

Research Report

SERVE's

Expanded Learning Opportunities National Leadership Area

March 2005

INSIDE THE CONTENT: THE BREADTH AND DEPTH OF EARLY LEARNING STANDARDS

By
Catherine Scott-Little
Sharon Lynn Kagan
Victoria Stebbins Frelow

SERVE Main Office
P.O. Box 5367
Greensboro, NC 27435

800-755-3277 Toll-Free
336-315-7400 Direct
336-315-7457 Fax

Ludwig David van Broekhuizen, Ph.D.,
Executive Director

www.serve.org

SERVE
Improving Learning through
Research & Development

Inside the Content: The Breadth and Depth of Early Learning Standards

By

Catherine Scott-Little, Ph.D.
Human Development and Family Studies
SERVE
University of North Carolina at Greensboro

Sharon Lynn Kagan, Ed.D.
Victoria Stebbins Frelow
Teachers College
Columbia University



In Association with the School of Education
University of North Carolina at Greensboro

2005

Edited by
Donna Nalley, Ph.D., SERVE Publications Director
Karen DeMeester, Ph.D., SERVE Publications

Cover Design by
Shelley Call, SERVE Graphic Designer

Research and production of this document were supported by the Institute of Education Sciences, U.S. Department of Education, through the Regional Educational Laboratory at SERVE (under contract no. ED-01-CO-0015). The findings and opinions expressed do not necessarily reflect the position or policies of IES or the U.S. Department of Education.

Acknowledgments

We would like to thank a number of persons who were instrumental to our efforts to bring this work to fruition. Rosemarie Andrews, Sarah Boeving, Amanda Weisner, and Jennifer Kunzman's assistance in development of the document was invaluable. We would also like to thank Victoria Seitz for her insightful assistance with data analysis for the report.

We especially would like to thank the early childhood specialists in state departments of education who participated in the interviews for Phase 1 of this study and have continued to provide us with updated standards documents and insights on early learning standards. We are grateful to each of the informants for their interest in this study and their tireless dedication to their work on behalf of families and children. Our hope is that insights illuminated in this report will be useful to persons involved in developing and implementing early learning standards.

The authors are also grateful to four anonymous reviewers from the Institute of Education Sciences and the following persons who contributed their time and expertise toward reviewing the draft report. Their comments and suggestions were invaluable toward strengthening the quality of this research report.

External Reviewers:

Susan R. Andersen, Iowa Department of Education
Barbara T. Bowman, The Erikson Institute
Harriet A. Egertson, Independent Consultant, Early Childhood Education
Marilou Hyson, National Association for the Education of Young Children
Deborah Leong, Metropolitan State College of Denver
Jana Martella, Council of Chief State School Officers

SERVE's Internal Reviewers:

Beth Bader, Planning and Development
Dee Brewer, Education Policy Program
E. Glyn Brown, Expanded Learning Opportunities Program

Inside the Content: The Breadth and Depth of Early Learning Standards

Table of Contents

Section Title	Page Number
Acknowledgments	ii
Background and Purposes for This Study	1
SERVE's Early Learning Standards Study	2
Phase 1: Understanding the Context of Early Learning Standards	2
Phase 2: Examining the Content of Early Learning Standards	3
Purpose of This Study	3
"Non-Purposes" of This Study	3
Methodology	4
Data Collection	4
Collecting Current Sets of Standards	4
Developing a Framework for Analysis of Early Learning Standards	6
Selecting a Framework as the Basis for a Coding System	6
Developing the Protocol for Coding Standards	8
Limitations of the Coding Scheme	8
Deciding What Standards to Code	9
The Data Coding Process	10
Coding the Data	10
Reliability of the Coding Process	13
Using the Framework to Analyze the Content of Early Learning Standards	14
Breadth of Standards	16
Depth of Standards	16
Findings	16
Variation in the Number of Standards Items and Subject Headings in the Standards Documents	17
Analysis of Breadth: Coverage Across the Five Dimensions	20
Absolute Breadth	20
Relative Emphasis Within Breadth	23
Analysis of Depth: Coverage Within Each of the Five Dimensions	24
Absolute Depth	24
Relative Emphasis of Depth	26
Physical Well-Being and Motor Development	28
Social and Emotional Development	29
Approaches Toward Learning	29
Language and Communication	29
Cognition and General Knowledge	30
Discussion and Recommendations	30
Implications	31
The Desirability of State Variation	31
Balance Among the Dimensions: The "Breadth" of Standards	32
Covering Domains Fully: The Depth of Standards	37

Physical Well-Being and Motor Development	37
Social and Emotional Development	37
Approaches Toward Learning	38
Language and Communication	38
Cognition and General Knowledge	39
Recommendations	40
Conclusion	43
References	45

List of Tables

Table 1: States With Early Learning Standards Included in This Content Analysis	5
Table 2: Sample Standards Items	12
Table 3: Number of Standards Items and Subject Area Headings Included Within the Standards Documents	18
Table 4: Absolute Breadth: One or More Standards Coded for Each Dimension	21
Table 5: Percentage of Standards Items in Each of the Five Dimensions	23
Table 6: Absolute Depth by Dimension	25
Table 7: Percentage of Standards Items by Indicator Within Each Dimension	27

List of Figures

Figure 1: Indicators for Coding Standards	15
---	----

List of Appendices

Appendix A: Standards Documents Included in the Analysis
Appendix B: Indicators Used for Coding Standards Items
Appendix C: State-by-State Breakdown of the Relative Degree of Emphasis Across the Dimensions
Appendix D: State-by-State Breakdown of the Relative Degree of Emphasis Within the Physical Well-Being and Motor Development Dimension
Appendix E: State-by-State Breakdown of the Relative Degree of Emphasis Within the Social and Emotional Development Dimension
Appendix F: State-by-State Breakdown of the Relative Degree of Emphasis Within the Approaches Toward Learning Dimension
Appendix G: State-by-State Breakdown of the Relative Degree of Emphasis Within the Language and Communication Dimension
Appendix H: State-by-State Breakdown of the Relative Degree of Emphasis Within the Cognition and General Knowledge Dimension

Inside the Content: The Breadth and Depth of Early Learning Standards

Background and Purposes for This Study

Standards-based education has become the norm in America's K–12 education system. Virtually every state in the nation, plus the District of Columbia and Puerto Rico, has developed standards to outline expectations for student learning in kindergarten and later grades (American Federation of Teachers, 1999). The process of developing standards in the K–12 arena began in the late 1980s and has revolutionized the education system in our country. Development of standards has been at the heart of the accountability movements in elementary and secondary education. Standards define what teachers should teach, what students should learn, and what should be assessed to determine the degree to which schools have been effective in helping students learn the content articulated in the standards.

Until recently, early care and education has largely been exempt from the standards-based education movement. Traditionally, the focus within early education has been on program standards that articulate requirements for basic elements of early care and education services, such as staff-child ratios, health and safety practices, and daily schedules and activities. Within the past five years, however, there has been a marked increase in the number of states that have developed standards for children's learning and development before kindergarten entry. In 2002, just over half the states had some type of standards for preschool-age children or younger (commonly known as *early learning standards*), most developed since 1999 (Kagan & Scott-Little, 2004; Scott-Little, Kagan, & Frelow, 2003a; 2003b). Furthermore, Head Start has promulgated the Head Start Child Outcomes Framework, a document that outlines 100 specific expectations for children's growth and learning (Head Start Bureau, 2001). Numerous professional organizations have developed model standards for children's learning in various areas, including the arts, physical education, language, literacy, mathematics, and technology.¹ Most recently, the Bush Administration's Good Start, Grow Smart early childhood initiative directed states to include plans for developing "voluntary early learning guidelines" in the areas of language and early literacy skills as part of their plans for their Child Care Development Funds (CCDF). The Good Start, Grow Smart initiative specifies that these voluntary early learning guidelines should be aligned with K–12 standards and should be able to be adapted to various child care settings (U.S. Whitehouse, 2002).

¹ Arts Education Partnerships. (1998). *Young Children and the Arts: Making Creative Connections*. Washington, DC: Council of Chief State School Officers. Available at <http://aep-arts-org>. Music Educators National Conference (1995). *Prekindergarten Music Education Standards*. Reston, VA: MENC—The National Association for Music Education. Available at www.menc.org/publication/books/performance_standards/prek.html. National Association for Sport and Physical Education. (2002). *Active Start: A Statement of Physical Activity Guidelines for Children Birth to Five Years*. Available at <http://member.aahperd.org/Template.cfm?Template=Categorydisplay.cfm&category=60&ParentCategoryID=5§ion=5>. National Dance Education Organization. (2002). *Standards for Dance in Early Childhood* (Draft). Bethesda, MD: Author. National Center on Education and the Economy. *Speaking & Listening for Preschool through Third Grade*. Available at www.ncee.org. International Reading Association. (1996). *Standards for the English Language Arts*. Available at <http://newbookstore.reading.org>. National Council of Teachers of Mathematics. *Principles and Standards for School Mathematics, Chapter 4: Standards for Grades Pre-K–2*. Available at <http://standards.nctm.org/document/chapter4/index.html>. International Society for Technology in Education. (1998). *National Educational Technology Standards for Children*. Eugene, OR: Author.

Many in the field of early care and education have been wary of “standards” for early childhood development because of significant concerns that the nature of development and learning at this age does not lend itself to “standardization.” Despite these concerns, the field has witnessed a dramatic shift, and now early learning standards are increasingly common.

Several factors have mediated this press for early learning standards. First, research over several decades has shown that children have great capacity for learning during the years before kindergarten, and several recent reports, such as *Eager to Learn* (National Research Council, 2001), have eloquently and convincingly pointed out the great potential for learning at this age. Research has also shown the important impact early education programming can have on children’s learning and development. Second, the federal government, states, local school districts, and communities have invested tremendous resources in services for children this age (Doherty, 2002; Schulman, Blank, & Ewen, 1999). It seems reasonable and perhaps inevitable in this age of accountability that policymakers and others want to know just what children are supposed to be learning in these early care and education settings. Finally, the accountability pressures in the K–12 education system have led many to look to early education as a key for improving student performance in the later grades. As such, standards to define what children can be expected to learn at this age have become an increasingly important part of efforts to promote student learning before kindergarten and, in turn, improve student performance in later grades. Given the convergence of these pressures for accountability and intentionality about learning in programs serving children before kindergarten, early learning standards have become increasingly common (Scott-Little, Kagan, & Frelow, 2003a; 2003b).

SERVE’s Early Learning Standards Study

Phase 1: Understanding the Context of Early Learning Standards

Recognizing the potential significance of these standards, SERVE partnered with Dr. Sharon Lynn Kagan from Teachers College, Columbia University to conduct a national study on early learning standards. The study has been conducted in two phases. The first phase was a national survey of early education administrators to address four basic research questions:

- 1) What states have early learning standards?
- 2) How were they developed?
- 3) What are some basic features of the standards documents (e.g., what ages and levels are targeted, and what subject areas are included?)
- 4) How are they being used?

Results from this study indicated that, as of May 2002, 27 states had published standards documents to articulate expectations for children’s growth and development. These state standards were focused primarily on children’s growth and learning during the preschool years, although a few of these states had early learning standards for infants and toddlers. The standards had, for the most part, been developed to improve instruction and programming through a highly collaborative process involving multiple stakeholders within each state. The standards were primarily developed for use in publicly funded pre-kindergarten programs, although informants from most states reported plans to encourage other early care and education programs within the state to use them. The degree to which programs are reportedly held accountable for using the

standards varied. Some states consider them voluntary; some expect programs to use the standards but have no system to hold programs accountable; and a few were in the process of developing assessment systems to collect data on the extent to which children made progress on the skills and abilities articulated in the standards (Scott-Little, Kagan, & Frelow, 2003a; 2003b).

Phase 2: Examining the Content of Early Learning Standards

While helpful in illuminating the status of recent development of early learning standards, the first phase of the study did not provide an in-depth analysis of the nature or content of the standards themselves. The second phase of the study, a content analysis, is described in this report.

Purpose of this study. The purpose of this descriptive study is to examine the content of early learning standards developed by state-level organizations in order to address the following research questions:

- 1) To what extent have various dimensions of development and learning (i.e., the dimensions of physical and motor, social and emotional, approaches toward learning, language and communication, and cognition and general knowledge) been addressed in early learning standards? What is the relative degree of emphasis within the standards on each of the five dimensions of development and learning?
- 2) To what extent have specific indicators of children's learning and development within each of the dimensions been addressed in early learning standards? What is the relative degree of emphasis placed on the indicators within the five dimensions?

Our purpose in addressing these questions is to provide a picture of what states emphasized in their early learning standards documents and to extract themes or patterns that can provide useful information for those currently engaged in the process of developing or revising standards documents. The process of developing early learning standards is new for the field, and, like any new initiative, there is a need for self-assessment and reflection on what has been done. We hope to present descriptive data that will guide future policy decisions related to the content of early learning standards and to identify areas where further research is needed to facilitate optimal use of early learning standards.

“Non-purposes” of this study. Having outlined the purposes for this study, it is also necessary to articulate important “non-purposes” for this work. This study is not designed to compare states or identify a set of “best” standards among documents analyzed. Based on data from the first phase of this study, we know that states developed early learning standards through different processes and for different purposes. With such divergent starting points, comparing the end result of the standards development process is not productive. We do, however, present patterns observed from our analysis of the standards and suggest standards documents that exemplify the various patterns. A second “non-purpose” of this study relates to how the documents are being used or implemented. While this is perhaps the most significant question for the field, this report does not discuss data relative to implementation of the documents. Phase 1 of this study on early learning standards addressed how states planned to use the documents. See Scott-Little, Kagan, and Frelow (2003a) for a discussion of implementation issues.

The following sections of the report summarize the methodology and findings of our content analysis. Based on the findings, we discuss the implications of this work for the development of early learning standards and provide recommendations for ongoing work in the final section.

Methodology

Data Collection

Collecting Current Sets of Standards

The first step for this content analysis was to gather the most current versions of early learning standards documents available. In the first phase of the study, the research team collected a total of 29 sets of standards from 27 states. The study revealed, however, that the process of developing early learning standards is a “moving target.” A number of respondents from states with published early learning standards indicated that their states were continuing to work on their standards. In some cases, such as New Jersey and Ohio, the current set of standards was being revised or replaced. In other states, their standards were considered “draft” because they had not received final approval from the state’s board of education. In yet another group of states (such as Colorado, Missouri, and South Carolina), standards had been developed for a limited number of domains or subject areas, and the respondents indicated that additional domains/subject areas were in process. Thus, even among the 29 sets of published early learning standards identified in the first phase of this study, there was ongoing work that could render the document obtained during the first round of data collection obsolete. Furthermore, respondents from 12 additional states plus the District of Columbia indicated during the first round of interviews that their state was in the process of developing early learning standards but did not have a published document. At the time of the interviews for the first phase of the study, respondents from several of these states indicated that their state would have a completed document in the near future.

Based on these data indicating a significant number of states were engaged in the standards development or revision process, we re-contacted each state to determine if a new standards document had been published. Beginning in January 2003, the primary respondent from each state with published early learning standards was re-contacted through a form letter, e-mail, and/or phone call to determine whether a revised standards document might have been published since the time of the original interview. In addition, respondents from each of the 12 states plus the District of Columbia that were originally reported to be in the process of developing standards were re-contacted to determine whether the state had published a standards document since the time of the interview. In cases where respondents indicated a revised or new set of early learning standards had been published, the research team requested a copy of the new document, along with the web address for the document. In addition to re-contacting respondents from the first phase of the study, a thorough search of the World Wide Web was conducted to locate any early learning standards posted by states.

The research team then examined each document provided by respondents and collected from the World Wide Web. To be included in the study, the standards document had to be deemed

published and available for review as of November 2003. Early draft documents posted for public comment were not included. Documents published but pending final approval from the state's board of education were included if the description of the development process indicated that the review process had been completed. This process of re-contacting respondents and searching the World Wide Web produced a total of nine new early learning standards documents and eight revised documents. A total of 38 sets of standards from 36 states were included in the content analysis. Table 1 lists the state standards documents included in the content analysis. Please see Appendix A for a complete listing of the standards documents analyzed in this report. Two states on the list—Maine and Washington—have two sets of standards. The full name of the standards document or the agency that developed the standards has been used to differentiate between the two sets of standards that have been developed within the same state.

Table 1

States With Early Learning Standards Included in This Content Analysis*

States	
Arkansas	Minnesota
Arizona**	Mississippi
California	Missouri***
Colorado	New Jersey***
Connecticut	New Mexico
Delaware**	New York
Florida	Ohio***
Georgia***	Oklahoma
Hawaii**	Pennsylvania
Idaho**	Rhode Island
Illinois	South Carolina***
Indiana**	Texas
Kentucky**	Utah
Louisiana**	Vermont
Maine—Learning Results	Virginia**
Maine—Early Learning Results	Washington—Early Childhood Ed. & Assistance Program
Maryland***	Washington—Office of Superintendent of Public Instruction
Massachusetts***	Wisconsin**
Michigan	Wyoming**

* Four states that were developing their standards at the time of data collection have since completed their process (Alabama, Nevada, North Carolina, and Tennessee). Their documents have not been included in this analysis because they were not available for review at the end of the data collection period (November, 2003).

