Principles and Exemplars for Integrating Developmental Sciences Knowledge into Educator Preparation

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NCATE
The Standard of Excellence
in Teacher Preparation

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Preface

This paper was 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 during 2008-2009 and produced two commissioned papers, summaries of the papers, and a final 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 may be downloaded from the website (www.ncate.org) by clicking on 'Public' and 'Research/Reports.'

This work was preceded by a collaboration between the National Institute of Child Health and Human Development and NCATE to determine the current state of integration of child and adolescent development in educator preparation programs and the current state of the science of child and adolescent development. The effort found gaps between what is known and what is taught in educator preparation programs. The report is at www.ncate.org. The Foundation for Child Development then initiated the effort that produced this paper and other related materials to set forth actionable recommendations to the education and education policy communities.

It is the strong desire of the Strategic Knowledge Fund leadership that the recommendations contained in the papers and final report of this effort receive the utmost attention in 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.

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Introduction

This paper makes a fundamentally simple line of empirically supported argumentation. The increasing demands for high level student learning can best be achieved by the use of the substantive research evidence of the past decade demonstrating that developmentally oriented instruction facilitates academic, behavioral, and social performance. Most educators, however, have not been prepared to apply knowledge of child and adolescent development and learning and are thus not sufficiently able to provide developmentally oriented instruction. If our children, our communities, and our country, are to meet their potentials, then teachers need opportunities to learn, practice, and assess their abilities to provide developmentally oriented instruction. The need is urgent and the time is now.

For over a century, with the regularity of waves at the shore, our nation, with good intentions, has attempted to improve our system of public education. Sometimes sound and sometimes misguided, none of these attempts have fully met their noble aims. Recently, amidst much media fanfare and the anticipation of increased life opportunities for our nation's children, 48 states have agreed to identify common, national academic standards and, possibly in the future, common assessment measures for those standards. Though politically impressive and massive in scale, this initiative will be much more likely to succeed if it is grounded more deeply in the science of development. One principal reason is simple—the initiative, as it is, leaves the students out of the educational equation. Should the effort prove 'successful' its architects will help construct clear, agreed-upon academic standards, and perhaps even a comprehensive and reliable set of assessments to measure student achievement in relation to those standards; however, without taking a serious consideration of students—and how they grow, develop, and learn—into account, our children will not successfully meet these new and improved educational standards.

Recent research in the fields of education and psychology clearly demonstrates the relevance and importance of addressing the full range of student development in seeking positive school outcomes for students. As articulated in a recent NICHD report, "current research points to the fact that aspects of development—neural, cognitive, social, psychological, physical, and ethical—have far-reaching effects on children's ability to learn. Teachers and administrators need access to the scientifically-based knowledge of these aspects to optimize students' ability to engage with and learn from the curriculum" (NICHD, 2007).

For example, scholars have demonstrated connections between the emotional and instructional climates for learning and student outcomes (Pianta, 2007; Eccles et al., 1989). Others have noted that teachers with a developmental orientation design and enact learning experiences in ways that support student academic and social competence (Comer et al., 1996; Horowitz et al., 2005). The importance of successful social relationships in schools (teacher to pupil and peer to peer) has also been correlated with positive social and academic outcomes (Hamre & Pianta, 2001; Entwisle & Hayduk, 1988; Birch & Ladd, 1997; Howes et al., 1994; Pianta & Nimetz, 1991; Pianta et al., 1995; Wentzel, 2003).

After examining the evidence base, the NICHD report concludes, "If educators are to empower all individuals to learn, they must know and be able to apply information from human development and cognitive science within their own professional practice" (NICHD,

2007). This claim is supported by the literature in the field, which highlights the importance of knowledge of learning and development for effective teaching (Bransford, Darling-Hammond, & LePage, 2005; Handoff & Phillips, 2000; Bransford, Brown, & Cocking, 2002; Darling-Hammond & Bransford, 2005), and by further calls from the field for enhancing knowledge of development and developmentally oriented practices in organizing schools and classrooms and in supporting and preparing educators (NAEYC, 2009; Shore, 2009; Maxwell, K. et al., 2009).

Imagine a state-of-the-art track and field stadium readying for an event. In preparation for that event, the best minds in the business have carefully determined just how fast, how high, and how far they think the athletes, at every age, should run and jump and throw. Inside the stadium, the best judges in the world with the finest stop watches, latest video equipment, and the most finely grained measures of length are prepared to assess, with the least possible error, whether the athletes meet the performance standards. Something, however, is missing from this picture. The meet preparations, as careful and thoughtfully planned as they may be, are insufficient without a consideration of the athletes: first, who is coming? What do we know about these athletes? Their strength, growth, and development? Their performances in prior events? The extent of their physical capabilities? Furthermore, what are the means by which their coaches can best support their efforts to run fast, jump high, and throw far?

No one would put on a track meet without considering the athletes; no one thinks that athletes, no matter how accomplished, can succeed without effective coaching. Without knowledge of the athletes, the track meet is likely to be rather unsuccessful. So too, with school reform: without considering the development, past performance, and experience of the students, how can it succeed? Education—learning to function as an adult in a democratic society, earn a living, and become a contributing member of a family and a community—is infinitely and wonderfully more complex than a series of 100 yard dashes. We can and should build state of the art schools and debate and design strong, meaningful academic standards and robust and diversified assessment systems to help us determine how we can improve. All of this, however, requires a clear and deep understanding of the ways in which our children grow, develop, and learn.

This paper develops the case that a deep consideration of this essential knowledge base is vital to the performance of educators, and, more importantly, children, in classrooms. Without such knowledge, and the capacity of educators to apply it in the service of student learning, the noblest intentions, the finest standards, and the most reliable and valid assessments cannot succeed. Toward these ends, this paper (1) provides a framework for knowledge about child and adolescent development and learning that teachers can draw upon for quality instruction and (2) concludes with a set of recommendations for how pre-service teacher education can better prepare teachers to know and effectively apply this knowledge.

If we want all our children to succeed, we must place a deep consideration of students and how they grow, develop, and learn into educational practices and policies. It is time to remember that these are living and breathing children, ours sons and daughters, in our classrooms. It is time to focus our attention on how to bring out the best in the athletes on the field.

Knowledge and Application of Child and Adolescent Development and Learning in Teacher Education[1]

IIn order to realize the full potential of schools and students, we must create—and adequately support—a wide and deep pool of teachers and administrators who, in addition to having thorough knowledge of their disciplines, know how children develop generally and academically and how to support that development. They must be able to engage the families of students and the institutions and people in communities in a way that benefits student growth in school and society.

There is abundant direct and indirect evidence that students from all backgrounds can thrive in environments designed to promote their development. Given the compelling case for the developmental impact of constructive interactions between young people and the adults around them, and the fact that many school people are not adequately prepared to provide these interactions, the obvious place to begin a program aimed at effecting school improvement is in the preparation and support of future and practicing educators.

James P. Comer, M.D. (2001 & 2009)

As delineated by the National Academy of Education's Committee on Teacher Education, the pillars upon which quality classroom instruction rests include knowledge of subject matter content, knowledge of students and their development, and a strong repertoire of pedagogical practices. Moreover, effective teaching requires the ability to successfully integrate these elements of the knowledge base of the profession in service of the learning and growth of diverse students across varying contexts and across multiple domains of human development (Darling-Hammond & Bransford, ed., 2005; see also Bransford, Brown, & Cocking, 2002; Handoff & Phillips, 2000; NICHD, 2007).

This paper focuses specifically on how professional education programs can help teachers to gain and apply knowledge of child and adolescent development and learning to better serve *all*[2] the students and families in their care. The paper first seeks to address the general knowledge domains in the fields of child and adolescent development that help teachers to successfully match the strengths, interests, and needs of their students to the goals and demands of the increasingly global context of our individual and collective well-being. Following that, the authors discuss the types of learning opportunities that can be designed by teacher preparation programs to support teachers' capacities to learn and apply this knowledge to create successful classroom environments—classroom environments that help students achieve futures of their own choosing and successfully continue the country's experiment in democracy. This paper focuses on child and adolescent development because

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[2] In referencing "students," "children," "pupils," etc. throughout the paper, we intend to reference the full range of individuals served by our school systems, as well as the full range of human potential and need. The focus on the application of the knowledge base of child and adolescent development serves the interests of all students: those with exceptional needs, those with exceptional talents and proclivities, those with both, and all students in between.

development fuels and is fueled by learning; thus, knowledge of this process forms one of the pillars of quality instruction. In addition, the reciprocal interactions among and between development and learning frequently remain unaddressed within the structures of professional educator preparation and support. Finally, child and adolescent development is an aspect of the professional knowledge base all too often overlooked in current policy debates in education.

Development as a Lens for our Educational Goals

"Development" describes an ongoing set of biological, psychological, and social processes that result in measurable change at the individual level (Ramey, et. al., in press). Development is distinct from 'growth' in that development describes a dynamic rather than a linear form of change. Development is complex, multi-faceted, and interactive. Understood in this way, development also presages a future state of being (Katz, 1996). Development contributes to an individual's competence, adaptability, and effective functioning. It increases one's capacity to make sense of, function within, and flourish in the world; successful development allows individuals to contribute to the improvement of our collective society. Development, therefore—and not "just learning" (as traditionally conceived and measured)—constitutes nothing less than the very goal of education. The process of development and the full aims of education complement each other, leading to competent, responsible, and caring citizens.

Development thus conceived is the object of education. The student, however, is also the person doing the developing, the "subject" of education. Since the student is the subject *and* object of the educational enterprise, a focus on knowledge of child and adolescent development and learning is fundamental to quality instruction.

Our educational aims are both individual and collective in character. As a society, we entrust schools to produce capable, industrious, dynamic, creative, fruitful, and engaged future citizenry, a populace that will help to ensure the renewal and resilience of our pluralistic society. Ideally, schools will prepare citizens who will enrich the quality of our collective civilization: we need engineers, artists, environmentalists, scientists, philosophers, caregivers, teachers, poets, and others for our society and culture to thrive. Thus, schools should aim for a wide and diverse set of outcomes, not narrow and prescriptive ones. In short, the collective aim of our schools is the ongoing development of our democratic society. In the words of John Dewey (1897):

> I believe that education is the fundamental method of social progress and reform. ... Through education society can formulate its own purposes, can organize its own means and resources, and thus shape itself with definiteness and economy in the direction in which it wishes to move. ...Education thus conceived marks the most perfect and intimate union of science and art conceivable in human experience.

Schools are also fundamentally responsible to the individual children in their care. Consequently, schools are responsible for promoting self-sufficiency, economic security, personal expression and fulfillment for the individual, as well as the capacity and inclination

to contemplate and lead a good life and become a contributing member of families, neighborhoods, communities, and the larger society. An elemental function of teaching, then, is to intentionally shape development. Because an individual's capacities develop across multiple domains over time, a teacher needs to understand what is developing, the typical pathways and trajectories through which development is likely to unfold, the connections among and variability across and within developing domains, and the relationship between development and context. With this knowledge in hand, teachers are able to tailor instruction accordingly to the strengths, interests, and needs of the learner. Teachers and schools must be intentional in regards to the shaping of contexts and their approaches to the growth and learning (i.e., the development) of the diverse individual learners within those contexts.

In sum, teachers have the responsibility to view and understand the child holistically; to craft learning environments to suit the strengths, interests, and needs of individual learners and their developmental trajectories within a group context; and to do so with the aims of the individual, school, and community in mind. This, of course, is no small feat. Yet, the success of our educational system requires that teachers create developmentally meaningful classroom environments, and that they design curricula, create experiences, use instructional strategies, and provide feedback and scaffolding that supports student growth in all the inter-related domains of human development.

The developing student does, indeed, matter.

Essential Knowledge of Child and Adolescent Development and Learning for Successful Teaching

What is it that teachers really need to know and apply about child and adolescent development that contributes to their students' learning? Teachers need not—indeed, cannot—know everything that specialists do in all the fields of intellectual and professional activity relevant to teaching. Still, in the same way that effective teachers must have a solid grounding in the relevant academic disciplines in which they instruct in order to be successful, they must also thoroughly understand the field of child and adolescent development as it pertains to the teaching profession, and they must expertly apply that understanding to the ever-changing and particularistic world of students in classrooms, schools, and communities.

The overarching principle integrating this framework is that successful teachers are intentional and purposeful in their work in a way that utilizes their understanding of the developing persons whose learning and growth they are charged with fostering. Teachers should employ a developmental perspective and possess a developmental sensitivity in their work. The following serves as a framework for the knowledge and skills in the realm of child and adolescent development that will help teachers support the growth and learning of the children in their care. We recognize that the knowledge base of human development (like the knowledge base of any discipline or domain) is imperfect and evolving. Therefore, it is imperative that teacher candidates learn to reflect upon and critique their understandings and applications of theory and research in human development to "help them gain the necessary perspective to use formal knowledge flexibly" (Stott & Bowman, 1999, p. 170).

The following outlines the knowledge of child and adolescent development that effective teachers understand and apply in their daily practice with students and families in schools, classrooms, and communities:

    I.   Development encompasses the whole child

        A. Domains of development include the physical, cognitive, linguistic, social, psychological, and ethical.

        B. Emotion, affect, and cognition are inter-related.

    II.   Development resides in the interaction between context(s) and the individual.

    III.   Development displays patterns and trajectories as well as variability across time and within and across individuals.

I. Development Encompasses the Whole Child

> *A teacher's main role involves more than helping students merely acquire content and information. Rather, it involves helping students develop the social, emotional, and ethical qualities that will enable them to have success in school and success in later life. Healthy development does not happen magically, nor is it limited to those who are "predisposed" to positive outcomes. Teachers need to have experiences to understand the importance of their role as a secure base of attachment. Teacher education programs that draw upon the data showing that emotional support and attention to the student-teacher relationship enhance children's capacities to learn could prove quite significant.*
>
> **NICHD (2007)**

A. Domains of development include the physical, cognitive, linguistic, social, psychological, and ethical.

Students' growth and development occur across multiple, interrelated domains. Development occurs simultaneously across these domains, but not necessarily at the same rate of progress, let alone in a linear or lock-step progression.

Based on his decades of research on the connections linking development and schooling at the Yale University Child Study Center, Dr. James Comer posits a constellation of six developmental domains as a useful delineation of developmental domains for teachers and schools (Comer, 2004; NICHD, 2007; Annenberg Media, 2009):

The **Physical** domain refers to the body's biological development, including sensory development, health and nutrition, energy and motor development, physical rest, alertness, and sexuality. Successful teachers understand the relationship between the physical domain and other areas of development and support healthy physical functioning in students such that academic

learning and classroom interaction are optimal. Teachers also recognize the relationship of physical growth to potential academic challenges and successes, (e.g., the development of fine motor skills or visual acuity to writing and reading) and respond accordingly.

The **Cognitive** domain includes neurodevelopment, memory, reasoning, thinking, and flexibility of thought, as well as the acquisition, application, and generalization of knowledge both within content-specific domains and across domains. Effective teachers help students develop their capacity to think, plan, solve problems, set goals, and work with focused attention. Developmentally-oriented teachers also understand the developmental terrain of their students and the likely pathways and stumbling blocks along the way. Like a good golf caddy, they guide student through the course of development. They also understand that prior learning opportunities and varying cultural contexts help to shape individual differences in cognitive development. Algebra may be algebra in New York City and rural Idaho; the life experiences and backgrounds that a student brings to his or her learning of algebra, however, vary considerably between a first generation Dominican adolescent living in New York City and a Native American adolescent living on a reservation in rural Idaho. Teachers structure learning experiences and design instruction in ways that help to ensure student understanding.

The **Language** domain includes both receptive and expressive communication skills and the development of language as a tool for self-expression and relationship building. Teachers need to understand how both first and second languages are acquired. They also need to understand the structure of the language of instruction, and how language development is related to cognitive development. The linguistic abilities children develop in their native language serve as a foundation for literacy and learning in school, including in a second language. This has applications for teachers of English-language learners as they work to help children acquire the literacy skills they need to succeed in school and beyond (Fillmore & Snow, 2000).

The **Social** domain refers to the development of social competence in diverse settings. The capacity to tailor social conduct based on varying social, cultural, and interpersonal expectations, as well as the development of empathy and friendships and other relationships are all aspects of the social domain. Teachers foster students' capacities to build healthy relationships, to know how to act appropriately in varying social environments, and to appreciate differences between people. Teachers need to understand that social patterns and abilities are shaped by social and cultural contexts and that social skills and expectations must often be explicitly taught. For example, children are taught in some cultures to interact freely with adults and to ask and answer questions directly; others view such interactions as inappropriate and impolite. Teachers need to understand that social norms are learned and therefore that social skills and expectations must often be taught directly. When a student's behavior differs from classroom norms or expectations, it is important for teachers to explain the desired behavior, model it for them, and provide opportunities for practice and feedback, rather than merely punishing behavior that seems obviously inappropriate from the teachers' perspective. For example, if a student interrupts a classroom discussion by aggressively discounting the opinions of a peer, the teacher might work to model active listening skills as well as offer specific strategies for gaining attention and speaking so that students can take turns expressing their ideas in a more productive and thoughtfully interactive manner.

The **Psychological** domain encompasses emotional regulation, autonomy, self awareness, school adjustment, academic self-concept, and identity development, as well as needs for safety, belonging, competence, self-worth and self-acceptance. Teachers cultivate youths' aptitude for self-acceptance, self-reliance, self-confidence, and identity formation. Teachers help students develop the skills to recognize and understand their own and others' emotions, learn how to express their feelings and concerns, and handle frustrations constructively. These abilities will support their capacity to persevere in the face of difficulty and solve problems as they arise without losing control or giving up. Emotionally supportive classrooms also help children to feel safe so that they can learn effectively, as anxiety impedes the ability to focus and learn. Teachers support the development of a sense of self, including feelings of adequacy, self-worth, and competence, as well as a sense of identity. By recognizing student strengths, interests, and accomplishments, teachers can help each student develop a positive identity and a sense of belonging, purpose, and direction in the world. Children develop self-concepts in a number of domains, and these guide their self-confidence and their investments of time and effort. Teachers need to understand how social messages and school and teacher behaviors and expectations can influence the development of an academic self-concept that will support ongoing effort and success in and out of school.

The **Ethical** domain refers to the ability to comprehend concepts of the collective good, justice, and fairness, and the capacity for delayed gratification. Teachers help to build youths' understanding of the importance of integrity and respect for self and others and the capacity to evaluate and regulate one's behavior in relation to others and the common good. For example, learning to use words rather than fists to resolve disagreements demonstrates development in the ethical domain, as does learning to seek understanding prior to judging another. "Developmental discipline," an approach to classroom management that encourages teachers to "look at discipline as a way to help children develop social and ethical understanding and related skills, rather than as a way to control them," (Watson et al., 1997) offers one concrete example of an instructional approach that builds upon an understanding of these domains of development and has demonstrated a positive impact on teaching practices and student outcomes.

There are, of course, multiple interrelationships among and across these domains, and other scholars in the field of development organize developmental domains in slightly different ways. The main point that teachers must understand is that development proceeds simultaneously across multiple domains and that these domains are interrelated. The healthy physical function of students optimizes cognitive development. The growth of receptive and expressive language skill enriches social development. In fact, development in any single domain is inextricably intertwined with development in the other domains. In large measure, schools have traditionally favored the cognitive and linguistic domains over the others, or, at least, have determined that these are the domains for which our educational institutions are principally responsible. However, an understanding of child and adolescent development underscores the notion that development in any single domain requires attention to all domains. Children are born with potential in all these arenas and must be supported in each of them throughout their education. Teachers who approach their task from a developmental perspective understand and appreciate the importance of all of these domains, ultimately supporting children to greater success and accomplishment in school and beyond.

As a teacher, you are really an instrument of learning. You can help the child grow in all the developmental pathways. That growth is what makes academic learning most possible. If you understand this, you will find all kinds of opportunities to help children grow and develop and learn what it takes to be successful in school and as an adult.

