



State Early Childhood Policy Technical Assistance Network

Measuring Children's School Readiness: Options for Developing State Baselines and Benchmarks

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Network Resource

About the State Early Childhood Policy Technical Assistance Network (SECPTAN)

State decision-makers face awesome challenges in developing public policies. They must balance competing demands across broad issue areas, with finite resources. They must respond to diverse political pressures while seeking solutions that ultimately best reflect societal values. They must be good stewards of public resources, requiring accountability based upon efficiency and effectiveness.

State decision-makers must do all this under time and resource constraints that often make securing credible information to inform their decision-making problematic. Particularly for early childhood issues, there often are not recognized and easily available sources for the most current evidence in the field.

The State Early Childhood Policy Technical Assistance Network (SECPTAN) was created to assist these state decision-makers in the important area of accessing the best available information and evidence about effective policies and practices on early childhood issues.

The Child and Family Policy Center administers SECPTAN, which is funded through the joint efforts of the Ford Foundation, the Kauffman Foundation, and the Packard Foundation. SECPTAN currently operates in the seventeen states that are part of the School Readiness Indicators Initiative, a companion grant administered by Rhode Island Kids Count.

One aspect of SECPTAN's work is to make current information about early childhood policy initiatives readily available to state policy makers. This paper was developed to assist states contemplating or actively developing kindergarten assessments. Jana Martella, Robert McCall, and Sam Stephens provided valuable comments on an earlier version of the paper.

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Measuring Children’s School Readiness: Options for Developing State Baselines and Benchmarks

What do children in our state look like when they start school? How ‘ready’ are they across the five domains of school readiness?

Which children face particular challenges to learning as a result of their status on these domains of school readiness?

Which schools face particular challenges to learning as a result of the proportion of the students starting school at a lower status on these domains?

How can we know whether our efforts in the pre-school years are making progress in improving children’s readiness for school?

How can we know if our early elementary education efforts are ‘closing the gap’ for students who start school with challenges to learning as a result of their school readiness status?

It has been thirteen years since the President and the nation’s Governors established the first National Education Goal, that “all children start school ready to learn.” During that period, the importance of the earliest years of life has been much better recognized, and states and the federal government have established new initiatives focused upon early childhood and improving school readiness.

At the same time, however, there is no recognized measure of school readiness in broad use that can describe the developmental status of children at the time of school entry. As a result, there is little baseline information that can be used to answer the questions described above or develop benchmarks for improving school readiness.

This paper outlines the current thinking and work in the field on developing baselines and benchmarks for measuring a child’s school readiness and options for states in developing such systems.

The Context for Developing Statewide School Readiness Measures

Currently, there is no shortage of assessment instruments for measuring child development at the time of school entry. There exists a wide array of tools, tests, and observational assessments to measure a child’s development at different ages. Some have been designed to measure a specific aspect of child development (social and emotional, language, physical, etc.) and others have been multi-dimensional in scope. Many have

been very well validated. In general, however, most of these assessment instruments have been developed for purposes related to the individual child's education: (1) for screening for participation in specific programs, (2) for diagnosis of special needs or gifts and subsequent specialized instruction or treatment, or (3) for assistance in general school and classroom instruction.¹

varied, uneven, and rapid and not amenable to "point in time" characterization with long-term meaning, and (3) stigmas apply to holding children back or labeling that have negative impacts upon their educational development.⁴

The reaction against prior uses of readiness assessments has resulted in a reluctance to

State-level efforts to assess children have been described as "a pendulum swinging from standardized measures ... in the mid-1980s," (whose purpose often was to make decisions on whether children should start school) to "limited readiness testing in the mid-1990s."²

While screening to determine school entry still occurs in the United States, education researchers generally agree that such practice is not beneficial for children and assessments should not be used for this purpose.³ There are at least three good reasons for this determination: (1) the tools employed were not multi-dimensional or were not conducted in ways to discriminate well among individual children, (2) child growth and development at this stage is widely

establish statewide developmental assessment policies for children at school entry and the limited use of statewide school readiness assessments today. At the same time, however, there are clear differences in seeking to establish

baselines and benchmarks for school readiness for the purpose of assessing the overall status of children around the age of school entry than there are in seeking to establish assessments for individual children for use in their education.

Principles in Developing School Readiness Assessments

Recognizing that assessments are needed but also must be appropriately designed and applied to serve the purposes for which they

Definitions:

Baseline: A measure at a point in time that can be used as a basis for comparison with future points in time.

