Conceptualization of readiness and the content of early learning standards: The intersection of policy and research?

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Abstract

A content analysis of 46 early learning standards documents developed by state-level organizations and available for review in January 2005 was conducted to determine the specific areas of development addressed within the standards documents. The authors contend that this type of analysis is important because early learning standards that define expectations for children’s learning and development prior to kindergarten entry are, in essence, a reflection of how states are conceptualizing children’s readiness for school. Results suggest that early learning standards have emphasized the language and cognitive domains, and that specific areas within domains of learning and development, such as physical fitness, relationships and reading comprehension have been addressed relatively less often. Standards developed under the leadership of the state departments of education emphasized social–emotional and approaches toward learning domains less than standards developed under the leadership of other agencies. The authors suggest that the content of the early learning standards reflects a number of different factors, such as the views of persons involved in developing the standards, and in some cases may not be consistent with the research literature on children’s early learning and development. Implications for the standards development process and for future research are discussed.

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The concept of “readiness” has been elusive and hotly debated for over two decades (Kagan, 1990). Recently interest in the topic has taken on increased significance as practitioners and policymakers across the country have recognized the importance of specifying the knowledge, skills and characteristics children should learn/develop during their preschool years. States across the country have responded by developing early learning standards—documents that articulate expectations for children’s learning and development prior to kindergarten entry. These early learning standards differ from the program standards the field has traditionally relied upon to guide practice because they focus on specifications of what children should know and be able to do rather than recommended/required features of programs. The newer standards – early learning standards – are the focus of this content analysis.

While standards-based education has been part of the K-12 education arena for well over a decade, standards that focus on very young children’s learning and development are virgin territory for early care and education. As little as 5 years ago, only a handful of states had standards focusing on expectations for child outcomes. Virtually all of the early learning standards included in this analysis (45 out of 46) have been published since 1999, and two thirds (31 out of 46) have been published since 2003.

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This article provides results from a content analysis of 46 early learning standards documents. Analyses were performed to determine the nature of the content included in the early learning standards and whether differences in the content are associated with various characteristics of the context within which the standards were developed. The overarching purpose of this analysis was to provide a composite picture of the content of early learning standards developed by state-level organizations and to discern the extent to which the content of the early learning standards is consistent with research and theory on children’s learning and development. Implications for early childhood policy, practice and research are discussed in the final section.

1. The conceptualization of readiness

1.1. Readiness conceptualized within the child

Children’s chronological age has long been a basis for conceptualizations of readiness for school. Children are deemed “ready for school” when they reach the chronological age designated by their state’s lead education agency. Within this framework, it is assumed that the skills and knowledge needed for success in school are associated with age and children are therefore “ready” when they have reached the designated age (Cmic & Lamberty, 1994; Gredler, 1992). At issue is the relatively consistent finding that children who enter school at a later age typically outperform younger children within their grade cohort on a number of different indicators of school success, although the differences wane as time passes (Graue, 1993). Policy makers have responded to this issue by moving the eligibility date for starting kindergarten earlier, so that the cohort of entering kindergarteners is older. This does not, however, eliminate the fact that there will always be children with birth dates closer to the eligibility cut-off date who will be younger than their peers (and demonstrate lower levels of proficiency on a variety of measures during the first few years of school), no matter what date is selected for the eligibility cut off.

The maturational view of readiness for school assumes that chronological age is no guarantee that children will be ready for school. Instead, this view asserts that each child’s readiness for school is tied to his or her own biological timetable, which varies greatly from one child to another. Introducing children to school experiences before they are developmentally ready is counterproductive (Cmic & Lamberty, 1994; Gredler, 1992). Policy directives that emanate from this view of school readiness include readiness screenings to determine whether a child has reached a predetermined developmental level that indicates he/she is “ready” for formal schooling, and extra year or transition programs that provide children with an added year of early education before they move forward to more formal schooling. Troublesome at best and harmful at worst are the research findings that such readiness screenings have limited predictive validity for how children will perform later in school and that extra year programs have limited evidence that children benefit when their entry to school is delayed (Graue, 1993).
The conceptualization of school readiness as something that exists within the child focuses on readiness as a
determined set of skills and knowledge that are prerequisites for later success in school (Gredler, 1992). The idea is that
children who possess the requisite skills and knowledge before they begin formal schooling will be more successful
in school. An important issue within this conceptualization of readiness is the need to fully define the important skills
and knowledge, and to determine how to know when or if children possess the defined skills and knowledge. One
policy development related to this conceptualization of readiness has been the advent of early learning standards, the
subject of our research. We contend that as states develop early learning standards they are, in effect, defining the
skills and knowledge viewed as important for later success in school. This article examines how states have defined
school readiness through their early learning standards and whether their definitions have included skills and abilities
identified through research as being important for later success in school.

1.2. The social constructivist view of readiness

that social and cultural contexts can impact how school readiness is defined within families, schools and communities.
According to this view, there is no one absolute definition of “readiness.” Persons involved in the conceptualization
of readiness develop shared meanings of school readiness, and these shared meanings are shaped by the context
within which readiness is defined. Cultural, historical, institutional and political forces influence views on what skills,
knowledge and abilities are important for children’s success in school.

Research on parent and teacher beliefs about readiness suggests that adults’ views of readiness do vary. Studies
show that parents, preschool teachers and kindergarten teachers have some shared views of what is important for
children’s readiness and some differing views on the subject. Parents and teachers (both preschool and kindergarten)
seem to agree that it is important for a child to be healthy, socially competent, able to communicate effectively and
able to follow a teacher’s directions to be successful in kindergarten (Lin, Lawrence, & Gorrell, 2003; Wesley &
Buysse, 2003). Some studies, however, have shown that parents and preschool teachers place more emphasis on
academic competencies and basic knowledge, such as letters of the alphabet, than kindergarten teachers (Harradine &
that social–emotional and physical aspects of readiness are widely accepted as important, but there are differences in
the perceptions of parents and teachers on the importance of more academically related skills. These findings have
important implications for an examination of the content of early learning standards because such standards have
typically been developed within different political, economic and educational environments across the country and
by large groups of persons who represent different roles and perspectives related to children’s readiness for school.

Research and theory on conceptualizations of adult views on school readiness would indicate that the content of the
eyear learning standards – i.e., the specific skills and knowledge deemed important for children’s readiness – might vary
according to who was involved in the process of developing the standards and the context within which the standards
were developed.

