

# UPSTART Program

Report of FY 2015



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# UPSTART

*In Compliance with Intent Language of 53A-1a-1001*

## Introduction: UPSTART Cohort 5

UPSTART is a pilot project established by the Utah state legislature that uses a home-based education technology approach to develop the school readiness skills of preschool children. In its fifth year of operation, the project's implementation contractor – the Waterford Institute – enrolled 1,577 preschool children and provided them a game formatted program of early literacy instruction delivered by personal computers and the Internet, designed to prepare them academically for kindergarten. The 1,577 children enrolled in the fifth year cohort, hereafter referred to as C5, participated in UPSTART from September 2013 through June 2014.

## Demographics

Slightly more girls (50.5%) were enrolled than boys (49.5%). In terms of ethnicity, 74% of the enrollment was Caucasian, 20% of Hispanic origin, and the ethnicity of the remaining 6% was composed of children from African American, Asian, Native American, Pacific Islander and unknown backgrounds. The primary language spoken by the vast majority of the children was English (84%). Approximately 15% of the children spoke Spanish and 1% spoke other languages. Twelve percent of the children had a diagnosed disability, most often speech impairments.

A majority (70%) of the 1,577 preschool children who enrolled in the fifth year of UPSTART were from low income families, according to data provided by the Waterford Institute. Thirty five percent of the parents had some college, while 37% received a bachelor's degree. The vast majority of the parents were married (89%). C5 enrollment included the highest number of children from low-income and Spanish-speaking homes in the history of the UPSTART program. In comparison with Utah's demographics where 7% of students are ELL; the UPSTART enrollment included 16% ELL, serving more than twice the state percentage.

## Outcome Measures

The reading skills taught by the Waterford Early Learning Program include:

- Phonological Awareness: phonemic segmenting and blending.
- Phonics: letter name knowledge, sound knowledge, and word reading.
- Comprehension and Vocabulary: vocabulary knowledge.
- Language Concepts: oral reading fluency.

The Cohort 5 evaluation used a treatment group and an untreated comparison group, with both pretest and posttest data collected on the same children over a 12 month interval during the year prior to enrollment in Kindergarten. The two assessments used to evaluate the effectiveness of the program were as follows:

*The Brigance.* The Brigance Inventory of Educational Development was selected as an early literacy measure of phonics and vocabulary knowledge and as a measure of pre-Kindergarten academic and cognitive skills.

*The Bader.* The Bader was selected as a measure of phonological awareness.

## Data Collection

271 preschool children were recruited for the C5 evaluation study; 109 treatment group children (enrolled in UPSTART) and 162 control group children (not enrolled in UPSTART). The 109 treatment group children came from an initial random sample of 150 C5 enrollees whose families were contacted about participating in the C5 evaluation, and recruited for testing. The control children were recruited from preschools, daycare centers, and other childcare organizations in Utah. Children were pretested on the Brigance and Bader, during the summer of 2013. They were subsequently posttested on the Brigance and Bader a year later during the summer of 2014.

The final analysis sample for the C5 evaluation used the data collected from 194 children. The UPSTART treatment group was composed of 94 children who passed the screening interview and were able to provide valid and matched pretest and posttest data on the Brigance (89 of whom also had valid and matched Bader data). The non-UPSTART control group was composed of a random sample of 100 control children who were selected from the 141 cases with valid and matched Brigance and Bader test data. These two files were then merged to form the final analysis sample in which the treatment and control group samples were reasonably balanced in size.

