ability to enhance PreK-12 student learning and development.

C. Through dean or program director leadership, candidate knowledge and application of child and adolescent development proficiencies[8] should be integrated in a coherent manner throughout courses/field experiences and student teaching/internships. Candidates must have many opportunities to put their classroom learning into practice and receive continuing, frequent, and iterative feedback from their highly qualified and skilled supervisors regarding their proficiency in applying knowledge of child/adolescent development.

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[7] The title "program director" refers to individuals responsible for preparation programs in non-university settings. It is included to emphasize the need for all educator preparation programs to implement the recommendations.

[8] Proficiencies and core knowledge of child and adolescent development principles can be found in many sources; a few are listed here as examples: Maholmes, V. (2005 & 2006). *Child and Adolescent Development Research and Teacher Education: Evidence-based Pedagogy, Policy and Practice*. Bethesda, Md.: National Institute of Child Health and Human Development. Washington, D.C.: National Council for Accreditation of Teacher Education. Snyder, J. & Lit, I. (2010). *Principles and Exemplars for Integrating Developmental Sciences Knowledge into Educator Preparation*. Washington, DC.: National Council for Accreditation on Teacher Education. www.ncate.org. Eccles, J. & Appleton Gotman, J. (2002). *Community Programs to Promote Youth Development*. Washington, D.C.: National Academy of Sciences, http://www.ncate.org/documents/research/ChildADolDevTeacherEd.pdf; Meece, J. L., & Daniels, D. (2007). *Child and Adolescent Development for Educators* (3rd Edition). New York: McGraw Hill.

D. Through dean or program director leadership, educator preparation programs should provide professional development as needed for relevant faculty on contemporary child and adolescent development knowledge and its effective application in the PreK-12 classroom, including the development of appropriate assessments to ensure that faculty know how to help candidates improve PreK-12 student learning by applying principles of child/adolescent development.

E. The knowledge base of the developmental sciences crosses departmental boundaries within higher education, and often within schools of education. Using new advances in developmental sciences knowledge as the focus of inter- and intra-department and college collaboration could lead to new lines of research and advances in connections between teaching practice and student achievement. Such efforts could enrich not only the schools of education and the other university departments involved but contribute to the knowledge base of the profession as well. Schools of education should initiate such collaborations with the support of academic vice presidents and provosts.

Recommendation 2: Accrediting body role

A. NCATE should adopt standards for educator preparation programs that incorporate specific evidence of candidates' mastery of the core competencies identified with knowledge of child and adolescent development. All appropriate program components that are assessed for earning and maintaining accreditation status should be linked, in a significant way, to this knowledge base and its application. All NCATE-affiliated specialized professional associations should incorporate this knowledge base as appropriate for their disciplines.

B. Educator preparation programs should assess candidate core competencies in knowledge and application of child/adolescent development at specified points throughout the program. The evidence required (including artifacts and processes) for successful accreditation should reflect candidate proficiencies.

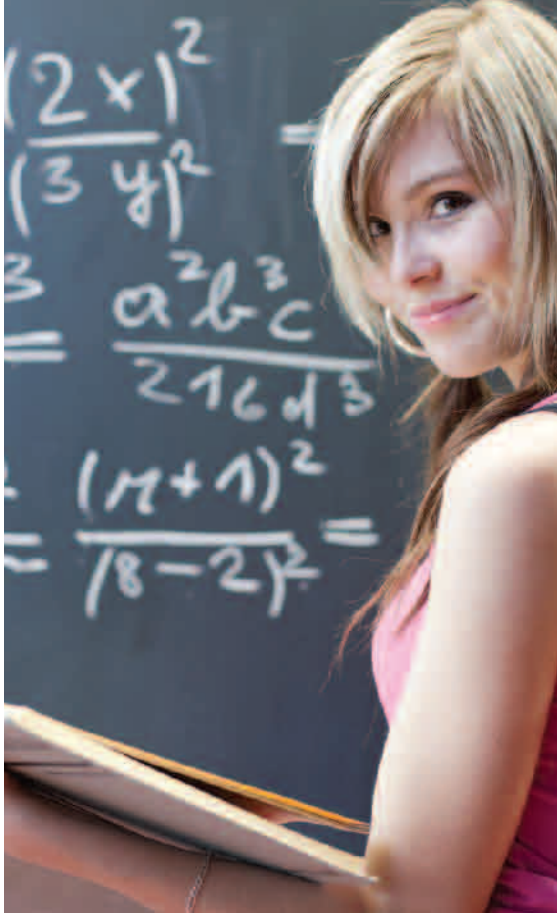
C. Specialized professional associations should be encouraged to provide guidance and professional development to programs on the development and implementation of appropriate coursework, training modules, assessments, practicum experiences, and faculty professional development that reflect the competencies identified with application of child/adolescent development principles.