** Standards published subsequently to completion of Phase 1 of the study (i.e., between May 2002 and November 2003)

*** Standards revised after completion of Phase 1 of this study (i.e., between May 2002 and November 2003)

Results from the search process also revealed that a number of the states listed above are continuing in the standards development process, either to revise or expand their published standards documents (Colorado, Maryland, Michigan, Ohio, Pennsylvania, South Carolina, Vermont, and Washington—OSPI). Of these states, three (Colorado, Maryland, and South

Carolina) had completed a limited number of subject areas (language arts or mathematics for instance) and were in the process of developing standards for additional subject areas. Only the subject areas completed by November 2003 were included in this analysis.

A total of nine states plus the District of Columbia that did not have published early learning standards were in the process of developing standards as of November 2003: Alabama, Iowa, Kansas, Nebraska, Nevada, North Carolina, Oregon, South Dakota, and Tennessee. Although some of these states had draft standards documents, they were not included in the analysis because they did not meet the criteria for “published” standards documents. Four of these states—Alabama, Nevada, North Carolina, and Tennessee—have subsequently completed their standards documents, although these standards documents have not been included in this analysis because they were not published by the cut-off date for data collection (November 2003). The number of states working on new or revised standards clearly indicates the prevalence of standards development activities across the country.

Developing a Framework for Analysis of Early Learning Standards

Selecting a Framework as the Basis for a Coding System

The primary purpose of this study is to examine the aspects of children’s development and learning states have addressed in their early learning standards. In order to conduct such an analysis, it was necessary to develop a coding/analysis framework. Two considerations guided the selection of a coding/analysis framework: 1) the need for a framework that was relatively widely accepted in the field and 2) the need for a framework that would be applicable across a wide variety of approaches to articulating standards. Given that there are no national standards for children’s early learning outcomes to use in this analysis, the team looked for a framework that would be widely recognized as valid and could be used to code 38 different standards documents, each with its own unique approach to outlining expectations for children’s growth and development before school entry.

The research team considered several alternative documents to use as a basis for developing a coding scheme for the standards. For instance, the Head Start Child Outcomes Framework includes one hundred indicators divided into eight dimensions. McGraw Hill has published model standards that can be used as a prototype in developing standards. We also looked at the Creative Curriculum’s Developmental Continuum that provides a detailed description of age-level expectations for the preschool children. Because the research team was committed to developing a framework that would be applicable across a wide variety of programs and types of standards, would support reliable coding decisions, and could produce meaningful comparisons, it was determined that the number of indicators used to code the standards must be relatively small to ensure a manageable coding process. These alternate frameworks were determined to have too many indicators to support a reliable coding process and therefore were not selected.

The research team studied the National Education Goals Panel’s five dimensions of readiness as defined and described in *Reconsidering Children’s Early Development and Learning: Toward Common Views and Vocabulary* (1995) and determined that this document could provide a manageable starting point for a coding system. The NEGP framework was selected as the basis

for developing a framework for coding the content of standards. The NEGP's framework represents one of the most widely agreed-upon, research-based, peer-reviewed documents describing dimensions of school readiness available in the field of early care and education. Extensive research was conducted to develop the descriptions of the domains and over 300 people provided input on the five developmental domains. Thirty experts in the field of early care and education and child development peer reviewed the descriptions. While there are no national standards for school readiness, the NEGP document development process yielded the closest approximation we found to national consensus on areas of development important to school readiness.

In addition to the rigorous process used to develop the NEGP document, the NEGP framework was most appropriate for this type of analysis for a number of other reasons. First, the document includes aspects of children's development that have been empirically linked with later success in school. Each of the dimensions has a research literature that demonstrates the importance of the area in terms of children's adjustment and/or performance in later grades. Second, the descriptions of the dimensions were deemed to be sufficiently broad to encompass the wide variety of early learning standards that have been developed. States vary in how they have approached the task of defining expectations for children's learning and development, with some focusing more on "academic" areas and others including both "developmental" and "academic" standards items. The NEGP framework can encompass both—with the physical, social and emotional, and approaches toward learning dimensions reflecting what are considered to be more developmental indicators and the language and cognition dimensions encompassing more "academic" indicators.

Finally, data from Phase 1 of this early learning standards study indicated that states have used the NEGP framework in their efforts to develop early learning standards. The fact that states have used the document increased the likelihood that the content of state standards would map onto a framework developed based on the NEGP document.

In sum, the NEGP document was deemed to be a well-documented description of the characteristics and skills important for young children's success in school and considered broad enough to encompass the varying types of standards states have developed. The NEGP document describes children's school readiness in five basic dimensions. A brief definition of these dimensions follows:

- Physical Well-Being and Motor Development: Characteristics of a child's growth, physical health, and motor abilities.
- Social and Emotional Development: Social development includes characteristics that are important for children to have successful interactions and relationships with others, both peers and adults. An individual's feelings toward self and others constitute emotional development.
- Approaches Toward Learning: Approaches toward learning include the inclinations, dispositions, or styles reflected in how children become involved in learning, rather than particular skills related to learning.
- Language and Communication Development: The acquisition of communication methods (oral and written) and the social rules and customs that guide how children express

themselves and understand communications from other persons. This dimension includes early literacy skills.

- Cognition and General Knowledge: The knowledge base a child has and the ability to represent the world cognitively are included in cognition and general knowledge. Three types of knowledge described in the NEGP document are physical knowledge, logico-mathematical knowledge, and social-conventional knowledge.

These five developmental dimensions were the starting point for development of a system that could be used to code the content of the standards. Although not originally intended to be used as standards or indicators, the NEGP framework provided a rich and research-based description of children's school readiness that was used as a framework from which the research team could begin to operationalize the indicators described below.

Developing the protocol for coding standards. To develop a research protocol, the research team carefully studied the NEGP document to develop a list of the key attributes described for each dimension. Using a consensus process, individual members of the team identified the core attributes for each dimension. The individual lists were compared, and agreement was reached on the final list. The list was then used to code early learning standards documents from several states in a pilot process to determine the feasibility of this coding procedure. Based on this pilot process, the team determined that the list developed from NEGP would not accommodate all standards items that were included in the language arts subject area and modified the Language Development dimension. Items were added to include more specific indicators for early literacy development. Indicators for phonemic and phonological awareness, comprehension related to literacy, book awareness, and alphabet or letter recognition were developed. The result was a total of 36 indicators (included in Appendix B) that reflect a more specific description of each dimension. These indicators were used to code standards items and will be referred to as "indicators" throughout this document.

Limitations of the coding scheme. Although the coding scheme used for this study was developed based on careful analysis of the NEGP work, study of subsequent research that has been published on children's early development and learning, and a careful pilot process of actually coding state standards, the framework does have two primary limitations in coding standards items. First, the number of indicators varies across the five dimensions. For instance, the Health and Physical Well-Being dimension contains four indicators—growth, fitness, motor skills, and functional performance. Likewise, the Approaches Toward Learning and the Cognition and General Knowledge dimensions also consist of four indicators. The final two dimensions have at least twice this number of indicators. The Language and Communication dimension, by comparison, consists of 16 indicators and the Social and Emotional dimension consists of 8 indicators. This "unevenness" is due to a number of factors. First, some dimensions may lend themselves more to identification of specific indicators. Furthermore, we have a larger and more specific research-base to draw from for certain dimensions. For example, more research has been done on the specific skills and abilities that are associated with children's success in learning to read. Therefore, we have more information about what indicators should be included in this dimension. Conversely, the area of approaches toward learning is less well researched and may reflect a more global construct that does not lend itself to specific indicators.

The unevenness in the number of indicators within the five dimensions could result in differences in the level of specificity with which the standards in the different areas were coded. While this may have implications for how the standards items were coded *within* the dimension, it would not have implications for how the standards items were coded *across* the dimensions. For instance, an item that reflects health and physical development would still be coded within the Physical Well-Being and Motor Development dimension, whether or not there were a number of very specific indicators within the dimension to choose from. The basic content of the standards item is still Physical and Motor whether there are 4 indicators within the dimension or 16 indicators.

The second limitation of this framework for coding standards items is that the relationship between academic content areas and the dimension categories is not self-evident. A more detailed description of the dimensions is necessary to show how academic content fits within the framework. Because early learning standards are articulations of expectations for what children should know and be able to do, they often reflect both academic content and developmental expectations that fall outside of the traditional realm of academic subject areas. The Head Start Child Outcomes Framework provides an example of this mixture of developmental and academic expectations with dimensions of Language Development, Literacy, Mathematics, Science, Creative Arts, Social and Emotional Development, Approaches to Learning, and Physical Health and Development. Learning and development are regarded as intertwined and dependent upon each other. While the overall titles used in our analytic framework for the dimensions are developmental in nature—Physical Well-Being and Motor Development, Social and Emotional Development, Approaches Toward Learning, Language and Communication Development, and Cognition and General Knowledge—academic content is an important element within the dimensions. However, just how the academic content fits within this framework is not obvious from the titles. Therefore, we have provided a detailed explanation for how indicators within each dimension were operationalized and have provided specific examples of how academic content was coded later in this description of the methodology.

Deciding what standards to code. Having developed a framework for coding the data, the next step was to determine precisely what would be coded within the early learning standards documents. Because the focus of the study is on standards for preschool-age children, only standards for three-, four-, and five-year-old children (prior to kindergarten entry) were coded. Although several documents included standards for infants and toddlers or kindergarten-age within the same standards document, standards for children younger or older than preschool-age were omitted from the analysis.

The decision regarding what to code within the standards for preschool-age children was more complex than determining the age-range of standards that would be coded. As noted in our first report on early learning standards, states have used a variety of approaches to articulate their standards. The nomenclature used to describe the standards varies from state to state. In some states, the “standards” are broad descriptions of instructional or developmental goals for children, with “benchmarks” that describe specific skills or abilities that relate to each “standard.” In other states, “desired results” or “learning goals” outline broader expectations, and “indicators” or “standards” articulate more specific expectations for children’s growth and development. Using yet another approach, some states have developed “standards” and provided

no more specific indicators. The research team, therefore, had to determine precisely what to code in order to have comparability across standards documents in the “level” of data that was coded.

The “level” of standards within an early learning standards document that most specifically described expectations for children’s development and learning was the unit that was coded for this analysis, regardless of what the items were called within the document (i.e., whether they were called “standards,” “benchmarks,” “indicators,” or some other name developed by the state). If a state document included broad statements labeled as “standards,” each of which was further broken down by more specific “benchmarks,” the “benchmarks” were the items coded. In other instances, a state document might include “learning goals” that describe expectations for children’s development and learning with no additional items under each to provide more specificity. In this case, the “learning goals” were coded. This strategy meant that the coding process was done with whatever “level” of items that were the most specific, and the data, therefore, reflect the largest possible number of items that are of the same “level” within each standards document.

Furthermore, the team decided to code individual standards without taking into account the category or subject area within which the standard was included or any supporting explanation that accompanied the standard (such as examples or suggested teaching strategies). *This strategy meant that the most specific description of expectations within each set of standards was coded solely on the content of the item.*

The Data Coding Process

Coding the data. The standards documents were first coded according to the individual indicator that most accurately reflected the content of the standard. In other words, each item within a standards document was coded for one (and only one) of the 36 indicators developed for purposes of this analysis (see above for a description of the indicators). Because each indicator was associated with only one of the five larger dimensions, this coding process also yielded which of the dimensions the standard reflected.

Two independent raters piloted the coding process with standards documents from two states. Coding for the majority of the items seemed self-evident, and agreement was reached easily. The appropriate coding was, however, not self-evident for all items. To improve the reliability of the coding process, several basic principles were developed to guide the coding process:

1. Coding the ends and not the means: As noted above, during the coding process the focus was on the standard’s ends, or outcome, and not the means. For example, an item might refer to the use of vocabulary to demonstrate comprehension of a specified concept. Rather than coding the item as “vocabulary,” the item would be coded as cognition because the coding would reflect the primary objective of the item—children demonstrating knowledge of a concept. In addition, the coding was based on the standards item only, without consideration for other contextual information such as the standard’s subject area/category or examples provided to illustrate the standard.

2. Coding academic subject areas: While the framework developed for this analysis does not label specific content or subject areas such as mathematics, social studies, science, and history, the skills and knowledge related to each were specified within the indicators. Skills that might be considered to be more reflective of academic content areas (such as classification and seriation) are included in the operationalization of the indicators. Consequently, the framework used to code the individual standards items does accommodate standards from various subject areas, typically within the cognition and general knowledge dimension but sometimes under approaches toward learning. The nature of the item, more so than the subject category, determined which of the indicators within the dimensions were used to code academic items. If items focused on knowledge of specific properties, characteristics, or facts related to the physical world, the item was coded as “physical knowledge.” If a standards item related to mathematics or high-order thinking about relationships (such as comparisons of how something is similar or different from something else), the item was coded as logico-mathematical knowledge. Items related to knowledge about the conventions or rules of society and/or schools/classrooms were coded as “social-conventional knowledge.” Items related to roles of persons or groups within society were coded as “social knowledge.” These items most commonly fell under the heading of “social studies” within the standards documents. If standards were process-oriented items, such as problem solving, curiosity, reflection on prior knowledge, and/or hypothesizing, they were coded under the applicable approaches toward learning category.
3. Relationships vs. social skills: Our coding framework provided for a differentiation between two highly related constructs: social relationships and social skills. According to the NEGP description of school readiness, “social competence with peers is considered to have two aspects (Howes, 1988): (1) the social skills necessary to cooperate with peers, and (2) the ability to form and sustain reciprocal friendships” (p. 20). In our framework, therefore, we have made the distinction between social skills such as cooperation, turn taking, and perspective taking (which we call social skills) and reciprocal relationships (which we call relationships). We further extrapolated this concept to apply to interactions and relationships with adults, distinguishing between social skills with adults and relationships with adults. The descriptions provided in Appendix B amplify the differences between these constructs and how they were operationalized during the coding process. We believe that the research literature (National Research Council, 2001; National Research Council & Institute of Medicine, 2000) increasingly points to the importance of reciprocal relationships—with both peers and adults—and, therefore, felt it necessary to distinguish between these two important elements of social competence within our coding framework.
4. Considerations for standards items related to creativity and the arts: Many standards documents included items related to artistic skills and/or processes. Items related to artistic development were coded based on the content of the item itself rather than the subject heading or other contextual information that accompanied the item. Depending on the emphasis within the specific standard, these items typically could be coded under any number of the indicators. In order to provide some consistency in how creativity or artistic standards items were coded, a basic principle was established: if the standards item related to a child’s ability to demonstrate creativity, initiative, curiosity, etc., the item was coded within the approaches toward learning dimension. However, if the item

simply indicated that a child would participate in a creative activity, such as dance or creative movement, the indicator that best fit the activity was used as the code. For example, a standards item that indicated a child would “participate in dance or creative movement,” the standard would be coded as physical and motor development. While this coding scheme may limit our ability to speak to the degree to which the arts have been addressed (as a separate dimension or subject area), we do feel that standards for the arts have been reliably and accurately coded.

To further clarify how these principles were applied, we have included Table 2 below with examples of standards items, the subject area where the item is found within the standards document, the dimension code and the indicator code that the item received, and a rationale for why the item was coded in the selected category.

Table 2

Sample Standards Items

Sample Standards Item	Subject Area	Dimension Coded	Indicator Coded	Rationale
Recognizes common geometric shapes	Mathematics	Cognition	Physical knowledge	Requires knowledge of specific properties of objects
Sorts, classifies, and orders objects by one attribute	Mathematics	Cognition	Logico-mathematical	Requires analysis of relationship between objects
Forms logical conclusions about data	Mathematics	Approaches	Reflection & interpretation	Requires reflection and interpretation of data
Identifies common plants and animals	Science	Cognition	Physical knowledge	Requires knowledge of the physical world
Perceives self as an explorer	Science	Social and emotional	Self-concept	Relates to how the child sees self
Uses the five senses to gather information and explore the environment	Science	Approaches	Curiosity	Primary emphasis is on exploring the environment (code the ends not the means)
Recognizes and talks about the importance and reasons for having rules	Social Studies	Cognition	Social convention	Relates to knowledge of conventions or rules
Discusses members of their family and their roles	Social Studies	Cognition	Social knowledge	Focuses on knowledge of roles (code ends not means—discuss)
Enters into a group play situation	Social-emotional	Social and emotional	Social skills	Relates to specific skills for social

Sample Standards Item	Subject Area	Dimension Coded	Indicator Coded	Rationale
				interactions
Demonstrates affection for familiar peers	Personal-social	Social and emotional	Relationships with peers	Emphasizes a relationship rather than specific skills
Uses art materials in creative ways	Arts	Approaches	Invention & imagination	Focuses on the creative process
Demonstrates understanding of the visual relationships in artwork, such as lines, shapes, colors, textures, and balance or portion	Arts	Cognition	Logico-mathematical	Requires an understanding of the relationship between various elements of art work
Participates in music activities that are part of different cultures	Arts	Cognition	Social knowledge	Focus is on experiences with different cultures
Develops awareness of different musical instruments, tones, rhythms, and tempos	Arts	Cognition	Physical knowledge	Requires knowledge of various properties of music

While this approach to coding standards may not totally reflect the intentions of standards developers from each individual state, it does provide a reliable and uniform system for analyzing the content of standards from different states and can accommodate different approaches of articulating standards. The “context information” surrounding the standards items, such as the subject area heading within which the standards item was found or explanations that accompanied the standards, could possibly provide more information regarding the standards developers’ intention for what dimension or specific indicator the standards item was designed to address. However, states varied widely in the type and amount of “context information” they provided. Therefore, the research team decided that a more reliable process would be to code only the content of individual standards items. The codings reflect our judgment as to which of the indicators best matched the essence of the content of each standards item. Our anecdotal observations suggest that typically the coding assigned was consistent with the “context information” and probably with the intentions of the standards developers, but there were instances when our coding of individual standards items may vary from the category within which standards developers from an individual state might say a particular standard was intended to address.