Benchmark: A specific target for that measure to be achieved at a specific future point in time.

are intended, the Early Childhood Assessments Resource Group of the National Education Goals Panel established a set of principles that should guide both policies and practices for the assessment of young children:

- Assessments should be tailored to a specific purpose and should be reliable, valid, and fair for that purpose.
- Assessment policies should be designed recognizing that reliability and validity of assessments increase with children's age.
- Assessments should be age-appropriate in both content and the method of data collection.
- Assessment should bring about benefits for children.
- Assessments should be linguistically appropriate, recognizing that to some extent all assessments are measures of language.
- Parents should be a valued source of assessment information, as well as an audience for assessment results.⁵

A 2001 Institute for School Readiness Assessment Symposium elaborated on how to insure these principles are incorporated into practice, including how assessments can best respond to English language learners and how assessments can recognize young children's attention spans and differing manners of expression.⁶

Recognized Purposes for Assessments

These principles apply to any assessments, regardless of their purpose. As stated earlier, assessments can serve different purposes. The Resource Group also outlined four different categories of purpose for assessments:

- assessments to support learning
- assessments for identification of special needs
- assessments for program evaluation and monitoring trends, and
- assessments for high stakes accountability.⁷

The first two of these four purposes relate to the assessment for classroom and instructional purposes and involve applications of the assessments to specific children. "High stakes" accountability assessments refer to both child- or school-specific measures used to assess performance for accountability purposes. The Resource Group specifically recommended that "high stakes" accountability assessments not be applied before age 8 due to the limited accuracy of measures on an individual child basis and not used for accountability purposes "until the end of third grade (or preferably fourth grade)."⁸

The third purpose, assessments for program evaluation and monitoring trends, covers statewide school readiness baseline assessment baselining and benchmarking that is the subject of this paper. The Resource Group concluded that:

- Beginning at age five, it is possible to provide a reliable assessment of child learning outcomes, on an aggregate basis, for this purpose.
- Such large scale assessment data must meet high standards of technical accuracy.
- Given costs and time, it is likely to be infeasible to collect data at every grade level, and one grade, preferably kindergarten, should be selected for this purpose.
- Methods, such as a matrix sampling (a statistical technique where each participating child takes only part of the total assessment), can be employed as a safeguard against the inappropriate use of assessment information.
- Child assessments should be augmented by demographic characteristics (especially first- and second-language status, age, and pre-school experience).⁹

The Resource Group warned that “only under special circumstances would it be possible to serve more than one purpose with the same assessment, and then usually at greater cost, because the technical requirements of each separate purpose must still be satisfied.”¹⁰

Issues and Options for States in Developing School Readiness Baselines

There are several fundamental issues and options that states must address in developing statewide school readiness baselines and benchmarks. These generally involve trade-offs, particularly in terms of cost, time, and reliability. They include:

- the year or years for which the assessment will be conducted and the frequency of the assessment
- the level (individual elementary school, district, region, or state) at which comparative information is to be collected
- the method by which the assessment will be performed and the personnel who will be administering the assessment
- any other uses to which the assessment might apply.

Assessment Year and Frequency.

Generally, it is not likely to be possible to perform an assessment of children in a state that has access to all children at any time prior to their age of entry into school. There simply is no universal or near universal point of contact for children from birth to the point they enter school that can provide developmental information on the five domains.

It would be possible to conduct assessments for any individual school year (kindergarten, 1st grade, 2nd grade, etc.), but the cost of conducting an assessment for statewide baselining and benchmarking and for comparing different districts or schools is likely to be prohibitive for more than one grade level, as substantial information must be gathered for each school. In fact, it may be more realistic to conduct assessments that can yield school-specific information on a biennial rather than an annual basis (although these could be supplemented by statistical sampling in other years).

The Resource Group expressed a preference for assessments at kindergarten, although the Group also recognized that this requires developing a strategy for including both private and public kindergarten in order to cover the universe of children, particularly

Issues:

- selection of school year
- determination of frequency (annual, biennial, etc.)
- inclusion of all children, public and private

in states where a significant proportion of kindergarten-age children are not enrolled in public programs or where a significant number are home-schooled.¹¹

Desired comparative analyses. Statistical sampling of students for participation in an assessment can reduce overall costs and help insure that the assessments are not used for inappropriate purposes, as there is no way to apply them as a universal screening tool. At the same time, if information about the status of children at individual elementary schools is desired, it may not be possible to statistically sample students, particularly if any sub-analyses (such as looking at English language learners separately) is desired. Alternatively, if the desire is for comparative data only at the school district level, statistical sampling may be possible, and stratification of a sample may be able to insure that sub-analyses (such as looking at different ethnic groups) is possible. In developing any sampling

Issues:

- identification of the level (statewide, district-wide, elementary school) at which comparative data are to be collected
- identification of the different population groups (by race/ethnicity, age, gender, participation in free-and-reduced-price lunch, etc.) and cross-tabulations by those groups at which comparative data are required
- identification of the confidence levels required for evaluation

technique, including using matrix sampling, it is necessary to identify the confidence levels needed for the sample and to consult with statisticians in developing a protocol for developing that sample. There are sophisticated data collection and analysis techniques that can help to minimize costs and increase reliability, but these require technical expertise to employ.

Assessment methods and personnel.

Obviously, there are a variety of assessment tools available for use with very young children, but assessment of young children is not amenable to the types of testing that can be administered to older children.

Assessments of young children are best conducted through and benefit from naturalistic interactions and observations, as children interact with ‘real life’ situations. Interactions with young children must be relatively brief in time span and in settings where the child is at ease. Where possible, they should be supplemented by parent reports. Assessment strategies that are conducted solely at a single point in time may provide accurate information on an aggregate basis for children assessed on some indicators, such as determining receptive vocabulary. Point-in-time assessments may be insufficient on others, such as determining social interactions with peers. The latter may be determined best by observations over a period of time. To oversimplify, there are two different types of

assessment techniques that can be used with young children — observation and interview/test. Examples of each are shown in Table One.

