



December 17, 2009

To: Susan Illgen, Executive Director, Smart Start Oklahoma  
Steven Dow, Executive Director, Community Action Project

From: Paul Shinn, Public Policy Analyst, Community Action Project

Subject: Public Policy Memo 19 School Readiness—Early Development Instrument

Question Presented: Summarize research on application and impacts of the Early Development Instrument and evaluate its suitability for use in a statewide kindergarten readiness assessment.

Short Answer: There is substantial research to indicate the Early Development Instrument (EDI) meets its stated goal of engaging communities to improve support systems for young children and their families. Use of the EDI is too new and limited in the United States for any community responses to develop. However, research on a pilot project suggests that EDI results will be useful for such efforts and that teachers are satisfied with administering the EDI in the right circumstances. Research in Canada and Australia documents a wide range of community responses to EDI results. These include new programs for young children and their families, better focus for existing programs, better service coordination, and much greater community involvement. In Canada, the companion Kindergarten Parent Survey has high response rates and validity and helps shed light on young children's environment and experiences. The EDI's results to date strongly recommend its consideration for an Oklahoma pilot project..

Introduction: As part of an ongoing effort to build support for and plan for the gradual implementation of a statewide assessment of kindergarten readiness, Smart Start Oklahoma (SSOk) and Community Action Project of Tulsa County (CAP) have conducted an evaluation of several possible assessment instruments. Attachment A summarizes the results of a preliminary scan of assessment instruments that are used for various statewide assessment efforts in other states, as well as other instruments that project team members have identified as potentially applicable.

Based on preliminary review, three instruments—the Ages and Stages Questionnaire (ASQ), the Early Development Instrument (EDI) and the Work Sampling System (WSS) were selected for further evaluation. The purpose, design, costs, and other aspects of each instrument are summarized in Attachment B. Table 1 below restates the comparative advantages and disadvantages of the instruments based on evaluations to date. This table, along with Attachment B, suggests that all three instruments are suitable for a statewide kindergarten readiness assessment, depending on the goals and design of such an assessment.

Instrument	Advantages	Disadvantages
<p>Ages and Stages Questionnaire/Ages and Stages Questionnaire: Social/Emotional</p>	<ul style="list-style-type: none"> <li>• Increasing use in Oklahoma</li> <li>• High degree of acceptance in Oklahoma</li> <li>• Low cost for high volumes</li> <li>• Emphasis on health aspects of readiness</li> <li>• Strong on longitudinal evaluation</li> <li>• Open-ended areas of parental concerns</li> <li>• Includes parental activities</li> <li>• Helps screen for special needs</li> <li>• Easy to learn and administer</li> <li>• Zero to minimal teacher time</li> </ul>	<ul style="list-style-type: none"> <li>• Intended use may not exactly match statewide readiness assessment</li> <li>• Not in use in any state for this purpose</li> <li>• Requires trained assessors to work with parents</li> </ul>
<p>Early Development Instrument</p>	<ul style="list-style-type: none"> <li>• Designed to measure readiness in populations/emphasizes community aspects of readiness</li> <li>• Whole-child approach</li> <li>• Visual approach to reporting</li> <li>• Provides actionable items for schools and communities</li> <li>• Can combine teacher and parent observations</li> <li>• Gathers information on early childhood education experience for potential assessment of impacts</li> <li>• Minimizes teacher time and training (approximately 10 hours/year)</li> <li>• Effectively predicts reading and writing outcomes in later years</li> </ul>	<ul style="list-style-type: none"> <li>• Limited use in the U.S.</li> <li>• Does not provide individual data</li> <li>• Narrow age application limits longitudinal study</li> <li>• Reliance on outside scoring</li> <li>• Inappropriate for diagnostic use</li> <li>• Limited agreement with other instruments for same purpose</li> </ul>

Instrument	Advantages	Disadvantages
Work Sampling System	<ul style="list-style-type: none"> <li>• Curriculum-embedded</li> <li>• Broad in domains and coverage</li> <li>• Helps organize large volume of information</li> <li>• Provides useful tools for communicating with parents</li> <li>• Used in many states for statewide assessment</li> <li>• Extensively documented</li> </ul>	<ul style="list-style-type: none"> <li>• Intended use may not exactly match statewide readiness assessment</li> <li>• Complex and time-consuming</li> </ul>

The EDI is less well known and less widely used in the United States than the other two instruments and thus will be subject to additional scrutiny as a potential statewide assessment instrument. Table 1 and Attachments 1 and 2 show the EDI has several advantages for this application. However, the analysis to date leaves questions that should be addressed as the assessment project moves forward. Among these questions are:

- What is the experience with and response to the EDI in the United States?
- Are there examples of successful use of the EDI in improving community resources and increasing readiness scores?
- Is the EDI compatible with other individual-based measures that would be necessary if the project seeks to contribute to longitudinal data on children and to improve individual instruction to children at the kindergarten level?
- What has been the experience and impact of using the optional companion parent survey?

This memorandum summarizes four research efforts that can help evaluate the suitability of the EDI for the Oklahoma project. These efforts are:

- a final (confidential) analysis of the first year of implementation in a school district in Orange County, California;
- studies of community efforts have resulted from the EDI in Canada;
- reports on use of the kindergarten parent survey in Canada; and
- reports on results and community action in pilot implementation in Australia

Each of these research efforts is described below. Descriptions include a brief discussion of the EDI implementation in the area under study, a statement of the purpose of the research project,

a summary of the researchers' findings and recommendations, and the author's interpretation of how the research can inform Oklahoma's consideration of the EDI.

