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# *Inside the Content of Infant-Toddler Early Learning Guidelines:*

*Results from Analyses, Issues to Consider, and Recommendations*


**Catherine Scott-Little**

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Human Development and Family Studies
University of North Carolina at Greensboro

**Sharon Lynn Kagan**
**Victoria Stebbins Frelow**
**Jeanne Reid**

~

Teachers College
Columbia University


THE UNIVERSITY *of* NORTH CAROLINA
GREENSBORO

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

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### ABOUT THE AUTHORS

**Catherine Scott-Little** is Assistant Professor, Human Development and Family Studies at the School of Human and Environmental Sciences, The University of North Carolina at Greensboro.

**Sharon Lynn Kagan** is the Virginia and Leonard Marx Professor of Early Childhood and Family Policy, Co-Director of the National Center for Children and Families, and Associate Dean for Policy at Teachers College, Columbia University.

**Victoria Stebbins Frelow** is a doctoral student at Teachers College, Columbia University.

**Jeanne Reid** is a doctoral student and graduate research fellow at the National Center for Children and Families at Teachers College, Columbia University.

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## Introduction

The first three years of life are a period of remarkable growth and development and set the stage for how children grow and learn in later years (Wittmer & Petersen, 2006). Policymakers and educators increasingly recognize that the experiences and environment children are exposed to from the very first day of life have tremendous implications for their capacities to relate to others, to learn, and to be successful for many years to come. States have begun to develop early learning guidelines[1]—documents that describe the knowledge, skills, and dispositions adults seek to foster within children—as a strategy to improve the quality of care children this age receive and as an important component of state efforts to strengthen the infrastructure of services for infants and toddlers (Schumacher, Hamm, Goldstein, & Lombardi, 2006). It is critical that the content of early learning guidelines (hereafter referred to as "ELGs") is appropriate for this age period. The potential benefits of ELGs that are age appropriate and cover significant elements of infant-toddler development are immense. ELGs that identify key knowledge, skills, and dispositions can guide educators toward more intentional and appropriate ways to support infant-toddler development and serve as resources for policymakers who want to foster high-quality programs. However, the potential pitfalls of ELGs that are inappropriate or "off-base" are equally as significant, as educators can be misguided as to how they nurture infant-toddler development and policymakers can be misdirected in their efforts to support quality programs.

### *The Need for Content Analyses*

The advent of ELGs for infants and toddlers is, in essence, a new frontier. Relatively few resources exist to guide the development of ELGs for babies, and no analyses have been conducted to systematically examine the content of first infant-toddler ELGs. The developers of these documents were, in effect, pioneers striking out into unknown territory. When taking on the task of writing ELGs, the developers faced numerous challenges. First, some in the field question the appropriateness of ELGs for this age period—given the unique and dynamic quality of development at this age, is it appropriate to define expectations for infant-toddler development? Indeed, the very nature of development at this age has challenged ELG developers. Some areas of development are less differentiated than others, and development that takes place in one area is highly interrelated to developments in other areas. Furthermore, the prospect of developing ELGs that are culturally and linguistically appropriate is daunting, particularly given the tremendous importance of a child's family and language at this age. The pioneers who have developed the first infant-toddler ELGs faced these and other challenges and moved forward. Several states have published ELG documents, and the field can learn a great deal from them.

[1] Early learning guidelines are sometimes called "early learning standards" and the titles of the documents within which they are published vary as well, including using such terms as "foundations" or "indicators of progress."

It is important, therefore, to carefully examine the content of infant-toddler ELGs for several reasons. First, these documents are poised to become an important part of efforts to focus policy initiatives and attention on this critical time period of development and learning. With the advent of the pre-kindergarten movement, many in the field worry that infants and toddlers have been "set aside" or given significantly less attention in efforts to improve quality and access to early childhood programs (Kirp, 2007). By developing infant-toddler ELGs, states can call attention to the important accomplishments that take place during this age period. Furthermore, ELGs, along with licensing standards and program standards, are key elements of the policy infrastructure and quality-improvement initiatives because they define the types of child outcomes that service providers should seek to promote. They are also an important tool for developing a well-qualified workforce of caregivers who are knowledgeable in infant-toddler development because they define age-appropriate goals for children (Schumacher et al., 2006). Through their infant-toddler ELGs, states have elevated the importance of this age period within the context of the early childhood period, defined the goals or desired outcomes for birth-to-three policy initiatives, and created a foundation for caregiver training and professional development focused specifically on this age period. It is therefore essential that the content included in these documents is appropriate.

**The learning and development that takes place before a child turns three is qualitatively different from other periods of life.**

The second important reason to conduct these content analyses is that states are "ramping up" their efforts to develop infant-toddler ELGs. As recently as 2002, only two states had ELGs for infants and toddlers. In 2007, 21 states had published infant-toddler ELG documents and several are in the process of developing such documents. It is likely that a significant number of states will develop infant-toddler ELGs in the near future. From previous research on preschool ELGs, we know that many states used the first preschool ELGs as models or resource documents for those that they developed later (Scott-Little, Kagan, & Frelow, 2003). It is important that the field understands what has been covered in these first infant-toddler ELG documents, because other states are likely to use these first documents as models.

Finally, it is important to analyze the content of states' infant-toddler ELGs to see how they reflect the unique characteristics of this age period. The learning and development that takes place before a child turns three is qualitatively different from other periods of life. Research on babies' brains shows the rapid and far-reaching changes that take place as they develop. Infants and toddlers are developing mental processes that underlie all later development and learning. As they experience the world they begin to learn to process information, to communicate, and to understand and regulate themselves and their relationships with others. Infants and toddlers, like no other age period, learn within the context of the relationships they have with others. It is through their relationships that they learn about the world and about themselves. These special considerations should be reflected in the content of ELGs

for infants and toddlers (National Infant and Toddler Child Care Initiative, 2006). The content analyses will shed light on how the unique considerations related to this age period have been reflected in the ELGs states have written.

## *The Purpose of this Report*

The purpose of this report is to review the content of state infant-toddler ELGs; to provide commentary on the content based on our knowledge of the field; and to provide recommendations that can be used to support the development of high-quality, infant-toddler ELGs. We have conducted several types of analyses to provide information about the content of infant-toddler ELGs. The specific questions addressed are:

- How have states organized their infant-toddler ELGs?
  - What age periods have they used to organize the ELGs?
  - What subareas or headings for subsections have states used?
- What content have states addressed in their infant-toddler ELGs?
  - What areas of children's learning and development have they addressed?
  - What areas of children's learning and development have states not addressed?
  - What is the relative emphasis states have placed on the various areas of children's learning and development within their ELGs?

The following report describes how the content analyses were conducted, documents the findings and our thoughts on implications of the findings, and provides recommendations.

## Methodology for Conducting the Content Analyses

In order to develop a systematic way to analyze the content of infant-toddler ELGs, we developed a framework of domains and indicators of early childhood learning and development with which we could describe and compare content addressed within the ELGs. This section describes how we developed a coding framework and system to code the content of ELGs, the process used to code the content of ELGs, how data from our coding process were calculated and analyzed, and the limitations of our coding process.

### *Developing the Coding Framework*

The team sought to design a method for coding the content of infant-toddler ELGs based on the most current thinking and research related to infant-toddler development and one that reflected the unique characteristics of this age period. We also wanted to make sure that the coding methodology could reflect the full range of content that might be included in the ELGs, including content that might be considered age appropriate for older children. Finally, we knew that we would need to develop a framework that articulates the specific content we wanted to use in the analyses, and a coding system to describe the procedures used to make decisions about how to code the content of ELGs using the content articulated in the framework. This section describes our process for developing the coding framework. The following section describes how we developed the coding system to guide decisions about how to use the framework to code the content of the ELGs.

**The team sought to design a method for coding the content of infant-toddler Early Learning Guidelines based on the most current thinking and research related to infant-toddler development.**

Rather than automatically start with the coding framework we previously used to analyze the content of ELGs/early learning standards for preschool-age children (Scott-Little, Kagan, & Frelow, 2005; 2006), we decided to start by looking at research and other types of materials that specifically address infants and toddlers. We suspected that the coding framework for infants and toddlers might look very different from the framework we had used to analyze preschool ELGs, with different domain categories and different indicators. Our first step was to examine the ELG documents themselves to see what broad categories states had used. We found that states, for the most part, used domain categories consistent with the five domains described by the National Educational Goals Panel (NEGP, 1995). Based on this observation, we decided to use those same domains (with one modification—we separated the social domain from the emotional domain) and our original indicators within the domains as a basis to organize the information collected from research on this age period. We then implemented a multiphase process (described below) to develop the coding framework used to conduct the content analyses.

### *Interviews with Experts*

The first step in our process was to interview 15 persons who each possessed a depth of expertise and experience working in the infant-toddler field. Our goals for these interviews were two-fold: to collect recommendations for research and resources to be reviewed in order to develop the coding system and to gather feedback on issues that these experts felt would be important considerations in our work. We deliberately chose individuals with expertise in a variety of areas to ensure that we collected information from those working in different disciplines and in different capacities within the field including researchers and practitioners with medical, psychological, and educational backgrounds. The persons who were interviewed (listed in the Acknowledgments section) suggested additional experts for us to speak with and recommended research studies and other types of documents we should review.

### *Reviewing Resources*

The next step was to review resources that describe elements of development and learning that are important during the infant-toddler period (see Appendix A for a complete list of the documents reviewed). Our purpose for reviewing these documents was to garner a thorough understanding of development and learning that takes place during the infant-toddler period based on the most current research and theory. We used results from the review to develop indicators (definitions of specific areas of children's learning and development) to code the content of infant-toddler ELGs. We also noted the age periods each document used to describe the infant-toddler period. This helped us understand the commonly used infant-toddler age groupings. A number of different types of materials were reviewed, including seminal works such as *From Neurons to Neighborhoods: The Science of Early Childhood Development* (National Research Council and Institute of Medicine, 2000), *Touchpoints: Birth to Three* (Brazelton & Sparrow, 2006), *The Scientist in the Crib: Minds, Brains, and How Children Learn* (Gopnik, Meltzoff, & Kuhl, 1999), and *Infant and Early Childhood Mental Health: A Comprehensive Developmental Approach to Assessment and Intervention* (Greenspan & Wieder, 2007). We also reviewed well-known assessments such as *The Ounce Scale: An Observational Assessment for Infants and Toddlers from Birth to 3 1/2 years* (Meisels, Marsden, Dombro, Weston, & Jewkes, 2005), and the *Bayley Scales of Infant and Toddler Development* (Bayley, 2006) as well as infant-toddler curricula, to record the specific areas of infant-toddler development addressed. Highly regarded textbooks that cover the infant-toddler period were also examined. Examples include *Infant and Toddler Development and Responsive Program Planning: A Relationship-based Approach* (Wittmer & Petersen, 2006) and *Early Childhood Development: A Multicultural Perspective* (Trawick-Smith, 2006). Finally, the research team carefully reviewed the work of select researchers such as John Bowlby and Heidelise Als. We compiled and analyzed results

from our reviews of these materials in order to develop the first draft of a coding framework.

### *Expert Reviews of the Draft Coding Framework*

After the first draft of the coding framework was completed, we then asked four noted experts—Barbara Bowman (Erikson Institute), Peter Mangione (WestEd), Sandra Petersen (Zero to Three), and Martha Zaslow (Child Trends)—to review our draft framework and provide suggestions for improvements. Their suggestions included addition and deletion of specific indicators within the framework and revisions for the operational definitions used for indicators. The reviewers also assisted the team in refining the operational definitions of several indicators to better reflect a cultural-competence perspective. Finally, the reviewers recommended that we combine the social and emotional domain areas so that the coding framework would have a total of five domains.

### *Pilot Process*

After incorporating revisions suggested by the reviewers, the team used the draft framework to code the content of two state ELG documents that were not included in the sample of ELGs analyzed for the project. The team made additional revisions to the framework based on issues that arose during the pilot process. A few indicators related to cognitive processing were added, and a number of the operational definitions for indicators were further refined to more clearly communicate the distinctions among various indicators. The team also developed a set of decision rules (described below) to guide the coding process when state ELGs could be coded in more than one category on the coding framework. The final result was the coding framework and decision rules that we used to code the content of the infant-toddler ELGs.

## *Coding the Content of Early Learning Guidelines*

Once the framework was established, we developed a system to use the framework to code the content of the ELGs. This section describes how the coding system was developed and implemented.

### *The Coding System*

The first element of the coding system is the coding framework. The process to develop the framework is described above and the framework itself is included in Appendix B. The framework consists of five broad areas of learning and

development or "domain areas"—Physical Development and Motor Skills, Social and Emotional Development, Approaches Toward Learning, Language and Communication Development, and Cognitive Development and General Knowledge.[2] Each of the domain areas is further defined by individual indicators that describe the individual components of early learning and development within the domain area in more detail, and each indicator has an operational definition. There are a total of 75 indicators across the five domain areas.

We also designed the coding system to capture data about what age period each ELG was written to address. Based on our review of the resources described above and analysis of the age categories used in the ELG documents, we determined that the following age categories best reflected the age breakdowns that had been used in the ELG documents: 0 to 8 months, 9 to18 months, 19 to 24 months, and 25 to 36 months. The coding sheet used to collect data listed the 75 indicators in the first column, followed by a separate column for each of these four age periods.

**States' ELG documents are formatted differently, so we had to develop a process that would yield (as much as possible) comparable data across states.**

### *The Coding Process*

In order to understand the content of infant-toddler ELGs, we used the coding system to categorize this content. A member of the team read each state's ELG document and coded each individual ELG according to the indicator within the framework the ELG reflected or matched. In order to ensure that this coding process was carried out consistently across ELG documents, we developed a series of decision rules. First, the team decided which part of the ELG documents to code. States' ELG documents are formatted differently, so we had to develop a process that would yield (as much as possible) comparable data across states. In each state, the team coded the "level" of items that would be considered "indicators." This meant that very broad statements about what children should know and be able to do (equivalent to a "standard") were excluded, as were very narrow statements that might provide select examples of how a child would demonstrate a specific skill or ability included in an indicator.