There are certain advantages to having personnel from outside the school conduct the assessments, as they can be trained and employed specifically for that purpose. As these personnel would be conducting assessments across different schools, this would help ensure cross-school comparability of assessment results. Assessments by outside personnel could more easily be organized to implement a matrix sampling system.

At the same time, there are certain advantages to having teachers conduct the assessments, particularly if the assessments are done at least six weeks to two months into the school year. Teachers have the benefit of observing children over that period of time, and presumably have developed a familiarity and comfort level with their students so that it is possible to insure the child focuses on the assessment at hand or select times when the child is receptive to assessment.

Teacher administered assessments raise a number of challenges, however. Although teachers continuously assess their students to provide appropriate guidance and instruction, conducting an assessment for

Table One Assessment Techniques

Outcome Area: Child Uses Gross Motor Control at Consistent Level

Observations:

Teacher observes child on playground and ranks child in relation to engaging in multiple activities requiring coordinated whole body movement (skipping, galloping, balancing, climbing) and using whole body movement with equipment (using a ball, playground equipment)

Interviewing/Testing:

Assessor asks child to perform different tasks (running, skipping, climbing) and use different equipment in large motor activities and records activity

Outcome Area: Child Demonstrates Effective Social Functioning

Observations:

Teacher observes child in classroom and ranks child in relation to joining groups and engaging in one-to-one relationships, asking for help at appropriate times, making efforts to resolve conflicts with others, and sustaining effort in group activities

Interviewing/Testing:

Assessor establishes group activity requiring participants to assume various roles and creating specific challenges, recording participants' ability to assume roles and deal with challenges and setbacks

Outcome Area: Child Demonstrates Understanding of Basic Conversational Vocabulary

Observation:

Teacher observes child in classroom, including communications with teacher, and ranks according to child's response to name, one- or two-step directions, and general understanding of different vocabularies

Interviewing/Testing:

Assessor checks receptive vocabulary through having student name pictures of common objects on twenty picture cards and completing several two-step directions.

Note: The term "teacher" is used for the *observation* section because the observation is generally expected to occur over the course of several weeks. The term "assessor" is used for the *interviewing/testing* because this is performed at a specific point in time. The teacher could also be the assessor in the latter instance, and an outside assessor could conduct observations, although likely over a shorter time period (e.g. a day) than a teacher.

baselining and benchmarking purposes is not their primary concern. At a minimum, teachers require training to administer assessments consistently. Even so, individual teachers are likely to administer and rate children somewhat differently. They may draw distinctions among students based upon the mix of students they have in their particular classroom rather adhering strictly to the assessment instrument norming. This limits the reliability of cross-classroom and cross-school comparisons. Further, if the results of assessments are used in any way to influence school policies or practices, teachers may bend their results in ways they feel will be favorable to their schools and their preferred practices.

Clearly, there are options for having some portion of an assessment conducted by external personnel and some portion of an assessment conducted by teachers.

In addition to these general issues, there also are issues in how assessments should be performed for English language learners. Alternatives include providing that assessment in the child's primary language (which will likely require an outside assessor for many children, if the teacher is not fluent in the child's native language), excluding those children from the assessment, or addressing their assessments in a different manner.

Issues:

- use of observation vs. use of interviewing or testing: Point-in-time assessments versus assessments made over longer time periods
- cross-school assessment comparability
- external assessments vs. teacher assessments
- matrix sampling vs. full child assessment
- assessment training and protocols
- assessing English language learner children

Other assessment uses. Clearly, a statewide assessment conducted of a relatively small, random sample of students conducted by trained assessors external to individual schools is largely limited to baselining and benchmarking uses. Its nature leaves it largely free from concerns that its results will be inappropriately used at the expense of individual students. At the same time, however, it represents a stand-alone activity whose costs must be justified solely in terms of the benefits it provides by producing baselines and benchmarks. While there is increased interest in assessment, securing new funds for such an assessment activity may prove difficult in some states.

Alternatively, teachers benefit from having good assessments of their students,

particularly if they also have good information and guidance on what to do to help students improve in domains where they are behind their peers. The better the assessment process, the more likely it is to be of help to the teacher, identifying opportunity areas that the teacher otherwise might have missed. While teachers are continuously assessing their students, they often can benefit from more systemic approaches to that assessment.

Clearly, there are trade-offs in designing an assessment system for establishing reliable baselines alone or for seeking to combine that with uses for instructional purposes. There likely is some sacrifice of comparability across schools in seeking to serve dual purposes, as well as some increase in the possibility of inappropriate use of the assessment. Alternatively, there can be real gains to the instructional process, by providing teachers with new knowledge and skills in helping their students achieve. Moreover, if teachers are to be gathering assessment information, they are more likely to be diligent in that work, and not simply adhering to minimal requirements, if they believe it will help them in their teaching.

