

## Recommendations in Child Development Textbooks for Teachers' Developmentally Appropriate Practices

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### Abstract

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Recommendations for teachers' work with children were identified in eleven popular textbooks focused on child development. Coding yielded 2,200 recommendations. Recommendations emphasized cognition, behavioral learning, and social-emotional development; generally transcended a single age level; and typically did not refer to an underlying theory. Specific age levels were represented distinctively. Consensus practices found in six or more books concentrated on cognitive development, social-emotional development, family and community motivation, management, and self-regulation more so than on foundational principles, research and assessment, physical development, or language and literacy. Limitations and implications for future research and the preparation of teacher candidates are examined.

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The interdisciplinary field of developmental science has now matured to such a level that it offers teachers a great deal of useful information about meeting children's needs. For example, in their everyday work, teachers can apply principles in fostering children's academic skills; forming constructive relationships with children; establishing a classroom environment that is conducive of productive peer relationships; encouraging a healthful diet and optimal levels of physical activity; infusing cultural traditions into classroom activities; and inspiring children's effort, confidence, and persistence (Comer, 2005; Comer & Ben-Avie, 2010; Pianta, Hitz, & West, 2010; Sabol & Pianta, 2013; Snyder & Lit, 2010a, 2010b; Spencer, 2006; Tseng, 2012).

Yet children cannot benefit from the field of developmental science unless adults who care for them are well versed in its concepts and applications. Fortunately, serious efforts are underway to communicate developmental insights widely and effectively. In its Strategic Plan, the Society for Research in Child Development (SRCD) has established the goal of informing policy, practice, and education with state-of-the-art scientific information about children (SRCD Governing Council, 2005). The SRCD Dissemination Task Force has specifically endorsed the need to support those who teach child development (SRCD Dissemination Task Force, n.d.).

A principal venue for transmitting concepts and applications in child development is higher education. In their efforts at exposure, colleges and universities do a good job of sharing basic information about child development.

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In a joint initiative of the National Institute of Child Health and Human Development [NICHD] and the National Council for Accreditation of Teacher Education [NCATE] a group of developmental scholars and educators, determined that approximately 90% of NCATE-accredited institutions require teacher candidates to take at least one course in child or adolescent development (NICHD/NCATE<sup>4</sup>, 2006).

Of course, mere exposure is not enough. Teacher candidates are learners themselves and need to approach concepts in a way that makes sense to them, clarifies the implications of developmental concepts for caring for children, and gives them an opportunity to try out recommended practices with children (Jurow, Tracy, Hotchkiss, & Kirshner, 2012; McDevitt & Ormrod, 2008). Unless new perspectives and pedagogies are presented in a manner that is clear and believable, powerful in realistic contexts, and superior to their existing ideas, teacher candidates are unlikely to change their fundamental beliefs or instructional methods (Hushman, Napper-Owen, & Hushman, 2013; Larkin, 2012; Posner & Gertzog, 1982).

At least four obstacles impede the ability of teacher candidates to acquire skills, dispositions, and a deep understanding of children. First, it has been standard practice for concepts in child development to be introduced as part of a course, the ideas and implications of which are not followed up with carefully sequenced extensions. Such isolated exposures to child development are unlikely to instill teacher candidates with deep understandings of children (Jurow et al., 2012; Pianta et al., 2010).

Second, instructors find it challenging to identify and address how teacher candidates think about children (Tseng, 2012). College students enter a child development course with definite ideas about children, perhaps that intelligence is fixed rather than modifiable or that a child's tendency to misbehave in the classroom is simply the outcome of poor parenting (McDevitt & Ormrod, 2008). These beliefs, which can be quite individual due to personal and cultural experiences, serve to filter the meaning of psychological evidence and the value of particular instructional practices (Scott-Little et al., 2011). The framework of conceptual change, in which the understandings and beliefs that teacher candidates hold at the beginning of a lesson are effectively challenged and re-directed toward more productive representations, is a promising but underutilized model in developmental instruction (McDevitt & Ormrod, 2008).

A third barrier is the limited number of real-world implications of concepts that have been translated for teachers and other practitioners. Scholars and educators from NICHD and NCATE have lamented that application is "the missing element" in most teacher preparation programs, in that developmentally appropriate practices are weakly addressed in textbooks, instruction, and field experiences (NICHD/NCATE, 2006, p. 2). Thus, students may learn about fascinating research in child development but have little understanding of its relevance in caring for children.

Finally, and of central relevance to the current investigation, little consensus exists as to crucial practices for teachers and other professionals who work with children. Faculty members enjoy academic freedom in selecting their own developmental theories, results, and consequences for instruction, yet many might nevertheless welcome resources on essential principles. In fact, narrowing the field of core implications may be a necessary step in making meaningful progress with the three previously mentioned constraints.

To be able to design a teacher education program that introduces and then elaborates on core ideas, instructors need to decide on fundamental understandings and skills. Similarly, building a knowledge base for fostering conceptual change begs the question of how to identify a manageable array of concepts (Vosniadou & Mason, 2012). Similarly, the process of deriving meaningful applications of developmental science depends on the demarcation of truly significant themes.

Thus, the identification of recommendations is a critical foundation for ensuring that teacher candidates are able to draw on wisdom from developmental science. Strides have been made in recent years to advance a cohesive framework of core applications in developmental science.