The second set of rules addressed how to decide which specific indicator within our coding system an ELG matched most closely. Although the operational definitions for the indicators within the coding system are relatively well-defined, occasionally the wording of an ELG did not explicitly fit one indicator. We offer the following examples to illustrate how we made coding decisions related to which

[2] These five domain areas are consistent with the five domains described by the National Education Goals Panel. Four of the domains (physical, social-emotional, language, and cognitive development) are traditionally described in the research literature on infant-toddler development. The fifth domain (approaches toward learning) may be considered a non-traditional way to conceptualize infant-toddler development.

domain and which specific indicator individual ELGs fit best. Sometimes ELGs were worded in a way that fit indicators within different domains, either because the wording was ambiguous or because the ELG actually addressed more than one area of children's learning and development. For example, an ELG that stated "Infants will take turns vocalizing with adults" might be coded within the Social and Emotional Domain Area (turn-taking is a social skill) or within the Language and Communication Development Area (vocalizations are a form of communication). As a rule, when an item could potentially be coded in more than one area, the coder looked at the context of the item (such as the category within which the item appeared in the ELGs' document) to decide how to code the item. In this example if the item appeared in a domain related to social and emotional development, it would be coded within the Social and Emotional Domain; if the item had appeared in a language and communication section of the ELG document, it would be coded under a Language and Communication indicator.

We developed additional rules so the research team could consistently code ELGs as the indicators within a specific domain. For instance, an ELG that stated "Infants orient to and continue to gaze at objects in the environment" includes content that fits two different codes: development of the senses (orienting to visual stimuli) or attention (continuing to gaze or pay attention to the object), both of which are indicators within the Physical Development and Motor Skills domain. When a single ELG clearly addressed two separate indicators, we coded the ELG according to the indicator that was addressed first within the ELG. In this case, the item would be coded as development of the senses. We developed these and other decision rules to guide our coding process and increase consistency in how we coded the items.

Finally, the team entered the code for each ELG within the column for age level that most closely related to the age level used within the ELG document itself. As described above, the coding sheet was divided into four columns, with one of the four age levels designed for each column (birth–8 months, 9–18 months, 19–24 months, and 25–36 months). The ELG documents, however, used a variety of age levels ranging from 0 to 36 months (all ELGs within one age level) to two states with seven age levels to cover the infant-toddler period. We entered the code for individual ELGs into the column that reflected the highest age level for which they were applicable within the ELG document. For instance, if a state had only one age level (birth–36 months), we entered the ELG codes under the 25–to–36 months column. If a state had ELGs for birth through 4 months and 5 through 8 months, all of the items were entered under the birth through 8 months column on the coding sheet. This system allowed us to capture information about differences in

how states addressed various age levels in a consistent manner across the states. States that had only one age level (0–36 months) were coded within the 25-to-36 month column but were only included in analyses that looked at the content across the entire age period (i.e., that combined the ELGs across all age periods). Excluding ELGs that did not have age levels to differentiate the birth-to-36 month period ensured that analyses comparing the content of ELGs for birth to 18 months with the content of ELGs for 19 to 36 months would not be biased by our decision to code all of the ELGs for states with only one age level within the 25–to–36 month column.

### *Reliability of the Coding Process*

Once we completed the framework and the process for coding the content of ELGs, the next step was to establish that the framework could be used to code the content of the ELGs with an acceptable level of reliability. We wanted to make sure that different coders would use the same indicator to code the same ELG and would use the system consistently across the different states' ELG documents. Two members of the research team were responsible for coding all of the ELG documents. Therefore, reliability was established between these two team members to ensure they were coding the documents consistently. Two states' ELGs (in addition to the states used in the pilot process) were randomly selected for the reliability test. Each of the two coders independently coded the content of the two states' documents. They then compared their codings to determine the level of agreement. The percentage of each state's ELGs coded the same by both persons was calculated to determine the reliability rate (or percentage of agreement). The reliability rates for the two states' ELGs codings were 81% and 89%, with an overall agreement rate of 86%. Given that the commonly accepted cutoff for reliability or agreement percentages is .80 or higher, results from our reliability analyses suggest that the independent raters achieved an acceptable level of reliability when coding the ELGs.

## *Calculating the Data Used in the Content Analyses*

After we coded the ELGs items from a state's document, we summed the number of items coded under each of the indicators within the framework within each age level. This yielded data on the number of times each of the indicators within the coding framework was addressed in the ELG document, as well as the total number of ELGs within the document and the total number of items for each

of the age levels. Because the total number of items varied from document to document, we could not conduct analyses on the raw numbers of items within various categories. Instead, we used these data to calculate "breadth" percentages and "depth" percentages in the manner explained below.

### *Breadth Percentages*

The "breadth percentage" reflects the extent to which the ELGs addressed each of the five domains in the coding system (physical, social-emotional, approaches toward learning, language, and cognitive development). To calculate the breadth percentage for a state, we divided the total number of ELG items coded within a domain by the total number of ELGs in the whole document to create a percentage. In essence, the breadth percentage indicates what percent of all the ELGs addressed a particular domain area. Across the five domains, a state's breadth percentages sum to 100%.

**The "breadth percentages" reflect the extent to which the ELGs addressed each of the five domains. "Depth percentages" reflect the extent to which individual indicators within a domain have been addressed.**

### *Depth Percentages*

In addition to looking at the breadth percentages, the team wanted to determine which specific areas of children's learning and development within each of the domains have been addressed. In order to see which specific areas of learning and development were addressed, we calculated "depth percentages" for each of the 75 indicators included within the framework. We divided the number of ELGs coded for a specific indicator by the total number of ELGs coded within that domain to calculate the depth percentage for the indicator. For instance, a state might have a total of 25 ELGs coded as Physical and Motor Skills. If 5 of those 25 items were coded as gross motor skills, the depth percentage for this indicator would be 20%. Within each domain, the depth percentages total to100% for each state.

### *Data Used in the Analyses*

We developed a profile for each individual state by calculating the overall breadth and depth percentages for each domain. We also calculated breadth and depth percentages for "younger" and "older" age groups if the state had divided the ELGs into more than one age period. Data for each state's ELGs were then entered into an SPSS database for analyses. For purposes of this report, we report data that are aggregated across all the states included in the study. The individual state profiles are not included.

## *Limitations and Challenges Related to the Coding Process*

Although we invested considerable effort in developing a valid and reliable coding system that adequately reflects important components of infant-toddler learning and development, the system does have a few limitations and challenges. Some of the limitations are within the coding system itself, and other limitations are challenges posed by the nature of development and the status of the research literature related to this age period.

### *Limitations Within the Coding System*

One limitation of the coding framework is "unevenness" across the domains and within individual indicators. Some domains have a larger number of indicators than others. There is also unevenness in the scope of the behaviors and characteristics included in the operational definitions of the indicators. Some include a variety of skills and behaviors (such as attachment and mathematics), while others are operationally defined as discrete behaviors or focus on only one aspect of development (such as representation/symbolic thought). These differences across the domains and indicators mean that the results of the analyses may sometimes be a reflection of unevenness in the coding system itself rather than differences in the content of the ELGs. Furthermore, the indicators may not be equally important in terms of children's overall development and learning. For instance, attachment is an indicator that has significant implications for many areas of children's later development. Other indicators related to more discrete skills (such as alphabet awareness) have important implications for a narrower area of children's development and learning. We have not attempted to weight the indicators in terms of their relative importance but simply report the percentage of ELGs that has addressed each indicator.

A second limitation of the coding system relates to the coding process itself—in our effort to categorize the content of ELGs, we may have minimized some of the nuances that are evident within the ELG documents. For instance, because development within the various domains is so highly interrelated at this age, we often had to determine one code for an ELG that could be related to more than one area of development. Although we developed rules so that the coding process was carried out consistently across different ELGs and between different coders, the fact that we only assigned one code for each ELG means that some elements of early learning and development may have been addressed but not reflected in the coded data for some states' individual ELGs.

It is also possible that our process for coding ELGs may have resulted in individual ELGs being coded as an indicator that was different from the intentions of ELG developers. For instance, an early learning guideline that says "Uses pincer grasp to pick up a pencil" would have been coded as fine motor development even if the item was located within a section of the ELGs titled "Learning to Write." The primary focus of the item is on the use of the pincer grasp, so it would not be coded as writing process. As noted earlier, we took the context or placement of an ELG into account only when the content of the ELG was ambiguous or could have been coded under more than one indicator.

### *Other Challenges Related to the Coding Process*

During the coding process, we noted several challenges/limitations that were not a direct reflection of the coding system. We are aware, for instance, of the important role temperament plays in development and learning, particularly during the infant-toddler period. We found it difficult to decide how to represent characteristics highly related to temperament within the coding system. We attempted to operationally define knowledge, skills, and dispositions of children that are important for later development within the coding system without explicitly separating out characteristics considered to be highly related to temperament. Instead, we included individual indicators deemed to be important to development. A reader could look across the indicators addressed within the coding framework and argue that some are based on temperament rather than learning. We felt it was better to develop a coding framework that could accommodate the widest variety of content possible, some of which may be considered indicators of temperament by some readers.

**The amount of research available to support the operational definitions for individual indicators varies considerably.**

A second challenge we faced in developing the coding framework is the variability in the research literature available to describe development and learning during this age period. The indicators therefore vary in the degree to which there is a research literature to support the operational definitions included in the coding framework. Some, such as attachment, have been highly researched, so we were able to draw from a number of sources to develop the operational definition. Others, such as the indicators under approaches toward learning, are less well defined through research. In some cases, there are differences in the length of time various components of infant-toddler development have been researched and the amount of attention they have received in the field. As a result, constructs that have a longer history and are more firmly established within the field may be more fully articulated in the system while other constructs that are newer and more "cutting

edge" may someday be shown to be critical in infant-toddler development but are currently less well defined in the field and in our coding framework.

We also found it challenging to locate resources we could use to develop a coding framework that reflects the cultural diversity of infants and toddlers. We attempted to develop a coding framework that reflects a cultural competence orientation. For instance, the "concept of one's own identity as a member of one's family or culture and a sense of belonging to family/community/cultural group" is included under the operational definition of self-concept because this corporate sense of self is important within some cultural groups. We have also attempted to develop indicators that were culturally sensitive to differing cultural views on independence, curiosity, and other elements of children's learning and development. We recognize, however, that the indicators within the coding framework may in some instances not be sensitive to the competencies of all cultural groups and believe that this is an important topic for further research and discussions among ELG developers.

**Research findings suggest that language and cognitive development of non-English speaking children differs from children whose first language is English.**

Finally, we recognize that the status of the field's knowledge about children whose primary language is not English has implications for our coding framework. Second language learning is an emerging research area, and findings suggest that language and cognitive development of non-English speaking children differs from that of children who grow up in homes where English is the primary language. What's more, language and cognitive development is different among children who learn English through different processes. Monolingual speakers of a language other than English differ from dual-language learners learning English at the same time as another language, and children who learn a language other than English first and later begin to learn English as a second language are different from both of the former groups of children. Research and our understanding regarding the process of English language acquisition among infants and toddlers whose parents speak another language are limited. Yet we know that this is a significant issue for English Language Learners and their caregivers. Within the coding framework we choose to include an indicator that simply records whether states have addressed English Language Learner issues within their ELGs because we felt that the research base to support more fine-tuned analyses of ELGs in this area is lacking.

## The Early Learning Guidelines Documents that Were Analyzed

We conducted a broad search to locate all ELG documents published prior to July 2007. We searched the World Wide Web, looking at specific sites such as state departments of education and health and human services departments likely to have issued ELG documents, and we examined the state ELG documents listed on the National Child Care Information Center (NCCIC) website. We also searched terms such as "early learning standards" and "early learning guidelines" generically, contacted key informants in states where we suspected ELGs might have been published, and posted inquiries on list serves to request information about ELG documents. The net result was a total of 21 (see Table 1) ELG documents published as of July 2007. Appendix C provides a complete list of the ELG documents included in the content analyses.

**Table 1**

| States with Infant-Toddler Early Learning Guidelines Included in the Content Analyses | |
|---|---|
| Alaska | Maryland |
| Arkansas | Michigan |
| Delaware | Minnesota |
| Florida | Nebraska |
| Georgia | New Hampshire |
| Indiana | Ohio |
| Iowa | Oregon |
| Kansas | Pennsylvania |
| Kentucky | Tennessee |
| Louisiana | Washington |
| Maine | |

The states are geographically diverse, and their documents have all been published recently. One document (Arkansas) was published in 2002, 3 in 2004, 3 in 2005, 10 in 2006, and 4 in the first half of 2007. We found a few additional draft ELG documents but did not include draft documents in the analyses. We only included documents that were final and publicly available as of July 2007.

## Findings and Implications for Development of Infant-Toddler ELGs

In this section we present results of our analyses and discuss implications these findings have for the development of ELGs. Our purpose is to discuss the findings from analyses of the ELGs that have been published and to raise points that should be considered by persons writing ELGs. We discuss our observations, provide examples from the ELGs to illustrate points, and offer issues for consideration. This section begins with a discussion of what we learned about how ELGs have been organized. We then report the results of the analyses from the coding process—the domains of children's learning and development and the specific indicators that have been addressed in the ELGs (i.e., the "breadth" and "depth" percentages). We present data from the collective group of ELGs (not data from individual states) because we have chosen to focus on lessons to be learned across the collective group of the ELG documents rather than strengths or weaknesses of an individual state's ELG document.

**There are several important issues states should consider when deciding what age categories to use.**

### *Organization of the Early Learning Guidelines*

In this section of the report, we describe the age levels used within the documents and the domain or subject area headings used. The purpose is to provide information related to how states have conceptualized and organized the broad themes within their ELGs.

#### *Age Levels Used*

Birth to age three is an expansive period of development to cover in ELGs, both in terms of the number of years included and the types of development and learning that take place. Consider, for instance, that standards for K–12 education typically focus on just one year, a grade level. ELGs for preschool children often cover ages three through five years. Infant-toddler ELGs, however, cover the newborn period through the age of three, a period of even greater developmental accomplishments than perhaps any other period of a child's life. It is important therefore, for committees to decide how best to represent this developmental period within the ELGs.

As shown in Table 2, a number of states elected to write one set of ELGs that cover the entire age period. Some of these states (Iowa, Minnesota, and Ohio) used examples and descriptors to illustrate the ELGs within smaller age categories. Kentucky, one of the states that used only one age level, arranged their ELGs along a developmental continuum within the birth-to-36 months age period. The remaining states presented their ELGs in more than one age level. Three states broke their

ELGs down into two age levels (Alaska, Nebraska, and Washington), and five states used three age levels. Within the five states that used three age levels, four (Arkansas, Delaware, Kansas, and Maine) used birth to 8 months, 8 to 18 months, and 18 to 36 months. Georgia differed somewhat in the age levels used, choosing instead to organize their ELGs into infant, one-year-old, and two-year-old categories. Two states (Florida and Louisiana) used four age levels—birth to 8 months, 8 to 18 months, 18 to 24 months, and 24 to 36 months—and three states used more than four age levels (Maryland, Pennsylvania, and Tennessee).

