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# Minnesota School Readiness Study

Developmental Assessment  
at Kindergarten Entrance  
Fall 2006

**FULL REPORT VERSION**



*Minnesota*  
**Department**  
*of* Education

## Acknowledgements

*The Minnesota School Readiness Study: Developmental Assessment at Kindergarten Entrance Fall 2006* was planned, implemented, and the report prepared by the Minnesota Department of Education (MDE) under the leadership of Early Learning Services Director Karen Carlson. Nancy Wallace consulted on directions for training and Dr. Margaret Burchinal provided the statistical analysis.

The following individuals provided training to the kindergarten teachers on the use of the Work Sampling System of Child Assessment<sup>®</sup> and the Work Sampling Online System:

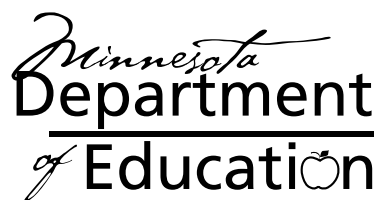
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Nancy Wallace, National Faculty, Work Sampling System

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## History

A large and growing body of research supports the critical relationship between early childhood experiences, school success, and positive life-long outcomes (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Reynolds, Temple, Robertson, & Mann, 2001; Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005). In recognition of this, in 2002 the former Minnesota Department of Children, Families and Learning (CFL) included within its goal of High Achievement for All Students the indicator: Increase the percentage of young children who are ready for school.

Assessing the readiness of children as they enter school is an important issue in many states in large part because of increased accountability pressures in both the public schools and early care and education settings (Maxwell & Clifford, 2004, p. 42). According to Quality Counts 2007, an annual report of national education policy trends, 16 states require districts to assess school readiness at entrance to kindergarten. With no systematic process in place to assess increases in school readiness in Minnesota in 2002, the department initiated a series of three yearly studies focused on obtaining a picture of the school readiness of a representative sample of Minnesota kindergartners as they enter school in the fall. The studies were well received by the public, and during the 2006 Minnesota state legislative session, Governor Tim Pawlenty proposed and the legislature appropriated funding for the study to be continued on an annual basis.

The objective for the first year of the study, *Minnesota School Readiness Initiative: Developmental Assessment at Kindergarten Entrance Fall 2002 Pilot Study* (2003), was to pilot a system for assessing the school readiness of a random sample of Minnesota kindergarten children and to obtain a picture of the readiness of Minnesota kindergartners entering Minnesota elementary schools in the fall of 2002. In 2003, the Minnesota Department of Education (MDE), in partnership with the Minnesota Department of Human Services (DHS), continued to emphasize accountability as part of the theme of academic

excellence with the *Minnesota School Readiness Year Two Study: Developmental Assessment at Kindergarten Entrance Fall 2003* (2004). The purposes of the Year Two study were to provide a second year of a statewide profile of children's school readiness with a larger random sample of kindergarten children and to pilot a parent survey requesting early childhood care and education, and family background information based on recommendations in the first-year study. In the Year Three study, the emphasis of the study shifted to strategically selecting school districts across the state, assessing all kindergarten children on their school readiness from the chosen districts and then engaging the communities in these selected districts in strategic planning to increase the percentage of children in their districts ready for school success.

For the 2006 study, the objective of the study returned to the focus of providing a current statewide profile of children's preparedness for entering kindergarten. This report summarizes study findings from previous representative studies and describes findings from the assessment of school readiness with a random sample of children entering kindergarten in fall 2006.

It is the intent of the Minnesota School Readiness Studies to use the results to inform teachers; parents; school administrators; early childhood education and care teachers, providers and administrators; policymakers; and the public about progress towards the goals of ensuring that children are ready for school and schools are ready for children. It is expected that the results will promote children's learning and development over time by improving early childhood programs and services, better preparing schools to meet the needs of children as they enter school, and easing the transition for children and families from home to school. The information gathered to complete the studies developmental checklists is a valuable resource to teachers in modifying curriculum, working with individual children in their classrooms, preparing for parent conferences, and identifying children eligible for Title I and other services.

## Definition of School Readiness

For purposes of the studies, school readiness is defined as the skills, knowledge, behaviors, and accomplishments that children know and can do as they enter kindergarten in the following areas of child development:

- ✚ Social and emotional development
- ✚ Approaches to learning
- ✚ Language and literacy development
- ✚ Creativity and the arts
- ✚ Cognition and general knowledge
- ✚ Physical well-being and motor development

Results of the studies on kindergarten entrance developmental assessment are presented along the five domains assessed — Personal and Social Development; Language and Literacy; Mathematical Thinking; The Arts; and Physical Development — and the three levels of readiness — *proficient, in process, and not yet*. ***Because children develop and grow along a continuum with great variability, the goal of these studies is to assess children's proficiency within and across these developmental domains and not establish whether or not children are ready for school with the use of a composite ready or not ready score.*** Young children develop rapidly and at varying rates across the domains, and an early, definitive determination of readiness can have unintended negative consequences. The three readiness levels are used — *not yet, in process, and proficient* — for each domain to provide an overview of children's readiness that does not label or stigmatize young children and recognizes variation across many indicators of development within and across domains.

## **Assessment Process for the Study**

The Work Sampling System<sup>®</sup> (WSS<sup>®</sup>), a standards-based observational assessment system designed to provide information about individual student's achievement and progress over time (Dichtelmiller, Jablon, Dorfman, Marsden, & Meisels, 2001), was again used for the assessment for the following reasons:

**1. The WSS<sup>®</sup> meets all of the criteria of authentic assessment:**

- ¥ Fair to all children regardless of culture, language background, developmental level, family background, learning style, etc.;
- ¥ Uses familiar tasks and everyday classroom activities;
- ¥ Conducted in familiar settings with familiar people;
- ¥ Based on multiple sources of information; and
- ¥ Continuous and ongoing to show progress and growth over time (Dichtelmiller & Jablon, 1993; Hill, 1992; Scott-Little & Niemeyer, 2001).

**2. MDE has provided training in and encouraged use of the WSS<sup>®</sup> in Minnesota public school School Readiness programs and other early childhood programs since 1994.**

**3. The WSS<sup>®</sup> is an approved assessment for all Title I children in kindergarten, and, consequently, most Minnesota kindergarten teachers are already trained in the use of it.**

The customized Minnesota WSS<sup>®</sup> Developmental Checklist that was developed for this study was used by kindergarten teachers to again assess kindergarteners during the first six weeks of the 2006-2007 school year. This version of the checklist includes 32 indicators selected from the WSS<sup>®</sup> Preschool — 4 Developmental Guidelines (Dichtelmiller, Jablon, Marsden, & Meisels, 2001) (see Appendix A). These indicators were selected because they represent what children should be able to do at the end of the year before they enter kindergarten based on widely held developmental expectations.

As in the previous versions of the study, kindergarten teachers observed and documented students' responses to everyday classroom activities that are already part of the ongoing curriculum and instruction



process to rate children's performance. Each domain and developmental indicator within the WSS's Developmental Checklist includes expected behaviors for children at that age or grade level. For each indicator, teachers used guidelines to rate the child's performance as:

¥ *Not Yet* - indicating that the child cannot perform the indicator, i.e., the performance indicator represents a skill, knowledge, behavior or accomplishment not yet acquired.

¥ *In Process* - indicating that the skill, knowledge, behavior, or accomplishment represented by this indicator is intermittent or emergent, and is not demonstrated reliably or consistently.

¥ *Proficient* - indicating that the child can reliably and consistently demonstrate the skill, knowledge, behavior, or accomplishment represented by this performance indicator.

Teachers use the WSS's Developmental Guidelines books for the age group with whom they work to rate children based on their observations and documentation and the correspondence between these and the rationales and examples for each indicator as described in the Guidelines. The WSS's Developmental Guidelines are designed to enhance the process of observation and to ensure the reliability between teachers and the consistency of a single teacher's observations (Dichtelmiller, Jablon, Marsden, & Meisels, 2001). Appendix B includes sample rationales and examples for a selected indicator in each of the five domains as an example of the guidelines that teachers use in making their ratings.

In order to help streamline the process of the study, the department decided to move from the paper version of the WSS's Developmental Checklist to the Work Sampling Online (WSO) System for the 2006 Study. Teachers and schools were given immediate access to their class and/or school specific data by moving to this online system. This supported the use of the data in a timely manner to develop and revise curriculum and/or use during parent conferences. Additionally, study participants had the option to continue to use WSO to assess students at the kindergarten level after the close of the study to track student progress throughout the remainder of the school year.

WSO allowed for teachers to enter individual student ratings into an online system and included a place for teachers to indicate each child's gender, date of birth, special education status and the Minnesota Automated Reporting Student System (MARSS) Code for the child which is assigned to each student during early childhood screening.

Principals and teachers reported a number of benefits to using the online software system, including the ability to complete ratings more quickly and a faster turn-around of class and school summary data. Overall, teachers and principals rated the system as very easy to use in the follow-up survey of the study. Additionally, according to the follow-up survey, approximately one-third of study schools planned to continue using the system to track children's progress over the course of the school year.

There were a number of minor issues with WSO that have been identified for future revision including modifying the description of several data entry fields for additional clarity. In addition, the online reporting system uses slightly different calculations than the study. For comparison purposes, statewide reports will continue to use calculations from previous years. Previous statewide reports use averages for broad-based populations across indicators to calculate domain totals. For example, the number and percent of children scoring in process on each indicator within a domain are averaged to create the domain level rating.