Reliability of the coding process. Using these guiding principles and the descriptions developed for the 36 indicators, each item within a standards document was coded. Two members of the research team coded standards documents, each coding approximately half of the 38 standards documents. Seven randomly selected standards documents (18% of the documents included in the sample) were coded independently by both of the coders in order to check for reliability of the coding process. Reliability rates of agreement on the seven documents ranged from 83% to 100%, with an average of 90% agreement. Items upon which the two independent

coders disagreed were identified and analyzed. Patterns within the disagreements were used to further clarify the indicators used for coding. In addition, the two raters reached consensus on how to code each item upon which they disagreed, and the consensus rating was used as the final rating for purposes of the study.

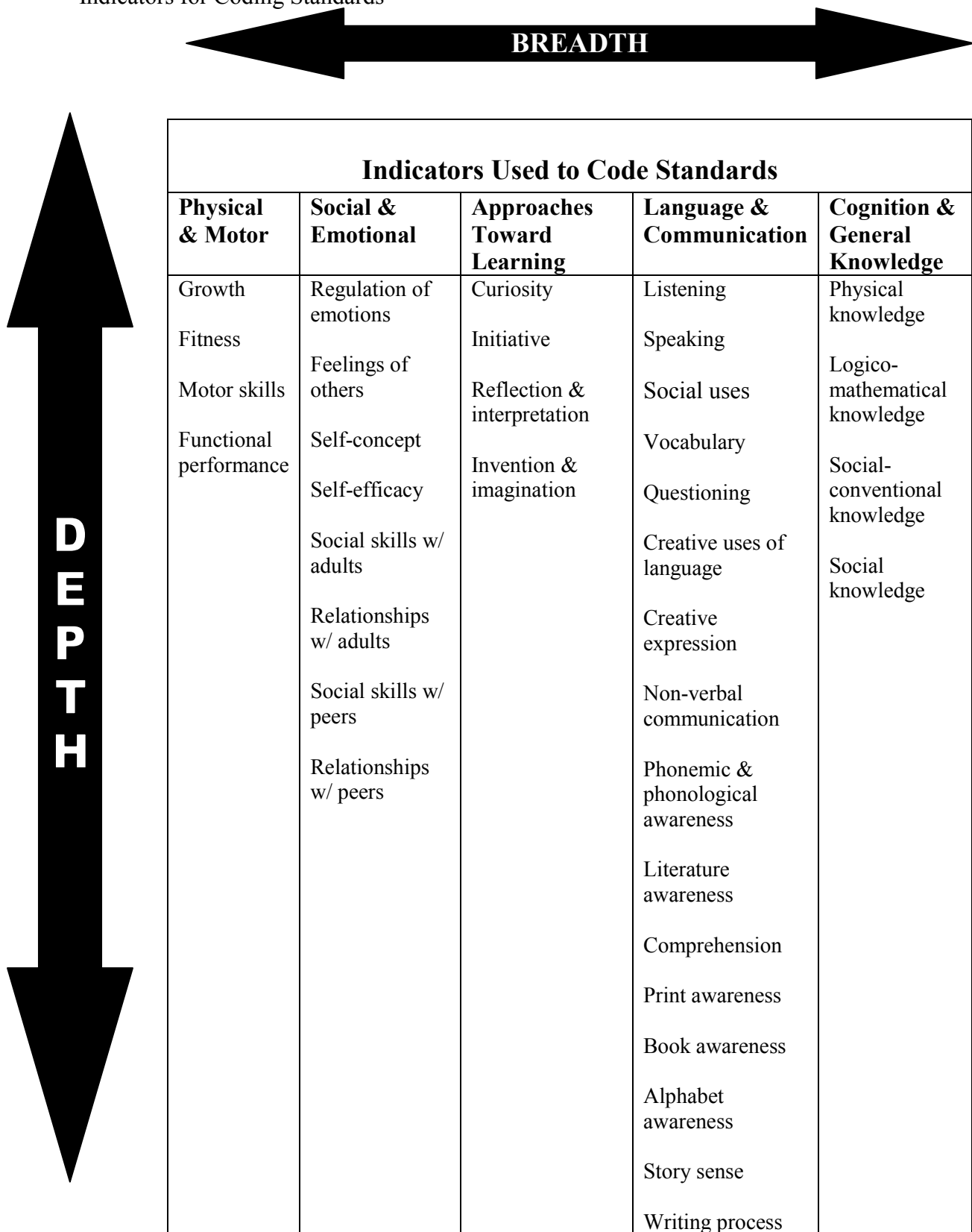
Using the Framework to Analyze the Content of Early Learning Standards

The basic premise of our work is that early learning standards that promote quality programming and support children's readiness for school cover all of these five dimensions in a manner that addresses important skills and characteristics within each domain. Simply put, our formula for quality standards is as follows:

$$\text{BREADTH} + \text{DEPTH} = \text{QUALITY STANDARDS}$$

Figure 1 provides a summary of the elements of breadth and depth. The following section outlines the conceptual framework we have used for describing the breadth and depth of early learning standards. Additional information on how each of the constructs was operationalized is provided within the findings sections of the document.

Figure 1
Indicators for Coding Standards



Breadth of Standards

Breadth refers to how many of the five dimensions (i.e., Physical and Motor, Social and Emotional, Approaches Toward Learning, Language and Communication, and Cognition and General Knowledge) are addressed within the standards documents. Our analysis of the breadth of the standards is conceptualized in two ways:

- 1) Absolute Breadth: Whether the state included one or more standards items related to each of the five dimensions.
- 2) Relative Emphasis Within Breadth: The relative degree of emphasis across the five dimensions.

Standards with good “breadth” address each of the five dimensions; standards with less “breadth” omit (or include a minimal number of items from) one or more of the dimensions.

Depth of Standards

“Depth” of coverage addresses the extent to which a set of standards addresses each of the indicators within a specific dimension (i.e., Growth, Fitness, Motor Development, and Functional Performance within the Physical and Motor dimension). Like breadth, we have conceptualized “depth” in two ways:

- 1) Absolute Depth: The degree to which the standards addressed each of the indicators within the dimension with at least one standard.
- 2) Relative Emphasis Within Depth: The relative degree to which standards items addressed each of the indicators within a dimension.

The depth analysis provides an indication of the degree to which a set of standards has included specific indicators included in our coding framework as components of each dimension.

Because the specifics for calculating each of these types of data are best illustrated with the data themselves, more detailed descriptions of how the breadth and depth data were calculated are provided within the section that discusses the findings. The actual data, along with a description of how they were calculated and a narrative description of the findings, are provided under each section.

Findings

The findings are presented in three sections. First, we present descriptive information related to the standards documents themselves (i.e., data that did not require use of the coding scheme but provide information about the standards documents). The number of standards items and subject area headings included within the standards documents are provided to give readers a broad overview of the format of the standards documents. Following this section, descriptive information is provided regarding the breadth of coverage of items across five dimensions,

showing the degree to which the five categories are represented in the 38 standards documents. Finally, we present information about depth (i.e., examining the question of what specific content is included within each of the five dimensions).

Variation in the Number of Standards Items and Subject Headings in the Standards Documents

States vary dramatically in the number and types of items included in their standards documents. As Table 3 shows, the total number of items states have included in their standards documents ranges from 50 to 371, with a mean of 151.1 items and a standard deviation of 83.7. Virginia has the fewest number of standards items included in their document—50. Indiana, Michigan, and Pennsylvania had the largest number of standards items, with 368, 369, and 371 items respectively.

Table 3

Number of Standards Items and Subject Area Headings Included Within the Standards Documents

State	Number of Standards Items	Physical/ Motor/ Health	Social/ Emotional	Approaches Toward Learning	Language/ Communication	Literacy	Cognition/ General Knowledge	Math	Science	Art/ Aesthetics	Social Studies	Other
Arizona	88	✓	✓		✓	✓		✓	✓	✓		Safety
Arkansas	260	✓	✓		✓		✓			✓		
California	55	✓	✓									Safety
Colorado	69				✓	✓		✓				
Conn.	77	✓	✓				✓			✓		
Delaware	114	✓	✓	✓	✓			✓	✓	✓		
Florida	189	✓	✓	✓	✓		✓					
Georgia	125	✓	✓		✓			✓	✓	✓		
Hawaii	147	✓	✓		✓	✓	✓			✓		
Idaho	186	✓			✓	✓		✓	✓		✓	Humanities
Illinois	106	✓	✓		✓			✓	✓	✓	✓	Foreign language
Indiana	368	✓			✓	✓		✓	✓	✓	✓	
Kentucky	177	✓			✓	✓		✓	✓	✓	✓	
Louisiana	98	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Maine Learning Results Early Learning Results	199 147	✓ ✓	 ✓		✓ ✓	✓ ✓	 ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	LR: Career Prep. Modern & Classic Language Technology
Maryland	196				✓	✓		✓	✓		✓	
Mass.	130	✓			✓	✓		✓	✓		✓	Technology Engineer
Michigan	369	✓	✓		✓	✓	✓	✓	✓	✓	✓	Nutrition, Self-Help
Minnesota	93	✓	✓	✓	✓		✓	✓	✓	✓	✓	

State	Number of Standards Items	Physical/Motor/Health	Social/Emotional	Approaches Toward Learning	Language/Communication	Literacy	Cognition/General Knowledge	Math	Science	Art/Aesthetics	Social Studies	Other
Mississippi	122	✓	✓		✓			✓	✓			
Missouri	156	✓	✓			✓		✓	✓			
New Jersey	170	✓	✓		✓	✓		✓	✓	✓	✓	World languages
New Mexico	96	✓	✓		✓	✓				✓		
New York	102				✓	✓						
Ohio	160				✓	✓		✓	✓		✓	
Oklahoma	118	✓	✓	✓	✓	✓		✓	✓	✓	✓	
Penn.	371				✓	✓		✓				
Rhode Island	133	✓	✓	✓	✓	✓		✓	✓	✓		
South Carolina	58				✓	✓		✓				
Texas	202	✓	✓		✓	✓	✓	✓	✓	✓	✓	Technology
Utah	263	✓	✓		✓	✓	✓	✓	✓	✓		
Vermont	155	✓	✓	✓	✓	✓		✓	✓	✓	✓	Technology
Virginia	50				✓	✓		✓				
Washington ECAP OSPI	52 156		✓		✓ ✓	✓ ✓		✓				Self-Help
Wisconsin	63	✓	✓	✓	✓		✓					
Wyoming	122	✓	✓	✓	✓	✓		✓	✓	✓		
Total	X = 151.1	29	25	8	35	27	11	28	23	21	15	

To provide information on the subject areas that states have used within their standards documents, the research team simply reviewed the table of contents for each document and recorded the subject headings (either at the heading level or the sub-heading level). The data are presented in Table 3. States have covered a variety of topics within their early learning standards documents. Every state except for California and Connecticut included language and communication and/or literacy as a subject area heading. Several (11) states included a subject area titled “Cognition” or “Cognitive Development.” Within these states, some included traditional academic subject areas such as mathematics and science within the broader subject area of cognition, while others had both subject areas titled cognition and subject areas such as mathematics, science and social studies. For example, Louisiana, Michigan, Texas, and Utah have a subject area titled cognition or cognitive development and also include subject headings for mathematics, science, social studies, and the arts.

A significant number of states also included areas that might be considered non-traditional in K–12 standards—physical and motor development ($n = 29$) and social and emotional development ($n = 25$). Far fewer states included subject area headings that addressed the approaches toward learning dimension ($n = 8$). Interestingly, states also included subject area headings that might be considered non-traditional for early care and education—technology ($n = 4$), career preparation ($n = 1$), and second language development ($n = 3$).

While these data speak to the wide variation in the standards documents and give us some clues about the general content of the standards, they do not provide an in-depth understanding of the content of the standards themselves. To fully understand the content of early learning standards, it is necessary to analyze individual standards items rather than global categories and to code the standards items without consideration for the subject area headings. Subject area headings are broad and, because of the integrated nature of children’s development and learning, items within subject areas or topics can be related to more than one area of learning. For instance, communication is a significant feature of children’s social development and vice versa. Therefore, it was necessary to code each individual standard item based on the primary focus of its content, without respect to the subject area where it was located, in order to gain an in-depth understanding of the content of the standards.

Analysis of Breadth: Coverage Across the Five Dimensions

In order to develop an understanding of the breadth of the standards—the extent to which each of the five dimensions have been addressed within the standards—the research team coded each individual standard item according to which indicator it addressed. Because the indicators are grouped by dimension, the research team could easily discern which of the five dimensions had been addressed within a standards document. We then constructed tables to operationalize two conceptualizations of breadth—the absolute number of dimensions addressed and the relative degree of emphasis across the five dimensions.

Absolute Breadth

The first question related to the breadth of the standards was whether states had covered each of the dimensions within their standards. To construct this “absolute breadth” analysis, the research

team looked across the various indicators that had been coded within a state and recorded whether there was at least one standard item for each of the dimensions. Results are shown in Table 4.

Table 4

Absolute Breadth: One or More Standards Coded for Each Dimension

STATE	Physical	Social and Emotional	Approaches Toward Learning	Language & Communication	Cognition & General Knowledge	No. of Dimensions
Arkansas	Y	Y	Y	Y	Y	5
Arizona	Y	Y	Y	Y	Y	5
California	Y	Y	Y	Y	Y	5
Colorado	N	N	N	Y	Y	2
Connecticut	Y	Y	Y	Y	Y	5
Delaware	Y	Y	Y	Y	Y	5
Florida	Y	Y	Y	Y	Y	5
Georgia	Y	Y	Y	Y	Y	5
Hawaii	Y	Y	Y	Y	Y	5
Idaho	Y	Y	Y	Y	Y	5
Illinois	Y	Y	Y	Y	Y	5
Indiana	Y	Y	Y	Y	Y	5
Kentucky	Y	Y	Y	Y	Y	5
Louisiana	Y	Y	Y	Y	Y	5
Maine: Learning Results	Y	Y	Y	Y	Y	5
Maine: Early Learning Results	Y	Y	Y	Y	Y	5
Maryland	Y	Y	Y	Y	Y	5
Massachusetts	Y	Y	Y	Y	Y	5
Michigan	Y	Y	Y	Y	Y	5
Minnesota	Y	Y	Y	Y	Y	5
Mississippi	Y	Y	Y	Y	Y	5
Missouri	Y	Y	Y	Y	Y	5
New Jersey	Y	Y	Y	Y	Y	5
New Mexico	Y	Y	Y	Y	Y	5
New York	N	Y	Y	Y	Y	4
Ohio	N	Y	Y	Y	Y	4
Oklahoma	Y	Y	Y	Y	Y	5

Pennsylvania	N	Y	Y	Y	Y	4
Rhode Island	Y	Y	Y	Y	Y	5
South Carolina	N	N	Y	Y	Y	3
Texas	Y	Y	Y	Y	Y	5
Utah	Y	Y	Y	Y	Y	5
Vermont	Y	Y	Y	Y	Y	5
Virginia	N	N	N	Y	Y	2
Washington - ECEAP	Y	Y	Y	Y	Y	5
Washington - OSPI	Y	Y	Y	Y	Y	5
Wisconsin	Y	Y	Y	Y	Y	5
Wyoming	Y	Y	Y	Y	Y	5
Total Number of States by Domain	32	35	36	38	38	

The majority of states ($n = 32$) had at least one indicator within each of the five dimensions. Three states had addressed four out of the five dimensions (New York, Ohio, and Pennsylvania), and one state (South Carolina) covered three of the dimensions within its standards. Two states (Colorado and Virginia) had standards items that addressed only two of the five dimensions (Language and Communication and Cognition and General Knowledge). In both of these states, standards had been developed to address early literacy and mathematics. Respondents in the Phase 1 survey of standards developers (Scott-Little, Kagan, & Frelow, 2003a) indicated that Colorado is developing standards for various subject areas sequentially and that standards in other dimensions were in progress at the time of the interview.