Clearly, these issues and options are not independent from one another. It likely will not be financially possible for a state to initiate a full-scale assessment solely using

Issues:

- building an independent system or incorporating into school teacher activities
- trade-offs between greater objectivity and greater potential for improved classroom instruction and guidance

independent, outside assessors, when all children must be assessed in order to have school and classroom information. If comparability across school districts is essential and will be used for making major decisions on where to deploy funds, some level of independent assessment or validation of teacher assessment ratings is likely to be necessary.

To simplify, there exist three possible approaches to developing a statewide school readiness assessment: an outside assessor model, a classroom teacher assessment model, and a hybrid model. A hybrid model could use classroom teachers to conduct the majority of the assessments of children, while outside assessors would be brought in for selected matrix sampling around outcome areas most amenable to point-in-time interviewing or testing. The outside assessments could be used both in the overall assessment and as a validity check on the teacher observations and assessments.

State Experiences and Findings

Several reviews of state school readiness assessment activities have been conducted recently, including a fifty state review for the 1999-2000 school year by the National Center for Early Development and Learning and SERVE¹² and a state review of the 2001-2 school year by *Education Week*.¹³ Thirteen states (Alabama, Alaska, Arkansas, Florida, Louisiana, Maryland, Minnesota, New Mexico, New York, North Carolina, Ohio, Tennessee, and Utah) in the NCEDL and SERVE study reported they conduct statewide screening or assessment, although many covered only limited domains of child development and some provided options to the local districts on the instruments they would use. *Education Week* reported that six states required statewide testing of kindergartners to gauge school readiness (Alaska, Louisiana, Maryland, Missouri, New Mexico, and Ohio).

To date, each state has developed its own version or versions of a school readiness assessment, although these assessments tend to have more in common than have differences.

Three state reports — from Maryland¹⁴, Missouri¹⁵, and Vermont¹⁶ (not listed by NCEDL/SERVE or *Education Week* but implementing a statewide assessment) — are evidence both of these similarities and

differences. Each relies upon teacher observations, although Missouri's is augmented by background information provided by parents and Vermont's includes a "schools ready for children" assessment as well as a child assessment.

Terminology and Methodology. Table Two provides some information regarding the three state assessment tools.

As shown in Table Two, each of the states uses observational measures that largely are based on a three-level categorization scheme. Vermont's is the closest in making use of the five domains of school readiness established by the National Education Goals Panel, but all assessments are multi-dimensional and generally address those five domains. Maryland also has a longer set of assessment indicators that is organized around the five domains.¹⁷ Each uses several different observations to measure a particular domain. As Table Three at the end of this report shows, there is a great deal of similarity in the actual indicators employed by the three states, although they may be organized under different domains and use different terminology.

Findings. All three reports identified significant variations across students on each domain they assessed. For each state, at least ten percent of students generally were assessed into the lowest category of

Table Two
Maryland, Missouri, and Vermont
Assessment Approaches

	Maryland	Missouri	Vermont
Dimensions/(#indicators)	Physical Development/ Health (4)	Physical Development (5 y/n)	Physical Health and Well- being (5)
	Social and Personal Development (4)	Working with Others (7)	Social and Emotional Development (6)
	Language and Literacy (6)	Communication (19)	Communication (3)
	Mathematical Thinking (4)	Learning to Learn (9)	Approaches to Learning (8)
	Scientific Thinking (4)	Symbolic Development (7)	Cognitive Development/ General Knowledge (5)
	Social Studies (4)	Mathematics/Physical Knowledge (10)	
	The Arts (4)	Conventional Knowledge (10)	
Categorizations	Proficient	Almost Always	Performing Independently
	In Process	Occasionally/Sometimes	Practicing
	Needs Development	Not Yet/Almost Never	Beginning
		Yes/No for Physical Development and General Cognition	Seldom/Sometimes/Often for Some Physical Health

development, although this varied both by domain and by state. Maryland provided a composite score, that showed seven percent of students were in the “needs development” stage, forty-four percent in the “in process”

stage, and forty-nine percent in the “proficient” stage. The manner in which the three states reported their findings did not provide for comparability across the states, however, nor did it generally provide a simple

answer to the question, “What proportion of students start school ‘ready to learn’?” (A subsequent report from Maryland did conclude, from these assessments, that less than half of all students were “fully ready to do kindergarten work.”¹⁸)

Maryland and Missouri also disaggregated their data by gender, race, poverty (as measured by participation in free-and-reduced-price lunch), ESL, and special education participation. These showed significant differences among students on these designations, with boys, minorities, students participating in the free-and-reduced-price lunch program, ESL students, and special education students assessed at lower levels of developmental preparedness than their peers. Schools with high proportions of free-and-reduced-price lunch participation rates also had significantly lower assessment scores for their students as a whole than schools with lower proportions. Some cross-tabulations suggest that minority status and poverty had independent relationships to developmental status at kindergarten entry.

In all three states, the assessments also have been used by teachers in better understanding the areas they must focus on in their classrooms generally, and with individual students, in particular. In fact, while the initial assessment was conducted in the first few weeks of the school year, teachers often have

followed up with similar observational assessments at other times during the school year in order to gauge progress and make subsequent adjustments in their teaching.