Comparatively, WSO, developed primarily for teachers in the classroom, uses a different process in assigning each child an individual domain rating. After each child is assigned an individual domain rating, their rating level is tallied with others and summed for the classroom. There is also a minor difference in the formula used to identify in process and proficient in several domains between the state calculation and WSO. Schools will receive school specific summary information using the previous process to allow comparisons to the state level findings in the current year as well as historical reports.

## **Parent Survey**

During Year Two a parent survey was introduced to the study (see Appendix C). The parent survey includes family information questions focused on demographic data that have been shown to be associated with school readiness in other research.

Many elementary schools hold orientations or open houses for kindergarten parents within a few days of the beginning of kindergarten, and some kindergarten teachers do home visits with each student. It was expected that these were logical times for the teachers to ask the parents to complete and return the surveys.

## **Study Preparation**

During the 2006 legislative session the Legislature passed provisions for the continuation of the *Minnesota School Readiness Study* on an annual basis and Governor Pawlenty signed the bill into law on June 2, 2006. The department took immediate action to implement the study for the fall of 2006 and sent out invitations to a pool of randomly selected elementary schools. A total of 322 schools received an invitation to participate.

All schools involved in the study were identified by late August. Informational packets with the customized WSS□ Developmental Checklists were then mailed to principals and kindergarten teachers in the 48 participating elementary schools. These materials included kindergarten teacher instructions and a timeline for the process, a chart listing the 32 Preschool-4 school readiness indicators being assessed along with a list of the corresponding 32 kindergarten indicators with rationale and examples for each from the WSS□ Preschool-4 and Kindergarten Guidelines 4th Edition booklets, and tips for using the WSS□ in the first six weeks of school. Final data was submitted from 5.8 percent (48) of public schools with kindergarten students and 5 percent (2,987) of kindergartners. Final numbers of participants were lower than the targeted 10 percent, due to the delay of recruitment efforts until the bill was passed.

All kindergarten teachers in the selected elementary schools were asked to observe all children in their classrooms between the first week of school and October 16, 2006, in order to minimize the impact of kindergarten instruction on observational results. Teachers documented what they observed, rated each child's performance on each indicator using the WSS's Developmental Preschool-4 Guidelines, and recorded their ratings into WSO for each child. Kindergarten teachers also asked one parent/guardian of each student to complete the parent survey during orientations, open houses, home visits, or other contacts.

Teachers used the "For teacher use only" box at the bottom of the developmental checklist to enter a child code meaningful to them in order to be sure that the parent survey responses for each child corresponded to their developmental assessment ratings.

Data on the WSS's results and the parent surveys were compiled and sent to Dr. Margaret Burchinal, Senior Scientist and Director of the Design and Statistical Computing Unit at the Frank Porter Graham Child Development Center at the University of North Carolina, Chapel Hill. Dr. Burchinal's work includes leading and advising on multiple National Institute of Child Health and Development research grants in early education and other research projects involving the complex interactions between child outcomes and life experiences in home- and school-based settings.

## Sample Demographics

Selecting a demographically and geographically representative sample of kindergarten children was a high priority for the study. The sample was created by randomly selecting schools from six strata that differentiate schools based on size and location. The pool from which schools were selected did not include charter, specialty, or private schools.

The most recent elementary school-level demographic data was obtained from the MDE Information Technology-Data Administration division. These data included:

- ¥ Enrollment in the Free Lunch program (incomes 135 percent Federal Poverty Guidelines (FPG) and under)
- ¥ Enrollment in the Reduced Price Lunch program (incomes between 136 percent and 185 percent FPG)
- ¥ Limited English Proficiency (LEP)
- ¥ Minority rate (Asian, Black, Caucasian, Hispanic, Native American)
- ¥ Special Education Status

The random sample represents schools across the state, including magnet schools that enrolled at least one kindergarten student in 2005-2006 with the final sample having an average enrollment of 69 kindergartners per school. Recruitment efforts began immediately following the bill's passage which coincided with the last week of school for many sites. Typical recruitment in past years occurred in late March or early April. Plans for the 2007 study include earlier recruitment and a larger initial invitation sample. However, in 2006, approximately one-third of the sample did state year-long access to WSO would be an incentive for them to participate in the study, and thus future participating schools will continue to be able to use WSO throughout the year at no charge for the kindergarten students in the study.

Sample schools reflect the state population in the areas of free (26 percent) and reduced price (9 percent vs. 8 percent) lunch, and special education (14 percent vs. 13 percent). Sample schools slightly under represent the state population for the percent of minority children (21 percent vs. 24 percent). The sample also reflects the state level of Limited English Proficiency in the state (8 percent vs. 9 percent).

## **Limitations**

The main limitation of the 2006 study was the late recruitment and the resulting sample size being smaller than the goal of 10 percent. Additional challenges involved moving the study to an electronic format through WSO in a short timeframe. However, many teachers reported using WSO allowed for faster documentation and they appreciated the automated report functions available in the system. Additionally, while many schools participation in the study hinged on web-based training (versus in-person), there were multiple challenges in enrolling staff for these trainings. MDE did provide compact disks with recorded trainings for staff that could not access the original training on the specified dates. Future years will allow for pre-recorded web-based trainings for teachers and principals to download at their convenience.

## 2006 Results

The domain rankings by proficiency for the 2006 study mirror those from Year 3, which was a strategic sample, with Physical Development having the highest percentage of children assessed *proficient*, followed in order by The Arts; Personal and Social Development; Language and Literacy; and Mathematical Thinking. This is similar to Years 1 and 2 where the results inverted the order for the Personal and Social Development and The Arts, however the difference in percentage points between these two domains across the four years is never more than two percentage points. See Table 1 for the domain summary and Table 2 for indicator rankings for 2006 Results.

**Table 1. Readiness Level by Domain**

Domain/Result	Not Yet	In Process	Proficient
Physical Development	N=91 3%	N=769 26%	N=2,118 71%
The Arts*	N=148 6%	N=974 36%	N=1,566 58%
Personal & Social Development	N=227 8%	N=1,053 35%	N=1,699 57%
Language & Literacy	N=289 10%	N=1,073 36%	N=1,616 54%
Mathematical Thinking	N=271 9%	N=1,152 39%	N=1,552 52%

Note that categories may not add to 100% due to rounding.

\*Does not represent full sample.

**Table 2. Readiness Level by Domain Indicators Ranked by Proficiency Rating**

	Not Yet		In Process		Proficient	
	Percent	N	Percent	N	Percent	N
<b>Physical Development</b>						
Physical Development Average Score Summary	3%	91	26%	769	71%	2,118
Performs some self-care tasks independently	3%	84	23%	685	74%	2,207
Coordinates movement to perform simple tasks	3%	74	26%	779	71%	2,126
Uses eye-hand coordination to perform tasks	4%	114	28%	843	68%	2,022
<b>The Arts*</b>						
The Arts Domain Average Score Summary	6%	148	36%	974	58%	1,566
Participates in group music experiences	4%	117	34%	1,017	62%	1,848
Participates in creative movement, dance and drama	6%	182	35%	1,057	58%	1,719
Uses a variety of art materials for tactile experience and exploration	6%	168	38%	1,131	56%	1,673
Responds to artistic creations or events*	4%	121	23%	672	33%	969
<b>Personal &amp; Social Development</b>						
Personal & Social Development Domain Average Score Summary	8%	227	35%	1,053	57%	1,699
Interacts easily with familiar adults	4%	129	31%	922	65%	1,930
Interacts easily with one or more children	7%	205	32%	956	61%	1,817
Shows caring and empathy for others	6%	190	32%	963	61%	1,827
Shows eagerness and curiosity as a learner	6%	179	34%	999	60%	1,803
Follows simple classroom rules and routines	7%	207	35%	1,057	58%	1,718
Manages transitions	8%	223	35%	1,035	58%	1,719
Shows some self-direction	7%	214	38%	1,125	55%	1,642
Seeks adult help when needed to resolve conflicts	9%	253	38%	1,148	53%	1,577
Attends to tasks and seeks help when encountering a problem	10%	307	39%	1,159	51%	1,515
Approaches tasks with flexibility and inventiveness	12%	368	39%	1,159	49%	1,448
<b>Language &amp; Literacy</b>						
Language & Literacy Domain Average Score Summary	10%	289	36%	1,073	54%	1,616
Shows appreciation for books and reading	5%	135	31%	931	64%	1,917
Speaks clearly enough to be understood without contextual clues	8%	248	31%	912	61%	1,821
Gains meaning by listening	7%	203	35%	1,044	58%	1,736
Comprehends and responds to stories read aloud	7%	217	35%	1,030	58%	1,717
Follows two and three-step directions	11%	322	35%	1,053	54%	1,609
Shows beginning understanding of concepts about print	10%	283	37%	1,107	53%	1,594
Begins to develop knowledge about letters	10%	290	37%	1,109	53%	1,581
Represents ideas and stories through pictures, dictation and play	9%	262	39%	1,160	52%	1,556
Uses expanded vocabulary and language arts for a variety of purposes	12%	363	36%	1,073	51%	1,535
Uses letter-like shapes, symbols and letters to convey meaning	13%	392	39%	1,171	47%	1,406
Demonstrates phonological awareness	16%	469	41%	1,209	44%	1,301
<b>Mathematical Thinking</b>						
Mathematical Thinking Domain Average Score Summary	9%	271	39%	1,152	52%	1,552
Begins to recognize and describe the attributes of shapes	7%	212	38%	1,136	55%	1,631
Shows beginning understanding of number and quantity	8%	234	38%	1,146	54%	1,598
Shows understanding of and uses several positional words	9%	271	37%	1,096	53%	1,596
Begins to use simple strategies to solve mathematical problems	12%	371	41%	1,226	46%	1,382

Note that categories may not add to 100% due to rounding.

