

The developmental status of three-year-olds participating in the First Steps School Readiness Study

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Summary and implications for discussion

As of November 2009, 354 3-year olds were screened by Rochester schools and Head Start and then enrolled in the First Steps School Readiness Study. Teachers and child care providers completed an initial Work Sampling Developmental Checklist for 181 (51%) of these children and a subsequent Checklist for 107 children.

Compared with the 354 children in the study group as a whole, the 181 children with at least one completed developmental assessment (Checklist) are more commonly:

- Children of color (46% vs. 29%)
- From low-income families (45% vs. 27%)
- In Head Start (42% vs. 21%) and less commonly in licensed family homes (15% vs. 28%)

Developmental status of three-year-olds in the First Steps study

Overall, screened children were on track developmentally, with 3 percent being referred for further assistance and 3 percent scoring in the referral range for social-emotional concerns. The percentages not on-track developmentally were higher for children of color, low-income children, and children in Head Start.

- As many as 14 percent of children screened in Head Start were found to be developmentally below age level, compared with no children from other settings.
- Altogether, 5 percent of the three-olds in the First Steps study who were screened were either referred for further assistance or had screening scores that indicated social-emotional or mental health concerns.

Based on initial Picture Naming scores (one of the IGDIs measures), 61 percent of the three-year olds in the First Steps study had scores that met or exceeded the target score for emergent literacy.

Based on initial Checklists, 80 percent of the three-year olds in the First Steps study were proficient in their development (48%) or well-along “in process” (32%). The highest percentage proficient was physical development and health (70%), followed by personal and social development (48%), the arts (47%), language and literacy (37%), and mathematical thinking (27%).

Similar to the screening results, 4 percent were not yet proficient overall, with the highest percentage not yet proficient in language and literacy, 7 percent.

In addition, children of color and children in low-income families were less likely to be proficient in their development or well-along “in process.” About a third compared with less than a tenth was not yet proficient or *not* well-along “in process.” The highest percentage for these children of “not yet” proficient is in language and literacy (13-14%).

Implications for discussion

To the extent that teachers and child care providers are using the Work Sampling Checklist, results are consistent with the standard screenings conducted by Rochester Schools and Head Start. More teachers and child care providers conducting more assessments on a regular basis will allow us to interpret assessment results with more confidence. Educating parents about the purposes and uses of the Work Sampling Checklist and enlisting parents who volunteered for the study to request their child care providers to complete the Checklists may increase the use.

It appears that families volunteering for the study following their screenings by the Rochester schools have children largely on-track for school readiness and that, other than Head Start families, families with children at-risk developmentally are either not coming in for 3-year-old screening or not enrolled in any licensed child care settings.

Based on the initial assessments (Checklists), continuing attention to improving early childhood language and literacy seems warranted. Extending Head Start and other targeted services for more low-income children may also be a way to reach more of the potentially at-risk children not currently part of this school readiness improvement process.

Profile of three-year olds in the First Steps Study

As of November 2009, 354 3-year olds were screened by Rochester schools and Head Start and then enrolled in the first Steps School Readiness Study. As shown in Figure 1:

- A relatively large portion (29%) is children of color.
- About a quarter (27%) is in lower-income families.
- They are spread across early learning settings – preschool (33%), licensed family homes (28%), Head Start (21%), and child care centers (16%).

Figure 1 also shows the profile of the 181 children (51%) in the study with at least one Work Sampling developmental checklist completed by their teacher or child care provider. Compared with the 354 children in the study group as a whole, these 181 children with completed developmental assessments (Checklists) are:

- More commonly children of color (46%)
- More commonly from low-income families (45%)
- More commonly in Head Start (42%) and less commonly in licensed family homes (15%)