1.3. A broader view of readiness

Building on the work of the National Educational Goals Panel, a broader conceptualization of readiness has
emerged within the literature. This broader view of readiness articulates the notion of school readiness not simply
as the skills and abilities that are important for children. In this view, readiness is a multi-faceted construct that
includes the capacity of families, early care and education programs, and the broader community to support children’s
early learning and development, and the capacity of schools to effectively educate children once they start school,
as well as characteristics of children (Kagan, 1990; NAEYC, 2002; NEGP, 1997, 1998; Scott-Little & Maxwell,
2000). Within this broader view of readiness, the particular skills and knowledge children bring to school are a
function of the “readiness” of the environments where they have been before starting school and the “readiness”
of the school where they enroll. Children’s skills and abilities are just one part of the equation and are dependent
on the support and stimulation they have experienced prior to coming to school. While the early learning standards
that are the subject of this article address one part of the school readiness equation – children’s skills and abili-
ties – this broader view of readiness extends well beyond the particular skills and abilities seen as important for
children.
2. Purpose of this study

Recognizing the divergent views regarding children’s readiness, in the 1990s the National Educational Goals Panel (NEGP) sought to provide some shared concepts and language to describe children’s readiness for school but even this national effort did not put an end to the debates. Once again the construct of readiness for school is being debated and re-defined within the policy arena, this time through the development of state-level early learning standards. While the NEGP set out purposefully to define school readiness, we contend that early learning standards are an important policy development and may, perhaps by default rather than intention, be shaping views on school readiness. It is, therefore, important to analyse and understand the content of these new standards documents. The content analysis presented in this article sheds light into how states are conceptualizing children’s school readiness through their early learning standards, factors that might be related to how school readiness is conceptualized and the extent to which the early learning standards reflect what is known through research on children’s success in school.

We sought to answer the following research questions:

• What domains of children’s development and learning have been included in the early learning standards?
• What specific elements of development have been included within the developmental domains addressed within the early learning standards?

In an effort to further understand the content of the early learning standards, we examined how various factors related to the context within which the early learning standards were developed were related to the content of the standards. Specifically, we tested whether differences in the content of the standards were related to the lead agency for the standards development process and/or the degree to which the early learning standards are linked to K-12 standards.

3. Methodology

3.1. Data collection process

The first step in the research process was to collect early learning standards documents developed by state-level organizations. For purposes of this study, “early learning standards documents” were broadly defined as documents that articulate expectations for children’s growth and development prior to kindergarten entry. Only early learning standards documents (or sections of standards documents) that addressed children’s development between the ages of 3 and 5 years were included. Some (n = 9) were targeted to 3- to 5-year-old children generally, others (n = 4) addressed this same age range but provided specific standards for each age level (i.e., 3–5-year-old). One state specified that their standards were applicable for children from the ages of 2.5 years through 5 years. Other states (n = 12) addressed “pre-kindergarten” or “4-year-old” children in their standards, while some (n = 11) addressed “3- and 4-year-olds.” Three states wrote their standards to define what children should be expected to know and be able to do at the end of pre-kindergarten, five states addressed expectations for children at the beginning of kindergarten and one state addressed expectations for children at the end of kindergarten.

The target audience for the standards documents was typically preschool or early care and education providers working with children between the ages of 3 and 5 years. Most (n = 35) states did not specify a particular program where the document would be used, but indicated that the hope was that the standards would be used in a variety of early care and education programs in the state. In these states, the documents often stated that the purpose of the early learning standards was to develop a shared understanding of expectations for children’s development and learning prior to kindergarten entry. In 11 states, the early learning standards document stated that the standards were intended to be used within the state’s publicly funded early care and education programs. Typically, the program was a state-funded...
pre-kindergarten program. Even in these states, however, there was a stated expectation that the standards would be used in a variety of other programs outside of the state-funded program. Clearly the expectation is that the early learning standards will be used across different types of programs serving young children.

3.2. Data coding process

3.2.1. The analytic framework

The National Education Goals Panel (NEGP, 1995) description of children’s readiness was selected as an analytic framework for coding the standards based on two considerations: (1) the need for a framework that was relatively widely accepted in the field and (2) the need for an analytic framework that would be applicable across a variety of approaches used by states to articulate standards. Given the difficulties the field has faced in defining the construct, the research team knew a research-based, widely accepted framework was needed. The NEGP framework was deemed to meet these criteria in a number of ways. The NEGP definition of school readiness was developed from a comprehensive review of child development and early education literature, involved extensive input and peer review from numerous experts within the field, and articulated aspects of children’s development known to be associated with later school success. Furthermore, data from an earlier analysis of standards documents (Scott-Little, Kagan, & Frelow, 2003a, 2003b) indicated that a number of states reported they had used the NEGP framework in developing their standards. Beyond the criteria of research-based and widely accepted, we also knew that the framework had to be sufficiently broad to accommodate a wide variety of approaches to developing early learning standards. The NEGP definition of readiness includes five broad domains and descriptions of specific skills, abilities and attributes that are included within each domain. The descriptions include both developmental characteristics as well as academic content knowledge and were, therefore, considered to be a framework that could accommodate the variety noted among the different state standards documents.

3.2.2. The coding scheme

Once the analytic framework was selected, the next step was to develop a coding schema. Each member of the research team carefully studied the NEGP (1995) definition of school readiness and developed a list of specific skills, knowledge and abilities described within the document for each of the five domains: physical well-being and motor development, social and emotional development, approaches toward learning, language and communication development and cognition and general knowledge. The individual lists were compared and a consensus process used to identify the key elements described within each domain. From this list, a set of indicator categories that could be used to code standards items was developed. For example, the physical domain was determined to include four basic indicator categories: (a) overall health and rate of growth, (b) physical fitness, (c) motor skills and (d) functional performance. Each of the five domains was broken down into indicator categories, such as these. The initial set of indicator categories was used to code several early learning standards documents in a pilot process. Based on results from the pilot, each indicator category was further explicated to provide a precise operational definition for the coding system. A few additional indicator categories were added to the coding scheme for language and communication development to more fully represent children’s early literacy development (phonemic and phonological awareness, comprehension related to literacy, book awareness and alphabet or letter recognition). The result was a total of 36 indicator categories distributed across the five domains. The indicators were piloted again and the operational definition for each of the 36 indicators was further refined to ensure that the persons coding the standards used a precise and consistent definition for what would be coded within each indicator. Appendix B provides a brief summary of the 36 indicators. Further information on the coding scheme is provided in Scott-Little, Kagan, and Frelow (2005).

3.2.2.1. Limitations of the coding scheme. This process for coding early learning standards has two primary limitations. The first limitation is the “unevenness” in the number of indicator categories across the domains. The language and communication domain, for instance, has 16 indicator categories while cognition and general knowledge has only 4. The result is that data for domains with a larger number of indicator categories provide a more precise understanding of the content included within that domain. The second issue is that the coding scheme contains both “developmental” and “academic” indicators and the two types of indicators are co-mingled within the five domains. This mix of developmental and academic indicators is a strength of the coding system. Early learning standards are articulations of expectations for what children should know and be able to do so they often reflect both academic content and developmental...
expectations that fall outside of the traditional realm of academic subject areas. The “mixed” coding system reflects the nature of children’s early learning and development and enables us to code both developmentally oriented standards and academically oriented standards. It does, however, make interpretation of the data more complicated. Because the two types of indicators are co-mingled within the five domains, it is difficult to precisely identify which indicators are “academic” and which are “developmental” (and also which sets of standards have more developmental orientations and which sets of standards are more academically oriented), although most academic content items have been coded within language and communication or cognition and general knowledge domains.

