Harrison County Community Foundation

Pre-K Pilot

2015 Annual Report of Outcomes

APPLIED RESEARCH AND EDUCATION CENTER

INDIANA UNIVERSITY SOUTHEAST

Director: Dr. Melissa S. Fry

Operations Specialist: Debra Voyles

Research Associate: Angela Leonard

Research Assistant: Aimee Kelmel

Applied Research and Education Center

4201 Grant Line Road | New Albany, IN 47122 | 812.941.2323

The Applied Research and Education Center (AREC) is an outreach project of Indiana University (IU) Southeast. The AREC provides research, consulting and technical assistance to nonprofit organizations, foundations, government agencies and local businesses. The student staff enhances classroom learning through applied research projects as it actively engages every stage of each community-based project. The AREC combines learning, teaching and doing to support and empower community organizations in the IU Southeast service region.

Table of Contents

Table of Figures

Introduction

In 2013, the Harrison County Community Foundation began work on a five year Pre-K pilot study targeting low-income children as a parallel to the statewide early education pilot. During the 2013-2014 school year implementation occurred on a relatively small scale with fewer providers and a much smaller pool of students.

The 2014-2015 school year saw fuller implementation and significant time and effort devoted to establishing data systems and collecting all necessary data from providers three times during the year (pre-test, mid-year assessment, post-test).[1] The pilot is now fully functional and expecting higher participation this year.

The foundation and the IU Southeast Evaluation Team will work in communication with the statewide pilot in an effort to have Harrison County's efforts echo the call for closer attention to the myriad actual and potential returns on investment in broad access to quality early childhood education and care.

In the second year of funding and data collection, findings confirm national research in supporting the significant impact that pre-K programs have on kindergarten readiness. This report presents findings from the 2014-2015 school year that illustrate a significant increase in skills across the board for those enrolled in the pilot.

Several programs in the pilot used the ISTAR-Kindergarten Readiness assessment to record observations of student behavior and skills. South Harrison schools used their own K-Readiness assessment. We present both sets of data here.

In addition to the quantitative outcomes noted, now that data systems and relationships are in place, the IU Southeast AREC will work more closely with the Harrison County schools to look at aggregate figures on K-readiness prior to the pilot and will watch those figures for improvement after commencement of the pilot, starting with this year's kindergarten round-up data. We would also like to talk more with schools about what increased readiness means for the schools.

Anecdotally, staff from Corydon Elementary report that for two years prior to this pilot, 25 percent of kindergartners were not attending pre-k. This year, they have seen an increase in expressed interest in pre-K and their spots are filling up quickly. Heth-Washington, a school with very high poverty rates, reports that full-day pre-K programming "made a huge difference" for their families. The program provided "a safe place to be."

All participating programs report that reaching those not yet showing up remains a barrier to fully realizing the potential impact of the program. Providers are working closely with the Harrison County Community Foundation to be sure people know where the program is available and to refer potential participants to other options when waitlisted at a facility that is already full. Program and Foundation staff are committed to maximizing the pilot program and its impacts.

In addition to the issue of reach, transportation remains a barrier for many. In some areas, school district transportation services are incorporating the pre-K children without too much trouble and in other locations, the districts are not offering this option. For private providers, the transportation remains a persistent concern.

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[1] The mid-year data provide formative feedback for providers and are not included here.

Demographics

During the 2014-2015 school year the Harrison County Pre-Kindergarten Pilot included 133 children across 10 programs during the 2014-2015 school year. The project would like to fund up to 200 slots, but participating programs may not have quite enough capacity to reach the 200 target.

Participating programs include public and parochial elementary schools with pre-k classes, private secular programs, and private faith-based organizations. Three children began the school year at North Harrison and finished at Rainbow's End. Data for those children are counted under Rainbow's End.