An alternate way of looking at these data is to examine which of the five dimensions were most often included within the standards. The data indicated that all 38 standards documents had at least one indicator in the Language and Communication and the Cognition and General Knowledge dimensions. Six standards documents had no standards coded within Physical and Motor Development, three had no standards related to Social and Emotional, and two had no standards coded as Approaches Toward Learning. These data provide an interesting contrast when compared with the subject area headings used by states (see Table 3), particularly for Approaches Toward Learning. The data suggest that fewer states had included subject areas that addressed the physical, social and emotional, and approaches toward learning dimensions. There were, however, standards items within various other subject areas that address these dimensions when the content of individual standards was coded without consideration for subject area headings. For instance, only eight states had a subject area titled “approaches toward learning” (or something similar), but all but two had at least one standard item coded within the approaches toward learning dimension. In most states the actual content of the individual standards items, when coded independently of the subject area headings, included a greater number of the dimensions than the subject area headings would indicate.

Relative Emphasis Within Breadth

Although looking at the absolute number of dimensions addressed with at least one standard item provides some indication as to the breadth of the standards documents, it does not yield a complete understanding of the breadth of standards. The research team was also interested in the extent to which each of the five dimensions had been addressed within the standards and the relative degree of emphasis that states had placed on each of the five dimensions. To gain a better understanding of the breadth of the standards, the research team examined the relative number of standards that were coded within each of the five dimensions. Due to the wide variation in the number of standards included in the standards documents, the research team converted the number of standards per dimension into a percentage (i.e., number of standards within the dimension divided by the total number of standards within the document) to provide data that was comparable across states. Table 5 provides the average percentage of standards items coded within each dimension, along with the standard deviation and range across the states. Appendix C provides data for individual states.

Table 5

Percentage of Standards Items in Each of the Five Dimensions

Dimension	Mean Percentage	Standard Deviation	Range of Percentages
Physical Well-Being and Motor Development	8.7	7.2	0 – 32.3
Social and Emotional Development	12.1	7.3	0 – 29.9
Approaches Toward Learning	9.6	6.0	0 – 24.00
Language and Communication	30.9	13.7	18.0 – 72.5
Cognition and General Knowledge	38.6	14.0	7.0 – 71.9

As the percentages in Table 5 suggest, there is great variability in the degree to which the five dimensions have been addressed within the standards documents. On average, a larger percentage of the standards items were coded as Language and Communication and Cognition and General Knowledge (30.9% and 38.6% respectively). Items coded as social and emotional and approaches toward learning comprised a lower percentage of the standards items (12.1% and 9.6% respectively), and the percentage of items coded as Physical Well-Being and Motor Development was the lowest of all the areas (8.7%). Clearly when looking at the relative emphasis across the five dimensions (defined as the percentage of standards addressing the dimension), language and cognition represent the largest share of the standards items.

The data also suggest that there was greater variability in the percentage of standards items included within the language and cognition dimensions, with a standard deviation of 13.7% for language development and 14.0% for cognition compared with standard deviations of 7.2% for physical well-being, 7.3% for social and emotional development, and 6.0% for approaches toward learning. This suggests that, while all states have addressed the language and cognitive developmental dimensions more than other dimensions, there is greater variability between states in the extent to which standards documents have focused on these domains.

There is not only wide variation between dimensions in the number of standards items but also vast differences between states in the degree to which they have included the five dimensions in their standards. Appendix C provides the percentage of standards items coded within each of the dimensions for each state. Maine—Early Learning Results, New Mexico, and Wisconsin have relatively evenly distributed percentages of standards across the five dimensions (operationalized as less than 50% of their standards items coded in Language and Cognition). Colorado, Maine—Learning Results, and Virginia are states with the least breadth across the five dimensions, with more than 90% of their standards items coded as Language and Cognition. Clearly the degree of emphasis and the relative balance that state standards exhibit across the five dimensions varies considerably for state to state, but, overall, the Language and Cognition dimensions are the dimensions addressed most often within the standards.

Analysis of Depth: Coverage Within Each of the Five Dimensions

The research team also conceptualized depth or degree of coverage *within* the five dimensions in two ways: absolute depth within the dimension and relative degree of emphasis within the dimension. These analyses look at the degree to which each of the individual indicators within a dimension has been addressed within the standards. We looked first at the degree to which each of the indicators within the dimensions has been addressed (absolute depth) and then at the relative degree of emphasis placed on each of the indicators within the dimension.

Absolute Depth

To calculate the absolute depth percentages for each state, the number of indicators within the dimension addressed in the standards document was divided by the total number of indicators that could have been coded for that dimension. For instance, the Physical Well-Being and Motor Development dimension consists of four indicators—growth, fitness, motor skills, and functional performance. The number of these four indicators addressed by at least one standard within a state’s standards document was divided by four to yield a percentage of the indicators that were addressed. If a state’s standards addressed all four of the indicators, their percentage was 100%. If a state’s standards document only addressed two of the four indicators, their percentage was 50% and so forth. Results are presented in Table 6.

Table 6

Absolute Depth by Dimension

State	Percentage of Indicators Addressed Within Each Domain				
	Physical	Social and Emotional	Approaches Toward Learning	Language & Communication	Cognition & General Knowledge
Arkansas	100	75	100	50	75
Arizona	50	100	100	88	100
California	50	75	75	69	75
Colorado	0	0	0	88	75
Connecticut	75	63	100	56	75
Delaware	100	88	100	81	100
Florida	75	63	100	75	100
Georgia	50	63	100	88	100
Hawaii	75	63	50	75	100
Idaho	100	75	100	81	100
Illinois	100	63	75	88	100
Indiana	75	50	100	94	100
Kentucky	75	75	100	88	100
Louisiana	75	75	25	69	100
Maine: Learning Results	75	38	50	88	100
Maine: Early Learning Results	50	88	50	69	50
Maryland	25	13	50	88	100
Massachusetts	75	38	75	75	100
Michigan	75	75	100	94	100
Minnesota	75	75	100	75	100
Mississippi	75	75	50	88	100
Missouri	75	88	100	75	100
New Jersey	75	75	100	88	100
New Mexico	75	63	25	69	50
New York	0	25	25	88	75
Ohio	0	63	75	75	100
Oklahoma	50	75	100	69	100
Pennsylvania	0	13	100	100	75
Rhode Island	50	63	100	88	100
South Carolina	50	38	75	88	100
Texas	75	63	100	81	100

Utah	50	100	100	100	100
Vermont	75	88	100	94	100
Virginia	0	0	0	81	50
Washington - ECEAP	50	75	50	63	100
Washington - OSPI	50	88	100	94	75
Wisconsin	100	75	100	69	100
Wyoming	75	88	100	94	100
Average Percentage by Domain	60.5	63.4	77.6	81.1	91.4

Data from Table 6 indicate that Cognition and General Knowledge was the dimension where the largest number of states addressed all four of the indicators within the dimension. Twenty-eight of the 38 standards documents addressed 100% of the four indicators within this dimension. On average, states addressed 91.4% of the four indicators. The Language and Communication dimension has the next highest average absolute-depth percentage (81.1%). While only two states covered each of the 16 indicators within this dimension, 23 states addressed over 80% of the indicators within this dimension. This is particularly striking given the fact that this dimension had the largest number of indicators. It was fairly common for states that had approaches toward learning items within their standards to address all four of the indicators within the dimension. Twenty-two states addressed all four dimensions, and, on average, states addressed 77.6% of the indicators. States were more likely to leave out specific indicators within the physical and social and emotional dimensions. Only five states addressed each of the four indicators within the physical dimension and only two states addressed all eight of the social and emotional indicators.

Looking by state rather than dimension, the data indicate that states varied in the extent to which they addressed specific indicators within the dimensions. While no state addressed all of the indicators within all five dimensions, Utah had standards coded for all of the indicators within four of the five dimensions. The extent to which states addressed each of the indicators within each of the five dimensions ranged from 100% of four dimensions (Utah) to none of the indicators in three dimensions (Physical, Social and Emotional, and Approaches) and 81% and 50% of the remaining dimensions (Language and Cognition respectively) in Virginia.

While this analysis provides a useful picture of the extent to which states are addressing the various indicators within the dimensions, further analysis was necessary to identify which of the individual indicators within the dimensions are most often being addressed and which are most often not being addressed within the standards. To provide data that addresses this aspect of depth, the research team conducted the “relative emphasis of depth” analyses described in the following section of this report.

Relative Emphasis of Depth

The percentage of standards coded *within* each dimension was calculated for each indicator in order to provide data on which of the indicators have been emphasized within the dimensions. For each of the five dimensions, Table 7 presents the percentage of standards items addressing

each of the indicators within the dimension. For purposes of this depth analysis, standards documents that did not include at least one standard within a particular dimension were eliminated from the analysis. Tables presenting each state's breakdown across the five dimensions are presented in the Appendix.

Table 7A-7E

Percentage of Standards Items by Indicator Within Each Dimension

7A. Physical Well-Being and Motor Development

<u>Indicator</u>	<u>Mean Percentage</u>	<u>Standard Deviation</u>	<u>Range</u>
Overall rate of growth	2.1	5.4	0–18.2
Level of physical fitness	11.5	14.4	0–60
Motor skills (gross, fine, oral, sensory)	49.1	20.2	0–93.3
Functional performance	24.2	20.1	0–100

7B. Social and Emotional Development

<u>Indicator</u>	<u>Mean Percentage</u>	<u>Standard Deviation</u>	<u>Range</u>
Expresses emotions appropriately	19.1	11.2	0–44.4
Comprehends feelings of others	10.5	9.1	0–33
Self-concept	12.9	8.0	0–26
Self-efficacy	4.2	5.9	0–22.6
Social skills with adults	7.4	8.5	0–27.3
Ability to develop relationships with adults	2.2	4.2	0–17
Social skills with peers	33.4	17.3	8–100
Ability to develop relationships with peers	4.8	12.7	0–69.2

7C. Approaches Toward Learning

<u>Indicator</u>	<u>Mean Percentage</u>	<u>Standard Deviation</u>	<u>Range</u>
Curiosity about new tasks and challenges	32.1	21.4	0–100
Initiative, task persistence, and attentiveness	17.4	17.0	0–67

Approach to reflection and interpretation	27.6	28.8	0–100
Capacity for invention and imagination	16.9	21.0	0–100

7D Language and Communication Development

<u>Indicator</u>	<u>Mean Percentage</u>	<u>Standard Deviation</u>	<u>Range</u>
Listening	5.4	4.4	0–19.4
Speaking	5.2	5.3	0–26.7
Social uses of language	8.7	5.6	0–21
Vocabulary and meaning	10.3	5.1	0–26
Questioning	2.2	2.3	0–8
Creative uses of language	10.6	6.2	0–28
Creative expression	5.7	5.9	0–24
Non-verbal communication	1.2	2.3	0–11.1
Literature awareness	6.8	4.4	0–17
Comprehension of text	3.9	4.8	0–21.6
Phonemic awareness	6.4	4.0	0–14
Print awareness	9.8	5.2	0–22.2
Book awareness	3.3	3.6	0–18.8
Alphabet awareness	6.1	4.6	0–18.8
Story sense	3.0	2.6	0–8.11
Writing process	11.4	7.0	0–31.4

7E Cognition and General Knowledge

<u>Indicator</u>	<u>Mean Percentage</u>	<u>Standard Deviation</u>	<u>Range</u>
Knowledge of the physical world	37.9	14.4	8–72.7
Logico-mathematical knowledge	43.4	13.8	18.2–78.6
Social-conventional knowledge	6.7	5.6	0–23
Social knowledge	12.8	9.7	0–38

Physical well-being and motor development. For states that included any standards items within the physical and motor development dimension (n = 32), Table 7A shows the overall average for how standards within this category were distributed across the four indicators, and Appendix D provides the relative emphasis across the four indicators for each state. As Table 7A shows, when states included items within the physical and motor development dimension, these items overwhelmingly addressed motor skills. On average, 49.1% of items within the physical

and motor development category fell into this specific area. Every state with Physical Well-Being and Motor Development standards except two addressed motor skills with at least one standard. Functional performance or self-help skills were the next most commonly addressed indicator within this dimension (mean = 24.2%), and physical fitness received relatively less attention within the standards documents (mean = 11.5%). Nine of the 32 states that had physical standards did not address fitness. Almost never (mean = 2.1%) did items address the child's overall rate of growth or having good nutrition—27 out of 32 states with standards in the physical domain did not address children's growth and health.

Social and emotional development. Table 7B presents a similar breakdown for those states that included any items within the social and emotional dimension (n = 35). Appendix E presents this data for each state. As Table 7B indicates, approximately one third (mean = 33.4%) of the items addressing social and emotional development focused specifically on the child's ability to demonstrate positive social skills with peers. Furthermore, all standards documents that included items within the social and emotional dimension included at least one item focusing on the social skills with peers. To a somewhat lesser extent (19.1% of the items on average), standards items related to social and emotional development focused on the child's ability to express emotions appropriately.

Other indicators within the social and emotional dimension received considerably less attention within the standards documents. The ability to develop relationships with peers (mean = 4.8%) and adults (mean = 2.2%) were virtually unaddressed, as was the indicator of self-efficacy (mean = 4.2%). Fifteen states with social and emotional standards did not address relationships, either with adults or with peers. Sixteen of the states with social and emotional standards did not address self-efficacy.

Approaches toward learning. Table 7C provides a breakdown by indicators for those states that included items within the Approaches Toward Learning dimension (n = 36). As Table 7C shows, items coded as Approaches Toward Learning most often focused on curiosity about new tasks and challenges (32.1% of items within this dimension were of this kind) or on the child's approach to reflection and interpretation (27.6%). Initiative/task persistence (mean = 17.4%) and invention and imagination (mean = 16.9%) were addressed less often. It is important to note that the "capacity for invention and imagination" indicator included both standards items that addressed dramatic play and other forms of creativity. Appendix F presents the Approaches Toward Learning data for each state. Looking at individual states one can see that the distributions across the four indicators within approaches toward learning vary from state to state. For some states (such as Louisiana and New York), all of the approaches toward learning standards addressed one indicator within the dimension. In these cases, typically there was only one standard that was coded within Approaches Toward Learning, and therefore 100% of the standards fell within one indicator. Other states (such as Arizona and Missouri) have a more even distribution of standards across the four indicators.

Language and communication. Table 7D provides the breakdowns for items within the Language and Communication dimension. All states included at least some items within this dimension. A state-by-state breakdown of the percentage of standards addressing each indicator within Language and Communication is provided in Appendix G. Indicators within the

Language and Communication dimension included items related to both communication and early literacy development. As Table 7D shows, standards related to language development were more equally distributed across items than was true for items in other dimensions, with the highest percentage of items focused on the writing process (mean = 11.4%), creative uses of language (mean = 10.6%), and vocabulary and word meaning (mean = 10.3%). Fewer standards items addressed questioning (mean = 2.2%), nonverbal communication (mean = 1.2%), story sense (mean = 3.0%), book awareness (mean = 3.3%), or comprehension of text or stories (mean = 3.9%).

Data in Appendix G reveal that a number of states did not address various indicators within the Language and Communication dimension. For instance, within the communication sub-area eight states did not address listening, 16 states did not address questioning, 10 states did not address creative expression, and 26 states did not address non-verbal communication. Every state addressed the area of vocabulary. Within the literacy sub-area, 5 states did not address phonemic/phonological awareness (which were coded together), 15 states did not address comprehension, 11 states had no standards related to book awareness, 5 states did not address alphabet awareness, and 10 states did not address story sense. Although support within the research literature for the importance of these various indicators varies from indicator to indicator, there are several indicators research suggests are critically important for children in the process of learning to read that have not been addressed in some state standards documents. Even though every state had addressed the language and communication dimension, the extent to which they have addressed various early literacy skills varies.

Cognition and general knowledge. As Table 7E shows, standards items in the Cognition and General Knowledge dimension overwhelmingly focused either on logico-mathematical knowledge (mean of 43.4% of items in this category) or on the child's knowledge of the physical world (mean = 37.9%). Appendix H presents the percentages of each state's standards coded within the Cognition and General Knowledge dimension by indicator. All standards documents in the study included at least one item that addressed logico-mathematical knowledge and knowledge of the physical world. The percentage of standards items within the domain that addressed logico-mathematical knowledge ranged from 18% to 79%. States had ranged from 14% to 73% in the percentage of their standards items that addressed knowledge of the physical world. Social-conventional knowledge was the indicator addressed the least (mean = 6.7%). Eight states had no standards related to this indicator, and the remaining states had from 1 to 23 percent of their standards items coded as social-conventional knowledge. Social knowledge was included somewhat more within the Cognition and General Knowledge dimension, with a mean of 12.8% of the standards items falling into this category. Only five states had no items related to this indicator, and the range for the states that included social knowledge items was from 2 to 38 percent.

Discussion and Recommendations

Data from this study indicate that the standards-based education movement has reached the early care and education field. Thirty-six states had published early learning standards documents in November 2003, and a number of other states were in the process of developing standards. The data from the first phase of this study (Scott-Little, Kagan, & Frelow, 2003a; 2003b) and from

the process of obtaining standards documents to include in this content analysis clearly indicate that there is much ongoing work in this area. Between May 2002 and November 2003, a total of nine new standards documents and eight revised standards documents were published. It is an opportune time to consider the results of this content analysis and discuss the implications of the findings for development of early learning standards. We offer our analysis of the data from this study in two parts: 1) discussion of the implications of the findings and 2) recommendations.