3.2.3. The data coding process

The 36 indicator categories were used to code each standards item from the 46 early learning standards documents. Because states varied tremendously in the way they constructed their standards documents (see Scott-Little et al., 2003a, 2003b), the team elected to code the “level” of the standards that provided the most specific description of expectations for children’s growth and learning within the document in order to ensure we represented the content of the standards documents to the fullest extent possible. The items coded for purposes of this content analysis were called a variety of titles within the standards documents themselves—standards, performance indicators, objectives, etc. The most specific level of standards items was coded, regardless of nomenclature used within the document. For instance, if a standards document provided “standards” and the “standards” were further explicated by “benchmarks” that more precisely identified the skills and abilities that exemplify a “standard,” we coded the content of the “benchmarks” because they were the most specific level within the document. The standards items were also coded independent of the subject heading or any other contextual information provided within the early learning document. We coded each standards item for only one of the 36 indicator categories within the coding scheme. While we recognize that various elements of young children’s development and learning are interdependent and that the content of standards items often reflect the multi-dimensional nature of development and learning, we elected to code each item for only one indicator to increase the reliability of the coding process. We developed a series of decision rules (see below) to guide the coding process, one of which addressed how to code standards that reflected more than one domain.

During the process of developing and operationally defining the coding scheme, the research team developed a series of rules to guide the coding process. These rules addressed coding of standards items when the appropriate indicator category was not self evident for a standards item. Examples of the rules included the following: (1) code the ends or desired outcome of a standards item and not the means of a standards item. For example, an item might refer to the use of vocabulary to demonstrate comprehension of a specified concept. Rather than coding the item as “vocabulary,” the item would be coded as cognition because the coding would reflect the primary objective of the item—children demonstrating knowledge of a concept. (2) Code the specific skill specified within a standard item rather than the academic subject area. In other words, coding for a standards item was based on the nature of the item rather than the subject or category where the item was located. If items focused on knowledge of specific properties, characteristics or facts related to the physical world, the item was coded as “physical knowledge.” If a standards item related to mathematics or high-order thinking about relationships (such as comparisons of how something is similar or different from something else), the item was coded as logico-mathematical knowledge. (3) If an item represented more than one domain indicator item, code the one that is deemed to be the primary emphasis within the standards item and if this is not self-evident, code the indicator that is appropriate for the skill that is mentioned first in the standards item. Other decision rules were developed to specifically guide the coding for standards related to social skills and to creativity and the arts. These are explained further in Scott-Little et al. (2005).

3.2.3.1. Reliability of the coding process

During the pilot phase of the study, two members of the research team worked together to operationalize the indicators and develop the coding rules discussed above. During this phase we determined that the persons coding the documents must meet a reliability criterion of 80% agreement before we could begin to code data that would be included in the data analyses. Once the coders had met the reliability criterion, the process of coding data that would be included in the study began. Reliability of the coding process was also examined periodically throughout the data coding process. Nine randomly selected documents (20% of the total number of documents) were coded by both individuals responsible for coding the standards items. The two sets of coded standards items for each standards document were compared for agreement. Reliability rates of agreement on the nine documents ranged from 83% to 100%, with an average of 89.78% agreement. In instances, where the two coders disagreed, consensus was reached on how the item should be coded and the consensus coding was used for purposes of data analysis.
3.2.4. Computing data for analysis

The number of items within the standards documents varied tremendously. While the mean number of standards items was 154.3 (S.D. = 84.5), the range was from 42 to 434. Data are provided on the number of items within various categories but because of the tremendous variation in the number of items, the data were also converted to percentages for analyses. Two basic types of percentages were calculated. First, the number of standards items coded for each domain was divided by the total number of items coded in the document to calculate the percentage of standards items across domains. This percentage is known as the breadth percentage for the standards document and reflects the distribution of standards items across the five domains. Second, the percentage of items for each individual indicator category within each developmental domain was calculated. For instance, in the physical domain the number of items coded as motor development was divided by the total number of items coded across all four of the physical indicator categories to yield a percentage of the physical items that addressed motor development. States in which no standards items were coded for a particular domain were excluded from this analysis. The resulting percentages are known as the depth percentage and reflect the degree to which each of the specific indicator categories within the domain are addressed within the standards document. The breadth and depth percentages for each state were entered into an SPSS 11.5 data file and checked for accuracy. Descriptive analyses were run and all outliers examined for accuracy prior to analyzing the data.

3.2.5. Operationalizing other variables

We were interested to see if differences in the content of the early learning standards might be associated with factors related to the standards development process. Specifically, we wanted to test whether the content of the early learning standards might vary by the agency with lead responsibility for developing the standards, or the degree to which the standards are directly linked to the state’s K-12 standards. To determine the lead agency for the standards development process, we carefully studied the front matter of each document to discern what agency had the lead for the standards development process. The lead agency for each document was dichotomized into “Department of Education” when the document indicated that it was developed and published under the leadership of the State’s Department of Education (n = 35) versus “other” (n = 11). States coded as “other” were states in which another agency, such as the state’s Department of Human Services, was responsible for development of the standards or some type of partnership (that could include the Department of Education along with other agencies) developed the standards. The lead agency indicated the two variables were not significantly related (Gamma = -0.119, p = 0.73), so the two variables were treated independently.

4. Results

The data were analysed to determine the degree to which each of the five domains has been addressed in the standards and the degree to which individual indicator categories within the domains have been addressed. Exploratory analyses were also conducted to determine if the content of the early learning standards was associated with variables related to the standards development process.

4.1. Breadth percentages: relative emphasis across the five domains

Table 1 shows the range in the number of items coded for each category and the mean percentage of standards items coded across each of the five domains. The category with the highest percentage of standards items was cognition and general knowledge, followed by language and communication development. Each of the 46 early learning standards
Table 1 Percentage of standards items in each of the five developmental domains across all states

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Range in no. of indicators</th>
<th>Mean percentage</th>
<th>Standard deviation</th>
<th>Range of percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical well-being and motor development</td>
<td>0–48</td>
<td>8</td>
<td>6.0</td>
<td>0–30.6</td>
</tr>
<tr>
<td>Social and emotional development</td>
<td>0–48</td>
<td>11</td>
<td>5.9</td>
<td>0–22.2</td>
</tr>
<tr>
<td>Approaches toward learning</td>
<td>0–55</td>
<td>12</td>
<td>6.5</td>
<td>0–24.0</td>
</tr>
<tr>
<td>Language and communication development</td>
<td>11–188</td>
<td>30</td>
<td>12.3</td>
<td>17.9–72.6</td>
</tr>
<tr>
<td>Cognition and general knowledge</td>
<td>11–220</td>
<td>39</td>
<td>12.3</td>
<td>7.0–71.9</td>
</tr>
</tbody>
</table>

Note: \( n = 46 \) standards documents.

documents addressed these two domains. The number of indicators coded as cognition and general knowledge ranged from 11 to 220 (mean = 62, S.D. = 41.9 and median = 52). The number of language and communication indicators ranged from 11 to 188 (mean = 47, S.D. = 34.0 and median = 37). The mean percentage of standards items addressing indicators within the cognition and general knowledge domain was 39%, over three times the percentage of items addressing the physical, social–emotional or approaches toward learning domains. The mean percentage coded within the language and communication domain was 30%, well over twice the mean percentage of items coded in the three other domains. In some states, over 70% of the state’s total number of standards items were coded as cognition and general knowledge or language and communication.

