

Reframing the Debate About the Relationship Between Learning and Development: An Effort to Resolve Dilemmas and Reestablish Dialogue in a Fractured Field

R. Clarke Fowler¹

Published online: 15 February 2016
© Springer Science+Business Media New York 2016

Abstract The field of early childhood education (ECE) is currently unable to reach consensus on the extent to which ECE should be based on child development. One manifestation of this situation is the dilemma that early educators purportedly face between teaching the whole child and the curriculum, between developmentally appropriate practice (DAP) and standards. The source of this dilemma is attributed to a one-dimensional understanding of children’s development in which development is privileged over learning. Addressing this dilemma begins by discussing a theoretical difference between Piaget and Vygotsky: for Piaget, development drives learning; for Vygotsky, learning drives development. This seemingly dichotomous difference is reframed, however, by the insight that Piaget and Vygotsky focused on different types of development: Piaget studied universals (e.g., object permanence); Vygotsky studied nonuniversals (e.g., cultural tools often learned in schools). Their dispute stems, therefore, from this factor: development drives learning in nonuniversal developmental sequences, but learning drives development in universal sequences. Teachers who adopt a multi-dimensional developmental framework—a framework that makes visible how the relationship between learning and development may vary within universal versus nonuniversal developmental sequences—may be better prepared to (1) make informed decisions about the extent to which they should guide children’s activities and (2) avoid the DAP versus standards dilemma. The most recent iteration of DAP moved toward adopting a multi-dimensional

developmental framework when it encouraged teachers to base instructional judgments on the extent to which children’s emerging capacities will likely require greater versus lesser degrees of adult guidance, structure, and support.

Keywords Developmentally appropriate practice · Intentional teaching · Learning and development

A watershed consensus in the field of early childhood education (ECE) occurred in the 1940s when, following more than 50 years of formal study of the child, early educators asserted that early instruction should be based on knowledge of child development. This new consensus, then hailed as a “major breakthrough in education” (Weber 1984, p. 149), was captured by Anderson’s statement that “insight into the nature of the child as he is and is to be underlies the practical principles of early childhood education” (Anderson 1947, as cited in Weber 1984, p. 141).

Broad-based enthusiasm for using child development as a basis for early instruction continued into the 1980s, culminating with the publication of the National Association for the Education of Young Children’s (NAEYC) first position statement (Bredekamp 1987) on developmentally appropriate practice (DAP). The publication of this statement generated, however, much debate and discussion. Sparked by the increasing acceptance of research paradigms that focused more on the developmental impact of culture and context (Bronfenbrenner 1979; Vygotsky 1978) than the then dominant Piagetian paradigm, many early educators questioned the field’s longstanding commitment to child development as the basis for early instruction (Kessler and Swadener 1992; Lubeck 1998; Stott and Bowman 1996). Responding specifically to doubts that sociocultural researchers had raised about the

✉ R. Clarke Fowler
rfowler@salemstate.edu

¹ Salem State University, Salem, MA, USA

generalizability of child development research that purportedly captured universal developmental sequences, Katz described the perplexing situation that such doubts presented to both teachers and teacher educators:

On the one hand, I continue to believe that in order to be effective, practitioners must have optimal confidence in their own actions and the underlying assumptions on which they are based. On the other hand, if that base is not provided by the knowledge and principles of child development, then what other bases could be provided? (Katz 1996, p. 145)

Criticisms of DAP, along with related efforts to articulate other bases for early instruction, have been appearing in the literature for more than 25 years and now include voices from a variety of related perspectives, including sociocultural theory (Mallory and New 1994), critical theory (Blaise and Ryan 2012), post-modernism (Ryan and Grieshaber 2005), and reconceptualism (Bloch et al. 2014). These many years of discussion have not produced, however, a new consensus; instead, this debate has devolved into “monologues typically conducted through largely separate professional publication systems” (File 2012, p. 39).