\*Does not represent full sample.



## Physical Development

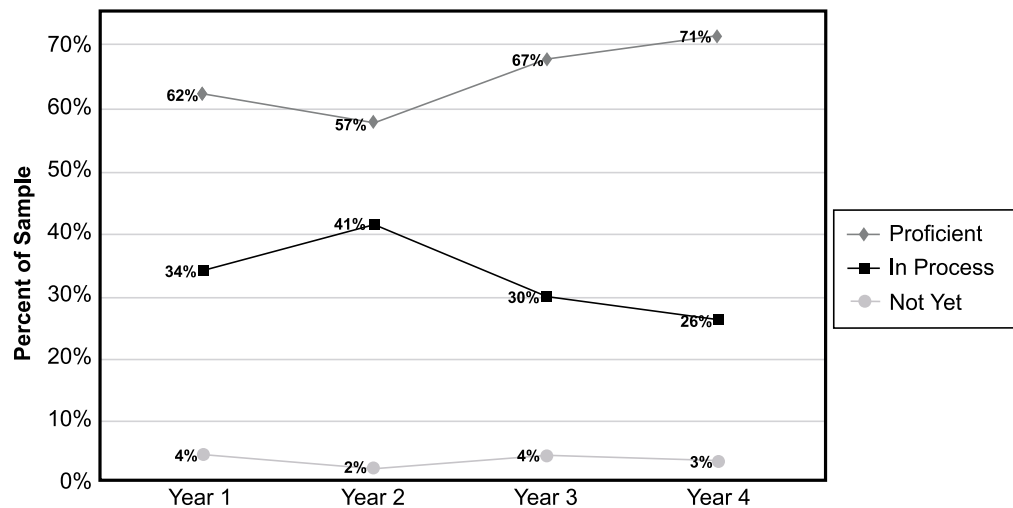
Students were most *proficient* on average in the Physical Development domain, continuing trends from previous years. An average of 71 percent of students were *proficient* in this domain. Table 3 demonstrates a higher level of average proficiency in 2006 as compared to Year 2. This increase of fourteen percentage points represented the largest increase in any domain for 2006. Students *not yet* demonstrating proficiency on average in this domain remained relatively unchanged. The indicator with the highest *proficiency* (74 percent) was performs some self-care tasks independently and the indicator with the lowest percentage of students assessed *proficient* (68 percent) was uses eye-hand coordination to perform simple tasks.

Table 3 - **Physical Development**

	Year 1	Year 2	Year 3	Year 4
Not Yet	4%	2%	4%	3%
In Process	34%	41%	30%	26%
Proficient	62%	57%	67%	71%

\*Note that categories may not add to 100% due to rounding.

Chart 1. Physical Development



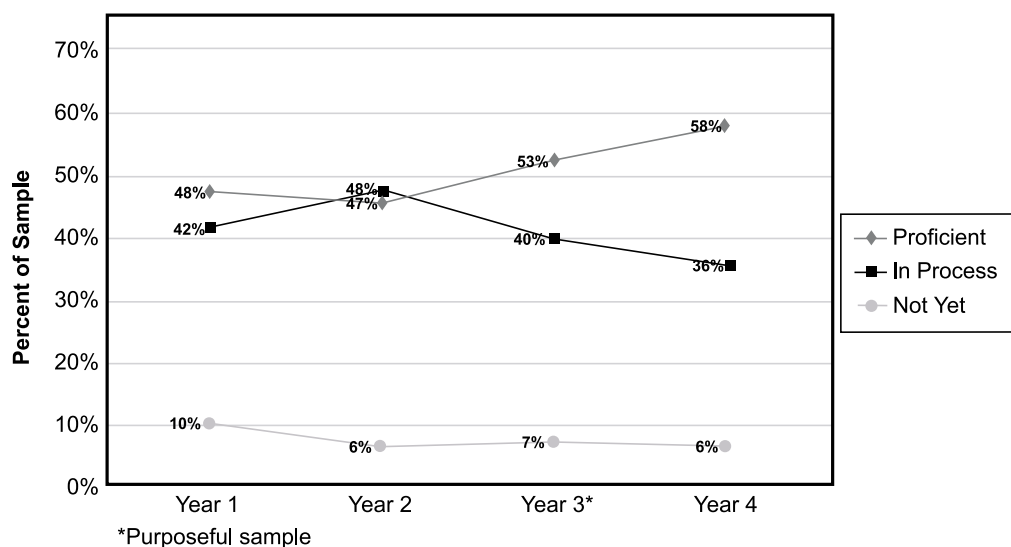
## The Arts

The domain with the second highest rate of average proficiency (58 percent) was The Arts. This was a large change from Year 2 with most of the movement coming from the *in process* category while the *not yet* category remained relatively unchanged. Table 4 demonstrates the movement from Year 2 to 2006. The indicator with the most proficiency was participates in group music experiences with 62 percent students assessed *proficient*. The indicator with the least amount of proficiency was responds to artistic creations or events (33 percent).

Table 4 - The Arts				
	Year 1	Year 2	Year 3	Year 4
Not Yet	10%	6%	7%	6%
In Process	42%	48%	40%	36%
Proficient	48%	47%	53%	58%

\*Note that categories may not add to 100% due to rounding.

Chart 2. The Arts



## Personal and Social Development

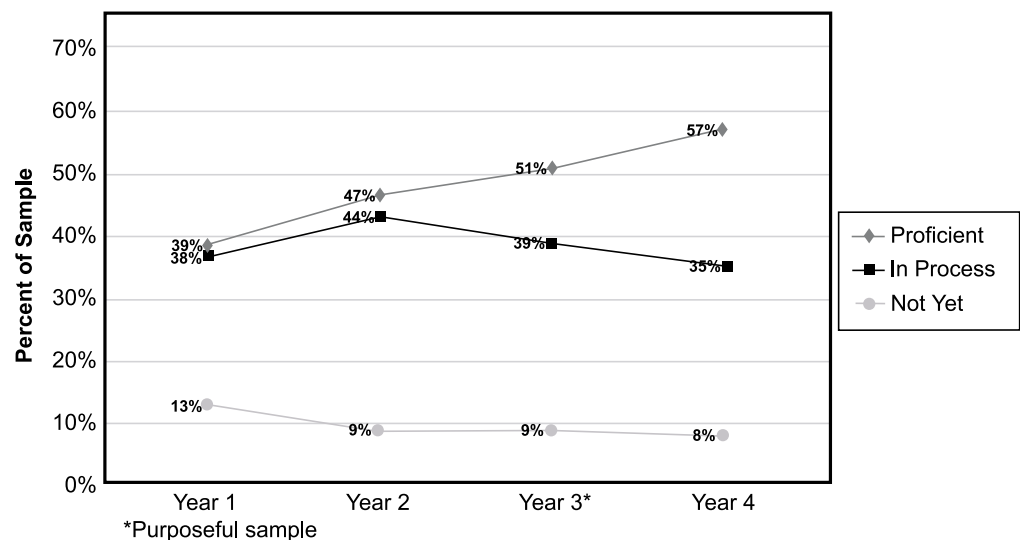
On average, 57 percent of students were assessed *proficient* in Personal and Social Development. This represented a large movement from Year 2 when, on average, 47 percent of students were assessed *proficient*. (See Table 5) Again, most of this shift appeared to be coming from the *in process* category while the *not yet* category showed a small decline over time. Students were most *proficient* in the following indicators: interacts easily with familiar adults (65 percent), interacts easily with one or more children (61 percent), and shows empathy and caring for others (61 percent). Students were least proficient in the following indicators: seeks adult help when needed to resolve conflicts (53 percent), attends to tasks and seeks help when encountering a problem (51 percent), and approaches tasks with flexibility and inventiveness (49 percent).

**Table 5 - Personal & Social Development**

	Year 1	Year 2	Year 3	Year 4
Not Yet	13%	9%	9%	8%
In Process	38%	44%	39%	35%
Proficient	39%	47%	51%	57%

\*Note that categories may not add to 100% due to rounding.

**Chart 3. Personal and Social Development**



## Language and Literacy

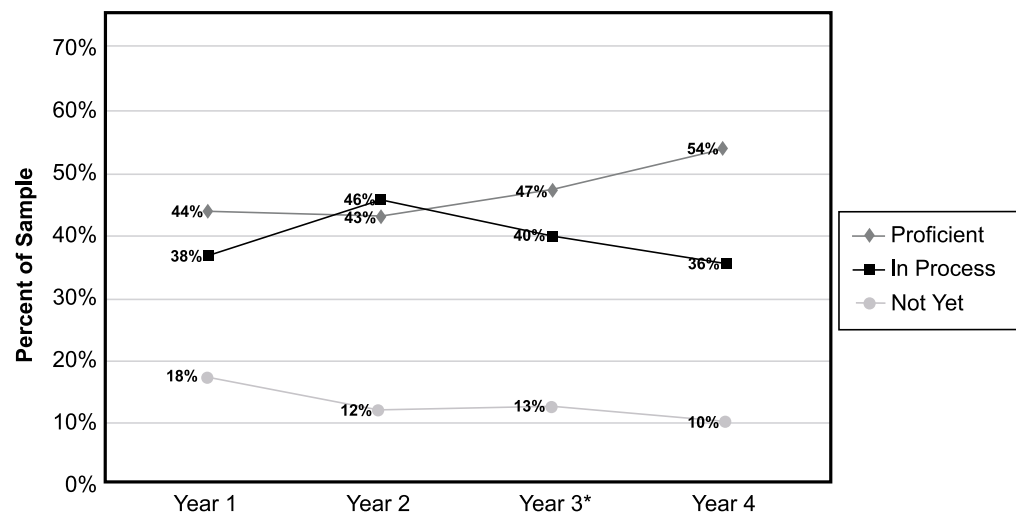
On average, 54 percent of students were assessed *proficient* in the domain of Language and Literacy. This is an eleven percentage point increase, on average, from Year 2, continuing an upward trend since Year 1. (See Table 6) The *not yet* category decreased slightly to, on average, 10 percent of students not yet demonstrating proficiency in this domain. The increase in the *proficient* category appeared to be coming from the *in process* category and to some extent the *not yet* category. The indicators with the highest percent of students being proficient were: shows appreciation for books and reading (64 percent), speaks clearly enough to be understood without contextual clues (61 percent), and gains meaning by listening (58 percent). The indicators with the lowest percent of students being assessed *proficient* were: uses expanded vocabulary and language for a variety of purposes (51 percent), uses letter-like shapes, symbols, and letters to convey meaning (47 percent), and demonstrates phonological awareness (44 percent).