Social–emotional and approaches toward learning were the next most commonly addressed domains, with mean percentages of 11% and 12%, respectively. All of the documents except two had at least one standards item related to these two domains. The number of items coded as social–emotional ranged from 0 to 48 (mean = 17, S.D. = 10.6 and median = 16) and the number of items coded as approaches toward learning ranged from 0 to 55 (mean = 19, S.D. = 13.1 and median = 17). Physical well-being and motor development was addressed relatively less often. Six documents had no standards related to physical well-being and motor development, and the mean percentage of items coded within the physical domain was 8%. The number of items coded as physical well-being and motor development ranged from 0 to 48, with a mean of 11 (S.D. = 9.7 and median = 11).

One possible factor related to the noted emphasis on the cognition and language domains was the fact that some states have chosen to address only literacy and mathematics in their standards. These states might skew the overall distribution across the five domains because they did not address the physical, social–emotional or approaches toward learning domains. To explore this possibility, a second analysis was run to determine the distribution of standards in the 40 documents that addressed all five domains with at least one item. This analysis excludes six documents that did not address physical well-being and motor development (and also the two states that did not address social–emotional development or approaches toward learning). In effect, this analysis excludes states that might have had a very high percentage of standards items within the language and communication and the cognition and general knowledge domains simply because they did not address the other three domains. Results for these 40 documents indicate that while the percentage of standards items addressing language and communication was somewhat lower than the analyses that included all 46 standards documents, the mean percentages across the five domains were relatively similar to the percentages when all 46 documents were included (language and communication \( M = 27\% \), S.D. = 8.56%; cognition and general knowledge \( M = 39\% \), S.D. = 11.66%). Cognition and language were still the two domains addressed most often, followed by approaches toward learning \( (M = 13\% , S.D. = 6.11\%) \), social–emotional development \( (M = 13\% , S.D. = 5.23\%) \) and finally physical well-being and motor development \( (M = 9\% , S.D. = 5.49\%) \). Even within the documents that contained standards related to all five domains, the percentage of standards within the language and communication and cognition and general knowledge domains was larger.

4.2 Depth percentage: the distribution of standards within each domain

Table 2 provides the percentages of standards items coded for each of the indicator categories within the separate domains—the depth percentages. For purposes of these analyses, standards documents that had no items coded within a specific domain were omitted from the analysis of the domain. Table 2 provides the number of standards documents included for each of the domain depth analyses, the range in the number of standards items coded for each indicator and data related to the percentage of items. The data suggest that within the domains, specific elements of development
Table 2
Percentage of standards items by indicator within each developmental domain

<table>
<thead>
<tr>
<th>Indicator</th>
<th>No. of states with indicator</th>
<th>Range in no. of indicators</th>
<th>Mean percentage</th>
<th>Standard deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical health and motor development (n=40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor skills (gross, fine, oral, sensory)</td>
<td>39</td>
<td>0–29</td>
<td>60</td>
<td>16.7</td>
<td>0–46</td>
</tr>
<tr>
<td>Functional performance</td>
<td>36</td>
<td>0–19</td>
<td>24</td>
<td>20.1</td>
<td>0–100</td>
</tr>
<tr>
<td>Level of physical fitness</td>
<td>31</td>
<td>0–4</td>
<td>13</td>
<td>11.2</td>
<td>0–45</td>
</tr>
<tr>
<td>Overall health and rate of growth</td>
<td>8</td>
<td>0–6</td>
<td>3</td>
<td>6.4</td>
<td>0–25</td>
</tr>
<tr>
<td>Socio-emotional development (n=44)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social skills with peers</td>
<td>43</td>
<td>0–25</td>
<td>36</td>
<td>19.7</td>
<td>0–100</td>
</tr>
<tr>
<td>Expresses emotions appropriately</td>
<td>39</td>
<td>0–12</td>
<td>19</td>
<td>11.1</td>
<td>0–44</td>
</tr>
<tr>
<td>Self-concept</td>
<td>37</td>
<td>0–11</td>
<td>13</td>
<td>9.5</td>
<td>0–41</td>
</tr>
<tr>
<td>Comprenhends feelings of others</td>
<td>32</td>
<td>0–6</td>
<td>10</td>
<td>9.0</td>
<td>0–33</td>
</tr>
<tr>
<td>Social skills with adults</td>
<td>26</td>
<td>0–12</td>
<td>6</td>
<td>7.0</td>
<td>0–26</td>
</tr>
<tr>
<td>Ability to develop relationships—peers</td>
<td>24</td>
<td>0–6</td>
<td>6</td>
<td>12.8</td>
<td>0–49</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>27</td>
<td>0–3</td>
<td>6</td>
<td>5.8</td>
<td>0–22</td>
</tr>
<tr>
<td>Ability to develop relationships—adults</td>
<td>13</td>
<td>0–6</td>
<td>3</td>
<td>5.9</td>
<td>0–31</td>
</tr>
<tr>
<td>Approaches toward learning (n=44)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach to reflection and interpretation</td>
<td>39</td>
<td>0–27</td>
<td>35</td>
<td>24.2</td>
<td>0–100</td>
</tr>
<tr>
<td>Curiosity about new tasks and challenges</td>
<td>41</td>
<td>0–34</td>
<td>26</td>
<td>17.2</td>
<td>0–45</td>
</tr>
<tr>
<td>Capacity for invention and imagination</td>
<td>39</td>
<td>0–29</td>
<td>21</td>
<td>19.0</td>
<td>0–100</td>
</tr>
<tr>
<td>Initiave, task persistence, attentiveness</td>
<td>36</td>
<td>0–14</td>
<td>17</td>
<td>13.6</td>
<td>0–50</td>
</tr>
<tr>
<td>Language and communication development (n=46)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Verbal language</td>
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<td></td>
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<tr>
<td>Social uses of language</td>
<td>44</td>
<td>0–17</td>
<td>10</td>
<td>7.9</td>
<td>0–47</td>
</tr>
<tr>
<td>Creative uses of language</td>
<td>41</td>
<td>0–28</td>
<td>9</td>
<td>6.1</td>
<td>0–23</td>
</tr>
<tr>
<td>Speaking</td>
<td>41</td>
<td>0–23</td>
<td>6</td>
<td>4.9</td>
<td>0–25</td>
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<tr>
<td>Creative expression (non-verbal)</td>
<td>53</td>
<td>0–10</td>
<td>5</td>
<td>5.1</td>
<td>0–19</td>
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<tr>
<td>Listening</td>
<td>36</td>
<td>0–8</td>
<td>5</td>
<td>4.0</td>
<td>0–14</td>
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<td>Questioning</td>
<td>25</td>
<td>0–7</td>
<td>2</td>
<td>2.1</td>
<td>0–7</td>
</tr>
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<td>Non-verbal communication</td>
<td>12</td>
<td>0–5</td>
<td>1</td>
<td>1.5</td>
<td>0–6</td>
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<tr>
<td>Early literacy skills</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing process</td>
<td>43</td>
<td>0–29</td>
<td>11</td>
<td>7.5</td>
<td>0–31</td>
</tr>
<tr>
<td>Print awareness</td>
<td>43</td>
<td>0–17</td>
<td>11</td>
<td>7.1</td>
<td>0–36</td>
</tr>
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<td>Vocabulary and meaning</td>
<td>26</td>
<td>0–17</td>
<td>9</td>
<td>5.1</td>
<td>0–26</td>
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<td>Phonemic and phonological awareness</td>
<td>42</td>
<td>0–21</td>
<td>7</td>
<td>5.1</td>
<td>0–24</td>
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<td>Alphabet awareness</td>
<td>41</td>
<td>0–7</td>
<td>6</td>
<td>4.5</td>
<td>0–19</td>
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<tr>
<td>Literature awareness</td>
<td>38</td>
<td>0–29</td>
<td>5</td>
<td>4.3</td>
<td>0–17</td>
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<tr>
<td>Comprehension of stories, etc.</td>
<td>32</td>
<td>0–18</td>
<td>5</td>
<td>5.0</td>
<td>0–22</td>
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<tr>
<td>Book awareness</td>
<td>34</td>
<td>0–6</td>
<td>4</td>
<td>3.6</td>
<td>0–19</td>
</tr>
<tr>
<td>Story sense</td>
<td>35</td>
<td>0–15</td>
<td>4</td>
<td>3.1</td>
<td>0–14</td>
</tr>
<tr>
<td>Cognition and general knowledge (n=46)</td>
<td></td>
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<td></td>
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<tr>
<td>Logic-mathematical knowledge</td>
<td>46</td>
<td>1–129</td>
<td>44</td>
<td>13.6</td>
<td>18–79</td>
</tr>
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<td>Knowledge of the physical world</td>
<td>46</td>
<td>2–62</td>
<td>33</td>
<td>13.6</td>
<td>8–73</td>
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<td>Social knowledge</td>
<td>43</td>
<td>0–20</td>
<td>14</td>
<td>9.2</td>
<td>0–43</td>
</tr>
<tr>
<td>Social-conventional knowledge</td>
<td>39</td>
<td>0–25</td>
<td>8</td>
<td>5.5</td>
<td>0–20</td>
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</table>