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<sup>4</sup> The National Council for Accreditation of Teacher Education (NCATE) and Teacher Education Accreditation Council (TEAC) are in the process of merging as the Council for the Accreditation of Educator Preparation (CAEP).

For example, Snyder and Lit (2010a) have suggested that effective teachers understand three developmental principles: (1) “Knowing the children we teach is as important as knowing the content we teach” (Snyder & Lit, 2010a, p. 6); (2) “Effective teachers understand that students respond differently to similar opportunities, based in part on the strengths and vulnerabilities they bring to school” (Snyder & Lit, 2010a, p. 7); and (3) “Children in the same classroom are at different stages in the multiple domains of development; teachers must understand and be able to apply effective strategies to meet the range of needs of diverse students in their classrooms” (Snyder & Lit, 2010a, p. 7).

Although Snyder and Lit’s tripartite scheme encompasses core values in developmental science, a case can be made that increased specificity in principles is necessary if teacher candidates are to acquire realistic standards for behavior. Systematic attempts are necessary to identify developmentally appropriate practices across the physical, cognitive, and social-emotional domains. One way to identify these practices is by conducting a thorough review of concepts and recommendations included in developmental readings, interviews with experts, lectures, and policy documents. The strategy that we pursue in this investigation is to perform a content analysis of practical applications for teachers in popular textbooks in child development. These recommendations for practice, which are suggestions for actions to promote children’s education and welfare, are the focus of our analysis because of their significance—and reported underrepresentation—in teacher education programs (NICHD/NCATE, 2006). Content analysis is a versatile method for summarizing themes, text, images, and references in various forms of communication, including written documents, video segments, artistic forms, and advertisements (Krippendorff, 2013).

In the field of child development, recent content analyses have been conducted on such diverse topics as types of funding acknowledged in early childhood journal articles (Walsh & Sanchez, 2010), descriptions of the qualities of an observation scale (La Paro, Thomason, Lower, Kintner-Duffy, & Cassidy, 2012); body images of characters in books recognized as Caldecott Medal Winners (Wedwick & Latham, 2013), and perceptions of after-school programs by staff (Zarrett, Skiles, Wilson, & McClintock, 2012). In this investigation, content analysis was implemented as part of a multi-step method for identifying and analyzing practical recommendations for teacher candidates and practitioners in child development textbooks.

Child development textbooks are worthwhile to examine because they contain an overview of the field. These resources often are the main readings that students complete in a college course and although not necessarily intended by the instructor to be the primary focus of instruction, they generally take on an authoritative role in students’ learning (Alter, 2009; Fitzpatrick & McConnell, 2009; Weinberg, Wiesner, Benesh, & Boester, 2012). Textbooks are especially likely to influence students’ comprehension of course concepts when assessments are given on chapter concepts (Lorch, Lorch, & Klusewitz, 1993). Students typically read expository textbooks with the primary purpose of memorizing concepts rather than reflecting on their implications (Linderholm, 2006), suggesting that it is valuable for instructors to be explicit about the most significant inferences they would like students to make and remember.

To our knowledge, there have been few content analyses of child development textbooks. A few that exist are focused on delimited concepts or developmental levels. For example, a content analysis by Wardle (2007) examined how multiracial children were represented in 12 child development textbooks. Wardle found that only two of the 12 child development books addressed the identity and experiences of multiracial and multiethnic children in any detail. A second content analysis examined four textbooks focusing on adolescent development, focusing on chapter questions, topics, and references in the areas of physical, psychosocial, and intellectual development (Djang, 2011). The author determined that books overall highlighted questions in psychosocial development more so than in intellectual development; and considerable differences in topics, key theorists, and specific references existed across specific books.

In a content analysis, patterns in a text or other source are examined in terms of their analytical constructs (Krippendorff, 2013). In our investigation, we identified *explicit recommendations* as the primary unit for analysis.

The particular purpose for which we conducted the analysis was to determine patterns in the recommendations (Krippendorff, 2013). We sought to characterize not only the frequency of particular types of recommendations but also the presence of clusters of recommendations and the themes that were prevalent in the recommendations.

Three research questions guided our methods and analysis. *First, what descriptive trends exist in recommendations with regard to developmental domains, periods, and theories?* *Developmental Domain* refers to the primary area (e.g., social-emotional development) that the adult is trying to address with the measure. Information about developmental domain is important to examine because it helps to establish the particular areas emphasized in applications. *Theoretical Framework* refers to the formal conceptual perspective that explicitly underpins the recommendation. Documentation of theoretical frameworks allows us to determine the perspectives that most strongly drive educational applications. *Developmental Period* is the defined age level, if any, for which recommendations are applicable. These age levels are valuable to document because they show the degree to which strategies are age-specific or alternatively cast in a more encompassing manner across the childhood years. In addition to examining the relative frequency of recommendations in specified domains, periods, and theories, we examined the existence of potential clusters of emphasis within age periods, that is, whether the specific age levels were represented similarly or differently in terms of domains (e.g., does adolescence generate more recommendations regarding physical development than is the case with middle childhood?). The possibility of such patterns was an important issue to examine because potential clusters of recommendations in the age periods might affect the way in which teacher candidates apply knowledge of child development.