Implications

The Desirability of State Variation

As we have seen, states vary dramatically in both the number of standards they have and in what they elect to emphasize in their standards. Of less concern is the variation in the number of items states elect to include in their early learning standards (ranging from 50 to 371). It may be, for example, that states create early learning standards with a large number of items because they feel this will help guide teacher instruction; the greater the number of items, the more the teacher will have guidance on what is to be taught. Conversely, if a state elects to have fewer items, it may reflect an intention to give teachers more autonomy in setting their instructional objectives. It does seem that where states are using the early learning standards as a prelude to the development of an accountability system, perhaps greater parsimony of items would be desirable. It seems, then, that the number of items in a state's early learning standards may reflect several differences, including differences in the purpose for which the standards were developed and/or differences in the degree of autonomy the state wishes to accord teachers. It is clear, however, that this variation in number could reflect very different attitudes about the standards and their intended uses.

Of greater concern is the range of differences among states in their focus areas and the need for a thoughtful consideration of the pros and cons of having such significant differences between states in the content that has been addressed in early learning standards. Distributions of items into the five dimensions clearly indicate a preponderance of emphasis in the areas of cognition and general knowledge and language and communication. In part, this emphasis was anticipated and reflects the press by states to imbue their standards with a more academic orientation. It also reflects much current literature that stresses the competence of young children as learners early in their lives.

The issue related to state variation, however, is not so much what specific domains are or are not emphasized but the degree to which states differ in their choices of which domains to emphasize and whether these differences have positive or negative implications for the field. For example, does it make sense for some states to have standards only in language and mathematics and for other states to have standards that address all five dimensions? What are the consequences of considerably different standards across the United States? Conversely, what would be the implications of having more continuity across the states in what is addressed in early learning standards?

Two additional questions are raised by this variation. First, to what extent is it *desirable* to have early learning standards that are consistent across states, at least in the domains that are addressed? Second, to what extent is standardization of early learning standards *feasible*, given

the history of educational policymaking in this nation? In addressing the desirability question, it is important to note that the historic variation that has characterized early childhood education has been regarded as a strength of the field. It has been argued, for example, that it is extremely important to have variation in early childhood programs so that parental choice among diverse curricular and pedagogical options can be preserved. Given that the lack of program standardization has been regarded as a strength, the development of greater standardization of early learning standards could be regarded as an inhibitor of such diversity. On the other hand, if we want children able to function in a global society where mobility is the norm, a lack of standards' standardization may be problematic.

The feasibility of creating a set of uniform standards that would be used across the states is also problematic, given both the autonomy of states with regard to education policies and the highly idiosyncratic nature of early childhood education. It might be possible to have a set of standards established that could serve as a guideline for state modification, thereby respecting state differences. It is important to note that uniform standards can be developed; indeed, several different sets have been developed by national organizations (e.g., Head Start Performance Outcomes by the Head Start Bureau, Pre-kindergarten Music Education Standards by the National Association for Music Education, physical activity guidelines by the National Association for Sport and Physical Education, and standards for children's mathematical learning by the National Council of Teachers of Mathematics). The issue is not whether uniform standards can be created. A more pertinent issue is whether it is desirable and/or feasible to have consistent standards across states. It should be noted that in several foreign countries national early learning standards have been developed and adopted; these nations, however, have long histories and sentiments that support greater national cohesion and control. Indeed, given the social history of the United States, variation in early learning standards is to be expected. The question at hand is the degree to which we believe such variation is in the best interests of the nation's children. While national standards may not be appropriate or feasible for a number of reasons, we do advocate that the question of whether there is a need for such standards warrants attention.

Balance Among the Dimensions: The "Breadth" of Standards

Early in this document, we proposed that the basic premise of our work is that early learning standards promote quality programming and support children's readiness for school when they cover all five dimensions in a manner that addresses important knowledge, skills, and characteristics within each domain. Simply put, our formula for quality standards is:

$$\text{BREADTH} + \text{DEPTH} = \text{QUALITY STANDARDS}$$

Data from this analysis revealed that states vary considerably in the breadth (and depth) of their standards. In the analysis of "absolute breadth" (defined as having at least one standard within each of the dimensions), the data indicate that most states have addressed each of the five dimensions with at least one standard. However, data related to the relative emphasis across each of the five dimensions indicate that the majority of standards are related to Language and Communication and Cognition and General Knowledge. As stated earlier, this data is not

surprising given the emphasis being placed on specific knowledge and skills within these dimensions that are important for children's later success in school and the fact that many of these standards have been developed for use in publicly funded pre-kindergarten programs.

While data from this study do not directly address the reasons behind this variation in the extent to which the five dimensions are included in standards, one can hypothesize a number of reasons. For example, some of the dimensions may lend themselves more to standards than others. The number of cognitive skills that are considered to be important may simply be greater than the number of social and emotional or physical skills needed for children to be prepared for success in school. The types of skills and abilities that fall under the cognitive domain may be easier to articulate in the form of standards than skills and abilities related to other dimensions such as approaches toward learning skills.

Indeed, analysis of the coding system used for this study shows that even the indicators used to code the standards are not equally distributed across the five dimensions. The Physical Well-Being and Motor Development, Approaches Toward Learning, and Cognition and General Knowledge dimensions all have 4 indicators while the Social and Emotional dimension has 8 indicators and Language and Communication has 16 indicators. For this study, the differences in the number of indicators across the five dimensions is due in part to the nature of the dimensions themselves (with some dimensions lending themselves more to a greater number of specific indicators) and in part to the unevenness of the research literature to support specific indicators within dimensions. For instance, the Language and Communication dimension has the greatest number of indicators. Within the literature, extensive research has been done to examine specific skills and characteristics within this area that are important for later development, particularly related to the skills needed to learn to read in later years. In contrast, the literature within Approaches Toward Learning suggests that this area is important for children's later development and learning but does not provide robust empirical data for specific skills or characteristics within the dimension.

For purposes of this analysis, however, differences in the level of specificity within the five dimensions would not impact the coding of standards *across* the five dimensions (i.e., the breadth analyses). Items related to physical development would be coded as Physical Well-Being and Motor Development whether there were 4 indicators or 16 indicators within the dimension. The breadth coding would be the same. The depth codings within the individual dimensions would be different from dimension to dimension depending on the number of indicators/level of specificity within the dimension. Our experience in developing the coding system, however, does suggest that when developing standards states may generate more standards within a dimension simply because the skills within the dimension lend themselves more to standards or because there is a more robust literature within certain domains to articulate important skills and knowledge within the dimension.

Alternatively, states that are linking their early learning standards directly with K–12 standards may find it difficult to justify including standards related to physical development, social and emotional development, or approaches toward learning if there are no corresponding standards within the K–12 document. Data from Phase 1 of our Early Learning Standards study suggested that linkage to K–12 standards is very important within states. In a number of states, the early

learning standards are directly linked to kindergarten standards, which may be focused more on language and cognition dimensions. Yet another possible explanation for the differences between the dimensions in how they have been emphasized is that standards developers may have viewed particular areas as more important and, therefore, developed more items to cover those areas. Perhaps some areas of learning and development lend themselves more to direct instruction and/or assessment and, therefore, are more likely to be addressed in the standards. Whatever the reason, the fact is that states have included far more items related to children's language and cognitive development in their standards document.

Beyond the simple observation that the standards vary in the degree to which they have addressed the five dimensions, two more significant questions are raised by this analysis—what is the relationship between development and learning, and what constitutes the appropriate balance of dimensions among any given set of standards? Some educators within the field may conceptualize development separately from learning that takes place through direct instruction. Standards based on the notion that learning and development are discrete concepts likely focus on academic content areas. Others within the field suggest that learning and development are intertwined but feel that more emphasis should be placed on academic content areas because the standards are being used in programs designed to prepare at-risk children for success in school—because the programs have limited resources and limited time with the children their focus should be on academic knowledge and skills and the early learning standards should reflect this emphasis. Still others see social and emotional and physical development as the most important areas—if children's development is supported during this time, they will be well prepared for the academic content of later grades.

Jack Shonkoff, co-editor of *Neurons to Neighborhoods* (2001), suggests that the debates that focus on *either* academic content *or* developmental areas as being important for children's later success are not productive and we agree. Supporting children's development and learning is not and *either/or* proposition; it is a *both/and* proposition (Shonkoff, 2004). Theorists and empirical evidence suggest that learning and development are so closely linked that children need to have experiences that promote both to be successful later in school. It follows that early childhood programs of all types, and their respective standards, must seek to foster children's growth in all areas.

Early Learning Standards: Creating the Conditions for Success, a joint position statement of the National Association for the Education of Young Children (NAEYC) and the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) issued in 2002, addressed the issue of breadth in early learning standards. The statement suggests that for early learning standards to be effective, they must “emphasize significant, developmentally appropriate content and outcomes” (p. 2). The statement further amplifies the criteria for effective early learning standards by stating that effective early learning standards include all domains of young children's development and incorporate content that has been shown to be important for children's future development and learning. The question of what constitutes an appropriate balance between the five dimensions remains, and much additional analysis is needed to provide states with guidance on how to support standards development within each dimension. What is clear from this position statement is that the authors felt that it is

important that early learning standards include all dimensions of children's learning and development.

The Physical Well-Being and Motor Development dimension may pose unique challenges for standards writers. Some key elements of physical development may not readily lend themselves to early learning standards. For instance, while most people would agree that it is important for children's growth to be within the norm for their age, it may be problematic to write a standard that specifies "children will grow." Likewise, while educators would like for all children to be able to see and hear, including a standard that states an expectation that children can see and hear could be viewed as not inclusive of children with visual or auditory disabilities. Yet there are other elements of physical and motor development that do lend themselves to intervention—gross motor skills, fine motor skills, physical fitness, and functional performance. Careful attention is warranted to ensure that the small number of physical and motor standards items does not stem from simple lack of attention to the domain. Indeed, some states have developed standards items to articulate important physical characteristics and abilities that at first glance might not seem to lend themselves to standards.

The tendency to focus less attention on the social and emotional dimension and on approaches toward learning is particularly significant in light of research that documents the importance of these skills for positive child outcomes later in life. Recent reports from the National Research Council (National Research Council & Institute of Medicine, 2000; National Research Council, 2001) synthesized decades of research and concluded that the social skills, emotional capacities, and dispositions toward learning children acquire during the early years are inexplicably linked to their learning and their overall well-being later in life. Self-regulation and the ability to form and sustain positive social relationships are the "building blocks of healthy development" (National Research Council & Institute of Medicine, 2000, p. 4). Social and emotional development has been shown to be an important component of children's readiness for success in school (Peth-Pierce, 2001; Raver, 2002; Zill et al., 2003). Children who are socially and emotionally well-adjusted have a greater chance of being successful early in school.

In addition to research on children, studies on what teachers think is important for children to learn during the preschool years also support the notion that social and emotional skills are important elements of school success. Kindergarten teachers consistently report that it is more important for children to have developed positive social and emotional skills than specific academic skills before they enter kindergarten (Davies & North, 1990; Heaviside & Farris, 1993; Lewit & Baker, 1995; Lin, Lawrence, & Gorrell, 2003; Welch & White, 1999; West, 1993). In general, preschool and kindergarten teachers tend to emphasize the importance of skills such as following directions, not being disruptive in class, being sensitive to others, and taking turns, over academic skills (Haines, Fowler, Schwartz, Kottwitz, & Rosenkoetter, 1989; Kowalski, Pretti-Fontezak, & Johnson, 2001). Data from national studies of children at entrance into kindergarten suggest that children often exhibit difficulties in social and emotional areas such as these when they start kindergarten. In a nationally representative survey of over 3,000 teachers, 30 percent of the kindergarten teachers reported that at least half of the children in their class had difficulty making the transition into kindergarten. Specific areas where children had difficulty included following directions, working as part of a group, and other social skills (Rimm-Kaufman, Pianta, & Cox, 2000).

The standards documents include relatively more items related to the important dimensions of Language and Communication Development and Cognition and General Knowledge. Research suggests these are vitally important areas for children's later success in school. Several large-scale studies of preschool- and kindergarten-age children found that children also need support in their language and cognitive development in order to be successful in school. The Early Childhood Longitudinal Study-Kindergarten Cohort found that, on average, children entered kindergarten with a great deal of knowledge in the areas of literacy and mathematics but that there were significant differences among children from different backgrounds. Overall, children were proficient in recognizing letters and shapes but were less proficient in phonological awareness tasks and sequencing tasks. However, performance on measures of language and cognition varied by factors associated with children who are at-risk for later school failure. Children whose mothers had higher education levels and children from two-parent families scored higher on measures of literacy, mathematics, and general knowledge at kindergarten entry. Furthermore, these differences persisted and the gap between children from advantaged backgrounds and those with relatively more at-risk family backgrounds widened in later grades (Denton & West, 2002; Rathbun & West, 2004; West, Denton, & Germino Hausken, 2002; West, Denton, & Reaney, 2001).

Findings from the Head Start Family and Child Experiences Study (FACES) provide further evidence for the importance of early experiences that support children's language and cognitive development. Head Start children enter the program with language skills and knowledge far below national norms for their age (Zill et al., 2001; 2003). Data from both the 1997 and the 2000 cohort revealed that children in Head Start scored significantly lower than national norms on measures of literacy and numerousy skills when they started the program. Although the Head Start children participating in the study made meaningful gains from the time they entered the program until the time they exited the program, they were still significantly below national averages in areas such as vocabulary knowledge, letter recognition, and early mathematics skills. Data from the 1997 cohort indicate that these children made significant gains once they entered kindergarten but still lagged behind national norms in early literacy and mathematics at the end of kindergarten (Zill et al., 2003).

The reality is that it is important for children to develop positive skills and knowledge within each of the five dimensions to be successful later in school. Early learning standards—and the educational programs where they are implemented—must have a balanced approach to learning to fully support children's development and learning. Standards can have a focus in the more academic areas and still maintain some emphasis in other dimensions—it is not an *either/or* equation but a *both/and* equation. Children's physical, social and emotional, approaches toward learning, language, and cognitive development are all important for later success in school (Piñata & McCoy, 1997; Zill & West, 2001).

To date, however, there has been little discussion of what the balance among the domains should be to promote children's optimal development and learning. How much emphasis should be accorded each dimension? Are some dimensions more critical to development at various stages? These questions and others that address the balance of emphasis among the dimensions merit some consideration by educators, parents, teachers, and others interested in fostering early

learning standards. This is particularly necessary as the standards movement builds momentum and as standards are used more and more frequently to guide curriculum and instruction. Without such systematic focus on the balance of emphasis among the domains, we may find not only great variation among states but also the elimination or significant reduction of focus on dimensions historically considered critical to child development and later school success.

Covering Domains Fully: The Depth of Standards

While the balance among domains is a serious issue, the focus of items *within each* domain is as well. Our findings suggest that many domain sub-areas important to child development and learning are missing from states' early learning standards. Implications of the depth findings are discussed below.

Physical well-being and motor development. A significant number of states with standards for Physical Well-Being and Motor Development addressed only one or two of the four indicators within this dimension. The data indicate that states have focused primarily on children's motor development, with half of the physical well-being and motor items being concentrated in this area. Children's general health, overall growth, and level of physical fitness have been virtually ignored within the standards documents. This is significant, particularly given the growing concerns about childhood obesity rates (Black, 2004). About 15 percent of children between the ages of 6 and 19 in the United States are seriously overweight, and almost one in every three children is at risk for being overweight (American Academy of Pediatrics, 2003). Concerns about the lack of physical fitness among children are rising, with the National Association for Sports and Physical Education doubling its recommendations for the amount of physical activity children need from 30 minutes to 60 minutes per day (Corbin & Pangrazi, 2003) and the American Academy of Pediatrics issuing a policy statement to discourage the availability of soft drinks and fruit drinks in schools (American Academy of Pediatrics, 2004) at the beginning of 2004. The amount of physical activity in which children engage is a contributing factor to the increasing rates of obesity (U. S. Department of Health and Human Services, 2000; 1996). Data also suggest that children enrolled in different preschool programs differ significantly in the amount of physical activity they exhibit, suggesting that the policies and practices implemented within preschools have an important impact on the activity levels of children enrolled (Pate et al., 2004). Standards documents that do not address the importance of overall health and physical fitness could contribute to, rather than mediate, these serious health issues.

Social and emotional development. Within the social and emotional domain, about half of the states addressed 75 percent or more of the eight indicators within the domain. The emphasis within the standards documents was on children's abilities to communicate effectively with peers and adults and on their ability to regulate their emotions appropriately (particularly negative emotions such as anger). While these are important skills, the ability to form relationships with peers and adults as well as children's self-efficacy have not been widely addressed in the standards. Research reports such as *From Neurons to Neighborhoods* (National Research Council & Institute of Medicine, 2000) and *Eager to Learn* (National Research Council, 2001) indicate that these skills are also critically important for children's growth and development. Attachments children form with adults and relationships they build with peers are the foundation

for healthy development and learning later in life. Children need to be able to do more than communicate with others; they need to develop the ability to form productive and lasting relationships.