James P. Comer, M.D. (2001)

B. Emotion, Affect, and Cognition are Inter-Related

Children and adolescents have difficulty learning if they are highly stressed or distracted. Knowing about the physiological as well as the sociological aspects of development and how these domains interact is critically important because they have implications for addressing the compelling issues related to the educational achievement gap and other disparities brought to bear on the learning experience.

NICHD (2007)

Emotional support and attention to the student-teacher relationship enhance children's capacities to learn. Positive classroom processes and school contexts can serve a protective, stabilizing function. Moreover, thoughtfully organized classrooms and responsive adults in the school promote self-regulatory skills that facilitate academic performance. In addition, emotion knowledge (understanding one's own emotions and accurately identifying the emotions of others), and emotion regulation predict academic achievement (Trentacosta, 2005; Izard, Fine, Schulz, Mostow, Ackerman, & Youngstrom, 2001). A teacher with a developmental orientation is able to make the connection between emotional regulation and growth. For example, a child who feels distrustful may be unwilling to risk academic engagement, regardless of her cognitive capacity on a particular task. A student fearful of math may need help overcoming that fear before learning math to his or her full potential. Thus, teachers need to be aware of children's emotional competences and the role that they can play in academic performance. A recent comprehensive review of over 200 studies on the impact of school-based interventions focused on student social and emotional learning demonstrated significant, positive results in terms of reducing problem behaviors, promoting positive adjustment, and enhancing academic performance (Payton, 2008).

Ramey (in press) offers seven principles derived from an extensive review of the literature that suggests how these capacities can be fostered. Each principle is based on evidence from multiple studies and affects the course of development through biological changes associated with behavior. Based on her research, Ramey suggests that educators:

- *Encourage exploration with all the senses, in familiar and new places, with others and alone, safely and with joy;*
- *Provide mentoring in basic skills, showing the whats and whens, the ins and outs, of how things and people work;*

- *Celebrate developmental advances for learning new skills, little and big, and for becoming a unique individual;*

- *Rehearse and extend new skills, showing the child how to practice again and again, in the same and different ways, with new people and new things;*

- *Protect the child from inappropriate disapproval, teasing, neglect, or punishment;*

- *Communicate richly and responsively with sounds, songs, gestures, and words; and*

- *Guide and limit behavior to keep the child safe, to teach what is acceptable and what is not, and teach the rules of being a cooperative, responsive, and caring person.*

Robert Pianta and his colleagues at the University of Virginia have developed a system (the Classroom Assessment Scoring System, or CLASS) for observing and assessing the quality of interactions between teachers and students in classrooms that also underscores the importance of emotional support. Pianta and his colleagues have utilized this observation and assessment tool to analyze features of classrooms that support the growth and development of both academic and social competencies of students, and to support teachers' capacities to create such classrooms. This work demonstrates the potential of classrooms and teachers intentionally focused on developmentally meaningful interactions designed to support desired outcomes.

The three focal areas of this observation and assessment system are instructional support, classroom organization, and emotional support. Here we focus on the emotional support component as described by Pianta and his colleagues (2009).

Emotional Support in classrooms includes the following features:

*A **positive classroom climate** is predicated on the emotional connection between the teachers and students and among students, and the warmth, respect, and enjoyment communicated by verbal and non-verbal interactions. Students are more motivated to learn when they are feeling happy, relaxed, and connected to others. They get more out of lessons when they are excited about participating. By creating a positive classroom climate, teachers and students will look forward to being with each other and will be able to get the most out of their time together. In contrast, in classrooms marked by high levels of negativity, students feel uncomfortable and unmotivated, and have a hard time focusing on learning opportunities.*

***Teacher sensitivity** encompasses the teacher's awareness of and responsivity to students' academic and emotional needs. High levels of sensitivity facilitate students' abilities to actively explore and learn because the teacher consistently provides comfort, reassurance, and encouragement. Teachers are sensitive when they consistently respond to students and are effective in addressing students' questions, concerns, and needs; know their students well enough (academically and socially) to anticipate areas of difficulty and provide appropriate levels of support; and help students see adults as a resource and create an environment in which students feel safe and free to explore and learn. Students in a classroom with a sensitive teacher*

grow to see the teacher as a source of support, reassurance, and guidance. Teaching sensitively helps students feel comfortable sharing their ideas and challenging themselves academically and socially. It also allows students to work well on their own and in groups because they know that if a problem or question arises they can go to the teacher and that the teacher will effectively resolve their problem.

Regard for student perspectives *captures the degree to which the teacher's interactions with students and classroom activities place an emphasis on students' interests, motivations, and points of view and encourage student responsibility and autonomy. Teachers with a high regard for students' perspectives place an emphasis on students' interests, motivations, and points of view; promote students' autonomy; and encourage students to talk and share their ideas. Few moments are more exciting for a young student than that moment when they realize that they can do something on their own. By looking for opportunities to facilitate these moments and actively seeking out students' thoughts and ideas, teachers increase students' motivation and desire to learn.*

Vulnerability is endemic to the human condition (Spencer, 2006). From the teasing that hurts our feelings to the fleeting fear that our unborn child might have a genetic disorder, vulnerability forms part of our shared existence. Where individuals vary is in the constellation of risk and protective factors that give particular shape to our vulnerabilities. A teacher must have the tools to know and understand the risk and protective factors of his or her students, and then use that knowledge to create classroom and school environments that alleviate his or her students' risks and strengthen their protective factors to support their growth and development. Creating such environments requires adaptive strategies that recognize the roles of context and culture in development while mediating and moderating the processes that link students' risk and protective factors to their educational outcomes.

Several important ideas arise from this conception of vulnerability:

- Deterministic thinking (e.g., only poor children are at risk; he can't learn because his mother is an addict) hinders quality instruction and human development.
- Thinking of some children as generally "at risk" and others as "normal" is harmful to the developmental health of both stereotyped groups.
- Perception is a part of cognition. To be made to feel bad or incapable is a risk factor just as real as second hand smoke is a risk factor.
- The perception of emotional and intellectual care forms a fundamental protective factor.
- What one individual might consider a supportive factor could be perceived as a stressor (risk factor) by another. To quote Paul Simon, "One man's ceiling is another man's floor."

As stated by the NICHD (2007):

> *Children with positive relationships demonstrate positive behaviors. Healthy, supportive relationships with teachers and peers can promote both emotional competence and academic engagement in the classroom. The teacher is a central part of the social ecology of the classroom and must be skillful in promoting a pro-social and culturally responsive environment. This enhancing effect of relationships may be especially important for children with both evident and masked vulnerabilities.*

In addition, teachers must appreciate that children and adolescents do things for their own reason. The more educators know about those reasons, the better able they are to create contexts that support development and learning. ***Motivation*** is a key component in establishing an understanding of children's choices to do what they do. Motivation is a consequence of the human organism's drive for activity and engagement with its context. The outcome of one's experiences and interactions over time impact one's proclivity for future engagement. Teachers will better be able to support their students if they recognize that motivation is a result of this process, rather than a fixed and conscious state of mind that predetermines engagement with, and success in, schools.

Additionally, human action is purposeful, and purposeful not just in the moment, but into a future. Each choice of a beginning is incredibly powerful as it both shapes and limits what follows. Kindergarten teachers need to keep in mind that this five year old will become an adolescent who will work through identity formation, and, upon entering the adult world, will need to be a successful worker, family member, and citizen. Those futures begin well before a child enters formal schooling, and the very early moments of a child's schooling influences those futures.

In summary, there are strong links between and among emotion, affect, and cognition. Students' affective states influence how available they will be for learning. When children have the support they need, they are less fearful, explore more competently, and are able to give more focused attention to cognitive tasks (Bowlby, 1988; Cassidy, 1994; Cassidy & Shaver, 1999; Hamre & Pianta 2005). Students of all ages function better when they are provided with emotionally stable and supportive environments, work with teachers who understand how to foster student motivation, and are confident in a secure base to which they can turn for support if needed.

II. Development Resides in the Interaction Between Context(s) and the Individual

> *Readiness and…school achievement are bi-directional concepts that focus both on children's current skills, knowledge, and abilities and on the conditions of the environment in which children are reared and taught. Because different children are prepared for different experiences, and different children respond differentially to apparently similar environmental inputs, readiness is a relative term. Although it can be applied to individual children, it is not something in the child, and it is not something in the curriculum. It is a product of the interaction between children's prior experiences, their genetic endowment, their maturational status, and the whole range of environmental and cultural experiences that they encounter.*
>
> **Sam Meisels (1999)**

Development is a social process involving the interaction of the individual with his or her context(s) (Lewin, 1951; Sameroff, 2009). It is not just that individual development happens "in" a context; rather, the context plays an active role in the shaping of development. A child's apprehensions, understanding, and set of responses to the world change and grow as a result of his or her continuing interactions with the world (Cuffaro and Nager, 2008). At a classroom level, this means that the social structure of classrooms affects individual characteristics and learning (Chang, 2004; Schäfer, 2005).

Development is also dynamic. Both the individual and the context are always changing, so development needs to be considered from a dynamic systems perspective. Cognition and behavior are always functions of complex interactions with experience, and the nature of those interactions varies with the environment (Rogoff, 1990). The most successful classroom environments are the ones that provide protective and healthy physical environments; foster stable, supportive, and caring social communities; and cultivate fertile experiences for individual growth and development.

Classrooms are active social systems, involving wide ranges of complex interactions among and between individual students, peers, and teachers (Tharp et al., 2000). Both the developing individual and the contexts influencing that individual are embedded within communities and cultures. A child, therefore, can only be fully understood through knowledge of the ways in which those cultural features and experiences influence his or her development. In fact, development begins within, and primarily occurs within, family, peer groups and other social networks. Thus, it is imperative for teachers to understand and work in partnership with families and other social, community, and cultural contexts to foster student learning and development (Brody, Dorsey, Forehand, & Armistead, 2002; Cassidy, Kirsh, Scolton, & Parke, 1996). Stated conversely, an unyielding, inflexible, narrow, and self-referencing school environment hinders the capacities of the individual to develop and of the school to meet its aims.

Recent research in neuroscience lends credence to this approach and points to practical applications of an understanding of the interactions between learning and the school environment (Pohlman, 2008). Models emerging from the most recent research in

developmental cognitive neuroscience suggest that the brain is constantly reshaping itself in interaction with environmental experience. Thus, interactions among different parts of the brain are constantly taking place—no one part is responsible for reading, nor math, nor the playground—and are shaped by the individual's relationships with his or her environment. This suggests that a "learning disability" is more constructively understood as a disconnect between a child's cognitive profile and the socially determined demands of schooling, rather than as an individual "disability" or dysfunction of a particular brain function.

The case for bringing neuroscience into the classroom is simple: a better understanding of brain function, and an application of that understanding, enriches instruction. Perhaps the most obvious application of neuroscience to teaching resides in illuminating neuro-developmental functions. For example, Pohlman (2008) and others have demonstrated the importance of meta-cognition—self-understanding about thinking, learning, and the learning process—in the successful development of students as life-long learners. Kolic-Vehovec and Bajsanski (2006) looked specifically at self-monitoring of reading comprehension (e.g., "Did I understand that passage?"), perceived use of reading strategies, and error correction in students in grades 5-8. They found developmental improvements in comprehension monitoring between 5th and 6th grades, that comprehension monitoring was a significant predictor of reading comprehension over and above grade effect, and that students use meta-cognition to choose and apply learning strategies. Feedback that learners got from using learning strategies appeared to be received at the meta-level, enhancing meta-cognition and, in turn, revising strategy selection and ultimately generating reading comprehension improvement. In this way, facilitating meta-cognition promotes a positive feedback loop that links strategies to comprehension. Garrett, Mazzocco, and Baker (2006) reported similar results in math, suggesting classroom instruction in meta-cognition likely would benefit students with difficulties in math as well.

In summary, understanding development necessitates consideration of the influence the domains of development wield on each other, the whole child, the social and cultural contexts in which the child resides, and the reciprocal influences of the child on the environment and the environment on the child.

III. Development Displays Patterns, Trajectories and Complex Variations Across Time and Individuals

> As children develop, the ways in which they learn change. If teachers are tuned to these sequences of development, then they can be more thoughtful about how they design their lessons, how they pace instruction, how they move kids along from one concept to the next. Doing these things will build students' ability to think critically and take on more and more complex tasks as they grow.
>
> **Linda Darling-Hammond from The Learning Classroom (2009)**

Developmental Pathways

Developmentally-oriented teachers understand that humans display both patterns and variation in their development. They are able to draw upon that knowledge in designing instructional contexts and activities that appropriately build on and account for the developmental trajectories, conceptual hurdles, and considerable variability with which human development progresses.

Effective teachers realize that humans develop along loosely predictable pathways, but they also understand that development within each pathway varies across and within age ranges, depends upon social, cultural, and other contexts, and that pathways and domains influence each other in complex ways. Utilizing this knowledge, effective teachers observe and assess their students in order to support and help shape student growth within and across domains and developmental trajectories.

Eccles' work (1999) describes the general trajectories of and variations in human development over time. Teachers who understand these trajectories can tailor their instruction accordingly. For example, Eccles notes that Middle Childhood (ages 6-10) "gives children the opportunity to develop competencies, interests, and a healthy sense of confidence that they can master and control their worlds." (p. 32) She further describes the rapid and transformative changes that typically accompany early adolescence. Spurred by the biological changes wrought by puberty, the emergence of sexuality, and social and contextual transitions from the elementary school to middle and/or secondary school, early adolescence offers "a heightened potential for both positive and negative outcomes, creating important opportunities for families, schools, and out-of-school programs to interact with adolescents in a way that fosters growth and development." (p. 37) Unfortunately, at just this key juncture, most schools organize opportunities for learning in ways that require teachers to work with large numbers of students across multiple sections of discipline-based content, minimizing occasions for the development of meaningful relationships and support structures for adolescents in need of just such processes.

Teachers who understand these patterns of growth, change, and development are better able to adapt contexts and opportunities for learning in ways that are more successful for their students.

Developmental Trajectories

> *I believe very firmly that the only way you can teach for understanding is to start your instruction from where the child is.*
>
> **Sharon Griffin(2007)**

Beyond understanding that, as children grow and develop over time, there are both patterns and complexities of which one must be aware, it is useful for teachers to know and understand developmental trajectories within particular content domains and academic disciplines. The developmentally-oriented teacher is able to build on an understanding of typical

patterns (trajectories) within a content area, as well as common hurdles and partial and misunderstandings, to intentionally craft appropriate instructional plans for his or her students.

Sharon Griffin (2007) has done extensive work mapping the developmental trajectory of early mathematics learning. She describes, for example, how the preschool child is likely to understand poorly the link between counting words and quantities, while the kindergarten student is typically able to master this link and begin to utilize numbers to compare quantities. In first grade, children are generally able to begin linking words and quantities to symbols, thus making the introduction of operational symbols meaningful. Second graders begin to understand place value and develop the capacity to compare two-digit numbers. Third graders are generally able to connect these deepening conceptual understandings such that relationships among quantities (e.g., multiplication) are cognitively accessible.

These patterns, of course, vary within and across children, but an understanding of the likely trajectory helps to inform teachers of expected patterns and pitfalls. Thus, developmentally-oriented teachers are less likely to "challenge" their students to master multiplication in first grade and more likely to pursue a deeper understanding of the operational symbols by working with students to develop "number stories" and relate them to simple equations.

Griffin offers some concrete suggestions for a developmental approach to teaching early mathematics. She suggests that teachers should: "build on children's current knowledge; select learning objectives that are a natural next step for children; make sure children consolidate one level of understanding before moving on to the next; and give children opportunities to use number concepts in a broad range of contexts and to learn words for describing quantity in each context (bigger, farther, heavier, hotter)," (p. 3).

Griffin further recommends that learning activities should "expose children to the major ways numbers are represented and talked about; provide opportunities to link quantities, counting words, and symbols; provide visual and spatial analogs of number representations for hands-on learning, such as horizontal or vertical number lines children can use to represent and visualize quantity transactions; capture children's imaginations so knowledge is embedded not only in their minds but in their hopes, fears, and passions; provide opportunities to acquire computational fluency as well as conceptual understanding; and require the use of meta-cognitive processes (problem solving, communication, reasoning) to help children construct knowledge" (p. 3).

Teachers can utilize this same depth of knowledge across the range of development trajectories relevant to their instructional context. High school science teachers, for example, need to know not only the basic principles, theories, and ways of thinking essential to their discipline; they need to understand the likely trajectories and stumbling blocks that students will follow and face in order to successfully engage with the subject. Trajectories are relevant not only in the subject matter disciplines, but in all of the other areas of development as well (physical, cognitive, linguistic, ethical, psychological, and social). In the social domain, for instance, work on a simpler task in pairs would generally precede work on complex tasks in a larger group.

Developmental "Readiness"

Teaching with a developmental orientation means being cognizant of where students are in the processes of their development and "taking advantage" of their readiness. It also means teaching to support development, not waiting for students to become ready (Bruner, 1960, as cited in *The Learning Classroom*, 2009).

Many courses on development focus on the concept of developmental readiness: the notion that development in different domains occurs at different times for different children. The nature ofchildren's experiences has much to do with what they can use and from what they can profit next. However, children's stages or levels of cognitive and physical maturation do not preclude preparation for new methods of learning. Teachers need to be able to watch a child for developmental signs of readiness while helping him or her become more ready for new accomplishments in each domain of development.

It is also essential to remember the relational reciprocity between the child and the environment. Describing an interactionist perspective on readiness, Meisels (1999) explains:

> *With a dual focus on the child and the environment in which the child is being taught, it integrates an emphasis on child development with a recognition that the perceptions of the individuals in the child's environment shape the content of what is taught, learned, and valued. In this view, the interaction relates to how the child's activity alters the expectations of the environment even as the environment modifies what the child is able to accomplish. Stated differently, this perspective addresses both the child's contributions to schooling and the school's contribution to the child. It is directed toward future possibilities rather than past deficiencies. It is based on a commitment to helping all children become learners, and it suggests that educational success will depend on the emergence of a reciprocal relationship between school and child, this relationship to be mentored by the child's teacher.* (p. 49)

This notion of readiness still requires a thorough knowledge of developmental trajectories. Assessing where a student is along a trajectory and then intentionally paving the way forward is the responsibility of the teacher. This notion of assessment of developmental progression and fine-tuned assistance pitched at the appropriate level is embodied in the work of Lev Vygotsky (1978) and his notion of the "zone of proximal development." As described by Roland Tharp (interview from *The Learning Classroom*, 2009), "If we understand that teaching is a social process and that the way that development occurs is a process of assistance provided to the learner, it profoundly revolutionizes what we think of as the role of the teacher. In a way, the teacher becomes the primary assister of the student and thus the person that is most responsible for the development of the student."

Complexity and Variability

Understanding important developmental milestones and pathways in specific subject matter disciplines and incorporating these understandings into grade-appropriate content and instructional approaches are both important expressions of a teacher's knowledge of child and adolescent development, but they are not alone sufficient. A child's development in a particular academic discipline (let alone in the more generative domain of cognitive development) cannot be separated from accompanying emotional, social, and cognitive changes. The development of any single domain of development is inextricably intertwined with development in the other domains. To ignore any domain, or to over-emphasize any domain, limits not just the development in the ignored domain but in the emphasized domain as well; thus, while a teacher's school role involves facilitating student acquisition of content and information (a partial definition of cognitive development), it is equally the teacher's responsibility to help students develop the physical, psychological, social, linguistic, and ethical qualities that will enable them to achieve success in school and later life. Knowledgeably guiding a child's development allows a teacher to be intentional and strategic, using variation in the child's strengths, interests, and needs within and across developmental domains to support growth and learning. Again, content learning requires teachers to know and apply knowledge of all the domains of child and adolescent development.

Furthermore, an understanding of 'typical' pathways of development also presumes variability: No two students are alike; neither are the interactions between the student and the biological and environmental forces that create his or her developmental context. Thus, developmentally-meaningful teaching requires constantly calibrating one's instructional approach, necessitating ongoing assessment, thoughtful planning, feedback, and flexible revision all along the way.