While these findings are not unexpected, they do point to areas needing greater attention, both in developing strategies in the early years to improve children’s readiness for school and for developing strategies in the early elementary years to address gaps that exist at the time of school entry.

Implications and Discussion

One of the goals of the School Readiness Indicators Initiative is to take leadership in developing a set of indicators for use by states in measuring school readiness, potentially making recommendations regarding a set of indicators that can be commonly used and comparable across states.

Clearly, one of the areas of exploration for indicators relates to children’s developmental status at the time of school entry. This paper has outlined a set of options and issues that states need to consider in developing such indicators, as well as providing some information from several current state assessments. It should be noted that, although the assessment

tools currently employed by Maryland, Missouri, and Vermont are different, they are sufficiently similar that it should be possible to construct a composite assessment instrument from them that could provide each state with an assessment that is generally equivalent to what it now is collecting. Such an assessment tool also could be organized into categories that correspond to the five developmental domains. A training system and strategy also could be developed that would provide a preferred way of preparing teachers for administering the observational assessment.

In addition, a hybrid assessment model might be developed that involves both teacher observations and some outside assessment interviewing or testing, which might improve the confidence in obtaining cross-school comparability.

Some of the questions related to assessment development are technical and scientific, such as developing indicators and measurement strategies that are reliable, valid, and comparable across schools and communities. Others, however, are political and value-based, such as whether the measurement strategies should serve instructional as well as baselining and benchmarking purposes and whether political will can be created to secure the necessary resources to implement an effective assessment system.

To date, states such as Maryland, Missouri, and Vermont have designed their systems independently. In some instances, they have done so through involving kindergarten teachers and other educators, which has helped build support and ownership in their states. National work also has furthered the knowledge base on assessment tools and their application to baselining and benchmarking.

There currently is an opportunity to build upon this work through more collective efforts among states. The School Readiness Indicators Initiative is in a logical position to take leadership in collective state work – either in developing or recommending a core assessment system for states' use or providing opportunities for states to share their work and learn from experts in the field in developing baselining and benchmarking assessments that meet their needs.

Through the School Readiness Indicators Initiative, there is the opportunity for a joint state effort to build upon this work. Jointly developing an assessment system has potential benefits in sharing resources to that end, but it also must have states with the political will to implement such an assessment. In some instances, the process of developing an assessment within a state also has been a means for developing the public will for its use.

ENDNOTES

¹ A good compilation of these assessment instruments is found in: Niemeier, Judith and Catherine Scott-Little. *Assessing Kindergarten Children: A Compendium of Assessment Instruments*. Greensboro, NC: SERVE at the University of North Carolina: 2001.

² Saluja, Gitanjali, Catherine Scott-Little, and Richard Clifford. "Readiness for School: A Survey of State Policies and Definitions," *Early Childhood Research and Practice* 2:2 (Fall, 2000).

³ Mehaffie, Kelly and Robert McCall. *Readiness for Kindergarten: A Brief Report*. University of Pittsburgh Office of Child Development; Pittsburgh, PA. April, 2002.

⁴ The Early Childhood Assessments Resource Group to the National Education Goals Panel emphasized that "young children are notoriously difficult to assess accurately, and well-intended testing efforts in the past have done unintended harm." Goal 1 Early Childhood Assessments Resource Group (Lorrie Shepard, Sharon Lynn Kagan, and Emily Wurtz, eds.). *Principles and Recommendations for Early Childhood Assessments*. National Education Goals Panel: February 1998.

⁵ *Ibid.* p. 5-6.

⁶ SERVEing Young Children. *Institute for School Readiness Assessment Systems: Making Them Work for All Children*. October 22, 2001.

⁷ Goal 1 Early Childhood Assessment Group, *op. cit.* p. 7.

⁸ *ibid.* p. 31.

⁹ *ibid.* p.27.

¹⁰ *ibid.* p. 7.

¹¹ *ibid.* p. 27.

¹² Saluja, Scott-Little, and Clifford, *op. cit.*.

¹³ Doherty, K.M. "Quality Counts 2002: Building Blocks for Success." *Education Week*, October 15, 2002.

¹⁴ Maryland State Department of Education. *Children Entering School Ready to Learn: School Readiness Baseline Information School Year 2001-2002*. Annapolis, MD: 2002.

¹⁵ Missouri Department of Elementary and Secondary Education. *School Entry Assessment Project: Report of Findings*. 1999.

¹⁶ Report on Vermont's "School Readiness Assessment Initiative": 2000-2001.

¹⁷ Maryland Model for School Readiness (MMSR) (www.mdk12.org.instruction/ensure/MMSR/MMSRDE1_1.htm).

¹⁸ Leadership in Action Program. *Achieving School Readiness: A 5-Year Action Agenda for Maryland*. Report to the Subcabinet for Children, Youth and Families: Annapolis, MD, October, 2002. P 3.