This fracturing of the field into parallel monologues is unfortunate not only because “the absence of dialogue and debate impoverishes early childhood education” (Moss 2007, p. 23), but also because this fracture is ill timed: It is occurring at a time when early educators are confronted by three unprecedented changes to the contexts in which they are teaching. First, expectations about the potentially positive impact of ECE on both children and society have never been higher, as evidenced by the fact that President Obama affirmed the critical importance of early education in his State of the Union speeches in 2013 and 2014, hosted an ECE summit in December 2014, and announced plans to spend, with corporate and philanthropic partners, one billion dollars to expand and promote ECE programming in 2015 (Salinas 2014). Second, in the last 20 years, developmental science has produced “profound changes in our understanding of the conditions that facilitate children’s learning and development” that support adoption of instructional practices that vary in substantial ways from traditional ECE practice (Barbarin and Miller 2009, p. 3). For example, research in early literacy has demonstrated the importance of teaching content to young children (Neuman 2006), and research on self-regulation (Rimm-Kauffman and Wanless 2012) suggests that teachers should guide children’s play in ways that are inconsistent with early educators’ embrace of spontaneous play in the 1980s (Kamii and DeVries 1980). Third, with the advent of the common core and the adoption of early learning standards and early learning evaluation systems across the United

States, early educators in both public schools and early care settings are being held increasingly accountable for students’ learning.

Due to the confluence of these three factors, more is being asked—and, at times, demanded—of early educators than ever before. And this is all occurring at time when, “as a field, we still lack consensus on how to teach, what to teach, and when to teach” (Graue 2008, p. 442).

One manifestation of this absence of consensus is the dilemma that early educators are said to face between teaching the whole child and the curriculum, between developmentally appropriate practice (DAP) and standards. This dilemma has been described as “a dichotomous presentation of two extremes:” between providing children with (1) “opportunities to learn the knowledge mandated by their state” or (2) “learning experiences that support the development of the whole child” (Goldstein 2007, p. 39). This either/or choice has also been characterized a “metaphoric muddle” (Graue 2008, p. 442) and a “chasm” (Barbarin and Miller 2009, p. 5) between developmentally appropriate practice and standards.

Bowman (2006) ascribes the source of such dichotomous thinking among teachers to a limited, one-dimensional understanding of child development:

Part of the reluctance of teachers to specify what young children should learn, I believe, is the tendency to focus on development at the expense of culture and social learning.... Failure to fully appreciate the role of culture in children’s development has led some teachers to take an either/or perspective about developmentally practice. According to this view, learning is either child-directed, play based, and appropriate, or it is forced on children by teachers with direct instruction and mindless drill, and therefore inappropriate. (pp. 4–5)

A principal aim of this paper is suggest a way to address the DAP versus standards dilemma by providing a theoretical framework to facilitate the sort of multi-dimensional understanding of development that Bowman refers to above. In brief, I argue that practitioners’ understanding and implementation of the most recent iteration of DAP (Copple and Bredekamp 2009a), particularly the need to make intentional decisions about when to engage children in adult- versus child-guided activities, may be advanced by promoting understanding of a longstanding debate in the field of cognitive development about the relationship between learning and development. Specifically, I argue that teachers’ understanding of the instructional implications of the current DAP position statement may be facilitated by the insight that theories that focus on universals (e.g., Piaget) typically depict development as driving learning, but theories that focus on nonuniversals (e.g.,

Vygotsky) typically depict learning as driving development (Feldman 1995). Teachers who adopt a multi-dimensional developmental framework—a framework that makes visible how the relationship between learning and development may vary within universal versus nonuniversal developmental sequences—may be better prepared to (1) make informed decisions about the extent to which they should guide children’s activities and (2) avoid the DAP versus standards dilemma. I begin this argument by defining learning and development and then explaining how different cognitive developmental theorists have conceived of the relationship between these two constructs.

Learning and Development, Defined and Debated

According to Wittrock (1977), “Learning is the term we use to describe the processes involved in changing through experience. It is the process of acquiring relatively permanent change in understanding, attitude, knowledge, information, ability, and skill through experience” (p. ix). Learning is distinct from change in two important ways. First, learning refers to changes brought about by experience, not by changes caused by maturation, growth, or other such factors. Second, learning is relatively permanent; it does not apply to transitory changes related to fatigue, drugs or other temporary phenomena (Schunk 2012).

Development is also characterized by relatively permanent (if not irreversible) change; however, developmental changes typically differ in at least three ways from learning-based changes. Developmental changes are (1) *directional* (i.e., proceeding from lesser to more adequate states), (2) *qualitative* (i.e., entailing the emergence of qualitatively more powerful states), and (3) *systematic* (i.e., occurring in an orderly sequence) (Lerner 2002; Overton 2003). Developmental changes are typically attributed to a combination of factors that include, besides learning, social influences and maturation (Seifert 1983). There are, of course, other ways to conceive of development, as in Siegler’s influential work on children’s strategy choices (Siegler and Crowley 1991; cf. Fowler 1992), but the preceding features constitute a minimal definition of the characteristics common to most developmental theories (Lerner 2002), including the work of Piaget and Vygotsky, the two most influential theorists in early childhood education today.