Because humans develop at different rates, no two individuals will achieve all of the same capacities at precisely the same time. To hinder a child's development in one domain because he or she might not be as advanced as other children in another domain ultimately harms the child. This perhaps explains why longitudinal studies on the children ensnared in "no social promotion" policies universally show little long-term benefit. These students may perform poorly on achievement tests one year and better the next (one component of the cognitive domain); over time, however, the damage done to their development in other domains may stunt long-term cognitive domain development (Jimerson, 2005; National Association of School Psychologists, 2003).

Because children's capabilities develop differently over time, teachers need to understand where the student is developing and tailor instruction to his or her position. For instance, motor coordination is important for penmanship, but need not hinder opportunities in literacy development by preventing expository writing. The child who tears his penmanship paper with frustrated erasures might be better served with fine motor coordination exercises and alternative routes of expression, rather than further exercise in the physically impossible. Such physical limitations are frequently allowed to interfere with literary expression, an example of a limitation in one domain of development influencing growth in another.

Of equal significance, children who face problems acquiring specific skills are likely to experience other legitimate problems that interfere with their academic and social effectiveness. Thus, it is important to focus on the child, not just the skill; the athlete, not just the race. The challenge and opportunity for teachers is to understand how to use knowledge of developmental domains and trajectories—along with an understanding of the individual student—to help foster individual growth and development. This developmentally-oriented approach to teaching requires careful and individualized analysis, which in turn, requires respect for the individual child. A teacher utilizing this approach could use an identified domain of strength as a bridge to a slower developing domain. A child with strong capacity for expressive language but weaker fine motor coordination, for example, could be assigned to "talk a story" which can then be written or typed into text to be performed by him (and others). This set of experiences could support this student's growth in the social and psychological domains as well as the cognitive.

The essential task of any successful educator is to combine a depth of knowledge about his or her students with a thorough understanding of the subject under study, and to bridge the two with appropriate instructional plans and pedagogical tools. Indispensable to that process is the knowledge that human development displays complex patterns and variation, and effective teachers are able to draw upon that knowledge in service of the growth and learning of their students.

Vignette: Developmentally-Oriented Teaching in Action

Mary Gregg's Classroom

Adapted from Snyder (2000)

Mary Gregg teaches in a portable classroom at Wilson Elementary School in an urban district in the San Francisco Bay Area. Wilson's 850 students, most of them English language learners, constitute the largest population of Title I-eligible students in the district. Mary's room, a small portable with a low ceiling and very loud air fans, has one teacher table and six rectangular student tables, each with six chairs. Mary, a first year teacher and graduate of the Developmental Teacher Education Program at UC, Berkeley, is responsible for 32 first graders (14 girls and 18 boys) without the support of a teacher's aide. Twenty-five of the students are children of color; a majority are recent immigrants from Southeast Asia, with some African-Americans, some Latinos, and seven European Americans.

Despite the small size of her room, Mary fosters an active learning environment with her students. She has plastered the walls, from floor to ceiling, with student work—math graphs, group experience stories, and student collages. Hanging down from the ceiling—so that adults have to duck to wend their way through the room—are student-constructed science mobiles and a variety of What We Know and What We Want to Know charts. In one corner, a reading area is set up with books and a carpet.

At noon, half of her class leaves to join a bilingual class for the science lesson, while half of the bilingual class comes to her. She groups the students in mixed language and gender cohorts and introduces the science activity she has designed. The room is full of materials needed for the lesson. There are cups in large tote trays, two trays filled with salt water, two with regular tap water, small totes full of small plastic bears, different kinds of tiles, quarters, rocks, and paper clips. The lesson is designed to offer students an opportunity to explore the relative density of two different liquids by comparing the weight, expressed in objects, required to sink a cup in each different type of water.

Before starting the activity, she reads the labels and asks students to read them. She has the students point out interesting language and spelling features. Two children excitedly point out, "That's the same weird spelling we saw this morning." While organizing the groups, she directs students to go to their assigned tables and sit on their hands until it's time to put their hands in the water; this is one of the many "management techniques" she combines to assure students the opportunity to engage appropriately and productively in their work. Among the others are a "Peace Treaty" hanging from the ceiling that lists a set of student-generated rules which each individual student signed.

It includes a promise to be peaceful in room 31 and "to help make our room a place of learning and friendship," along with the following pledges: "We won't pick on anyone. We won't fight at school. We won't mess up the room. We will be peaceful and good. We will listen. We won't say any bad words. We will be quiet. We won't fight with guns. We won't touch anyone's plant. We won't karate kick. We won't push."

Once into the science activity, management appears invisible. There is, of course, some splashing, and things are occasionally thrown into the water, but Mary engages in on-the-spot logistical management as the lesson progresses. As an example: everyone is supposed to get a chance to visit the table and choose objects to be placed in cups. After choosing the first person to go, Mary sets them to continue the task on their own. Very quickly, it is the second person's turn and the students do not know how to decide who should go next. Mary first says, "You choose." Then she foresees a possible "It's my turn. No, it's my turn." problem and redirects the students into a counter-clockwise motion around the table, preventing a complication before it can occur.

The 30+ students conduct experiments, record on yellow post-its how many objects sink their cup, and then place the post-its on a large piece of chart paper Mary has labeled in two columns, "salt water" and "tap water".

At the end of the experiment, she brings the class together to discuss the recorded information. Students generate their own hypotheses and then, with teacher encouragement, match their hypotheses with the data. When the language becomes more abstract, she asks students to come to the front of the room and demonstrate their science concepts with the materials all had used. In California, this is one component of what is called Specially Designed Academic Instruction in English (SDAIE), a pedagogical approach focused on increasing the learning opportunities of English language learners.

Mary skillfully uses a range of other strategies throughout the day to keep her students working peacefully and purposefully. These include frequently praising those who are behaving, stopping and waiting until she has everyone's attention, ensuring she can be heard by all students, recording stars on the board when the group is attentive and erasing stars to call their attention to the need to settle down, ending or extending an activity based on students' engagement and capacity to focus ("I have time for one more. Is the class ready for one more?"), and constructively refocusing disruptive behavior; to call the group together, for example, she asks them to "sit on [their] stars." (Stars are marked on the group rug to help students locate places to settle when the group needs to re-engage.) Other aspects of Mary's teaching include cooperative groups that enable communication, peer teaching, and development of group interaction skills; performance tests, portfolios and journals; hands-on and minds-on activities, such as the development of products, simulations, and research projects; extensive use of visuals, such as slides, posters, tapes,

and realia (e.g., classroom aquariums, terrariums, field trips); inclusion of community members as conduits of language and culture; integration of first language and culture into class activities; and well-developed scaffolding techniques to accommodate multiple levels of cognitive and language proficiency within a single classroom.

Such a small snippet of classroom life does not provide a full and rich description of what developmentally-oriented teaching looks like in the life of a classroom. It does, however, provide a fragment of a vision of the holistic and complex reality of such teaching. While the analysis separates the domains of developmentally oriented practice, in Mary's classroom it is virtually impossible to divine where one area of development is divided from another, or one developmental understanding is applied separately from another. In fact, all of her pedagogical decisions consciously integrate what she knows of the development of her particular students.

Mary's classroom encompasses the whole child, providing opportunities for the growth of her students in all the domains of development.

In the physical domain, for instance, her use of collages, science mobiles, and the described science lesson all provide for the development of small and large motor coordination. Her classroom is full of physical movement. "Sitting on your star," which requires getting up and moving around, is but one example of the opportunities provided for students to remain physically active, something especially important for young boys. While not appearing in this particular vignette, it is noteworthy that Mary accompanies her students on their daily recesses, prodding some of the more sedentary students to greater physical activity (even if only walking/skipping with her as she patrols the playground).

The most obvious example of her integration of the cognitive domain is in the science lesson itself, where students generate hypotheses, record their observations in language, compile data, and match data with their hypotheses. The vignette is full of examples of learning opportunities in literacy as well: Mary reads labels and then asks students to read them, prompting students to point out language and spelling features familiar from the morning "literacy" activity that she has purposefully repeated in the afternoon science activity.

In the linguistic domain, Mary mixes language backgrounds for the cooperative group work—re-grouping classes as well as mixing language backgrounds within groups for group activities. Thus children are always learning social English. She also provides a purposefully rich set of materials (slides, posters, tapes, and realia such as classroom aquariums, terrariums, field trips) in the classroom, and for each lesson, so that children, no matter the subject matter, are always learning academic English. Finally, she provides an example of a well-developed scaffolding technique to accommodate multiple levels of language proficiency within a single classroom by asking students to

physically demonstrate abstract concepts when presented verbally, so that all students can "see" the concepts discussed.

An example of her work in the <u>social domain</u> can be seen in her group learning activities, where tasks and rewards are structured cooperatively in ways that provide opportunities for learning group interaction skills (cooperative learning). She groups students of differing genders, academic abilities, and language backgrounds, consciously considering the development of cross-cultural social skills and the <u>ethical domain</u> required of members of a pluralistic democratic society. The class peace treaty is another clear instance of the conscious application of knowledge of development of the ethical domain in the classroom.

This brief account of Mary's classroom environment also demonstrates an applied understanding of the <u>interrelation of emotion, affect, and cognition</u>. By providing clear directions and meaningful, engaging tasks, she organized the science activity so that all of her students could successfully participate. She was proactive in preventing potential problems. Her decision to revise how her students would decide the order in which they put objects into the water prevented students from acting out, thus keeping their emotions positive and the affect in the room constructive. Throughout the day, she positively refocuses disruptive behavior and provides hands-on and minds-on activities, such as the development of products, simulations, and research projects; in this way she avoids having to discipline and/or ostracize students who might face difficulties fitting in to more passive classrooms.

Students in Mary's classroom have to meet high academic standards: matching data to hypotheses is a high level cognitive skill, often in short supply among adults! Mary also provides multiple opportunities and avenues for students to demonstrate what they are learning, including performance tests, portfolios, and journals. This increases positive personal emotions while keeping the classroom atmosphere constructive.

Perhaps so obvious as to be missed, the fact that adults have to duck to avoid multiple displays of student work in order to move around in the classroom clearly communicates to students that this is their classroom. It belongs to them, and they are safe and welcome.

Even in this miniature slice of the classroom, one can see how Mary puts into practice her understanding that <u>development resides in the interaction between context(s) and the individual</u>, especially the reciprocal nature of that interaction. Once again, while maintaining academic standards, Mary uses multiple approaches (What We Know and Want to Know charts, activity extension based on student engagement and interest, and student experience stories) to assure that the responsibility to access and progress through content is shared with her students. The Classroom Peace Treaty provides an example

of a practice that builds a reciprocal interaction between the classroom context and the individuals developing within that context. Finally, Mary recognizes that language and culture play major developmental roles in both the classroom and the home contexts of her students. Thus, she integrates first language and culture into class activities and includes community members as conduits of home and community languages and cultures in the classroom.

Mary also demonstrates that she understands that <u>development displays patterns and trajectories as well as variability across time and within and across individuals</u>, and she applies her knowledge to her classroom. The multiple math graphs adorning the classroom walls show that she provides visual representations of initial physical manipulation to express abstract math concepts, a particularly appropriate approach for the age group with which she works. She shows her ability to apply this understanding several times in the science lesson described: the lesson was based on an appreciation of children's developing understanding of the physical world surrounding them. All the children were at least experientially familiar with ideas of water and flotation. This activity tapped into their previous conceptions and partial understandings of physical phenomena, ideas like "bigger is heavier," and "water is water." Mary did not, however, let her students flounder unnecessarily in their pursuit of more sophisticated understanding, but provided scaffolding towards a key variable by instructing them to organize their findings by salt water and tap water (rather than, for instance, the size of the objects floated, which would have sunk as an organizing hypothesis).

Mary is not a perfect teacher—though pretty remarkable for a first year professional—and the snippet does not provide a complete example of a developmentally-oriented classroom. It does, however, provide a simple yet profound demonstration of how the application of child and adolescent development can provide an organizing framework for teachers to use in assuring all our children the education that they deserve and our communities require.

Challenges

This paper argues for the importance of strengthened teacher preparation programs and pathways as key variables in an effort to enhance learning opportunities for students in schools and classrooms. The provision of high quality teacher preparation requires reshaping and rethinking complex organizations, institutions, and policies. Numerous challenges are inherent in such an endeavor. We acknowledge some of these challenges below with the hope that the field will work creatively to address such challenges in service of our common goals for schools and our children.

Pre-service teacher education is necessary, but insufficient to the task of ensuring quality instruction for all of our children. While teachers certainly need to be sufficiently well-prepared before they are entrusted with the care of children, their development after becoming teachers in schools and classrooms is perhaps even more important. Teachers need on-going, meaningful, purposeful, and effective opportunities for learning and professional growth. Consequently, schools need to be environments that actively support teachers' professional growth, as well as places that encourage teachers to utilize their knowledge of child and adolescent development in ways that support student growth and learning. In short, schools are a context that matters deeply for both teachers and students.

Creating the organizational structures necessary for the growth and nourishment of the teaching profession requires institutions of higher education, educational non-profits, schools, districts, unions, other educational organizations, and state and federal policy to work collaboratively, foster productive relationships, and strive to achieve common goals for our children.

The focus of this paper is in the pre-service arena, where multiple challenges exist within preparation programs and pathways. For example, while 80% of programs responding to a recent survey reported that teacher candidates are required to take at least one child and adolescent development course offered within their education programs, nearly half felt that that single course was insufficient (see National Comprehensive Center for Teacher Quality and Public Agenda, 2008, and NICHD, 2007). In addition, the 20 percent of programs which do not offer courses in child development either rely on psychology departments to fill in—rendering classroom connections less likely—or forego child development altogether due to state caps on teacher education credit hours. The concern is not that psychology departments do not understand development; but that psychology faculty may be unfamiliar with the hundreds of practice decisions that teachers make in the classroom and the relationship between cognitive science and those decisions. This is the heart of the difficulty inherent in creating programmatic cohesion, given the traditional departmental structures and isolation within higher education: especially in today's technologically linked world, it is often easier to collaborate with disciplinary colleagues across the continent than with different departments across campus. The point here is not to suggest that strong partnerships cannot flourish across campus departments, but rather to note that for preparation programs to serve their missions well, deep partnerships are essential to that work while isolated coursework and weak cross-institutional ties can erode program coherence and efficacy.

The curriculum materials available for development courses are also often insufficiently tailored to prospective teachers. The textbooks available tend to be geared towards a mixed audience to maximize their market: prospective teachers, prospective clinical practitioners of psychology, and the general student of the discipline. Consequently, available texts often provide minimal connections to classroom practice and offer limited opportunities for prospective teachers to tease through the complex relationships between theory, research, and practice. Thus, development courses and textbooks often lack practical exemplars to help teachers apply their growing knowledge of development to the particular contexts of their profession.

Further, while existing texts do not necessarily contain the "wrong" content, they rarely contain the "latest" content. As in all fields, knowledge of child and adolescent development is expanding rapidly, and mixed-audience textbooks have a difficult time keeping up. The latest research is available only in journals and other more immediate venues for dissemination; research articles, however, are written for a different audience, in a different language, and for a different purpose than literature intended to-serve prospective teachers. It is not only that research brings with it its own technical language, but also that research findings themselves, given human and contextual variability, are not directly translatable into prescriptions for practice.

More significant than the challenges presented by courses or textbooks, however, are the limited opportunities for cohesion and consistency among and between course work, clinical experience, and supervision. In the best of all possible worlds, all of the following work in a complementary fashion: (a) program course work is well conceived, well taught, current, and includes opportunities to clarify practical implications; (b) clinical experiences are supported by faculty who are exceptional at aiding young teachers' emergence into the profession with the time and resources necessary for performance, and (c) clinical placements are carefully selected to provide opportunities for practice and assessment of one's development in a classroom where one is learning with and from an exceptional teacher of students and an exceptional mentor of prospective teachers. We do not, however, reside in the best of all possible worlds.

In fact, far from taking a complementary approach, it is often the case that course work is provided by one set of faculty, clinical supervision by another set of faculty, and school-based support by still another set of teachers while the opportunities for interaction between these three branches remain limited. Structural, cultural, logistical, conceptual, political, linguistic, and status differences all create challenges for constructive and coherent collaboration. The interdependent components of professional education are conveyed by different people carrying with them different cultures, languages, values, knowledge bases, disciplinary frames for understanding the world, political backgrounds, and institutional histories, who rarely even have opportunities to talk with each other. These realities present significant challenges and make it difficult to create programs that provide candidates with supportive opportunities to learn and link research, theory, and practice.

It is distinctly possible, however, that the integration of child and adolescent development and learning into teacher preparation—as proposed in this paper—has the potential to provide opportunities to investigate systems and structures that must be improved to benefit learners. For instance, 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.

Principles for Integrating the Knowledge Base of Child and Adolescent Development in Teacher Preparation

This paper opened with a rationale for the importance of the application of knowledge of child and adolescent development and learning for quality instruction. The second section offered an overview of important elements of that knowledge. This work strongly suggests that our schools require teachers bring a developmental orientation to their work. Teacher preparation programs, therefore, must be guided by a conceptual framework grounded in the most up-to-date research concerning student development and learning and designed to foster the knowledge and skills necessary for teachers to apply that knowledge toward student learning.

Below is a framework of principles to support the shift towards "developmental teacher education" which draws upon the knowledge base in child, adolescent, and adult development and learning. These principles are designed as focused insights into programmatic structures, processes, and opportunities for learning that can be integrated in and applied to teacher preparation to support candidate knowledge of child and adolescent development and application of that knowledge. Keeping in mind the particular characteristics of their local contexts, teacher educators can draw upon these principles as they design and create opportunities for learning, practicing, and assessing candidates' knowledge, skills, and dispositions to support effective teaching practices.

Six practice principles inform our framework for developmental teacher preparation:

I.   Consider Candidates as Developing Adult Learners

II. Provide Opportunities to Learn the Formal Knowledge Base of Child and Adolescent Development

III. Organize Experiences to Apply the Knowledge Base of Child and Adolescent Development in Classrooms, Schools, and Communities

IV. Design Programs with Cohesive and Consistent Emphasis on Child and Adolescent Development

V.   Model Professional Teaching Practices

VI. Shape Programs and Practices through Continual Renewal

In this section of the paper, we consider each of these six practice principles, and offer small samples of how they are carried out in some existing programs. The exemplars presented in this paper are offered as samples of an approach to the preparation of teachers that are consistent with the principles we outline here. Since teaching and learning requires one to consider both the students and the context involved, we offer these examples as relevant, insightful, and promising practices, rather than idealized prescription for practice. Ideally, these exemplars of practice will help teacher educators in varying contexts to better understand the principles articulated here and be more likely to apply them effectively in their own programs and practices.

Several of the programs whose practices are highlighted in this paper (Alverno College, Bank Street College, and University of California, Berkeley) participated in a national study of exemplary teaching education programs (Darling-Hammond, 2006). The methodology of that study included a national survey of graduates of those programs; a random national sample of all beginning teachers was also collected for comparison. The University of California, Santa Barbara, as part of its experimental program status at the time with the state of California, used the same methodology with its program graduates. In all four programs, graduates rated their perceptions of preparation higher and had higher teacher efficacy scores than the national sample. The latter might be of particular interest, as teacher efficacy scores have been correlated with student achievement on standardized tests.

All of the programs whose practices are cited here exemplify characteristics identified as contributing to effective teacher preparation practices. Effective teacher education programs are coherent, connected, and mission-driven. They build on the pillars of the knowledge base required of successful teachers: knowledge of child and adolescent development and learning; knowledge of subject matter, pedagogy and subject matter pedagogy; and knowledge of social contexts and the contexts of practice. They blend educational theory and clinical practice in an integrated and coherent fashion, leading to deeper understandings of teaching and learning. And they offer well-defined standards of practice and performance which are used to guide, evaluate, and strengthen candidates and the program.