*Second, what recommendations reflect consensus across child development textbooks?* Presently, we do not know what the principal messages about child development are that teacher candidates encounter. A list of agreed-upon practices could also serve as a basis for assessing the impact of the teacher education curriculum, the instructional effects of particular experiences (e.g., how teacher candidates change their practices after their student-teaching assignment), the transformations of teachers' use of particular skills over the span of their career, and the connections between teachers' commitment to specific practices and the welfare of children in their care.

*Finally, are there differences in number of recommendations in books written for teacher candidates and those prepared for a general audience?* Previously, scholars and educators affiliated with NICHD and NCATE observed that tangible applications are infrequently included in child development textbooks (NICHD/NCATE, 2006, p. 6). The structure of our content analysis enabled a comparison between recommendations in books written for teachers with those in books prepared for a more general audience.

## **Method**

### Overview

The integrity of a content analysis depends on several factors, including the training of coders and the procedures they implement in identifying themes (Krippendorff, 2013). In this investigation, three individuals with expertise in child development (the authors) identified and analyzed recommendations. The first author is a professor of psychology with specializations in child development and educational psychology; the other two authors are graduate students in educational psychology with specializations in child development. The quality of data in a content analysis also depends on a carefully defined data source. Books were selected as a part of a clear series of steps related to the objectives of the research. The primary unit of analysis, recommendations, was defined and coded, with individual exemplars of recommendations subsequently subjected to further analysis. Each of the major steps in the content analysis was undertaken with procedures for protecting the integrity of the data, including verification of units through discussion among co-authors, inter-rater checks of coding, and secondary review by co-authors of themes derived in the recommendations.

### Selection of Books

Popular books in child development that were written for teacher candidates and other practitioners, and others prepared for a more broadly defined population of college students, were selected. This *relevance sampling* method entailed a purposeful identification of books that was necessary to investigate the research questions (Krippendorff, 2013).

Our goal was to examine recommendations that were applicable across the childhood years and reflective of an encompassing range of developmental areas. We therefore selected comprehensive child development books that were not specific to a single age period. Books that focused on early childhood or adolescence exclusively were not included. Although early childhood and adolescence are obviously important parts of child development, books devoted only to these periods do not necessarily represent the comprehensive principles of childhood across the school years.

We also avoided books that employed a restricted methodology, for example, case studies, and those that examined only a single domain, such as cognitive learning. The final constraint was that the books needed to be no more than 10 years old, a criterion that ensured currency of recommendations. Given precedent in numbers of books selected in relevant content analyses (4 and 12 respectively for Djang [2011] and Wardle [2007], respectively) and the desire to make the coding tasks manageable, a sample of 10 to 12 books was considered optimal.

Eleven books emerged during a three-phase selection process. First, we identified books through an electronic search. Amazon.com, Inc., a multinational electronic commerce company, was included as the data base from which to identify books due to its posting of rankings of books and searchable Boolean data base. In an initial phase of the Amazon.com search, the "best sellers" feature was used and keywords "child," "development," and "education" were entered (date of access was June 20, 2011). The top 50 books were examined for those that were comprehensive summaries of child development without a specialized format and less than 10 years old. Six books were identified in this first phase (see Table 1).

Second, we examined available book advertisements for forthcoming books. One new book that did not yet appear on the top best selling list for Amazon focused on child development and education and was added to the sample. This book was deemed timely and relevant to the analysis, and it was included as the second step in the inclusion process.

Third, we searched for other child development books on Amazon.com that would likely be read by teacher candidates in a range of classes even though they were not necessarily marketed for educational audiences. In this phase, the "best sellers" feature was again used and "child development textbook" was entered into the Amazon.com search. "Education" was omitted to allow for more general perspectives. The rationale was that teacher candidates often take college courses in child development that are not tailored for teachers and may or may not contain educational applications (Leibbrand & Watson, 2010; NICHD/NCATE, 2006). In many colleges and universities, teacher candidates take courses with other students in developmental psychology, child development, and related courses that do not necessarily have an education or applied focus. The top five books that focused on child development and that did not duplicate books already identified in the first two phases were examined. Four of these books met the selection criteria and were included (see Table 1). In cases for which a more recent edition of the book was available, it was used in lieu of the one listed on Amazon.