**Table 6 - Language & Literacy**

	Year 1	Year 2	Year 3	Year 4
Not Yet	18%	12%	13%	10%
In Process	38%	46%	40%	36%
Proficient	44%	43%	47%	54%

\*Note that categories may not add to 100% due to rounding.

**Chart 4. Language and Literacy**



\*Purposeful sample

## Mathematical Thinking

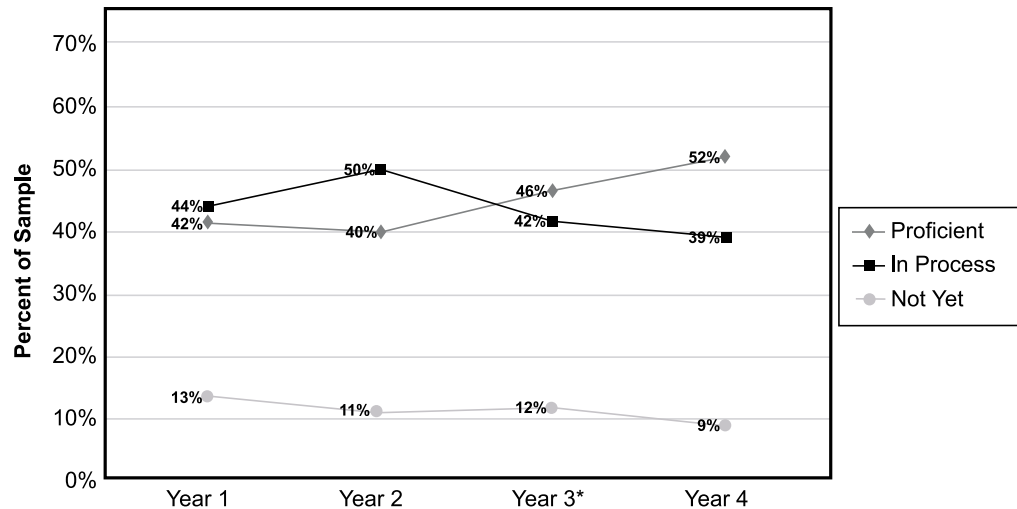
On average, 52 percent of students were assessed *proficient* in the domain of Mathematical Thinking. This represented a twelve percentage point increase from Year 2 with most of the increase coming from the *in process* category. (See Table 7) The *not yet* category, on average, demonstrated a small decrease from Year 2. The indicator with the highest percent of students assessed *proficient* was begins to recognize and describe the attributes of shapes (55 percent). The indicator with the lowest percent of students assessed *proficient* was begins to use simple strategies to solve mathematical problems (46 percent).

Table 7 - Mathematical Thinking

	Year 1	Year 2	Year 3	Year 4
Not Yet	13%	11%	12%	9%
In Process	44%	50%	42%	39%
Proficient	42%	40%	46%	52%

\*Note that categories may not add to 100% due to rounding.

Chart 5. Mathematical Thinking



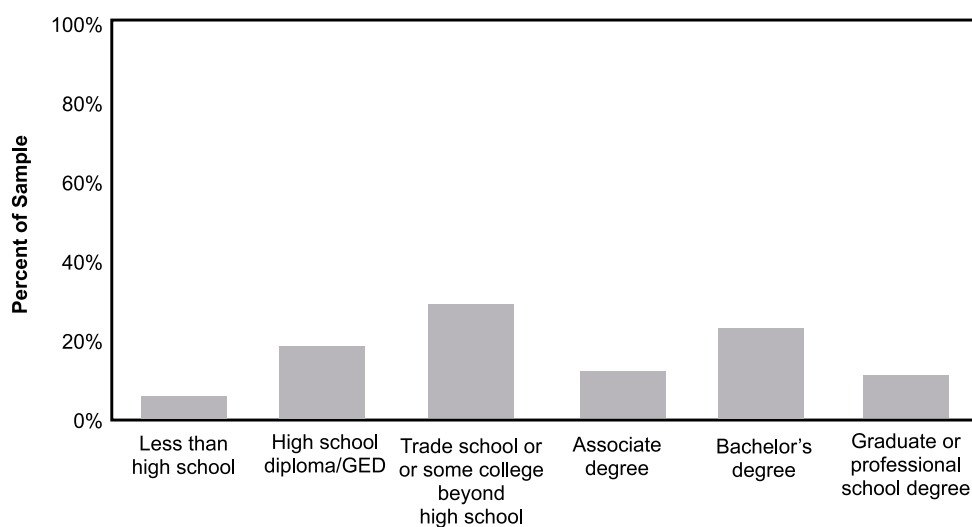
\*Purposeful sample

## Participant Demographic Analysis

Parents of each student were asked to complete a brief survey. As part of this process, 2,621 out of 2,987 surveys were completed for an 88 percent response rate. The following discusses the results of the completed surveys.

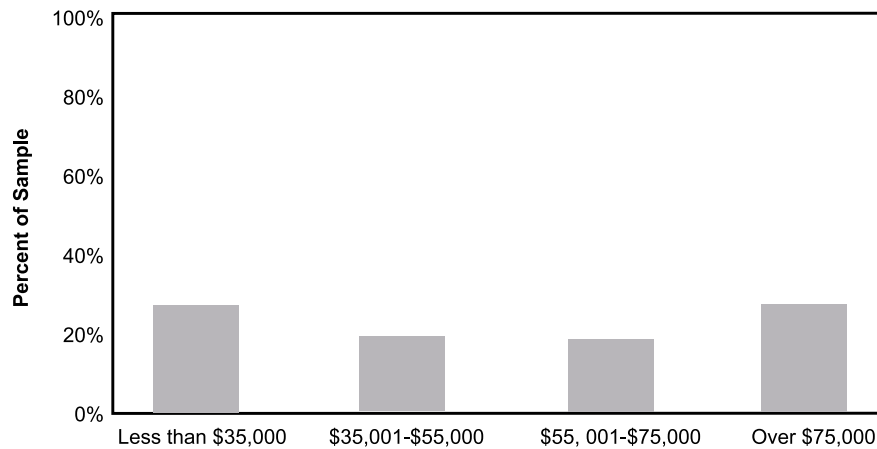
From completed surveys, 6 percent of the children in this sample had a parent that had less than a high school level of education; 19 percent had a parent whose highest level of education completed was high school or a GED; 29 percent had a parent whose highest level of education completed was trade school or some college beyond high school; 12 percent had a parent whose highest level of education completed was an Associate degree; 24 percent had a parent whose highest level of education completed was a Bachelor's degree; and 11 percent had a parent whose highest level of education completed was a graduate or professional school degree. (See Chart 6)

Chart 6. Parent Education Level



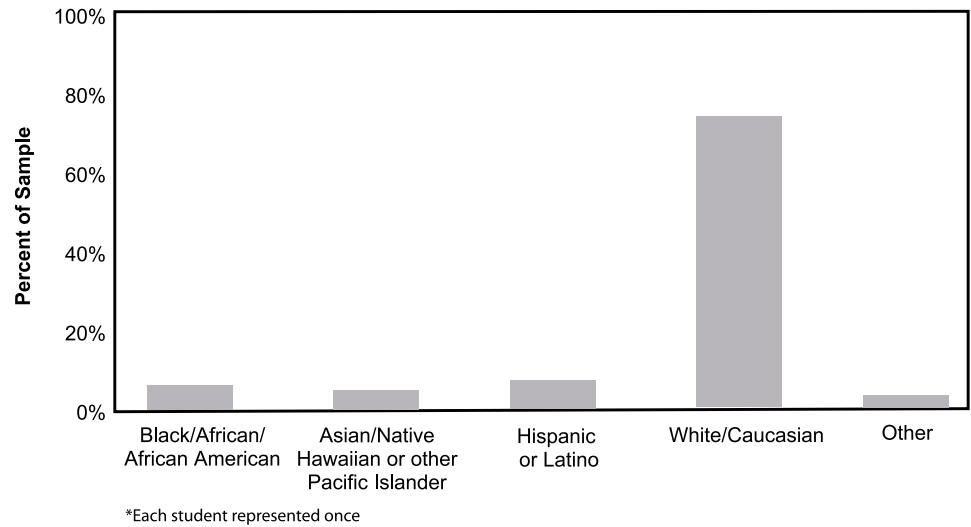
Slightly less than one-third of parents (28 percent) reported an annual household income of less than \$35,000 before taxes; 22 percent reported household incomes between \$35,001-\$55,000; 21 percent reported household incomes between \$55,001-\$75,000; and 29 percent reported household incomes over \$75,000. (See Chart 7)