Although there may be common ground between theorists on how define to development, there is often disagreement about the nature of the relationship between learning and development (Bereiter 1970; Kohlberg and Mayer 1972). Indeed, this was a prominent difference between Piaget and Vygotsky.

Piaget, who sought to explain how children spontaneously invent logically necessary knowledge by acting and reflecting upon their actions with objects and people, contended that children could not truly learn something unless and until they had constructed the requisite intellectual structures for understanding what was to be learned: “In reality, development is the essential process and each element of learning occurs as a function of total development, rather than being an element which explains development” (Piaget 1966, p. 176).

Vygotsky, who sought to explain how human consciousness and functioning is raised to higher levels through the successful transmission/acquisition of culturally developed mediational means of thought, contended that learning explains development. For example, he attempted to understand how a child’s level of intellectual functioning is qualitatively raised when she masters a social tool, such as speech, by participating with a more competent peer or adult in the Zone of Proximal Development (ZPD). Hence, for Vygotsky, learning makes development possible: “Development based on instruction is a fundamental fact... The only instruction which is useful in childhood is that which moves ahead of development” (Vygotsky 1987, pp. 210–211).

Piaget and Vygotsky’s differing conceptions of learning and development are reflected, of course, in their differing approaches to educational practice. Consider, for example, the different ways in which each theorist describes the educational processes that lead to the formation of critical thought. Although both would agree that, in order to promote critical thinking, criticism and discussion should permeate the classroom, they have different narratives about how a critical atmosphere affects the child. For Piaget, the teacher fosters a critical environment in order to enable the child “to construct for himself the tools that will transform him *from the inside*” (1973, p. 121, emphasis added). For Vygotsky, however, the teacher fosters a critical environment in order to enable a child who is functioning within her Zone of Proximal Development, to appropriate, *from the outside*, intellectual tools that, once internalized, will transform the child’s mind. It is because these theorists have different accounts of the origin of the structures that transform the child’s mind, with Vygotsky’s approach based on internalization and Piaget’s based on invention, that they have different conceptions of the relationship between learning and development, which leads, in turn, to different approaches to educational practice.

Currently, an increasing number of early educators are presenting Piagetian and Vygotskian approaches to instruction as largely incompatible and encouraging teachers to adopt Vygotskian methods (Edwards 2003; Grieshaber 2008; Hatch 2010). Hatch even goes so far as to

say that Piaget and Vygotsky's approaches are logically contradictory:

Future teachers learn about Piaget and Vygotsky's theories, but never confront the reality that if you believe one of them (i.e., learning follows development) then you cannot logically believe the other to be right (i.e., learning leads development). In early childhood parlance, educators pretend to have a "both/and" relationship situation (i.e., it is okay to believe both Piaget and Vygotsky on the relationship between learning and development) when, in fact, a classic "either/or" (either Piaget or Vygotsky is right) is presented. (2010, p. 263)

As framed by Hatch, early educators are faced with a dichotomous choice and must choose a winner, either Vygotsky or Piaget, learning or development, instruction or construction. However, as I explain next, a number of developmental theorists and researchers have framed this issue in an alternative way that allows the field to appreciate the insights of both Piaget and Vygotsky, beginning with Feldman's work on nonuniversal theory (1980).

Reframing the Debate About Learning and Development

With the publication of *Beyond Universals* in 1980, Feldman made a crucial distinction between two types of developmental changes: *universal* developmental changes "that are guaranteed to occur in all normal human environments," and *nonuniversal* developmental changes "that will occur in only a subset of human beings within a subset of more specialized environments" (Feldman and Fowler 1997, p. 196). Feldman also distinguished between five different types of nonuniversal changes: pancultural, cultural, discipline-based, idiosyncratic, and unique. Finally, he portrayed all of these types of development changes as occurring on a developmental spectrum that ranged from universal to unique.

The import of Feldman's approach for the debate between Piaget and Vygotsky stems from the insight that Piaget and Vygotsky's theories "are actually referring to different kinds of things when they refer to development" (Feldman and Fowler 1997, p. 199). Piaget was primarily concerned with universal sequences of development (e.g., object permanence and conservation of number), but Vygotsky was primarily concerned with nonuniversal (i.e., cultural) sequences of development (e.g., how children acquire curricular concepts in school). Consequently, the debate between Piaget and Vygotsky about the nature of the relationship between learning and development is not about the nature of some one thing called Development,

but rather about how learning and development interact in different types of developmental sequences located on different areas of the developmental spectrum (Feldman 1995).