I. Consider Candidates As Developing Adult Learners

> *We assume that if student teachers are themselves embedded in rewarding and growth-producing relationships, they will respond to others with greater sensitivity and will use relationships to encourage growth in their students. Teacher training, then, is a parallel process. Student teachers can learn through relationships to think critically and to look beyond formal knowledge to understand children's and their own personal development. In turn, they can better use relationships to teach others.*
>
> **Stott & Bowman (1996)**

Humans do not stop "developing" at seven years of age, or at adolescence, or when they enter a professional preparation program. No matter the age, humans are always developing. Thus, just as teachers of pupils in our P-12 schools need a "developmental orientation," so too do the faculty and programs that work with teacher candidates.

Whether young or mature adults, aspiring teachers are in the process of growing into their profession. In teacher education, the teacher candidate is the student, the human subject and object of the professional education process; he or she is an integral component of the learning equation. Thus, like all teachers, teacher educators need to adopt a developmental perspective on the learning of their candidates. Within a cohesive and consistent set of experiences, programs need to be sensitive to the progression of knowledge and skills of

individual candidates, structuring experiences to build on candidates' prior knowledge while also providing individualized support to those developing differently along alternative pathways and trajectories. Just as P-12 teachers need to be aware of and respond to the individual needs of students who progressing along the continuum of human development, teacher education programs need to show the same awareness of and capacity to respond to their candidates' growth and development.

As is true with our approach to the teaching of school-age children, considerations of adult 'readiness' for learning should not restrict opportunities for learning but rather serve as guides telling us where to start and how to proceed so that candidates are best supported as they develop the knowledge and skills required of a professional educator.

Teacher preparation organizations work to support candidates from a wide range of backgrounds, educations, maturity levels, and prior experiences. This is especially true in today's professional education environment, where a significant number of teacher candidates enter the profession in the years following completion of their bachelor's degrees. Some teachers enter shortly after completing their undergraduate degrees, others move mid-career from other employment. Still others enter teaching towards the end of a first career as an encore career. Some of these non-traditional entrants possess particular subject matter expertise, others do not. Some of their prior experiences are extremely useful in the transition to teaching, while others are not (Woodrow Wilson Foundation, 2008). Again, as school teachers must to support children and adolescents, preparation programs need to consider all the domains of adult development to support the growth and learning of their candidates.

There are similarities and differences in the developmental needs and contexts of children, adolescents, emerging adults and adults. One important set of differences is the family and financial responsibilities individuals typically take on over a lifetime: a pragmatic example of this divergence lies in the need for teacher preparation to balance candidates' familial and financial responsibilities with the need for extended and supported clinical experiences in professional preparation. To be successful, candidates need sufficient opportunities to develop and refine their knowledge and skills in schools and classrooms with the guidance of expert mentors; at the same time, we must consider the range of needs of potential teachers, especially if we hope to expand opportunities to draw non-traditional candidates into the profession. The teaching residency model, which offers prospective teachers the opportunity to engage in integrated course work and clinical experience over a full year while receiving stipends and health insurance provides an example of a creative approach to meeting the needs of adult learners interested in entering the profession (Berry, Montgomery, & Snyder, 2008).

No matter the age or pathway, acquiring new knowledge and skills typically involves the unlearning or unpacking of previous knowledge and skills. When it comes to teaching (which includes knowledge and attitudes about children, families, and communities), most prospective teachers have already completed, at minimum, a sort of 12-year apprenticeship in their own experiences as students in classrooms, not to mention omnipresent cultural socialization received from television, movies and other media. Prospective teachers enter the field with a wealth of knowledge about the nature of teaching, most of which is grounded in personal experience rather than a deep understanding of the knowledge base of the

profession. These experiences often contribute to misunderstandings or partial knowledge about children, their development, their capacity to learn, the nature of knowledge, the role families, communities, and the school play in the learning process, and the strengths and pitfalls of various instructional approaches. As with all learners, it is important to take into account and work with what prospective teachers think they know, their bases for these understandings, how this knowledge supports or impedes their development as professional educators and their students' learning. With this developmental orientation, teacher educators are able to focus on how they might amend and expand on what their candidates understand, partially understand, or misunderstand, and build productively toward programmatic and professional goals.

Autobiographical assignments provide one mechanism for helping teacher candidates better understand their own motivations and experiences. This type of focused self-study increases the candidate's capacity to learn from one's own experiences and to share with and learn from others the essential knowledge, skills, and dispositions of professional educators.

Furthermore, as Stott & Bowman point out,

> The task is not merely one of learning, but one of reflection and integration of multiple perspectives in such a way that will come to inform practice. Integral to this process of reflection and integration is the opportunity for the ideas encountered in coursework to be transformed into a meaningful framework through practical application and discussion with peers, teachers, and mentors. This personal framework requires self-reflection and knowledge, as well as reflection on others. Students will then have the opportunity to restructure and reorganize their personal and formal knowledge. (p. 174 – 175)

Such difficult restructuring and reorganizing requires conversations and relationships (communities of practice). Relationships, both with peers and with experts (mentors), are challenging and complex in their capacity to move through conflicting values and backgrounds to honesty and mutual trust (Stott & Bowman, 1996). Such relationship-building to help teachers "study themselves" in the service of becoming better teachers takes time, effort and support:

> We believe that perhaps the most important thing that training institutions can do is help teachers begin the process of reflection, not only about the act of teaching and the nature of the contexts in which teaching and learning take place, but also about themselves. Teachers need to consider the impact of their actions on children and vice versa.. They must accept and reject ideas on the basis of thoughtful inquiry and not just on the basis of superficial opinion, private belief, or standard practices. Teachers need to recognize that teaching is a complex, professional activity requiring constant effort on their part. (pp. 175-176)

As with the education of all learners, potential teachers need to be approached in developmentally meaningful ways. Modeling developmentally meaningful practice does not mean treating adults as children, of course; rather, it suggests that teacher educators and

teacher preparation institutions approach their work with a depth of understanding of those they are working to support. In doing so, we model and make explicit the "developmental thinking" of an educator for our teaching candidates. Even if modeling an activity with adults that they could in turn use with their students, the purpose is not necessarily to teach the adult learner the content of the activity but rather the theories and research behind the effectiveness of the activity. Ideally, with further practice and support, practicing teachers can successfully apply the theories and research in different classroom contexts with diverse students.

Consider Candidates as Developing Adult Learners

Exemplar: Bank Street College of Education

Adapted from Cuffaro and Nager (2008).

"Developmental-Interaction" (sometimes referred to as the "Bank Street Approach") is the guiding principle behind Bank Street's education of both children and adults. The term "developmental-interaction" calls immediate attention to the centrality of the concept of development, the ways in which children's (and adults') modes of apprehending, understanding, and responding to the world change and grow as a consequence of their continuing experience of life. The term "interaction" refers to the tenet that thinking and emotion are interconnected, interacting spheres of development; it also highlights the importance of engagement with the environment of people and the material world and sensitivity to the depth and scope of the reciprocal influence of culture on growth and development.

Developmental-interaction is not a codified set of procedures. Rather, the teacher has the complex task of using the constellation of values and principles upon which the approach is based to support student learning and growth. This understanding influences decisions regarding content, methodology, environment and activity. The physical, social, cognitive, psychological, social, ethical, and language domains are all addressed.

Bank Street's conceptualization of developmental interaction applies equally to the education of children and adults. Nager and Shapiro (2007) posit five interrelated principles for the education of teachers that have emerged from Bank Street's history and practice:

1. Education is a vehicle for creating and promoting social justice and encouraging participation in democratic processes.
2. The teacher has a deep knowledge of subject matter areas and is actively engaged in learning through formal study, direct observation, and participation.
3. Understanding children's learning and development in the context of family, community, and culture is essential for teaching.
4. The teacher continues to grow as a person and as a professional.
5. Teaching requires a philosophy of education—a view of learning and the learner, knowledge and knowing—which informs all elements of teaching.

These principles paint a picture of good teaching that informs teacher preparation at Bank Street and comes to life in schools for students and the classrooms of adults learning to teach. Informed by Lucy Sprague Mitchell's conviction that learning processes for adults and children are fundamentally similar, the teacher education program attempts "in all fields to give firsthand experiences (in studio, laboratory, and field work) to supplement 'book learning'." (Mitchell, 1953, p. 471)

Through direct experience, the teacher candidates engages actively with his or her environment, expands his or her knowledge base, and strengthens his or her sense of competence and mastery. Teachers educated at Bank Street are expected to thoroughly understand children's learning and developmental needs and possess the ability to create caring, intellectually challenging, and democratic classrooms. Teacher candidates at Bank Street learn to think about education in terms of children's developmental needs and characteristics, their knowledge and approach to learning, and the values their families and cultures have emphasized.

Four courses in the academic study of child development combine with a fifth course on the observation and recording of children's behavior to serve as the foundation for an understanding of development and learning and their relation to curriculum planning: (1) Human Development, (2) Language Acquisition, (3) Developmental Variations, (4) Family, Child, Teacher Interaction, and (5) Observation and Recording of Children.

In all subject matter areas contained in the curriculum (i.e., "methods courses"), candidates are immersed in the same constellation of principles and values and provided multiple opportunities to "try them out" in practice at multiple times and in varying contexts. The instructors of the methods courses often serve as advisors in the clinical experiences of Bank Street candidates, thus not only retaining a grounded understanding of the changing contexts of children, schools, and communities, but also experiencing first hand the challenges their students face as they attempt to integrate and apply their knowledge of child and adolescent development and learning and subject matter in the classroom.

The developmental perspective in action at Bank Street presumes that the process of becoming a competent teacher is linked not only to garnering relevant information, but also to the ways in which a new teacher experiences, internalizes, and constructs his or her growing knowledge and sense of self as a maker of meaning. It is a process of epistemological development in which teachers come to value their own voices, selves, and minds, enabling them to create opportunities for children to achieve similar processes of discovery and invention (Nager, 1987). Active participation in real problems provides the basis for both child and adult learning. Therefore, the nature of clinical experiences is vital to the teacher's personal and professional development.

A system of advising encompasses the graduate student's entire academic program at Bank Street and thereby serves an integrative function. Advising incorporates fieldwork, conference groups, and course work. Guiding the student's work is the advisor, a member of the Graduate School faculty. The term "advisor", rather than "supervisor", indicates a process of guiding learning and thinking and modeling communication and interpersonal relations. During each candidate's full year of supervised field work, the student has a biweekly individual conference with the advisor. One of these meetings follows an observation of the student's teaching and entails shared reflection on that work. Each student also participates in a weekly conference group with the advisor and a group of 5-7 fellow teaching candidates with whom the advisor is also working. This group provides an opportunity for peer learning and support, and allows teacher candidates to participate in the broader and deeper project of democratic culture building (Pignatelli, 2000).

The content of group discussion is open-ended. Students bring issues of personal and professional importance to the group, learning and gaining support from advisor and peer interactions. In attending to individual learning needs, advising affords the kind of nurturing and stimulating environment that teachers are encouraged to provide for their own students. Again, the parallel nature of the attention paid to the complex interrelationships between the growth and development across multiple domains of the adult teaching candidate and that required of the teacher in his or her relationship with students is made explicit and attended to as a central facet of the program design.

II. Provide Opportunities to Learn the Formal Knowledge Base of Child and Adolescent Development

Quality instruction relies on the application of an understanding of child and adolescent development and learning. One of the fundamental ways that teacher preparation programs support candidates' acquisition of this component of the teaching knowledge base is through well-considered coursework.

Acquisition of formal knowledge alone, of course, is not sufficient to the task. Just as knowledge of the physical sciences can be used by engineers as a tool to make sense of natural phenomena and enhance our lives, so too knowledge of child and adolescent development is an indispensable asset teachers can use to make sense of children, classrooms, learning, and teaching. As Stott & Bowman (1996) put it,

> *What makes theories worth reading and discussing is not the assumption that they mirror reality but that they serve as suggestions or estimations— they help us arrange our minds. Theories are helpful in that they organize and give meaning to facts, and they guide further observation and research. In so doing, they provide guidance for our thinking.* (p. 171)

The goal of using formal child development knowledge...is that it will give teachers greater ability to describe, illumine, interpret, and translate their observations of children and families. This can, in turn, help teachers gain some practical wisdom of children, use reasonably good judgment in their work, and engage creatively and respectfully with children, parents, and colleagues. (p. 175)

Well-considered courses in child and adolescent development for teachers understand that quality instruction requires knowledge of development in an educational context; teachers need to learn, for example, how to apply their knowledge of the reasons explaining children's behavior, and of the vulnerabilities, risks and protective factors that all children bring with them. Teaching developmentally requires more than the possession of developmental information. It necessitates integrating big ideas into classroom contexts and learning opportunities that support student growth and learning, so schools are better able to meet their aims for individuals and the well-being of a democratic society.

Teachers also need to draw upon their general knowledge of human development to support the success of specific individual students and groups of students. There is value in knowing the general trajectory of development in multiple domains as delineated in stages; knowing the average child is, however, inadequate to the teacher's work within the context of specific classrooms and schools without average children. In the words of a prospective teacher who based a lesson on her development books—only to see it fall apart—the kids "hadn't read the book. They didn't know how they were supposed to act." Teachers must be supported to apply their new understanding of the knowledge base to the specific children in their care. While there is obviously significant value in consistency, equality, rather than necessitating equal treatment, often requires treating all children differently. Quality instruction is tailored to individual student needs and backgrounds. The same behavior, words, and tone of voice that inspires one child may push another to tears. Knowledge of child and adolescent development and learning supports this nuanced structure as well.

> *In addition to helping us understand how and what children learn, theories can serve as a template for empathy—they help us hypothesize about the child's point of view. Frequently, in order to be personally helpful to a child, teachers need to understand something of the child's subjective experiences, of his or her motives, affect, and the meaning of his or her experiences, beliefs, attitudes, and expectations.*
>
> (Stott & Bowman, 1996, p. 175)

This further suggests that simplistic translation of research into a prescribed set of behaviors will be inadequate for success in the classroom. The notion that every complex problem requires a simple solution is antithetical to the principles of development outlined earlier and the respect for children and teachers that underlies those principles. Research cannot be translated into any one perfect practice for all children in all social, institutional, and cultural contexts. Attempts to do so almost universally cause more harm than good to the profession, in the form of pedagogical ideologues engaged in "yes/no" debates to address questions better answered with "it depends." The even more significant harm is to children

who do not receive the instruction they require and are labeled deficient when they do not fit any preferred pedagogy. The expectation is that teachers understand child and adolescent development in ways that shape their actions and support quality instruction of students. This requires a holistic, nuanced, flexible approach to the strengths, interests, and needs of individual children within the social context (and needs) of the classroom group(s) and the demands of the social institution of the school.

Additionally, quality course work should present both practical examples and, ideally, opportunities to connect knowledge with clinical practice to help developing teachers begin to understand and apply the connections between theory, research, and classroom life. Course activities, textbooks, and assignments in child and adolescent development need to include relevant, research-based applications, and instructors need to support candidates think through the implications of human development for their emerging teaching practices throughout these opportunities.

For instance, Pianta's (in NICHD, 2007) research suggests that teachers pose the following questions of formal research to bridge formal and practical knowledge bases.

- How do I understand the differences between children?
- How do children's families affect their behavior in my classroom?
- How do I handle children's relationships with peers in the classroom?
- How can I form a positive relationship with a student?
- How do I manage my classroom effectively and positively?
- How can I arrange instruction to promote children's learning?
- How do I choose appropriate materials and activities?
- How do I motivate children?
- How do I keep children's engagement and attention in learning activities?
- How can I teach basic skills in a conceptually rich way?
- How can I be sure that children know the concepts that I am teaching?

Provide Opportunities to Learn the Formal Knowledge Base of Child and Adolescent Development in Coursework

Exemplar: Developmental Teacher Education Program, University of California, Berkeley

Adapted from Snyder (2000).

The University of California at Berkeley's Developmental Teacher Education (DTE) program provides a rich example of the creation of thoughtfully crafted opportunities to deepen one's "understandings about child behavior and development in diverse settings, and to enhance the teacher's ability to use those understandings as a basis for teaching" (Syllabus, Education 211A, 2008). DTE is a two-year post baccalaureate program that includes carefully sequenced course work and complementary clinical experiences throughout.

At the core of DTE's curriculum is a two-year, four-course sequence on human development. Each seminar course is connected to teaching methods courses in the various subject matter domains and to one of the several student teaching placements through overlapping assignments and experiences. Issues of culture, context, and diversity are raised throughout these courses as well as in the clinical experiences and seminars that form the experiential component of the program.

The first course in the sequence is Development of Cognition and Language. This is followed by Moral and Social Development, then Development in Math and Science, culminating in Development and Literacy.

As in a number of other programs with strong developmental focuses, two particularly powerful pedagogies shape student teachers' developmental learning: the use of systematic observation of children and the use of child case studies. To show what this looks like in the program, the sequence of assignments for the first human development seminar is detailed below. In this course, candidates learn to use clinical methods to assess levels of cognitive development, and they draw upon samples of children's spoken and written language for assessing their language development.

Assignment 1

Using Piaget's "clinical" method and Vygotsky's "dynamic" method, attempt to assess and promote the cognitive developmental of two or more children in your current field placement by interviewing them with regard to one task in each of three domains studied by Piaget:

- *The logico-mathematical domain (classification, seriation, and number)*
- *The physical domain (objects and space)*
- *The socio-moral domain (justice).*

Write a report that clearly describes:

- *Your interviewing procedures and the rationale behind them (i.e., what they were meant to accomplish)*
- *The hypotheses you have formed about the cognitive-developmental levels of the children, based on the results of your interviews with them*
- *Any thoughts or questions you have about doing this type of cognitive assessment.*

Assignment 2 -- Young Children's Language Development

In this assignment teacher candidates are asked to collect and interpret several examples (at least 5 or 6) of developmentally relevant language data from young children (K-3). These examples can come from a single child or from any number of different children, and they can be in any language the child speaks, so long as you know the language well enough to provide the kind of interpretation that is described below. Your examples should involve several different modes of language use. Possible modes include speaking, listening, writing, or reading. The examples should also involve several different aspects of language. Possible aspects include speech sounds or their representation in writing (phonology and orthography); the formation of words from meaningful units (morphology); relations among units of discourse within or between sentences (grammar); meanings of words or larger units of discourse (semantics); and relations between linguistic _forms_ and their communicative _functions_ in particular contexts (pragmatics).

Unlike assignment 1, the emphasis here is on "naturally occurring" data—i.e., examples that come from everyday life in the classroom, rather than from interviews or tests designed to assess language development. While examples that you happen to observe in passing as you go about your business in the classroom would be fine, you may also want to tape record what is said in a regular classroom setting (e.g., at an activity center or in a reading group) or to examine written work that has not already been "corrected" by a teacher (e.g., in a child's journal or in a portfolio of stories done for "creative writing").

When you find an example you wish to include in your paper, first describe the "raw" data (what the child said or did, and the context in which it occurred) and then address the following questions:

1) Could the child's unconventional or inappropriate usage reflect some underlying hypothesis or qualitatively different knowledge the child has about the language in question? How so? (In addressing this question, consider what <u>else</u> you may have observed about the same child's use of language, i.e., the extent to which it has otherwise seemed appropriate or not, and in what ways.)

2) Could the child's use of language in this example be influenced in some way by cognitive-developmental and/or social factors? How so? ("Cognitive-developmental factors" have to do with ways in which children may still be limited in their ability to understand more complex aspects of language. "Social factors" have to do with ways in which a child's use of language reflects variations in language norms across different situations or communities.)

3) What might a teacher do to foster the child's development toward greater maturity regarding the aspect of language in question? What is your rationale for the particular teaching strategies you are suggesting?

In responding to these questions, the important thing is not for you to be "correct," but to make plausible suggestions and to give your reasons for making them. These reasons should be based explicitly on what you know about the development of language and cognition in general, about language use within and around the communities the child belongs to, and about the particular child in the example.

<u>Assignment 3 -- Clinical Interviews with Older Children</u>

As in Assignment 1, use Piaget's "clinical" method and Vygotsky's "dynamic" method once again to assess and promote the cognitive development of children in your current field placement by interviewing them with regard to three tasks. Two of the tasks should be in the logico-mathematical and/or physical domains (distinctions between these domains are harder to make at this level) and one in the socio-moral domain.