Chart 7. **Household Income**



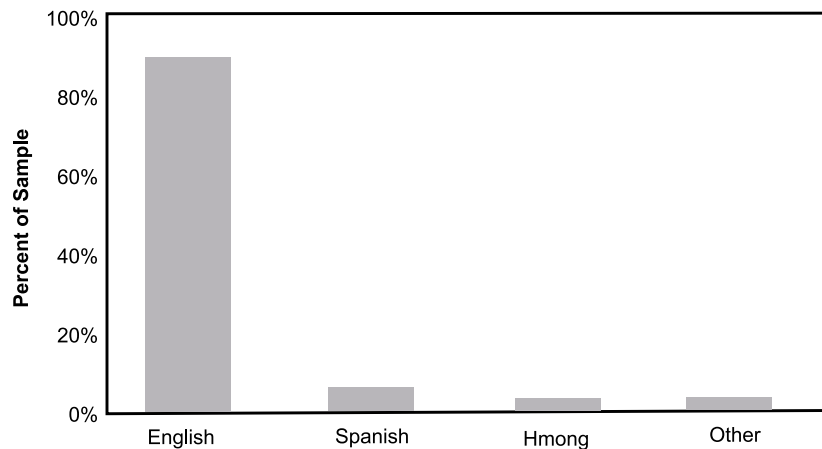
In the race and ethnicity category, each child was represented only once. Parents reported that their kindergarten child was Black/African /African American (7 percent), Asian/Native Hawaiian or other Pacific Islander (6 percent), Hispanic or Latino (9 percent), White/Caucasian (74 percent) or Other (4 percent). (See Chart 8).

Chart 8. **Race and Ethnicity of Student\***



English was the primary home language for 88 percent of the students, Spanish for 6 percent, Hmong for 3 percent and 4 percent speak other languages. (See Chart 9). Teachers report that 8 percent of children at kindergarten entrance had an Individualized Education Plan (IEP) or Individual Interagency Intervention Plan (IIIP). Teachers reported that 51 percent of the sample were boys and 49 percent were girls.

Chart 9. **Primary Home Language**





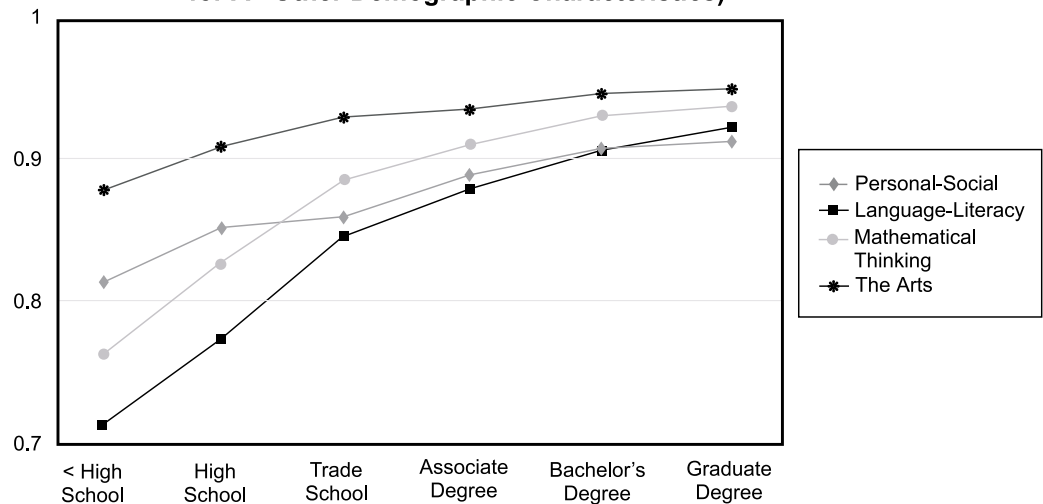
Analyzing demographics based on a single demographic category is useful in understanding the overall sample population and may help describe shifts in results across years as shifts in the population occur. Work presented in Appendix D demonstrates the overlap in some selected demographic categories. Dr. Burchinal, from the University of North Carolina, conducted this work as well as subsequent regression analyses. The next section describes the regression that jointly considers all demographic factors simultaneously with the domain level outcomes.

### **Demographics and Domain Results**

The logistic regression considered the domain result of not yet, in process or proficient as the independent variable. For purposes of analysis, in process and proficient were combined into one category. The dependent variables were gender, parent education level, household income, primary home language, and race and ethnicity. Each domain was analyzed along with sub-divisions of the Personal and Social Development and Language and Literacy domains to determine if there was a difference in performance on the distinct functional components that make up the domain. The Personal and Social Development domain was divided into the composite functional components of Self Regulation (Self Concept, Self Control and Approaches to Learning functional components) and Social Skills (Interactions with Others and Social Problem-Solving functional components). The Language and Literacy Domain was divided into the composite functional components of Listening/Speech (Listening and Speaking functional components) and Reading/Writing (Reading and Writing functional components).

## Parent Education Level

Chart 10. **Statistically Significant Findings on the Proportion of Children Rated as In Process or Proficient by Parent Education (Adjusted for All Other Demographic Characteristics)**



Note: Analysis was performed on all domains (Physical Development, The Arts, Personal and Social Development, Language and Literacy and Mathematical Thinking) and composite components (Self Regulation, Social Skills, Listening/Speech and Reading/Writing). Statistically significant results were found for the domains listed and the Self Regulation, Listening/Speech and Reading/Writing composite functional components. Functional component results did not differ greatly from their associated domain results.

Children whose parents had a higher education level were more likely to be rated as *in process* or *proficient* specifically in the Self Regulation composite functional component of Personal and Social Development, Language and Literacy, Mathematical Thinking and The Arts. Chart 10 shows the proportion of children rated as *proficient* or *in process* by levels of parent education, holding all other factors constant, for domains and composite functional components with statistically significant results. For example, in the domain of Language and Literacy, a one level increase in parent's education leads to 1.44 times the likelihood of being *in process* or *proficient* versus *not yet* as compared to the children in the next lower education level when all other demographic categories are held constant. Moving from the lowest level of education (less than high school), to the highest (graduate or professional school degree) — five steps, leads to 7.2 times the likelihood of being *in process* or *proficient* versus *not yet* when all other demographic categories are held constant.

All estimates with statistically significant findings on the likelihood of being *in process* or *proficient* versus *not yet* for a one-category increase in parent education are reported in Table 8. Parental education was not related to school readiness in the Social skills composite functional component of the Personal and Social Development domain or the Physical Development domain when all demographics were considered simultaneously.

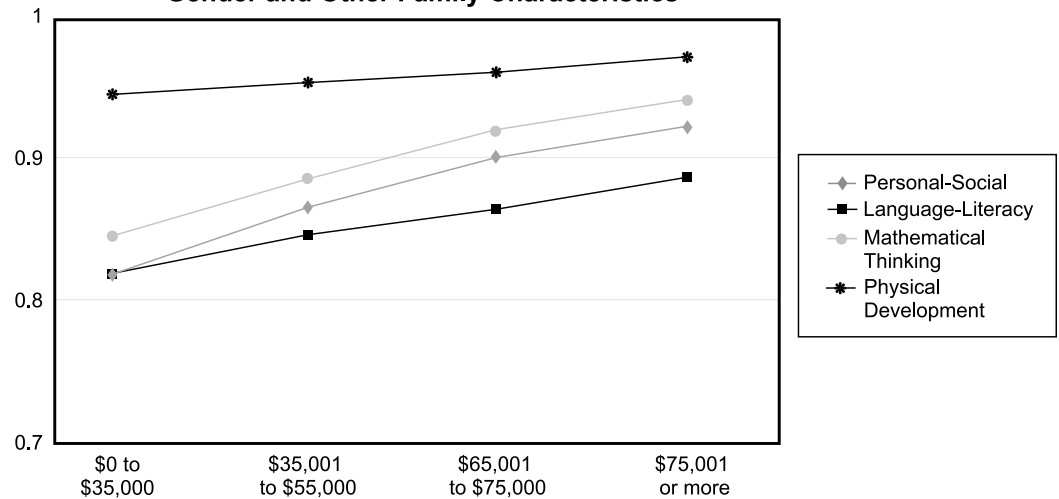
Table 8. Statistically Significant Results for an Increase in Likelihood of In Process or Proficient Versus Not Yet for a One Category Increase in Parent Education

Domain	Increase
The Arts	1.32
Personal and Social Development	1.22
Self-regulation	1.30
Language and Literacy	1.44
Listening and Speech	1.45
Reading and Writing	1.47
Mathematical Thinking	1.50

## Household Income

Similar to Parent Education Level, children whose families had a higher income were more likely to be rated as *in process* or *proficient* for all domains except The Arts. Even after accounting for all other demographics, higher incomes predicted a rating of *in process* or *proficient* in Personal and Social Development, Language and Literacy, Mathematical Thinking and Physical Development. See Chart 11 for the statistically significant results. For example, in the domain of Mathematical Thinking and Personal and Social Development, a one-category increase in the household income leads to 1.36 times the likelihood of being *in process* or *proficient* versus *not yet* as compared to the children in the next lower income category. Moving from the lowest income category to the highest, leads to over 4 times the likelihood of being *in process* or *proficient* versus *not yet* when all other demographic categories are taken into account for these two domains. All estimates with statistically significant findings on the likelihood of being *in process* or *proficient* versus *not yet* for a one-category increase in household income are reported in Table 9.