Approaches toward learning. The approaches toward learning dimension presented perhaps some of the most interesting data within the content analysis. While relatively few standards documents had a subject area titled approaches toward learning (or something similar), virtually all of the documents (36 out of 38) included at least some standards items that reflected this domain. The approaches toward learning items tended to be spread throughout a variety of subject areas, including the arts, science, mathematics, and social and emotional subject areas. Within the dimension, states typically addressed at least three of the four indicators, thus exhibiting relatively good coverage across the indicators within this dimension. The emphasis across the four indicators was, however, uneven. For example, standards documents had more items that addressed curiosity and reflection or interpretation than imagination and invention or task persistence. This finding is significant, particularly given the lack of items to address children's imagination and dramatic play, long recognized as essential to the development of young children.

Language and communication. Given the recent emphasis on early literacy among early care and education programs, the data are somewhat surprising in that they indicate relatively equal emphasis has been placed on general communication skills, such as speaking and social uses of language, and early literacy skills. Yet, the data do suggest states might be well served by a careful review of their language and communication standards to ensure that specific skills research indicates are critical for early literacy development are sufficiently covered.

Whitehurst and Lonigan (1998; 2001) provided a model of early literacy skills that suggests both "inside out" and "outside in" sources of information are important for children in order to learn to read and to comprehend what they read. Inside out factors include phonological processing skills, print principles including letter name or alphabet knowledge, awareness of print principles, early writing, and knowledge of grammar and syntax. Knowledge of the world, vocabulary, oral language skills, and a motivation to read are "outside in" factors associated with successful readers. Preliminary findings from the National Early Literacy Panel's research on early literacy development (NELP, 2004) yield additional empirical support for many of the factors Whitehurst and Lonigan suggest are important for children in the process of learning to read. Decoding skills, reading comprehension, invented spelling, awareness of environmental print, basic concepts of print, the ability to write their name, alphabet knowledge, phonological awareness, and rapid automatic naming/lexical access were the strongest predictors of children's ability to decode text. In the area of reading comprehension, alphabet knowledge, phonological awareness, and oral language skills were predictors with the strongest empirical support in the meta-analysis.

Examination of the early learning standards data suggests that states should carefully review their standards to ensure that the skills and abilities associated with learning to read are included. For instance, alphabet knowledge is one factor closely associated with learning to read. On average, standards addressing alphabet knowledge comprised approximately six percent of the standards items within the language and communication domain. Five states, however, had no

standards to address this important skill. Phonological awareness also comprised an average of six percent of the standards in this dimension, but five states had no standards to address phonological awareness. Oral language was more likely to be included. Standards related to oral language were coded as speaking (the mechanics of communication) and social uses of language (broader oral language skills), and these indicators were the focus of five and nine percent (respectively) of the standards within the language and communication domain. Only one state had no standards items coded in either of these two areas.

The limited attention to reading comprehension is perhaps the most significant finding within this dimension. Standards were coded under the comprehension indicator if they addressed a child's ability to answer questions about a story, explain the point of a story, relate the story to an experience he or she had had, etc. Comprehension was coded separately from story sense, an indicator related to children being able to predict what happens next in a story or to describe the general progression of a story. Comprehension standards made up only four percent of the standards items, and a total of 15 states had no item to address comprehension. Even if one considers story sense to be a component of comprehension, together the two items made up only seven percent of the standards, and four states had no standards coded as comprehension or story sense. Standards developers would do well to examine their early learning standards to make sure that at least some standards address children's ability to comprehend or process stories and other literacy-related information.

Finally, approximately 11 percent of the standards items were related to the writing process. Standards items included in this category ranged from scribbling, to representing objects or ideas through drawings, to writing letters and writing words. While there is clearly an emphasis on the writing process in the standards, a more differentiated coding system would be needed to determine what specific aspects of the writing process are being emphasized. Have the standards focused on writing letters or have they focused more on the earlier stages of the writing process? A revised coding system would be needed to answer this question. However, the data do indicate that states have recognized the importance of early writing skills and have included them in their standards.

Cognition and general knowledge. The majority of states included standards to address all four indicators within the Cognition and General Knowledge dimension. By far the standards documents emphasized two areas: knowledge of the physical world and logico-mathematical knowledge. However, the coding system provides limited data on what specifically within these two areas has been addressed. Data from the Early Childhood Longitudinal Study—Kindergarten Cohort (Zill & West, 2001) suggest that children may be more proficient in lower level mathematics skills, such as counting to 10 and recognizing numerals, than they are in more advanced mathematics skills, such as number sequencing and solving word problems. Likewise, children's knowledge of the physical world can be broken down into knowledge about different subject areas such as science, history, and the arts. Additional indicators would need to be added to the coding system to further delineate the extent to which the standards have addressed important skills and knowledge within these areas. What we know is that, overall, these areas received the most attention within the standards.

Social-conventional knowledge, or knowledge of rules and customs that govern how individuals approach a task, was much less common among the standards coded as cognition and general knowledge. This finding is striking given the emphasis that kindergarten and preschool teachers tend to place on the importance of children knowing and following rules. In addition, standards items that related to children's knowledge about the social world (such as family and community roles, differences between persons from different cultures, etc.) were relatively underrepresented among the cognitive and general knowledge items.

Given the potential importance of early learning standards as a basis for early childhood curricula and programming, it seems that the absence of items related to important developmental and knowledge areas is perhaps a more significant finding than what is included in the standards. These omissions and imbalances suggest that far more attention is needed to discussion within the field on the significance of particular skills or abilities within each of the five dimensions. Research is needed to empirically test the relative importance of these skills for later development and the implications for the construction of specific standards to ensure that all areas important to development are included. Greater agreement on the relative importance of various developmental constructs within the five domains would provide a basis for including (or excluding) particular skills or abilities.

It would seem that an effort to emphasize the importance of discrete skills or characteristics within dimensions might lead to more and more standards items being added to standards documents. We are not advocating that standards documents necessarily need to include more items. Rather, we are stressing the importance of a systematic and empirical review of precisely which skills and characteristics are important for optimal learning and developmental outcomes. Standards should be constructed to reflect the results of such analysis. Completeness as well as balance in what is covered both seem to be important issues when looking at the depth of standards. Items in each dimension should be reviewed to ensure that collectively they address all elements and that the elements being emphasized are those that are deemed most important. Because the process of developing and reviewing early learning standards is still somewhat new, more scrutiny of the standards is needed. Greater attention to content analysis should be developed and shared by and among those charged with responsibility for standards' construction.

Recommendations

Early learning standards have tremendous potential, both positive and negative. By defining the desired content and expectations for children's learning, the standards can benefit early care and education programs as well as the children they serve. Standards can serve to increase the degree of intentionality with which teachers teach, can focus curriculum and instruction on areas of development that are key to promoting positive child growth and learning, and can promote a more coherent approach to children's education as programs in different settings work from a common set of standards. Early learning standards, however, bring with them an equal potential for negative consequences. If standards are the basis of instruction, what are the implications of important areas of development being omitted? Would the standards become the basis for misguided instructional practices?

To maximize the benefits and minimize the risks of early learning standards, we make the following recommendations:

1. Before finalizing the early learning standards, careful analysis of the content of the standards should be done. The following questions should be addressed in a formal review process:
 - a. Is the purpose for the standards clear? Is the purpose to guide instruction? To serve as the basis for an assessment system? To hold programs accountable for child outcomes? Once the purpose is clear, does the content and the format of the document clearly support or “match” the purpose (in terms of level of specificity, areas of focus, etc.)?
 - b. Does the content of the standards reflect the state’s view of what is important for children’s development and learning prior to kindergarten entry? What is the relative degree of emphasis between the five dimensions? Is the degree of emphasis consistent with the state’s priorities and goals for the early care and education programs?
 - c. Have important indicators within each dimension been covered? Based on the review of the standards, have all important areas within each dimension been addressed? What’s been left out and is the omission consistent with the research literature on children’s early learning, the state’s priorities, and the goals of the programs where the standards will be used?
 - d. What is the relationship between the early learning standards and the K–12 standards? Is there consistency or alignment between the early learning standards and the kindergarten standards to the greatest extent that is feasible and desirable? Careful consideration should be given to the extent to which closely aligned early learning and kindergarten standards can promote consistency and continuity for children as they move from preschool programs into kindergarten.
2. Additional research on the nature and the content of early learning standards should be conducted. The development of early learning standards is a relatively new undertaking within the field of early care and education. Most of the standards have been developed within the past three years, and many states have also revised their standards within the same period. With the advent of any new innovation in education comes the need for analysis and self-reflection. Additional research is needed to explore how states have approached the development of their standards and what factors might explain differences between states in the content of their standards. Furthermore, and perhaps most important, further work is needed to provide data about how standards address the different areas of development and learning that are associated with children’s later success in school. What is the optimal balance in the relative emphasis of the standards across the five dimensions? Can the important areas of children’s learning and development that do not easily lend themselves to standards be articulated more effectively? As part of this effort to better understand the nature of early learning standards, we recommend that additional work be done to develop a more refined coding scheme that can better provide a more in-depth

understanding of the content of the standards, particularly in the area of Cognition and General Knowledge. A more refined coding system would provide more specific data on the level of skills and knowledge that have been addressed in the standards and would more explicitly address how academic content areas have been reflected in the standards.

3. Because early learning standards should be the basis from which programs develop curriculum and assess children's learning, further research is needed to examine the relationship between standards and the curricula and assessments being used in early care and education settings. This relationship is known as horizontal alignment. To what extent do the skills, knowledge, and characteristics addressed in the standards relate to the goals and objectives and the teaching strategies of the curriculum being used in the program? Are the assessments being used within the program collecting data on the same skills and characteristics outlined in the standards? Standards, curricula, and assessments that address the same or similar areas of children's learning can produce a synergy that effectively supports teachers in their efforts to promote optimal child outcomes. In instances where standards, curricula, and assessments are not in line with each other (i.e., exhibit poor horizontal alignment), teachers are likely to be confused about priorities for instruction and children may be subjected to an unfair situation where expectations for their learning and development do not match what is being taught or what is being assessed. A critical next step in our understanding of the content of early learning standards is to systematically examine the relationship or alignment between the standards, curricula, and assessments being used in early education programs.
4. Further research is needed to understand how the content of early learning standards relates to the content of K–12 standards. Given the importance that the linkage to K–12 standards seems to play in the development and content of early learning standards, research is needed to examine whether the content of directly “linked” early learning standards is actually aligned with the content of the K–12 standards—does “linkage” translate to “alignment”? If so, how? Additionally, are the K–12 standards to which early learning standards are linked of high quality, and do they reflect adequate breadth and depth? What type of alignment between standards used in the preschool and kindergarten programs can best promote children's transition to kindergarten?
5. Finally, we think it is critical that additional research be done on the utilization of standards in the field. States have spent considerable time and resources developing early learning standards. The question now is, “how are they impacting practice?” This research would need to take into account features within the standards documents themselves that might promote utilization and supports within the early care and education system that can help teachers use standards effectively. Within the documents themselves, are different ways of stating standards more effective or clear for teachers? What features of standards documents best support optimal use in the field—are standards enough or should

they be accompanied by narratives that provide examples, describe teaching strategies, etc.?

Research on the system-level supports needed to help teachers implement the standards should be multifaceted. The development and implementation of standards represents a huge “mind shift” for the field and moves us from a focus on the environment or the “inputs” of early education to a balanced focus on both the inputs and the outcomes of our efforts. Teachers will be asked to be more intentional about what skills, knowledge, and characteristics they seek to help children develop. Research on how to help teachers make this shift is imperative. What factors within the overall early education system of a state and within individual programs are associated with effective use of standards? What training and support is necessary to help teachers use the standards to guide their instruction? What role do standards play in higher education teacher-preparation programs? How can standards best be implemented so that they are used effectively?

Research on how to support the utilization of early learning standards is especially important given the fact that the early learning standards will likely be used in a wide variety of programs. Interviews with standards developers for Phase 1 of this study indicated that most states have developed early learning standards for use in their publicly funded pre-kindergarten programs but almost all states make them available to other programs and intend to support their use in other programs. With the advent of the Good Start Grow Smart requirements for voluntary early learning guidelines to be used in child care programs, the likelihood of these standards being used in settings other than publicly funded pre-kindergarten programs has increased. State-funded pre-kindergarten programs may be located in school settings where the notion of standards-based education is a daily consideration. While these teachers certainly will need support and access to professional development, they have the advantage of having worked with colleagues who routinely use standards and a school with an administrative system to support the use of standards. Many states, however, have extended their pre-kindergarten programs into community-based settings, and, with the advent of the Good Start Grow Smart requirements for early learning guidelines, even child care programs that do not provide state-funded pre-kindergarten programs may use the early learning guidelines. These programs typically have teachers with lower levels of education and professional development, may have less exposure to standards-based education, and if they are operating full-day programs, may have less time for professional development. Research that provides data to examine the types of support and professional development that are needed for effective implementation of early learning standards in these settings is imperative.

Conclusion

The purpose of this study was to provide a systematic analysis of the content of early learning standards. In conducting the study, we have shown that early learning standards are increasingly common across the nation—more states have them than do not. Our analysis indicates that standards documents vary tremendously in the depth and breadth of their content. Several important dimensions of school readiness—physical and motor, social and emotional, and

approaches toward learning—have received relatively less emphasis within the standards. Whether these findings reflect intentional or unintentional content skews is unclear. What is clear is the need for systematic analysis of the content of early learning standards, particularly because many states are currently in the process of developing or revising early learning standards.

Early learning standards articulate expectations for children’s development and learning and, as a consequence, have the capacity to influence the nature of early learning programs and the content of children’s daily experiences within the programs. Increasingly these standards have the potential to drive what is taught and, ultimately, what young children in this nation learn. Given the potential importance of these standards, it is imperative that the field engage in careful consideration of the content of these documents, serious deliberation related to what should be included, and rigorous research to examine the alignment of these standards with other elements of the education system and how the early learning standards are implemented.

References

- American Academy of Pediatrics, Committee on Nutrition. (2003). Prevention of pediatric overweight and obesity. *Pediatrics*, 112, 424–430.
- American Academy of Pediatrics, Committee on School Health. (2004). Soft drinks in schools. *Pediatrics*, 113, 152–154.
- American Federation of Teachers. (1999). *Making standards matter*. Washington, DC: Author.
- Barnett, W. S. (1998). Long-term effects on cognitive development and school success. In W. S. Barnett & S. S. Boocock (Eds.), *Early care and education for children in poverty* (pp 11 - 44). Albany, NY: State University of New York Press.
- Black, S. (2004, January). Beyond baby fat. *American School Board Journal*, 191(1), 1–3.
- Corbin, C. B., & Pangrazi, R. P. (2003). *Physical activity for children: A statement of guidelines for children ages 5–12*. Rolston, VA: National Association for Sport and Physical Education.
- Davies, M., & North, J. (1990). Teacher's expectations of school entry skills. *Australian Journal of Early Childhood*, 15(4), 44–46.
- Denton, K., & West, J. (2002). Children's reading and mathematics achievement in kindergarten and first grade. (NCES 2002-125). Washington, DC: National Center for Education Statistics.
- Doherty, K. M. (2002). Early learning. Quality Counts 2002: Building blocks for success. *Education Week*, 21(17), 54–56.
- Fishel, J. E., Storch, S. A., Spira, E. G., & Stolz, B. M. (2003). *Enhancing emergent literacy skills in Head Start: First year curriculum evaluation results*. Presented at the Biennial Meeting of the Society for Research in Child Development. Tampa, FL.
- Hains, A. H., Fowler, S. A., Schwartz, E. S., Kottwitz, E., & Rosenkoetter, S. (1989). A comparison of preschool and kindergarten teacher expectations for school readiness. *Early Childhood Research Quarterly*, 4, 75–88.
- Head Start Bureau. (2001). Head Start Child Outcomes Framework. *Head Start Bulletin*, 70, 44–50.
- Heaviside, S., & Farris, E. (1993). *Public school kindergarten teachers' views on children's readiness for school*. Contractor Report. Statistical Analysis Report. Fast Response Survey System (NCES-93-410). Washington, DC: U.S. Government Printing Office.

- Kagan, S. L., & Scott-Little, C. (2004). Early learning standards: Changing the parlance and practice of early childhood education? *Phi Delta Kappan*, 85, 388–396.
- Kowalski, K., Pretti-Frontczak, K., & Johnson, L. (2001). Preschool teachers' beliefs concerning the importance of various developmental skills and abilities. *Journal of Research in Childhood Education*, 16, 5–14.
- Lewit, E. M., & Baker, L. S. (1995). School readiness. *The Future of Children*, 5(2), 128–139.
- Lin, H. L., Lawrence, F. R., & Gorrell, J. (2003). Kindergarten teachers' views of children's readiness for school. *Early Childhood Research Quarterly*, 18, 225–237.
- National Association for the Education of Young Children (NAEYC), National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE). (2002). *Early learning standards: Creating the conditions for success*. Retrieved from http://ericps.crc.uiuc.edu/naecs/position/creating_conditions.pdf
- National Early Literacy Panel. (November 9, 2004). *The National Early Literacy Panel: A research synthesis on early literacy development*. Presentation for the National Association of Early Childhood Specialists in State Departments of Education. Anaheim, CA.
- National Education Goals Panel. (1995). *Reconsidering children's early development and learning: Toward common views and vocabulary*. Goal 1 Technical Planning Group. S. L. Kagan, E. Moore, & S. Bredekamp (Eds). Washington, DC: U.S. Government Printing Office.
- National Research Council. (2001). *Eager to learn: Educating our preschoolers*. Committee on Early Childhood Pedagogy. B. T. Bowman, M. S. Donovan, & M. S. Burns (Eds.). Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.
- National Research Council & Institute of Medicine. (2000). *From neurons to neighborhoods: The science of early childhood development*. J. P. Shonkoff & D. A. Phillips (Eds.) Board on Children, Youth and Families, Commission on Behavioral and Social Sciences and Education. Washington, DC: National Academy Press.
- Pate, R. R., Pfeiffer, K. A., Trost, S. G., Ziegler, P., & Dowda, M. (2004). Physical activity among children attending preschools. *Pediatrics*, 114, 1258–1263.
- Peth-Pierce, R. (2001). *A good beginning: Sending America's children to school with the social and emotional competence they need to succeed*. Monograph based on two papers commissioned by the Child Mental Health Foundations and Agencies Network (FAN). Chapel Hill, NC: University of North Carolina at Chapel Hill.