Figure 1: Distribution of Pre-K Pilot Students Across Participating Programs

N=133

Rainbow's End Preschool	18.0%
North Harrison Elementary Jumpstart	13.5%
Heth-Washington Elementary	12.0%
Corydon Elementary	12.0%
New Middletown Elementary	11.3%
Morgan Elementary Jumpstart	10.5%
South Central Elementary	10.5%
Noah's Ark	5.3%
Happy Days Child Care	3.8%
Saint Joseph Catholic School	3.0%
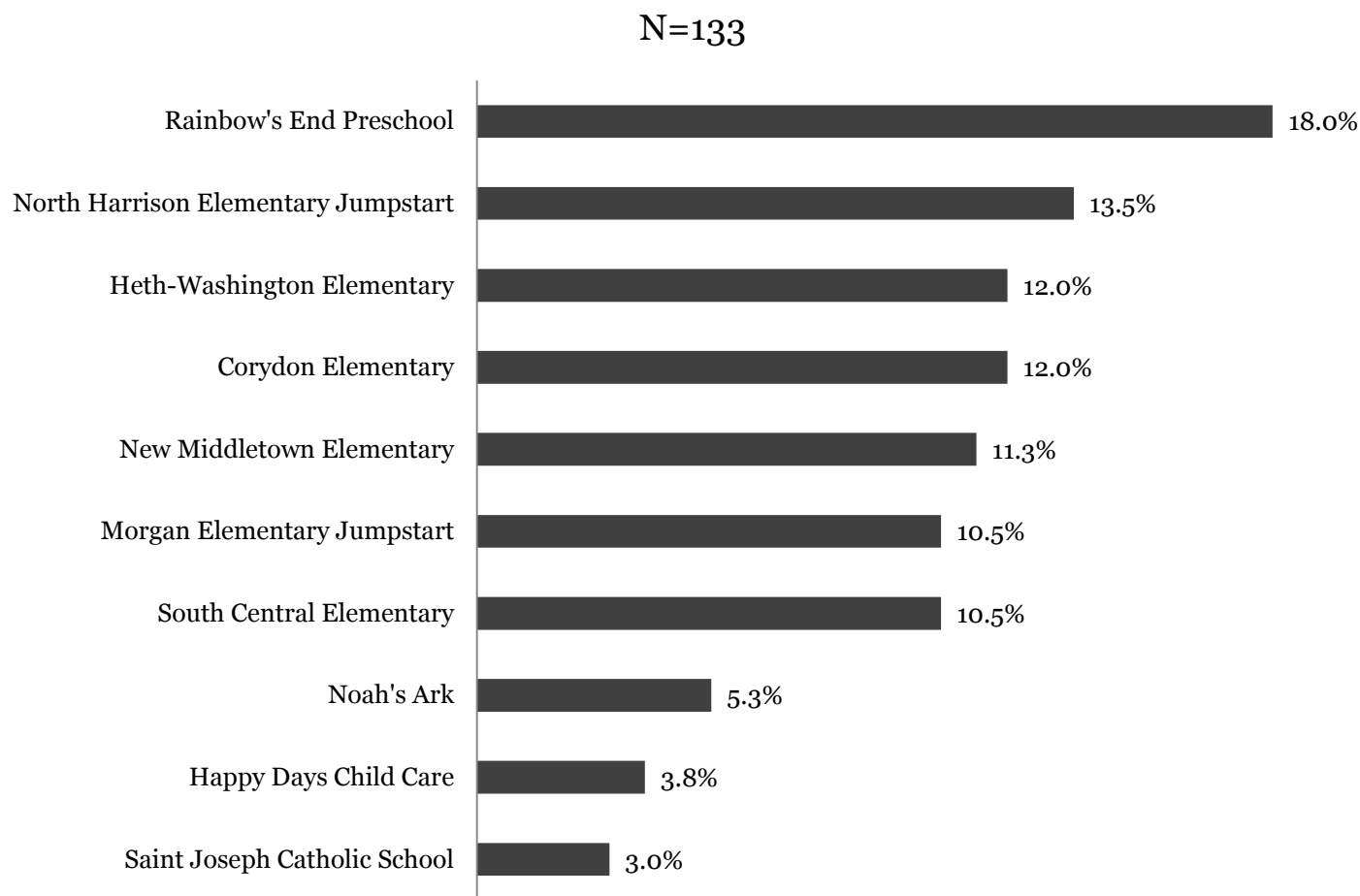
Teachers provide data on race and ethnicity based on student records or other sources of this knowledge. They can choose more than one race, and Hispanic origin is a separate ethnicity item not included in the race variable. Teachers did not uniformly report Hispanic origin, but among those who indicated whether students were Hispanic, 10.7 percent of children were Hispanic. "Asian" was not indicated for any child in the program.

The students are predominately White, reflecting the demographics of the area.

Figure 2: Race (n=133)

White	95.5%
Other	6.0%
Black	1.5%
Native American/Pacific Islander	0.8%
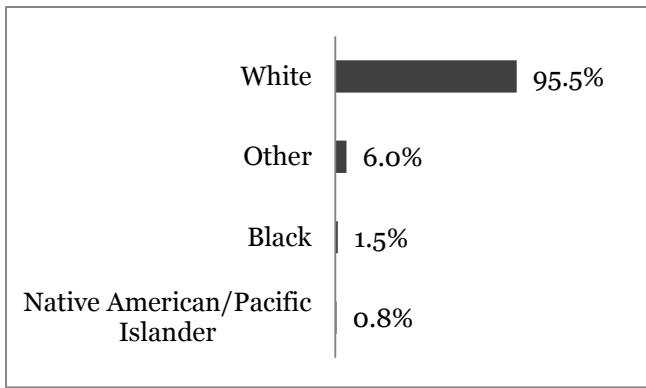
Figure 3: Hispanic Origin (n=131)

Hispanic	10.7%
Non-Hispanic	89.3%

Figure 4: Gender (n=133)

Male 50.4%   Female 49.6%
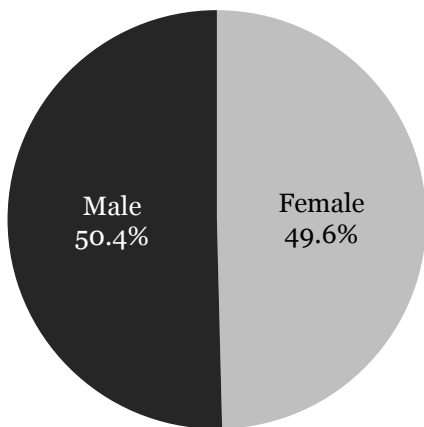
Of the students enrolled in the pilot, 50.4 percent were male and 49.6 percent were female. The Pilot program targets low-income children, but some children completing the assessments do not qualify for free and reduced lunch. A full 87 percent of the students reflected in these data qualify for free and reduced lunch.

Figure 5: Qualify for Free or Reduced Lunch (n=133)

No 13%   Yes 87%
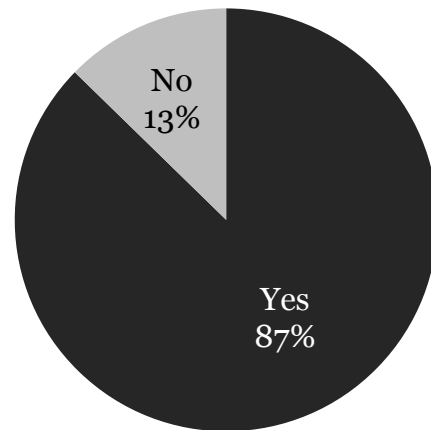
Teachers reported information on household type for 99 of the 133 students assessed. Of those 99, teachers did not know the household composition for six percent, 46 percent from two-parent households and 49% were not.