**Table 1: Books Included in Content Analysis**

Title	Authors	Publisher and ISBN	Example of a Recommendation	Primary Target as Teacher Candidates
Step 1: Identification of books through Amazon.com keywords "child," "development," and "education"				
<i>Child and adolescent development</i> (2012)	Anita Woolfolk and Nancy E. Perry	Pearson ISBN-978-0-13-702311-0	"Point to objects, label them, and expand on the sounds and words infants make once they are 9 months or older," p.159.	Yes
<i>Child and adolescent development for educators</i> (2007)	Michael Pressley and Christine N. McCormick	Guilford Press ISBN-13: 978-1-59385-352-5	"Analyze academic tasks for the capacity demands they place on students," p.55.	Yes
<i>Child and adolescent development for educators</i> (2008, 3 <sup>rd</sup> edition)	Judith L. Meece and Denise H. Daniels	McGraw-Hill ISBN-978-0-07-352576-1	"For young learners, use concrete objects, visual aids, and other teaching tools (e.g., videotapes, counters) for teaching abstract and unfamiliar concepts," p.178.	Yes
<i>Child development</i> (2011, 13 <sup>th</sup> edition)	John W. Santrock	McGraw Hill ISBN-978-0-07-353208-0	"Turn the classroom into a setting of exploration and discovery," p.188.	No
<i>Child development and education</i> (2013, 5 <sup>th</sup> edition)	Teresa M. McDevitt & Jeanne E. Ormrod	Pearson ISBN-13: 978-0-13-248620-0	"Help children and their families feel that they are valued members of the school," p. 93.	Yes
<i>Child development: Principles and perspectives</i> (2009, 7 <sup>th</sup> ed.)	Joan L. Cook and Greg Cook	Worth ISBN-13: 978-0-205-49406-4	"Make strong efforts to keep class sizes below 20 students, especially at early grade levels," p.504.	No
Step 2: Addition of a book focused on child, development, and education and identified through an advertisement				
<i>Child and adolescent development in your classroom</i>	Christi C. Bergin and David A. Bergin	Wadsworth Cengage ISBN-13:978-1-111-18634-0	"In schools, advocate for <i>daily</i> physical education, even for high school students," p.66.	Yes
Step 3: Identification of books through Amazon.com keywords "child development"				
<i>Child development: A practitioner's guide</i> (2011, 3 <sup>rd</sup> ed.)	Douglas Davies	Guilford Press ISBN-978-1-60623-909-4	"Communicate expectations for achievement that are high but realistic in relation to the child's potentials," p.369.	No, but it is an applied book written for practitioners.
<i>Child development</i> (2012, 7 <sup>th</sup> ed.)	Laura Berk	Allyn& Bacon ISBN-13: 978-0-205-71816-0	"Communicate warmth, confidence in the child's abilities, the value of achievement, and the importance of the effort in success," p.489.	No
<i>Child development</i> (2010, 5 <sup>th</sup> ed.)	Robert Feldman	Prentice Hall ISBN-0-205-65502-5	"Help preschoolers understand their feelings," p.253.	No
<i>The development of children</i> (2009, 2nd ed.)	Cynthia Lightfoot, Michael Cole, and Sheila Cole	Worth ISBN-13: 978-1-4292-0225-1	"Use meaningful activities," p.438.	No

## Procedures for Coding and Analysis

After the books were identified, we instituted three steps in the coding process: (1) identifying recommendations for practice; (2) identifying three topics (i.e., three developmental factors) and coding recommendations for possible values within the topics; and (3) analyzing recommendations for common themes. This sequence of procedures allowed our analysis to begin with a descriptive account of recommendations and proceed to inferences about general themes and finally to a comparison between numbers of recommendations in books targeted for educators and others written for more general audiences. Table 2 provides an overview of the three steps and specific processes.

**Table 2: Procedures for Coding and Analysis**

Step 1: Identifying Recommendations for Practice
<ol style="list-style-type: none"> <li>1. Practical recommendations selected as the coding unit</li> <li>2. Divided up books among co-authors</li> <li>3. One co-author reviewed each chapter of assigned books</li> <li>4. The three co-authors reviewed potential recommendations for each book and came to consensus as to whether particular statements were to be coded as recommendations</li> </ol>
Step 2: Identifying Three Topics and Coding Each Recommendation for Distinctions Within Topics
<ol style="list-style-type: none"> <li>1. Identified three topics (i.e., Developmental Domain, Theoretical Framework, and Developmental Period)</li> <li>2. Coded according to distinctions within topics</li> <li>3. Conducted inter-rater reliability</li> </ol>
Step 3: Analyzing Recommendations for Consensus Practices
<ol style="list-style-type: none"> <li>1. Cycles of reviews of individual recommendations by senior author across books searching for consensus on desired practices</li> <li>2. Drafts of consensus practices initially written and then revised during cycles of analysis</li> <li>3. One of the co-authors reviewed recommendations grouped within the emerging consensus practices and suggested revisions as to the coherence of the cluster and the wording given to the consensus practice</li> <li>4. The three authors reviewed all consensus practices and confirmed final wording.</li> </ol>

**Step 1: Identifying Recommendations for Practice.** The first step in the content analysis was to select the *coding unit*, which given the focus of the investigation was identified as practical recommendations for teachers and other practitioners (Krippendorff, 2013). *Recommendations* were defined as clear and discernible suggestions for actions by professionals that are intended to foster children's education and welfare. Recommendations were typically found in highlighted features of books (e.g., boxed features or statements that were bulleted, italicized, or set in bold) rather than in running text (see Table 1 for examples of recommendations). However, there were a few cases in which coders identified recommendations for educational strategies within a paragraph, in which case they were included if the judgment was made that readers would be able to infer that the material reflected a suggested application for work with children. We decided to err on being inclusive rather than restrictive at this stage so as to identify all possible strategies for supporting children.

In the process of implementing this first step, co-authors divided up the books and became familiar with the styles of individual books assigned to them. For each book, one of the three co-authors went through all of its chapters. Other sections of books, such as appendices, study guides, or instructor's resources, were not examined.

Next, the three researchers reviewed each of the books together to refine the lists of statements and ensure that recommendations specified actions that teachers and practitioners could follow. At this point, statements that were articulated as being for parents were excluded unless they were also indicated as being relevant to teachers and practitioners. Other statements that focused on observations or assessments of children that did not clarify an implication for improving children's well being were also omitted. Agreement among the researchers was achieved through discussion.