**Table 2**

| Number of Age Levels Used in the States' Infant-Toddler Early Learning Guidelines | |
|---|---|
| One Age Level (Birth to 36 months) | Kentucky<br>Indiana<br>Iowa*<br>Michigan<br>Minnesota*<br>New Hampshire<br>Ohio*<br>Oregon |
| Two Age Levels (Birth to 18 months and 18 months to 36 months) | Alaska<br>Nebraska<br>Washington |
| Three Age Levels | Arkansas<br>Delaware<br>Georgia<br>Kansas<br>Maine |
| Four Age Levels | Florida<br>Louisiana |
| More Than Four Age Levels | Maryland (7 age levels)<br>Pennsylvania (5 age levels)<br>Tennessee (7 age levels) |

* Provided indicators or examples in more than one age level

There are several important issues states should consider when deciding what age categories to use. ELGs that cover a very broad span of ages may lack the specificity needed to be helpful to caregivers. ELGs written for very narrow age spans may, however, lead caregivers to focus too much on discrete skills and may leave less room to accommodate the wide degree of variation typical in children's development and learning. The Delaware ELG document noted this concern when

explaining their age level divisions ("baby," "toddler," and "child"). The document states "It is intended that these three divisions give some indication as to when one might see these abilities. However, the age divisions are intended to be a range or time period within which one can begin to expect to see these skills emerge in children." (Delaware Infant and Toddler Advisory Group, 2006, pg. 3). Ohio addressed the concern that the ELGs might lead caregivers to expect children to exhibit the characteristics described at precise ages by creating overlapping age divisions within their descriptions that accompany the ELGs: birth to 8 months, 6 to 18 months, and 16 to 36 months. Their document states "The overlap reflects the impact of individual differences on the rate of development" (Ohio Child Care Resource and Referral Association, 2006, pg. 5.). The age divisions states use should provide a balance between being too broad and too narrow, should reflect the qualitative shifts in development that occur between birth and 36 months, and should help caregivers respond to the unique developmental timetable of individual infants and toddlers.

Although the focus of this project was ELGs written for infants and toddlers, we noted that several of the infant-toddler ELGs include ELGs for older children. For some states (Alaska, Kansas, New Hampshire, Tennessee, and Washington), the ELGs for infant-toddlers were incorporated into a continuum that addressed children from birth through pre-kindergarten/kindergarten-entry age. In other states (Indiana, Kentucky, Louisiana, and Oregon), several of the infant-toddler guidelines included ELGs for older children, which were presented separately from the infant-toddler ELGs. In two states (Georgia and Louisiana), ELGs for three-year-old children are included with the infant-toddler ELGs, but the ELGs for four-year-old children are covered in a separate document.

### *The Subarea or Domain Categories*

Developers of ELGs face another decision related to the organization of the ELGs: what categories or domain areas to use as headings. Three key issues seem to be related to the subarea headings used: how best to communicate the large or significant themes of development at this age, how to communicate the integrated nature of development, and how best to communicate that the characteristics and behaviors described in the infant-toddler ELGs are related to or aligned with expectations for children's learning and development at later ages.

*Communicating significant themes of development.* States used different categories or titles for their subsections to define the broad themes within the ELGs. The mean number of categories used within the ELG documents was 5.4, with a

range from four categories to eight categories. We found that the vast majority of states had included at least three of the domains described by the National Educational Goals Panel as subheadings (National Education Goals Panel, 1995). Michigan was the only state that did not use some combination of the domains described by the National Educational Goals Panel, choosing instead to organize their ELGs into the following categories: Well-being, Belonging, Exploration, Communication, and Contribution. The Michigan committee developed these categories based on ELGs written in New Zealand, and they felt this unique way of communicating developmental themes was a better way to help caregivers conceptualize development and learning that takes place from birth to age three.

Of the remaining 20 states, all included a category that reflected children's health and physical development. The titles for the section varied (including titles such as "Development of Strong and Healthy Bodies," "Physical Development," "Physical Well-being," and "Motor Development"). Each of the remaining 20 states also included sections related to children's social and emotional development, some presenting separate sections for social development and/or emotional development but the majority including one domain that covered both . Titles for these sections ranged from "Self-awareness and Expression of Feelings" to "Personal and Social Development" to "Social and Emotional Development." All 20 states included a section related to children's language and communication development, with titles such as "Communication," and "Speech and Language Development." Fewer states ($n$ = 13) included a section that specifically addressed children's cognitive development and general knowledge. Titles for ELGs related to this area included "Cognitive Development and General Knowledge," "To Learn to Think—Cognitive Development," and "About the World." Only nine states included a section related specifically to approaches toward learning. In each of these states, the section was either called "Approaches to Learning" or "Approaches Toward Learning." In summary, it was typical for states to have a section of ELGs related to physical development, social-emotional development, and language-and-communication development but other domains such as approaches toward learning were less commonly used as section headings.

*Communicating the interrelated nature of development.* Developers of ELGs also face the challenge of how best to communicate the interrelated nature of children's growth and development across the subarea categories. Developmental progress in one area (such as physical development) has important implications and is highly related to development in other areas (such as social-emotional development and language development). States commonly note that development is highly interrelated in the introduction they write for the ELGs. For instance, Oregon's

guiding principles state, "Domain areas of development and learning are not divided by clear lines but rather cross and intersect enriching the opportunity for each child's growing understanding of concepts" (Oregon Department of Education, 2007, pg. 5). In addition to describing the interrelated nature of development in their introductions, states have sometimes reflected the interrelationship among the domains within the ELGs themselves. Some repeat ELGs that describe elements of learning and development that relate to more than one domain, including the same ELG within more than one domain. States have also used footnotes or coding systems to point out to readers that an ELG within one domain is related to an ELG in another domain. The challenge states face is how best to communicate the interrelated, multidimensional nature of growth and development when, particularly for infants and toddlers, development in one area can impact development in many other areas.

*The use of subject-area headings.* Development during the infant-toddler period sets the stage or provides the foundation for development and learning that takes place in later years. States may feel it is important to show how what is written in infant-toddler ELGs relates to or aligns with ELGs/Standards for preschool and school-age children. First, clearly aligned documents can help caregivers understand how the stimulation and support infants and toddlers receive is important to children's success later in life (NCCIC, n.d.). Second, communicating how the ELGs align with pre-kindergarten or K–12 standards can have political advantages—policymakers who are concerned about children's success in school may give more consideration to the resources available to support infant-toddler programs if they clearly understand that development during this age period is related to how well children do in school. Finally, careful consideration to alignment can help ensure consistency and continuity between what is expected during the infant-toddler period and ELGs for children at later age levels.

One strategy states have used to convey the alignment between the infant-toddler ELGs and ELGs written for older children is to organize the infant-toddler ELGs in subject areas found in ELG documents for older grade/age levels. Five states (Indiana, Iowa, Kansas, Nebraska, and Oregon) used at least one heading that would be considered an academic subject area. Examples include titles such as "Mathematics and Science," "Social Science," and "English-Language Arts." Typically these more academic subject headings were included among subject headings that reflect the developmental domains described above. One state—Indiana—used academic subject areas titles for each section of the ELGs. This approach to organizing the ELGs is consistent with the title of the document—*Foundations to the Indiana Academic Standards for Young Children from Birth to Age 5.*

Though one might wonder about the appropriateness of "Mathematics," "Science," "Social Science," and "Creative Arts" as subareas for infants and toddlers, these titles do clearly communicate alignment with ELGs for older children. Writers of ELGs should, however, carefully weigh the advantages and disadvantages of using subject-area headings in ELGs written for infants and toddlers. An important consideration is whether these titles communicate the unique nature of development at this age. Infant-toddler development is qualitatively different from development and learning that takes place at later ages, and the use of subject-area headings may suggest that the development that takes place at this age is simply an early stage of what children learn at later ages. Another consideration is whether the use of subject-area headings might lead infant-toddler ELGs writers to include content that is more age appropriate for preschool children. Although the content analyses we conducted did not address the age-appropriateness of the ELGs, anecdotally we noted that most ELGs seemed appropriate for the infant-toddler period. Occasionally, however, we took note of ELGs that may be inappropriate (such as ELGs that described children's understanding of symbols before 24 months). Writers of ELGs should be careful that the use of academically related subject areas as headings does not lead them to introduce content that is more appropriate for older children.

**ELG writers should carefully weigh the advantages and disadvantages of using subject–area headings within infant-toddler ELGs.**

Finally, the use of academic subject areas may lead ELG writers to include ELGs that are only marginally related to the subject area at hand in an effort to show how infant-toddler development relates to later academic success. For the most part, ELGs included under academic subject-area headings did include ELGs describing expectations for infants and toddlers that clearly related to the domain area or subject area where they were located. Occasionally, however, we noted ELGs under subject-area headings that were not clearly related to the subject area, particularly in states where the subject-area headings were used for the birth-to-8 months age period. Though we understand the nature of development and that virtually all of development at this age is in some way related to children's capacity to learn academic content at later ages, we encourage states to carefully think about how to communicate the indicators of infant-toddler growth and development that are age appropriate and are developmentally significant precursors to later mastery of academic content.

## *The Content of Early Learning Guidelines*

We were interested in understanding what domains of learning and development and what specific behaviors or characteristics have been addressed in

ELGs. The raw number of ELGs included in the documents ranged from 34 (Ohio) to 688 (Alaska), with a mean of 218.2 and standard deviation of 182.9. We calculated the "breadth" and the "depth" percentages of the ELGs (see the "Methodology for Conducting the Content Analysis" section above for a description of how the data were converted to percentages) in order to describe what skills, behaviors, and characteristics have been addressed. Results are presented in the following two sections: first breadth percentages across the five domains are shown followed by the depth percentages that examine the specific indicators addressed within each domain.

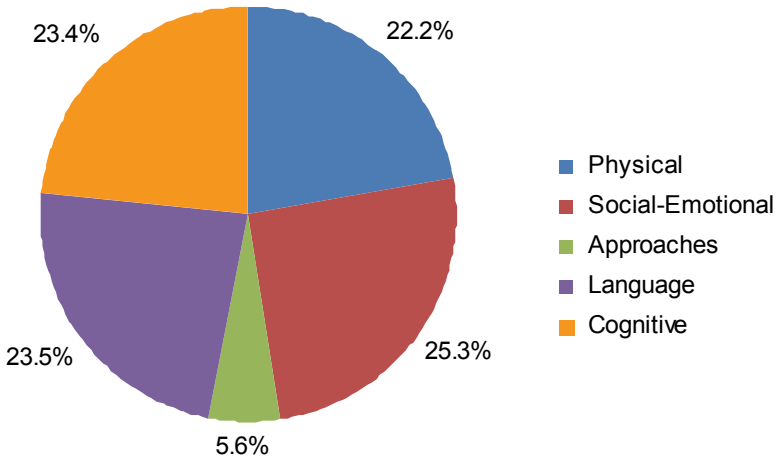
### *The Breadth of Early Learning Guidelines Across the Five Domain*

**Four of the developmental domains have been well represented within the infant-toddler ELGs—Physical, Social and Emotional, Language and Communication, and Cognitive Development**

We knew from the initial analyses what sub-area headings states have used to organize their ELGs (see the section entitled, "Organization of the Early Learning Guidelines"). We were, however, interested to see how the content of individual ELG items was distributed across the five domains. To assess the extent to which each of the five domains was addressed within the ELGs, we divided the number of ELGs coded within each domain by the total number of ELGs in the document. We call this percentage the "breadth" percentage (see the "Methodology for Conducting the Content Analysis" section for further details on how these percentages were calculated). These analyses shed light on how the ELGs are distributed across the five domain areas.

The major finding from the "breadth" analyses is that four of the developmental domains—Physical Development and Motor Skills, Social and Emotional Development, Language and Communication Development, and Cognitive Development and General Knowledge—have been well represented within the infant-toddler ELGs, and coverage across these four domains is relatively balanced (see Figure 1). Although there was certainly variation in individual states, within the collective group of states the mean percentage of ELGs for each of these four domains was between 20% and 25%. This finding is markedly different from findings noted for ELGs written for preschool-age children, where the ELGs have, on average, been far more slanted toward language and communication and cognition and general knowledge (Scott-Little et al., 2005; 2006). The coding scheme used for the infant-toddler ELGs used the same five domains as the preschool-age coding scheme but is much more refined (75 indicators compared with 36 indicators in the preschool coding scheme), so it is not possible to make direct comparisons between results from the two projects. These results do, however, suggest that different areas of development and learning may have been emphasized at different age levels.

**Figure 1**
**Breadth Percentages Across All Age Levels**




Results from our analyses of infant-toddler ELGs also suggest that different areas of development have been emphasized differently at different ages. When ELGs written for birth to 18 months were compared with ELGs written for 19 to 36 months, we noted that the breadth percentages for Physical Development and Motor Skills and Social and Emotional Development were higher within the younger ages while the percentages for Language and Communication Development and for Cognition Development and General Knowledge were higher within ELGs written for the older age level (see Figures 2 and 3). This does suggest that perhaps ELG writers have been sensitive to qualitative differences in development at different points within the infant-toddler period.

**Figure 2**
**Breadth Percentages 0-18 Months**

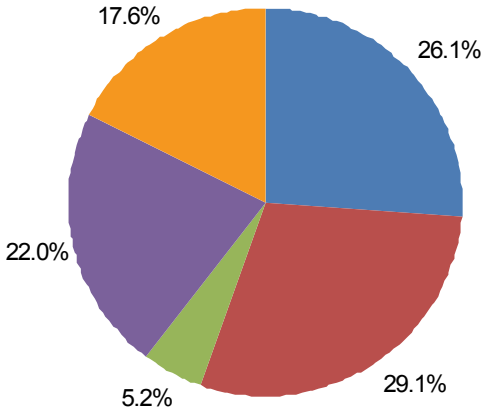
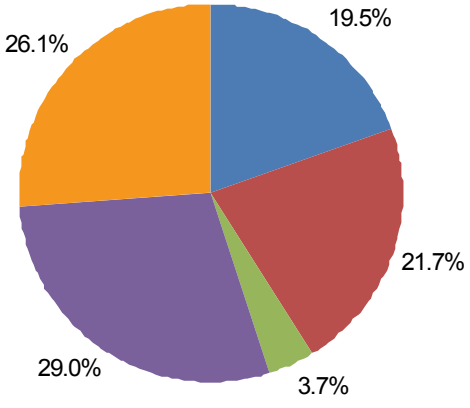



**Figure 3**
**Breadth Percentages 19-36 Months**




Physical Social-Emotional Approaches Language Cognitive

One finding of note is that fewer ELGs were coded in the Approaches toward Learning domain than in the other domains. Across the birth-to-36 months span and within ELGs written for birth to 18 months and 19 to 36 months, the mean breadth percentage for this area of development was quite a bit smaller than other domains (a breadth percentage of approximately 5% compared with breadth percentages of 17% or greater for all other domains). The finding is particularly interesting given that 9 of the 21 states had a subarea titled "Approaches toward learning" or "Approaches to learning." Because our coding system looked closely at the content of the ELG item itself and used the title of the subarea within which the ELG was written only as supporting information when deciding how to code the item, it is possible that ELGs included within "Approaches toward learning" sections were coded under other developmental domains. Given the highly interrelated nature of development, it is likely that some ELGs written under the approaches toward learning categories/headings were coded as social-emotional, cognitive, etc., indicators within our system. It is also possible that the limited attention to approaches toward learning indicators reflects the view that infants and toddlers naturally approach the world with curiosity, etc—their desire to understand the world and their approach toward learning is innate and therefore not addressed in ELGs. Another possibility is that the approaches toward learning indicators might be considered more age appropriate for older children. Perhaps "approaches toward learning" within the infant-toddler period should be conceptualized differently.