D. NCATE should address, through standards and processes, how to assure that faculty employed in educator preparation/licensure programs are proficient in the use of these core competencies. The evaluation processes—both program evaluation and faculty evaluation—should reflect attention and commitment to mastery and use of these competencies.

Recommendation 3: State role

A. A new regulatory strategy should require all beginning teachers, from any preparation route, to meet common expectations. The knowledge base of child/adolescent development should be integrated into all routes to teaching.[9]

[9] Ibid.



B. States should redesign policies related to teaching effectiveness to assure that all educators demonstrate their ability to apply contemporary knowledge of child and adolescent development in PreK-12 classrooms to enhance PreK-12 student learning.

- States' program approval, performance, professional development, incentive, evaluation, and licensure systems and standards should make explicit reference to, and include measures of, teachers' classroom performance that demonstrate the ability to apply contemporary knowledge of child/adolescent development to enhance PreK-12 student learning and create a positive and supportive environment for learning.
- The National Expert Panel urges states to adopt the 2010 CCSSO/INTASC model core teaching standards (at press, out for field comment) which recognize and incorporate the importance of integrating principles from the developmental sciences into educator preparation and into the Prek-12 classroom.
- States should design tiered systems for knowledge and skill levels and professional development that reflect those standards.

C. States should work with local districts as appropriate to ensure that the knowledge of child/adolescent development is incorporated into educator performance, professional development, evaluation, compensation, and tenure decisions.

Recommendation 4: Federal role

A. The Elementary and Secondary Education Act, currently at the beginning of a reauthorization process, should include language that supports the creation and expansion of state and local professional development opportunities that will promote educators' knowledge and application of the developmental sciences knowledge to curriculum, instruction, assessment, management, and organizational practices. Federal funding requirements should also include amending/revising current educator appraisal systems to include such competencies. Suggested specific actions include:

- Requiring evidence that professional development regarding the application of child/adolescent developmental principles improves teacher knowledge and skills and demonstrates a positive impact on PreK-12 student learning.
- Amending the definition of "highly effective" teacher to include mastery of the knowledge and application of the science of child and adolescent development.

B. The Department of Education review panels for any substantial programmatic funding (e.g., American Recovery and Reinvestment Act, Race To the Top) or research funding through the Institute of Education Sciences (IES) should include specific developmental

content in the area(s) relevant to that competition. When relevant, explicit use of "knowledge and application of the contemporary developmental sciences knowledge" should be added to review criteria for Department of Education grant programs, particularly those that pertain to educator preparation and evaluation and to school turn-around. Review panels may also need to add developmental scientists to ensure that contemporary content is evident in review criteria and proposals.

C. The National Institute of Child Health and Human Development (NICHD) and the IES should set aside funds for two competitions. The first competition will focus on identifying the contemporary and established scientific knowledge of child and adolescent development relevant to educator preparation and developing valid measurements of that knowledge and its application. Nearly all other policy recommendations are predicated on identifying the contemporary knowledge base and assessing that knowledge in educators and candidates. This competition should be given sufficient resources, structure, and support so that its goals can be achieved successfully within two years. A key deliverable from this competition should be the construction of a repository of video recordings of teachers' classroom practices, clearly demonstrating the application of child and adolescent development knowledge, as well as exemplars of child and adolescent development principles being applied in the classroom setting, with the videos having met stringent criteria for demonstrating developmental principles and practices.

D. The second focus of a joint NICHD-IES competition should focus on developing and building the science of implementation and classroom practice, to address the knowledge gap identified early in this paper regarding the need for a much stronger and more robust scientifically based understanding of the mechanisms that regulate teachers' classroom practices and their application of child/adolescent development principles. Given the considerable evidence supporting the importance of teachers for student learning and the extensive literature on child and adolescent development, we know nothing about the complex regulators of educators' classroom practices and how to improve their capacity to use principles of child and adolescent development to foster student learning and development.

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202.466.7496 P
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www.ncate.org