Other contemporary developmental researchers have made an analogous distinction. For example, Geary (1995), writing from the perspective of evolutionary psychology, distinguishes between abilities that are biologically primary (e.g., a preverbal counting system that allows enumeration of three or four items) and biologically secondary (e.g., the ability to count larger numbers and to understand the relationship between number names and quantity). Gelman makes a similar distinction by positing the existence of (1) privileged, core domains where children universally acquire knowledge "without explicit instruction, just as they do in their native language," and (2) non-privileged, non-core domains that are not universal because they typically require time, instruction, and effort to master (Gelman and Williams 1998, p. 585).

This distinction between universal and nonuniversal cognitive developmental trajectories is important not simply because it provides a way for teachers to think about the debate about learning and development, but also because it provides a deeper understanding of the dynamic nature of development and thereby facilitates a nuanced approach to instruction. From this perspective, a teacher should adopt the Vygotskian emphasis on learning espoused by Hatch (2010), not because learning explains development, but because learning helps explain the type of nonuniversal, culturally specific development that she seeks to foster. For example, it is appropriate to use teacher-guided instruction to teach children how to read, a nonuniversal capacity; however, teacher-guided instruction is rarely necessary to teach young children to talk, a universal capacity.

To appreciate how Feldman's insight about the variable nature of the relationship between learning and development may help early educators address the DAP versus standards dilemma, I analyze next how the NAEYC's conception of the relationship between learning and development has evolved in its three position statements on DAP and related publications.

The Evolving Relationship Between Learning and Development in DAP

The NAEYC published the first edition of DAP to provide criteria for NAEYC accreditation as well as to respond to efforts to improve educational outcomes by pushing expected academic outcomes from the upper grades into the lower grades (Bredekamp 1987). Although this version neither explicitly defines nor discusses the relationship

between learning and development, the positions taken in this statement are largely consistent with Piaget's theory, and especially the notion that development explains learning. This emphasis on child-directed learning is evident in a section that categorizes practices as *either* developmentally appropriate *or* inappropriate (DAP or DIP) that heavily stresses child-initiated construction over teacher-initiated instruction. The overall impression, intentional or not, of the first edition of DAP is that the NAEYC is at best leery of, if not opposed to, direct instruction, and this position is related to the primacy of child-directed development over teacher-guided learning.

The next edition of DAP (Bredekamp and Copple 1997) was written with an eye toward responding to the changing context, new research, and the considerable criticism that was directed toward the first version's apparent overreliance on Piaget and its related neglect of sociocultural perspectives (Raines and Johnston 2003). The NAEYC responded to this criticism in multiple ways. First, it emphasized the point that teachers should have "knowledge of the social and cultural contexts in which children live" (Bredekamp and Copple 1997, p. 10). Second, it broadened its theoretical base by referring to Bronfenbrenner's work on the ecology of human development, discussing the Vygotskian-inspired notion of scaffolding, and referencing prominent Vygotskian approaches to early education (e.g., Berk and Winsler 1995; Bodrova and Leong 1996). Third, it discarded the *either/or* categorization of teaching practices and called for teachers to adopt a *both/and* approach by employing an optimal balance of teaching strategies. For example, the authors wrote that, "Early childhood teachers strive to achieve an optimal balance between self-initiated learning and adult guidance or support" (Bredekamp and Copple 1997, p. 17).

The most recent edition of DAP seeks to respond to (1) new knowledge about child development, (2) the NAEYC's newly revised accreditation standards, and (3) the changing context in which ECE programs operate (Copple and Bredekamp 2009a). This edition of DAP continues to encourage teachers to adopt an optimal balance between children's self-initiated learning activities and teacher-guided activities, but it no longer frames this balance in new terms of the *both/and* approach described in the second version of DAP; instead, it refers to Epstein's (2006) distinction between child-guided and adult-guided experiences. This change appears to have occurred because "sometimes *both/and* thinking may be applied quite superficially as just 'a pinch of this and a dash of that'" (Copple and Bredekamp 2009b, p. 49). In order to foster a more thoughtful approach to selecting teaching strategies, the NAEYC now encourages practitioners to adopt Epstein's (2006) approach to intentional teaching, which is described next.