have been covered more extensively than others. Please note that if a state had a very small number of standards items coded within a particular domain, the depth percentage for the item(s) that were coded will be very high (i.e., if there was only one item coded within a domain, the depth percentage for that item is 100%). Table 2 indicates that within the physical domain, motor skills and functional performance/self-help skills have been the subject of far more standards items than the other two indicators within this domain. Overall health has been addressed much less often. While 39 of the standards documents that addressed physical health and motor development had at least one standard that addressed motor skills, a total of 32 of these 40 standards documents had no standard
related to general health. Physical fitness has also been addressed in relatively fewer standards within the physical-motor domain. Nine of the 40 standards documents with standards within the physical domain had no standard to address physical fitness. Examination of the number of standards items coded within these four standards indicators reveals a similar pattern. While states had as many as 29 indicators to address motor skills and 19 indicators to address functional performance/self-help skills, the largest number of standards items any state had to address physical fitness was 4 and the state with the largest number of standards items related to overall health had 6 items in this category. The mean percentage of standards items addressing motor skills was 60% (S.D. = 16.7%), followed by self-help or functional performance with a mean percentage of 24% (S.D. = 20.1%). The mean percentage of items addressing physical health was 3% (S.D. = 6.4%).

Social skills with peers was the indicator category most often reflected in standards items within the social–emotional domain (see Table 2). Social skills with peers was addressed in at least one item in 43 out of the 44 standards documents that had standards coded within the social–emotional domain and the mean percentage of standards items coded for this indicator was 36% (S.D. = 19.7%). The ability to express emotions appropriately and self-concept were the next most commonly addressed indicators, but the range in the number of items and the mean percentage for items coded within these two categories was half or less than the items coded as social skills with peers. Social skills with adults (M = 6%), relationships with peers (M = 6%), relationships with adults (M = 6%) and self-efficacy (M = 3%) were the indicator categories least addressed within the social–emotional domain. While the category for social skills with peers was addressed relatively often, relatively few standards documents addressed children’s abilities to form relationships within their standards. Thirty-one out of 44 standards documents had no standards coded in the relationships with adults category, and 20 standards documents had no standards items coded as relationships with peers.

The approaches toward learning domain (Table 2) exhibited a relatively higher degree of balance in coverage across the four indicator categories within the domain. Although reflection and interpretation was the indicator category addressed in the largest mean percentage of standards items within approaches toward learning (M = 35%, S.D. = 24.2%), the mean percentage of standards that addressed curiosity was 26% (S.D. = 17.2%) and the mean percentage of standards items that addressed capacity for invention and imagination was 21% (S.D. = 19.0%). The initiative and task persistence category was addressed somewhat less often (M = 17%, S.D. = 13.6%) within approaches toward learning, but 36 out of 44 standards documents included at least one standard for this area.

The language and communication domain consists of 16 indicator categories, the largest number within any of the five domains. Conceptually, the 16 indicators fell into two categories: (a) verbal language and communication and (b) early literacy skills. While the percentages were calculated across all 16 indicators, Table 2 shows the indicator categories grouped within these two categories. Each of the standards documents included at least one item related to this domain, so all 46 standards documents are included in this analysis. Within the verbal language and communication indicator categories, social uses of language was addressed in the highest percentage of standards (M = 10%, S.D. = 7.9%), followed by creative uses of language (M = 9%, S.D. = 6.1%). Non-verbal communication and questioning were the indicator categories addressed the least (M = 1% and 2%, respectively). Within emergent literacy, writing (M = 11%, S.D. = 7.5%), print awareness (M = 11%, S.D. = 7.1%) and vocabulary (M = 9%, S.D. = 5.1%) were the categories most often addressed. Story sense, comprehension, literature awareness and alphabet awareness were each addressed on average in less than 6% of the standards within the language domain. While no standards document had a standards item coded within each of the indicator categories, almost all of the documents addressed social uses of language (n = 44 of 46 documents), writing awareness (n = 43) and print awareness (n = 43). A total of 20 of the documents had no standards related to vocabulary and 14 of the documents had none related to comprehension. Non-verbal communication was the indicator category most likely to be omitted from the standards documents—only 12 out of 46 documents had at least one standards item coded in this category.

Cognition and general knowledge consists of four indicator categories and, on average, almost 80% of the cognitive standards items were coded as either knowledge of the physical world or logico-mathematical knowledge (see Table 2 for details). Every standards document had at least one item addressing each of these two indicator categories. The range in the number of items within these two categories was, however, quite large, with one standards document having as few as 1 item within logic-mathematics and another having as many as 129 within this category. Within cognition, social knowledge about roles, cultures, etc., was addressed in an average of 14% (S.D. = 9.2%) of the items and knowledge of social conventions, such as rules was addressed the least (M = 8%, S.D. = 5.5%). While all states addressed the first two categories, three states did not have a standard item coded as social knowledge and seven states had no standards item coded as social–conventional knowledge.
4.3. Factors associated with differences in the content of early learning standards

To determine if the content of the early learning standards differed by the factors described above, a series of analyses of variance were conducted to compare the percentage of standards items coded across the five domains (physical well-being, social-emotional, approaches toward learning, language and communication, and cognition and general knowledge). Prior to the main data analyses, the data were screened for outliers and normality of distribution. There were no obvious outliers, and Levene’s test for equality of variances was computed and no significant differences were found. Therefore, homogeneity of variance was assumed. Because multiple analyses were conducted, a Bonferroni adjustment was performed (0.05/number of comparisons), and the alpha was established at 0.01. Eta squared analyses were used in each case when a significant result was obtained in order to test the practical significance of the results. The following criteria were used for interpreting the significance of the eta squared statistics: less than 0.06 is small, 0.06–0.15 is medium and greater than 0.15 is large (Huck, 2004).