### Step 2: Identifying Three Topics and Coding Recommendations for Distinctions Within Topics.

Categorical distinctions allow coders to establish characteristics of a coding unit, in our case, the focus of the recommendations (Krippendorff, 2013). After a statement was identified as being a recommendation for practice, it was coded by one of the three researchers regarding each of *three topics*. In our coding, topics were developmental domain, theoretical framework, and developmental period. These three topics were selected because they provide foundational information about recommendations. In defining possible values for each topic, we endeavored to construct a coding scheme that represented a reasonably simple taxonomy that was compatible with divisions and headings in the textbooks (see Table 3).

Decisions about *developmental domain* were made with close attention to the content of the section or chapter from which the recommendation was taken. Unless recommendations were marked otherwise, they were identified as reflecting the domain identified in the chapter or section. Recommendations were classified as reflecting either an unspecified domain (e.g., with reference to a general feature of development); cognitive development; physical development; social-emotional development; or context for development (see Table 3). Although recommendations regularly pertained to more than a single domain (e.g., a suggestion for promoting physical activity in a physical development chapter might refer to social-emotional factors), we wanted to preserve clear categories and facilitate the establishment of inter-rater agreement and thus coded only one principal domain for each recommendation. Hence, if the recommendation about physical activity also referred to social-emotional factors but was made within a chapter or section on physical development, it was coded as being in the physical domain.

The selection of *theory* was based on conceptual frameworks that were regularly included in the table of contents, introductory chapters, and major sections of later chapters. Theories that were selected for the coding scheme were prominently displayed in most if not all of the books. Each recommendation was coded as representing either an unspecified framework, cognitive-developmental theory, sociocultural theory, psychodynamic theory, behaviorism or social-cognitive theory, a biological framework, information processing or other cognitive theory, developmental systems theory, a cultural framework, or attachment theory (see Table 3). The third and final topic coded was the *age level* that was the focus of recommendations. Recommendations were coded as being unspecified age, prenatal development or infancy, early childhood, middle childhood, or adolescence (see Table 3).

In order to compute inter-rater agreement, 10% of the recommendations were randomly identified after they were coded by one of the three researchers. A second researcher coded the recommendation, and the two sets of categories were compared (Cohen, 1960). Adequate levels of inter-rater agreement were obtained for the three topics. Co-authors had 90.13% agreement in the developmental domain ( $\kappa = .868$ ), 89.14% agreement in theoretical framework ( $\kappa = .611$ ), and 91.6% agreement in developmental period ( $\kappa = .866$ ).

**Table 3: Coding Scheme, Developmental Trends, and Frequency of Recommendations**

Category	Definitions	Frequency of Recommendations
Developmental Domain	Primary substantive area that is the focus of the recommendation	
	<p><i>Unspecified Domain</i> A specific area, such as cognitive development, was not identified and instead the recommendation was derived from a broad developmental perspective, as was the case in many introductory chapters.</p> <p><i>Cognitive Development</i> The focus of the recommendation was an aspect of cognition or learning, for example, memory, conceptual learning, language, reasoning, academic achievement, intelligence, metacognition and self-monitoring of learning processes, effective instructional processes, and operant and classical conditioning.</p>	<p>117</p> <p>736</p>



*Physical Development*

The focus of the recommendation was on motor skills, physiological states or maturational changes, physical activity, sleep and rest, health, eating and diet, brain development, puberty, and risky behaviors affecting health.

*Social-Emotional Development*

The focus of the recommendation was attachment, emotional expression or regulation, peer relationships, moral development, social cognition, self-perceptions, self-control processes, motivation and self-efficacy, and intimate relationships.

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*Contexts for Development*

The focus was on families or family relationships, culture, communities, media and technology, schools, and child care.

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Theoretical Framework	Formal conceptual perspective from which the recommendation was derived	
	<i>Unspecified Framework</i>	1745
	The recommendation was not grounded in a particular theoretical perspective or, in a few cases, a specific theory other than one of the following perspectives was specified.	
	<i>Cognitive-Developmental Theory</i>	76
	The work of Piaget, the neo-Piagetians, Kohlberg, or other cognitive-developmental theorists explicitly motivated the recommendation.	
	<i>Sociocultural Theory</i>	42
	The recommendation was based in the work of Vygotsky or other sociocultural theorists.	
	<i>Psychodynamic Theory</i>	3
	The recommendation was based in the ideas of Freud, Erikson, or other psychodynamic theorists.	
	<i>Behaviorism or Social Cognitive Theory</i>	40
	The recommendation was derived from principles of operant or classical conditioning or concepts from social cognitive theory.	
	<i>Biological Framework</i>	83
	The recommendation was made in the context of maturation, views on nativism, biologically privileged core knowledge, and health issues.	
	<i>Information Processing or Other Cognitive Theories</i>	122
	The recommendation emerged out of advances in cognitive process theories, for example, information processing views, modularity, network analysis, and metacognition.	
	<i>Developmental Systems Theory</i>	2
	The work of Bronfenbrenner and other theorists articulating an ecological and dynamic systems perspective provided direction for the recommendation.	
	<i>Cultural Theory</i>	61
	The recommendation was explicitly guided by theoretical perspectives regarding culture or such specific derivatives as cultural mismatch and cultural capital.	