Epstein's goal in writing *The Intentional Teacher* was to articulate a "balanced position" in the controversy that "pits extreme interpretations of 'child-initiated' learning (passive teacher) against 'adult-guided' directed instruction (scripted lessons)" (2006, p. vii). To achieve this balanced position, Epstein carefully distinguished between two types of educational experiences—child-guided and adult-guided:

I use the term *child-guided* to refer to experience that proceeds primarily along the lines of children's interests and activities, although teachers often provide the materials and other support. The term *adult-guided* I use to refer to experience that proceeds primarily along the lines of the teacher's goals, although these experiences may also be shaped by the children's active engagement. (p. vii)

Epstein was careful to note, however, that both the teacher and child are active in both types of experience. This approach contrasts, of course, with extreme interpretations of early childhood practice in which either the teacher or the child is passive.

Epstein also compiled a comprehensive list of two types of skills and knowledge, drawn from a variety of content areas, that may be best acquired via child-guided or adult-guided experiences.

For example, children develop ideas about sinking and floating, or what can be done with clay largely [via child-guided experience] through exploration and investigation; but to learn the names of letters requires adults to provide this information [via adult-guided experience] (pp. vii–viii).

Epstein refers to teaching based on mindful decisions about when to employ adult- versus child-guided teaching strategies, which must also be informed by teachers' sensitive observations of and responses to the nature of children's engagement in either type of learning experience, as intentional teaching.

Epstein's construct of intentional teaching has, in effect, transformed the *both/and* approach of the second edition of DAP into an evidence-based *if/then* approach: *If* children are likely to acquire a certain capacity by engaging in child-guided spontaneous activity, *then* teachers should deploy one set of teaching strategies; however, *if* acquisition of the skills in question typically requires adult guidance, *then* teachers should deploy another set of strategies.

To summarize, the NAEYC's position on the relationship between learning and development has evolved. It has moved from an *either/or* position that privileged the role of development over learning in the first edition of DAP, to a balanced but undifferentiated *both/and* position in the second edition, to a balanced and differentiated *if/then* position in the most recent edition. By endorsing Epstein's

rationale for when teachers should implement child-guided versus adult-guided experiences, the NAEYC made a small but substantial step toward adopting a multi-dimensional conception of development. The advantages of this sort of developmental framework are discussed next.

Advantages of Adopting a Multi-dimensional Developmental Framework

Adopting a multi-dimensional approach to development, an approach that captures the variable and dynamic nature of the relationship between learning and development in both universal and non-universal developmental sequences, has advantages for multiple audiences. For proponents of DAP, explicit adoption of this framework would make clear how DAP, with its embrace of Epstein's differentiation between child-guided and adult-guided activities, has evolved from (1) an either/or approach in 1987 that privileged development over learning to (2) an if/then perspective in 2009 that honors both learning and development. This evolution has gone largely unrecognized, however, because the NAEYC did not explicitly articulate this shift when it endorsed Epstein's construct of intentional teaching. Full articulation of this substantial shift by the NAEYC would not only make this evolution visible to both proponents and critics of DAP, it would also ground DAP more fully in developmental theory.

For ECE researchers and theorists, the multi-dimensional developmental framework described here offers an opportunity to reestablish discussion and dialogue within a field currently characterized by parallel monologues (File 2012). This is not to suggest that a new consensus might or even should be established on the precise nature of the relationship between child development and early childhood education—indeed, universal consensus is as unhealthy as multiple parallel dialogues, as both lead to limited intellectual exchange—but it is to suggest the existence of common ground on a point made by many critics of the perceived developmental homogeneity of DAP: early educators need to consider multiple theories from multiple paradigms in order to even attempt to understand and instructionally respond to the remarkable complexity of the child (Bowman 1993; Daniels and Shumow 2003; Grieshaber 2008; Pyle and Luce-Kapler 2014).

For early childhood teachers, a multi-dimensional developmental framework offers a way to avoid getting caught in the horns of the DAP versus standards dilemma, because this approach is framed in a way that resists reducing teaching to a dichotomy between DAP and standards, development and learning, or the child and the curriculum. Adoption of this perspective would not resolve,

however, dilemmas experienced by teachers who are required either to teach to standards well beyond children's reach, or to teach to challenging but achievable standards by implementing developmentally insensitive and/or scripted curricula, which (wrongly) assume that all children are equally disposed to learn the same thing at the same time.