Interview at least two children on each task—preferably (but not necessarily) the same children on all three tasks. Because these interviews may take longer, you may again not be able to complete three tasks in a single interview, even though the children are older. You are more likely to get interesting data by taking the time to explore the children's thinking about each task in depth. The needs of children with limited proficiency in English must once again be taken into account, and that, too, may add to the length of an interview.

Assignment 4 -- Older Children's Language Development

In this assignment you are asked to collect and interpret several examples of developmentally relevant language data from older children (grades 3-6). These examples can come from a single child or from any number of different children. In order to practice looking at language development from more than one perspective, try to come up with a set of examples that involves some different modes of language use (speaking, listening, writing, or reading) and some different aspects of language. These aspects may include speech sounds or their representation in writing (phonology and orthography); the formation of words from meaningful units (morphology); relations among units of discourse within or between sentences (grammar); representations of meaning in words or larger units of discourse (semantics); and relations between linguistic forms and their communicative functions in particular contexts (pragmatics).

As in assignment 2, the emphasis here is again on "naturally occurring" data—i.e., examples that come from everyday life in the classroom, rather than from interviews or tests designed to assess language development.

In looking at how older children make use of the conventions, it is important to bear in mind that they are likely to be members of multiple language communities—communities that may have different conventions (e.g., family, neighborhood, peer group, and school). They may also be addressing multiple audiences at the same time (e.g., teachers and peers in the classroom), and they may sometimes make linguistic choices that function primarily to assert their identities with respect to one community or another. These social complexities can make it a challenge for you to differentiate between linguistic <u>knowledge</u> per se and social influences on linguistic <u>performance</u>. Similarly, while cognitive development influences the kinds of linguistic knowledge that children construct, it also affects their <u>use</u> of that knowledge in complex performances, and it may even mask the kinds of knowledge they actually have. Consequently, when interpreting your examples, you may sometimes be forced to conclude that there are several possible interpretations for what you have observed.

The results of this kind of concrete, guided assessment—in the context of ongoing coursework providing a framework for understanding development and learning—can be seen in later work that DTE candidates and graduates accomplish. A first year teacher, sitting in her classroom and reflecting on her first year of teaching in a recently "reconstituted" school, explained:

"The developmental background from DTE—moral, physical,

cognitive, emotional, social—is incredibly valuable. Without it I would have no way to figure out what's going on—the multiple levels within each child. Without it, I would just give in and simplify the curriculum.…I couldn't continue without those understandings."

DTE includes a number of design features that contribute to candidate's high levels of skill (Snyder, 2000). As described above, the program emphasizes the relationship of developmental theory to teaching practice throughout a set of four connected courses that extend over the full two years of the program. The candidates develops a sophisticated practice as courses are sequenced over two years to provide opportunities for repeated consideration of developmental-related teaching issues at higher levels of understanding. Candidates engage in five carefully selected student teaching assignments, so they experience diverse settings where teaching issues can be addressed from increasingly higher levels of competence with a variety of teaching role models as guides. These placements are selected to model the practices taught by the program, with expert practitioners in each. A weekly student teaching seminar with a complex and flexible organization promotes integration of theory and practice, small group problem solving, and interaction between first and second year students. Highly experienced staff provide substantial clinical supervision. Although the introduction to teaching is gradual, the amount of supervision remains relatively constant over the five placements. Finally, and not insignificantly, the faculty is thoroughly versed and current both in developmental research and research on instruction to assure a solid conceptual grounding for the practical work in which candidates engage.

Provide Opportunities to Learn the Formal Knowledge Base of Child and Adolescent Development in Coursework

Exemplar: The Amigo Project, Vanderbilt University

Adapted from Bransford et al. (2004).

Faculty at Vanderbilt University have developed an innovative course that aims to apply learning theory and leverage technology to enhance candidates' knowledge and practical application of the fields of child and adolescent development and learning (PT3 Group at Vanderbilt, 2003).

In the AMIGO project's *How People Learn* course, the goal is for prospective teachers to look at learning situations and integrate acquired knowledge in developing teaching responses while considering the four lenses of the course framework: knowledge, learners, community, and assessment. Teacher candidates learn to balance all four of these lenses simultaneously. As a result, the teacher candidates' perspectives on options to enhance their students' learning reflect their experiences developing and refining their own ideas through the course.

The following module describes the AMIGO3 process. The goal of this particular module is to increase candidate knowledge and application of the "assessment centered" lens of the *How People Learn* framework; the assessment lens is particularly relevant in the context of child and adolescent development, as developmentally-oriented teaching requires continual assessment of students and continual corresponding adjustment to instruction and the environment.

The module begins with a challenge displayed on the course web site. The challenge is displayed in an engaging "audio plus picture" format. It begins with an image of a teacher giving his students gifts for the holiday season. The narrative reads as follows:

> During the December holiday season, a local newspaper ran a cartoon showing students in a classroom who had each received a wrapped present from their teacher. Upon opening the present, each student discovered the contents—a geometry test. Needless to say, the students were not pleased with their "gift." People who viewed the cartoon could easily understand the students' anguish. Tests are more like punishments than gifts. However, is there any way that a "test" could be perceived as something positive?

Following presentation of the challenge, candidates proceed through a sequence of flexible steps such as those noted below.

Initial thoughts. Students respond to the challenge by clicking on "initial thoughts" and publishing them to the web. More often than not, candidates answer that tests are unequivocally negative experiences. The make exceptions for those on which they perform well, but they don't know this until after a test's completion.

Students' initial thoughts can be captured as short essays that they can return to later (to compare them to their "later thoughts," submitted once they have completed the module), or as multiple-choice answers to directed questions, or both. The inquiry shell is designed to be flexible, and allow choices among a variety of different response formats at different phases in the cycle.

Perspectives & Resources. After posting their initial thoughts, students proceed to resources. These consist of audio and video clips, texts, simulations, suggestions for hands-on activities, etc., which give the students a deeper perspective on the challenge. For the preceding challenge, students might hear a two-minute mini-lecture on differences between formative and summative assessment and read a short paper on the topic. They might also see a video interview with a group of middle school children who discuss how valuable it was to get tough feedback (formative assessment) from their friends and teacher prior to an important presentation to outside experts.

Students write their initial thoughts to a challenge prior to hearing the resources in order to create a "time for telling" (Schwartz & Bransford, 1998). Often, experts say things that even novices recognize as being familiar ("Oh yeah, I know that."); nevertheless, the challenge cycle helps students realize that they had not spontaneously generated these ideas during their initial thoughts. This creates an "Aha" experience that results in better retention and a deeper grasp of the significance of new ideas (e.g., see Auble & Franks, 1978; Bransford, 1979).

Self-Assessment. After reviewing resources, students can self-assess their own understanding. This can include multiple-choice tests with automated grading that send them back to relevant resources as needed. Alternatively, students may write short essays on the web and receive feedback from TA's or professors about what needs revision. Students also assess the usefulness of each module for their own thinking, making it easy to continuously improve the course.

An especially important feature for self-assessment is the opportunity for on-line discussion with others who have taken the same challenge and are trying to articulate their thoughts and opinions about it.

<u>Go public</u>. Finally, students "go public." This often involves an essay, posted to the web, on differences between their initial thoughts (which were captured earlier and to which the students can return) and their revised positions on the challenge. It may also involve class presentations about "big ideas or burning issues." Students also have the option to construct challenges of their own for others to try. The degree to which students truly "go public" is variable. In some cases, their final thoughts go only to the professor and/or teaching assistants. In other cases, the whole class sees everyone's answers. In still other cases, one group of students may post thoughts to be critiqued by students in another group, course or university. Once again, the inquiry cycle can be used flexibly to meet the contextual needs of either the program or the teacher candidates.

Students have been particularly appreciative of the opportunity to articulate what they have learned from a module by comparing their later thoughts with their initial thoughts. If initial thoughts are not captured in some format to which students can return, they are prone to under-appreciate the extent to which their thinking has changed.

Research was conducted on the results of one such class, taught on-line and in person using 35 modules developed to accompany the *How People Learn* text from the National Research Council. Comparisons of students' initial and later responses to the challenges provided substantial evidence of learning throughout the course. One student wrote of the "test as a gift" challenge described above:

> Reviewing my initial response to this challenge was great because I think that this one really shows how much I have progressed in a semester regarding my understanding….I wrote, "How could a test be made positive? I do not know…." This is very exciting because I have since learned tons about formative assessment and have many ideas regarding 'tests.' Being in the class really caused me to question what [the] function of a test is. Partly, it is to hold teachers and students accountable, but additionally, and more importantly, it is to give students the opportunity to grow. Tests can be exciting; they can be 'learner friendly' so to speak. The challenge asked the question, "How can a test be made like a gift?" My answer now is, "By giving students formative 'test' [sic] or assessments. By providing students with opportunities to revise and improve their thinking, they are helped to identify problems and see their own progress, which is encouraging and worthwhile."(PT3 Group at Vanderbilt, 2003, p. 114).

The AMIGO3 courses at the University of Vanderbilt offer an example of one preparation institution's effort to carefully craft a set of course modules to help their candidates develop the knowledge base essential for effective teaching and to do so with the function and intentionality proposed here. Additional

modules have been developed in other subject areas, including Secondary Mathematics and Adolescent development. In a case study research project examining how "anchored modular inquiry" supported the learning of pre-service teacher candidates, the authors found many promising aspects of this approach to teaching and learning. Outcomes included enhanced learner engagement, more time focused on tasks, appropriate individualization of content and feedback, and a greater depth of personalized connection of the material rather than rote memorization of theory or concepts (PT3, 2003).

The *How People Learn* course draws from the knowledge base of learning and development. It seeks to captivate candidates and engage them in their work; it aims to build on their differential initial understandings and developmental levels; and it grounds the work in the context in which they will be applying the knowledge they acquire—schools and classrooms. Other institutions may apply these concepts in different ways, of course, but they should remain focused on the underlying goals and features of effective coursework to build and apply knowledge of human development and learning.

III. Organize Experiences to Apply the Knowledge Base of Child and Adolescent Development in Classrooms, Schools, and Communities

We demand that teachers succeed in a constellation of complex tasks. This mastery of complex material is fostered by mutually reinforcing ideas and experiences, opportunities to develop and apply skills across different learning experiences, and multiple occasions for practicing and refining what is being learned (National Research Council, 2000). Teacher education is intended to support teachers' abilities to learn in and from practice. In the simplest terms, one cannot learn how to apply knowledge and principles of practice without actually practicing. As Dewey suggested, "The only adequate training for occupations is *through* occupations." This certainly holds true for the acquisition and application of knowledge of child and adolescent development and learning in support of quality teaching.

Quality instruction is extraordinarily difficult to generate, and it will not be achieved through alone. Thus, concomitant with opportunities to explore and understand the knowledge base for the profession its possible applications to coursework, teacher preparation requires extensive clinical experience. Teachers need to have sustained and supported opportunities to practice, using tools that help them understand where the student is coming from, where the student is currently, where the student is headed, and to link the path of the student to educational aims. Successful teacher preparation programs and pathways provide deep and sustained opportunities for clinical practice to foster the development of quality instruction through the application of knowledge of child and adolescent development and learning.

This point is underscored by recent research from the Teacher Pathways Research project, a partnership between the University at Albany and Stanford University that examines pathways into the teaching profession in the New York City public school system. One of the key findings of this effort is the importance of the clinical experience in enhancing teacher effectiveness:

*Teacher preparation that focuses more on the work of the classroom
and provides opportunities for teachers to study what they will be doing
produces teachers who are more effective during their first year of teaching.
As an example, programs that provide more oversight of student teaching
experiences or require a capstone project supply significantly more effective
first-year teachers to New York City schools. Teachers who have had the
opportunity in their preparation to engage in the actual practices involved in
teaching (e.g., listening to a child read aloud for the purpose of assessment,
planning a guided reading lesson, or analyzing student math work) also show
greater student gains during their first year of teaching. ... Student teaching
and the congruence of the student teaching placement are also positively
associated with student learning in ELA and math, for first-year teachers.*

(Boyd et al., 2008)

Furthermore, clinical experiences must provide ample opportunities for practice under the watchful care of experts who themselves deeply understand the knowledge base in the field and its fruitful application. These mentoring teachers and supervisors should themselves be applying principles from the field, with both their classroom pupils and their teaching candidates. Such practice involves modeling, co-planning, supported opportunities for observation and practice, and frequent feedback, all designed with an understanding of the teaching candidate as an adult learner with specific strengths, interests and needs.

Clinical experiences occur in locations (the placement sites) and are conducted by personnel (supervisors, cooperating teachers, principals, etc.), both of which require thoughtful selection and support.

The placement site, which includes the students (and their families), the teacher, the classroom, the school, and the community in which the school is embedded, must balance several demands. Clearly, as the placement site must model and provide multiple supported opportunities for the candidates to practice application of child and adolescent development and learning with children and their families, the placement site needs to manifest an evidence-based developmental orientation to teaching and learning.

Since the best of what we know, however, is neither static nor fixed, the placement site must also be one where the generation and integration of new knowledge and practice is also modeled. Professionals are prepared to make complex decisions under conditions of uncertainty, and the clinical experiences should be conceived of as part of one's professional education: these experiences are not direct apprenticeships designed to inculcate in new group members a set of traditional behaviors and habits. Teacher candidates must be provided opportunities to build and refine practice, but to do so in ways that help them understand how to use their knowledge and skills flexibly to help diverse students learn in varying contexts.

Another balancing act faced by preparing institutions in the design of clinical experience is the need to prepare candidates to survive and thrive in the world as it is while encouraging them to change that world for the better. Though schools and districts do not always exhibit the best of what our knowledge base in the field might suggest, these placement sites are the

bridges from pre-service preparation to the next phases of teachers' professional practice and growth. Preparing organizations must link the best available knowledge with current practices in the field—in ways that do not reinforce behavior that is unsatisfactory—while keeping the connection between the knowledge base and practice productive and viable. Preparing a candidate for a world that does not exist might hurt his or her real-world efficacy; on the other hand, preparing a candidate to continue less than satisfactory practices has equally unsavory effects, especially for the children and families who he or she will serve. Placement experiences can be used to prepare teachers to be "critical consumers" of existing materials and practices, helping candidates use them selectively to "fit in" with the world they are entering while providing a vision of a better world and the tools to realize it.

The personnel responsible for supervising and supporting these clinical experiences require careful selection and support as well. Both college- and school-based clinical teacher educators need specialized toolsets of knowledge and skills. Clinical faculty understand the daily practice of teaching in schools, the contexts of schools in communities, the policies and politics of schooling, and classroom decision-making. They are able to draw on the knowledge base for the profession, possessing a deep knowledge of child and adolescent development and learning, knowledge of the subject matter areas commonly taught in schools, and a strong repertoire of pedagogical strategies. They also possess the capacity to translate that knowledge into practical application for children in classrooms and communities.

(In fact, given the importance of families and communities in the growth and development of children, special attention may need to be given to selecting and supporting clinical teacher educators with that set of knowledge and practical capabilities.)

In addition, these "hybrid-educators"—comfortable in both academic and professional realms—need to be exemplary teachers/mentors of adult learners. Because clinical teacher educators reside within and between multiple worlds (the worlds of the higher education institution, the classroom, the school, the district, and the communities in which the school and district are embedded), they must possess remarkable interpersonal and inter-institutional skills.

As with all educators, time is essential for clinical teacher educators. Even a person with all of the ingredients listed above will be unable to use them effectively without sufficient time: for the recipe to work, clinical educators need time to grow the human relationships necessary for development (whether a child's, an adolescent's, or an adult of any chronological age). They need time to work with candidates; to collaborate and coordinate with instructors and other program personnel; to collaborate and coordinate with school(s) and school-based teacher educators (cooperating teachers, principals, etc.); and to come to know and work with the communities that raise the children for whom the entire endeavor is undertaken. Perhaps even more basic, given the magnitude of the task of learning and applying knowledge of child and adolescent development and learning, candidates need an in depth, well-supported, time intensive clinical experience.

Organize Experiences to Apply the Knowledge Base of Child and Adolescent Development in Classrooms, Schools, and Communities

Exemplar: University of California at Santa Barbara

The University of California at Santa Barbara's (UCSB) Teacher Education Program offers several credential options as well as an M.Ed. in teaching. UCSB's programs are year-long (12-14 months), full-time, and post-baccalaureate. The programs are cohort based, and UCSB recommends approximately 100 teachers each year.

For UCSB's Single Subject teaching candidates, the clinical experience encompasses a full academic year beginning when teachers in local partner schools first report to duty in August and continuing until pupils in local schools are dismissed for summer break in June. In that time, UCSB orchestrates a tightly structured, intensely supported and closely supervised experience to help the candidates strengthen their knowledge base and pedagogical skills.

The design of UCSB's clinical experience is premised on an understanding of the needs of the teacher candidate as a growing professional and learner. Several components of the program's clinical experience exemplify those understandings. First, the clinical experience is extensive and immersive. Recognizing that novices to the profession require ample opportunity to both observe and enact the knowledge, skills, and dispositions necessary to achieving effective teaching practice, the program places candidates in classroom contexts for the entirety of the academic calendar of UCSB's local partner schools.

Candidates in the secondary programs spend the first academic semester in two different placements, each for seven weeks: one placement at the junior high level and one at the senior high level. In the second semester candidates are placed full-time at either the junior or senior high level, depending on their teaching interests.

UCSB focuses on a scaffolded learning experience that takes into account the developmental trajectory of the teaching candidate. Throughout the year-long field placements, teacher candidates move through a process of "gradual induction" at the beginning of the school year to "supported immersion" during the second semester in what one former teacher educator there called "the toe in the water" approach.

Recognizing that the "sink or swim" method is neither productive nor educationally sound for professional preparation, the year begins with candidates largely observing and learning from their mentor teachers while taking on increasing responsibility as deemed appropriate in consultation with their mentor teacher and supervisors. Teacher candidates play active roles in their classrooms early in their placements, supporting individual students and small groups and implementing small learning segments with the support of their supervisors and cooperating teachers. Over time, candidates extend their responsibility to planning and instruction, taking ownership of learning segments that increase in length and complexity.

By the end of the first seven week placement, candidates are expected to be able to plan and instruct a sequence of lessons over a three day period in one class; by the end of the second seven week placement, candidates are expected to plan and instruct a sequence of lessons over a ten day period in one class.

The second semester experience might best be described as "supported immersion." Candidates take on full responsibility for the academic content and student progress in one instructional period, under the continued guidance and support of mentor teachers and supervisors. Typically, candidates will also either observe or co-teach the same content assigned in their primary placement with their cooperating teacher during another period, to take advantage of modeling and mentoring possibilities that support their teaching in their primary placements. Candidates have additional responsibilities throughout the school day, including the continuation of their year-long Literacy block placement—a clinical experience, in addition to the student teaching placement, that focuses on literacy across content areas and sustained experiences with struggling students—and a requirement to spend one period a day observing and learning from other teachers at the school.

Because candidates are expected to be on site full days, the field placement experience provides opportunities for UCSB candidates to participate more fully in the professional life of the school community, to integrate with the school faculty, and to walk in the shoes of a teacher through the daily routine of professional work. This extended time at the school site allows candidates opportunities to plan with other teachers, attend meetings, connect with parents, talk with cooperating teachers along with teaching, counseling, and administrative colleagues, attend professional development activities, observe and use school resources outside of individual classrooms, and see the progression of a complete school year. In this ways UCSB considers the full range of professional responsibilities of the teacher and provides commensurate and appropriate learning experiences for its candidates.

In addition, the design of the year-long clinical experience is well-integrated with the academic content covered in university coursework, building on the program's understanding that learning practice requires repeated opportunities to test and re-test one's applications of child and adolescent development knowledge in classrooms, schools, and communities. Academic assignments are connected to clinical experiences: the year-long course on literacy development, for example, connects to year-long field placements in literacy blocks at partner schools. Moreover, candidates are supported by both content and literacy supervisors, in addition to their cooperating teachers and on-site supervisors, further integrating the learning experience. The result is a cohesive, well-articulated program of study that guides candidates through the early trajectory of teacher education.