Two-way ANOVAs with lead agency and linkage to K-12 standards as independent variables were conducted. We hypothesized that standards developed under the leadership of the state’s department of education and standards directly linked to the state’s K-12 standards might have lower percentages of standards in the physical well-being and motor development, social-emotional development and approaches toward learning domains because these domains are traditionally considered to be less academic. We also hypothesized that standards developed by departments of education and directly linked to K-12 standards would include relatively higher percentages of standards coded within the language and cognition domains. Furthermore, we hypothesized that there might be an interaction effect, with standards developed under the leadership of the state’s department of education and directly linked to the state’s K-12 standards having lower percentages of standards coded within the physical, social-emotional and approaches toward learning domains. Results from the two-way ANOVA analyses indicated that all interaction effects were non-significant (with $F$'s ranging from 0.69 for cognition to 4.78 for physical well-being). Therefore, the main effects for the two factors were examined.

For physical well-being, language and communication, and cognition and general knowledge, the two way ANOVA results indicated non-significant main effects for both lead agency and linkage to K-12 standards. For the social-emotional domain [$F(1,42) = 8.09, p = 0.007$, partial eta squared = 0.16, observed power = 0.56] and the approaches toward learning domain [$F(1,42) = 18.16, p = 0.007$, partial eta squared = 0.36, observed power = 0.57], there was a significant main effect for the lead agency. Standards developed under the auspice of the state’s department of education included significantly lower percentages of items coded within the social-emotional domain ($M = 10.2$ compared with $M = 15.2$) and within the approaches toward learning domain ($M = 10.5$ compared with $M = 16.2$). While all observed mean percentages of standards within the five domains differed in the manner we hypothesized, the differences were statistically significant for only two of the domains – social-emotional development and approaches toward learning – and for only one of the independent variables—lead agency.

5. Discussion

Over a decade ago, Kagan (1990) argued that the concept of readiness is replete with challenges – conceptual and practical – and that “readiness remains poorly defined and variously interpreted. Practically, it is mired in confusion, with practitioners and policymakers advancing widely differing positions regarding [readiness] and related issues” (p. 272). After decades of debate, the concept of children’s readiness for school is, in essence, being defined by states through the early learning standards they have developed. The readiness concept that theorists, researchers and early education professionals have lingered over for nearly a century is being operationalized in the policy arena.

Based on the results of this content analysis, it appears that children’s readiness for school is being defined as specific sets of skills and knowledge that contribute to children’s later success in school. While the notion of children’s readiness for school being linked to their chronological age is still operational – states continue to have eligibility age/birth date cut offs for kindergarten – clearly the view of readiness as a prerequisite set of skills is receiving a great deal of attention. While the maturationist view of readiness continues to be important in decisions made for individual children – examples of children being “red shirted” from kindergarten abound – in the policy arena the focus has been on defining the skills, abilities and knowledge we hope to promote as children grow and develop during the years before kindergarten. The question at hand is whether the emerging conceptualization of school readiness reflected in early learning standards is consistent with current views of readiness and what we know about children’s early learning and development through research and theory. As states have developed standards to define important skills and knowledge
expected of children, do the early learning standards they have articulated reflect the early childhood research literature? How does the focus on children’s skills and knowledge fit within the broader conceptualization of readiness that suggests that “readiness” is much more than the skills and knowledge children have when they enter kindergarten? We address these important questions, along with implications for policy, practice and future research, in this section.

5.1. Early learning standards, research and the conceptualization of readiness

Data from this analysis suggest that not all states have consistently reflected early childhood research and theory in the content of their early learning standards. The early learning standards developed by states are decidedly slanted toward the language and cognition domains. The mean percentage of language and communication and cognition items is well over twice the mean percentage of standards items that address the physical, social–emotional or approaches toward learning domains. Yet it is widely understood from research and theory that preschool children’s development and learning is multi-dimensional and that the various areas of development are inextricably linked—learning and “readiness” are a product of children’s development in all five domains (Crnic & Lamberty, 1994; NEGP, 1995). Early learning standards that emphasize one or two domains of children’s learning at the expense of other domains do not reflect knowledge gained from decades of research on children’s development and learning.

The relative lack of attention to children’s social and emotional development is particularly noteworthy. From infancy through adolescence, there is clear and convincing evidence that social-emotional capacities are important. We see from the work of Bowlby (1969), Ainsworth (1982) and more recent researchers that, beginning as early as infancy, relationships form the foundation for future development (National Research Council & National Institute of Medicine, 2000). Later school success is dependent on children’s development of self-regulatory behaviors, self-understandings, a sense of security and social relationships with peers and adults during the preschool years (Child Mental Health Foundations, 2000; Crnic & Lamberty, 1994; Espinosa, 2002; Ladd, 1990; McClelland, Morrison, & Holmes, 2000; Raver, 2002; Thompson, 2002). States that have chosen to emphasize academic content without paying attention to social-emotional development may be ignoring a specific set of skills and abilities that are particularly important of later school success as they have operationalized their concept of school readiness.

One can hypothesize a number of explanations for the marked emphasis on language and communication and cognition and general knowledge—the domains traditionally considered to be more academically oriented. For example, some domains may lend themselves more to standards or be more easily observed/measured than others. Skills and abilities that fall under the cognitive or language domain may be easier to articulate in the form of standards than those of other domains, such as approaches toward learning. Indeed, the NEGP definition of school readiness and the coding system used for this analysis include more indicators for language and communication than any other domain. However, the cognition and general knowledge domain—the domain that was the subject of the highest percentage of standards items—has only four indicators in the coding system. The number of standards items coded within a particular domain reflects the relative emphasis placed on that domain regardless of the degree of specificity with which the domain has been operationalized in the coding system. Another possible explanation for this finding is that standards developers in states where early learning standards are directly linked with K-12 standards may find it difficult to justify including standards related to physical development, social-emotional development or approaches toward learning if there are no corresponding standards within the K-12 document. Finally, the marked emphasis on more academically oriented content may be the result of the content from older grades being “pushed down” into the pre-kindergarten years. As pressure mounts to increase student achievement levels in later grades, one result could be that the expectations of the later grades are simply being introduced earlier and earlier and, as a result, the standards that define what is expected of pre-kindergarten children may reflect a “push down” of kindergarten expectations rather than development of standards designed for pre-kindergarten children. Clearly, a number of factors might impact the content of the early learning standards. Research suggests that it is important that all five domains are represented in a meaningful and significant manner within the early learning standards. Some states have standards that reflect this research base and others do not.

5.2. Specific areas addressed within the domains

In addition to these implications for the breadth or balance of standards across the five domains, findings from the analysis of specific indicators addressed within each of the five domains also have important implications. In assessing
the specific indicators covered within the domains, we focused on implications of what had been left out more than the balance of standards across the specific indicators. Our analyses indicated that several important areas of children’s development have been omitted from some of the early learning standards.