Table Three
Comparison of School Readiness Indicators
Used in Three State Assessments

The following table provides a listing of the different items that are included in each of the three state school readiness assessment instruments. These items are organized into the five general domains of school readiness. Where possible within each domain, they are grouped according to a descriptor or indicator that generally describes what they are assessing. As the table shows, states often employ similar or identical items and have items for many of the same indicator areas, although each has its own, unique items and indicator areas.

The table illustrates that, while there is much commonality across the three state assessment instruments, there are many specific differences, including the length of the assessment itself. The variations limit the ability to compare results across them.

Domain	Indicator	Maryland	Missouri	Vermont
Health and Physical Development	(1) Displays self-help and self-care skills and hygiene	“Performs self-care tasks competently” <i>(Physical Development & Health)</i>	“Practices personal hygiene” <i>(Physical Development)</i>	“Demonstrates self-help skills” <i>(Physical Health & Well-being)</i>
	(2) General physical health; any problems or concerns		“Is physically active” and “Appears to be healthy” <i>(Physical Development)</i>	“Child’s ability to learn appears inhibited by illness, fatigue, hunger, emotional issues” <i>(Physical Health & Well-being)</i>
	(3) Displays fine motor and gross motor skills	“Moves with balance and control” and “Uses eye-hand coordination to perform tasks effectively” <i>(Physical Development & Health)</i>	“Demonstrates gross motor skills” and “Demonstrates fine motor skills” <i>(Physical Development)</i>	
	(4) Other	“Shows beginning understanding of and follows health and safety rules” <i>(Physical Development & Health)</i>		

Domain	Indicator	Maryland	Missouri	Vermont
Emotional Well-Being & Social Competence	(1) Interacts or cooperates well with other children	“Interacts easily with one or more children” (<i>Personal & Social Development</i>)	“Works cooperatively with others in a give-and-take manner” and “Shares resources” (<i>Working with Others</i>)	“Can meet/play with different children” (<i>Social & Emotional Development</i>)
	(2) Interacts well with adults		“Uses adults as resources” and “Initiates conversation with familiar adults” (<i>Working with Others</i>)	“Interacts positively with adults” (<i>Social & Emotional Development</i>)
	(3) Expresses thoughts, feelings to others			“Appropriately expresses emotion” (<i>Social & Emotional Development</i>)
	(4) Displays problem-solving and/or conflict resolution skill		“Suggests appropriate solutions to conflicts” (<i>Working with Others</i>)	“Uses problem-solving skills in social situations” (<i>Social & Emotional Development</i>)
	(5) Other		“Shows sensitivity and respect for others” (<i>Working with Others</i>)	“Separates easily from caregiver” & “Adapts to transition” (<i>Social & Emotional Development</i>)
Approaches to Learning	(1) Shows interest and/or curiosity in new activities		“Shows curiosity and interest” and “Explores and tries new things” (<i>Learning to Learn</i>)	“Appears enthusiastic” and “Is curious” (<i>Approaches to Learning</i>)
	(2) Shows initiative and/or self-direction in activities	“Shows initiative and self-direction” (<i>Personal & Social Development</i>)	“Makes choices” and “Stays focused and productive when working/playing in a group or independently” (<i>Learning to Learn</i>)	“Persists with self-directed activity” and “Initiates activity in the classroom” (<i>Approaches to Learning</i>)
	(3) Uses others as resources		“Uses adults as resources” and “Uses peers as resources” (<i>Working with Others</i>)	“Knows how and when to use adults” (<i>Approaches to Learning</i>)

Domain	Indicator	Maryland	Missouri	Vermont
Approaches to Learning, continued	(4) Other		“Shows pride in accomplishments” and “Copes with frustrations and failures” (<i>Learning to Learn</i>)	“Uses a variety of problem-solving strategies” and “Pays attention” (<i>Approaches to Learning</i>)
Language Development / Communication Skills	(1) Understands and/or follows directions or rules	“Follows classroom rules and routines” (<i>Personal & Social Development</i>)	“Follows directions” (<i>Communication</i>)	“Follows simple rules” and “Understands simple directions” (<i>Approaches to Learning, Communication</i>)
	(2) Verbally communicates needs, thoughts, feelings, and questions	“Speaks clearly and conveys ideas effectively” (<i>Language & Literacy</i>)	“Talks about what he or she is learning” and “Uses language to communicate ideas, feelings, questions, or to solve problems” (<i>Learning to Learn, Communication</i>)	“Communicates needs” and “Engages in conversation” (<i>Communication</i>)
	(3) Uses written symbols, shapes, letters to convey meaning	“Uses letter-like shapes, symbols, letters, and words to convey meaning” (<i>Language & Literacy</i>)	“Scribbles with intended meaning” and “Uses some letters in writing” (<i>Communication</i>)	
	(4) Recognizes and/or writes own name	“Uses letter-like shapes, symbols, letters, and words to convey meaning” (<i>Language & Literacy</i>)	“Recognizes first name in print” (<i>Communication</i>)	“Recognizes name in print” (<i>Cognitive Development / General Knowledge</i>)