### UCLA Center for Healthier Children, Families and Communities—U.S. Implementation

UCLA has agreed with the developer of the EDI, the Offord Centre for Child Studies, to adapt the EDI for use in the U.S. UCLA has completed the adaptation and is expanding use of the EDI across a wide range of U.S. communities and states. The initial pilot project, in Orange County, California, is in its third school year. The instrument is now being used in Colorado, Louisiana, Michigan, Mississippi, Ohio, and Washington with the assistance of UCLA. UCLA's goal in this effort is to support a collaborative effort to expand use of the EDI, adapt and improve its community mapping facilities, and create a common reporting framework so that kindergarten readiness can be compared in communities across the nation.<sup>1</sup>

Since the EDI implementation is comparatively new in the United States, only one evaluation is available. This report describes results of using the EDI for one year in five elementary schools in the Newport-Mesa Unified School District in Orange County, California. Teachers volunteered to use the EDI and were compensated for their time. The purpose of the study was to adapt the instrument for use in the U.S., test the adaptation in a diverse school setting, demonstrate use of the resulting data to mobilize communities, and better understand implementation challenges for teachers, school administrators, and policymakers.<sup>2</sup> Because this report is confidential, readers are asked not to share the results or this memorandum.

The authors drew several conclusions about the pilot project, which are summarized below.

- The EDI revealed differences in developmental vulnerability across geographic areas, which could be explained by socioeconomic and school indicators. Data are valid at the school level for planning school and educational initiatives. Initial distribution was too limited for valid community comparison and action.
- Teachers found the data collection to be relatively easy to collect and implementation of the EDI to be a valuable experience.<sup>3</sup>
- Differences in vulnerability by demographic characteristic were as expected. Boys were more likely to be vulnerable than girls. Children who have been in special education or another early intervention were more vulnerable. Children whose first language was not English were more vulnerable than those whose first language was English.<sup>4</sup>
- Teachers were most satisfied with the ease of completing and submitting the EDI, and with knowing who to contact with questions. They were least satisfied with how completing the EDI benefitted them and whether it was a good use of time. The median score on these latter measures, however, still represented "Agree" on a five-point scale from strongly disagree to strongly agree.<sup>5</sup>
- The average time to administer the instrument was 15 minutes per child. While teachers felt the data were a valuable contribution to the community, they were participating in

the program mainly due to the voluntary nature of the assignment and to receiving compensation.<sup>6</sup>

- The pilot was limited by the lack of sufficient responses to assess results by community and by the dated nature of demographic data from the 2000 Census.<sup>7</sup>

They recommended expanding pilot studies in Orange County, with these specific recommendations:

- alter teacher recruiting from purely voluntary to emphasize coverage of a population of the community to generate valid data for community planning purposes;
- continue compensating teachers for participating;
- training teachers to act as trainers for other teachers;
- transition to web-based data entry;
- engage the community in reviewing EDI results;
- refine the adapted EDI; and
- conduct a psychometric analysis of reliability and validity when sufficient data are available.<sup>8</sup>

This study has several additional implications for use of the EDI in an Oklahoma statewide readiness assessment, as discussed below.

- The EDI appears to be simple enough to administer that complete data can be expected. In the pilot, no parents refused to allow the EDI to be completed and 422 of the 427 instruments were valid. All but one of these 422 was valid in all five domains of the EDI.<sup>9</sup>
- The pilot appears to confirm the value of a broad, multiple-domain approach. While overall levels of vulnerability were relatively consistent among the domains, there was a wide variation of vulnerability across domains and schools. No school had the highest or the lowest percentage of vulnerable children for all five domains.<sup>10</sup> This suggests the complexity of readiness concepts as measured by the EDI.
- Design should maximize teacher engagement and commitment through a targeted, voluntary approach that balances the desire for complete community data with the need for full commitment by the participating teachers, through training that emphasizes the long-term value of the data to the community as well as value to teachers and parents, and through compensating teachers for their participation.
- Early implementation should emphasize assessment in whole communities in sizes sufficient to evaluate differences in results both for schools and for neighborhoods. The

Orange County data are of limited value for community engagement due to the inability to generate valid data for any geographic areas.

### Community Actions and Impacts in Canada

The largest study of EDI impacts in Canada was recently completed in British Columbia (BC). The population of this province is approximately twenty percent larger than Oklahoma's, but BC covers five times the area of Oklahoma. The EDI was first used in British Columbia in 2001; coverage is now universal and over 30,000 children are assessed through the EDI each year.

The Human Early Learning Partnership (HELP) of the University of British Columbia recently worked with partners to assess community actions and impacts in ten BC communities. The communities were selected competitively from 23 communities that showed substantial improvement in EDI results over a three- to five-year period. The researchers interviewed participants in each community, who attribute improved outcomes for young children to the EDI and to the interventions made in response to early EDI results.<sup>11</sup>

This project is based largely on a case study approach that emphasizes participants' "stories," but the research team drew a number of common themes and lessons from their work, as discussed below.