5.2.1. Physical well-being and motor development

A long-standing and rich research literature from the medical, educational and developmental fields has established that a child’s physical health and well-being lays the foundation for future development and learning (NEGP, 1995). Yet this area has been addressed, on average, in less than 9% of the early learning standards items. The physical standards that have been included typically have focused on children’s motor development and self-help skills. Little attention has been paid to children’s general health and nutrition status, nor to children’s overall level of physical fitness, strength and stamina. This is significant, particularly given the growing concerns about childhood obesity rates (American Academy of Pediatrics, 2004; Black, 2004). The lack of attention to physical fitness in the standards, and therefore the possible lack of attention to physical activity in preschool programs, is a concern shared with K-12 educators as physical fitness has received less emphasis in the later grades.

5.2.2. Social and emotional development

Within the conceptualization of readiness operationalized through the early learning standards, social–emotional development has largely been defined in terms of social skills and the ability to control emotions or respond appropriately when angry. The ability to form peer and adult relationships, separate from the development of social skills, has been addressed in only about eight percent of the social–emotional standards. Yet the research literature cited above suggests that relationships are the foundation for future learning and development. This evidence suggests that the degree to which the social–emotional domain has been addressed in the standards should be examined, and the particular social–emotional abilities that are being addressed should also be considered in order for early learning standards to promote a holistic and balanced conceptualization of readiness.

5.2.3. Approaches toward learning

Learning related skills – commonly known as approaches toward learning – have also emerged in the research literature as important prerequisites for success in school (Bronson, 1994; Cooper & Farran, 1988; McClelland & Hansen, 2001; McClelland & Morrison, 2003; McClelland et al., 2000). Within this research literature, however, the constructs that comprise children’s approaches toward learning and the empirical support for particular elements of approaches toward learning have received varying levels of support. Within the standards that have addressed approaches toward learning, the standards are relatively equally spread across the four indicator categories in the domain—curiosity, task persistence, reflection and imagination. This suggests that while the domain overall has been the subject of relatively few standards, standards developers have recognized the importance of each of these areas of approaches toward learning.

5.2.4. Language and communication development

Within the language and communication domain, standards items were relatively evenly distributed across the 16 indicator categories. There were, however, examples where states have not addressed skills research suggests are important. Recent work by the National Early Literacy Panel (2004) provides data on skills and abilities that are predictive of children’s later success in learning to read. The panel conducted an extensive literature search and a careful analysis of the resulting research studies. Preliminary results from their analysis indicate a set of skills that have relatively strong empirical support to suggest they are related to later reading abilities. These skills include alphabet knowledge, concepts about print, phonological awareness, invented spelling, oral language, reading comprehension, the ability to write one’s own name and the ability to recognize and name letters quickly. It follows that it would be important for early learning standards to include these early literacy skills. However, data from the content analysis indicate that a significant number of standards documents have not addressed one or more of the early literacy indicator categories included within the coding scheme. Fourteen states had no standard related to comprehension and five states have not addressed alphabet awareness. Four states have omitted standards related to phonemic/phonological awareness and three states have not addressed print awareness. Likewise, standards for writing were absent in three standards documents. Areas identified through other research on the process of learning to read (Whitehurst & Lonigan, 1998, 2001) that have been left out of standards documents include vocabulary development (omitted in 20 states),
book awareness (omitted in 12 states) and a sense of how stories progress (omitted in 11 states). This analysis suggests that standards developers should carefully examine the content of their standards to verify that all skills and abilities deemed important for children’s later reading success have been addressed.

5.2.5. Cognition and general knowledge

The cognition and general knowledge domain has been emphasized more than the other domains and, within the domain, knowledge of the physical world and logico-mathematical knowledge were the focus of the vast majority of the standards items (total mean percentage over 80%). These two indicator categories encompass skills and knowledge most commonly associated with formal schooling—factual knowledge about a variety of subject areas, ability to sort objects, ability to recognize and duplicate patterns, etc. Clearly these are important for children’s success in school, and they have been emphasized.

It is interesting to note the lack of attention to social–conventional knowledge, which, for purposes of this coding scheme, included following agreed-upon rules and routines within the classroom. When asked what is important for success in school, understanding of and ability to follow socially agreed upon conventions, such as rules is an area that parents and teachers stress and kindergarten teachers overwhelmingly identify as an area where children have trouble in their transition to kindergarten (Rimm-Kaufman, Pianta, & Cox, 2000). Yet relatively few standards items addressed this ability. Given the fact that standards should be used to guide instruction and daily interactions, the lack of attention to social conventions may have important implications.

5.3. The content of early learning standards and the process of defining school readiness

Results of our analyses provide some support for the social–constructivist view of the conceptualization of school readiness. Early learning standards developed by states vary on a number of features, including the number of standards in the documents, the degree to which each domain was covered and the degree to which they addressed each of the 36 indicator categories. In short, the standards exhibit extraordinary variability along a number of dimensions and these differences may be indicative of differences in the process that has been used to develop the standards.

In an effort to begin to understand factors that might be associated with differences in how states have defined their early learning standards (and by de facto, how they are conceptualizing children’s readiness for school), we examined whether the content of the early learning standards varied by the degree to which the state department of education had leadership for the standards development process, and the extent to which the early learning standards were directly linked to the state’s K-12 standards. Standards in states where the state’s department of education led the development process and standards in states that were directly linked to the state’s K-12 standards had lower percentages of standards items in the physical, social–emotional and approaches toward learning domains and higher percentages of standards items in the language and cognition domains. These differences, however, were not true for all standards documents, only statistically significant when the state department of education was the lead agency, and only for the social–emotional and approaches toward learning domains. The limited number of statistically significant differences is perhaps a function of the small sample size. It is also possible that the variables used are gross proxies for contextual differences associated with the states’ standards development process and simply were not sensitive enough to ascertain important differences between states that could impact the content of the standards.

Despite these limitations, examination of these variables does provide clues about factors that may influence the early learning standards states developed and, by default, how readiness is being defined within states. The data suggest that it may be important to look more closely at the process of developing early learning standards in order to understand the content of the standards. Most states have engaged in a highly participatory process to develop their standards, including a variety of stakeholders in the decision-making process. This inclusive approach could shed light on the reason states vary so drastically in the content of their early learning standards. We know, for instance, that teachers and parents have somewhat different perspectives on readiness. These differences are probably magnified when persons from such a wide range of roles, knowledge of child development and experience are included in the process of developing early learning standards.

Extrapolating from the social–constructivist theoretical perspective, one can begin to understand why the content of early learning standards varies across the states. On the broader level, each state has a unique historical, political, institutional and policy context within which the early learning standards are developed. States vary in the history of their early childhood systems, the infrastructure available to support early childhood programs, the role of the state

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department of education in early childhood services and the factors or policies that lead to the development of early learning standards. In some states, the early learning standards are being developed in response to a political directive and are ultimately intended to be used as part of an accountability system. In other states, the early learning standards are being developed as a response to perceived or expressed needs on the part of teachers for guidance in teaching, not as part of an accountability system (Scott-Little & Martella, 2006). Indeed, states vary dramatically in the impetus for developing early learning standards, the policy context within which the standards are developed, and in the nature of the early care and education settings of environments in which the standards will be implemented.