Finally, the level of support provided to teaching candidates is representative of the entire program's dedication to meeting the learning needs of its candidates. UCSB builds a learning support team that takes into account the key learning goals and needs of the developing teacher candidate. In addition to the mentoring teacher, a candidate's support team includes both a university-based on-site supervisor and a school-based on-site coordinator, both of whom work to build bridges between the university and the field to ensure continuity, cohesion and collaboration in the candidate's experiences. In addition, UCSB faculty who

instruct in the content methods and literacy courses support candidates in the field through ongoing supervision and on-site mentoring.

To aid the growth and development of each candidate, the support team provides regular progress assessments and ongoing feedback and requires frequent reflection on and revision of professional practice to improve student learning. The university- and school-based supervisors co-lead a regular seminar on "professional issues" on site at the partner school to discuss connections between coursework and clinical experience and to respond to candidates' questions, concerns, dilemmas and successes as they apply what they are learning at the university to the classroom.

For more information on UCSB's program, see
http://www.education.ucsb.edu/Graduate-Studies/Teacher-Education-Program/home.htm

Organize Experiences to Apply the Knowledge Base of Child and Adolescent Development in Classrooms, Schools, and Communities

Exemplar: Urban Teacher Residency Programs

Adapted from Berry et al. (2008).

Urban Teacher Residencies offer an innovative approach to reinforce the connection between coursework (theory and research related to the knowledge of child and adolescent development and learning) and practice (the application of that knowledge in schools and classrooms). Urban Teacher Residencies are guided by a set of principles that define the components of a high quality residency approach to professional preparation and on-going teacher development:

- Weave education theory and classroom practice tightly together in a year-long residency model of highly relevant teacher education;
- Focus on residents' learning alongside a qualified, experienced, and well-compensated mentor;
- Prepare candidates in cohorts to cultivate a professional learning community, foster collaboration, and promote school change;
- Build effective partnerships and draw on community-based organizations;
- Serve particular school and district contexts by attending to teacher supply problems, curricular goals, and instructional approaches;
- Support residents for multiple years once they are hired as teachers of record; and
- Establish incentives and support differentiated career goals to retain residents and reward accomplished and experienced teachers.

While these principles play out differently in different contexts, in general, the residency model pairs master's level professional coursework with a rigorous full-year clinical experience under the supervision of expert teachers who have been prepared and are well-supported to mentor beginning teachers. Residencies recruit distinguished, committed college graduates and mid-career professionals who are interested in teaching in content-shortage areas and/or traditionally underserved schools and communities. In some ways similar to the medical internship, each resident is assigned to a classroom for the year where, in the typical model, he or she works alongside an experienced mentor four days a week. On the fifth day of the week, residents complete a rigorous, well-considered academic program to prepare them for their work as classroom teachers. Such coursework typically focuses on building subject matter

knowledge, knowledge of pedagogy, and knowledge of child and adolescent development and learning. During this year, under the watchful eyes of multiple coordinated mentors and instructors, residents gradually take on increasingly more complex classroom responsibilities. With the mentors acting as guides, residents have multiple opportunities to apply, analyze, revise and re-apply knowledge of development and learning through the specific, concrete processes of teaching: they write lesson plans, create constructive classroom environments, engage students in learning activities, and assess student progress. By the end of the residency year, the prospective teachers have gradually taken on the full responsibilities of a classroom teacher. Every step of that journey is supported with personalized professional guidance for the resident and, of equal importance, with constant safeguarding and protection of children's educational opportunities.

Following the residency year, residents become teachers of record in their own classrooms and continue to receive mentoring for three additional years (in the most well-established of existing residency models). Residents receive stipends and master's degrees and credentials upon successfully completing the residency program. Early results from Boston's and Chicago's Teacher Residency models are quite promising, including very high retention rates for their beginning teachers (Berry, et. al., 2008).

The residency model provides multiple teacher preparation structures to support the acquisition and application of child and adolescent development and learning knowledge to support teacher candidate and student learning. These structures provide the time (a full year), the learning site (e.g., a carefully selected school willing and able to take on the dual roles of educating children and prospective teachers), the relationships that support adult learning and reflection (e.g., close individualized mentoring relationships with experts and a cohort structure for peer support), and a schedule that demands that candidates, clinical mentors, and academic instructors simultaneously and collaboratively test theory in practice and practice in theory.

IV. Design Programs with Cohesive and Consistent Emphasis on Child and Adolescent Development

In order for candidates to become the teachers we want for our children, all the elements of their professional preparation programs must push in the same direction. Toward this end, programs should seek to provide cohesive and consistent opportunities for learning, over time and in multiple contexts. Studies of teachers' learning suggest that when teachers have opportunities to reflect on their work and to connect it to research and theory, they are better able to identify areas in need of improvement, to consider alternative strategies for "next time," and to problem solve and reason through teaching dilemmas (Freese, 1999; Hammerness, et. al., 2002; Laboskey, 1992). Program cohesion and consistency support the

development of candidates' successful acquisition of the knowledge, skills, and dispositions necessary for effective teaching (Wideen, Mayer-Smith, & Moon, 1998); achieving this cohesion and consistency requires preparation programs have shared, but not prescriptive or ideologically-driven, visions of quality teaching that inform program structure, design, and decision-making and are consistently offered across all component parts. This also requires programs to possess clear—but flexible and contextually applied—standards of practice and performance that guide the design and assessment of candidates and programs. Furthermore, this requires program faculty, staff, and clinical support providers (cooperating teachers, supervisors, etc.) to understand and effectively articulate the knowledge base in child and adolescent development and its appropriate application in classroom instruction. Within the context of this paper, that means multiple opportunities for candidates to learn and apply knowledge of child and adolescent development and learning and to do so in ways that are well-considered and connected, and cohesively cultivate the types of teachers our children deserve and the well-being of our communities require.

For teachers to achieve their goals, programs must consciously and proactively integrate theory, research, and practice within courses and clinical experiences throughout the professional education process, and do so deliberately and purposefully. Application should be considered in coursework, and theory and research should be considered in clinical experiences; this requires both college- and school-based clinical educators to know the relevant theory and research and have access to the resources to scaffold the beginning teacher's capacity to use theory and research in the crucible of the classroom.

This principle does not suggest that all programmatic faculty must always agree on any particular pedagogical approach or use the same disciplinary perspective or language. As Stott & Bowman (1996) point out, "In order to help students understand the importance of using theory as an aid, rather than a straightjacket for thinking, we present multiple theories and discuss their evolution, overlaps, and inconsistencies." (p. 172) It does mean, however, that programmatic offerings must intentionally support the candidates' ability to value and understand the roles of differing perspectives and approaches. In sum, the design and flow of teacher preparation programs should be both intentional and purposeful.

It bears repeating that deterministic attitudes about children, as well as about teachers, are detrimental to their development. Cohesion and consistency do not suggest inoculating teachers (or teacher educators) with the one perfect practice to use with all children in all contexts. Rather, they suggest providing multiple tools, and practice in how to use those tools flexibly, creatively, enthusiastically, and empirically, and to do so in a way that fits together thoughtfully and purposefully. This necessitates opportunities to try techniques and observe what works or doesn't work with particular sets of students in particular subject matter contexts, to analyze how those techniques work or don't work, and for whom they work best, then try them again with the benefit of an enriched perspective rather than give up, label a child a failure, or repeat a performance slower and louder. Cohesion and consistency make possible the "theorize, practice, re-theorize" model of teacher learning by providing opportunities for trying, stepping back, and analyzing one's own preconceptions with the scaffolded support that such intellectual and artistic rigor requires.

This principle of practice allows beginning teachers to learn to move back and forth between the abstract and the concrete; they learn to translate research into practice and then empirically analyze the value and accuracy of that translation in the worlds of classrooms and schools. (What worked? For whom? Why? Why not?)

Design Programs with Cohesive qnd Consistent Emphasis on Child and Adolescent Development

Exemplar: The "Ability-Based Curriculum," Alverno College

Adapted from Darling-Hammond (2006).

The work of Alverno College in the areas of standards and teaching performance assessment is well known and well documented (see, for instance, Zeichner, in Darling-Hammond, 2000). Alverno's teacher education program uses continuous exhibitions of teaching performance, benchmarked against standards of practice, as the overarching frame for its work. Alverno's "ability-based curriculum" and its companion set of performance assessments serves as the unifying thread to this well-regarded teacher preparation program. Teacher candidates are continually and explicitly assessed in relation to clearly defined standards of professional practice. Learning opportunities in the program are also driven by this shared vision of the practice of exceptional teaching, from their very first day at Alverno when they videotape themselves giving a short speech to their peers (a task which will be repeated and re-evaluated later) to a much later assessment in which a group is evaluated while they collaboratively plan a lesson together. Moreover, Alverno's ability-based curriculum and assessments underscore the institution's developmental orientation: abilities are assessed according to six developmental levels that outline increasingly complex knowledge, skills, and dispositions that students must demonstrate. In general, these levels begin with the ability to identify particular skills or behaviors, progressing through the abilities to analyze, evaluate, and demonstrate those skills and behaviors, and, ultimately, to facilitate their acquisition and use in schools and classrooms with students and their educator colleagues. Alverno's approach to teacher learning relies on their understanding of the nature of growth and development in the teaching profession.

In both specific assignments and the portfolio that serves as a gateway into student teaching, Alverno's system provides candidates multiple opportunities to learn and apply knowledge of children and adolescent development and learning and utilize core principles of a developmental approach to professional education.

One of the program's assignments, for instance, requires candidates to work in collaborative groups to develop teaching plans. Before they begin their assignments, candidates are given a list of the specific criteria that will be used to assess their performance; one asks whether or not the teaching plan "[a]ssesses the developmental level of the learner's performance and provides sufficient evidence to support the judgment." This requires candidates to use their knowledge of child and adolescent development and learning to assess a specific group of individual students. In doing so, they begin to understand how the "general" plays out in the "particular." Careful analysis

of student work helps candidates develop the capacity to assess what students already know and what pre-existing partial or less powerful conceptions are obstructing more powerful subject matter understandings.

A second criterion for the assignment asks if the candidate "[d]iagnoses areas requiring attention/instruction and provides an appropriate teaching plan." This requires candidates to apply their knowledge of child and adolescent development and learning by generating strategies appropriate to the strengths, interests, and needs of their particular students in the subject matter area of the lessons.

Two other criteria for the assignment measure the extent to which the candidate "[c]ontributes to the group discussion of the process" and "[a]ssesses [his or her] own performance on all components of the task." These two criteria manifest the developmental teacher education principle that programs take candidates' development into account in the professional preparation process: beyond fulfilling the professional standards of practice requirement that teachers collaborate with each other (an outcome goal), such collaboration supports the learning of the candidate (a process theme). The requirement that candidate's continually self-assess performance encourages adult candidates to monitor their own learning and professional growth toward professional practice that will someday help schools meet their goals and the commitments made to children and families. A student teacher put it this way:

> They're always asking you how you could have done it differently, how you could have done it better, what are some changes you would have made? They always throw the ball in your court at Alverno. They are asking me to be just better and better, to constantly revise and reassess.

Alverno teacher candidates assemble a number of such performance assessments into a portfolio that provides the basis for an interview assessment that serves as the gateway to student teaching. In this way, even as a candidate begins student teaching, Alverno meets the prime directive of professional education by protecting the educational rights of children. Even under the watchful care and guidance of an experienced teacher, Alverno does not place candidates into teaching roles in classrooms without assurance they are prepared.

Students create portfolios by reviewing their work in all of their courses to date and making decisions about what represents their strengths. They collect artifacts of written work, lesson and unit plans, videotapes of their work with pupils, instructional materials they have created, and letters of commendation from family members of their students. The latter is particularly noteworthy, as it predicts a candidate's ability to know and work with families, an essential application of the core principles of child and adolescent development and learning.

Alverno's program-wide integration of content, pedagogy, and assessment reflects the belief that learning occurs best when learners understand why they are learning something, when there are multiple ways for candidates and faculty to share and assess candidate learning, and when multiple opportunities exist for candidates themselves to observe and further develop what they have learned. In this way, the model provides clarity without prescription; in fact, it demonstrates how clarity is, itself, generative.

For further information on Alverno's model, see Alverno College Office of Research and Evaluation, 1995.

Design Programs with Cohesive and Consistent Emphasis on Child and Adolescent Development

Exemplar: School Development Program University Partnerships Yale Univeristy

Adapted from School Development Program (2008).

The Yale School Development Program (SDP) models the value and impact of program cohesion spanning the divide between schools and preparation institutions. SDP was established as an effort to arrange an entire teacher education program on a developmental framework, and it includes a deep and considered commitment to the care of the school context in which teaching candidates hone their practice.

Working in context-specific ways with each of the partnering institutions, the partnership:

- Helped the schools of education place faculty in the field to encourage change in school and classroom practices, policies, and procedures;

- Helped teacher candidates, with faculty guidance, learn to apply developmental principals in practice in those schools;

- Increased the number of candidates willing and able to work in environments serving disproportionate numbers of under-developed students;

- Supported course work, organization, and collaboration changes in teacher education programs that assisted candidates' capacities to apply knowledge of child and adolescent development and learning in traditionally underserved school and classroom contexts.

The goal of the partnerships was to collaboratively create structures based on child and adolescent development knowledge and skills that would be used by school staff to carry out all school activities. These partnerships provided the structure and processes necessary to mobilize adults to support candidate and student learning and overall development by providing an operating system that works for schools and the students they serve. Three structures, three operations, and three guidelines shaped the creation of school climates, cultures and practices intended to support desirable adult interactions and, in turn, student development and learning.

Three team structures composed the basic framework on which the partnership's school-based activities were built. The School Planning and Management Team developed a comprehensive school plan, set academic,

social, and community relations goals, and coordinated all school activities, including staff development programs. The team created critical dialogue around teaching and learning and monitored progress to identify necessary adjustments and improvements. Members of the team include administrators, teachers, support staff and parents. The Student and Staff Support Team promoted desirable social conditions and relationships. It connected all of the school's student services, facilitated the sharing of information and advice, addressed individual student needs, accessed resources outside the school and developed prevention programs. Serving on this team were the principal and staff members with expertise in child development and mental health, such as counselors, social workers, psychologists, and nurses. The Parent Team involved parents in the school by developing activities through which the parents could support the school's social and academic programs. Composed of parents, this team also selected representatives to serve on the School Planning and Management Team.

All three teams adhered to three guiding principles throughout their work: No Fault, Consensus Decision-Making, and Collaboration. These structural teams and guiding principles placed the students' developmental needs at the center of the school's agenda and established shared responsibility. Concerned adults worked together to provide students with the developmental activities lacking outside the school; they also worked together to make effective decisions about the program and curriculum of the school based on student needs.

Central to their work were three school operations, which were supervised by the School Planning and Management Team. These three operations focused the work of the school on the growth and development of children and provided a model for the support of adult development and learning.

- Development of the Comprehensive School Plan including curriculum, instruction and assessment, as well as social and academic climate goals based on a developmental understanding of students;
- Provision of Staff Development intended to achieve the goals of the Comprehensive School Plan; and
- Assessment & Modification providing new information and identifying new opportunities based on the data of the school's population.

Combined, these structures and processes provided the organizational, management and communication frameworks for planning and managing all the activities of the school based on the developmental needs of its students. When fully implemented, the process engendered a highly positive school climate, stability, and an instructional focus that supported teacher and student learning and development.

In addition to working and learning with the schools to create conditions that supported student and teacher learning, the participating colleges and universities enacted changes in their programs to increase and integrate the opportunities teacher candidates had to learn and apply knowledge of child and adolescent development and learning. In the case of the Eastern Michigan University/Detroit Public Schools Partnership, for instance, Eastern Michigan University enacted several cross-departmental changes that provided a program-wide, consistent emphasis on the development of the whole child as the function of the teacher:

1. The College of Education provided student teachers, pre-student teachers, administrative support, family parent team support, student counselors and College of Education staff for the Comer Children Leadership training;

2. The College of Health and Human Services provided student nurses, occupational therapy and physical therapy students;

3. The School of Social Work provided Social Work Interns.

In the case of the Drury University/Springfield Public Schools Partnership, Drury University:

1. Assigned a full time Director of the Developmental School Program (whose time was split between the School of Education and Child Development and coordinating efforts with the three partnering schools);

2. Placed all faculty in the School of Education and Child Development to work in partnering schools;

3. Included the principals at the partnering schools as members of the Teacher Education Council and the Teacher Advisory Council;

4. Taught the practicum component of the methods courses within the schools with faculty members and teachers co-teaching the class;

5. Granted teachers at participating schools tuition remission for graduate courses at Drury in exchange for work with pre-service teachers in field experiences and methods courses;

6. Hired selected principals and school teachers as adjunct professors for the School of Education and Child Development;

7. Incorporated components of the SDP reform model into all courses in the School of Education and Child Development;

8. Required the course "Home, School, Community: The Comer Process" for all students pursuing an M.Ed.;

9. Took undergraduate students to Yale University to participate in the training of the SDP reform model; and

10. Co-hosted a conference with SDP in Springfield, MO that addressed issues plaguing urban schools.

These structural changes clustered key resources (people, time, expertise) around a core set of knowledge and practices in the areas of development and learning.

Studies of Comer Schools conducted by the School Development Program and by independent researchers indicate significant effects on school climate, student attendance, and student achievement. Effects are generally first manifested in the improvement of school climate (indicated by improved relationships among the adults and students in the school), better collaboration among staff members, and greater focus on the child as the center of the education process. Research has also shown that in schools where the Comer Process was followed consistently, there was a significantly greater reduction in absenteeism and suspension than in the district as a whole. Comparative studies of Comer and non-Comer schools also demonstrated that student competence, self-concept, and achievement improved significantly for Comer students compared to non-Comer students (Noblit, et. al., 2000; Cook, et. al., 2000).

Despite these promising results, however, personnel turnover, policy changes, and difficulty in institutionalizing funding have made sustaining the partnerships difficult.

For further information on the School Development Program see http://www.med.yale.edu/comer

V. Model Professional Teaching Practices

Several pedagogical strategies lend themselves to cohesive and consistent opportunities for learning, over time and in multiple contexts, supporting candidates' capacities to "put it all together." Case study methods, teacher research, and performance assessments all promote, in a developmentally meaningful way, the productive integration of theory, research, and practice. They do so because they provide candidates with repeated opportunities to understand a set of conceptual ideas, along with repeated chances to practice skills and modes of analysis. In soothe process, they support deeper learning and the development of expertise (Ericsson, Krampe, & Tesch-Romer, 1993; NRC, 2000).

Case study methodologies offer one example of a pedagogical approach that works to support a depth of understanding of the knowledge base in the field and its application in the teaching and classroom contexts (Shulman, 1992). A program could begin in initial coursework with cases of exemplars of high quality practice, cases that could "show" practice in ways that manifest developmental foundations. Later in the program, drawing from their own emerging knowledge from course work and clinical experiences, the candidates could write their own cases. These cases most likely would be more dilemma-oriented than "exemplary practice" cases. Then, working together, beginning teachers, with the help of a mentor, could "work these cases" to do the kind of analysis required to traverse the difficult terrain between the

beginning teacher and the experienced professional. Such repeated, long-term use of case methods (pre-developed cases, candidate-developed case studies; case conferences about children and/or teaching issues) could serve as a unifying thread between course work and clinical experience while challenging candidates' thinking and skills as they observe and analyze children's growth and development and the contextual interactions that teachers create to promote or inhibit learning. Recent technological developments offer a host of electronic, web-based case studies and video samples of effective classroom practice that can serve as useful tools from which teacher educators and their teaching candidates can learn.[3]

Curriculum-embedded performance assessments—of the type described earlier as practiced at Alverno College—provide another tool to support teacher professional development that complements the needs of adult learning and the complex demands of teaching. This is consistent with how Meisels (1999) recommends assessing readiness in young children: "[p]erformance assessments are founded on the notion that learning and development can only be assessed over time and in interaction with materials, peers, and other people" (p. 57) They provide opportunities for the beginning teacher to learn, practice, and assess his or her growing knowledge and skills over time in multiple different contexts. When done well, performance assessments also "[e]ncourage meta-cognition and the capacity to articulate as well as reflect on performance. Through performance assessments, [teachers] are engaged in the learning process. They evaluate their own work and reflect on their own progress, rather than being passive recipients of instruction" (p. 57).