**Without ELGs that focus on children's approaches toward learning, will caregivers be less likely to intentionally cultivate these characteristics?**

Although multiple perspectives can be used to interpret or explain the finding that approaches toward learning has been emphasized less than other domains, we suggest that ELG writers should carefully note the implications of the absence of ELGs addressing this area. Without ELGs that focus on children's ability to concentrate, to persist, to approach activities creatively, and to try new activities, will caregivers be less likely to intentionally create the environment and offer encouragement to cultivate these natural characteristics within infants and toddlers? Could the lack of attention to this area lead caregivers to focus more intently on other areas and overlook opportunities to support infants and toddlers in their approach to understanding their world?

As noted within our discussion of the limitations of the coding system, it is difficult to characterize the ideal balance of breadth percentages across the five domains because the system equates indicators of varying levels of specificity and importance in the overall scheme of children's development and learning. Some areas of development may require less differentiation than other areas. Therefore, the breadth analyses should be interpreted with some caution. They point out the

extent to which each of the five domains have been addressed within the infant-toddler ELGs and call attention to areas that have been addressed less often. Our hope is that ELG developers would use this feedback within the context of their own knowledge about infant-toddler learning and development to make decisions about the particular areas they believe should be emphasized.

### *The Depth of Early Learning Guidelines Within Domains*

We calculated "depth percentages" to examine the extent to which specific indicators within each of the five domains have been addressed within the ELGs. To calculate the depth percentage for a particular indicator, we divided the number of ELGs coded for the individual indicator by the total number of indicators coded within the domain (see the section entitled, "Methodology for Conducting the Content Analyses" above for further explanation). This calculation yielded percentages that indicate the relative degree to which a specific skill or characteristic was emphasized among all of the indicators within a domain. As with the breadth percentages, we calculated the percentages for all age levels across all states and also calculated them separately for the birth-to-18 months and 19-to-36 months age level in the 14 states that break their ELGs into different age levels. Results for each of the five domains are described below. We remind readers that the coding system simply reflects the percentages of ELGs that addressed each indicator within a domain. As with the breadth percentages, the coding system for depth does not take into account differences between the indicators in terms of how narrowly or broadly they are defined, nor does it take into account differences in the relative degree of importance of the various indicators within each domain. The results are a reflection of the relative degree to which each indicator was represented within the domain. We believe these descriptive analyses provide useful information regarding the content of the ELGs but do not suggest that there is an "ideal" depth percentage distribution for any of the five domains.

**Within the Physical Development and Motor Skills domain, gross motor, fine motor, and self-help skills have been emphasized.**

*Physical development and motor skills.* Within the ELGs written for the Physical Development and Motor Skills domain gross motor, fine motor, and self-help skills have been emphasized (see Table 3). Across all the ELGs, the depth percentages ranged from 14.2% to 24.8% for these three indicators (compared with depth percentages of 11.4% or lower for the other indicators within this domain). This emphasis on motor and self-help skills seems to reflect the important physical developments that take place at this age and the importance of children's increasing abilities to act on their world. We noted that the ELGs related to motor skills addressed gross motor skills such as children's growing abilities to control their

bodies (to hold their head up, sit up, etc.) and to move around (crawling, walking, running, jumping, etc) more often than fine motor skills. The tendency for ELGs written for 19 to 36 months to reflect children's growing independence was also noted. For instance, while ELGs written for birth to 18 months often reflected infants' abilities to cooperate with adults in carrying out self-help tasks, at later ages the ELGs often shifted to expecting children to begin to carry out self-help tasks independently. States may have varied in how they conceptualized the construct of independence, perhaps as a reflection of their attempt to provide culturally sensitive ELGs for self-help skills. Cultures differ in when and how they expect children to exhibit independence and, therefore, states may differ in the way self-help skills are described in the ELGs depending on their approach to addressing cultural diversity.

**Table 3: Physical Development and Motor Skills Depth Percentages by Age Levels**

| Indicator | Age Levels | | |
|---|---|---|---|
| | All* | 0–18 months** | 19–36 months** |
| | Mean | Mean | Mean |
| Physical Development and Motor Skills | | | |
| 1. Health | 3.2 | 2.8 | 2.0 |
| 2. Nutrition | 2.0 | 1.7 | 4.8 |
| 3. Physical fitness | 1.5 | 1.1 | 2.0 |
| 4. Development of senses | 11.4 | 12.7 | 5.2 |
| 5. Attention | 5.8 | 7.3 | 0.2 |
| 6. Sensory integration | 7.5 | 8.9 | 8.1 |
| 7. Spatial awareness | 4.4 | 2.1 | 5.6 |
| 8. Physical state regulation | 5.4 | 4.1 | 3.9 |
| 9. Gross motor | 24.8 | 28.4 | 27.2 |
| 10. Fine motor | 14.2 | 14.4 | 15.8 |
| 11. Self-help skills | 17.0 | 12.7 | 24.4 |
| 12. Reflexes | 0.6 | 1.8 | 0.0 |
| 13. Adult provisions | 2.9 | 2.6 | 1.0 |

* The column with all age levels includes data from 21 states.
** The columns with data for ages 0 – 18 months and 19 – 36 months include data from a subset of 14 states that wrote ELGs for at least two different age levels.

ELGs written to address children's development of the senses and attention to stimuli are noteworthy because of the important role the senses play in later development. These two indicators had mean depth percentages of 11.4% and 5.8% respectively when all ELGs were considered. Examples of ELGs coded as development of the senses included orienting toward visual or auditory stimuli and experiencing different tactile stimuli. The emerging ability to notice stimuli and take in information from the senses paves the way for later cognitive processes, such as

concentration, and for children's ability to learn about the world. States have emphasized these two areas more within the ELGs written for birth to 18 months than in the ELGs written for 19 to 36 months.

The research team noted the relatively limited attention to ELGs related to health, nutrition, and physical fitness. The depth percentages for these indicators ranged from 1.5% for physical fitness to 3.2% for health. An example of an ELG coded as health was "Shows characteristics of appropriate health and development" from Florida's ELGs. Nutrition examples included ELGs, such as "Begins to recognize and eat a variety of nutritious foods" (Washington); and physical fitness included ELGs, such as "Child shows interest in physical activities that promote health" (Nebraska). This finding is consistent with findings for preschool-age ELGs in previous content analyses (Scott-Little et al., 2005; 2006) and is cause for concern given the recent efforts to promote physical fitness and combat obesity. Though we recognize that children's development in this area is largely dependent on the experiences and guidance adults provide and we do not advocate structured fitness classes for infants and toddlers, we do think that it is important for states to think through how they reflect the importance of good health, nutrition, and physical fitness at every age to ensure that these important areas receive the attention needed to start children off on the path toward a healthy and physically fit lifestyle. Perhaps health, nutrition, and physical fitness should be reflected in both the ELGs and in the program standards written to guide adults as they care for young children, creating a synchrony between what is expected of children (i.e., the ELGs) and what is expected of adults (i.e., programs standards) in this important area.

Two additional indicators that were also addressed relatively infrequently—reflexes and adult provisions for children's health care services—may not be considered appropriate content for ELGs. Reflexes are behaviors that children display naturally and are not dependent on experiences adults provide. ELGs, however, focus more on expectations for aspects of children's development that are dependent on their experiences because they serve to guide adults as they provide a nurturing environment that facilitates the characteristics described in the ELGs. Only 0.6% of the ELGs addressed reflexes. Adult provisions for children's health care services (items that describe expectations for children receiving well-baby check-ups and required immunizations) address expectations for adult behaviors rather than children's. Therefore, they do not technically meet the definition of an ELG. Because a few states included items such as these in the ELGs, we created a category to code these types of items but noted that they were not often included in the states' ELG documents. Approximately 3% of all ELGs were coded in this category. Items that describe expectations for services that children will receive are better

suited for program standards that define what and how adults should care for children.

*Social and emotional development.* Developments that take place in the social-emotional area are significant developmental tasks for this age period. As children grow and develop their ability to understand and control their own emotions and to relate to others, these social-emotional abilities form the foundation for later growth and development in many different areas. The ELGs coded within the social-emotional domain were distributed unevenly across the indicators in the coding system (see Table 4). Emotional expression, which includes knowledge related to emotions and the expression of emotions, was the indicator most often addressed (depth percentage = 14.1% for all ELGs). The ability to express emotions is an important developmental achievement during this period. We noted that emotional regulation and self-control—the ability to control one's emotions and regulate behavior—were addressed relatively less frequently within the ELGs (depth percentages of 8.2% and 3.5% respectively across all the ELGs). Yet, these elements of development are widely discussed as seminal achievements during the infant-toddler period. Perhaps when writing ELGs, states should pay careful attention to these elements of children's emotional development and work to ensure that emotional regulation and self-control are emphasized along with emotional expression.

**Table 4: Social and Emotional Depth Percentages by Age Levels**

| | Age Levels | | |
|---|---|---|---|
| | All* | 0–18 months** | 19–36 months** |
| Indicator | Mean | Mean | Mean |
| **Social and Emotional Development** | | | |
| 14. Emotional expression | 14.1 | 13.9 | 11.8 |
| 15. Emotional regulation | 8.2 | 9.3 | 6.7 |
| 16. Self-control | 3.5 | 3.4 | 4.4 |
| 17. Self-esteem | 3.8 | 2.5 | 5.0 |
| 18. Self-confidence | 6.0 | 4.5 | 8.9 |
| 19. Self-awareness | 7.9 | 9.4 | 7.5 |
| 20. Self-concept | 10.2 | 7.9 | 12.0 |
| 21. Feelings of others | 5.9 | 3.3 | 7.0 |
| 22. Attachment | 9.9 | 12.8 | 4.0 |
| 23. Relationships with adults | 8.2 | 9.6 | 11.7 |
| 24. Relationships with peers | 0.9 | 0.6 | 3.2 |
| 25. Social skills with adults | 10.9 | 13.1 | 5.3 |
| 26. Social skills with peers | 7.1 | 8.2 | 6.0 |
| 27. Shared peer activities & social play | 3.2 | 1.6 | 6.6 |

* The column with all age levels includes data from 21 states.
** The columns with data for ages 0–18 months and 19–36 months include data from a subset of 14 states that wrote ELGs for at least two different age levels.

Children's development of a sense of self received considerable attention within the ELGs. Among the indicators related to children's sense of self, self-concept—knowledge about one's self—was the indicator addressed in the highest percentage of ELGs (depth percentage = 10.2% for all ELGs). This included children's understanding of themselves and their preferences, as well as their understanding of their own identity as a part of their own family and cultural group. This sense of identity that emerges for infants and toddlers as they begin to understand how they are part of their family is particularly important at this age. Self-awareness—the understanding that I exist and I am unique—was emphasized more within the ELGs written for birth to 18 months (9.4% compared with 7.5% for the ELGs written for 19–36 months). Self-confidence, or the sense that one can do things independently and successfully, was emphasized more in the ELGs for 19 to 36 months (8.9% compared with 4.5% for birth–18 months), a period of development when children typically want to do things for themselves.

Finally, we noted some interesting trends in the way ELGs have addressed children's relationships and interactions with others. Many of the infant-toddler ELGs have addressed how children relate with adults. Attachment, a component of infant-toddler development that is foundational for many other areas, has been addressed in approximately 10% of the social-emotional ELGs (with a higher percentage among the ELGs written for birth–18 months than for 19–36 months). States addressed attachment with indicators related to children exhibiting preferences for their primary caregivers, behaviors that indicate feelings of security when they are with their primary caregiver, separation anxiety, etc. Given that a secure attachment relationship is a foundational development for this age period, the emphasis on attachment within the ELGs is well founded.

**Emotional regulation and self-control are seminal achievements of the infant-toddler period that have been addressed less frequently within the ELGs.**

In addition to attachment, the ELGs have addressed children's social skills with adults (depth percentage = 8.2%), behaviors that facilitate a baby's ability to gain the attention of adults and to sustain interactions. Fewer ELGs have been written to address children's interactions with their peers. The depth percentage for social skills with peers (social skills that facilitate children's ability to interact with peers) was 7% overall. Within the older age level (19–36 months), we found relatively more ELGs addressed children's relationships with their peers (such as exhibiting a preference to play with specific peers and ELGs related to children's friendships) than in the younger age group (3.2% compared with 0.6% for 0–18 months). We also found that states had more commonly written ELGs to address shared activities with peers and social play for the older age group (6.6% compared with 1.6% for 0–18 months). In summary, within the social-emotional domain, states have emphasized children's emerging abilities in the areas of emotional

expression, their sense of self, and their relationships with adults more than their self-regulation and their interactions with peers.

*Approaches toward learning.* As noted above, the Approaches Toward Learning domain was addressed far less often than the other four developmental domains. Within the ELGs coded as approaches toward learning, they most often related to children's interest in and exploration of the world (see Table 5). The mean depth percentage was 57.0% for interest and exploration compared with 12.2% or less for other indicators. For younger babies, ELGs often described behaviors related to open-ended exploration of the environment (such as "Explores the environment through senses" from Kansas) whereas ELGs coded as interest and exploration at the older age levels often alluded to more purposeful investigation of objects and actions within the environment. Interest and exploration is certainly a characteristic of babies—they come into this world ready to explore and learn about their environment through all of their senses. Perhaps the writers of ELGs have been responsive to what they feel is an innate characteristic that underlies later developments in other areas by paying relatively more attention to this indicator.