Domain	Indicator	Maryland	Missouri	Vermont
Language Development / Communication Skills, continued	(5) Displays grasp of the concept of letters and words (reading)	<p>“Shows some understanding of concepts about print” and “Comprehends and responds to fiction and non-fiction texts” (<i>Language & Literacy</i>)</p>	<p>“Responds to texts,” “Recognizes that there is a relationship between letters and sounds,” and “Recognizes that written spellings represent spoken words” (<i>Communication</i>)</p>	<p>“Understands purpose of books” (<i>Cognitive Development / General Knowledge</i>)</p>
	(6) Employs language and art to express feelings and create	<p>“Uses a variety of art materials to explore and express ideas and emotions” (<i>The Arts</i>)</p>	<p>“Uses language to pretend or create,” “Represents ideas and feelings through movement,” “Represents ideas through construction,” “Talks about his/her creations,” and “Uses art to convey feelings and ideas” (<i>Symbolic Development</i>)</p>	
	(7) Other	<p>“Gains meaning by listening” and “Demonstrates basic phonemic awareness” (<i>Language & Literacy</i>)</p>	<p>“Responds to questions,” “Shows interest in books,” “Uses picture cues and/or context cues to construct meaning from text,” “Exhibits book-handling skills,” “Reads environmental print,” “Identifies letters in the alphabet,” “Uses letter-sound correspondence to write,” “Reads simple books,” and “Shares writing with others” (<i>Communication</i>)</p>	

Domain	Indicator	Maryland	Missouri	Vermont
Cognition and General Knowledge	(1) Uses classroom materials appropriately	“Uses classroom materials purposefully and respectfully” <i>(Personal & Social Development)</i>	“Takes responsibility for belongings (puts materials away)” <i>(Learning to Learn)</i>	“Uses pencils, crayons, and brushes” <i>(Cognitive Development & General Knowledge)</i>
	(2) Shows basic knowledge of shapes, colors, and numbers	“Shows understanding of number and quantity” and “Recognizes and describes some attributes of shapes” <i>(Mathematical Thinking)</i>	“Recognizes some basic shapes,” “Identifies basic colors,” “Recognizes and names some numbers to 10,” “Counts by rote to 10,” and “Writes some numbers” <i>(Conventional Knowledge, Mathematical Physical Knowledge)</i>	
	(3) Engages in creative, imaginative activities	“Participates in creative movement, dance, and drama,” “Participates in group music experiences,” and “Responds to artistic creation or events” <i>(The Arts)</i>	“Represents ideas and feelings through movement,” “Creates or responds to music,” “Uses play themes,” and “Takes part in interactive play with others” <i>(Symbolic Development)</i>	“Engages in imaginative play” <i>(Cognitive Development & General Knowledge)</i>
	(4) Other	“Identifies similarities and differences in personal and family characteristics and living,” “Describes some people’s jobs and what is required to perform them,” “Begins to be aware of technology and how it affects their lives,” and “Demonstrates awareness of the reasons for the		“Can recall and explain sequences of events” <i>(Cognitive Development & General Knowledge)</i>

Domain	Indicator	Maryland	Missouri	Vermont
Cognition and General Knowledge, continued	(4) Other, continued	rules," (<i>Social Studies</i>) "Recognizes, duplicates, and extends patterns" (<i>Mathematical Thinking</i>)		
Other/ Miscellaneous Mathematics and Scientific Thinking		"Begins to use and explain strategies to solve mathematical problems" (<i>Mathematical Thinking</i>) "Seeks information through observation, exploration, and descriptive investigations," "Uses simple tools and equipment to extend the senses and gather data," "Identifies, describes, and compares properties of objects," and "Observes and describes characteristics, basic needs, and life cycles of living things" (<i>Scientific Thinking</i>)	"Classifies objects used in daily experiences," "Uses numerical relationships to solve problems in daily life," "Orders things according to relative differences," "Makes one-to-one correspondence," "Determines 'same,' 'more than,' and 'less than' by comparing," "Uses spatial relationships in solving mathematical problems," "Shows understanding of sequence of daily events," "Experiments with objects to produce effects," and "Explains own actions in manipulating objects" (<i>Mathematical/ Physical Knowledge</i>)	

Information for Maryland's indicator questions is found in Maryland State Department of Education. (n.d.) *Maryland Model for School Readiness: Fall Performance Examples*. Retrieved October 15, 2002, from http://www.mdk12org/instruction/ensure/MMSR/MMSR_FP.html.

Information for Missouri's indicator questions is found in Missouri Department of Elementary and Secondary Education. (1999). *School Entry Assessment Project: Report of Findings*. Retrieved October 15, 2002, from <http://www.dese.state.mo.us/divimprove/fedprog/earlychild/seap.pdf>.

Information for Vermont's indicator questions is found in Vermont Agency of Human Services (2001). *Report on Vermont's School Readiness Assessment Initiative: 2000-2001*. Retrieved October 15, 2002, from <http://www.ahs.state.vt.us/02SchlKindReadyStateRpt.htm>.