The observed variation in early learning standards that articulate skills and characteristics considered important for children to develop in preschool comes as no surprise. Indeed, the content of early learning standards likely reflects a combination of institutional and individual factors that influence the definition of children’s readiness. The question is how much variation is acceptable and what is the role of early childhood research and theory in shaping the content of early learning standards. What are the consequences of standards when the content does not reflect the holistic nature of children’s learning and development or leaves out important specific skills, such as vocabulary, relationships or physical fitness? An open and inclusive process for developing standards has many benefits and is an important part of the development of standards. When a variety of stakeholders are involved in developing the standards, the standards reflect the values and views of the persons who will be using the standards. This, in turn, facilitates “buy in” and the likelihood that they will be implemented. Likewise, leadership from various organizations is important for the process, and early learning standards should be linked in some way to K-12 standards. Yet it is imperative that states carefully examine the content of their standards to ensure they reflect the most current research and theory on children’s development and learning.

6. Conclusions and implications

The potency of early learning standards to impact the nature of our early care and education programs and the development and learning of young children should not be underestimated (Kagan & Scott-Little, 2004). The readiness concept is being operationalized in numerous policy arenas—through state early learning standards, through the Head Start Child Outcomes framework, and through model standards developed by professional organizations, such as the National Council of Teachers of Mathematics. The fragmented nature of the early care and education system and our country’s decentralized approach to K-12 education have contributed to the current situation where each state has developed its own set of early learning standards. The impetus for these documents has primarily originated from policy or accountability-driven initiatives. Results from this content analysis suggest several important implications for the development of early learning standards and for research.

6.1. Implications for policy and practice

Practical implications from the findings of this study relate to the process of developing the standards. Given that the early learning standards appear to be policy-level conceptualizations of school readiness and that views of school readiness vary from person to person, it is important that the development process continue to include input from a variety of stakeholders. Each stakeholder group brings a unique understanding of what is important for children’s readiness for school and can make an important contribution to the shared conceptualizations of school readiness that are evolving through the development of early learning standards. At the same time, there must be a mechanism for ensuring that the early learning standards reflect the current knowledgebase related to children’s learning and development. It is important that research be used to guide the development of early learning standards and that a formal analysis process be used to examine the degree to which the standards reflect the child development and early
Childhood literature. This process of validating the content of standards against research and theory is important to ensure that standards reflect "significant and developmentally appropriate content" (NAEYC & NAECS/SDE, 2002).

It is equally important that policies and practices within the field continue to reflect the broader notion of readiness. Children are only one part of the readiness "equation" and should not be the sole focus of efforts to define what is important related to readiness or to promote school readiness. In addition to developing early learning standards, states must continue to work toward strengthening families, early care and education programs, the community and schools in the quest to promote school readiness.

6.2. Implications for future research

Given the potential importance of early learning standards, research is needed to better understand the content of the standards and factors that contribute to how standards are articulated and used. To examine the content of early learning standards, future research should utilize a more refined coding system to analyse the content of early learning standards. Research on the content of early learning standards could also more explicitly examine the extent to which early learning standards reflect research on children’s early learning and development. This type of analysis could be accomplished by examining the extent to which research citations are provided for early learning standards and/or through a validation process that examines the degree of consistency between what is stipulated in early learning standards and the research literature relative to the topic addressed in the standards.

Further research is also needed on factors that might impact the content of standards. Examples include research to examine the relationship between the content of the standards and the composition of the committee charged with developing the standards. This type of analysis might find that the content of the early learning standards varies by the proportion of members of standards development committees who are teachers, parents, school personnel, child care personnel, etc. Early learning standards developed by committees that are more heavily slanted toward teacher perspectives, toward particular types of service delivery systems, etc., might differ. Additional research on factors that impact the content of standards should also more closely examine the institutional and policy factors that incepted and have an ongoing impact on the standards development process. The content of the early learning standards might vary by the type of policy directive that was the impetus for the standards development process (for example, whether the process was mandated or voluntary), the degree to which states intend to hold programs accountable for child outcomes and/or the degree to which early learning standards will be linked to assessment systems to collect data on child outcomes. Clearly, early learning standards are becoming an increasingly important element of the early care and education system and further research is needed to more fully understand the content of the standards and factors that may impact the nature of the content.

Beyond research on the content of early learning standards, further research is needed to examine how early learning standards are impacting practice. The primary stated purpose of the early learning standards is to guide teachers in their instruction (Scott-Little et al., 2003a, 2003b; Scott-Little & Martella, 2006). Given this, what impact are the early learning standards having on the curriculum and daily practices used in the classroom? Furthermore, is the use of early learning standards associated with improved child outcomes? Do children in classrooms where teachers use the standards as a basis for planning and instruction have children who are more "ready" for success in school? These and other important issues warrant further investigation in light of the significant policy and practice implications early learning standards have for the field.

Results from this content analysis and other research on early learning standards raise the question of who is and who should be defining the concept of school readiness within the field of early care and education. Early learning standards seem to be operationalizing the concept of readiness by de facto. The fact that these de facto definitions of readiness are being developed and implemented largely within the policy arena rather than the educational or research arena has important implications. It is critical that we examine the content of the early learning standards and consider the degree to which they reflect what we know about children’s learning and development from research and theory. The process of defining children’s readiness, long debated, has now taken on very important implications within a high-stakes policy arena.

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Appendix A

A.1. State standards documents included in the analysis


California Department of Education (2001). Desired Results for Children and Families: Developmental Continuum of Desired Results, Indicators, and Measures for Children from Birth to 12 Years and Families Served by CDD-funded Center-based Programs and Family Child Care Home Networks.


Georgia Office of School Readiness (2004). Georgia’s Pre-K Program Content Standards.


Indiana Department of Education (2002). Foundations for Young Children to the Indiana Academic Standards.


Nebraska State Department of Education (2004). Nebraska’s Early Learning Guidelines 3 To 5 Year Olds.


New Mexico State Department of Education (2004). *Performance Standards and Benchmarks for Three and Four Year Olds.*

The University of the State of New York & The State Education Department (2002). *Early Literacy Guidance Prekindergarten—Grade 3.*


Wyoming Department of Education. *Early Childhood Readiness Standards.*

Appendix B

B.1. Indicators used for coding standards items

Domain: Physical well-being and motor development

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

II. Physical abilities
   3. Motor skills (gross, fine, oral, sensory).

Domain: Social and emotional development

I. Social development
   5. Social skills with adults (includes ability to communicate with adults).
   6. Ability to have relationships with adults.
   7. Social skills with peers (includes social skills necessary to cooperate with peers).
   8. Ability to form and sustain reciprocal friendships with peers.

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

Domain: Approaches toward learning

I. Learning styles
13. Openness to and curiosity about new tasks and challenges (predisposition to explore and experiment).
15. Approach to reflection and interpretation.
16. Capacity for invention and imagination.

Domain: Language and communication development

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

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

Domain: Cognition and general knowledge

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

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

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