Figure 6: Household Composition

Unknown 6%   Two-Parent 46%   Other 49%
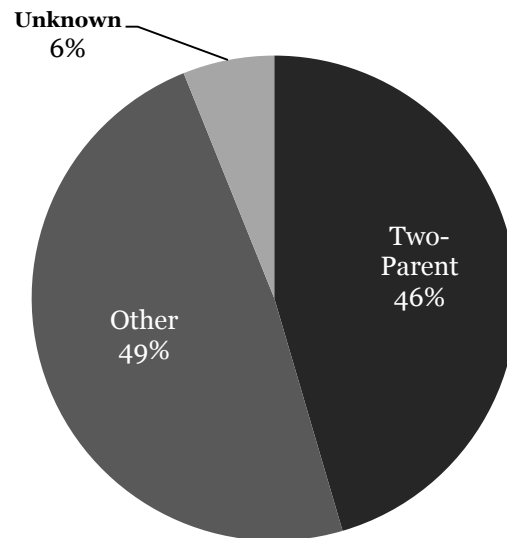
Through continued conversation with providers, we are hoping to receive fuller demographic data this year to help us continue to examine and control for potential demographic impacts on inputs (how students perform on pre-tests) and outcomes.

The role of family and home environment is an area that the statewide pilot is looking at far more

carefully, but is beyond the scope of this work. Still we will gather what information we can to try to tease out and confirm the impacts of pre-K programming over other factors.

Findings

Overall, findings suggest that pre-k programs improve kindergarten readiness. On average, student scores increased between 5 and 13 points from pre-test to post-test across the various ISTAR-KR assessments and average student scores increased nearly 30 percent in those programs

using the South Harrison K-Readiness tool. As Kindergarten Roundup data become available, we may be able to compare participants' outcomes to those of similar children not enrolled in the pilot to better discern program impacts.

Figure 7: Summary of Full Pre and Post-Test Performance

	Pre Test (n=72)	Post Test (n=62)
ISTAR KR Reading and Language Total Mean Scores	26.46	38.84
ISTAR KR Math and Quantitative Reasoning Total Mean Scores	17.81	26.52
ISTAR KR Social and Emotional Development Total Mean Scores	19.54	25.44
	Pre Test (n=60)	Post Test (n=57)
South Harrison Total Mean Scores	67.98	96.63

Full data for pre and post-tests include some children who only took one or the other. A student who took the pre-test but left before the post-test will be included in the pre-test data in these summary figures but not in the post. Similarly, a late arrival may show up only in the post-test data.

In order to more carefully look at the statistical significance of changes from pre- to post-test, however, we use paired samples tests that only include those students for whom we have both pre- and post-test data. Please keep this distinction in mind as you see larger sample sizes in Figure seven than in some of the figures to follow.

In addition to the quantitative pre- and post-test data, the research team conducted field observations in five participating programs. As noted, the pre-K pilot program included both public

and private providers who used either the ISTAR KR instrument or the South Harrison instrument. Public providers (area public elementary schools) using the ISTAR KR testing included Morgan Elementary and North Harrison Elementary. All private providers (both secular and faith-based) used the ISTAR KR instrument: Happy Days Child Care, Noah's Ark, Rainbow's End Preschool, and St. Joseph Catholic School.

All programs using the South Harrison instrument were public providers in the South Harrison School District: Corydon Elementary, Heth-Washington Elementary, New Middletown Elementary, and South Central Elementary.

Research staff made site visits to at least one public program utilizing each of the two assessment instruments (ISTAR-KR and South Harrison) and one faith-based private program.

The Classroom Assessment Scoring System™-the same classroom assessment tool being used for the state pilot-was used to evaluate teacher-student interactions. The observed providers included: North Harrison Elementary, Noah's Ark, Corydon Elementary, Heth-Washington Elementary, and New Middletown Elementary. Each site visit consisted of four to six consecutive 30-minute cycles-a 20-minute observation period followed by a ten-minute period used to summarize the collected information into scores.

Research Assistants averaged related scores into the general categories of *Emotional Support*, *Classroom Organization*, and *Instructional Support*. *Emotional Support* includes the subcategories:

- Positive climate.
- Negative climate.
- Teacher sensitivity.
- Regard for student perspectives.

In general, the observations focused on whether the program created a welcoming atmosphere that allowed students to grow at their own pace. The category *Classroom Organization* includes:

- Behavior management.
- Productivity.
- Instructional learning formats.

Reading and Language

While children do not usually learn how to "read" until about first grade, they actually begin developing pre-literacy skills much earlier. A major benefit of pre-K programming is to ensure that children are developing these important pre-literacy skills before they walk into kindergarten so that kindergarten teachers can move forward in developing reading and language skills. Pre-K

The observations focused on whether teachers made the most of their time with students. The category *Instructional Support* includes:

- Concept development.
- Quality of feedback.
- Language modeling.

Teachers who scored high in this category asked students to explain the logic of their answers, and provided the appropriate amount of help to allow students to arrive at their own answers.

All observed teachers scored well across all categories, indicating that participating programs are offering quality instruction in a nurturing environment. The evaluation team will work to observe in all provider locations in the coming year.

In the following sections the report presents quantitative measures of performance across language arts, math and spatial reasoning, and social and emotional development portions of the Kindergarten Readiness assessments. The research team worked to map the South Harrison instrument onto the ISTAR-KR assessment and findings are grouped this way for presentation. Following the initial data summaries are breakdowns based on gender and household type.

progress can reduce class time on remedial efforts and demand for special education.

The ISTAR-KR assessment has many sections related to Reading and Language. Teachers observe students and rate student ability based on specific tasks the student can and cannot complete independently.