**Table 5: Approaches Toward Learning Depth Percentages by Age Levels**

| | Age Levels | | |
|---|---|---|---|
| | All* | 0–18 months** | 19–36 months** |
| Indicator | Mean | Mean | Mean |
| **Approaches Toward Learning** | | | |
| 28. Interest and exploration | 57.0 | 62.3 | 45.6 |
| 29. Initiative | 7.7 | 6.2 | 17.8 |
| 30. Persistence and mastery motivation | 5.8 | 6.9 | 7.5 |
| 31. Concentration/attention control | 12.2 | 12.2 | 1.3 |
| 32. Cooperative approach to learning | 1.3 | 0.0 | 2.6 |
| 33. Invention and creativity | 11.7 | 6.3 | 17.5 |
| 34. Willingness to try | 4.5 | 6.1 | 7.8 |

* The column with all age levels includes data from 21 states.
** The columns with data for ages 0–18 months and 19–36 months include data from a subset of 14 states that wrote ELGs for at least two different age levels.

Concentration and invention or creativity were the next two most commonly addressed indicators within the Approaches Toward Learning domain (12.2% and 11.7% respectively across all ELGs). The depth percentage for concentration/attention control was considerably higher within the ELGs written for the younger age level, while the depth percentage for invention or creativity was higher for the ELGs written for the older age levels. Initiative, cooperative approach to learning, persistence, and willingness to try were addressed less often, with

cooperative approach toward learning being the indicator addressed least often. Perhaps characteristics such as these are seen as more age appropriate for children older than 36 months and, therefore, may not have been addressed as often within the infant-toddler ELGs.

*Language and communication development.* Among the ELGs written to address language and communication, oral language received relatively more attention than early literacy knowledge (see Table 6). Receptive and expressive communication, and vocabulary development had the highest "depth percentages" (14.9%, 18.4%, and 10.2% respectively). As one might expect, there were some differences between the depth percentages for the birth-to-18 months age group and the 19-to-36 month age group. Receptive communication and non-verbal communication were emphasized more within the younger age level, while speaking (ELGs related to learning the mechanics of speaking) and vocabulary development had higher depth percentages within the older age level.

**Table 6: Language and Communication Depth Percentages by Age Levels**

| Indicator | Age Levels | | |
|---|---|---|---|
| | All* | 0 – 18 months** | 19 – 36 months** |
| | Mean | Mean | Mean |
| **Language and Communication Development** | | | |
| 35. Receptive verbal communication | 14.9 | 19.3 | 11.4 |
| 36. Expressive verbal communication | 18.4 | 17.1 | 15.8 |
| 37. Pragmatics & social language | 5.4 | 3.3 | 5.4 |
| 38. Speaking | 6.4 | 5.8 | 7.7 |
| 39. Non-verbal communication | 7.1 | 10.5 | 3.1 |
| 40. Vocabulary, meaning and linguistic concepts | 10.2 | 12.0 | 13.0 |
| 41. Communicating in second language | 0.7 | 0.5 | 1.2 |
| 42. Participation in language/literacy activities | 11.5 | 14.2 | 7.7 |
| 43. Narrative & story sense | 1.9 | 1.1 | 3.1 |
| 44. Comprehension | 0.9 | 0.0 | 1.9 |
| 45. Motivation to read | 5.6 | 4.9 | 7.5 |
| 46. Phonological awareness | 3.0 | 4.5 | 3.4 |
| 47. Book awareness | 1.9 | 1.8 | 2.5 |
| 48. Print awareness | 3.7 | 1.2 | 4.7 |
| 49. Alphabet awareness | 0.4 | 0.0 | 1.0 |
| 50. Motivation to write | 1.8 | 1.7 | 2.0 |
| 51. Writing process | 6.3 | 2.3 | 8.9 |

* The column with all age levels includes data from 21 states.
** The columns with data for ages 0–18 months and 19–36 months include data from a subset of 14 states that wrote ELGs for at least two different age levels.

We did find states that have written infant-toddler ELGs related to early literacy development, although the depth percentages were relatively small for most of them. This indicates that states have addressed early literacy to some extent, but the oral language indicators discussed above received more attention within the infant-toddler ELGs. By far, the early literacy indicator with the highest depth percentages was participation in early language/literacy activities (depth percentage = 11.5% across all ELGs). This indicator included listening to stories, looking at books with someone, participating in finger plays, etc. It is interesting to note that the depth percentage for participation in early language/literacy activities was higher for the birth-to-18 months age group than the 19-to-36 months age group. The indicators related to the writing process and to the motivation to read were the next most commonly addressed (depth percentages = 6.3% and 5.6% respectively), and both of these indicators had higher depth percentages among the indicators written for the 19-to-36 months age level. Indicators related to the writing process included behaviors such as scribbling (when described in a way that was related to the progression from scribbling to writing) and making marks on paper to communicate a thought or idea. Motivation to read included ELGs that described behaviors that indicate a child is interested in the reading process. At the younger age level, these ELGs often described behaviors such as showing interest in books. Within the 19-to-36 months age level, the indicators might include requesting that an adult read their favorite story or pretending to read a book.

Other early literacy indicators, such as alphabet awareness, phonological awareness, book awareness, and print awareness were addressed relatively infrequently (depth percentages less than 4%) and almost always more frequently within the 19-to-36 months age level. Many of these early literacy indicators may be considered inappropriate for this age. For instance, some research suggests that phonological awareness and alphabet awareness emerge during the preschool age period or later. We found, however, examples where some of the skills typically expected at later ages had been described in an age-appropriate way. For example, an ELG that states children will show "Playful interest in repetitive and rhyming sounds" was coded as phonological awareness and seems appropriate for the toddler period. Conversely, we did find examples of ELGs that are likely to be considered inappropriate for the infant-toddler period (such as "Recognize signs and symbols frequently seen" and "Understand that objects can be represented by symbols"). We urge states to carefully consider whether their ELGs are age appropriate for this age period, particularly in the early literacy area.

We would like to call attention to one additional finding within the language and communication domain. Given the increasing number of young

children who are growing up in homes where English is not the primary language and the critical developments that take place in the language area during this age period, we were particularly interested in how states had addressed the issue of English Language Learners. We included an indicator called "communicating in a second language." We used a broad definition for this indicator and included any ELG that mentioned second language or ELL issues, such as ELGs that made reference to learning English as a second language or maintaining the child's home language while learning English. We found that the ELGs hardly mentioned second language or home language issues (depth percentage of 0.7% across all ELGs). Only four states—Alaska, Louisiana, Oregon, and Washington—addressed this area of children's language development within their ELGs. An example of an ELG coded under communication in a second language is "Demonstrates increasing use of both home language and English" (Louisiana). States often included a discussion of the importance of the home language within the introductory materials, but the ELGs themselves rarely addressed the issue. This is of concern given the high percentage of babies and toddlers growing up in homes where English is not the primary language. We urge states to think carefully about how to address the issue of second language learners, to explicitly describe how children can exhibit any of the ELGs in all areas in their home language, and to give careful consideration to how second language acquisition is addressed within the language domain. ELGs can be written in a way that explicitly supports the maintenance of the child's home language, which is particularly important at this young age.

**We urge states to think carefully about how to address the issue of second language learners within the ELGs.**

*Cognitive development and general knowledge.* Among the ELGs coded within the Cognitive Development and General Knowledge domain, mathematics was the most frequently coded indicator (see Table 7). The depth percentage across all ELGs was 13.6% for mathematics. ELGs coded as mathematics included descriptions of children exhibiting behaviors related to knowledge of mathematics concepts (such as shapes and numbers) and understanding of mathematical processes (such as sorting and grouping). It should be noted that this indicator included a wide variety of early mathematical knowledge and skills and, therefore, may have had a larger number of ELGs coded within this category partly because the operational definition was more expansive than other indicators. As with ELGs written for children's early literacy development, one might be surprised to find ELGs for infants and toddlers coded as mathematics and wonder if this is age appropriate. We found, however, that generally states have focused on early indicators of awareness of mathematical concepts such as size, patterns, and time rather than focusing on specific mathematical skills and knowledge that emerge later. We also noted that

mathematics ELGs were more often written for the 19-to-36 month age level than for the birth-to-18 month age level.

**Table 7: Cognitive Development and General Knowledge Depth Percentages by Age Levels**

| Indicator | Age Levels | | |
|---|---|---|---|
| | All* | 0–18 months** | 19–36 months** |
| | Mean | Mean | Mean |
| Cognitive Development and General Knowledge | | | |
| 52. Object permanence | 2.9 | 4.3 | 1.7 |
| 53. Memory | 9.5 | 13.9 | 5.0 |
| 54. Imitation | 6.9 | 8.6 | 1.7 |
| 55. Comparisons | 3.1 | 1.6 | 4.3 |
| 56. Exploratory play | 3.9 | 8.2 | 1.9 |
| 57. Pretend/symbolic play | 7.6 | 4.3 | 10.5 |
| 58. Representational/symbolic thought | 0.5 | 0.1 | 0.9 |
| 59. Cause and effect | 10.8 | 21.3 | 4.9 |
| 60. Problem solving | 7.2 | 6.1 | 6.7 |
| 61. Conjecture, hypothesizing & guessing | 0.2 | 0.0 | 0.6 |
| 62. Perspective taking | 0.2 | 0.0 | 0.6 |
| 63. Representation | 0.1 | 0.0 | 0.3 |
| 64. Metacognition | 0.0 | 0.0 | 0.0 |
| 65. Planning and intentionality | 2.1 | 0.8 | 1.9 |
| 66. Flexibility | 3.4 | 2.3 | 5.6 |
| 67. Personal data | 0.6 | 0.3 | 1.9 |
| 68. Knowledge of objects | 4.5 | 7.9 | 3.1 |
| 69. Knowledge of places | 0.9 | 0.2 | 1.1 |
| 70. Mathematics | 13.6 | 7.2 | 20.4 |
| 71. Science | 3.1 | 1.9 | 5.3 |
| 72. Arts | 9.0 | 6.4 | 10.0 |
| 73. Social studies | 2.3 | 0.9 | 2.4 |
| 74. Social conventions | 0.0 | 0.0 | 0.0 |
| 75. Rules and expectations | 7.7 | 3.7 | 9.7 |

* The column with all age levels includes data from 21 states.
** The columns with data for ages 0–18 months and 19–36 months include data from a subset of 14 states that wrote ELGs for at least two different age levels.

During infancy and toddlerhood, a major accomplishment is to develop an understanding of how the world works. ELGs that address the way young children come to understand the world were noted. In fact, the process of learning about "cause and effect" was the next most commonly coded indicator after mathematics (depth percentage = 10.8% across all ELGs). Memory and imitation were also addressed relatively frequently (depth percentages of 9.5% and 6.9% respectively),

and ELGs related to children's understanding of object permanence were also noted (depth percentage of 2.9%). Many of the indicators related to higher-level cognitive processes were addressed less often within the cognitive ELGs, including several with depth percentages under 1% (representational/symbolic thought, conjecture, perspective-taking, representation, and metacognition).

There were some notable differences in the ELGs written for younger age levels compared with ELGs written for the older age levels. Several cognitive skills were addressed relatively more often at the younger age levels including object permanence, memory, imitation, and cause and effect. In fact, the depth percentages of ELGs coded at the birth-to-18 months level for these indicators were, in all cases, at least twice as high as the depth percentages for the same indicator at the older age level. We also noted some qualitative differences between these indicators when they were written for the younger age levels compared with those written for the older age levels. For instance, within the younger age level the ELGs coded as cause and effect often described an infant doing something to see what happens ("Act upon an object to elicit sounds" from Pennsylvania), while the ELGs coded as cause and effect in the older ages often suggested the child would understand the principle of cause and effect ("Child develops understanding of simple cause and effect relationships" from Nebraska).

**ELGs focused more attention on cognitive processes at the younger age levels and emphasized knowledge about particular areas at the older ages.**

There were several indicators related to general knowledge about various topics or subject areas that were addressed relatively more often in the ELGs written for older children: personal data, knowledge of places, mathematics, science, social studies, and rules and expectations. Depth percentages in these areas were at least twice as high for ELGs in the older age level compared with depth percentages for the same indicators in ELGs written for 0 to18 months. This seems to indicate that states focused more attention on cognitive processes that help children develop a basic understanding of the world at the youngest age levels and then began to emphasize their knowledge about particular areas at the older age levels. The indicators noted that seem to emphasize knowledge about particular areas are also consistent with what are traditionally thought of as academic subject areas. It is possible that ELG developers felt that it was more important to demonstrate alignment with preschool or pre-K standards at the 19-to-36 month age level, and therefore we see more ELGs within this age range that reflect areas associated with academic subject areas.

Given the important role of play within development, we were careful to include indicators to capture the content of ELGs that address various types of play. Social aspects of play were coded under the social and emotional domain in the

shared activities indicator. Within the cognitive domain, we captured two types of play: exploratory play, where a child plays with objects in a way that helps develop an understanding of the objects; and pretend play that includes some form of pretend or make-believe play. Combined, these two forms of play had a depth percentage of approximately 12%, a percentage that was close to the depth percentage for mathematics. There were, however, differences in how frequently the two types of play were addressed at the two different age levels. Exploratory play was addressed relatively more frequently at the birth-to-18 months age level (depth percentage of 8.2% compared with 1.9% for the 19–36 months age level) and pretend/symbolic play was addressed relatively more frequently at the 19-to-36 months age level (depth percentages of 10.5% compared with 4.3% for the 0–18 months ELGs). Overall, there appeared to be some distinct patterns in the types of skills and knowledge emphasized in the younger age levels compared with what was addressed relatively more frequently at the older age levels within the cognitive and general knowledge domain.

## Recommendations

We turn now to recommendations that result from our content analyses. Our hope is to raise issues to consider that are important for persons writing ELGs and to offer recommendations for further analyses and research. Foremost in our mind are considerations related to how and by whom infant-toddler ELGs will be used. We recognize that the vast majority of our nation's infants and toddlers are in the care of persons with relatively low levels of education and less professional development than caregivers or teachers of older children. This presents both opportunities and challenges for the writers of infant-toddler ELGs. On the one hand, well-crafted ELGs could be a useful resource for caregivers with limited knowledge about child development. On the other hand, ELGs that are overwhelming to caregivers or ELGs that do not address content that is significant for this age period can misdirect caregivers in their daily interactions with children. We urge states to carefully consider the unique qualities of the infant-toddler period as well as the characteristics and needs of persons caring for our babies as they develop infant-toddler ELGs. The following section provides recommendations to support states in their efforts to develop high-quality ELGs that can improve the quality of infant-toddler care.