- Every community benefited from a strong coalition across all sectors; benefits were greatest when the school district was an active and enthusiastic participant.
- EDI results served as a catalyst to drive change in every community. Results helped communities establish priorities, identify the most important resources, and target interventions to specific domains and geographic areas.
- All ten communities relied on coalitions of many programs and offered many layers of family support.
- Strong and dedicated leadership was essential at each site, but leadership came from different sources in different communities.
- School trustees (board members) were essential to the success of early childhood initiatives.
- Community efforts resulted in greater awareness of early childhood development needs, enhanced community ownership and commitment, and movement toward continuous and positive change.
- The interventions and results in the study communities appear to be transferable to other settings.<sup>12</sup>

Review of individual case study narratives offers several observations that are relevant to Oklahoma's potential use of the EDI for statewide school readiness assessment, including:

- Improvement efforts appear to be genuinely community-driven and to be unique to each community.
- Many interventions involve school districts working closely with early childhood education providers through projects such as mentoring and training for early childhood teachers, providing literacy teachers, and providing facilities for early childhood programs.
- Literacy has been a target in most community initiatives. Interventions include family literacy centers, literacy screening, literacy support teachers, incorporating literacy activities into preschool curriculum, and mobile literacy programs in outlying communities.
- Many districts use individual screening devices, generally for literacy, as well as the EDI. This suggests that a population-based assessment and individual screening tool are both compatible and complementary.
- Many communities attribute their success, at least in part, to development of physical hubs or centers that offer a range of support services for families, including health, literacy awareness, libraries, parent education, play areas, and child care. In at least one case, EDI results showed the greatest reduction in vulnerabilities in areas where hubs were located.

Several other research efforts have documented use of EDI results to improve systems to support children and families. Of 46 diverse communities responding to a survey, 34 (74 percent) indicated communities had made changes in response to the instrument. The most common program implementations were in speech/language, parenting, library resources, and child/family centers.<sup>13</sup> These results are similar to the more in-depth study of communities in British Columbia. Case studies in various provinces have described the creation and improvement of parent/child literacy programs, drop-in resource centers for parents with preschool children, a family resource guide to programs and services, home visit programs, professional development for preschool teachers, expanded and higher-quality early childhood education centers, and curriculum centered around the EDI.<sup>14</sup> In some communities, there has been significant improvement in EDI results after these programs have been established.<sup>15</sup> These and other studies indicate that the EDI can be used very effectively to inform and engage the community.<sup>16</sup>

#### Experience with the EDI in Australia

The EDI was adapted for use in Australia, piloted in several communities from 2004 to 2008, and implemented nationwide in 2009. Case studies of the pilot communities describe several improved and new programs resulting from community discussion of the EDI results.<sup>17</sup> New programs included:

- a pre-birth-to-one center to assist parents with nutrition physical activity,
- a guide for parents on early development, literacy and social-emotional programs,

- a coordinating committee to identify and provide wrap-around services for vulnerable families,
- a holiday child care program in the school system,
- a primary school literacy and play center that builds parenting skills, identifies developmental issues, and improves family social networks.
- training child care providers in understanding and monitoring language development,
- expanded speech therapy and child psychology services,
- prenatal health care, and
- community supported play groups.

EDI results were also used to inform service decisions of existing programs such as early years service centers and to more clearly focus preschool curriculum on developmental needs. In some communities, the EDI helped target existing resources and programs to the communities with the greatest needs.

As in Canada, the EDI results are widely credited with increasing community awareness and interest in early childhood issues and engaging the community in working toward solutions. Partnerships and coalitions among service providers and advocates were strengthened and better focused in most communities as a result of the EDI. Australian communities are struggling with funding and with program rules that make it difficult to adapt programs based on EDI results, as well as with maintaining enthusiasm to act. In some communities data have been used inappropriately or have been taken wrongly as a poor reflection on schools. Some service providers and advocates have not accepted the validity of EDI results and some have not been willing to target areas of need identified by the EDI.

#### Research on Use of Parent Surveys in Canada

The Offord Centre developed the Kindergarten Parent Survey (KPS) as a companion instrument to the EDI beginning in 2003. The goal was to improve understanding of EDI results by learning about children's experiences and context, including access to and use of community services such as parks and recreation. The KPS addresses child health and development, child care, pre-kindergarten and kindergarten experiences, family and neighborhood indicators, and background information.<sup>18</sup>

A recent study of KPS delivery in six Ontario (Canada) communities reports that parents return the survey at reasonably high rates, that the instrument is reliable, and that it helps shed light on demographic questions related to school readiness. Survey rates of return ranged from 35 to 62 percent. When 207 parents were given the survey twice two months apart, the results were highly reliable, indicated by a range of agreement between 80 and 99 percent. Results of the survey have proven useful in understanding perceptions of neighborhood safety and the social risk involved in a child's neighborhood. The KPS has shown that parents generally are not less likely to complete a survey if their children are more vulnerable as indicated by the EDI, except among high-income parents. Conversely, there is little relationship between parental involvement with children and vulnerability, except among very vulnerable children.<sup>19</sup>

Developers of the EDI and KPS report that, in spite of the apparent complexity of the KPS, schools do not provide assistance to parents in completing it and the developers do not see

such a need. The survey may be shortened or adapted by users, but may not be called the Kindergarten Parent Survey in that case.<sup>20</sup> The Kindergarten Parent Survey has not yet been adapted for use in the United States, though plans are underway to do so.<sup>21</sup>

### Conclusion

There is substantial research to document the EDI's ability to measure school readiness accurately and to engage communities in understanding results, working to improve services and, in some cases, improve results. While none of this research is set in the United States, early pilot project reports show promise and more results can be expected in the next few years. If Oklahoma desires a population-based assessment of readiness, the EDI would be an appropriate tool. If Oklahoma desires an individual-based assessment, other instruments would be required, but the EDI would be compatible with these instruments. The EDI's results to date strongly recommend its consideration for an Oklahoma pilot project..