*Attachment Theory*  
The recommendation was explicitly guided by work in attachment theory or with specific reference to the work of Bowlby, Ainsworth, or other attachment experts. 46

Developmental Period	<i>Age level of children for whom the recommendations are applicable</i>	
	<i>Unspecified Age</i> The recommendation was offered without specification of a particular age range.	1271
	<i>Prenatal Development or Infancy</i> The recommendation pertained to the prenatal period or infancy.	205
	<i>Early Childhood</i> The recommendation was specified as pertaining to young children (for the age range of approximately age 2 to 6 or however defined by textbook author).	257
	<i>Middle Childhood</i> The recommendation was identified for children in the middle childhood years (for the age range of approximately 6 to 10 years or as otherwise established by a textbook author).	220
	<i>Adolescence</i> This category was selected when the recommendation related to youngsters in the adolescent age range (for the period of approximately age 10 to 18 or as defined by the textbook author)	267

**Step 3: Analyzing Recommendations for Common Practices.** The third general step was to search for common themes in recommendations within the developmental domains. The senior author went through each of the recommendations across all books and searched for similar themes that were present in two or more books. Specific recommendations identified as being similar were grouped together, and a phrase that was consistent with the recommendations was tentatively developed and revised as new recommendations were integrated into the concept. Periodically, the phrase was revised to ensure that the essence of common features was accurately represented.

To check consistency on interpretation of consensus applications, a second co-author reviewed the individual recommendations that were grouped together and verified that these instances coherently addressed a common application. In addition, the second co-author reviewed phrasing for consensus applications and suggested additional recommendations that might be added to the emerging consensus applications. Finally, the third co-author examined the final collection of consensus applications and offered suggestions to phrasing, with the entire team deciding on final wording. Given the many cycles involved in reading recommendations, grouping kindred strategies for supporting children, and phrasing consensus applications, we enacted sequences of discussion and agreement rather than indices of inter-rater agreement.

### **Specifying Target Audiences for Books**

The primary audiences of the books were determined in order to compare the frequency of recommendations in books intended primarily for teacher candidates as opposed to those written for college students more generally. One of the co-authors examined the preface and title of each book to make this distinction. A second co-author confirmed the distinction. It was determined that five of the 11 books had educators as their primary target audience, whereas five were aimed toward a broad base of college students (see Table 1). The eleventh book is an applied book but appears to be targeted to counselors, social workers, and other mental health practitioners, and it was not included in the comparison.

### **Results**

Two thousand two hundred and twenty recommendations were identified across the 11 books, with numbers ranging from 3 to 995 statements ( $M = 201.82$ ;  $SD = 282.88$ ; Median = 104.5).

### **Descriptive Trends in Recommendations**

To answer the first research question about the characteristics of recommendations, we examined frequencies in recommendations by categorical distinctions in developmental domains, age levels, and theories (see Table 3).

**Developmental Domains.** The vast majority of recommendations, just short of 95%, specified a particular developmental domain. Recommendations focused mostly on cognitive and behavioral learning and social-emotional factors (Table 3). Fewer recommendations focused on physical development or contexts of development. Very few recommendations were in an unspecified domain.

**Age Levels.** Unlike developmental domains, age levels were not consistently identified: the majority of recommendations did not specify an age period (see Table 3). The developmental periods that were identified were fairly evenly distributed across infancy and prenatal development, early childhood, middle childhood, and adolescence.

**Theoretical Frameworks.** Most recommendations did not specify a particular theory. Theories that were most often mentioned were one of the cognitive perspectives (cognitive-developmental theories or another cognitive framework). Biological frameworks, cultural perspectives, attachment theory, sociocultural theory, and behaviorism and social cognitive theory received secondary levels of emphasis (see Table 3). References to psychodynamic and developmental systems theories were rare.

**Word Cloud.** Another way to convey descriptive trends in developmental domains, periods, and theories of recommendations is to show prevalent words in a word cloud. Word clouds are visual representations of the most frequent words in a corpus of text, excluding common words such as “is”, “of”, and “the” (also known as “stop words”). These representations can reveal patterns and themes and serve as an additional validation tool for other findings (McNaught, Carmel, & Lam, 2010). Such representations also allow researchers to observe and communicate trends not apparent through other displays (Dickinson, 2010).

In our cloud the text consisted of the wording from the 2,200 specific recommendations. In a word cloud produced through Tagxedo.com, words that appeared most regularly occur in larger fonts (see Figure 1). The most ubiquitous words in the recommendations reveal a focus on children of various ages (prominent words include “children,” “students,” “child,” “adolescents,” “baby,” and “infants”). Caregivers are also frequently described (e.g., as “teachers,” “parents,” and “families”). The child’s psychological processes are often represented in terms of cognition and behavior (e.g., “learning,” “behavior,” “skills,” “activities,” “strategies,” “reading,” “thinking,” “understand”). Somewhat lesser emphasis appears to be placed on social-emotional development (for exceptions, see “self,” “groups,” “social,” “emotions,” “relationships,” “feel”). Also evident is a dynamic view of guiding children (“opportunities,” “activities,” “encourage,” and “support”) and a focused perspective on contexts (“school” and “community” are prevailing terms and “culture” is not).



Descriptive statistics suggested a possible difference in number of recommendations in books for teacher candidates ( $M=377.00$ ,  $SD =356.67$ , Median=244;  $N=5$ ) and those for a general student audience ( $M=63.00$ ,  $SD=46.06$ , Median=66,  $N=50$ ), in spite of the small sample size and large variation within groups.