**States should carefully consider the unique qualities of the infant-toddler period and the characteristics of caregivers as they develop infant-toddler ELGs.**

### *Recommendations for Development of ELGs*

In this section we discuss several issues related to how ELGs are written. We begin with recommendations based on observations related to various features of the documents, followed by a discussion of the implications from our "breadth" and "depth" analyses.

1) **Ensure that the ELGs are user-friendly and communicate the concepts that are important for the infant-toddler period.** We noted considerable variation among the ELG documents, even more than has been noted for preschool ELG documents. The number of subcategories or headings used to organize the ELGs varied as did the titles used for the subsections. Some states have used developmental domains as subcategories, and others have included academic subject areas. The age levels used to subdivide ELGs varied, with some states using only one category to cover the period between birth and 36 months and others using as many as seven different age levels. The number of ELG items ranged from 34 to 688, with a mean of 218. Given the complexity of the age period addressed in the infant-toddler ELGs and the variability in the types of services and systems states have established to promote child development during this age period, the variability across states is not unexpected.

We suggest that states seek to ensure that their infant-toddler ELGs are meaningful and user-friendly for their particular target audience. In their recommendations regarding the development of infant-toddler ELGs, the Zero to Three policy center points out the importance of ensuring that ELGs are relevant and accessible to the target audience (Zero to Three, 2007). Based on our experience, we suggest that ELG developers take into account a number of different considerations to ensure that ELGs will be more useful to caregivers. Issues to consider when making decisions about the organization of the document include the nature and current emphases of early childhood initiatives in the state (i.e., How are particular areas of development titled in other initiatives? How is this age period commonly broken down in early childhood programs, licensing, etc.?) and the format of the state's ELGs for preschool-age children (i.e., What categories and format have been used for the state's preschool ELGs? To what extent does the state want the infant-toddler ELGs to be similar or complementary to the preschool-age ELGs?).

**States should ensure that infant-toddler ELGs are meaningful and user-friendly for their target audience.**

States should also give careful consideration to the headings used for subareas within the ELGs to make sure they support use of the document. It is important that the headings used communicate significant themes related to development and learning within the infant-toddler period and help ELG writers develop age-appropriate ELGs. The vast majority of the states have used at least some of the five developmental domains described by the National Education Goals Panel (1995). A few have elected to include academic subject areas as headings within their ELGs. Although the use of academic subject-area headings may help readers understand how the content of the infant-toddler ELGs relates to the ELGs written for preschool-age and older children, there are some pitfalls of which developers should be mindful. First, ELG developers may in some instances include ELGs that are only remotely related to later academic skills under academic subject areas, perhaps to communicate that all learning and development at this age is related to children's later academic success. Second, instances of ELGs that were not considered age appropriate were noted under some academic subject areas. ELG developers who elect to use subject-area headings must be careful to think about whether the individual ELGs they are writing within these subject areas describe infant-toddler indicators that are developmentally significant, relatively directly related to the subject area, and age appropriate.

To further enhance the usability of the document, it is also important that ELGs are written in clear language that will be easily understood and not be overwhelming for caregivers (NCCIC, n.d.). This is particularly important given the limited education and professional preparation of many caregivers who work with

infants and toddlers. Though it is important that all significant areas of early learning and development be covered, states should carefully consider the number of items included within the documents. States that have elected to include relatively small numbers of ELGs in their documents may have focused on the areas of development and learning they feel are most critical, but the documents may lack specificity or breadth of coverage that could be helpful to caregivers. Those documents that include relatively large numbers of ELGs may overwhelm caregivers or cause them to focus on discrete skills or characteristics while missing the larger developmental accomplishments that are critical for infants and toddlers. States should also carefully consider the format of the document to ensure that it is practical and easy to use.

States may also find it helpful to develop different documents that are targeted to specific audiences in order to enhance the usability of the document. For instance, the full document with all ELGs and corresponding explanations and examples might be more helpful for program managers and professional development providers, while more simplified versions might be more useful to the general caregiver audience.

**States should study research available on cultural differences and then work with stakeholders within their own state to address cultural differences when writing ELGs.**

2) **Write ELGs that support the development of infants and toddlers from families from a variety of cultural backgrounds.** Because a child's family and cultural background are of tremendous importance to learning and development (particularly for infants and toddlers), ELGs should reflect the different beliefs and values that shape children's growth. For instance, there are cultural differences in how adults think about broad concepts such as independence, curiosity, and communication. More concretely, there are cultural differences in what adults think about topics such as when and how a child should learn to feed him/herself and use the bathroom independently. The importance of and challenges for writing culturally sensitive ELGs has recently been affirmed by Zero to Three (Zero to Three, 2007). We suggest that ELG developers study the research that is available on cultural differences related to children and caregiving to identify issues that are likely to be important across cultural groups and then work with stakeholders within their own state to discern how best to address the cultural differences most relevant for the children and families in their state. Stakeholders from various cultural groups should be involved in the development process, the reviews of draft ELGs, and in efforts to plan how the ELGs will be introduced to and used by caregivers working with children from different cultural groups. If possible, states should pilot the ELGs with caregivers from different cultural groups to ensure the content is meaningful and appropriate within their context.

3) **Write ELGs that support the development of infants and toddlers from families where English is not the primary language.** Infant-toddler ELGs have the potential to help caregivers better understand the development of children whose home language is not English and to improve the quality of care for these children. It is, therefore, critical that ELGs written for infants and toddlers address characteristics and needs of children from families where English is not the primary language. Although many of the infant-toddler ELGs have addressed issues related to English Language Learners within the introductions of their documents, we are concerned that relatively few have addressed such issues within the ELGs themselves. ELGs should be carefully examined to ensure that they support the use of children's home language. At minimum, ELG documents should clearly state that children will exhibit the skills and characteristics included within the ELGs in their home language. States can reinforce the idea that ELGs can be demonstrated in languages other than English in the examples they write to illustrate ELGs or by caregivers' supportive practices.

**It is critical that ELGs written for infants and toddlers address characteristics and needs of children from families where English is not the primary language.**

ELGs, particularly ELGs within the language and communication domain, should be examined in light of research on children's acquisition of a second language to ensure that they are consistent with what we have learned about how children exposed to more than one language grow and develop. Some ELGs may need to include qualifiers or further explanation as to how children exposed to English at the same time they are learning their own language or as a second language might demonstrate their capacities in a particular area. For instance, ELGs related to how and when children progress to the use of more complex sentence structures might need to indicate that ELL children may demonstrate a different rate or pattern of progress in their speaking abilities. Finally, it is important for states to make their infant-toddler ELG documents available in the languages that are spoken by families. Translation of the ELGs into other languages is an important step toward helping caregivers working with children from families that do not speak English. While it may not be realistic to try to translate the ELGs into each of the languages spoken within a state, it is important that states provide ELGs translated into at least the most common languages.

4) **Conduct analyses to ensure that the content of the ELGs reflects areas of development that are significant and age appropriate for infants and toddlers.** Results from our breadth analyses suggest that infant-toddler ELGs have addressed four primary domains of development—physical and motor, social and emotional, language and communication, and cognitive development and general knowledge. While the finding that ELGs for this age have included relatively balanced coverage across the physical, social and emotional, language and cognitive domains is quite

positive, the limited attention to the approaches toward learning domain is a concern. Results from the "depth" analyses further suggest that some important indicators of children's learning and development have received limited attention within the ELGs. Included among the indicators that were addressed less often were behaviors that promote health and physical fitness, indicators related to self-regulation, and specific aspects of children's approaches toward learning.

Zero to Three's work group on infant-toddler ELGs suggests that states establish processes and criteria to assure the accuracy, quality, and inclusiveness of infant-toddler ELGs. We agree that a clearly defined review process is necessary to examine the content of infant-toddler ELGs and recommend that states writing ELGs consider the following steps in the development process:

- Undertake a formal content-analysis process to systematically examine the content of the ELGs before the document is finalized.
- Conduct a research-validation study to compare the content of the draft ELGs with research on the infant-toddler period before the ELGs are finalized.
- Make explicit decisions regarding the elements of infant-toddler development they deem most significant, and make sure they are addressed within the ELGs.
- Carefully consider how indicators of infant-toddler growth and development are written at different age levels to make sure that the indicators most relevant for each particular age period are included within that age period. Also consider whether the way indicators are written clearly illustrates the qualitative changes that take place in children's development between birth and 36 months of age.

**States should implement review processes to thoroughly examine the content of their infant-toddler ELGs throughout the development process.**

States may find it helpful to keep careful documentation on the sources of information they used to develop the ELGs and the rationale for decisions they made about what content is and is not addressed within the ELGs. The process of documenting decisions could help ensure that the decisions regarding what is and is not included in the ELGs are well thought out and based on credible sources of information.

**5) Examine the alignment between infant-toddler ELGs and ELGs/ standards for older children.** While it is important that the content of ELGs written for infants and toddlers is related to the content of preschool (and K–12) ELGs/standards, we recommend that states carefully consider how best to address alignment issues within their infant-toddler ELGs. Many of the developmental accomplishments that take place during the infant-toddler period provide the foundation for later development and learning (Zero to Three, 2007). Alignment between the infant-toddler ELGs and preschool ELGs/standards should not,

however, be thought of as a one-to-one correspondence between the infant-toddler ELGs and standards for children's development and learning at later ages. Many of children's accomplishments in the infant-toddler period are linked to but not the same as what children need to learn at later ages. For instance, attachment is a significant achievement during the infant-toddler period but is typically not addressed within preschool and K–12 standards. Attachment does, however, have significant implications for children's learning and development in a variety of areas and is a valid construct to include within infant-toddler ELGs, even though it may not directly relate to or align with specific preschool and K–12 standards. It is important to examine alignment as part of the process of developing ELGs, but we do not recommend that states seek one-to-one correspondence between ELGs written for infants and toddlers and those written for preschool and/or kindergarten-age children. Instead, we encourage states to think about the primary developmental themes within the infant-toddler period and seek to communicate how accomplishments within these themes provide the foundation for later development and learning.

**Alignment between infant-toddler ELGs and preschool standards should not be thought of as a one-to-one correspondence between the ELGs for different ages.**

6) **Plan carefully for professional development that will accompany the ELGs.** Introducing ELGs to the field of infant-toddler caregivers requires significant thought and planning. First, many caregivers do not view their work with babies and toddlers as an opportunity to intentionally promote learning and development but may, instead, see themselves simply as caregivers responsible for the safety and wellbeing of the infants. Introducing the concept of articulated goals for infant/toddler learning and development will require a significant "mind shift" within the field to promote intentional learning environments and interactions. Second, caregiver knowledge of the learning and development that takes place within the infant-toddler period may be limited. The ELGs can serve as a tool to introduce caregivers to age-appropriate developmental and learning goals. This will, however, require that professional development be provided to help caregivers become knowledgeable of the content of the ELGs and, when necessary, to address how the areas of development and learning addressed in the ELGs may differ from their own expectations for children of this age. To use the ELGs effectively, caregivers must be knowledgeable of what they say and must "buy in" to the information they provide about infant-toddler development and learning. Finally, professional development related to infant-toddler ELGs must teach caregivers how to use the document effectively in planning how they care for children, and as a guide for how they observe and assess the learning and development of children. In essence, extensive professional development will be needed to make the infant-toddler ELGs "come alive" for caregivers.

States should plan carefully for the professional development that will accompany the document (including plans for how the professional development will become institutionalized as part of the early care and education system within the state) as the ELGs are being written and should think about whether more than one document is needed in order to support the professional development that will be provided. Indeed, the Zero to Three workgroup on infant-toddler ELGs recommends that states decide how their infant-toddler ELGs can be imbedded in every level of their inservice and preservice professional development systems and take steps accordingly to ensure that caregivers at all levels have access to information about the infant-toddler ELGs and how to use them (Zero to Three, 2007).

**As states are developing ELGs, they should plan carefully for professional development to accompany the ELG document.**

## *Recommendations for Future Analyses and Research*

We believe results from our content analyses can inform the work of persons writing ELGs and can help states who have finalized their infant-toddler ELGs think carefully about the content of their documents, but we recognize that this is just an initial attempt at understanding and improving the content of the infant-toddler ELGs. Further research and analyses are needed in a number of areas to support the development of infant-toddler ELGs and promote the use the ELGs to strengthen the quality of services provided to infants and toddlers. Specific recommendations for future analyses and research are described below.

1) **A national panel of experts should be convened to synthesize the research literature related to infant-toddler development.** While developing our coding system, we noted the wealth of research related to various components of development and learning in this age period and, at the same time, the lack of any one resource that clearly synthesizes what is known about infants and toddlers. In short, there is a lot of research available but the developers of ELGs are left to their own devices to search for the research and read and interpret the research findings. Publications such as *From Neurons to Neighborhoods* (National Research Council and Institute of Medicine, 2000) are helpful to ELG committees but do not provide specific information about all the skills and characteristics that are important during this period, nor enough detail on the progression of these skills and characteristics, to guide ELG developers as they write indicators. We also noted that there is unevenness in the degree of attention and length of time that important constructs have been examined in research. Some well-established constructs are carefully defined and widely recognized as important, while other constructs have been the subject of less research or more recent research, and may be less well understood

and articulated within the literature. These newer or "cutting edge" constructs may, after careful examination of more recent or less well-known research, prove to be equally as significant as other areas that are more widely known.

We therefore think that it is important for a national organization such as the National Academy of Sciences to convene a panel of experts to review and synthesize the infant-toddler research literature. The results of such a review could be used as the foundation upon which states could base their ELGs in the future. We suggest that the panel focus attention on the specific areas that have received less attention within the ELGs—physical health, physical fitness, nutrition, emotional regulation, self-control, for instance. We acknowledge that there is likely to be considerable unevenness in the extent to which research is available to articulate all of the constructs that are important within this age period but point out that without such a review and synthesis, states are left to their own devices to gather and interpret research information. The result is that states may individually devote significant resources to a task that could be completed more effectively and efficiently at the national level, that there is considerable variation among states in the extent to which they have used research to guide the development of their ELGs, and that there is considerable variation in the age appropriateness and developmental significance of the content of states' infant-toddler ELGs.

**It is important for a national organization to convene a panel of experts to review and synthesize the infant-toddler research literature.**

2) **Additional resources should be provided to guide states in developing ELGs that are culturally sensitive and better reflect the diverse families and cultures of our nation's infants and toddlers.** Children, particularly babies, grow and develop within their families and the culture of their families. Families and various cultural groups have different expectations for important elements of caregiving and for children's development. Although most of the infant-toddler ELGs acknowledge the important role of culture in shaping development in the introduction for the document, few reflect cultural differences within the ELGs themselves. Additional resources are needed to guide states in how they might write culturally sensitive ELGs that reflect a cultural–competence approach. On a national level, research related to cultural differences in caregiving and in child development and learning, while admittedly is sparse, should be synthesized and made available to persons writing ELGs. At both the state and national level, much work is needed to help states develop ELGs that are sensitive to cultural differences among infants and toddlers and their caregivers.