**Attachment A**

**SELECTED INSTRUMENTS FOR SCHOOL READINESS ASSESSMENT<sup>22</sup>**

Name	Measures*						Ages	Administration	Designed Use	Reliability/Concurrent Validity	In Use Since	Used In <sup>23</sup>
	Phys	Soc	Emo	Lang /Cog	Comm /GK	Other						
Ages and Stages Questionnaire (ASQ)	X	X	X	X			0.33-5	Parent/caregiver, 10-20 min., every 2-6 months (paraprofessional scorer)	Monitor progress	High/High <sup>24</sup>	1999	Some Oklahoma programs, KS
Ages and Stages Questionnaire: Social and Emotional (ASQ:SE)	X	X	X	X			0.5-5	Parent/caregiver at specific intervals in childhood, scored by professional	Monitor progress	High/Not reported	2002	
Assessment, Evaluation, and Programming System (AEPS)	X	X	X	X			3-6	Service providers or interventionists, 1-2 hours	Monitor progress	High/Not Reported	2002	Approved option in several states
Bracken Basic Concept Scale-Revised (BBCS-R)				X		Math	2.5-8	30 minutes per child	Monitory progress, diagnostic (norm- and criterion-referenced).	High/High	1998	
Brigance Diagnostic Inventory of Early Development-II		X	X	X		Literacy	0-7	Teacher, 25-30 minutes (criterion-referenced)	Monitor progress, diagnostic	Not reported/High	2004	NV
Creative Curriculum Developmental Continuum	X	X	X	X			3-5	Teacher, up to 3 times/year	Monitor progress (criterion-referenced)	High/Not reported	2000	Approved option in several states

Name	Measures*						Ages	Administration	Designed Use	Reliability/Concurrent Validity	In Use Since	Used In
	Phys	Soc	Emo	Lang /Cog	Comm /GK	Other						
Denver II+	X	X		X				Teacher or clinician	Monitor development		1992	KS
Developmental Indicators for the Assessment of Learning (DIAL-3)	X	X	X	X			3-7	Teacher or special education professional, 20-30 minutes plus parent reporting	Screening for potential learning disabilities	High/Adequate	1998	SC, SD
Developing Skills Checklist (DSC)+	X			X							1990	LA
Dynamic Indicators of Basic Early Learning Skills (DIBELS)				X			5-12	Teachers, 1 minute	Screening/monitor progress for literacy	High/Adequate	2002	AL, CO, ID, IA, NM
Early Childhood Skills Inventory (ECSI)	X			X			4-5		Monitor progress/evaluate program	"Generally"/High	2001	Used in Tulsa 2001, 2004 studies
Early Development Instrument (EDI)+	X	X	X	X	X		4-5	Teacher, 2 <sup>nd</sup> half of school year	Populations, to measure readiness and predict success	Excellent <sup>25</sup> Moderate for populations <sup>26</sup>	1998-99	All Canadian provinces. Local pilots in Calif.
Georgia Kindergarten Inventory of Developing Skills (GKIDS)+	X	X		X	X	Approaches to Learning, Math	5	Teacher, throughout year (portfolio based)	Diagnostic		2008	GA
Get It, Got It, Go				X			3-5	Teachers, 10 minutes	Screening, monitor progress	Adequate/Adequate	2000	NV, NM, OH
High Scope Preschool Childhood Observation Record (HS-COR)	X	X	X	X		Math	2.5-6	Teachers observe and take notes	Monitor progress (criterion-referenced)	High/Low	1992	NE, WV

Name	Measures*						Ages	Administration	Designed Use	Reliability/Concurrent Validity	In Use Since	Used In
	Phys	Soc	Emo	Lang /Cog	Comm /GK	Other						
Peabody Picture Vocabulary Test				X			2.5-90	Professional training needed, 10-15 minutes	Diagnostic	High/Adequate	2007	NV
Phonological Awareness and Literacy Screening—Prekindergarten (PALS Pre-K)				X			4	Teacher, 20-25 minutes	Screening, monitor progress	High/High	2004	VA
Qualls Early Learning Inventory (QELI)				X		Math	4-6	Teacher, 5-10 minutes	Monitor progress, criterion-normed	High/Low	2002	AR
School Entry Profile+	X	X	X	X	X	Math, Learning to Learn	5	Teacher, 6 <sup>th</sup> week of school	One-time assessment of state children to evaluate Parents as Teachers, improve services to children and families (10% sample)	High/not reported	1998	MO
Work Sampling System	X	X	X	X	X	Approaches to learning, math	3-12	Teacher, 3x/year	Monitor progress (criterion-referenced)	High/Adequate	1995	MD, NE, WV

\*Phys=physical and motor skills, Soc=social, Emo=Emotional, Cog/Lang=Cognitive and language, Comm/GK=communication and general knowledge.