1. Demographic profile of three-year-olds in the study (as of November 2009)

	All children in study (N=354)	Children with a completed development checklist (N=181)
Gender of child		
Female	53%	55%
Male	46%	43%
Missing	1%	2%
Race/ethnicity of child (multiple responses possible)		
White (non Hispanic)	70%	55%
Latino/Hispanic/Chicano	12%	21%
African American/Black	7%	13%
Multiple groups	7%	10%
Asian	2%	2%
Native American/American Indian	1%	0%

**1. Demographic profile of three-year-olds in the study (as of November 2009)
(continued)**

	All children in study (N=354)	Children with a completed developmental Checklist (N=181)
Household income		
<\$40,000	27%	45%
\$40,000 to \$55,000	6%	5%
\$55,001 to \$75,000	14%	13%
More than \$75,000	47%	32%
Missing	7%	5%
Parental status		
One	16%	22%
Two	84%	78%
Mother's highest level of education		
Less than high school	8%	15%
High school diploma/GED	10%	14%
Trade school or some college	9%	9%
Associate degree	12%	14%
Bachelor's degree	33%	28%
Graduate or professional degree	23%	14%
Missing	6%	5%
Type of early care and education setting		
Head Start	21%	42%
Preschool	33%	31%
Licensed Family Home	28%	15%
Child Care Center	16%	12%

Developmental status of three-year olds in the First Steps Study

Measuring developmental status

In this study, developmental status is measured using four tools:

The **Early Screening Inventory-Revised (ESI-R™)** provides a brief developmental screening individually administered to children. **The Early Screening Inventory-Preschool (ESI-P)** for ages 3.0 through 4.5 years identifies children who may need special education services in order to perform successfully in school. The instrument addresses developmental, sensory, and behavioral concerns in the following areas:

- Visual Motor/Adaptive
- Language and Cognition
- Gross Motor Skills

The **Ages and Stages Questionnaires™: Social-Emotional (ASQ:SE)** screen children ages 6 months to 60 months for social-emotional problems in need of further assessment. Personal-social-emotional development includes self-regulation, compliance, communication, adaptive functioning, autonomy, affect, and interaction with people. The questionnaire is completed by parents and scored by the staff.

Picture Naming, one of the **Indicators of Individual Growth and Development for Infants and Toddlers (IGDIs)**, completed by teachers and school staff, measures emergent literacy and can be used by early childhood practitioners to monitor and estimate children's rate of growth and progress over time.

Work Sampling Developmental Checklist, developed by the Minnesota Department of Education, is a briefer version of the Work Sampling System, which is a criterion or standards-based (not norm-referenced) observational assessment system designed to provide information about an individual child's achievement and progress over time. The Checklist consists of five domains: personal and social development, language and literacy, mathematical thinking, the arts, and physical development and health. Each domain is measured with a set of indicators. Children's performance on each indicator is rated as: "not yet," "in process," or "proficient."

- Not Yet, meaning that a child cannot demonstrate the skill or knowledge represented by a performance indicator;
- In Process, meaning that the skill or knowledge represented by a performance indicator is intermittent or emergent, and is not demonstrated consistently;
- Proficient, meaning that the skill or knowledge represented by a performance indicator is demonstrated consistently, and is firmly within the child’s repertoire.

Developmental status at the outset

Of the 350 children screened with the ESI-P, 94 percent were OK, 3 percent were invited to be rescreened, and 3 percent were referred for further assistance.

- Boys (6%), children of color (8%), children in low-income households (11%), and children in Head Start (14%) were more commonly referred than other children in other licensed child care settings (1%).
- When the data are available, we will compare these results with results for children screened during the same time period whose parents did not volunteer for the study.

Of the 351 three-year olds screened using ASQ:SE, 97 percent of children displayed social-emotional competency. Boys and girls had similar scores. However, results varied by race, income, and type of early care and education setting.