Finally, for early childhood teacher educators, the current ideas offer a theoretical framework for organizing instruction about child development for aspiring teachers, beginning with the notion that development is not just one big thing; rather, there are multiple levels of development and, concomitantly, multiple ways to promote (via both adult- and child-guided activities) children's skills, knowledge, and dispositions. Implicit in this framework is the idea that early educators need to focus on identifying, not how a child fits within a single developmental approach, but rather how to tailor instruction, based on a variety of developmental approaches, that best fits children's needs.

Conclusion

As noted at the outset, early educators reached consensus in the 1940s that early instruction should be based on child development. Up until the 1980s, this meant that ECE was largely based on universal accounts of child growth (e.g., Piaget) that privileged development over learning. Beginning in the 1980s, though, this consensus was disrupted by objections to basing instruction on universal theories. Currently, many in the field are encouraging practitioners to base instruction on nonuniversal approaches (e.g., Vygotsky) that privilege learning over development.

Universal and nonuniversal theories of development should not be treated, however, as opposing poles of a dichotomy because basing teaching on a one-dimensional approach to child development may lead to a one-dimensional approach to instruction. For example, instruction largely based on a universalistic Piagetian approach to development invites teachers to become passive as they wait for children's capacities to develop through child-guided activities. And many teachers are said to have accepted such invitations (Grieshaber 2008; Hatch 2010; Seifert 1983). Conversely, basing teaching almost exclusively on non-universal accounts of development invites early educators to implement mostly adult-guided instruction. And due to the added weight of administrators' anxiety about students' performance on standardized tests, these invitations are currently being issued in the form of mandates that are difficult for teachers to decline.

One way to help teachers implement a balanced if/then approach to instruction is to provide them with a multi-

dimensional developmental framework. For example, if early educators intend to foster children's reading comprehension and fluency, nonuniversal capacities, it is appropriate to implement teacher-guided strategies, such as reciprocal teaching, coaching, and, at times, directly instructing (Fountas and Pinnell 1996). Extensive use of such techniques would rarely be appropriate, however, for nurturing children's ability to talk, a universal capacity.

Planning instruction based on child development is, however, not straightforward. Developmental theories are relatively blunt intellectual tools. With the recent explosion of research by developmental scientists from a variety of traditions that go well beyond Piaget and Vygotsky (Bowman et al. 2001), there are now more such blunt tools for teachers to consider (Pianta et al. 2012).

It is useful to recall, therefore, what Jesrild wrote in the 1940s regarding the then new consensus regarding ECE and child development: “fundamental concomitants” to the child development approach to education are “a spirit of inquiry—a desire to learn about the ways of children” and “an attitude of respect for children” (Jersild 1946, p. 1). In other words, instruction based on knowledge of child development should begin not by studying a book or a theory but rather by studying the child. Bowman et al. captured this distinctive feature of early instruction in their statement that “the key informing principle for early childhood pedagogy is responsiveness” (Bowman et al. 2001, p. 34).

Responsive teaching has been described as a “dance in which nature—what the child brings into the world—and nurture—the relationships of the child's context—are partnered” (Bowman et al. 2001, p. 58). This instructional dance is most effective when improvised, not scripted, by an intentional teacher who is continually assessing the extent to which she should lead or follow each and every child. Such decision-making requires, however, a basic understanding of what emerging capacities will likely require greater versus lesser degrees of adult guidance, structure, and support. The framework described here offers early educators a way to better understand the multi-dimensional nature of development, make intentional decisions about when to adopt adult- versus child-guided instruction, and avoid getting caught up in the purported dilemma between DAP and standards.