## Attachment B

### Comparison of Representative Assessment Instruments

Instrument	Ages and Stages Questionnaire (ASQ) and Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)	Early Development Instrument	Work Sampling System
Description	Age-specific, parent-completed questionnaire. 30 closed-end and 10 open-end questions.	Single teacher-completed 104-item questionnaire for 4- or 5-year-olds. Includes a companion parent survey to identify family readiness and early childhood experiences. Matches with neighborhood-level socioeconomic information.	Age-specific teacher-completed checklist (55 items) plus notes and portfolio materials
Designed Use	Norm-referenced observational tool for developmental and social-emotional screening	Measure school readiness in populations of children, including predicting elementary school success. Designed for single administration in middle of kindergarten year.	Instructional assessment to help classroom teachers make decisions about individual instruction
Development	Developed in 1999 (ASQ) and 2002 (ASQ:SE). ASQ in 3 <sup>rd</sup> edition	Developed in 2000 for use in Canada.	Developed in 1997. In 4 <sup>th</sup> edition
Ages (months)	1-66	48-60	36-72
Reliability Reports <sup>27</sup>	ASQ=.75-.82 test-retest,.43-.69 inter-observer, .51-.87 internal consistency <sup>28</sup> ASQ=44-.58 <sup>29</sup> ASQ=80 or higher <sup>30</sup> ASQ:SE=.67-.91 internal consistency, 94% test-retest reliability <sup>31</sup> ASQ:SE-.82-.94 <sup>32</sup>	.76-.96 test-retest, .70-.95 mean inter-rater, <sup>33</sup> .62-.80 inter-rater by domain <sup>34</sup>	.87-.94 <sup>35</sup> .80 or higher <sup>36</sup> No studies available since 1995, no complete studies available.

Instrument	Ages and Stages Questionnaire (ASQ) and Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)	Early Development Instrument	Work Sampling System
Validity Reports	ASQ=85.8% agreement with BDI identification for intervention. <sup>37</sup> ASQ:SE=90-94% agreement with two accepted tests, depending on age. <sup>38</sup>	.25-.49 overall correlation with four other common readiness tests (“significant but modest”) .16-.49 correlation by domain with four other common readiness tests <sup>39</sup> Moderate (.46-.73) correlation by domain with other accepted measures <sup>40</sup> High predictive validity from kindergarten to 1 <sup>st</sup> grade, moderate from kindergarten to 3 <sup>rd</sup> grade <sup>41</sup> High predictive validity from kindergarten to 3 <sup>rd</sup> and 6 <sup>th</sup> grade reading and writing problems. <sup>42</sup>	Concurrent=.50-.69 <sup>43</sup> No studies available since 1995, no complete studies available.
Use in Statewide School Readiness Assessments	Kansas (pre-K, Parents as Teachers only)	Most Canadian provinces, nationwide in Australia, pilot in California is now expanding to other states.	Maryland, Minnesota (sample), South Carolina (adaptation), on menu of options in Arizona,
Use in Oklahoma	Parents as Teachers, SoonerStart, pilot for use in EPDST screening	None	In school readiness pilot in four schools (year 2 of 3)
Domains	Communication Gross motor Fine motor Problem-solving Personal-social Items of parental concern ASQ:SE—7 social-emotional subscales	Physical well-being Social competence Emotional maturity Language and cognition Communication and general knowledge Special skills Special problems	Personal and social development Language and literacy Mathematical thinking Scientific thinking Social studies The arts Physical development
Administered by	Parents (ideally with professional/paraprofessional assistance), teachers, medical professionals	Teacher, parents, community coordinator	Teacher, based on ongoing observation

Instrument	Ages and Stages Questionnaire (ASQ) and Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)	Early Development Instrument	Work Sampling System
Administration Time	ASQ: 10-30 minutes ASQ: SE: 10-15 minutes	20 minutes	15 minutes for questionnaire, plus observation time
Scored by	Medical or educational personnel	Normally by developer of the instrument or U.S. contractor	Teacher
Data Entry	Paper questionnaire Enterprise option allows for online data entry, scoring, planning, reports by child, program.	Entered on paper or electronically at site Scored/reported by developer, but without identifying student Class and site scores provided	Paper checklists and observation notes Online option allows for online assessment, notes, reports by child, program.
Training Requirement	1-2 days to train trainers, 2 hours to train parent educators	Two hour local training for teachers, 1-1.5-day train the trainer from national support organization	1-2 days appears typical, available in person or on web
Advantages	<ul style="list-style-type: none"> <li>• Increasing use in Oklahoma</li> <li>• High degree of acceptance in Oklahoma</li> <li>• Low cost for high volumes</li> <li>• Emphasis on health aspects of readiness</li> <li>• Strong on longitudinal evaluation</li> <li>• Open-ended areas of parental concerns</li> <li>• Includes parental activities</li> <li>• Helps screen for special needs</li> <li>• Easy to learn and administer</li> <li>• Zero to minimal teacher time</li> </ul>	<ul style="list-style-type: none"> <li>• Designed to measure readiness in populations/emphasizes community aspects of readiness</li> <li>• Whole-child approach</li> <li>• Visual approach to reporting</li> <li>• Provides actionable items for schools and communities</li> <li>• Can combine teacher and parent observations</li> <li>• Gathers information on early childhood education experience for potential assessment of impacts</li> <li>• Minimizes teacher time and training (approximately 10 hours/year)</li> <li>• Effectively predicts reading and writing outcomes in later years</li> </ul>	<ul style="list-style-type: none"> <li>• Curriculum-embedded</li> <li>• Broad in domains and coverage</li> <li>• Helps organize large volume of information</li> <li>• Provides useful tools for communicating with parents</li> <li>• Used in many states for statewide assessment</li> <li>• Extensively documented</li> </ul>