Figure 8: ISTAR KR Reading and Language Total Mean Scores

	Pre Test	Post Test
ISTAR KR Reading and Language Total Mean Scores (Full Data)	26.46	38.84
ISTAR KR Reading and Language Total Mean Scores (Paired Samples)	26.49	38.93[*]

Student performance on Reading and Language related tasks improved from a total mean score of 26.46 at the beginning of the school year to 38.84 at the end of the school year (Figure 8). Paired Samples tests for statistical significance indicate that the improvement in average score is statistically significant. When we look at the paired samples for each item included in the reading and language category, improvements on every item are statistically significant (Figure 9).

Figure 9: ISTAR KR Reading and Language Paired Samples T-Test Means

Subject	Pre Mean	Post Mean
Phonological Awareness	3.21	4.74*
Print Concepts, Phonics, and Word Recognition	3.13	4.57*
Informational Texts	3.41	4.67*
Literature Texts	3.15	5.25*
Writing Standards	2.74	4.15*
Language Conventions	3.15	4.69*
Comprehension and Collaboration	3.52	4.95*
Presentation of Knowledge and Ideas	4.23	5.93*

Among those students responding to the South Harrison Kindergarten Readiness Assessment, student improvement on letter naming, writing their names, drawing shapes and directions was dramatic and statistically significant.

Figure 10: South Harrison Pre-Literacy Skills

	N (for paired samples)	Pre Test (Paired Data)	Post Test (Paired Data)	Pre Test (Full Data)	Post Test (Full Data)
Letter Naming	54	8.78	18.74*	8.34 (n=59)	18.49 (n=57)
Write Name	54	3.33	9.39*	3.25 (n=59)	9.25 (n=57)
Draw Shapes	54	6.89	9.85*	6.85 (n=59)	9.82 (n=57)
Directions	55	9.33	10.00*	9.38 (n=60)	10.00 (n=57)

Math and Quantitative Reasoning

Children develop many quantitative and spatial skills before they start school. Shape sorting infant and toddler toys are among the many ways that even very young children explore these concepts.

Among those completing the ISTAR-KR assessment mean scores for combined math and quantitative reasoning increased from 17.81 on the pre-test to 26.52 on the post-test.

Figure 11: ISTAR KR Math and Quantitative Reasoning Total Mean Scores

	Pre Test	Post Test
ISTAR KR Math and Quantitative Reasoning Total Mean Scores (Full Data)	17.81	26.52
ISTAR KR Math and Quantitative Reasoning Total Mean Scores (Paired Samples)	17.90	26.54*

When we look more closely at performance in each area of assessment, improvements in mean scores are statistically significant across the board (Figure 12). Improvement in the mean scores ranged from one to nearly two full points. Among students assessed using the South Harrison Instrument, the story was the same. Students improved in Rote Count, Object Count, Numerals, Shapes and Colors, and the shift in mean scores was statistically significant for all sections of the assessment (Figure 13).

Figure 12: ISTAR KR Math and Quantitative Reasoning Paired Samples T-Test Means

Subject	Pre Mean	Post Mean
Counting	2.91	4.31*
Algebraic Thinking	3.07	4.34*
Time	2.52	4.11*
Location	3.47	4.48*
Length, Capacity, Weight, and Temperature	3.10	4.20*
Geometry	3.03	5.00*

Figure 13: South Harrison Math and Spatial Skills

	N (for paired samples)	Pre Test	Post Test	Pre Test (Full Data)	Post Test (Full Data)
Rote Count	55	8.13	10.00*	8.00 (n=60)	10.00 (n=57)
Object Count	55	8.82	10.00*	8.65 (n=60)	10.00 (n=57)
Numerals	54	6.81	9.50*	6.78 (n=59)	9.49 (n=57)
Shapes	55	8.44	9.69*	5.50 (n=60)	9.70 (n=57)
Colors	55	8.69	9.89*	8.68 (n=60)	9.88 (n=57)

Social and Emotional Development

Schools provide significant opportunities for social and emotional development of students. School readiness includes aspects of social and emotional development, including the ability to manage one's self in the presence of others, manage emotions, engage in social exchange with fellow students, take responsibility in the classroom community and for one's own school work, engage in problem solving

and in learning more broadly. Pre-schools often pay close attention to how children interact with objects and with each other in order to target needed social and emotional development in preparation for the kindergarten school environment.

Students assessed using the ISTAR-KR assessments increased their total mean scores on indicators of social and emotional development from 19.54 on the pre-test to 25.44 on the post-test. Average performance on each item showed statistically significant improvement as well.

Figure 14: ISTAR KR Social and Emotional Development Total Mean Scores

	Pre Test	Post Test
ISTAR KR Social and Emotional Development Total Mean Scores (Full Data)	19.54	25.44
ISTAR KR Social and Emotional Development Total Mean Scores (Paired Samples)	19.48	25.39*

Figure 15: ISTAR KR Social and Emotional Development Paired Samples T-Test Means

Subject	Pre Mean	Post Mean
Sense of Self and Others	3.39	4.11*
Manages Emotions	3.23	4.39*
Interpersonal Skills	3.88	4.53*
Responsibility	3.25	4.43*
Problem Solving	2.77	4.18*
Approaches to Learning	2.93	3.89*

While we cannot fully claim that these programs caused score improvements, we do know that students enrolled in these programs left ready for kindergarten. Some of this development would have occurred without the program, but the findings are significant and in some places, quite dramatic. We will be able to say more when we are able to compare them to counterparts that did not attend a pre-K program.

Gender and Pre-K Inputs and Outcomes

Gender differences in education have long been an important topic of inquiry. While girls were long neglected in classrooms where boys received the lion's share of attention, today's girls are staying in school and achieving higher levels of education at higher rates than boys. With this in mind, we examine gender differences in pre and post-test performance across all categories of assessment.