**Chart 11. Proportion of Children Rated as Near or At Proficiency by Household Income: Adjusted for Gender and Other Family Characteristics**



Note: Analysis was performed on all domains (Physical Development, The Arts, Personal and Social Development, Language and Literacy and Mathematical Thinking) and composite functional components (Self Regulation, Social Skills, Listening/Speech and Reading/Writing). Statistically significant results were found for the domains listed and all composite functional components. Functional component results did not differ greatly from their associated domain results.

**Table 9. Statistically Significant Results for an Increase in Likelihood of In Process or Proficient Versus Not Yet for a One Category Increase in Income**

Domain	Increase
Physical Development	1.48
Personal and Social Development	1.36
Self-regulation	1.34
Social Skills	1.45
Language and Literacy	1.19
Listening and Speech	1.22
Reading and Writing	1.29
Mathematical Thinking	1.36

### **Primary Home Language**

Primary home language was not statistically related to any of the overall domain scores when the overlap between primary home language, parent education level, race and ethnicity, and household income were considered jointly. Primary home language was only modestly related to proficiency in the composite functional component of Listening/Speech within the Language and Literacy domain.

### **Race and Ethnicity**

The logistic regression performed on these results indicated that race and ethnicity was not statistically related to a result of *in process* or *proficient* at the domain level when the overlap among race and ethnicity, parent education level, primary home language and household income were considered jointly.

### **Discussion of Regression Analysis — Demographics and Domain Results**

The results of the analysis in the categories of parent education level and family income are in line with national research. (Hart & Risley, 1995; National Research Council & Institute of Medicine, 2000). Higher levels of parent education and household income do tend to increase positive school readiness outcomes. Each level of increase in either income or education as measured in this study leads to improved domain results in school readiness. ***These characteristics are not pre-requisites*** for improved outcomes but they do add an insulating factor.

## **Principal and Teacher Follow-Up Survey Results**

The success of the study each year relies on the willingness of principals and kindergarten teachers to implement the study and submit the information. MDE conducts an annual follow-up survey to identify ways to improve the study. In 2006, 36 percent of the principals and 51 percent of teachers responded.

Principals responded that they received multiple benefits from participating in the study. Of these benefits, principals indicated the greatest benefits were: the ability to gain information about where students were at the beginning of the school year (89 percent), knowing that they were helping a study that will influence future statewide early childhood policy (83 percent) and receiving a \$100 school stipend to implement the new version of WSO (72 percent). (Schools received a \$100 stipend to recognize the additional effort that may be required in the school's central office with the shift to the Work Sampling Online environment). According to principals, the largest potential barrier identified was the current workload of kindergarten teachers (83 percent) followed by the availability of Work Sampling Training (28 percent). Principals reported using the information to identify children's needs earlier in the year (61 percent), helping teachers target instruction to their class (61 percent) and to support collaboration with the early childhood community (44 percent). For 89 percent of the responding principals, the study represented a minimal (33 percent) or average (56 percent) effort for a special project. Seventy-one percent of principals stated that WSO was easy to moderately easy to use, and 70 percent reported the web-based trainings for the study were easy to moderately easy to access. The department will provide participants with multiple modes for training and ongoing communication about the study process.

Teachers reported they felt the top three benefits of participating in the study included: knowing that they were helping a study that will influence future statewide early childhood policy (81 percent), gaining information about where their students were at the beginning of school (78 percent) and receiving a \$200 teacher stipend (72 percent). The most commonly reported challenges were attending trainings (46 percent), collecting parent surveys (44 percent) and documenting child observations (31 percent). Seventy-four percent reported that the study

represented either a minimal (12 percent) or average (62 percent) amount of additional work for a special project. Seventy-five percent of teachers reported that they had an easy to average effort in gathering parent surveys. Nearly half of teachers (47 percent) responded that WSO was very easy to use while only 4 percent responded that it was more difficult than average to use. Forty-five percent (45 percent) of the responding teachers reported challenges in accessing the web-based trainings. Allowing for pre-recorded trainings, or trainings on compact disks sent via paper mail, could ease this difficulty in future years. Only one teacher per school was required to attend trainings and for those who did, two out of three found the trainings useful. Teachers would prefer to receive more information about the study beforehand but over 90 percent did feel that they received enough information during the study implementation. Communication prior to the study remains a challenge with schools limited summer schedules.

## Conclusions

Principals, teachers and additional school staff worked together to provide the information for this analysis including information on children's developmental domain results and the results of parent surveys. The 2006 study again confirms that children enter kindergarten with a range of skills, knowledge, behaviors, and accomplishments. Study results reflect the great variability in young children's knowledge and skills as is evident in observing any group of young children and borne out by research. It is not appropriate to expect that all children will come to school with the same level of skills and knowledge in all areas of development.

- 1. In all of the developmental domains assessed, a certain percentage of children entering kindergarten did not yet show the indicators of focus.** Based on findings from similar studies, these children are more likely than children who can perform the indicators to live in poverty or experience other risk factors making them vulnerable for school failure. Early childhood teachers, providers, administrators, and policymakers have a particular responsibility to focus special attention and resources on these children if they are to catch up to their peers and achieve in school.
- 2. Parent education level and family income appear to be related to readiness level.** Each level of increase in either income or education as measured in this study leads to improved domain results in school readiness. In all five developmental domains assessed — Language and Literacy, Mathematical Thinking, Personal and Social Development, The Arts, and Physical Development — the proportion of kindergartners not yet showing the skills, areas of knowledge, or specific sets of behaviors or accomplishments was highest for the children of parents with the least education and in the lower income levels. Race or ethnic group and primary home language did not appear to be factors when considering parent education level and income level. Additional work is required to determine the strength of the findings on race and ethnicity and primary home language. However, the results on parent education level and family income are consistent with research showing the impact of parent education level and poverty on children's school readiness and school success (Coley, 2002; Gershoff, 2003; Hart & Risley, 1995; Lee & Burkam, 2002; National Research Council & Institute of Medicine, 2000; Wertheimer & Croan, 2003; Zill & West, 2000).



- 3. Increases in proficient ratings were demonstrated in each of the five developmental domains from the Year 2 study.** The largest increase was in the domain of Physical Development with a 14 percentage point increase. In most cases, these trends were indicated in the Year 3 study. However, direct comparisons are not made to Year 3 as it was a strategic, not random, sample. These increases came as children move from the *in process* category to the *proficient* category in each domain. The least amount of movement occurred in the *not yet* categories for each domain.
- 4. Using performance-based assessments such as the Work Sampling System<sup>®</sup> is appropriate when working with elementary school principals and kindergarten teachers to assess children's readiness as they enter kindergarten.** Many kindergarten teachers are familiar with the Work Sampling System<sup>®</sup> of child assessment because they have used it to assess children in Title I in Minnesota. Most kindergarten teachers have participated in the needed training and have experience using Work Sampling. Therefore, teachers were able to use the same observation and documentation skills used for Title I assessment to rate the school readiness of children over a six-week period as they enter kindergarten. These teacher ratings can in turn be aggregated and analyzed to provide a meaningful developmental picture of the school readiness of a sample of Minnesota kindergarten children. A performance-based authentic assessment is particularly appropriate for use with young children who typically demonstrate wide variability in knowledge and skills and who benefit from a variety of opportunities to demonstrate what they know and can do. Teachers are also able to immediately apply this information to individualize instructional strategies across a range of domains and indicators.

## Recommendations

### **1. Continue to support parents in their role as children's first teachers. Parents are children's first and most important teachers and are critical to their children's success in school.**

Providing information to parents about developmentally appropriate ways in which they can extend their children's learning through everyday activities and routines is one way this can be done. Another way is to provide parent education choices to parents to inform and enhance their parenting skills. This is particularly important for parents with lower family incomes and those with lower education levels. Multiple methods can be considered in this work, including providing information via websites to reach parents less likely to attend community-based opportunities. Teachers can easily use the information from the Work Sampling System<sup>®</sup> to communicate children's progress to parents, and the movement to Work Sampling Online allows them continue to use the Work Sampling System<sup>®</sup> throughout the kindergarten year.

### **2. Focus on improving children's early language and literacy and mathematical skills, but not to the neglect of their personal and social skills and development in all areas.**

The developmental data from all four years of the study show that these samples of Minnesota kindergartners were less proficient in the domains of Language and Literacy and Mathematical Thinking when they enter kindergarten than they are in the other three domains studied — Physical Development, The Arts, and Personal and Social Development.

As was affirmed by the 2006 Minnesota Governor's Summit on School Readiness, instruction that accelerates literacy and language development and mathematical thinking in an appropriate manner is important to ensure children arrive at kindergarten fully prepared. Early language and literacy and math experiences that are age and developmentally appropriate should be included within the everyday activities of all children by parents, teachers, and caregivers. In doing so, care should be taken to avoid pushing academic activities for school-age children down to lower age levels inappropriately. In addition, other areas of development should not be neglected because of their recognized importance to school readiness and school success. Teachers and caregivers can examine indicators within the developmental domains where children are more and less proficient and target teaching strategies accordingly. For example, in Language and Literacy, the indicators in which kindergartners were consistently shown across years to enter school with the lowest level of proficiency were in demonstrating

phonological awareness; using letter-like shapes, symbols, and letters to convey meaning; using expanded vocabulary and language for a variety of purposes; and beginning to develop knowledge about letters. In Mathematical Thinking, beginning to use simple strategies to solve mathematical problems was consistently at low proficiency compared to other indicators. Compensatory services in language and literacy and mathematical thinking, such as Title I, accelerate learning in needed areas for young children at risk.