Instrument	Ages and Stages Questionnaire (ASQ) and Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)	Early Development Instrument	Work Sampling System
Disadvantages	<ul style="list-style-type: none"> <li>• Intended use may not exactly match statewide readiness assessment</li> <li>• Not in use in any state for this purpose</li> <li>• Requires trained assessors to work with parents</li> </ul>	<ul style="list-style-type: none"> <li>• Limited use in the U.S.</li> <li>• Does not provide individual data</li> <li>• Narrow age application limits longitudinal study</li> <li>• Reliance on outside scoring</li> <li>• Inappropriate for diagnostic use</li> <li>• Limited agreement with other instruments for same purpose</li> </ul>	<ul style="list-style-type: none"> <li>• Intended use may not exactly match statewide readiness assessment</li> <li>• Complex and time-consuming</li> </ul>
Cost/Student	Paper--\$11.86/student in classroom kit Online--\$0.40 (estimate for 52,000 students, enterprise option) <sup>44</sup>	Statewide estimates not possible at this time. Representative cost estimates for UCLA pilot project are approximately \$10/student for basic services and \$18/student including mapping services. Estimates include some training costs. <sup>45</sup> Costs for a “community” with 1,000 students directly through Offord Centre would range from \$5,600 to \$7,600 (\$5.60-\$7.60/student), depending on reporting desired <sup>46</sup>	Paper--\$5.15/student in classroom kit Online--\$11.95 (for up to 2,000 students) or less (contact publisher) <sup>47</sup>
Steps Toward Implementation	<ol style="list-style-type: none"> <li>1. Expand current state efforts to 60 mo. where programs allow</li> <li>2. Begin data collection plan and test with current data</li> <li>3. Determine who is best suited to work with parents</li> <li>4. Pilot with range of early childhood providers (if longitudinal data is desired)</li> <li>5. Pilot with kindergarten teachers</li> </ol>	<ol style="list-style-type: none"> <li>1. In depth study of existing pilot in U.S.</li> <li>2. Pilot in kindergarten, including teacher and parent elements, collecting sufficient socioeconomic data to develop community assessments.</li> <li>3. Develop processes to assemble socioeconomic data statewide</li> </ol>	<ol style="list-style-type: none"> <li>1. Continue to evaluate current pilot</li> <li>2. Determine if scaled-down effort is possible or desirable</li> <li>3. Determine most feasible training and data gathering plan</li> <li>4. Incentives to districts to replace existing assessment tools with WSS</li> </ol>

Instrument	Ages and Stages Questionnaire (ASQ) and Ages and Stages Questionnaire: Social-Emotional (ASQ:SE)	Early Development Instrument	Work Sampling System
Publisher	Brookes Publishing Company	Offord Centre for Child Studies, McMaster University	NCS Pearson, Inc.
Web	<a href="http://www.agesandstages.com">http://www.agesandstages.com</a>	<a href="http://www.offordcentre.com/readiness/index.html">http://www.offordcentre.com/readiness/index.html</a>	<a href="http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=PAworksampl">http://www.pearsonassessments.com/HAIWEB/Cultures/en-us/Productdetail.htm?Pid=PAworksampl</a>