References

- Anderson, J. E. (1947). The theory of early childhood education. In N. B. Henry (Ed.), *The 46th yearbook of the National Society for the study of education; part 2: Early childhood education* (pp. 70–100). Chicago, IL: University of Chicago Press.
- Barbarin, O., & Miller, K. (2009). Developmental science and education: An introduction. In O. Barbarin & B. Wasik (Eds.), *Handbook of child development and early education* (pp. 3–13). New York, NY: Guilford Press.
- Bereiter, C. (1970). Educational implications of Kohlberg's cognitive-developmental view. *Interchange*, 1(1), 25–32.
- Berk, L., & Winsler, A. (1995). *Scaffolding children's learning: Vygotsky and early childhood education*. Washington, DC: National Association for the Education of Young Children.
- Blaise, M., & Ryan, S. (2012). Using critical theory to trouble the early childhood curriculum: Is it enough? In N. File, J. Mueller, & D. Wisneski (Eds.), *Curriculum in early childhood: Reexamined, rediscovered, renewed* (pp. 80–92). New York, NY: Routledge.
- Bloch, M., Swadener, B., & Cannella, G. (2014). *Reconceptualizing early childhood care & education: Critical questions, new imaginaries, and social activism: A reader*. New York, NY: Peter Lang Publishing.
- Bodrova, E., & Leong, D. J. (1996). *Tools of the mind: The Vygotskian approach to early childhood education*. Englewood Cliffs, NJ: Merrill/Prentice Hall.
- Bowman, B. (1993). Early childhood education. *Review of Research in Education*, 101–134.
- Bowman, B. (2006). Standards: At the heart of educational equity. *Young Children*, 61(5), 42–48.
- Bowman, B., Donovan, M., & Burns, M. (Eds.). (2001). *Eager to learn: Educating our preschoolers*. Washington, DC: National Academy Press.
- Bredenkamp, S. (Ed.). (1987). *Developmentally appropriate practice in early childhood programs serving children from birth through age eight*. Washington, DC: National Association for the Education of Young Children.
- Bredenkamp, S., & Copple, C. (Eds.). (1997). *Developmentally appropriate practice in early childhood programs* (rev ed.). Washington, DC: National Association for the Education of Young Children.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Copple, C., & Bredenkamp, S. (Eds.). (2009a). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed.). Washington, DC: National Association for the Education of Young Children.
- Copple, C., & Bredenkamp, S. (2009b). To be an excellent teacher. In C. Copple & S. Bredenkamp (Eds.), *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed., pp. 33–50). Washington, DC: National Association for the Education of Young Children.
- Daniels, D. H., & Shumow, L. (2003). Child development and classroom teaching: A review of the literature and implications for educating teachers. *Journal of Applied Developmental Psychology*, 23(5), 495–526.
- Edwards, S. (2003). New directions: Charting the paths for the role of sociocultural theory in early childhood education and curriculum. *Contemporary Issues in Early Childhood*, 4(3), 251–266.
- Epstein, A. (2006). *The intentional teacher: Choosing the best strategies for young children's learning*. Washington, DC: National Association for the Education of Young Children.
- Feldman, D. H. (1980). *Beyond universals in cognitive development*. Norwood, NJ: Ablex.
- Feldman, D. H. (1995). Learning and development in nonuniversal theory. *Human Development*, 38, 315–321.
- Feldman, D. H., & Fowler, R. C. (1997). Piaget, Vygotsky, and the nature of developmental change. *New Ideas in Psychology*, 15(3), 195–210.