**3. Target more comprehensive, intensive education and services to those children (and their families) most likely to not yet show the skills, knowledge, behaviors, and accomplishments expected of children as they enter kindergarten.**

Programs that are more comprehensive and offer intensive education provide needed opportunities to children who are likely to struggle when they begin kindergarten and fall further behind as they continue in school. Based on study findings, paying particular attention to children in lower income categories and whose parents have lower levels of education is especially important and in line with national research.

The 2006 Minnesota Governor s Summit on School Readiness recognized that the number of years children attend quality early childhood programs and the length of program services are positively associated with children s learning and development. The summit also concluded that the most successful readiness programs provide instructional content and activities that are sufficient in length and intensity to address learning needs adequately and are organized in an intentional manner.

An intentional curriculum is recommended for helping children in families with lower incomes improve performance. An intentional curriculum is defined as content driven, research-based, emphasizing active engagement with the children including attention to social and regulatory skills, and is responsive to language and cultural diversity. An intentional curriculum is directive without using drill and kill strategies, enjoyable for young children, meets the developmental needs of the child and promotes positive peer and teacher interactions. (Klein & Knitzer, January 2007)

**4. Promote intervention strategies for children not yet demonstrating proficiency in at least one developmental domain.**

Work with school district and community leaders including superintendents, principals, kindergarten teachers, researchers, the business and faith communities, early childhood education teachers and caregivers, and parents to determine the most effective interventions to ensure children the best educational outcomes possible.

**5. Continue to increase schools' ability to respond to the varying needs of children as they enter kindergarten.**

The results of all four Minnesota School Readiness Studies confirm that children come to kindergarten with variability in their skills, knowledge, behaviors, and accomplishments. Some of the variability may be due to the lack of opportunities some children are given to express their capabilities. Although much can be done during the child's early years to enhance these skills, knowledge, behaviors, and accomplishments, variability is normal for children entering kindergarten. School district and community leaders including superintendents, principals, kindergarten teachers, the business and faith communities, local policymakers, early childhood education teachers and caregivers, and parents can use results from the study as they work together to identify best practices for addressing this variability and supporting children's transition into kindergarten.

**6. Continue to work toward improving the quality of early childhood education and care programs in Minnesota.**

Research tells us that children's development and learning is positively affected if early childhood education and care programs are of high quality. This definition of quality includes a focus on the importance of the teacher's interactions with individual students to be able to best meet their educational needs through instruction. Quality early childhood education and care programming is of particular importance in helping to reduce the number of children who have inconsistently or not yet acquired the skills, knowledge, behaviors, and accomplishments expected as they enter kindergarten. The high number of Minnesota young children cared for on a regular basis by someone other than a parent or attending an early childhood program outside the home (Legislative Commission on the Economic Status of Women, 2004) heightens the importance of this recommendation.

**7. Consider implications for adult education and family literacy programs and programs geared toward increasing job skills and consequent family income level.**

Study results over the past three years have consistently shown levels of readiness to be related to a parent's education level and household income. These findings point to the value of adult education and family literacy programs that have as their focus increasing the literacy of parents as well as children, thereby improving the ability of parents to secure better employment at the same time as they work to support their children's development in language and literacy and other domains.

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## Appendices



- A. Minnesota Work Sampling System<sup>®</sup> Kindergarten Entry Developmental Checklist
- B. Parent Survey
- C. Preschool-4 and Kindergarten Development Guidelines Side-by-Side Rationales and Examples for a Sample of Selected 32 Work Sampling System<sup>®</sup> (WSS<sup>®</sup>) Indicators
- D. Demographic Cross Tabs

## FOR TEACHER COMPLETION ONLY



The Minnesota  
Work Sampling System®  
Kindergarten Entry  
Developmental Checklist

## INSTRUCTIONS

CORRECT: ●

USE A NO. 2 PENCIL ONLY

INCORRECT: ✗ ○ ●

Choose One

☐ FEMALE ☐ MALEDoes this student have an IEP or IIP? ☐ yes ☐ no

BLDG CODE		MARSS CODE										DATE OF BIRTH	
												Month	Year
													19
00	00	00	00	00	00	00	00	00	00	00	00	00	00
01	01	01	01	01	01	01	01	01	01	01	01	01	01
02	02	02	02	02	02	02	02	02	02	02	02	02	02
03	03	03	03	03	03	03	03	03	03	03	03	03	03
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16	16	16	16	16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19	19	19	19	19

## LEGEND

- ☐ Not Yet—child cannot demonstrate indicator  
☐ In Process—child demonstrates indicator intermittently  
☐ Proficient—child can reliably demonstrate indicator

The Work Sampling System *Preschool-4 Developmental Guidelines* (4th edition) contains full descriptions of each performance indicator. (Number in parentheses indicates the page in the Guidelines where the indicator is described.)

**I Personal and Social Development****A Self concept** Fall

- 1 Shows some self-direction. (p. 1) ☐ ☐ ☐

**B Self control** Fall

- 1 Follows simple classroom rules and routines. (p. 1) ☐ ☐ ☐
- 2 Manages transitions. (p. 2) ☐ ☐ ☐

**C Approaches to learning** Fall

- 1 Shows eagerness and curiosity as a learner. (p. 2) ☐ ☐ ☐
- 2 Attends to tasks and seeks help when encountering a problem. (p. 2) ☐ ☐ ☐
- 3 Approaches tasks with flexibility and inventiveness. (p. 3) ☐ ☐ ☐

**D Interaction with others** Fall

- 1 Interacts easily with one or more children. (p. 3) ☐ ☐ ☐
- 2 Interacts easily with familiar adults. (p. 3) ☐ ☐ ☐
- 3 Shows empathy and caring for others. (p. 4) ☐ ☐ ☐

**E Social problem-solving** Fall

- 1 Seeks adult help when needed to resolve conflicts. (p. 4) ☐ ☐ ☐

**II Language and Literacy****A Listening** Fall

- 1 Gains meaning by listening. (p. 5) ☐ ☐ ☐
- 2 Follows two- or three-step directions. (p. 5) ☐ ☐ ☐
- 3 Demonstrates phonological awareness. (p. 5) ☐ ☐ ☐

**B Speaking** Fall

- 1 Speaks clearly enough to be understood without contextual clues. (p. 6) ☐ ☐ ☐
- 2 Uses expanded vocabulary and language for a variety of purposes. (p. 6) ☐ ☐ ☐

**C Reading** Fall

- 1 Shows appreciation for books and reading. (p. 6) ☐ ☐ ☐
- 2 Shows beginning understanding of concepts about print. (p. 7) ☐ ☐ ☐
- 3 Begins to develop knowledge about letters. (p. 7) ☐ ☐ ☐
- 4 Comprehends and responds to stories read aloud. (p. 7) ☐ ☐ ☐

**D Writing** Fall

- 1 Represents ideas and stories through pictures, dictation, and play. (p. 8) ☐ ☐ ☐
- 2 Uses letter-like shapes, symbols, and letters to convey meaning. (p. 8) ☐ ☐ ☐

**III Mathematical Thinking****A Mathematical processes** Fall

- 1 Begins to use simple strategies to solve mathematical problems. (p. 11) ☐ ☐ ☐

**B Number and operations** Fall

- 1 Shows beginning understanding of number and quantity. (p. 11) ☐ ☐ ☐

**C Geometry and spatial relations** Fall

- 1 Begins to recognize and describe the attributes of shapes. (p. 12) ☐ ☐ ☐
- 2 Shows understanding of and uses several positional words. (p. 12) ☐ ☐ ☐

**IV The Arts****A Expression and representation** Fall

- 1 Participates in group music experiences. (p. 21) ☐ ☐ ☐
- 2 Participates in creative movement, dance, and drama. (p. 21) ☐ ☐ ☐
- 3 Uses a variety of art materials for tactile experience and exploration. (p. 21) ☐ ☐ ☐

**B Understanding and appreciation** Fall

- 1 Responds to artistic creations or events. (p. 22) ☐ ☐ ☐

**V Physical Development and Health****A Gross motor development** Fall

- 1 Coordinates movements to perform simple tasks. (p. 23) ☐ ☐ ☐

**B Fine motor development** Fall

- 1 Uses eye-hand coordination to perform tasks. (p. 24) ☐ ☐ ☐

**C Personal health and safety** Fall

- 1 Performs some self-care tasks independently. (p. 24) ☐ ☐ ☐

For teacher use only

K

Minnesota  
Edition

## Parent Survey

### Minnesota School Readiness Initiative

Dear Kindergarten Parent,

Please help us learn about your kindergarten child and your family as part of a school readiness study. Neither you nor your child will be identified in the published study report.

If you choose to answer the questions, summary information only, not individual family information, will be used by the Minnesota Department of Education for this study.

Thank you for your help!

USE A NO. 2 PENCIL ONLY



#### Family Information

**1** Please indicate whether you are:

- ☐ Mother      ☐ Father      ☐ Other

**2** Your highest level of school completed? Mark only one.

- ☐ Less than high school  
☐ High school diploma/GED  
☐ Trade school or some college beyond high school  
☐ Associate degree  
☐ Bachelor's degree  
☐ Graduate or professional school degree

**3** Your household's total yearly income before taxes? Mark only one.

- ☐ \$0 - \$35,000  
☐ \$35,001 to \$55,000  
☐ \$55,001 to \$75,000  
☐ \$75,001 or more

**4** Race/ethnicity of your kindergarten child?

Mark all that apply.