A Mann-Whitney  $U$  test confirmed that this difference was statistically significant, with a larger number of recommendations being present in books geared toward teacher candidates, ( $U=1.000$ ,  $p=.008$ , one-tailed test).

## Discussion

Content analysis proved to be an effective methodology for identifying recommendations in child development textbooks. With these recommendations in hand, it became possible to reveal areas of emphasis and clusters of particular domains and age levels, determine practices that reflected a degree of consensus, and examine differences in frequency between books written for teachers and those directed toward a more inclusive readership.

## Evidence Related to the Research Questions

In terms of descriptive trends queried by the first research question, most recommendations focused on cognitive development and social-emotional factors. Emphasis on these areas makes sense given the historically significant themes of cognitive and social-emotional development in the field of developmental psychology (Bosack, 2002). However, it is not clear why physical development and contexts for development were de-emphasized given that these areas represent critical application areas for teachers. Low rates of physical activity, unhealthful eating habits, and risky behaviors undermine the well being of many young people but can be addressed effectively in schools (He, Breiting, & Perez-Cueto, 2012; Keyte, Harris, Margetts, Robinson, & Baird, 2012; Lonsdale et al., 2013; Reyes & Elias, 2011). Similarly, most teachers work with diverse cultural and ethnic populations and need to be able to establish effective partnerships with children and families (Epstein, Galindo, & Sheldon, 2011; Kelly, Bluestone-Miller, Mervis, & Fuerst, 2012).

The majority of recommendations did not specify a particular age level for application. This finding is not surprising in that the predominant organizational structure of the books was topical rather than chronological in focus. Also, although formal conceptual frameworks undergirded many discussions in books, theory did not appear to play a clear role in guiding recommendations. Particular theories were often explained and contrasted with rival views; but when it came to offering recommendations, authors seemed to integrate the implications of a few distinct frameworks. This integrative perspective allows students to see the big picture but has the disadvantage of omitting the theoretical underpinnings of distinct practices.

What this means is that readers are not necessarily helped in visualizing a given strategy with a particular age group or in response to a definite conceptual framework. We did not code or analyze ancillary illustrations in our coding scheme, and it is possible that authors offered explanations that clarified what a practice looked like with children of various ages. However, if this is not the case, teacher candidates may be learning general practices that in reality look very different depending on the age of children and dynamics of the situation. Being affectionate with a young child requires different behaviors and emotional displays than does expressing concern to a high school student. Similarly, working effectively with parents of infants requires dissimilar kinds of communication than partnering with parents of middle school students.

Evidence in the clustering of recommendations suggests that readers are exposed to concepts about prenatal development and infancy that are rich in information about contexts of development. This embedding of infants in a caregiving context makes sense when the hands-on needs of babies and the significance of the first relationship are considered. Recommendations for young children were replete with concepts in physical development, cognition, and behavioral learning.

The focus on supporting rapidly developing motor and self-care skills of young children may have contributed to this emphasis on physical development. Adolescence was amply represented with concepts from social-emotional development, cognition, and behavioral learning. Concerns with peer relationships, identity, and a sense of autonomy in the teenage years may be responsible for this emphasis on social-emotional development. Curiously, middle childhood was *not* portrayed in a distinctive manner. Whether or not middle childhood is being downplayed or alternatively treated implicitly as the default childhood level (and therefore not requiring an explicit reference) cannot be resolved from our data. Regardless, middle childhood is a distinct developmental period with its own school system, the elementary school, and this age level merits descriptions of its emblematic ways of learning, relating to peers, understanding morality, and the like.

Complementary results in descriptive trends were obtained with the word cloud. Cognitive terms were especially prominent, and social-emotional development was emphasized to a somewhat lesser extent. Word prevalence in the cloud offered indicated that the recommendations took the form of interactive, rather than didactic, models of fostering children's growth. Terms such as "opportunities," "activities," "encourage," and "support" were common, whereas "training" and "reinforcement" were not. Also important, the cloud suggested a restricted perspective on context, with "school" and "community" being mentioned more often than "culture," "race," "ethnicity," or socioeconomic levels ("poverty" and "low-income" were also infrequently included).

Related to the second research question, we were able to identify practices that reflected consensus across books. The books had the highest levels of accord in the core areas of cognitive development; social-emotional development; motivation and self-regulation; and family, culture, and community. These areas are prominent topics within the field of child development and may have engendered consensus because key ideas have been honed over time and permit a coherent rendering by separate authors.

Language is a central topic within the field of child development yet it did not yield high levels of consensus. It is not apparent from the data whether individual textbook authors interpreted its meaning and applications differently or if there were simply few recommendations overall on the topic. Teachers have many opportunities to support the language of children, including the needs of children who are English language learners, making it valuable to determine the practical guidance teachers receive. This result is consistent with an analysis of teacher education programs, in which little attention has been given to bilingualism, bi-dialecticism, and instructional strategies that meet the needs of second-language learners (Ray, Bowman, & Robbins, 2006). Yet an increasing literature base exists on effective educational practices for English language learners, suggesting a need for culling evidence-based practices.

In addition to sharing overlapping views on some key applications, books showed variation. In terms of the final research question, books that were written with educators as their primary target included more recommendations that could be used by teachers in classrooms than did the books with a comprehensive audience. The existence of dissimilarity is consistent with variation found in a content analysis of adolescent development textbooks by Djang (2011), albeit in other areas of focus.