Upon entry into pre-school, the only significant difference between boys and girls on the ISTAR KR

pre-test was on the item "Interpersonal Skills" (female, n=34 and male, n=27). The item "Sense of Self and Others" was marginally significant (p=.057). The only measure in the South Harrison instrument where there was a significant difference between the genders was "Write Name"—the difference was significant on both pre-test and post-test and is a reflection of differences in fine motor skill development.

Reading and Language Score by Gender	Male	Female
Total Subject Score Mean*	37.04	40.44

For reading and language assessments, by the end of the school year, average girl scores were higher than boys with the average male score at 37.04 and the average female score at 40.44 (Figure 16). The difference for individual items was statistically significant for Phonological Awareness, Informational Texts, Writing Standards, Language Conventions, and Comprehension and Collaboration (Figure 17).

Figure 17: ISTAR KR Reading and Language Mean Post Scores by Gender
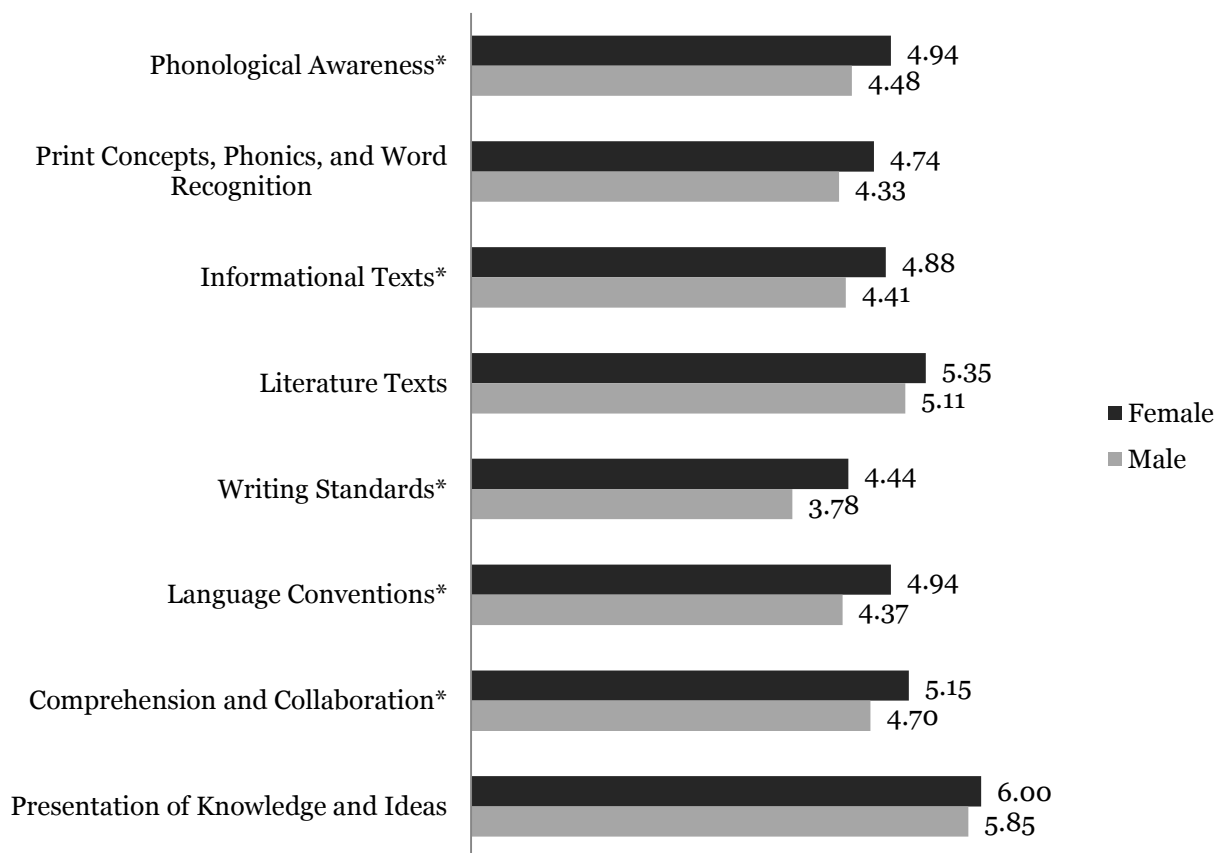
On the Math and Quantitative Reasoning section, the mean score was 27.44 for girls and 25.41 for boys (Figure 18). A closer look at the items comprising the Math and Quantitative Reasoning Assessment indicates that while girls' scores are slightly higher than boys, that difference is only statistically significant for the item on "location" (Figure 19).

Figure 18: ISTAR KR Math and Quantitative Reasoning Total Mean Post Scores by Gender

Math and Quantitative Reasoning Score by Gender	Male	Female
Total Subject Score Mean	25.41	27.44