- About 9 percent of children of color, compared with about 1 percent of white children, had screening scores that indicated social-emotional concerns.
- Latino children and other children of color had similar rates of screening scores that indicated social-emotional concerns.
- About 12 percent of children from low-income households (under \$40,000 annually) had screening scores that indicated social-emotional concerns, compared with none of the children from households with incomes of \$40,000 or above.
- 14 percent of children in Head Start had screening scores that indicated social-emotional concerns, compared with no children from other settings.
- Altogether, 5 percent of the children in the First Steps Study were either referred for further assistance or had screening scores that indicated social-emotional concerns.

Of the 319 three-year-olds with initial Picture Naming IGDI scores, 61 percent had scores that met or exceeded the target score for emergent literacy (18 or higher). Boys and girls had similar initial results; however, these results also varied by race, income, and type of early care and education setting.

- About 38 percent of children of color, compared with about 69 percent of white children, had initial IGDI scores that indicated emergent literacy.
- Latino children and other children of color had similar initial scores.
- About 37 percent of children from low-income households (under \$40,000 annually) had initial scores that indicated emergent literacy, compared with 69 percent of the children from households with incomes of \$40,000 or above.
- 27 percent of children in Head Start had initial IGDI scores that indicated emergent literacy, compared with 71 percent in licensed family homes, 69 percent in child care centers, and 60 percent in preschools.

Work Sampling Checklist initial results

Child care providers and teachers, trained on how to complete the Work Sampling Checklist for this study, completed an initial checklist for 181 3-year olds. To repeat, as shown in Figure 1, relative to the whole group of children in the study, this group with additional developmental data is more diverse, more low income, and more likely to be in Head Start and less likely in licensed family homes.

As shown in Figure 2, 70 percent of the 3 year olds in the First Steps Study showed proficiency in their physical development and health; 47 percent were proficient in personal and social development, 48 percent in the arts, 37 percent in language and literacy, and 27 percent proficient in mathematical thinking. Looking at the domains combined, 48 percent scored as proficient in their development and 32 percent were well-along “in process.” Similar to the screening results, 4 percent were not yet proficient overall, with the highest percentage not yet proficient in language and literacy, 7 percent.

Initial assessments (Checklists) by race/ethnicity and income are also shown in Figure 2. Looking at the domains combined, children of color and children in low-income families are less likely to be proficient in their development or well-along “in process.” About a third compared with less than a tenth are not yet proficient or not well-along “in process.” The highest percentage for these children of “not yet” proficient is in language and literacy (13-14%).

Finally, Figure 2 also shows the initial Checklist scores by type of early care and education setting. Similar to the other measures of initial developmental status, children in Head Start

compared with children in other early care and education settings are less likely to be proficient in their development or well-along “in process.” About a third in Head Start compared with a tenth or less in other settings are not yet proficient or not well-along “in process.” The highest percentage of “not yet” proficient for children in Head Start is also in language and literacy (13%).

Work Sampling Checklist scores relative to other initial measures of development

Looking at the screening scores, among the 15 children who were either referred for further assistance or who did not display age-appropriate social-emotional competency, 8 (53%) were assessed with the Checklist, evenly split, as not yet proficient or not well-along “in process.”

With regard to the Picture Naming IGDI scores, the initial mean scores of Picture Naming are moderately correlated to the initial mean scores of the language and literacy domain in the Checklist.

Work Sampling Checklist scores in Rochester relative to scores of an at-risk group

Data from an at-risk group of 3 year olds in northern Minnesota assessed using the same Checklist provide perspective about the developmental status of children in the First Steps Study. In the at-risk group, 28 percent of the 3 year olds at their initial assessment showed proficiency in their physical development and health; 13 percent were proficient in mathematical thinking, 11 percent in the arts, 10 percent in language and literacy, and 9 percent proficient in personal and social development. Looking at the domains combined, 16 percent scored as proficient in their development; 27 percent were well-along “in process;” 11 percent were not yet proficient, and 46 percent were not well-along “in process.”

Developmental status at follow-up

These results should be interpreted with caution because data are available for 107 of the 181 three-year olds with a repeated Checklist at least 3 months after the initial one.