- Phillips, M., Brooks-Gunn, J., Duncan, G. J., Klebanov, P., & Crane, J. (1998). Family background, parenting practices, and the black-white test score gap. In C. Jencks & M. Phillips (Eds.), *The black-white test score gap*. Washington, DC: Brookings Institution Press.
- Pianta, R. C., & McCoy, S. J. (1997). The first day of school: The predictive validity of early school screening. *Journal of Applied Developmental Psychology*, 18, 1–22.
- Rathbun, A., & West, J. (2004). From kindergarten through third grade: Children's beginning school experiences. (NCES 2004-007). U.S. Department of Education, National Center for Education Statistics. Washington, DC: Government Printing Office.
- Raver, C. (2002). Emotions matter: Making the case for the role of young children's emotional development for early school readiness. *SRCD Social Policy Report*, 16(3). Ann Arbor, MI: Society for Research in Child Development.
- Rimm-Kaufman, S. E., Pianta, R. C., & Cox, M. J. (2000). Teachers' judgments of problems in the transition to kindergarten. *Early Childhood Research Quarterly*, 15, 147–166.
- Schulman, K., Blank, H., & Ewen, D. (1999). *Seeds of success*. Washington, DC: Children's Defense Fund.
- Scott-Little, C., Kagan, S. L., Frelow, V. S. (2003a). *Standards for preschool children's learning and development: Who has the standards, how were they developed, and how were they used?* Greensboro, NC: The Regional Educational Laboratory at SERVE.
- Scott-Little, C., Kagan, S. L., & Frelow, V. S. (2003b, Fall). Creating the conditions for success with early learning standards: Results from a national study of state-level standards for children's learning prior to kindergarten. *Early Childhood Research & Practice*, 5(2). Retrieved from <http://ecrp.uiuc.edu/v5n2/little.html>
- Shonkoff, J. P. (July, 2004). *Beyond Neurons to Neighborhoods*: Leading the way from research to policy. Plenary address for the annual State Child Care Administrators Meeting. U.S. Department of Health and Human Services, Administration for Children and Families, Child Care Bureau. Washington, DC, July 29, 2004.
- United States Department of Health and Human Services. (1996). *Physical activity and health: A report of the surgeon general*. Atlanta, GA: Centers for Disease Control and Prevention.
- United States Department of Health and Human Services. (2000). *Healthy people 2010* (2nd edition). Washington, DC: Government Printing Office.
- Welch, M. D., & White, B. (1999). *Teacher and parent expectations for kindergarten readiness*. (ERIC Document Reproduction Service No. ED 437 225).

- West, J. (1993). *Readiness for kindergarten: Parent and teacher beliefs*. Statistics in Brief (NCES 93-257). Washington, DC: U.S. Department of Education, National Center for Education Statistics, Office of Educational Research and Improvement.
- West, J., Denton, K., & Germino Hausken, E. (2000). *America's kindergartners*. (NCES 2000-070). Washington, DC: National Center for Education Statistics.
- West, J., Denton, K., & Reaney, L. (2001). *The kindergarten year*. (NCES 2001-023). Washington, DC: National Center for Education Statistics.
- White House. (2002). Good Start, Grow Smart: The Bush Administration's Early Childhood Initiative. Retrieved April 4, 2004, from <http://www.whitehouse.gov/infocus/earlychildhood/sect1.html>
- Whitehurst, G. J., & Lonigan, C. (1998). Child development and emergent literacy. *Child Development*, 68, 848–872.
- Whitehurst, G. J., & Lonigan, C. (2001). Emergent literacy: Development from prereaders to readers. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research*. New York: The Guilford Press.
- Zill, N., Resnick, G., Kim, K. et al. (2001). *Head Start FACES: Longitudinal findings on program performance*. Washington, DC: U.S. Department of Health and Human Services.
- Zill, N., Resnick, G., Kim, K., O'Donnell, K., Sorongon, A., et al. (2003). *Head Start FACES 2000: A whole-child perspective on program performance*. Washington, DC: U.S. Department of Health and Human Services.
- Zill, N., & West, J. (2001). *Entering kindergarten: A portrait of American children when they begin school*. Washington, DC: National Center for Education Statistics, U.S. Department of Education.

Appendices

Appendix A: Standards Documents Included in the Analysis

Appendix B: Indicators Used for Coding Standards Items

Appendix C: State-by-State Breakdown of the Relative Degree of Emphasis
Across the Dimensions

Appendix D: State-by-State Breakdown of the Relative Degree of Emphasis
Within the Physical Well-Being and Motor Development Dimension

Appendix E: State-by-State Breakdown of the Relative Degree of Emphasis Within
the Social and Emotional Development Dimension

Appendix F: State-by-State Breakdown of the Relative Degree of Emphasis Within
the Approaches Toward Learning Dimension

Appendix G: State-by-State Breakdown of the Relative Degree of Emphasis
Within the Language and Communication Dimension

Appendix H: State-by-State Breakdown of the Relative Degree of Emphasis
Within the Cognition and General Knowledge Dimension

Appendix A

Standards Documents Included in the Analysis

Arkansas

Arkansas Division of Child Care and Early Childhood Education. (1999). *Arkansas Early Childhood Education Framework: Benchmarks with Strategies/Activities for Three and Four Year Old Children*. Little Rock, AR: The Arkansas Division of Child Care and Early Childhood Education. Available at:

<http://www.state.ar.us/childcare/ARKANSAS%20EARLY%20CHILDHOOD%20EDUCATION%20FRAMEWORK.pdf>

Arizona

Arizona Department of Education. (2003). *Arizona Early Childhood Education Standards*. Phoenix, AZ: Arizona Department of Education. Available at:

<http://www.ade.state.az.us/earlychildhood/downloads/ECE-Standards.pdf>

California

California Department of Education. (2001). *Desired Results for Children and Families: Developmental Continuum of Desired Results, Indicators, and Measures for Children from Birth to 14 Years and Families Served by CDD-funded Center-based Programs and Family Child Care Home Networks*. Sacramento, CA: California Department of Education. Available at:

<http://www.cde.ca.gov/sp/cd/ci/documents/continuum.doc>

Colorado

Colorado Department of Education. (2000). *Building Blocks to Colorado's Content Standards*. Denver, CO: Colorado Department of Education. Available as follows: Reading and Writing:

<http://www.cde.state.co.us/cdesped/download/pdf/EC-BldgBlks%20ReadWrit.pdf>. Mathematics:

<http://www.cde.state.co.us/earlychildhoodconnections/docs/pdf/MathBB.pdf>

Connecticut

Connecticut State Board of Education. (1999). *The Connecticut Framework: Preschool Curricular Goals and Benchmarks*. Hartford, CN: State of Connecticut, State Board of Education. Available at: <http://www.state.ct.us/sde/deps/early/Frmwrkbench.pdf>

Delaware

Delaware Department of Education. (2003). *Delaware Early Learning Foundations for School Success*. Dover, DE: Delaware Department of Education. Available at:

http://www.doe.state.de.us/early_childhood/Standards/28372_Schoolbook.pdf

Florida

Florida Partnership for School Readiness. (2002). *Florida School Readiness Performance Standards for Three -, Four-, and Five-Year-Old Children*. Tallahassee, FL: Florida Partnership for School Readiness. Available at:

<http://www.schoolreadiness.org/home/download.asp?catsub=19>

Georgia

Georgia Office of School Readiness. (2003). *Georgia's Pre-K Program Content Standards*. Atlanta, GA: Office of School Readiness, Georgia Pre-K Program. Available at:

<http://www.osr.state.ga.us/PreK/TeachersContentStandards.html>

Hawaii

Hawaii Good Beginnings Interdepartmental Council. School Readiness Task Force. (2003). *Hawaii Preschool Content Standards. Curriculum Guidelines for Programs for Four-Year-Olds*. Hawaii: Good Beginnings Alliance. Available at:

<http://www.goodbeginnings.org/pdf/Hawaii%20Preschool%20Content%20Standards.pdf>

Idaho

Idaho State Department of Education. (2003). *Idaho Early Learning Standards: A Resource Guide* (Draft). Boise, ID: Idaho State Department of Education, Bureau of Special Education. Available at:

<http://www.sde.state.id.us/SpecialEd/docs/content/IdahoEarlyLearningStandards.pdf>

Illinois

Illinois State Board of Education. (2002). *Resources on Early Learning: Illinois Early Learning Standards*. Springfield, IL: Illinois State Board of Education, Division of Early Childhood Education. Available at: <http://www.illinoisearlylearning.org/standards/index.htm>

Indiana

Indiana Department of Education. (2002). *Foundations for Young Children to the Indiana Academic Standards*. Indianapolis, IN: Indiana Department of Education, Division of Prime Time. Available at:

<http://ideanet.doe.state.in.us/primetime/foundations.html>

Kentucky

Kentucky Department of Education. Kentucky Preschool Program. (2003). *Building the Foundation for School Success*. Available at:

<http://www.education.ky.gov/KDE/Instructional+Resources/Early+Childhood+Development/Kentucky%27s+Early+Childhood+Standards.htm>

Louisiana

Louisiana Department of Education. (2003). *Louisiana Standards for Programs Serving Four-Year-Old Children*. Baton Rouge, LA: Louisiana Department of Education; Office of Student and School Performance; Division of Student Standards and Assessments. Available at: <http://www.louisianaschools.net/lde/ssa/742.html>

Maine

Maine Department of Education. (1997). *Learning Results*. Augusta, ME: Maine Department of Education. Available at <http://www.state.me.us/education/lres/lres.htm>

Maine Department of Education. (1999). *Birth to Five Early Learning Results*.

Maryland

Maryland State Department of Education. (2003). *MSDE Voluntary State Curriculum*. Baltimore, MD: Maryland State Department of Education. Available at: <http://mdk12.org/mspp/vsc/>

Massachusetts

Massachusetts Department of Education. (2003). *Guidelines for Preschool Learning Experiences*. Malden, MA: Massachusetts Department of Education. Available at: http://www.doe.mass.edu/els/standards/ple_guidelines.pdf

Michigan

Michigan State Board of Education. (1992). *Early Childhood Standards of Quality for Prekindergarten Through Second Grade*. Lansing, MI: Michigan State Board of Education, Early Childhood Education, Parenting, and Comprehensive School Health Unit.

Minnesota

Minnesota Department of Children, Families & Learning. (2000). *Minnesota Early Childhood Indicators of Progress: A Resource Guide*. Roseville, MN: Minnesota Department of Children, Families, & Learning. Available at: <http://education.state.mn.us/content/010859.pdf>

Mississippi

Mississippi Department of Education. (2001). *Mississippi Pre-kindergarten Curriculum Including Benchmarks, Informal Assessments and Suggested Teaching Strategies*. Jackson, MS: Mississippi Department of Education. Available at: <http://www.mde.k12.ms.us/ACAD/ID/curriculum/LAER/MsPreK.pdf>

Missouri

Missouri Department of Elementary and Secondary Education, Early Childhood Section. (2001). *Missouri Pre-K Standards*. Jefferson City, MO. Available at: http://www.dese.state.mo.us/divimprove/fedprog/earlychild/PreK_Standards.html

New Jersey

New Jersey State Department of Education. (2003). *Early Childhood Education Program Expectations: Standards of Quality*. (Revised). Trenton, NJ: New Jersey State Department of Education. Available at: <http://www.state.nj.us/njded/ece/expectations/expectations.pdf>

New Mexico

University of New Mexico Center for Family and Community Partnerships. (2000). *Developmental Milestones* (part of the Focused Portfolio system described at: <http://www.newassessment.org/public/assessments/AndMore/FocusedPortfolio.cfm>).

New York

The University of the State of New York & The State Education Department. (2002). *Early Literacy Guidance Prekindergarten – Grade 3*. Albany, NY: The State Education Department. Available at <http://www.emsc.nysed.gov/ciai/ela/early.pdf>

Ohio

Ohio Department of Education. (2003). *Early Learning Content Standards*. Ohio Department of Education, Office of Early Childhood Education. Available at: <http://www.ode.state.oh.us/ece/standards1/Early%20Learning%20Standards-final-10-04.pdf>

Oklahoma

Oklahoma State Department of Education. (1996). *Developmental Skills*. Oklahoma City, OK: Oklahoma State Department of Education. Available at <http://title3.sde.state.ok.us/early/kdevelop.htm>

Pennsylvania

Pennsylvania Department of Education & Pennsylvania Association of Intermediate Units. (2001). *Early Childhood Learning Continuum Indicators*. Harrisburg, PA: Pennsylvania Department of Education. Available at: <http://www.pde.state.pa.us/nclb/lib/nclb/earlychildhoodcontinuum.pdf>

Rhode Island

Rhode Island Department of Elementary and Secondary Education. (2003). Rhode Island Early Learning Standards. Providence, RI: Department of Elementary and Secondary Education.

Available at

http://www.ridoe.net/child_family/earlychild/childstandards.htm

South Carolina

South Carolina State Department of Education, Office of Curriculum and Standards. (2001).

Mathematics Curriculum Standards. Columbia, SC: South Carolina State Department of Education. Mathematics available at:

<http://www.myscschools.com/offices/cso/mathematics/standards.htm>. English/Language arts

available at: http://www.myscschools.com/offices/cso/english_la/standards/grade_band_pk-2.pdf

Texas

Texas Education Agency. (1999). *Prekindergarten Curriculum Guidelines*. Austin, TX: Texas Education Agency. Available at: <http://www.tea.state.tx.us/curriculum/early/prekguide.html>

Utah

Utah State Office of Education. (2000). *Pre-K Standards (Guidelines)*. Salt Lake City, UT: Utah State Office of Education.

Vermont

State of Vermont, Department of Education. (1993). *Vermont's Framework of Standards and Learning Opportunities*. Montpelier, VT: Vermont Department of Education. Available at:

<http://www.state.vt.us/educ/new/html/pubs/framework.html>

Virginia

Virginia Department of Education. (2002). *Virginia's Foundation Blocks for Early Learning: Guidelines for Literacy and Mathematics*. Richmond, VA: Office of Elementary Instructional Services, Virginia Department of Education. Available at:

http://www.pen.k12.va.us/VDOE/Instruction/Elem_M/FoundationBlocks.pdf

Washington

Children's Services, Community Services Division, Department of Community, Trade and Economic Development. (1999). *Washington State's Early Childhood Education and Assistance Program Outcomes Selected for New Evaluation Design*. Olympia, WA: Washington Community Trade and Economic Development Department.

Office of the Superintendent of Public Instruction (2001). *Birth to Five Framework for Achieving the Essential Academic Learning Requirements in Reading, Writing and Communication*. Olympia, WA: Office of the Superintendent of Public Instruction.

Wisconsin

Wisconsin Department of Public Instruction, Wisconsin Department of Workforce Development, Wisconsin Department of Health and Family Services, Head Start State Collaboration Project, Early Childhood Collaborating Partners. (2003). *Wisconsin Model Early Learning Standards*. Madison, WI: Wisconsin Department of Public Instruction. Available at:
http://www.collaboratingpartners.com/docs/NMN_EL_Standards.pdf

Wyoming

Wyoming Department of Education. *Early Childhood Readiness Standards*. Cheyenne, WY: Wyoming Department of Education.