Figure 19: ISTAR KR Math and Quantitative Reasoning Mean Post Scores by Gender
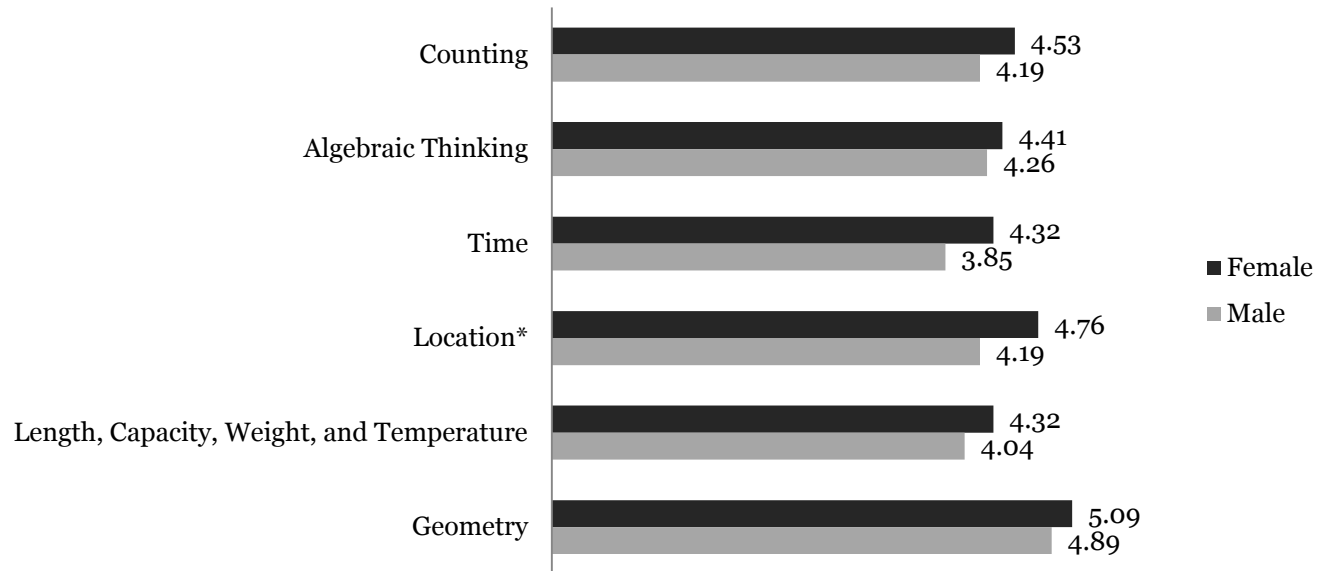
Not surprisingly, in the area where girls started out a little bit ahead of boys (social and emotional development) they leave pre-k well ahead. The average girl score on the Social and Emotional Development post-test was 26.82 compared to 23.59 for boys (Figure 20). And the difference between girls' and boys' scores was statistically significant for every item on this assessment. These findings confirm other research that indicates girls start school with more of the behavioral skills needed to succeed in school than do boys. Some argue that while this fact is perfectly understandable from a development perspective, it places boys at a disadvantage and may play into concerns about attention deficit and hyperactivity.

Figure 20: ISTAR KR Social and Emotional Development Total Mean Post Scores by Gender

Social and Emotional Development Score by Gender	Male	Female
Total Subject Score Mean*	23.59	26.82

Figure 21: ISTAR KR Social and Emotional Development Mean Post Scores by Gender

Category	Female	Male
Sense of Self and Others*	4.41	3.74
Manages Emotions*	4.59	4.15
Interpersonal Skills*	4.79	4.22
Responsibility*	4.71	4.08
Problem Solving*	4.38	3.93
Approaches to Learning*	4.09	3.63
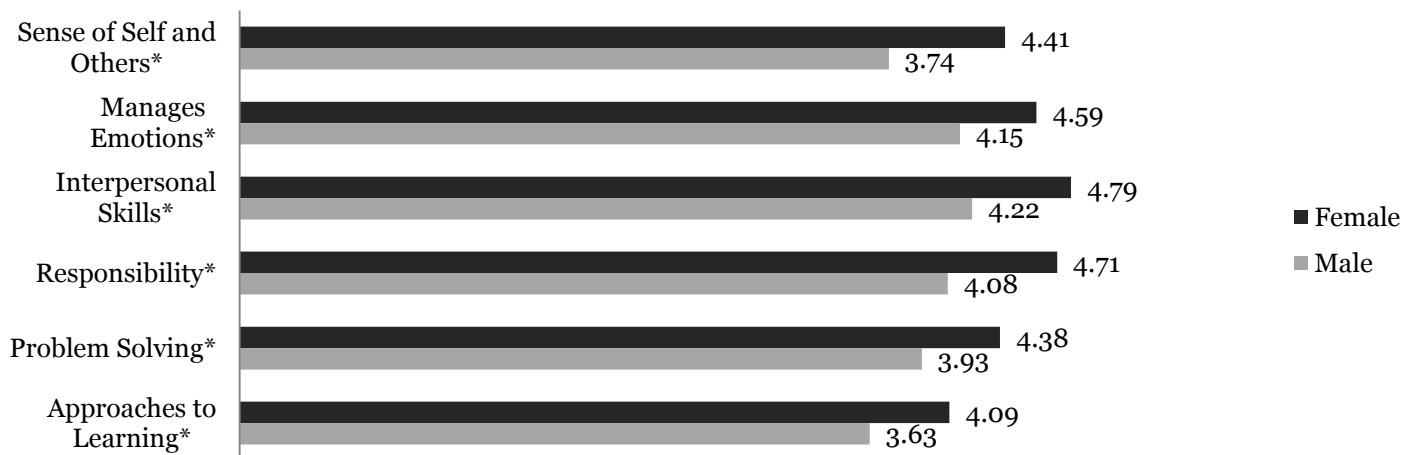
Household Composition and Pre-K Inputs and Outcomes

Household composition, particularly in low-income households, gets a lot of attention as a causal factor in shaping outcomes. The IU Southeast AREC asked providers to indicate whether students came from a two parent household or not. Not all providers were willing to provide these data.

Among the 99 students for which we have household composition data, we found some interesting results. Among those assessed using the ISTAR-KR instruments, no significant difference was found between those from two parent households and those from other household arrangements.

Among those using the South Harrison K-readiness assessment, the difference in pre-test score for numerals was marginally significant (p=.057) and

the difference in total pre-test score was statistically significant. Those from two parent households had a lower average score than those from other household types. Nothing else was significantly different.

The sample is small and that may explain this finding, but it may also be that children in homes without two parents are often expected to take on more responsibility at a younger age so they may be picking up some K-readiness skills at an earlier age. Their parents may also have the children with them for more of their household work that might involve the development of these skills. Finally, single parents may work extra hard to prepare their kids to ensure that nothing about the household situation holds them back.

Conclusions

Findings from year two of the Harrison County Community Foundation Pre-K Pilot indicate positive program impacts. Children are attending full-day programs in nurturing and constructive environments.