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- <sup>1</sup> Neal Halfon, Director, UCLA Center for Healthier Children, Families, and Communities, telephone conversation with the author, December 11, 2009.
- <sup>2</sup> UCLA Center for Healthier Children, Families, and Communities, *The Early Development Index: A Population-Based Measure of Early Development for Young Children in Orange County, A Pilot Study in the Newport-Mesa Unified School District* (Los Angeles, 2008), p. 1,6.
- <sup>3</sup> *Ibid.*, p. 2.
- <sup>4</sup> *Ibid.*, p. 51.
- <sup>5</sup> *Ibid.* p. 54.
- <sup>6</sup> *Ibid.*, p. 55.
- <sup>7</sup> *Ibid.*, p. 56
- <sup>8</sup> *Ibid.*, p. 2-3.
- <sup>9</sup> *Ibid.*, p. 10, 13-17.
- <sup>10</sup> *Ibid.*, p. 20.
- <sup>11</sup> Janet N. Mort, *The Early Development Instrument (EDI) in British Columbia: Documenting Action and Impacts in Schools, Communities, and Early Childhood Development*, (Vancouver, BC: 2009), p. 3-9; available at [http://www.earlylearning.ubc.ca/documents/2009/EDI\\_in\\_BC\\_Jan\\_09.pdf](http://www.earlylearning.ubc.ca/documents/2009/EDI_in_BC_Jan_09.pdf).
- <sup>12</sup> *Ibid.*, p. 213-220, 230.
- <sup>13</sup> C. Randus, C. Walsh, D. Hughes, and M. Janus, "From Data to Practice: The Influence of Findings on School Readiness on the Creation of Community Projects and Programs, poster presented at The Early Development Imperative, November 16-18, 2009.
- <sup>14</sup> Alex Morga, "The South Eastman Experience: A Pilot Project-10 Years Later, presented at The Early Development Imperative, November 16-18, 2009; available at [http://www.councilecd.ca/files/PanCanadianEDI\\_Morga.pdf](http://www.councilecd.ca/files/PanCanadianEDI_Morga.pdf); Terra Johnston, "From Data to Action in Manitoba," presented at The Early Development Imperative, November 16-18, 2009; available at [http://www.councilecd.ca/files/PanCanadianEDI\\_Johnston\\_CommunityInnovations.pdf](http://www.councilecd.ca/files/PanCanadianEDI_Johnston_CommunityInnovations.pdf).
- <sup>15</sup> Johnston, "From Data to Action," p. 15.
- <sup>16</sup> See, for example, Marsha Cann, "Community Innovation," presented at The Early Development Imperative, November 16-18, 2009; available at [http://www.councilecd.ca/files/PanCanadianEDI\\_Cann.pdf](http://www.councilecd.ca/files/PanCanadianEDI_Cann.pdf); Paul Favaro, "Evaluating Early Childhood Development Programs Using a Community-based Model," poster presented at The Early Development Imperative, November 16-18, 2009; available at [http://www.councilecd.ca/files/PanCanadianEDI\\_Poster\\_FavaroMalik.pdf](http://www.councilecd.ca/files/PanCanadianEDI_Poster_FavaroMalik.pdf).
- <sup>17</sup> AEDI National Support Centre, "Community Case Studies," undated; available at [http://www.rch.org.au/aedi/resources.cfm?doc\\_id=13160](http://www.rch.org.au/aedi/resources.cfm?doc_id=13160).
- <sup>18</sup> Ashley Gaskin, Eric Duku, Magdalena Janus, and Chris Borst, "The Kindergarten Parent Survey: Bridging the Gap Between Early Environment and School Readiness Outcomes," poster presented at The Early Development Imperative, November 16-18, 2009; available at [http://www.councilecd.ca/files/PanCanadianEDI\\_Poster\\_Offord\\_KindergartenParentSurvey.pdf](http://www.councilecd.ca/files/PanCanadianEDI_Poster_Offord_KindergartenParentSurvey.pdf).
- <sup>19</sup> *Ibid.*
- <sup>20</sup> Lisa Stanley, Offord Centre for Child Studies, electronic mail to the author, December 15, 2009.
- <sup>21</sup> Halfon, telephone conversation, December 11, 2009.
- <sup>22</sup> Unless otherwise indicated, instrument descriptions and evaluations are from Washington State, *A Guide to Assessment in Early Childhood, Infancy to Age Eight* (Olympia: 2008); available at [http://www.del.wa.gov/publications/research/docs/OSPI\\_assessment.pdf](http://www.del.wa.gov/publications/research/docs/OSPI_assessment.pdf). "+" indicates data are from state or publisher that developed the instrument.
- <sup>23</sup> Council of Chief State School Officers, "Table XX: Status of State Early Learning Standards, Required Child and Program Assessment, and State Reporting in 2005 and 2008." (Washington, 2008).
- <sup>24</sup> Judith Niemayer and Catherine Scott-Little. *Assessing Kindergarten Children: A Compendium of Assessment Instruments*. (Greensboro, N.C.: SERVE, 2001). Available at <http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED458249>.
- <sup>25</sup> Erik Duku and Magdalena Janus. "Stability and Reliability of the Early Development Instrument: A Population-Based Measure for Communities." Paper Presented at McMaster University Department of Psychiatry and Behavioral Neurosciences Annual Research Day , 2004; available at [http://www.offordcentre.com/readiness/files/PUB.2.2004\\_Duku-Janus.pdf](http://www.offordcentre.com/readiness/files/PUB.2.2004_Duku-Janus.pdf) .