3) **Additional resources should be provided to guide states in developing ELGs that best reflect our current knowledge of dual and second language development.** The recent report by the National Task Force on Early Childhood Education for Hispanics (2007) conveys the significance of early education for

children from Hispanic families—both in terms of the significant increase in the number of young children growing up in Hispanic families and in terms of the potential benefits that quality early care-and-education programs can have for children from Hispanic families who face a number of challenges to their success later in school. The report notes, with some optimism, evidence that high-quality, early education programs and English-plus-Spanish Language Development strategies can positively impact the learning and development of young children whose primary language is Spanish. It stands to reason that ELGs that accurately and sensitively reflect how non-English speaking children acquire English language skills are important in the effort to provide high-quality services to all ELL children. Yet, only four states addressed the issue in any way within their ELGs.

Additional research is needed to better understand the learning and development of English Language Learners (including children who are monolingual in a language other than English, children who are learning English and another language at the same time, and children who are learning English after their home language has been established). Furthermore, states need additional guidance on how best to reflect our emerging understanding of English Language Learning issues within their ELGs. Finally, additional thought, research, and guidance are needed to support states in their efforts to translate the ELGs into practice—how can ELGs best support programs and caregivers as they implement the curricula with young English Language Learners?

**Additional research is needed to better understand the learning and development of English Language Learners.**

**4) Further analyses of states' infant-toddler ELGs should be conducted.** Our analyses examined the areas of development and learning addressed in the first set of infant-toddler ELGs published in the United States. We looked specifically at what areas of development have been addressed and what areas have not been addressed. Further work is needed to better understand how the age progression from birth to 36 months has been represented within infant-toddler ELGs; that is, what does the developmental progression within the infant-toddler ELGs look like for specific indicators? Additional analyses are also needed to examine factors associated with differences in the content of states' infant-toddler ELGs. Perhaps the content of the infant-toddler ELGs differs from state to state based on who was involved in writing the ELGs, how the state envisions them being used, or other factors. Finally, we need additional research to examine the content of infant-toddler ELGs developed in the future—does the content of the earliest infant-toddler ELGs differ from ELGs written by states that published their ELGs later? Given the work done by the early pioneers who developed the first infant-toddler ELGs, how have later ELG developers used the first documents as models and information from project such as this to shape the content of their documents?

**5) Analyses should be conducted to compare the content of states' infant-toddler ELGs with the content of preschool/pre-Kindergarten ELGs/early learning standards.** In this study, we examined the content of infant-toddler ELGs and noted some examples where the content of ELGs written for younger age levels differed from ELGs written for older age levels within the infant-toddler age period. ELG writers seem to be addressing development and learning differently at different ages. It will be important to systematically examine how the content of states' infant-toddler ELGs compares with the content of the same states' preschool ELGs'/ standards. In previous research, we have noted that early learning standards for preschool children emphasize language and cognitive development over physical development, social-emotional development, and approaches toward learning. The previous analyses on preschool ELGs/standards were, however, conducted with a different coding framework so the results of the two studies cannot be compared. Further research is needed to analyze the content of infant-toddler ELGs and preschool ELGs to better understand how goals for children's development and learning are different at different ages.

**Further work is needed to develop innovative ways to examine the alignment between infant-toddler and preschool ELGs/ standards.**

**6) Processes should be developed to examine the alignment between infant-toddler ELGs and ELGs/early learning standards for older children.** Further work is needed to develop innovative ways to examine the alignment between infant-toddler and preschool ELGs/standards. As noted above, alignment between ELGs/standards for the two age periods cannot be viewed as one-to-one correspondence or a process that simply looks at what concepts are addressed in preschool ELGs and checks to see if the same constructs are addressed in infant-toddler ELGs. New methodologies are needed to study alignment issues and develop recommendations for how the infant-toddler and preschool ELGs/standards can best be aligned to promote continuity for children as they progress from the infant-toddler period to preschool age.

**7) Analyses are needed to determine the degree to which infant-toddler ELGs are horizontally aligned with curricula and assessments.** Generally, the purpose of infant-toddler ELGs is to guide the interactions adults have with children in order to promote children's progress on the indicators. It is important that the content of curricula and assessments are aligned with the ELGs to optimally support children's development. If the content of curricula and assessments used to gauge children's progress do not match or "align with" the ELGs, caregivers will be seeking to promote the developmental outcomes described in the ELGs but may be addressing totally different areas of children's development in their interactions. We therefore feel that it is important to examine horizontal alignment between the ELGs, the curriculum/approach used by caregivers, and the assessments used to

document children's progress. Examining horizontal alignment within the infant-toddler age period is particularly challenging because providers often do not use a formal curriculum with well-articulated goals or specified objectives. Despite these challenges, we feel it is important to develop a conceptual model for horizontal alignment at the infant-toddler age period and methodologies for examining horizontal alignment.

**8) Research is needed to collect data on how infant-toddler ELGs are being implemented.** As states complete their infant-toddler ELGs, there is much work to be done to promote their use in the field. The fragmented nature of services for children this age, limited attention and funding for this age period, underqualified and undercompensated workforce, and wide variation in the types of services/providers families receive are a few of the factors that present challenges to the implementation of infant-toddler ELGs. On the policy level, research is needed to examine how states are rolling out their new infant-toddler ELGs and strategies they are using to support the use of them among caregivers. It will be important to catalog the strategies states are using to reach their target audiences and to support caregivers as they begin to use the documents. States often can learn from each other if they have information about innovative strategies used in other states. It will also be important to study how caregivers respond to the documents: What do they think about the new ELGs? What supports do they need to use them? How do their practices change as a result of having them? and What challenges do they face in putting the infant-toddler ELGs into practice? It is important to study implementation of the ELGs at the caregiver level to better understand what happens when these documents are introduced to the field and, more importantly, whether they improve the quality of care for infants and toddlers.

**Our hope is that results from the analyses and the recommendations provided within this report can inform the future work of states that may develop ELGs.**

## Conclusion

Analyses from this study are the first look at the content of ELGs developed for infants and toddlers. Results are encouraging—the ELGs written to date have, for the most part, addressed important areas of children's development. Given that over half of the states in our nation do not at this point have published infant-toddler ELGs, our hope is that results from the analyses and the recommendations provided within this report can inform the future work of states that may develop ELGs, as well as point out issues that states who currently have published infant-toddler ELGs should consider as they implement and (some day) revise their ELGs. Our hope is also that the quality of programs for infants and toddlers will improve as a result.

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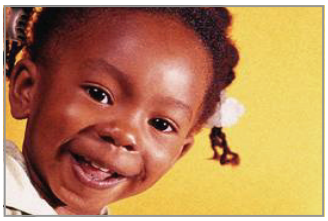

## Appendix A

### *References and Resources Consulted in Developing the Coding Framework*


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| Domain and Sub-areas | Indicator | Operational Definition |
|---|---|---|
| Physical Development and Motor Skills | | |
| Health and well-being | 1. Health | General patterns in growth (height/weight) and indicators of good overall health |
| | 2. Nutrition | Indicators related to nutrition (eating nutritious foods, participating/being excited about meals/snacks, understanding importance of eating nutritious foods, knowledge about which foods are nutritious, and preference for nutritious foods if the emphasis is on the nutritional value of the food rather than simply having a preference for certain foods) |
| | 3. Physical fitness | Indicators of general physical fitness (stamina, strength, etc.) and behaviors that contribute to physical fitness (such as interest in physical activities or general activity level) |
| Perception | 4. Development of the senses | Ability to take in information through the senses (individually or one sense at a time), including response to visual stimulation such as colors, response to kinesthetic stimuli, ability to track objects and sounds, etc. |
| | 5. Attention | Interest in or focused attention on a stimulus/perceptional information; orienting and paying attention to a stimulus, including joint attention and sustained gazing at visual patterns |
| | 6. Sensory integration | The ability to take in information through the senses of touch, movement, smell, taste, vision, and/or hearing, and to combine the resulting perceptions with information taken in at the same time through another sense, prior information, memories, and/or knowledge; includes eye-hand coordination and other ways that children integrate multiple sources of sensory information |
| | 7. Spatial awareness | Perception of spatial relationships (one's own body or persons/objects in the environment) |
| 8. Physical state regulation | | Child's regulation of sleep/wake state, feeding cycles and elimination; includes awareness of changes in or needs related to physical state (such as awareness that it is time to go to sleep, awareness of the need to use the bathroom, etc.) |
| Motor skills | 9. Gross motor | Physical actions and development related to the full body and/or limbs (includes holding head up, rolling over, sitting, standing, jumping, etc.) |
| | 10. Fine motor | Movements related to the hands (grasping, transferring objects from one hand to the other, scribbling, etc.) |
| | 11. Self-help skills | Ability to participate in, cooperate with or carry out physical care and routines, including care done for self or as part of a group |
| 12. Reflexes | | Innate motor/behavioral responses to stimuli, including sucking, palmer grasp, etc. |
| 13. Adult provisions for children's well-being | | Indicators related to health care/resources that children need adults to provide (such as immunizations, well child checkups, etc.) NOTE: these are not technically standards/guidelines for children's learning and development but are related to the care children receive from adults and so they are more appropriate conceptualized as program standards |

| Domain and Sub-areas | Indicator | Operational Definition |
|---|---|---|
| Social and Emotional Development | | |
| Feelings related to self | 14. Emotional expression | Ability to be aware of, label/name and express feelings (including emotions that typically arise at certain ages such as fear of the dark) |
| | 15. Emotional regulation | Ability to regulate feelings related to internal and external stimulation, including stressful or aversive and pleasurable stimulation (calm down, self-soothe, etc.); includes ability to adjust/successfully participate in transitions. |
| | 16. Self-control | Ability to control one's behavior, including the ability to act in socially acceptable ways when upset or tempted to do something that would not be acceptable; includes impulse control and the ability to adapt behaviors to situations or different environments |
| | 17. Self-esteem | Feelings toward one's self, including the expectation that reasonable needs and wants will be met (separate from self-awareness which is knowledge about self and from self-confidence which is strictly related to feelings about one's abilities to carry out an activity); includes feelings of pride or a sense of accomplishment |
| | 18. Self-confidence | General awareness or feeling of ability to complete something successfully or do something independently; includes the desire to do things for self without help (even if the feeling that one can do things without help is unrealistic) and the confidence to do things with/for others; includes items related to self-efficacy |
| Understanding of self | 19. Self-awareness | General awareness of a self as a unique individual; includes recognizing self in a mirror, learning about self through exploration, and use of the words "me" "I" and "mine" |
| | 20. Self-concept | Knowledge or understanding one has about one's own self (name, general characteristics, preferences for objects and activities, but not preferences for people); includes the concept of one's own identity as a member of one's family or culture and a sense of belonging to family/community/cultural group |
| 21. Feelings of others | | Expressing interest in and understanding of others' feelings; the ability to recognize and understand the feelings of other persons (both positive and negative feelings), including watching others express emotions, and verbal/non-verbal indicators of awareness/understanding of the feelings of others; includes empathy and/or behaviors such as comforting another person that indicate the child recognized/understood the feelings of someone else |
| 22. Attachment | | All behaviors typically associated with attachment (differentiating between primary caregiver/parent and others, preferring primary caregiver, proximity seeking, experiencing pleasure when with caregiver, feeling more secure with primary caregiver, secure base behaviors, stranger anxiety, the ability to separate from attachment figures with relative ease, and social referencing or using an attachment figure's response to decide how to respond to a situation) |

| Domain and Sub-areas | Indicator | Operational Definition |
|---|---|---|
| Relationships with non-attachment figures | 23. Relationships with adults | Behaviors that indicate connection/relationship with individual adults (other than attachment figure/attachment behaviors); preference for familiar adults; general indications of trust in adults |
| | 24. Relationships with peers | Behaviors that indicate connection/relationship with other children; preference to interact with specific peers; development of friendships, etc. |
| Social Skills | 25. Social skills with adults | Behaviors that facilitate a child's ability to initiate and/or foster interactions with adults such as attention seeking, including joint activities (such as "peek-a-boo") with adults. |
| | 26. Social skills with peers | Behaviors that facilitate a child's ability to interact with peers (including social skills such as sharing, cooperating, initiating interactions, and solving conflicts with and without guidance from adults but not social play behaviors) |
| | 27. Shared peer activities and social play | Behaviors that indicate the child is participating in joint activities or playing with other children; includes skills that are needed to play together successfully and parallel play |
| Approaches Toward Learning | | |
| 28. Interest and exploration | | General interest in or curiosity about the world around them; exploration of objects and how things work; inquisitiveness; careful observation of something that's new |
| 29. Initiative | | Willingness/eagerness to begin a routine, activity or learning task |
| 30. Persistence and mastery motivation | | Continues interests in the face of discouragement or challenges; willingness/eagerness to complete an activity; determination to complete something or be successful at a learning task; willingness/ability to overcome frustration when faced with unexpected complications or initial experience of failure |
| 31. Concentration/attention control | | Focus on interest or activity without being easily distracted; includes the ability to continue to focus in presence of distractions and/or return to an activity after distractions |
| 32. Cooperative approach to learning | | Willingness to seek help or work with others to approach an activity or learning task; includes asking for help when needed and participation in cooperative learning activities |
| 33. Invention and creativity | | Ability to generate new ideas and to approach activities creatively; not the same as symbolic play or symbolic thought because relates to learning style or general approach to activities |
| 34. Willingness to Try | | Willingness to try out ideas or behaviors in situations that are new or where the answer or resolution of situation is unclear; willingness to try challenging activities or tasks, increasingly difficult tasks, or tasks that they have previously tried unsuccessfully |