Djang found that topics related to inclusion and diversity, specifically concepts related to the needs of children with disabilities, race, socio-economic status, and tracking, received differential prominence across the books, as did representations of key theorists, including Piaget, Vygotsky, Erikson, and Kohlberg. The implication of these discrepancies is that it is possible for teacher candidates to be exposed to either a strong or a limited sense of how they can best meet the needs of children.

### **Limitations**

In future research, it will be worthwhile to examine practices that are designed to address more than a single developmental domain (e.g., applications that bear on both physical *and* social-emotional development). Doing so was beyond the scope of the current investigation because it would have required a different kind of data set, one that captured not only the wording of the recommendations but also interpretations in surrounding text.

Despite the inherent difficulties in conducting such an encompassing analysis, developmental domains are in fact closely intertwined, and from a holistic perspective, any gesture with a child or effort to improve the educational circumstances of learning invariably influences more than the targeted cognitive domain. Another limitation that we acknowledge is that some of our coding cycles allowed for an inter-rater agreement check and others were finalized after discussion. We acknowledge that other researchers might have articulated a different set of consensus practices, however, the many waves of reading and comparing stated recommendations did ground the general consensus practices that emerged.

The textbooks selected in our investigation were wide-ranging in age, generally including infancy, but with stronger focus on the early childhood years through adolescence. A range of books that exist on the market focus on either early childhood or adolescence, and it would be of interest to determine the extent to which similar or different types of recommendations are contained in these sources.

### **Implications for Future Research**

The results of this investigation have implications for future inquiries. Child development textbooks represent comprehensive portrayals of developmentally appropriate practices, yet it would be worthwhile to supplement the results of this investigation with other sources of information that teacher candidates and other practitioners encounter (Djang, 2011; NICHD/NCATE, 2006). Analyses of accreditation tests (e.g., the Praxis), course syllabi, and interviews with instructors may offer unique perspectives on important content. Another worthwhile direction to take is to examine the curricula of teacher education programs that have been identified as being exemplary models for preparing teachers in child and adolescent coursework (Snyder & Lit, 2010b). For the well-being of all children, including those from different cultures, ethnicities, religious faiths, sexual orientations, and ability classifications, it will be critical for these future analyses to determine the manner in which teachers are exposed to—and ideally, ultimately learn and practice—actions that are inclusive.

The consensus themes that emerged in this investigation have prospects for guiding assessments of teacher candidates. Survey instruments could be developed based on applications for which there was strong consensus. Observation schemes might be developed so as to examine which actions teacher candidates implement in the classroom. Educators in higher education and their partners in the schools might chart teacher candidates' progress in attaining understandings of, and skills in, relevant areas as they progress through their teacher-preparation programs.

Future research is also needed to determine how students interpret the varying levels of exposure to developmental concepts and applications. Given the importance of reaching all children, it will be helpful for future research to examine the manner in which teacher candidates are advised and shown how to work effectively with children from different income levels, ethnicities, native languages, and cultures.

### **Implications for Teacher Educators**

Instructors who use child development textbooks as part of their instruction may find it useful to consider the role that applications play in their course and throughout the teacher education program.

Critics have argued that applications are weak in typical programs; our results suggest considerable variation across textbooks, and we suspect that other segments of the program, for example, field experiences, may be comparably diverse. Moreover, our results suggest that undesirable gaps may exist in materials that are critical for the teacher's educational toolkit.

Until textbooks and other information presented to prospective teachers systematically offers tangible advice for identifying strengths and risk factors, and addressing these characteristics, in all children, including those who are immigrants, refugees, second-language learners, and members of low-income communities, instructors need to ensure that they themselves introduce and reinforce relevant strategies.

Yet even when teacher candidates are exposed to productive applications in books and other sources, instructors also need to consider the manner in which teacher candidates make sense of these practices. An instructor can help teacher candidates improve their awareness of developmentally sensitive principles by using such tactics as offering clear demonstrations, exercises, case studies, field experiences, and coordinating with colleagues in the teacher education program in order to ensure pedagogically necessary repetition (McDevitt, 2009; McDevitt & Ormrod, 2008; Pianta et al., 2010).

In the process, teacher educators need to anticipate that some teaching practices will be difficult to accept, given personal and cultural experiences. Discussions of videotaped classroom interactions can be effective in allowing prospective teachers' beliefs to surface on such topics of the value of play for children, methods for including children with special needs in peer interactions, and validating the distinct traditions of children from different societies (Nassif, 2007; Gyeke, 2009; King, Aguinaga, O'Brien, Young, & Zgonc, 2010; Yi, 2008). Discussions about these beliefs in a climate of acceptance and tolerance are vital for reservations to be expressed and discussed.

We can anticipate that modeling, experimenting with practices, receiving constructive feedback, setting goals, and evaluating one's effectiveness will also be necessary tactics to translate recommendations into behaviors that directly help children, but of course prospective teachers should be given an opportunity to talk through the tactics they are learning so that they wrestle with their relevance and appropriateness. Self-reflective activities seem to be especially effective in fostering the self-regulation of prospective teachers and might include developmental concepts in self-assessment tools, diaries, portfolios, and case study analyses (Boruchovitch & Ganda, 2013).

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