Performance assessments also provide opportunities to demonstrate the teacher's growing capacities to others: peers, mentors, and—sometimes—more formal assessors. These multiple reviewers, when prepared and supported and in possession of local standards aligned with more broadly recognized external professional standards, can use those demonstrations for multiple purposes, including individual support and evaluation and programmatic improvement (Darling-Hammond & Snyder, 2000).

When thoughtfully and intentionally combined, these professional pedagogical practices support multiple teacher goals. They help clarify goals, articulate what performance consists of and looks like, model and demonstrate, scaffold, make thinking visible, and encourage practice with coaching. These processes build the vision, tools, practice, dispositions, and understandings of new teachers, developing the ability to use knowledge of child and adolescent development to support student learning until it becomes second nature.

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[3] (See, for example, (1) *The Learning Classroom*, an Annenberg CPB video course on the integration of learning theory into classroom practice for K-12 teachers: http://www.learner.org/resources/series172.html; (2) *The Gallery of Teaching and Learning*, from the Carnegie Foundation for the Advancement of Teaching: http://www.carnegiefoundation.org/resources/gallery-teaching; and (3) the *Images of Practice* collection from the National Center for Restructuring Education, Schools and Teaching: http://www.tc.edu/ncrest/images.htm.

Model Professional Teaching Practices

Exemplar: Adolescent Case Studies
Stanford Teacher Education Program (Step)

Developing and writing case studies helps teaching candidates gather evidence of learning and development and apply their general knowledge and understanding of human development and learning they acquire through university coursework to the specific contexts of the individual student's learning and growth in classrooms, schools, and beyond.

Adolescent Development and Learning is a required course for all secondary candidates in the Stanford Teacher Education Program (STEP). The course is taught by three tenured faculty members in the School of Education; it includes extensive reading and discussion of the principles of human development and learning. As stated in the course syllabus:

> *The focus of this course is on principles of adolescent development and learning in family, school, and community contexts. Candidates examine adolescents from biological, psychological, cognitive, and social perspectives. We are particularly interested in school, community, and broader culture influences on adolescent development, how adolescents learn and what motivates them to learn, and how schools and teachers can make an important contribution to adolescents' growth by teaching in ways that "fit" the developmental and cultural needs of youth.*

All STEP courses have elements that link research-based coursework to the field experiences of candidates. The capstone assignment for *Adolescent Development and Learning* requires candidates to use the theory and research learned in the course to conduct a thorough case study on an adolescent from their year-long field placement in one of STEP's partner schools. The focus of the case study is on understanding an individual through a developmental-contextual perspective using the research and theory analyzed in the course.

The goals of the case study assignment include the following:

- *To look carefully at a developing adolescent in order to understand his or her social, psychological, cognitive, and academic development in school and non-school contexts and to evaluate the interaction between these areas of development.*
- *To examine how different social systems (school, peer groups, family) influence the concerns, identity development, thinking, and learning of the growing adolescent.*
- *To apply insights and principles from research on adolescent development and learning to a specific case.*
- *To learn to see and interpret the world from another's perspective.*

Candidates are encouraged to select a case study student who puzzles them in some way, one to whom they do not readily relate, perhaps an individual from a different social, cultural, language, racial, ethnic group, and/or gender background from their own. This helps the candidate build a deeper appreciation for both the common threads and the variations across developmental domains and trajectories.

Candidates collect data about their students from a number of sources: they observe the student in school and non-school settings (including the home and after school activities), interview the student; shadow the student throughout a full school day, assess the student's cognitive learning in a particular subject area, examine the student's cumulative folder, and analyze samples of the student's work.

The Case Study Assignment is structured to help candidates connect theory to practice on an ongoing basis through the course. Each week, candidates prepare a 1-2 page "log," a type of memo wherein they focus on a particular aspect of the knowledge base of adolescent development and learning and connect the research base to their case study student. The goal is to help candidates develop a strong understanding of their adolescent student based on the results of their observation and inquiry and their understanding of the literature on adolescent development and learning.

The following is a brief description of a few of the log assignments over the course of the quarter:

- *Candidates introduce their case study students through careful observation and reflection. They work on understanding the relationship of the individual's learning to the context in which the learning takes place.*

- *Candidates interview their case study students, focusing on the impact of family and peer relationships, self perceptions, motivations, and aspirations on the students' learning and development.*

- *Candidates build understandings of the cultural contexts in which their case study students grow and learn. The assignment underscores the notion that family, community, geographical location, designations of race and ethnicity, language, strong interest affiliations, religion, gender and sexual orientation are just some of the cultural contexts through which individuals acquire ways of being in the world and by which one may self-identify or be identified by others.*

- *Candidates also focus attention on the types of instructional experiences case study students experience throughout a full day, by shadowing their students across contexts, both in and out of school.*

Broadly speaking, these assignments focus teaching candidates' attention on the practical implications of understanding the complexities of development and learning. The final piece of the puzzle requires candidates to write about teaching practices that work well for their case study students and which do not. Candidates offer suggestions for improving the learning outcomes of their students based on the depth of knowledge they have at their

disposal, both in terms of the general knowledge base in human development and learning and their specific knowledge of their particular students.

Casework such as this does not come without thoughtful scaffolding and exceptional teaching. Quality cases are the result of careful thinking and analysis over the course of several drafts, including feedback from instructors and peers. Research analyzing the cases written for the course (Hammerness, Darling-Hammond, and Shulman, 2002) demonstrates that, through the case writing process, teacher candidates move from less constructive generalizations about their students' learning (students didn't "get it"; students didn't try hard enough; there wasn't enough time) to more expert interpretations based upon knowledge of child and adolescent development and the learning process. In a review of the impact of case study assignments in an adolescent development course, Roeser found positive impacts on both his own teaching and his students' learning. Students working on case studies found the work more engaging and personally and professionally relevant, and left with a deeper understanding of the material at hand (Roeser, 2002).

The outcomes of case study work generally include a keen appreciation on the part of the teaching candidates for the breadth and depth of understanding required for each individual student in their care and the need to build on their general understanding of adolescent development and learning in crafting the particular instructional practices that will help their specific students achieve their fullest potentials.

Developing and writing cases serves to focus candidates upon gathering evidence of learning, pushing them to enrich their capacities to articulate and understand what learning "looks like" (or does not look like) for particular students in particular subject areas. In short, case development provides opportunities to understand and apply general knowledge of child and adolescent development and learning to a set of specific conditions, including a particular student(s), classroom environment, subject matter area, school, and community.

For further information, see
http://suse-step.stanford.edu/secondary/curriculum/08-09_CourseDocs/Fall/AdDev/
EDUC240_Fall2008.pdf

VI. Shape Programs and Practices through Continual Renewal

Development resides in the interaction of the individual and the environment. As the environment changes—and it always does—so too does the development of the individuals within it. Moreover, at the same time, the individuals within an environment help to shape the contexts in which they reside.

The same is true for institutions: to thrive, they must grow and develop and do so as the contexts in which they work change and evolve (Peck et al., 2009; Lit, Nager, & Snyder, in press). The knowledge base in our field is growing rapidly; the contexts in which teachers

work and in which children live and learn are also rapidly changing. Consequently, it is the professional and ethical responsibility for both teacher educators and teacher preparation institutions to revise, enrich, and re-develop their practices, programs, policies, and partnerships on an ongoing basis. Our profession, and the multiple institutions that share the responsibility for the professional education of educators, must continue to learn and improve if we are to meet our aims for students and teachers. Thus, developmental perspectives and approaches are relevant and necessary from an institutional standpoint.

Such development and continuous renewal involves three mutually inter-dependent processes:

(1) Programs must strive to make their practices, policies, and programmatic outcomes visible, defined holistically and assessed with integrity, in all their wonderfully human complexity.

(2) Once visible, programs must become sharable both within and beyond the immediate programmatic community, sources of information and evidence upon which professionals can engage, deliberate, and make informed decisions. In this way, the profession fulfills its commitment to use the best existing knowledge and practices, as the profession is able to share the best of existing knowledge and practice.

(3) Ultimately, perhaps most importantly, once visible internally and sharable externally, practices, policies, and programmatic outcomes should become improvable through intra- and inter-institutional review and analysis. Rather than focusing on historically and ideologically driven debates, myths, and biases, professional educators and institutions can focus on genuine accountability: the responsibility for improvement for the sake of those for whom we are responsible.

Put in developmental terms, professional education institutions must be supported by administrative and faculty leaders who understand the need to nurture and foster their growth, given the contexts in which they work, with a knowledge of the strengths and needs of the organization, and with an eye toward the support necessary to achieve desired outcomes for our programs, graduates, and the students and families in their care. This can become the norm, the "developmental trajectory" of the professional education of educators.

Putting It All Together:
The Principles in Integrative Action

Exemplar: Erikson Institute

Institutional Overview

As described on its web site: "Erikson Institute is an independent institution of higher education that prepares child development professionals for leadership. Through its academic programs, applied research, and community service and engagement, Erikson advances the ability of practitioners, researchers, and decision makers to improve life for children and their families. The Institute is a catalyst for discovery and change, continually bringing the newest scientific knowledge and theories of children's development and learning into its classrooms and out to the community so that professionals serving children and families are informed, inspired, and responsive.

"All of Erikson's programs adhere to a cohesive set of values that embody the principles for the effective utilization of the knowledge base for child and adolescent development and learning. These include the following:

- *Relationship-based education: The Erikson approach to education recognizes the centrality of relationships in all learning.*
- *Commitment to social justice: Erikson seeks equality and justice in education and care for all children and all families.*
- *Diversity: Erikson prepares professionals to work with populations that vary in race, ethnicity, and physical and mental abilities.*
- *Complexity: The institute seeks to understand and value the interplay of various biological, psychological, cultural, historical, and social factors that influence each child.*
- *High standards and excellence: Graduates consistently report Erikson's academic programs to be exacting but more than worth the effort.*

"The learning objectives for students are derived from the Institute's mission, vision, values, and goals. A set of competencies has been developed in each of three domains: knowledge, practice, and reflection.

"**Knowledge**: Students will have an in-depth knowledge of how the child develops from birth to age eight from all perspectives: physical/motor, cognitive, social, emotional, and communicative/language. Knowledge competencies also include social and cultural influences, understanding programs, history and policy issues, content areas across the curricular areas

and pedagogy. Candidates have the opportunity to integrate that knowledge in order to form a picture of the whole child in the context of his or her family and culture to support the orchestration and execution of instructional strategies that support the child's optimal development. Erikson's curriculum offers a comprehensive, interdisciplinary understanding of child development.

*"**Practice**: Students develop professional practice skills and competencies during a year-long, closely supervised student teaching internship. Students develop and hone the full range of professional teaching competencies reflected in state and national standards.*

*"**Reflection**: In biweekly, one-on-one tutorials with a faculty adviser and in weekly seminars with a faculty member and fellow students, candidates develop self-knowledge and reflect on their practice. They reflect on their professional practices in relation to theory and research, develop an understanding of how their own history, experience, and cultural background influence their work, and are expected to be able to articulate a philosophy and rationale for their practice."*

Program Overview: Recruitment and Admission

Erikson provides an example of how one program manifests the principles of developmental teacher education within an exemplary master's-level birth-Grade 3 (Type 04) Illinois State Teaching Certificate.

The program begins with Erikson purposefully and consciously recruiting potential educational leaders, requiring two years of previous clinical experience anywhere where professionals interact with children and families along with a bachelor's degree and a minimum 2.75 GPA.

The admissions process includes an interview and three essays, designed both to assess the writing skills of potential candidates and to send the message that in the program—and in the profession—the ability to write well is essential. In fact, writing is considered so important that even after admissions (but prior to starting coursework) each candidate completes an additional writing assessment. If an admitted candidate does not pass or has difficulty with the writing assessment, s/he is assigned a paid writing tutor (who works with the candidate 1 hour per week), while those who need further help enroll in a 6-week writing class. Thus, while the program values writing, Erikson will not let a candidate with marginal writing skills flounder or fail.

The admissions interview seeks to determine whether or not potential candidates have knowledge and the capacity to use that knowledge to formulate and analyze practice. Thus, the programmatic theme and goal of "reflection" begins with the interview.

The course of studies can be completed in either two or three years. The course and clinical experience sequence for the two year model is as follows. (As with any quality program, a listing of courses cannot begin to display its holistic integration.)

Year One: Summer

Concepts in Teaching and Learning in the Disciplines for the Early Childhood Curriculum

Teacher candidates examine a network of key concepts in the disciplines of the sciences, mathematics, humanities, and social sciences. This course provides a framework for understanding the concepts, mental habits, and skills characteristic of professionals in each of the disciplines. The goal of the course is to prepare teachers to (a) recognize important "big ideas" in the disciplines, (b) become effective in facilitating children's emerging understandings and skills in the various domains of thinking as these understandings are cultivated in classroom life, and (c) design learning experiences that are responsive to the learning needs of children from diverse cultural and linguistic backgrounds, representing a range of special needs.

Year One: Fall

Human Development I-Psychosocial Development in Infancy and Childhood

This course focuses on the study of social and emotional development in children from birth through age eight. It primarily considers how children experience themselves and others; the role of relationships in development; and the interaction of biological, psychological and social forces. Throughout the course, culture is seen as shaping every aspect of human development and is reflected in childrearing beliefs and practices designed to promote healthy adaptation. Students are expected to acquire a working knowledge of the emotional and social domains of development through the integration of natural observation of infants, preschoolers, and school-aged children with instruction in relevant theory and research.

Physical Growth and Development

This course examines physical growth and development from prenatal through age eight, including the physical, neurological, motor, and sensory processes of maturation. In particular, students explore in depth the paths of typical development in these areas and then gain an understanding of atypical patterns and events that lead to developmental disabilities and delays. General health and wellness issues and common chronic conditions originating in childhood are discussed. Students will gain an appreciation of the importance of health status and individual sensory profiles in children's learning as well as the interrelationship of nutrition and physical movement in maintaining health and developmental progress. Strategies for observing neurobehavioral functioning in infants and children are explored and practiced.

Development of Cognition, Language, and Play-I

This course provides students with a basic understanding of cognitive development in children from birth to approximately eight years of age and an awareness of the application of this knowledge to children with diverse abilities and varying cultural backgrounds. The primary foci of the course are understanding (1) different theoretical frameworks for examining and analyzing sequences and variations in the processes of cognitive change; (2) the interactive relationship between the child and the social context in the course of development; (3) the interrelationship of cognitive development with other aspects of development; and (4) the role of play in young children's learning and development.

Year One: Spring

Family and Culture

Erikson Institute is committed to preparing early childhood professionals to work effectively with the children, families, and communities that represent the rich diversity characteristic of modern American society. Knowledge of the influence of key cultural and situational factors (such as language, race, ethnicity, gender, sexual preference, special needs, and social class) on child development is essential in working successfully and ethically in leadership roles with children and families.

Family and Culture is designed to help early childhood practitioners learn about diversity through an examination of social science research on child development, childrearing across cultures, and issues of equity, power and privilege. This course provides readings and discussions about the ways in which culture and context influence all aspects of child development, including definitions of "normal" development, constructs of disability, models of child competence, language development, identity, caregiver roles, and the role of institutions such as schools. The course also provides strategies for developing and maintaining supportive, sensitive relationships with children and families with distinct child rearing practices, language differences, racial identities, cultural traditions and economic vulnerabilities.

In addition, the course offers opportunities for critical self-reflection about cultural, racial, ethnic, sexual, and social class identities and how educators can engage in responsive and reciprocal relationships with children, families and communities different from themselves.

Development of Cognition, Language, and Play-II

This course develops students' understanding of typical and atypical language development in the first eight years of life and the principles that govern these processes. The language learning process (oral and written) is studied as an integral part of the development of thinking and of the child's sense of self in home and community settings, including school.

Students learn how factors such as age, sex, exceptionalities, and cultural experiences influence oral and written language competence and performance in all its variety at home, in community settings, and in school. Students examine the role of play, particularly with language itself and in conversations with adults, peers, and siblings in fostering language development.

Students learn how group experiences and quality children's literature in early childhood programs can be used to maximize language and literacy development. Students examine the relationship between communication delays and other areas of development and early learning. Students explore alternative communication systems for young children.

Children with Special Needs and Diverse Abilities

This course is designed for general education classroom teacher candidates to provide an overview of the growth and development of children with special needs and diverse abilities, with a special focus on those children classified as having learning disabilities. Candidates study characteristics of various disabilities and find out where to go for more in-depth information on specific types of special needs and related support services.

Teacher candidates consider the implications of various special needs and diverse abilities in both self-contained and inclusive settings, and in society more broadly. The course covers referral, assessment, specific teaching methods (including assistive technologies and alternative communication systems), collaboration among professionals, and partnership with families.

Teacher candidates study diverse cultural perspectives on special needs and the place of multicultural responsiveness in the development of Individual Family Service Plans (IFSPs), Individual Education Plans (IEPs), and inclusive classrooms. The course also details pertinent legislation affecting the education of children with special needs and diverse abilities. The course focuses on inclusion, the process of developing collaborative partnership between parents and teachers in the school setting, and being sensitive to the child within the context of the family. Issues of culture and diversity as they relate to children with special needs are also explored.

Assessment for Classroom Teachers

This course examines the construct and practice of assessment for classroom teachers of pre-kindergarten to third grade. The primary foci of the course include: (1) critical issues regarding assessment and accountability in schools, paying special attention to why assessment is necessary, who the various assessment audiences are (child, teacher, parents, school administrator, policymaker, public at large), what kind of assessment information is useful for each audience, and the time frame appropriate for such assessment information; (2) a variety of assessment methods currently used to evaluate teaching and learning in classrooms, including classroom-based observation, screening tests, achievement tests, learning diagnostic instruments, and curriculum-embedded and performance-based assessments; (3) assessment of specific curriculum content areas, such as the development of early literacy and mathematics; and (4) challenges and promises in using assessment results to improve classroom teaching and student learning.

Year Two: Summer

Preschool Curricular Approaches in Diverse and Inclusive Settings

This course examines the history of and current research base for quality education programs for preschool and kindergarten children of diverse cultures, languages, and economic and developmental backgrounds. The course explores how teachers of three- to five-year-old children can promote the development of knowledge and skills of thinking and symbolic representation in literacy, mathematics, science, social studies, physical growth, and the fine arts. Readings and discussion examine a range of philosophies of education to determine how they meet the needs of children from diverse cultural, language, and economic backgrounds. The course prepares future teachers to promote the intellectual potential of children from English speaking homes as well as English language learners (ELLs) and bilingual children. Teacher candidates learn to use a range of strategies for 3 to 5 year olds within a variety of learning activities such as dramatic play, group problem-solving, observation, direct instruction, and Socratic discussions.

Foundations of American Schooling and Bilingual Education

This course explores the historical, political, and legal foundations of early childhood and early elementary public education in U.S. schools, including the foundations of bilingual, English as a Second Language (ESL), and special education programs. Students also study the socio-cultural, pedagogical, linguistic, and political issues underlying current models of education for English-speaking and non-English-speaking children, as well as models for bilingual and ESL instruction.

Teaching and Learning in Diverse and Inclusive Settings: Science and Social Studies

This course examines the content and methods of teaching social studies and the sciences to young children from diverse family, linguistic, cultural and economic backgrounds in kindergarten through grade three. The course explores the big ideas and processes of inquiry in each domain, processes by which children learn, and methods for guiding children in conceptualizing the social and scientific world they inhabit. The primary foci of the course include: (1) Understanding the big ideas and inquiry processes in social studies and the sciences, and connections between the domains that teachers can utilize to bridge children's theories with new knowledge; (2) Creating learning environments that are child-centered, knowledge-centered, assessment-centered, learning-centered, and family-connected; (3) Methods of curriculum development, pedagogy, and assessment for the social sciences and sciences that help candidates structure learning activities where children learn to think, discuss, and inquire about topics in the disciplines. Candidates develop learning opportunities that explicitly address the needs of children from diverse backgrounds, including those with special needs and for whom English is a second language.