| Domain and Sub-areas | Indicator | Operational Definition |
|---|---|---|
| Language and Communication Development | | |
| Communication | 35. Receptive Verbal Communication | Paying attention to language and language related sounds (i.e., not just orienting to any sound) or alternate forms of communication, and understanding what someone says to you (following directions, choosing objects [when item is not specific about what item to select, which would imply knowledge about a particular object], etc.) |
| | 36. Expressive Verbal Communication | Communicating thoughts, ideas, wants, needs, etc. through language (spoken or alternate forms of communication); focus is on the content of communication and ability to get message across; learning to use words to communicate with family and immediate caregivers; includes all vocalizations that are intended to communicate. |
| | 37. Pragmatics and social language | Ability to use language as a communication tool. Focuses on the processes or rules that underlie successful communication rather than the content of what is communicated; skills in this area include being able to initiate conversation with peers and adults, being able to use language for many different purposes, demonstration of various skills associated with effective communication (such as turn taking) and being able to identify when communication is not working and change it to make it successful; understanding that they may need to communicate with their family in one way and use a different type of language/communication in formal care settings/school |
| | 38. Speaking | Ability to use language in accordance with generally accepted patterns of speech (focuses on the syntax or mechanics of speech, includes the progression from cooing to babbling to using words, use of particular types of words, progression from short/one word sentences to more complex sentences, etc. and includes speech or alternate forms of communication such as sign language) |
| | 39. Non-verbal communication | Communicating wants, intentions and ideas non-verbally |
| | 40. Vocabulary, meaning and linguistic concepts | Demonstrates understanding of the meaning of words, identity of specific objects, etc. through verbal or non-verbal communication; understanding of basic linguistic concepts such as big/little, tall/short |
| | 41. Communicating in second language | Anything related to learning a second language or being able to communicate in a second language |

| Domain and Sub-areas | Indicator | Operational Definition |
|---|---|---|
| Early Literacy | 42. Participation in language and literacy-related activities | Awareness of, interest in and/or exploration of various forms of literature and language/literacy-related activities such as listening to stories/books being read, looking at books, touching pictures in books, and participating in songs, plays, puppet shows, poems, etc. |
| | 43. Narrative and story sense | Aware of story sequence; understanding that stories/books have a beginning/middle/end; ability to comprehend that something in the story happened before something else; includes the ability to tell or re-tell a story and also includes understanding of sequence of daily activities |
| | 44. Comprehension | Awareness and understanding of the basic content of literacy-related materials; ability to answer questions/recall information about stories have heard, books have read, etc. |
| | 45. Motivation to read | Behaviors that indicate a child is beginning to enjoy the reading process or to develop the desire to acquire early literacy skills, including asking others to read to them, pretending to read, showing preference for favorite stories or books, etc. |
| | 46. Phonological awareness | Ability to manipulate sounds, understand that words are made up of sounds and associate sounds with letters; includes phonemic awareness and phonics |
| | 47. Book awareness | Understanding of general information related to books (book has title, where the front of the book is, etc.) and skills related to handling books appropriately (ability to turn pages, etc) |
| | 48. Print awareness | Includes understanding that symbols and pictures can be used to communicate and general conventions of print (such as print flows from left to right) |
| | 49. Alphabet awareness | Knowledge related to letters of the alphabet (names of letters, etc.) |
| | 50. Motivation to write | General interest in the use of writing or other written symbols to communicate; general interest may be displayed by asking others to write for them or making indicating that marks they have made have specific meaning |
| | 51. Writing process | Behaviors associated with learning to write (including progression from scribbling to writing letters) |

| Domain and Sub-areas | Indicator | Operational Definition |
|---|---|---|
| Cognitive Development and General Knowledge | | |
| Cognitive processes and skills | 52. Object permanence | Indicators related to a child's ability to understand that an object or person exists even when not in sight |
| | 53. Memory | Emerging ability to recognize or recall people, events and information, excluding imitation; includes anticipation of routines, etc. that have been experienced previously |
| | 54. Imitation | Emerging ability to imitate behaviors that have been observed |
| | 55. Comparisons | Emerging ability to make comparisons between ideas, people, and activities (not sorting, classifying or categorizing objects); does not include simply showing preferences for specific ideas, people, or activities |
| | 56. Exploratory play | Play behaviors directed at exploring objects or materials in the absence of pretend or make believe; includes functional play, play in sand/water, playing with pots and pans, etc. |
| | 57. Pretend or symbolic play | Emerging ability to pretend or make-believe, including taking on roles, pretending to have objects that aren't present, and using objects as substitutes for real objects in play |
| | 58. Representational/ symbolic thought | Emerging ability to think about objects, people and events not present, separate from pretend or symbolic play (i.e., the focus is on thought processes separate from play situations) |
| | 59. Cause and effect | Emerging ability to understand the relationship between cause and effect |
| | 60. Problem solving | Emerging ability to think about a problem and conceptualize strategies; includes trial and error |
| | 61. Conjecture, hypothesizing and guessing | Emerging ability to process information and anticipate or predict what might happen or what is likely to happen; ability to render an educated guess about something that is not necessarily a reflection of a pattern |
| | 62. Perspective taking | Emerging ability to understand that others see things from a different view point and to anticipate what their view might be like; includes the ability to understand whether another person's action was intentional but is not the same as empathy for another person's emotions |
| | 63. Representation | Emerging ability to explain or show what self is thinking, how processed information, derived a solution or what has learned |
| | 64. Meta-cognition | Awareness of or the ability to reflect on or monitor one's own thought processes |
| | 65. Planning and intentionality | Emerging ability to develop and carry out plans for goal-directed activities; forethought |
| | 66. Flexibility | Emerging ability to change or adapt thought processes, including application of information/concepts previously learned to new situations, the ability to use skills in new ways, and adapting thought processes in response to changing or surprising situations |

| Domain and Sub-areas | Indicator | Operational Definition |
|---|---|---|
| General knowledge about the physical world | 67. Personal data | Information directly related to the child's life but not specifically about his/her own body (address, place where goes to school, size of family, information about family members, etc.; knowledge of own body would go under self-awareness or self-concept) |
| | 68. General knowledge of objects in the physical world | Knowledge of general properties of common objects in the world (i.e., colors, names of common objects and parts of objects such as animals, body parts, etc.) and knowledge of how to use objects such as tools |
| | 69. General knowledge of places in the physical world | Awareness or knowledge of concepts related to geography (where familiar landmarks or buildings are, how to get from one place to another, how the location of places can be represented on maps or in other ways) |
| | 70. Mathematics | General awareness or understanding of mathematics information and concepts such as numbers and operations, shapes, patterns, comparisons of objects, grouping and sorting objects, time, measurement, and data analysis (but not patterns) |
| | 71. Science | General awareness or understanding of the scientific process and science-related information/concepts in the areas of life science, physical science, and earth and space science |
| | 72. Arts | Interest in or awareness of knowledge and skills related to any of the arts and creativity related to the arts; can include participating in arts-related activities and using art-related experiences for creative expression but would not include approaching tasks other than the arts creatively (which is under Approaches); experiencing elements of the arts such as rhythm and learning about various forms of the arts (including creative and performing arts); |
| General knowledge about people | 73. Social studies | Understanding of family groups and roles, and other significant groupings of people, customs, etc., including history |
| | 74. Social conventions | Awareness or understanding of generally expected or prescribed ways for people to behave that relate to social conventions rather than rules for behavior (i.e., expectations related to politeness such as manners or other general expectations that are shared by the larger community) |
| | 75. Rules and expectations | Awareness or understanding of rules and behavioral expectations that are expected within the child's immediate world; includes understanding and following safety rules, taking care of possessions and other common rules, routines, and expectations in classroom environments |

# Appendix C

## *List of the Early Learning Guidelines Documents Included in the Content Analyses*

**Alaska**
Department of Education and Early Development and Department of Health and Social Services. (2006). State of Alaska early learning guidelines. Juneau, AK: Author. Retrieved from http://www.eed.state.ak.us/news/elg_guidelines.pdf

**Arkansas**
Arkansas Department of Human Services, Division of Child Care and Early Childhood Education. (2002). Arkansas framework for infant and toddler care. Little Rock, AR: Author. Retrieved from http://www.state.ar.us/childcare/bench.pdf

**Delaware**
Delaware Infant and Toddler Advisory Group. (2006). Delaware infant and toddler early learning foundations: A curriculum framework. Dover, DE: Delaware Department of Education. Retrieved from http://www.doe.k12.de.us/files/pdf/earlychildhood_infant-toddler.pdf

**Florida**
Florida Partnership for School Readiness. (2004). Florida birth to three learning and developmental standards. Tallahassee, FL: Author. Retrieved from http://www.floridajobs.org/earlylearning/downloads/pdf/birth_to_3book.pdf

**Georgia**
Georgia Department of Early Care and Learning. (2006). Georgia early learning standards. Atlanta, GA: Author. Retrieved from http://www.decal.state.ga.us/CCS/CCSServices.aspx?Header=67&SubHeader=&Position=18&HeaderName=Georgia%20Early%20Learning%20Standards

**Indiana**
Indiana Department of Education and Family and Social Services Administration. (2006). FOUNDATIONS to the Indiana academic standards for young children from birth to age 5. Indianapolis, IN: Authors. Retrieved from http://www.doe.state.in.us/primetime/pdf/foundations/indiana_foundations.pdf

**Iowa**
Iowa Department of Education and Iowa Department of Human Services. (2006). Iowa early learning standards. Des Moines, IA: Authors. Retrieved from http://www.iowa.gov/educate/content/view/681/805/1/2/

**Kansas**
Kansas State Department of Education. (2007). Kansas early learning. Topeka, KS: Author. Retrieved from http://www.ksde.org/Default.aspx?tabid=1741

**Kentucky**
Kentucky Department of Education. (2006). Building a strong foundation for school success: Kentucky's early childhood standards. Frankfort, KY: Author. Retrieved from http://www.kde.state.ky.us/NR/rdonlyres/120EF4AC-0621-4FBF-98BC-35688492E682/0/FinalFullVersionKYECS11306corrections.doc

**Louisiana**
Louisiana Department of Social Services/Office of Family Support, Louisiana Head Start Collaboration Office and Louisiana Team of the National Infant Toddler Project. (2005). Louisiana's early learning guidelines and program standards: Birth through three. Baton Rouge, LA: Louisiana Department of Social Services, Office of Family Support, Head Start Collaboration. Retrieved from http://www.dss.state.la.us/Documents/OFS/LAEarlyLearningGuide.pdf

**Maine**
Maine Department of Health and Human Services. (2006). Supporting Maine's infants & toddlers: Guidelines for learning & development. Augusta, ME: Author. Retrieved from http://www.maine.gov/education/fouryearold/guidelines.html

**Maryland**
Maryland State Department of Education, Division of Early Childhood Development, Office of Child Care. (2004; updated 6-21-07).Guidelines for healthy development and care for young children (Birth – three years of age). Baltimore, MD: Author. Retrieved from http://www.marylandpublicschools.org/MSDE/divisions/child_care/guidelines/

**Michigan**
Michigan State Board of Education. (2006). Early childhood standards of quality for infant and toddler programs. Lansing, MI: Author. Retrieved from http://www.michigan.gov/documents/mde/ECSQ-IT_Final_180649_7.pdf

**Minnesota**
Minnesota Department of Human Services and Department of Health. (2007). Early childhood indicators of progress: Minnesota's early learning guidelines for birth to 3. St. Paul, MN: Author. Retrieved from http://edocs.dhs.state.mn.us/lfserver/Legacy/DHS-4438-ENG

**Nebraska**
Nebraska Department of Education and Nebraska Health and Human Services System. (2006). Nebraska early learning guidelines for ages birth to 3. Lincoln, NB: Authors. Retrieved from http://www.nde.state.ne.us/ech/ELGuidelines/ELG_IT.pdf

**New Hampshire**
Child Development Bureau, Division for Children, Youth and Families, NH Department of Health and Human Services. (2005). New Hampshire early learning guidelines. Concord, NH: Author. Retrieved from http://www.dhhs.nh.gov/DHHS/CDB/LIBRARY/Policy-Guideline/learning-guidelines.htm

**Ohio**
Ohio Child Care Resource and Referral Association. (2006). Ohio's infant & toddler guidelines. Columbus, OH: Author. Retrieved from http://www.occrra.org/inf-todd/InfantToddlerGuides.pdf

**Oregon**
Oregon Department of Education. (2007). Oregon early childhood foundations. Salem, OR: Author. Retrieved from http://www.ode.state.or.us/search/page/?id=1408

**Pennsylvania**
Pennsylvania Department of Education and Department of Public Welfare. (2007). Pennsylvania learning standards for early childhood. Harrisburg, PA: Authors. Retrieved from http://www.pde.state.pa.us/early_childhood/cwp/view.asp?A=179&Q=101706

**Tennessee**
Tennessee Department of Education. (2004). Tennessee early childhood early learning developmental standards. Nashville, TN: Author. Retrieved from http://www.state.tn.us/education/ci/standards/earlychildhood/

**Washington**
The State of Washington. (2005). Washington state early learning and development benchmarks. Olympia, WA: Office of Superintendent of Public Instruction. Retrieved from http://www.k12.wa.us/EarlyLearning/pubdocs/EarlyLearningBenchmarks.pdf

## Abstract

States have recently begun to write infant-toddler early learning guidelines (ELGs)—documents that describe knowledge, skills, and characteristics caregivers should seek to facilitate in children younger than three years of age. This report analyzes the content of ELGs from 21 states to determine what areas of development and learning have been addressed, presents issues to consider, and provides recommendations for improving ELGs.

Findings suggest that states have broken their infant-toddler ELGs down using between one and seven age levels, and have typically organized their ELGs by developmental domains, with all but one state using the physical, social-emotional, and language/communication domains. Five states used academic subject–area headings within their infant-toddler ELGs. The content of the infant-toddler ELGs is spread relatively evenly across four of the developmental domains—physical, social-emotional, language, and cognitive development. Fewer infant-toddler ELGs addressed characteristics or skills within the approaches toward learning domain. There was a tendency for infant-toddler ELGs written for the ages of birth through 18 months to include more indicators related to physical and social-emotional development, while ELGs written for 19 to 36 months more often addressed the language and cognitive development domains. One significant finding related to the specific content of the ELGs was that very few states' ELGs explicitly mentioned the language and communication development of English language learners.

Recommendations are provided to improve the content of infant-toddlers ELGs. When writing infant-toddler ELGs, states should:

1) communicate content that is important for the infant-toddler period of development;
2) ensure that their ELGs explicitly support the development and learning of infants and toddlers from culturally and linguistically diverse families;
3) conduct content analyses on their draft ELGs;
4) examine the alignment between their infant-toddler ELGs and ELGs written for older children; and
5) plan carefully for professional development for caregivers using the ELGs.

Recommendations are also provided for additional research that is needed to further improve the content of infant-toddler ELGs.



### FOR MORE INFORMATION

Please contact:
**Catherine Scott-Little**
Human Development and Family Studies,
University of North Carolina at Greensboro,
248 Stone Building
Greensboro, NC 27402
(336) 256-0132
mcscottl@uncg.edu