School Readiness Student Assessments: Annotated Bibliography

General Reports and Studies

Goal One Early Childhood Assessments Resource Group (Lorrie Shepard, Sharon Lynn Kagan, and Emily Wurtz, eds.). (1998). *Principles and recommendations for early childhood assessments*. Retrieved October 15, 2002 from <http://www.negp.gov/reports/prinrec.pdf>

This paper outlines the state of the field in assessing young children and provides general principles that should guide any assessments of young children. It distinguishes among different assessment purposes: (1) to support learning, (2) to identify special needs, (3) to evaluate programs and monitor trends, and (4) to provide high stakes accountability. For each purpose, it defines the purpose, the audience, the technical requirements, and the age continuum and provides recommendations for what policy makers can do.

Mehaffie, K., & McCall, R. (2002). *Readiness for kindergarten: A brief report*. Pittsburgh, PA: University of Pittsburgh Office of Child Development.

This report provides a brief overview of kindergarten readiness assessments and how they can be used and misused, including a compendium of the most commonly used assessment instruments. The report includes a bibliography and an appendix describing some of the assessment instruments in common use.

Niemeyer, J., & Scott-Little, C. (2001). *Assessing kindergarten children: A compendium of assessment instruments*. Greensboro, NC: SERVE at the University of North Carolina. Also, retrieved on October 15, 2002, from <http://www.serve.org/publications/rdakcc.pdf>

This publication provides information on approximately forty assessment instruments published since 1986 and commercially available. They are described in matrix format in terms of: (1) publication date; (2) purpose; (3) type (norm referenced, screening, diagnostic, instructional); (4) age group; (5) administration (time to administer, method, relevancy to classroom, ease of learning, ease of administration); (6) data collection (observation, checklist, task performance, and multiple data points); and (7) accessibility (where purchased and cost).

Saluja, G., Scott-Little, C., & Clifford, R. (2000). Readiness for school: A survey of state policies and definitions. *Early Childhood Research and Practice* 2, No. 2. Also, retrieved on October 15, 2002, from <http://ecrp.uiuc.edu/v2n2/saluja.html>

This article provides a fifty state summary of state activities in defining and measuring school readiness, based upon interviews with early childhood state representatives in each state. Table Six provides a compilation of these interviews. Conclusions from the survey include the following: (1) age was the criterion most often used to determine eligibility for kindergarten; (2) no state had an official definition of school readiness; (3) several states were studying the issue of school readiness; and (4) local school districts were most often making decisions about how children should be assessed and how data on children should be used.

SERVEing Young Children. (2001, October 22). *Proceedings of the Institute for School Readiness Assessment Systems: Making Them Work for All Children*. Retrieved on October 15, 2002, from <http://www.serve.org/syc/whotpolicy.html>

These are notes from the October, 2001, SERVEing Young Children (SYC) Institute on School Readiness Assessment Systems, which included presentations by Catherine Scott-Little of SYC, Dina Castro of the Frank Porter Graham Child Development Institute, Carolyn Weiner from Syndactics, and Judy Niemeyer from the University of North Carolina. The Institute also included a panel of experts from the field, including Dawn Denno from the Ohio Department of Education, Ruth Flynn from the Missouri Department of Elementary and Secondary Education, and Jan Brown from the University of California.

State Assessment Reports and Materials

Maryland State Department of Education. *Maryland Model for School Readiness (MMSR)*. Retrieved on October 15, 2002, from http://www.mdk12.org/instruction/ensure/MMSR/MMSRDE1_toc.html

This report provides results from a 2001-02 teacher observation and assessment of kindergarten students, showing results in seven categories (social and personal, language and literacy, mathematical thinking, scientific thinking, social studies, the arts, and physical development) and a composite score, with some further breakdowns by gender, race, and other factors.

Maryland State Department of Education. *Maryland Model for School Readiness (MMSR)*. Retrieved on October 15, 2002, from http://www.mdk12.org/instruction/ensure/MMSR/MMSRDE1_toc.html

This provides a list of over seventy indicators and representative examples that can be used to measure “readiness outcomes” across the five domains of school readiness: physical well-being and motor development, social and emotional development, approaches toward learning, language and literacy development, and cognition and general knowledge.

Missouri Department of Elementary and Secondary Education. (1999). *School Entry Assessment Project: Report of findings*. Retrieved on October 15, 2002, from <http://www.dese.state.mo.us/divimprove/fedprog/earlychild/seap.pdf>

This report provides the results of an assessment in more than eighty schools that included both teacher observations across six domains (symbolic development, communication, mathematical/physical knowledge, working with others, learning to learn, physical development, and conventional knowledge) coupled with parental surveys related to home literacy activities (reading in home, storytelling, conversations, and children looking at books and magazines) and child care and pre-school participation.

Vermont Agency of Human Services. (2001). *Report on Vermont's "School Readiness Assessment Initiative": 2000-2001*. This report is no longer available online. Instead, the most recent report (2001-2001 school year) can be retrieved from <http://www.ahs.state.vt.us/KReady2001-02.htm>

This report is based upon data received from approximately half of Vermont's kindergarten teachers on student observations on twenty four items encompassing social and emotional development, approaches to learning, communication, cognitive development and general knowledge, and physical health and well-being. Also included is a report on schools' readiness for children covering four domains: smooth transitions to school, instruction and staff development, resources, and partnerships with community.



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