As shown in Figure 3, by the repeat assessment, 89 percent of the 3 year olds showed proficiency in their overall development (the domains combined), with 45 percent improving to proficient.

2. Developmental status of 3 year olds in the First Steps Study based on Work Sampling Checklist

Domains	Initial assessment (N=181)	Initial Assessment			
		White (N=92)	Other groups (N=74)	<\$40,000 (N=78)	\$40,000+ (N=85)
Personal and social development					
Not yet	5%	1%	10%	10%	0%
In process	49%	44%	55%	46%	49%
Proficient	47%	55%	35%	44%	51%
Language and literacy					
Not yet	7%	1%	14%	13%	1%
In process	56%	51%	62%	50%	60%
Proficient	37%	48%	24%	37%	39%
Mathematical thinking					
Not yet	5%	2%	8%	9%	1%
In process	68%	67%	69%	56%	77%
Proficient	27%	30%	23%	35%	22%
The arts					
Not yet	2%	1%	4%	5%	0%
In process	50%	44%	58%	51%	46%
Proficient	48%	55%	38%	44%	54%
Physical development and health					
Not yet	3%	1%	5%	6%	0%
In process	27%	15%	43%	32%	22%
Proficient	70%	84%	51%	62%	78%
Combined domains					
Not yet (1.0-1.5)	4%	1%	7%	8%	0%
In process low (above 1.5 to 2.0)	16%	8%	27%	23%	8%
In process high (above 2.0-2.5)	32%	35%	28%	23%	40%
Proficient (above 2.5)	48%	57%	38%	46%	52%

Note: Total for each category may vary from 100 percent due to rounding.

2. Developmental status of 3 year olds in the First Steps Study based on Work Sampling Checklist (continued)

Domains	Initial assessment (N=181)	Initial Assessment			
		Head Start (N=71)	Centers (N=20)	Preschools (N=52)	Licensed Homes (N=24)
Personal and social development					
Not yet	5%	10%	0%	0%	0%
In process	49%	48%	45%	52%	46%
Proficient	47%	42%	55%	48%	54%
Language and literacy					
Not yet	7%	13%	0%	0%	4%
In process	56%	55%	70%	52%	58%
Proficient	37%	32%	30%	48%	38%
Mathematical thinking					
Not yet	5%	9%	0%	2%	0%
In process	68%	62%	90%	69%	67%
Proficient	27%	30%	10%	29%	33%
The arts					
Not yet	2%	4%	0%	0%	0%
In process	50%	54%	40%	50%	46%
Proficient	48%	42%	60%	50%	54%
Physical development and health					
Not yet	3%	6%	0%	0%	0%
In process	27%	38%	15%	21%	21%
Proficient	70%	56%	85%	79%	79%
Combined domains					
Not yet (1.0-1.5)	4%	7%	0%	0%	0%
In process low (above 1.5 to 2.0)	16%	28%	10%	8%	4%
In process high (above 2.0-2.5)	32%	21%	35%	40%	42%
Proficient (above 2.5)	48%	44%	55%	52%	54%

Note: Total for each category may vary from 100 percent due to rounding.

3. Follow-up developmental status of 3 year olds in First Steps Study based on Work Sampling Checklist

Domains	Follow-up assessment (N=107)
Personal and social development	
Not yet	1%
In process	12%
Proficient	87%
Language and literacy	
Not yet	2%
In process	13%
Proficient	85%
Mathematical thinking	
Not yet	2%
In process	25%
Proficient	73%
The arts	
Not yet	1%
In process	15%
Proficient	84%
Physical development and health	
Not yet	2%
In process	4%
Proficient	94%
Combined domains	
Not yet (1.0-1.5)	2%
In process low (above 1.5 to 2.0)	1%
In process high (above 2.0-2.5)	8%
Proficient (above 2.5)	89%

Note: Total for each category may vary from 100 percent due to rounding.