Year Two: Fall

While candidates must have extensive experience with children prior to entry into the program, and field experiences are required throughout the first year of the program, candidates begin their student teaching experience during the fall of their second year in the program. Nearly all of the student teaching placements are in Chicago Public Schools in carefully selected and supported classroom and school settings where candidates have the opportunities to observe and then experience how the program's continual "it depends" refrain actually works with children in classrooms, schools, and communities. The goal of the coursework during both the preceding summer and the fall term itself is to provide candidates with a set of possibilities (pedagogies) to try out (appropriately) with children and families. During the fall term, candidates have a two week September experience in the schools, then nine hours per week with participation in family/teacher conferences.

Teaching and Learning in Diverse and Inclusive Settings: Reading and Writing

This course prepares teacher candidates to guide young children from diverse family, culture and language backgrounds in learning to read and write. Teacher candidates learn to recognize and describe developmental stages in learning to read and write for 4- to 8-year-olds, describe and identify different factors that influence the learning process, and design curricula for reading and writing that meet the Illinois Learning Outcomes and Illinois Early Childhood Education Standards. Teacher candidates develop a framework for building a classroom library of fiction and nonfiction reading material that reflect the literary traditions and points of view of a diverse, multicultural society. Methods of teaching reading and writing use this broad base of literature to facilitate the integration of reading and writing with mathematics, science, social studies, and the arts.

Teaching and Learning for Diverse and Inclusive Students: Mathematics

This course examines the content and methods of teaching mathematics to young children from diverse family, linguistic and cultural backgrounds from kindergarten through Grade 3. The course prepares teacher candidates to use their knowledge of mathematics to develop children's abilities to approach and solve problems in the various areas of mathematical thinking, including number concept, geometry, probability, and measurement. Simultaneously, the course furthers the language and conceptual understanding skills of all children, including ELLs and individuals with special needs. Teacher candidates design and present lesson plans, develop curriculum plans, and use formal and informal strategies to assess children's thinking processes as well as their skills and knowledge. The pedagogical approaches studied respect mistakes and misunderstandings as learning opportunities for everyone.

Integrative Seminar: Classroom Management and Instructional Techniques in Diverse and Inclusive Settings

This course is the first part of a year long seminar designed to accompany teacher candidates' clinical experience and student teaching. In this seminar, teacher candidates 1) reflect on and further develop instructional techniques across the curriculum to prepare for student teaching; 2) develop a philosophy for and skills in classroom management; and 3) monitor emerging skills and understanding of each of the IL Early Childhood content standards and their expressions in Erikson's practice competencies. In this seminar, teacher candidates pay close attention to the dynamics that shape group life and transform it into a community that nurtures and includes all individuals, with particular attention to the needs of ELLs, bilingual children, and special needs children.

Year Two: Spring

During the spring term of their second year, candidates are in their field experiences all day, every day. As a result, the course load is significantly decreased, retaining only the integrative seminar and a weekly small-group tutorial.

Integrative Seminar: Classroom Management and Instructional Techniques

This course is the second part of a yearlong seminar designed to accompany teacher candidates' clinical experience and student teaching with children in diverse and inclusive settings. In this seminar, teacher candidates (1) complete all requirements of student teaching; (2) develop a philosophy for and skills in classroom management that are responsive to children from diverse backgrounds; and (3) further develop effective methods and instructional techniques for all curriculum areas as they participate in student teaching. Seminar (and tutorial) sessions help teacher candidates integrate theory and practice, refine methods of teaching, deepen their understanding of how to work effectively with children and families from diverse backgrounds, reflect on all aspects of professional teaching practice, and develop further goals for professional development.

Culminating Assessments

In addition to the assessments embedded in the integrative seminar that accompanies student teaching, Erikson has three further culminating assessments: the Comprehensive Exam, Assessment for Teaching and Learning, and a choice between a Teaching Portfolio or a Journal of Teaching Practice and Reflections.

Comprehensive Exam

The comprehensive examination is a four to five-hour examination, written in essay style, covering major substantive areas. The exam:

- Provides the faculty with concrete evidence of the teacher candidate's mastery of child development and early childhood education content knowledge, and the candidate's ability to organize and apply what has been learned; and

- Demonstrates teacher candidates have an integrated body of knowledge that they can apply in meaningful ways. Studying for the comprehensive exam is an appropriate way to integrate and apply this knowledge.

Assessment for Teaching and Learning

During the year of student teaching, all teacher candidates are required to complete the assessment of two children in all curricular areas twice. The goal of this assignment is to demonstrate skill and understanding in how to assess children for the purpose of furthering their learning and the candidate's teaching. To assist in this assignment, Erikson recommends using activities from Bridging: Assessment for Teaching and Learning in Early Childhood Classrooms (2007).

Journal of Teaching Practice and Reflection

Once a week, in each of the 10 weeks of full time student teaching, teacher candidates submit an extended journal entry of 2-3 pages. At the conclusion of the student teaching experience, after writing the journal entries teacher candidates write 5-7 page reflective summaries of their 10 journal entries. They address the following:

- What do you notice about the issues you wrote about? What patterns do you see in what you have been working on?

- How do your reflections and experiences connect with your philosophy of education?

- Relate at least three professional readings to the discussion summary of your journal entries.

Putting the Practice Principles Together

Erikson provides an example of how one program enacts all six principles of practice outlined in this paper and integrates them into a cohesive whole.

Candidates as Developing Adult Learners

Conceptually, structurally, and pedagogically, the Erikson program acknowledges and respects their candidates as developing adults. Conceptually, they make "reflection" both a core value and a goal of the program. They do so because all adult learning is enhanced by the accumulation of experiences, the gaining of knowledge, and the opportunity to stop and, as one faculty member put it, "set the camera in slow motion." This is particularly true in a process as humanly twisted and complex as becoming a teacher. There is no one simple right answer, but more often than not, in the catchphrase of the program, "It depends."

Considerable knowledge of child development is front loaded in coursework during the first term, and most candidates experience a major transition from seeking "The Answer" to accepting the answer is almost always "it depends." They learn the theories along with the critiques of those theories. What are different theories good at explaining, and what are they not as good at explaining? This transition to understanding and accepting that "it depends" expands dramatically in the spring term as "variability goes full scale" when the course work considerably expands the program's focus on home, community, and the culture of school, including "learning" as defined by state and national standards and testing regimes. Then, in the second year, when candidates are immersed in the crucible of the classroom, the dissonance so essential to development reaches a point where—without supportive acknowledgement and respect of the developing individual and social adult—it can constrain development.

Erikson provides multiple structures to support the reflective transition from candidate to teacher. At a very basic level, they provide the flexibility for the candidate to choose either two or three years to complete the program. (In general, the three year model is for candidates with little prior experience with children or with outside responsibilities that make the intensity of the two year program less suitable.) In addition, courses are offered both in the morning and in the evening, providing another source of flexibility for busy adults.

In both the two and three year program models, candidates are part of a cohort, another source of support for learning complex activities. In addition, throughout the entire program, candidates are part of either a proseminar or integrative seminar. The proseminar provides candidates collaborative opportunities to work through what they are learning in classes and in clinical experiences, as well as deal with the oft-times frustrating journey into a professional identity, within a peer environment facilitated by an expert. Importantly, the small groups also deal with the more concrete logistics of becoming a teacher: the group agenda includes licensing requirements, academic guidance, and an event in the profession related to what they are learning in classes and clinical experiences. During the 2008-09 academic year, for example, the groups discussed and debated policy initiatives that led to decreased time for naps in early childhood settings, seeking to understand reasons behind the policy and respond in knowledgeable and professional ways that applied their observation assignments. This group work, further, does not ignore the autobiographical; one of the assignments during the second year is for each candidate to write his or her own intellectual autobiography.

Pedagogically, throughout the entirety of the program Erikson emphasizes candidates learning with and from each other. The first class of the program provides a technologically supported discussion area. For the technologically shy, they include an incentive to come "on board"–class agendas, handouts, rubrics, and discussion questions are posted online. Following principles of adult learning, this provides immediate meaning and use for a new skill to be learned.

As candidates progress through the program, they present their work to their peers, work in groups (though often retaining an individual reward structure), and sometimes, going a step further, as in the assessment course, evaluate their final assignment. This helps prepare them

for the shared responsibility of children's outcomes that is part and parcel of a professional identity and a fundamental commitment of the profession.

This type of pedagogy requires both a deep understanding on the part of the faculty of the nature of the candidates as adult learners, and a lot of support in the "difficult conversations" and hard work of personal and professional growth; the Family and Culture course, for example, requires candidates to engage in difficult conversations while providing extensive structure and support for the those conversations.

Learning the Formal Knowledge Base in Coursework

A quick glance at the scope and sequence of course work shows the program creates opportunities for learning the three legs of the instructional stool (knowledge, skills and dispositions in subject matter, knowledge of children and their families and communities, and pedagogical strategies). More impressively, however, the program consistently provides opportunities for candidates to integrate and apply subject matter knowledge, knowledge of child growth and development, and pedagogical strategies.

The program opens with a "subject matter" course focusing on the disciplinary ways of knowing and inquiring in the subject matter areas where there are state standards for young children (e.g., math, science, literacy, the arts), and–importantly–the development of these discipline-specific ways of knowing and inquiring in young children. Though all candidates enter with an undergraduate degree and a thorough transcript review (in which candidates are required to fill gaps by taking additional "subject matter" courses in appropriate areas), the program still requires this introductory course. (Again, during second year "methods" courses, if a candidate does not display sufficient subject matter knowledge the program reserves the right to require additional coursework in that discipline.) The program recognizes that the subjects traditionally taught in elementary schools form one of the three legs of the instructional stool, so they neither ignore this knowledge nor assume it: they open with it. From the very beginning, however, they relate subject matter and pedagogy to the growing and developing child. The very first assignment of the course, a math game, requires the candidate to ask a child to play a game and to use what the child says in the paper accompanying the game, and, as appropriate, to revise the game itself. In addition, candidates are required to think of and apply what they know at the onset about developmentally meaningful approaches to children that are sensitive to their cultural, language, and individual strengths, interests, and needs.

In the first year, course work focuses on child growth in all developmental domains. Every course couples learning theory and research with observing/interacting with children, always allowing the candidate to test and apply theory and research in practice and to practice in theory and research. An overt objective in every course (as stated in the Human Development I course syllabus) is "To critically examine the theories and research reviewed in this course in light of what is learned from observations, class discussion and differing perspective." In addition, in several courses, students interview families and caregivers, placing families and their cultural backgrounds solidly into the "development" mix from the inception and throughout the entirety of a student's program of study.

Because each course requires observing and interacting with children, the program is able to integrate assignments and learning across classes. Candidates "use" the same child and family for multiple assignments. This not only cuts down on the logistical challenges of this type of assignment, but also provides the candidate the opportunity to view a child more holistically across the multiple domains that are addressed in different classes. The assignments (along with the proseminar) serve as integrative threads for students to weave their understandings of the whole child and his or her family.

In the second term of the first year of study, the critical analysis learned and practiced in the first term is consciously expanded with the exploration of the multiple variables among children. Candidates look at children more deeply in their cultural, family, and community contexts, and take further account of individual abilities and disabilities. They also continue to explore the connections and disconnections between children's "out of school" contexts and the culture of schools in the United States, including "school learning," assessment practices, and special education policies and practices. This term recursively deepens themes from the first term, particularly where it delves into the roles of families and cultures in the growth and development of children and the strengths (and challenges) of the diversity that is ever-present in schools and classrooms.

The second year of the program focuses on leveraging teaching methods, practice, and reflection. In the summer between the first and second years, the program prepares candidates for their student teaching year by continuing the movement into "school learning" (e.g., subjects traditionally taught in elementary school). Each course introduces candidates to the state standards as well as multiple approaches to support students' growth towards achieving those state standards. The multiple approaches are essential to the program's commitment to critical/reflective professionals and its philosophy that there is no one single right answer for all children in all contexts ("it depends"). In the midst of the natural desire for "simple answers" that work in the stresses and strains of working daily with multiple children and an educational environment that reduces those children to test scores, the program does not allow the "easy way out," instead providing the support required to maintain a focus on the child as a developing and growing human being. Throughout the second year, courses look at state standards and current practices and policies while continuing careful observation and analysis of children, families, communities, and cultures.

Each methodology course links back to development (as taught in the previous year, including developmental variations and language acquisition) as well as to the "standards" and other realities of public education. Each also consciously addresses social development and links with family and cultures. The methodology courses also tie back in with the "subject matter" course with which the program opened.

Applying the Knowledge Base in Classrooms, Schools, and Communities

Erikson knows and expects candidates to have concurrent opportunities for learning and applying knowledge of child growth, development, and learning. Even before candidates are accepted into the program, they must have had considerable experience interacting with children and families. Then, from the very beginning to the very end, the program

requires "concurrent clinical experience." In the first year (prior to student teaching) these clinical experiences are monitored within the proseminar. In addition to the relationships of the instructors with local sites, Erikson's director of teacher education helps locate high quality clinical experience and student teaching sites. Because of the cohort structure and the requirement that candidates have previous experience, the candidates themselves are also significant resources for identifying and cultivating high quality placement sites.

All clinical experiences are linked with courses through assignments and supported in the proseminar (year one) or the integrative seminar (year two). These seminars provide opportunities to bring up common issues within and across courses and between coursework and clinical experiences. As with all quality instruction, they combine emergent issues of the candidates with a "programmatic" agenda. The goal, as noted earlier, is to "put the camera in slow motion" so that candidates can actually "notice deeply" what is happening–both with children and with themselves.

Cohesion and Consistency

It might seem odd for a program that prides itself on eschewing one right answer and pedagogical ideologues to be highlighted for cohesion and consistency. It is true the program espouses no theoretical or pedagogical litmus test. In fact, the program takes pride in acknowledging, in the words of one faculty member, "We are very open to saying that we really don't 'know' the answers." Each and every course and clinical experience emphasizes multiple points of views, controversies in the field, and seemingly incongruous (if not mutually exclusive) pedagogical approaches. The program would argue, however, that the core principle of progressive education is that no one theory, perspective, or approach can meet all the needs of all the children all the time.

However, the program has a very clear and explicit set of values and expectations. These values and expectations include:

- A consistent notion of development in all its domains that melds the individual with the social and cultural components of development (with a purposeful inclusion of families, communities, and cultures);
- Links with the "real world" of classrooms and schools (including, for instance, standards and standardized assessments throughout the program);
- A focus on all children (especially those traditionally underserved in the current system, such as second language learners, people of color, and children exhibiting developmental variations and delays);
- An understanding of education as the making sense of, working within, and improving the worlds in which we reside;
- An appreciation and respect for their candidates as developing adults (designing their program around the knowledge/experience/reflection axis); and, of course

- "It depends" (always providing multiple theories, multiple researchers, multiple pedagogies, and multiple perspectives while exploring the strengths and the weaknesses of each).

The program explicitly instills these values and provides flexible rules of the road so that prospective teachers are able to navigate and travel to their desired locations. The courses, and even the assignments in different courses, are purposefully integrated with each other. For instance, the fall development courses all have observation assignments, assignments which are consciously integrated both in terms of process (how does one observe children without making judgments) and content (separation anxiety has the obvious social and emotional components, but also cognitive components–object permanence–and physical components–increased mobility means greater opportunities for separation). The structure of courses and their assignments require candidates to put the developmental domains discussed in different courses together in the child(ren) being observed.

The program's approach to assessment provides another example of its cohesive consistency. The assessment course for classroom teachers includes both "formal" assessments as used in schools (high stakes standardized assessments) and "informal," more holistic assessments of growth and development in multiple domains as taught throughout the program. The book "*Bridging*" (2007) is a consistent text that covers this approach to assessment and provides a frame for clearly describing what is changing over time in a classroom along with a set of tools for doing so.

Several structural features support the program's coherence and consistency. Erikson hires three kinds of faculty: tenure-track, clinical, and senior instructors. The difference between tenure-track and clinical faculty is that tenured faculty are expected to conduct funded research for 20% of their time in load, while clinical faculty, who teach more, are not. Senior instructors have similar privileges and responsibilities as tenure and clinical faculty (e.g., offices, salary increases, attendance at meetings). All three faculty classifications teach classes and supervise clinical experiences. This allows them to see how courses are being integrated by candidates and how they can adjust their courses, instruction and assignments so students are better able to learn, integrate, apply, analyze, and reflect on the content of courses.

Professional Teaching Practices

Throughout candidates' experiences at Erikson they engage in case-writing, teacher research, analyses of student learning, and performance assessments. Examples include multiple case studies of children and curriculum and multiple analyses of student learning. These practices are made even more effective when prospective teachers also have opportunities to think about and reflect upon their own learning experiences, which the program provides starting with the reflective essay required for admission, continuing through such assignments as the intellectual autobiography, and finishing with the culminating assessments. Such a combination of looking outward and inward assists Erikson candidates on their path to making explicit their own assumptions about teaching and learning—a key component of restructuring, reorganizing and ultimately effectively using formal and personal knowledge.

Erikson candidates are asked to identify some of the key characteristics of good learning experiences in their own educational history and to compare and contrast these with the experiences of others. In so doing they are afforded the opportunity to understand that learning takes different forms for different individuals, and that the essential supports for learning also vary across individuals. In turn, they are often more prepared to make sense of what they will continue to learn in the way of formal knowledge about development and learning. Concepts like "meta-cognition" have more power when teachers have explored their own learning through a meta-cognitive approach, such as writing about how opportunities to discuss the strengths and weaknesses of their own writing with a supportive teacher helped them learn to write well. In turn, beginning teachers are often better able to deliver high quality instruction with their own students after having an opportunity to be meta-cognitive themselves about their own experiences.

Continuous Renewal

In addition to the usual accreditation requirement to collect and use data for program improvement, Erikson has several structures and processes that make the use of information results in programmatic renewal more likely.

First, each class syllabus has explicit key concepts. This makes the goals, and, to some extent, the candidate experience, visible and sharable and thus improvable.

In addition, each monthly faculty meeting agenda includes a curriculum review. The faculty (tenure track, clinical, and senior instructors) look together at a particular syllabus and how the course is taught. Then together they analyze both that particular course and also how what happens in that course relates to what their candidates know and are able to do in the other courses, and how the other courses can help candidates integrate multiple lessons into a coherent whole. The curriculum review follows a process, but it is designed for critical analysis. As one faculty member put it, "We are a cohesive if argumentative group." In addition to the faculty meeting reviews, each faculty member is part of a faculty team (3-4 faculty who teach the same or similar courses) who meet before, during, and after each semester they teach the course. The proseminar is another forum for expanding faculty knowledge about the candidate experience in the program. In that setting, faculty become knowledgeable of where issues are emerging within classes, between classes, and between classes and clinical experiences. Together, these processes support a recursive, rather than repetitive, program.

The mission, ethos and history of Erikson are other contributing factors here. Erikson's mission IS child development, the generation and use of knowledge necessary to work with children (including research, clinical services, and a policy focus).

It has always emphasized quality and rigor and deeply valued teaching, and hires faculty with, aside from the knowledge and skills, the passionate commitment to advance the mission.

Evidence that these processes result in programmatic renewal is found in the fact that the program is a moving target. Faculty estimate that course content changes 20-25% annually. This estimate was confirmed when the authors, working with the 07-08 program, had to change 20-25% of the description so it would be up to date. In fall of 2010, the program will again, within its consistent set of cohesive values, be changed based upon empirical evidence of the candidates' experience in the program and the caliber of their work with the children and families in their care.

While the program has been "presented" in both a linear fashion (the course and clinical experience outline) and using the analysis of this paper, it is, in fact, neither of the above. In its integration of knowledge, practice, and reflection, Erikson's program, like all truly high quality professional practice, becomes an entity greater than the sum of its parts or any particular analytic frame placed upon it.

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