- <sup>26</sup> Shelley Hymel, Lucy LeMare, and William McKee. "The Early Development Inventory (EDI): An Examination of Validity." Paper presented at the annual meeting of the American Educational Research Association, 2006; available at [http://edudata.educ.ubc.ca/edudata\\_conference/Hymel,LeMare&McKee%20Full%20Submission.pdf](http://edudata.educ.ubc.ca/edudata_conference/Hymel,LeMare&McKee%20Full%20Submission.pdf).
- <sup>27</sup> Unless otherwise noted, reliability assessments are based on Cronbach's alpha, which measures consistency of test items that measure a single underlying construct. A score of 0.0 indicates no consistency, while a score of 1.0 measures perfect consistency. Scores tend to be lower when tests measure items along multiple dimensions. UCLA Academic Technology Services, "SPSS FAQ: What Does Cronbach's Alpha Mean?" accessed 12/1/09 at <http://www.ats.ucla.edu/stat/Spss/faq/alpha.html>.
- <sup>28</sup> Brookes Publishing Company, "Psychometric Studies of ASQ, 3<sup>rd</sup> Edition," excerpted from *ASQ-3 User's Guide*, available at <http://www.brookespublishing.com/store/books/squires-asq/asq3-technical.pdf>.
- <sup>29</sup> Elisabeth L. Grinder and Anita Kochanoff, *Summary Of Assessment Measures*, Document To Accompany Revised Report And Guidelines On Early Childhood Assessment For Children From Birth To Age 8 (Grade 3), (Harrisburg: Pennsylvania's Departments of Education and Public Welfare, 2007), p. 7, available at [http://www.google.com/url?q=http://www.pde.state.pa.us/early\\_childhood/cwp/view.asp%3FQ%3D101706&ei=rZwNS9j5JdWNnQfh4rDPAw&sa=X&oi=spellmeleon\\_result&resnum=1&ct=result&ved=0CAcQhglwAA&usq=AFQjCNHHwOzO7eepBo1lalbPcGsbzumJ9g](http://www.google.com/url?q=http://www.pde.state.pa.us/early_childhood/cwp/view.asp%3FQ%3D101706&ei=rZwNS9j5JdWNnQfh4rDPAw&sa=X&oi=spellmeleon_result&resnum=1&ct=result&ved=0CAcQhglwAA&usq=AFQjCNHHwOzO7eepBo1lalbPcGsbzumJ9g). Ranges of reliability reported from this document cover overall and subpart reliability and do not necessarily all measure the same type of reliability.
- <sup>30</sup> Washington State. *A Guide to Assessment in Early Childhood*, p. 93.
- <sup>31</sup> Brookes Publishing Company, *ASQ:SE Technical Report*, p. 7-8, available at [http://www.brookespublishing.com/store/books/squires-asqse/ASQ-SE\\_TechnicalReport.pdf](http://www.brookespublishing.com/store/books/squires-asqse/ASQ-SE_TechnicalReport.pdf).
- <sup>32</sup> Grinder and Kochanoff, *Summary of Assessment Measures*, p. 7. This study appears to provide a range of averages of reliability provided by the publisher.
- <sup>33</sup> Erik Duku and Magdalena Janus. "Stability and Reliability of the Early Development Instrument: A Population-Based Measure for Communities," paper presented at McMaster University Department of Psychiatry and Behavioral Neurosciences Annual Research Day, 2004, [http://www.offordcentre.com/readiness/files/PUB.2.2004\\_Duku-Janus.pdf](http://www.offordcentre.com/readiness/files/PUB.2.2004_Duku-Janus.pdf).
- <sup>34</sup> Jacqui Boonstra, Laurie Ford, Ruth Hershler, Bruno Zumbo, and Barry Forer, "Inter-rater Reliability of the EDI," poster presented at The Early Development Imperative, November 16-18, 2009; available at [http://www.councilecd.ca/files/PanCanadianEDI\\_Poster\\_HELP\\_UBC\\_TeacherReliability.pdf](http://www.councilecd.ca/files/PanCanadianEDI_Poster_HELP_UBC_TeacherReliability.pdf).
- <sup>35</sup> Grinder and Kochanoff, *Summary of Assessment Measures*, 7.
- <sup>36</sup> Washington State, *A Guide to Assessment*, p. 118.
- <sup>37</sup> Brookes, "Psychometric Studies."
- <sup>38</sup> Brookes, *ASQ:SE Technical Report*, p. 12-18.
- <sup>39</sup> Shelley Hymel, Lucy LeMare, and William McKee, "The Early Development Instrument: An Examination of Validity," poster Presentation at the American Educational Research Association Meeting, San Francisco (2006), [http://www.excellence-jeunesenfants.ca/documents/Hymel\\_posterANG.pdf](http://www.excellence-jeunesenfants.ca/documents/Hymel_posterANG.pdf).
- <sup>40</sup> TECCS Initiative, UCLA Center for Healthier Children, Families, and Communities, "Psychometric Properties of the Early Development Instrument," (Los Angeles, not dated).
- <sup>41</sup> *Ibid.*
- <sup>42</sup> Maria Yau and Robert S. Brown, "The TDSB EDI Kindergarten Cohort Study: An Analysis of EDI Assessment in Kindergarten and EQAO Results, 3 and 6 Years Later (Preliminary Findings)," (Toronto, 2007); available at [http://www.offordcentre.com/readiness/files/2008\\_05\\_26\\_SK\\_EDI\\_and\\_EQAO\\_MYau.pdf](http://www.offordcentre.com/readiness/files/2008_05_26_SK_EDI_and_EQAO_MYau.pdf).
- <sup>43</sup> Washington State, *A Guide to Assessment*, 118.
- <sup>44</sup> Brookes Publishing Company, "Ages and States Questionnaire Cost Estimator," data entered for 2600 sites, 20 students per site, 1 administration per child per year, <http://www.agesandstages.com/calculator/cost.html>.
- <sup>45</sup> TECCS Initiative, UCLA Center for Healthier Children, Families, and Communities, "Cost Fact Sheet for TECCS 2010 for Local Lead Agencies," (Los Angeles, not dated).
- <sup>46</sup> Cindy Walsh, Offord Centre for Child Studies, telephone conversation with the author, December 8, 2009.
- <sup>47</sup> NCS Pearson, Inc., "Pricing Information," available at <http://www.worksamplingonline.com/School/Home/Info/SiteLicense.cfm>.