From the time they begin the program to the end of the year, student performance on tasks related to language, math and spatial reasoning, and social and emotional development progress significantly. Despite performing at roughly the same level at the

beginning of the year, girls are outperforming boys by the end of one year of pre-school. These findings are consistent with developmental research on gender differences and may be an important indicator of the ways that the school setting (even the pre-K setting) rewards behavior patterns that girls are more able to adopt at a young age.

Interestingly, children who are not from two-parent households score better on the pre-test than those who are from a two-parent household on the South

Harrison K-readiness assessment. The research team will watch this figure through the remainder of the pilot and will work more with participating providers to better understand this finding.

While counter-intuitive, the finding may reflect a higher level of independence and skill among children in single parent households.

Overall, year two findings indicate positive program impacts and suggest avenues for further exploration in the year ahead.

Appendices

Appendix A: Reading and Language, Full Frequency Percentages

The ISTAR KR assessment instruments offer progressive responses within each assessment item. As you read these tables, understand that the percentages reflect the highest level achieved for the student and that the difficulty or skill level increases as you move down the table. Students represented lower in the table have demonstrated all of the skill listed above the item the teacher marked as their highest level of achievement or ability. This means that on the pre-test you may have more in the first few items and fewer in the latter items and on the post-test you may see no numbers in the first few items and more in the later items. In the case of "no evidence" a 0% means that everyone showed evidence of skills, but for other items, no number means everyone demonstrated the skill.

Figure 22: ISTAR KR Phonological Awareness

Phonological Awareness	Pre Test (n=72)	Post Test (n=62)
Mean	3.25	4.71
No evidence	0%	0%
Responds to sounds in the environment	23.6%	
Produces a variety of sounds	36.1%	8.1%
Produces and blends the sounds of letter patterns into recognizable words	31.9%	33.9%
Compares sounds of different words	8.3%	37.1%
KG Standards: Distinguishes sounds within words (to be mastered by end of KG)	0.0%	21.0%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 23: ISTAR KR Print Concepts, Phonics, and Word Recognition

Print Concepts, Phonics, and Word Recognition	Pre Test (n=71)	Post Test (n=62)
Mean	3.11	4.55
No evidence	2.8%	0.0%
Responds to familiar pictures	29.6%	
Labels familiar pictures	31.0%	16.1%
Recognizes familiar symbols	29.6%	41.9%
Compares, combines, and orders letters and letter sounds	4.2%	12.9%
KG Standard: Recognizes that letters make words and words make sentences (to be mastered by the end of KG)	2.8%	29.0%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 24: ISTAR KR Informational Texts

Informational Texts	Pre Test (n=72)	Post Test (n=62)
Mean	3.38	4.66
No evidence	1.4%	0.0%
Engages with a book	8.3%	
Imitates proper handling of books	48.6%	3.2%
Distinguishes print from pictures	37.5%	48.4%
Orients to print in books	1.4%	27.4%
KG Standard: Chooses reading activities for meaning (to be mastered by end of KG)	2.8%	21.0%
1st Grade Standard (to be mastered by end of 1st Grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 25: ISTAR KR Literature Texts

Literature Texts	Pre Test (n=72)	Post Test (n=62)
Mean	3.18	5.24
No evidence	1.4%	0.0%
Reacts to a story or event	27.8%	
Identifies details from a story or picture	36.1%	
Talks about characters and settings	22.2%	8.1%
Retells familiar stories	11.1%	59.7%
KG Standard: Comprehends and responds to stories (to be mastered by end of KG)	1.4%	32.3%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 26: ISTAR KR Writing Standards

Writing Standards	Pre Test (n=72)	Post Test (n=62)
Mean	2.64	4.15
No evidence	2.8%	1.6%
Intentionally makes marks or scribbles	48.6%	3.2%
Associates writing with purpose	34.7%	14.5%
Creates writing with the intention of communicating	9.7%	48.4%
Produces recognizable writing that conveys meaning	4.2%	24.2%
KG Standard: Gathers ideas for writing for a purpose (to be mastered at the end of KG)	0.0%	8.1%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 27: ISTAR KR Language Conventions

Language Conventions	Pre Test (n=72)	Post Test (n=62)
Mean	3.14	4.68
No evidence	1.4%	0.0%
Grasps writing tools	27.8%	1.6%
Imitates specific writing strokes to make a picture	34.7%	1.6%
Copies specific writing marks	27.8%	45.2%
Approximates writing strings of letters	8.3%	30.6%
KG Standard: Writes from left to right spacing letters correctly (to be mastered by end of KG)	0.0%	21.0%
1st Grade Standard (to be mastered by end of 1st Grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 28: ISTAR KR Comprehension and Collaboration

Comprehension and Collaboration	Pre Test (n=72)	Post Test (n=62)
Mean	3.54	4.95
No evidence	1.4%	0.0%
Responds to cues in the environment	11.1%	
Responds to familiar gestures and words	30.6%	1.6%
Follows a familiar verbal or signed direction	47.2%	33.9%
Follows unfamiliar direction	8.3%	32.3%
KG Standard: Follows directions with steps and descriptors (to be mastered by end of KG)	1.4%	32.3%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 29: ISTAR KR Presentation of Knowledge and Ideas

Presentation of Knowledge and Ideas	Pre Test (n=72)	Post Test (n=62)
Mean	4.26	5.90
No evidence	0.0%	0.0%
Uses gestures or sounds to communicate		
Uses single words to communicate	23.6%	
Uses two-word phrases or signs	34.7%	11.3%
Uses simple phrases and sentences with simple grammatical rules	33.3%	16.1%
Uses varied grammar in expression	8.3%	43.5%
KG Standard: Shares information and ideas to describe, explain, predict (to be mastered by end of KG)	0.0%	29.0%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Appendix B: Mathematics and Spatial Reasoning, Full Frequency Percentages