Appendix B

Indicators Used for Coding Standards Items

Dimension I: Physical Well-Being and Motor Development

I. Physical Development

1. Overall rate of growth and good nutrition
2. Level of physical fitness (overall health, strength, stamina, and ability to exercise)

II. Physical Abilities

3. Motor skills (gross, fine, oral, sensory)
4. Functional performance (physical competencies; self-help skills)

Dimension II: Social and Emotional Development

I. Emotional Development

5. Regulates and expresses emotions appropriately (communicates one's attitudes/feelings verbally and non-verbally)
6. Ability to comprehend the feelings of others (empathy, understanding, acceptance, distinguishes between incidental and intentional actions)
7. Self-concept (traits, habits, abilities, motives, social roles, goals, and values that define how we perceive ourselves)
8. Self-efficacy (belief that one can successfully accomplish what one sets out to do)

II. Social Development

9. Social skills with adults (includes ability to communicate with adults)
10. Ability to have relationships with adults
11. Social skills with peers (includes social skills necessary to cooperate with peers)
12. Ability to form and sustain reciprocal friendships with peers

Dimension III: Approaches Toward Learning

I. Learning Styles

13. Openness to and curiosity about new tasks and challenges (predisposition to explore and experiment)
14. Initiative, task persistence, and attentiveness
15. Approach to reflection and interpretation
16. Capacity for invention and imagination

Dimension IV: Language Development

I. Verbal Language

17. Listening (includes following oral directions)
18. Speaking (focuses on mechanics of speaking and not on what it communicates)
19. Social uses of language
20. Vocabulary and meaning
21. Questioning
22. Creative uses of language (listens attentively to stories, songs; rhyming sounds and words; storytelling)
23. Creative expression (non-language)
24. Non-verbal communication

III. Emerging Literacy

25. Phonemic and phonological awareness (increase the ability to discriminate and identify sounds; process sounds to formulate words)
26. Literature awareness (interest in various forms of literature; recalling familiar stories)
27. Comprehension (awareness of the basic content of literacy-related materials)
28. Print awareness (recognizes own name in writing; aware of connection between text and oral storytelling)
29. Book awareness (reads from left to right; holds book and turns pages appropriately)
30. Alphabet awareness (recognizes or knows the names of letters of the alphabet)
31. Story sense (aware of story sequence)
32. Writing process (produces ordered scribbling)

Dimension V: Cognition and General Knowledge

I. Physical Knowledge

33. Knowledge of objects in external reality learned by observations and experience with the objects (representational thought—ability to think about things not present)

II. Logico-Mathematical Knowledge

34. Knowledge constructed within the mind of the individual that establishes similarities, differences, and associations between objects, events, or people.

III. Social-Conventional Knowledge

35. Awareness of the agreed-upon conventions of society and the school-learned knowledge of conventions (the English language has 26 letters; classroom routines)
36. Social knowledge (aware of self, family, and community; aware of physical environment and natural world)

Appendix C

State-by-State Breakdown of the Relative Degree of Emphasis Across the Dimensions

State	Percentage of Indicators Coded Within Each Dimension				
	Physical	Social and Emotional	Approaches Toward Learning	Language & Communication	Cognition & General Knowledge
Arkansas	16	19	14	18	33
Arizona	8	12	12	23	45
California	24	16	7	27	26
Colorado	0	0	0	41	59
Connecticut	14	18	16	25	27
Delaware	7	14	11	22	46
Florida	18	12	12	18	40
Georgia	6	10	10	28	46
Hawaii	8	11	8	18	55
Idaho	5	7	11	32	45
Illinois	8	11	8	25	48
Indiana	3	7	6	32	52
Kentucky	7	9	16	27	41
Louisiana	8	17	1	22	52
Maine: Learning Results	4	3	3	19	72
Maine: Early L. R.	20	30	3	31	16
Maryland	1	1	10	38	50
Massachusetts	10	2	9	23	56
Michigan	4	8	10	21	57
Minnesota	9	20	15	22	34
Mississippi	5	20	1	36	38
Missouri	11	12	22	19	36
New Jersey	7	13	9	25	46
New Mexico	32	19	3	32	14
New York	0	13	2	73	13
Ohio	0	6	11	34	49
Oklahoma	20	11	10	21	37
Pennsylvania	0	3	9	51	37
Rhode Island	6	13	18	28	34

	Physical	Social & Emotional	Approaches Toward Learning	Language & Communication	Cognition & General Knowledge
South Carolina	11	4	11	28	46
Texas	8	10	8	37	37
Utah	13	18	12	31	26
Vermont	8	14	16	26	36
Virginia	0	0	0	64	36
Washington – ECEAP	10	25	6	34	25
Washington – OSPI	3	20	4	67	7
Wisconsin	9	22	24	24	21
Wyoming	9	10	17	34	30
Average Percentage by Dimension	8.7	12.1	9.6	30.9	38.6

Appendix D

State-by-State Breakdown of the Relative Degree of Emphasis Within the Physical Well-Being and Motor Development Dimension

State	Growth	Fitness	Motor skills	Functional performance
Arkansas	7	7	64	22
Arizona	0	0	59	41
California	0	0	62	38
Colorado	0	0	0	0
Connecticut	0	9	64	27
Delaware	13	13	49	25
Florida	18	0	64	18
Georgia	0	0	86	14
Hawaii	0	8	59	33
Idaho	11	33	45	11
Illinois	13	25	50	12
Indiana	0	10	50	40
Kentucky	0	8	69	23
Louisiana	0	13	75	12
Maine: Learning Results	0	13	50	37
Maine: Early Learning Results	0	0	93	7
Maryland	0	0	0	100
Massachusetts	0	31	54	15
Michigan	0	20	60	20
Minnesota	0	37	50	13
Mississippi	0	17	50	33
Missouri	0	12	76	12
New Jersey	0	8	30	62
New Mexico	0	10	61	29
New York	0	0	0	0
Ohio	0	0	0	0
Oklahoma	0	0	83	17
Pennsylvania	0	0	0	0
Rhode Island	0	43	57	0
South Carolina	0	19	81	0

State	Growth	Fitness	Motor skills	Functional performance
Texas	0	6	69	25
Utah	0	0	44	56
Vermont	0	8	75	17
Virginia	0	0	0	0
Washington - ECEAP	0	60	0	40
Washington - OSPI	0	0	50	50
Wisconsin	17	17	49	17
Wyoming	0	9	36	55
Average percentage across states	2.1	11.5	49.1	24.2

Appendix E

State-by-State Breakdown of the Relative Degree of Emphasis Within Social and Emotional Development Dimension

State	Regulates emotions		Feelings of others		Self-concept		Self-efficacy		Social skills with adults		Relationships with adults		Social skills with peers		Relationships with peers	
Arkansas	0		23		12		12		6		12		35		0	
Arizona	20		20		17		3		10		3		24		3	
California	22		22		11		11		11		0		22		0	
Colorado	0		0		0		0		0		0		0		0	
Connecticut	22		7		14		0		14		0		43		0	
Delaware	25		6		19		6		13		0		25		6	
Florida	13		13		0		22		26		0		26		0	
Georgia	17		17		25		8		0		0		33		0	
Hawaii	31		0		13		0		19		0		31		6	
Idaho	33		17		17		8		0		8		17		0	
Illinois	42		17		8		0		0		0		25		8	
Indiana	44		0		7		4		0		0		44		0	
Kentucky	19		0		25		6		13		0		31		6	
Louisiana	12		24		18		0		6		6		35		0	
Maine: Learning Results	40		0		20		0		0		0		40		0	
Maine: Early L. Results	23		5		9		2		27		9		25		0	
Maryland	0		0		0		0		0		0		100		0	
Massachusetts	33		33		0		0		0		0		33		0	

State	Regulates emotions	Feelings of others	Self-concept	Self-efficacy	Social skills with adults	Relationships with adults	Social skills with peers	Relationships with peers
Michigan	23	6	23	23	0	0	19	6
Minnesota	26	11	26	0	5	0	26	5
Mississippi	25	21	4	4	0	0	42	4
Missouri	21	5	21	0	5	5	37	5
New Jersey	23	9	18	5	0	9	36	0
New Mexico	17	28	0	0	17	0	33	6
New York	0	0	0	0	0	0	31	69
Ohio	22	22	22	0	11	0	22	0
Oklahoma	8	15	15	8	23	0	31	0
Pennsylvania	0	0	0	0	18	0	82	0
Rhode Island	17	11	22	0	0	0	44	6
South Carolina	33	0	33	0	0	0	33	0
Texas	15	15	15	0	10	0	45	0
Utah	15	4	6	6	13	2	52	2
Vermont	19	14	14	4	4	0	41	4
Virginia	0	0	0	0	0	0	0	0
Washington - ECEAP	15	8	15	0	0	8	23	31
Washington - OSPI	6	3	10	13	10	3	55	0
Wisconsin	29	7	15	7	21	0	21	0
Wyoming	17	17	17	8	0	17	8	17
Average Percentage Across States	19.1	10.5	12.9	4.2	7.4	2.2	33.4	4.8

Appendix F

State-by-State Breakdown of the Relative Degree of Emphasis Within the Approaches Toward Learning Dimension

State	Curiosity	Initiative	Reflection & Interpretation	Invention & Imagination
Arkansas	59	8	25	8
Arizona	23	16	23	39
California	50	25	0	25
Colorado	0	0	0	0
Connecticut	18	18	46	18
Delaware	23	23	8	46
Florida	50	32	5	14
Georgia	39	23	23	15
Hawaii	64	36	0	0
Idaho	10	5	71	14
Illinois	38	25	0	38
Indiana	52	9	9	30
Kentucky	36	25	36	3
Louisiana	0	0	0	100
Maine: Learning Results	33	0	0	37
Maine: Early Learning Results	40	0	60	0
Maryland	5	0	95	0
Massachusetts	33	0	33	33
Michigan	19	19	58	3
Minnesota	43	21	21	14
Mississippi	0	50	50	0
Missouri	34	14	23	29
New Jersey	20	40	33	7
New Mexico	100	0	0	0
New York	0	0	100	0
Ohio	39	0	50	11
Oklahoma	33	17	25	25
Pennsylvania	49	8	23	20
Rhode Island	54	29	13	4
South Carolina	6	0	44	50

State	Curiosity	Initiative	Reflection & Interpretation	Invention & Imagination
Texas	65	5	12	18
Utah	44	19	34	3
Vermont	36	32	28	4
Virginia	0	0	0	0
Washington – ECEAP	33	67	0	0
Washington – OSPI	17	50	17	17
Wisconsin	20	7	66	7
Wyoming	33	38	19	10
Average Percentage across States	32.1	17.4	27.6	16.9

Appendix G

State-by-State Breakdown of the Relative Degree of Emphasis Within the Language and Communication Dimension--Communication Items

State	Listening	Speaking	Social uses of language	Vocabulary	Questioning	Creative use of language	Creative expression	Non-verbal communication
Arkansas	0	19	6	19	0	6	0	0
Arizona	3	2	12	8	3	12	7	0
California	0	6	13	6	0	6	0	0
Colorado	3	3	7	10	3	17	3	3
Connecticut	0	5	21	5	0	11	16	0
Delaware	4	8	16	0	0	12	8	0
Florida	9	9	0	9	0	3	3	0
Georgia	6	3	6	9	0	14	6	0
Hawaii	0	4	19	4	4	11	0	0
Idaho	2	9	9	26	0	3	14	0
Illinois	8	0	19	4	4	4	4	0
Indiana	3	1	7	12	6	15	3	0
Kentucky	8	2	4	6	2	15	2	4
Louisiana	9	5	0	9	5	14	18	0
Maine: Learning Results	3	5	16	8	3	3	3	0
Maine: Early L. Results	0	27	11	11	0	7	0	11
Maryland	3	3	4	12	3	8	0	0
Massachusetts	0	3	13	17	3	20	7	0

State	Listening	Speaking	Social uses of language	Vocabulary	Questioning	Creative use of language	Creative expression	Non-verbal communication
Michigan	8	4	6	13	4	6	3	6
Minnesota	10	10	10	10	0	5	5	5
Mississippi	9	2	12	9	0	16	2	2
Missouri	0	4	17	10	0	10	10	0
New Jersey	7	7	14	19	2	10	0	0
New Mexico	19	3	3	13	0	3	10	0
New York	11	3	4	8	1	23	0	0
Ohio	0	2	4	11	0	9	0	0
Oklahoma	4	0	0	8	8	12	24	0
Pennsylvania	4	7	3	9	5	14	2	1
Rhode Island	11	11	3	5	0	11	11	3
South Carolina	9	2	7	5	5	21	7	5
Texas	8	0	5	12	4	16	10	0
Utah	9	2	10	14	5	8	12	3
Vermont	5	5	10	10	2	12	2	2
Virginia	13	0	9	6	3	0	0	0
Washington – ECEAP	6	11	6	11	0	11	0	0
Washington – OSPI	1	0	8	8	7	17	7	2
Wisconsin	7	7	13	20	0	0	13	0
Wyoming	5	5	2	15	2	17	5	0
Average Percentage Across States	5.4	5.2	8.7	10.3	2.2	10.6	5.7	1.2

Appendix G (continued)

Relative Degree of Emphasis Within the Language and Communication Dimension—Early Literacy Items

State	Phonemic/ Phonological		Literature		Comprehension		Print		Book		Alphabet		Story		Writing	
	Awareness	Awareness	Awareness	Awareness	Awareness	Awareness	Awareness	Awareness	Awareness	Awareness	Awareness	Awareness	Sense	Sense	Process	Process
Arkansas	0	12	0	19	0	0	0	0	0	0	0	6	6	6	12	12
Arizona	0	2	8	7	8	7	7	7	7	7	12	2	2	2	15	15
California	13	6	6	6	6	0	0	0	0	0	6	6	6	6	20	20
Colorado	7	7	3	21	3	0	0	0	0	0	0	3	3	3	3	3
Connecticut	0	5	0	0	0	5	5	5	5	11	0	0	0	0	21	21
Delaware	8	4	4	4	4	4	4	4	4	12	0	0	0	0	16	16
Florida	9	3	9	6	3	3	3	3	3	9	0	0	0	0	31	31
Georgia	11	14	3	9	3	3	3	3	3	3	3	3	3	3	11	11
Hawaii	4	7	7	22	4	4	4	4	4	4	0	0	0	0	11	11
Idaho	3	6	2	9	2	0	0	0	0	2	2	2	2	2	13	13
Illinois	12	8	8	8	8	4	4	4	4	4	4	4	4	4	12	12
Indiana	8	4	3	11	3	3	3	3	3	6	3	3	3	3	17	17
Kentucky	6	17	0	13	0	4	4	4	4	8	0	0	0	0	8	8
Louisiana	5	5	9	5	9	0	0	0	0	0	0	0	0	0	18	18
Maine: Learning Results	5	4	22	8	22	0	0	0	0	5	8	5	8	5	5	5
Maine: Early L. Results	4	2	4	0	4	2	2	2	2	7	0	0	0	0	13	13
Maryland	14	5	12	12	12	5	5	5	5	4	4	6	6	6	9	9
Massachusetts	10	7	3	0	3	0	0	0	0	3	3	7	7	7	7	7

State	Phonemic/ Phonological Awareness	Literature Awareness	Comprehension	Print Awareness	Book Awareness	Alphabet Awareness	Story Sense	Writing Process
Michigan	4	5	4	15	4	0	1	18
Minnesota	5	5	0	10	0	0	5	20
Mississippi	7	9	0	9	9	5	7	2
Missouri	7	4	0	7	4	4	7	17
New Jersey	2	2	0	12	2	7	5	10
New Mexico	0	16	0	13	0	6	3	10
New York	4	4	7	12	1	3	1	18
Ohio	7	5	13	14	2	4	2	27
Oklahoma	8	4	0	8	8	12	4	0
Pennsylvania	11	15	10	3	3	3	7	3
Rhode Island	11	3	0	8	5	13	3	5
South Carolina	0	9	0	19	2	5	2	2
Texas	10	11	0	8	8	4	1	3
Utah	1	6	1	11	4	1	5	7
Vermont	10	10	2	10	2	8	0	10
Virginia	13	3	0	3	19	19	3	9
Washington – ECEAP	6	11	0	11	0	16	0	11
Washington – OSPI	3	13	5	13	2	5	2	9
Wisconsin	7	0	0	13	0	13	0	7
Wyoming	7	5	2	13	5	7	5	5
Average Percentage Across States	6.4	6.8	3.9	9.8	3.3	6.1	3.0	11.4

Appendix H

State-by-State Breakdown of the Relative Degree of Emphasis Within the Cognition and General Knowledge Dimension

State	Physical Knowledge	Logico- Mathematical Knowledge	Social Conventions	Social Knowledge
Arkansas	27	45	0	27
Arizona	26	47	14	13
California	14	79	7	0
Colorado	34	63	0	2
Connecticut	32	59	9	0
Delaware	48	42	4	6
Florida	30	39	8	22
Georgia	33	46	9	12
Hawaii	42	35	7	16
Idaho	38	32	6	24
Illinois	42	35	8	15
Indiana	30	55	4	11
Kentucky	35	30	7	28
Louisiana	31	46	6	18
Maine: Learning Results	63	27	3	7
Maine: Early Learning Results	48	52	0	0
Maryland	34	52	3	11
Massachusetts	52	22	13	13
Michigan	34	49	1	16
Minnesota	28	44	3	25
Mississippi	28	54	11	7
Missouri	38	53	7	2
New Jersey	30	47	9	14
New Mexico	69	31	0	0
New York	62	23	0	15
Ohio	37	53	4	6
Oklahoma	36	32	9	23
Pennsylvania	38	59	0	3

State	Physical Knowledge	Logico- Mathematical Knowledge	Social Conventions	Social Knowledge
Rhode Island	24	48	13	15
South Carolina	60	29	7	4
Texas	29	36	20	15
Utah	55	27	6	12
Vermont	22	27	13	38
Virginia	28	72	0	0
Washington - ECEAP	15	54	23	8
Washington - OSPI	73	18	0	9
Wisconsin	8	54	8	30
Wyoming	30	38	11	21
Average Percentage Across States	37.9	43.5	6.7	12.8