- File, N. (2012). The relationship between child development and early childhood curriculum. In N. File, J. Mueller, & D. Wisneski (Eds.), *Curriculum in early childhood education: Re-examined, rediscovered, renewed* (pp. 29–41). New York, NY: Routledge.
- Fountas, I., & Pinnell, G. (1996). *Guided reading: Good first teaching for all children*. Portsmouth, NH: Heinemann.
- Fowler, R. C. (1992). Siegler and Crowley's (1991) conception of development. *American Psychologist*, 47(10), 1239–1240.
- Geary, D. (1995). Reflections of evolution and culture in children's cognition: Implications for mathematical development and instruction. *American Psychologist*, 50(1), 24–37.
- Gelman, R., & Williams, E. M. (1998). Enabling constraints for cognitive development and learning: Domain-specificity and epigenesis. In W. Damon (Gen. Ed.), D. Kuhl, & R. S. Siegler (Eds.), *Handbook of child psychology: Vol. 2. Cognition, perception and language* (5th ed., pp. 575–630). New York, NY: Wiley.
- Goldstein, L. S. (2007). Beyond the DAP versus standards dilemma: Examining the unforgiving complexity of kindergarten teaching in the United States. *Early Childhood Research Quarterly*, 22(1), 39–54.
- Graue, E. (2008). Teaching and learning in a post-DAP world. *Early Education and Development*, 19(3), 441–447.
- Grieshaber, S. (2008). Interrupting stereotypes: Teaching and the education of young children. *Early Education and Development*, 19(3), 505–518.
- Hatch, J. A. (2010). Rethinking the relationship between learning and development: Teaching for learning in early childhood classrooms. *The Educational Forum*, 74, 258–268.
- Jersild, A. T. (1946). *Child development and the curriculum*. New York, NY: Bureau of Publications, Teachers College, Columbia University.
- Kamii, C., & DeVries, R. (1980). *Group games in early education*. Washington, DC: National Association for the Education of Young Children.
- Katz, L. G. (1996). Child development knowledge and teacher preparation: Confronting assumptions. *Early Childhood Research Quarterly*, 11(2), 135–146.
- Kessler, S., & Swadener, B. (Eds.). (1992). *Reconceptualizing the early childhood curriculum: Beginning the dialogue*. New York, NY: Teachers College Press.
- Kohlberg, L., & Mayer, R. (1972). Development as the aim of education. *Harvard Educational Review*, 42(4), 449–498.
- Lerner, R. (2002). *Concepts and theories of human development* (3rd ed.). Mahwah, NJ: Lawrence Erlbaum.
- Lubeck, S. (1998). Is developmentally appropriate practice for everyone? *Childhood Education*, 74(5), 283–292.
- Mallory, B. L., & New, R. S. (1994). *Diversity and developmentally appropriate practices: Challenges for early childhood education*. New York, NY: Teachers College Press.
- Moss, P. (2007). Meetings across the paradigmatic divide. *Educational Philosophy and Theory*, 39(3), 229–245.
- Neuman, S. B. (2006). The knowledge gap: Implications for early education. In D. Dickinson & S. Neumann (Eds.), *Handbook of early literacy research* (Vol. 2, pp. 29–40). New York, NY: Guilford Press.
- Overton, W. F. (2003). Development across the life span. In I. B. Weiner (Series Ed.), R. Lerner, A. Easterbrooks, & J. Mistry (Eds.), *Comprehensive handbook of psychology: Vol. 6 Developmental psychology* (pp. 13–42). New York, NY: Wiley.
- Piaget, J. (1966). *The psychology of intelligence*. Totowa, NJ: Littlefield, Adams & Co.
- Piaget, J. (1973). *To understand is to invent: The future of education*. New York, NY: Viking Press; (Original work published 1948).
- Pianta, R., Barnett, W., Justice, L., & Sheridan, S. (Eds.). (2012). *Handbook of early childhood education*. New York, NY: Guilford Press.
- Pyle, A., & Luce-Kapler, R. (2014). Looking beyond the academic and developmental logics in kindergarten education: the role of Schwab's commonplaces in classroom-based research. *Early Child Development and Care*, 184(12), 1960–1977.
- Raines, S. C., & Johnston, J. M. (2003). Developmental appropriateness: New contexts and challenges. In J. P. Isenberg & M. R. Jalongo (Eds.), *Major trends and issues in early childhood education: Challenges, controversies and insights* (2nd ed., pp. 85–96). New York, NY: Teacher College Press.
- Rimm-Kauffman, S., & Wanless, S. (2012). An ecological perspective for understanding the early development of self-regulatory skill, social skills, and achievement. In R. Pianta, W. Barnett, L. Justice, & S. Sheridan (Eds.), *Handbook of early childhood education* (pp. 299–323). New York, NY: Guilford Press.
- Ryan, S., & Grieshaber, S. (2005). Shifting from developmental to postmodern practices in early childhood teacher education. *Journal of Teacher Education*, 56(1), 34–45.
- Salinas, C. M. (2014). *Obama announces \$1 billion in early childhood education programs*. California, CA: Monterey Herald.
- Schunk, D. (2012). *Learning theories: An educational perspective* (6th ed.). Boston, MA: Pearson.
- Seifert, K. (1983). *Educational psychology*. Boston, MA: Houghton Mifflin.
- Siegler, R., & Crowley, K. (1991). The microgenetic method: A direct means for studying cognitive development. *American Psychologist*, 46(6), 606–620.
- Stott, F., & Bowman, B. (1996). Child development knowledge: A slippery base for practice. *Early Childhood Research Quarterly*, 11(2), 169–184.
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: MIT Press.
- Vygotsky, L. S. (1987). Thinking and speech. In R. Rieber & A. Carton (Eds.), *The collected works of L. S. Vygotsky Vol. 1: Problems of general psychology* (pp. 37–285). New York, NY: Plenum.
- Weber, E. (1984). *Ideas influencing early childhood education: A theoretical analysis*. New York, NY: Teachers College Press.
- Wittrock, M. (Ed.). (1977). *Learning and instruction*. Berkeley, CA: McKutchan.