Figure 30: ISTAR KR Counting

Counting	Pre Test (n=69)	Post Test (n=62)
Mean	2.87	4.37
No evidence	0.0%	0.0%
Demonstrates awareness of the presence of objects	31.9%	
Identifies more	52.2%	27.4%
Uses numbers to compare	13.0%	29.0%
Names and orders quantities	2.9%	22.6%
KG Standard: Describes relationships between numbers and quantity (to be mastered by end of KG)	0.0%	21.0%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 31: ISTAR KR Algebraic Thinking

Algebraic Thinking	Pre Test (n=72)	Post Test (n=62)
Mean	3.06	4.34
No evidence	1.4%	0.0%
Manipulates objects for a purpose	31.9%	
Matches objects and sets	29.2%	3.2%
Makes a set of objects smaller or larger	34.7%	67.7%
Follows models of addition or subtraction situations	2.8%	21.0%
KG Standard: Describes the application of addition and subtraction to situations (to be mastered by end of KG)	0.0%	8.1%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 32: ISTAR KR Time

Time	Pre Test (n=72)	Post Test (n=62)
Mean	2.46	4.11
No evidence	4.2%	0.0%
Anticipates a routine	51.4%	1.6%
Uses vocabulary to identify events in a routine	38.9%	30.6%
Sequences events	5.6%	29.0%
Uses measuring vocabulary for time	0.0%	32.3%
KG Standard: Uses measuring units for time (to be mastered by end of KG)	0.0%	6.5%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 33: ISTAR KR Location

Location	Pre Test (n=71)	Post Test (n=62)
Mean	3.48	4.50
No evidence	1.4%	0.0%
Demonstrates an awareness of location of objects	15.5%	3.2%
Identifies location	31.0%	9.7%
Follows directions involving location	38.0%	41.9%
Communicates with location words	14.1%	24.2%
KG Standard: Uses prepositions to describe location (to be mastered by end of KG)	0.0%	21.0%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 34: ISTAR KR Length, Capacity, Weight, and Temperature

Length, Capacity, Weight, and Temperature	Pre Test (n=72)	Post Test (n=62)
Mean	3.10	4.19
No evidence	0.0%	0.0%
Explores measurement attributes	6.9%	
Distinguishes between big and little, hot and cold	76.4%	17.7%
Differentiates gradients of size and weight	16.7%	53.2%
Uses common measuring tools in correct context	0.0%	21.0%
KG Standard: Makes direct measurement comparisons (to be mastered by end of KG)	0.0%	8.1%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 35: ISTAR KR Geometry

Geometry	Pre Test (n=72)	Post Test (n=62)
Mean	3.01	5.00
No Evidence	1.4%	0.0%
Explores attributes (e.g. shape, size, color)	31.9%	1.6%
Matches same attributes	36.1%	9.7%
Matches opposites	25.0%	1.6%
Sorts and patterns by one attribute	5.6%	61.3%
KG Standard: Sorts and patterns by more than one attribute (to be mastered by end of KG)	0.0%	25.8%
1st Grade Standard (to be mastered by end of 1st grade)	0.0%	0.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Appendix C: Social and Emotional Development, Full Frequency Percentages

Figure 36: ISTAR KR Sense of Self and Others

Sense of Self and Others	Pre Test (n=72)	Post Test (n=62)
Mean	3.36	4.13
No Evidence	0.0%	0.0%
Demonstrates self-awareness	18.1%	3.2%
Demonstrates independence	34.7%	32.3%
Engages with others	40.3%	12.9%
Demonstrates respect for self and others	6.9%	51.6%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 37: ISTAR KR Manages Emotions

Manages Emotions	Pre Test (n=72)	Post Test (n=62)
Mean	3.26	4.40
No Evidence	0.0%	0.0%
Expresses a variety of emotions	26.4%	3.2%
Responds to a variety of emotions	25.0%	8.1%
Manages emotions with adult assistance	44.4%	33.9%
Uses strategies to manage emotions	4.2%	54.8%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 38: ISTAR KR Interpersonal Skills

Interpersonal Skills	Pre Test (n=72)	Post Test (n=61)
Mean	3.9	4.54
No Evidence	0.0%	0.0%
Interacts with caregiver	2.8%	0.0%
Engages in parallel play	22.2%	6.6%
Interacts with others	56.9%	32.8%
Engages in cooperative interactions	18.1%	60.7%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 39: ISTAR KR Responsibility

Responsibility	Pre Test (n=72)	Post Test (n=61)
Mean	3.26	4.44
No Evidence	1.4%	0.0%
Recognizes steps in familiar routines	22.2%	1.6%
Follows familiar routines	31.9%	11.5%
Follows rules	37.5%	27.9%
Applies rules to situations	6.9%	59.0%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 40: ISTAR KR Problem Solving

Problem Solving	Pre Test (n=72)	Post Test (n=62)
Mean	2.81	4.19
No Evidence	0.0%	0.0%
Initiates an action to get a desired effect	44.4%	4.8%
Uses trial and error to manipulate objects	33.3%	17.7%
Searches for possible solutions	19.4%	30.6%
Finds alternative strategies and solutions	2.8%	46.8%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.

Figure 41: ISTAR KR Approaches to Learning

Approaches to Learning	Pre Test (n=72)	Post Test (n=62)
Mean	2.94	3.87
No Evidence	1.4%	0.0%
Demonstrates curiosity	26.4%	1.6%
Sustains attention to preferred activities	51.4%	41.9%
Sustains attention to a challenging activity	18.1%	24.2%
Applies creativity to activities	2.8%	32.3%

Note: Figures represent progressive skill attainment levels. Please read the note at the beginning of Appendix A that explains how to read cells with no data.