- ☐ Black/African/African American  
☐ American Indian/Alaskan Native  
☐ Asian/Native Hawaiian or other Pacific Islander  
☐ Hispanic or Latino  
☐ White/Caucasian  
☐ Other

**5** What language does your family speak most at home? Mark only one.

- ☐ English  
☐ Spanish  
☐ Hmong  
☐ Somali  
☐ Vietnamese  
☐ Russian  
☐ Other

**Stop here. Thank you. Teacher completes other side.**



# 1. Personal and Social Development

## A. Self-Concept

### Preschool-4

#### Shows some self-direction.

Four-year-olds often seem independent because they want to do everything on their own. However, they still require encouragement to act independently in unfamiliar situations or when trying challenging tasks. Four-year-olds can make simple choices among activities, but occasionally need support in trying new classroom activities. Examples of initiative and independence include:

- ¥ Finding materials with which to work, such as scissors, tape, and markers, for acting on an idea or desire (for example, making a pretend camera for taking pictures);
- ¥ Finding and putting on one's own jacket, mittens, and hat before going outdoors;
- ¥ Deciding to build an airport with blocks, forming a plan, and then implementing it with others already working with blocks;
- ¥ Trying a new activity (for example, soap painting or a cooking project), and pursuing it for a meaningful period of time;
- ¥ Playing with different children rather than the same friend or friends every day;
- ¥ Choosing one activity out of several and becoming involved with it;
- ¥ Responding positively to suggestions to try something new.

### Kindergarten

#### Shows initiative and self-direction

Independence in thinking and action enables children to take responsibility for themselves. Most five-year-olds can make choices among familiar activities, participate in new experiences, and are willing to take some risks. Children who choose familiar activities repeatedly and are hesitant to venture into new areas need help from adults in order to expand their independence. Some examples of independence are:

- ¥ Finding materials for projects (for example, glue to add their name card to a bar chart);
- ¥ Eagerly selecting new activities during choice time, such as trying the carpentry table or the computer for the first time;
- ¥ Assuming classroom chores without being asked (for example, sweeping sand from the floor, helping to clean up spilled juice);
- ¥ Choosing to work on a social studies project because the activity interests them, rather than because friends are doing it;
- ¥ Originating projects and working on them without extensive direction from the teacher.

## 2. Language and Literacy

### D. Writing

#### Preschool-4

##### **Uses letter-like shapes, symbols, and letters to convey meaning.**

As children observe the teacher making lists and putting names on art work, they often want to write for themselves. Position of letters on the paper, actual formation of the letters, and correct order are not yet part of most four-year-olds' repertoires. Many children become interested in writing their names and perhaps a few other significant words, while others will continue to ask for words to be written for them. Children's efforts to write at this age include:

- ¥ Making rows of squiggles and shapes on a paper and calling it writing;
- ¥ Labeling a drawing with several randomly placed letter-like shapes;
- ¥ Writing their own names from memory on their artwork;
- ¥ Spontaneously writing upper-case letters they know;
- ¥ Copying letters from signs and labels posted around the room, enjoying the power of doing real writing ;
- ¥ Making shopping lists consisting of pictures, scribbles, and letter-like shapes in the dramatic play area before going to the grocery store;
- ¥ Beginning to write several letters correctly.

#### Kindergarten

##### **Uses letter-like shapes, symbols, letters, and words to convey meaning.**

As children begin to understand that writing communicates a message, they become motivated to produce words, even if they do not possess conventional writing and spelling skills. They begin by using drawings to convey ideas, adding letters to words randomly. With experience, they begin to form words by using letters from their names, copying words, approaching others for help, sounding out words using letter-sound associations, and using invented or temporary spelling. By the end of kindergarten, many children can write most upper- and lower-case letters and know the conventional spelling for some words. Examples include:

- ¥ Making marks that resemble letters, starting at the top of the paper and moving from left to right and top to bottom;
- ¥ Writing their names on their artwork;
- ¥ Drawing a picture of a computer in their journal and using invented spelling to write I LK CMPTRS ;
- ¥ Using invented spelling to form words with initial and final consonants.

### 3. Mathematical Thinking

#### A. Mathematical Processes

##### Preschool-4

##### **Begins to use simple strategies to solve mathematical problems.**

Four-year-olds encounter real life mathematical problems throughout the day: How many cartons of milk do we need for snack? How can I fit these boxes together? How many days until we go to the zoo? With guidance, and in a classroom environment that supports asking questions, preschoolers can begin to solve simple mathematical problems in concrete ways, and offer basic explanations for their solutions. Examples include:

- ¥ Asking a friend if there are more people in your house or in mine? ;
- ¥ Trying to find a way to keep building a house with blocks, even though the long rectangular blocks have all been used;
- ¥ Asking a friend for a particular pattern block to complete a design;
- ¥ Figuring out how many small cups it takes to fill the pitcher at the water table;
- ¥ Wondering aloud how they can make their balls of play dough into a snake as long as the teacher s;
- ¥ Deciding who is older if one child is 4 and another is  $4\frac{1}{2}$ .

##### Kindergarten

##### **Begins to use and explain strategies to solve mathematical problems.**

Solving real-life problems helps children make connections among the math they are learning at school, other parts of their lives, and other types of learning. Problem-solving involves posing questions, trying different strategies, and explaining one's thinking by stating reasons a particular strategy worked. Young children solve problems and explain their reasoning by working with concrete objects, drawing pictures, or acting out solutions. They show this emerging skill by:

- ¥ Asking questions to clarify problems (for example, Will the new rabbit cage be big enough for the baby bunnies? );
- ¥ Saying I gave Sammy one of my cookies because I had three and he had one. Now we have the same, two and two! ;
- ¥ Estimating whether there are enough blocks to build a road from here to there, and then testing the guess by building the road;
- ¥ Solving problems by guessing and checking (for example, figuring out how many apples are needed for snack if each child is served half an apple).

## 4. The Arts

### A. Expression and Representation

#### Preschool-4

##### **Uses a variety of art materials for tactile experiences and exploration.**

Four-year-olds are very active, and can sustain attention to art activities for only limited periods of time. They engage in the artistic process with great enthusiasm, but show little desire to produce a product. This enables them to explore various media with freedom. They demonstrate exploration by:

- ¥ Trying a variety of materials and ways of using the materials (for example, using a big brush to paint broad strokes, single lines going this way and that, or combining colors);
- ¥ Experimenting with play dough by rolling and patting it, cutting it with cookie cutters, sticking things into it, or sometimes making it into an object;
- ¥ Drawing or otherwise creating backdrops for puppet shows or signs for block structures;
- ¥ Using new implements such as Q-tips or straws, to paint a picture;
- ¥ Constructing a symmetrical design with pattern blocks;
- ¥ Using chalk on the blackboard or on paper;
- ¥ Using stamps or other objects to print with paint or ink.

#### Kindergarten

##### **Uses a variety of art materials to explore and express ideas and emotions**

Through extensive exploration with art materials, five-year-olds become confident using a variety of media and enhance their sense of mastery and creativity. Although they are primarily interested in the creative process, they are beginning to become more critical of the products they create. They can express their feelings and ideas through their art work, in addition to expressing them verbally. Examples of exploration and expression with art materials include:

- ¥ Trying a variety of expressive media (markers, brush and finger painting, printing, collage, play dough, clay);
- ¥ Drawing or painting the way they feel when they are happy;
- ¥ Making a book with their own pictures to illustrate a story they dictated;
- ¥ Using one medium for a period of time to develop greater control and expertise;
- ¥ Constructing a sculpture from wood pieces, fabric and foil;
- ¥ Creating an object or animal with clay.

## 5. Physical Development

### B. Fine Motor Development

#### Preschool-4

##### **Uses eye-hand coordination to perform tasks.**

Four-year-olds demonstrate their eye-hand coordination skills as they start to construct with unit blocks, Tinker Toys, and Legos; put together puzzles; and experiment at the sand and water tables. Their artwork tends to become more complicated as they use newly mastered skills to create products. Examples of eye-hand coordination include:

- ¥ Zipping coats;
- ¥ Cutting on a line or around a large picture with scissors;
- ¥ Stringing beads or pasta with holes onto a length of yarn;
- ¥ Dressing dolls using snaps and buttons;
- ¥ Constructing or copying buildings and roads with the table blocks;
- ¥ Explaining to a classmate how to place individual puzzle pieces by matching shapes or colors or looking at picture clues;
- ¥ Using a hammer to try to pound nails into soft wood.

#### Kindergarten

##### **Uses eye-hand coordination to perform tasks effectively.**

Five-year-olds are continuing to improve their eye-hand coordination and accomplishing tasks with greater precision. They enjoy playing with manipulatives and blocks and sometimes work with a finished product in mind. Five-year-olds demonstrate eye-hand coordination by:

- ¥ Putting together 18- to 25- piece puzzles using pictures as well as shape cues;
- ¥ Dressing in a variety of costumes in the dramatic play area (buttoning shirts, zipping jackets);
- ¥ Building specific block structures from a model without knocking the structures down;
- ¥ Cutting fabric into shapes to use for collage;
- ¥ Using tape, stapler, and glue to create 3-D objects, such as a house or an airplane;
- ¥ Constructing planned projects out of Legos, Bristle Blocks, table blocks and Tinker Toys.



# Minnesota School Readiness Study

Developmental Assessment  
at Kindergarten Entrance  
Fall 2006

FULL REPORT VERSION