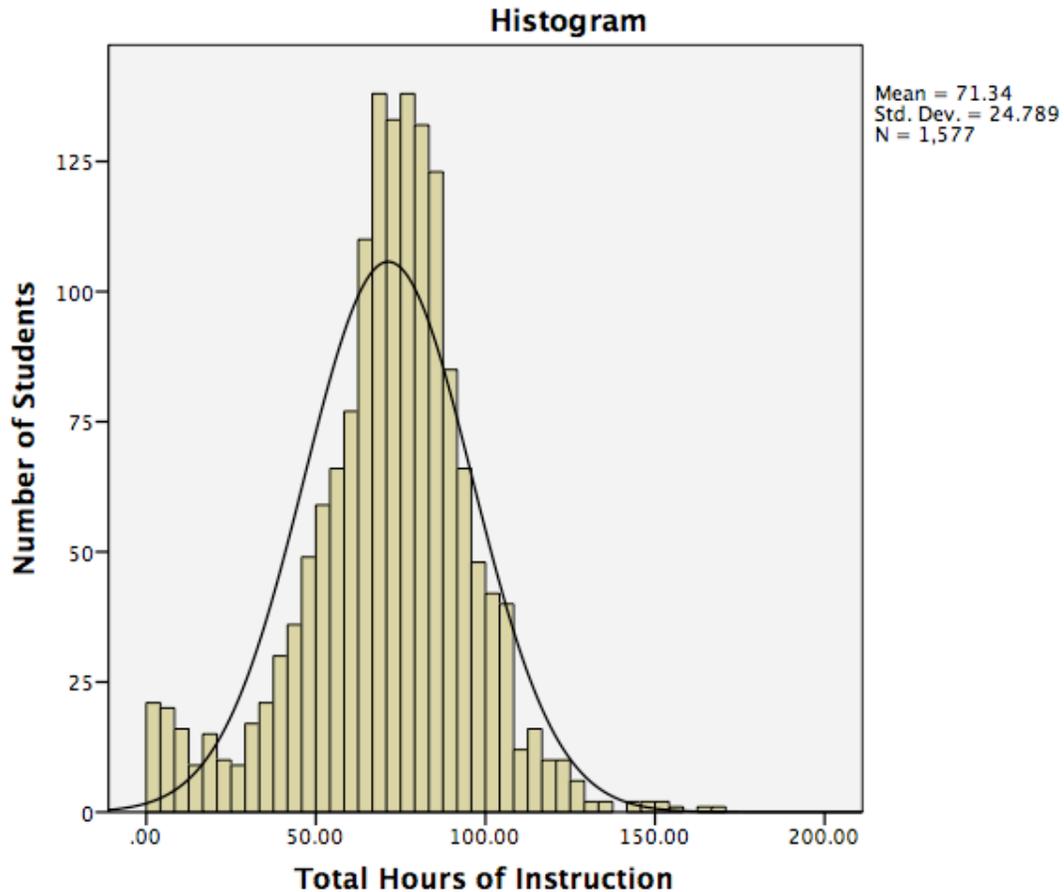
## UPSTART Implementation Results

As in previous years, most of the C5 participants (74%) received a computer drive with the UPSTART curriculum loaded on it. Approximately 8% received a computer loan and a free Internet subscription to help them access the UPSTART curriculum. Another 7% were loaned a personal computer to use at home while participating in UPSTART. The remaining 11% were provided with various combinations of educational technology to enable them to access the UPSTART curriculum, including wireless and cellular devices.

*Findings about UPSTART curriculum usage are summarized below.*

- **C5 Population Usage.** In the C5 population (see Figure 1), UPSTART curriculum usage was normally distributed with an average usage level of approximately 71 hours.

Figure 1



## UPSTART Impact Results

### *Do UPSTART children have better literacy skills as entering kindergarteners than control group students?*

To determine whether there was an impact of the UPSTART preschool experience on young student's literacy skills, a sample of program participants was compared with a similar group of nonparticipants on Brigance and Bader posttest.

### *Do UPSTART children show stronger literacy growth rates from preschool to Kindergarten than control group students?*

To determine whether UPSTART students show stronger literacy growth rates from preschool to kindergarten compared to control students, paired sample t-tests were run to compare pretest and

posttest gain scores for the matched Brigance and Bader treatment groups on the total test and each of the subtests. The same analysis was performed with the Brigance and Bader matched control groups.

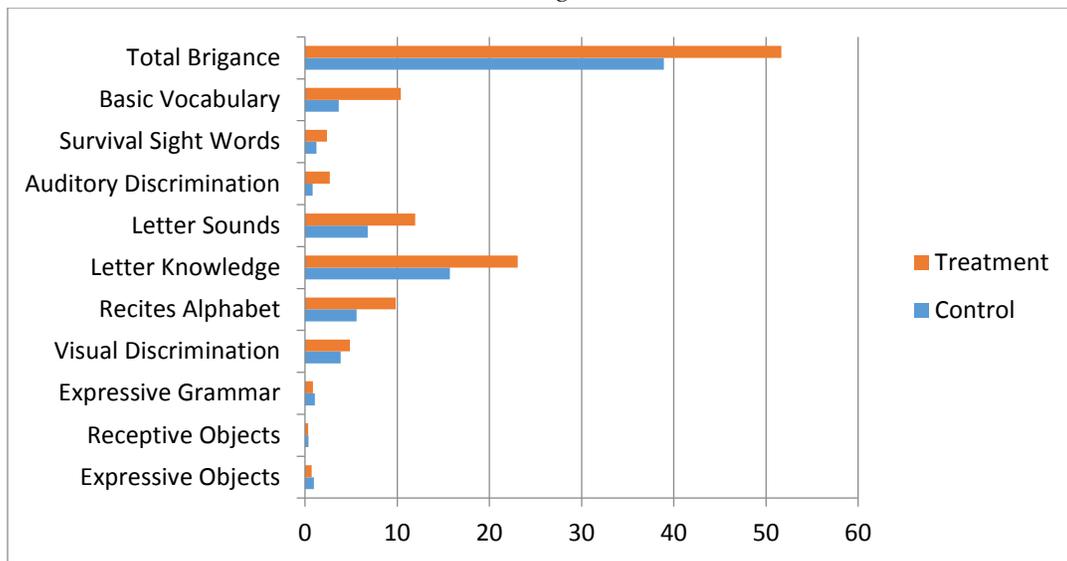
### ***Brigance Results***

Posttest results showed that the UPSTART treatment group performed significantly better than the control children on three of the Brigance subtests: Visual Discrimination, Letter Sounds, and Vocabulary. On the Total Brigance, the treatment group children outscored the control group children by an average of 11.84 points (18% improvement).

### ***Brigance Growth Score Results.***

Differences in growth rates in seven areas all favored the UPSTART treatment group. That is, *UPSTART children showed significantly stronger growth rates in the total Brigance, basic vocabulary, survival sight words, auditory discrimination, letter sounds, letter knowledge, recites alphabet, and visual discrimination.* The Brigance growth rate results are presented in Figure 2.

Figure 2



### ***Bader Results***

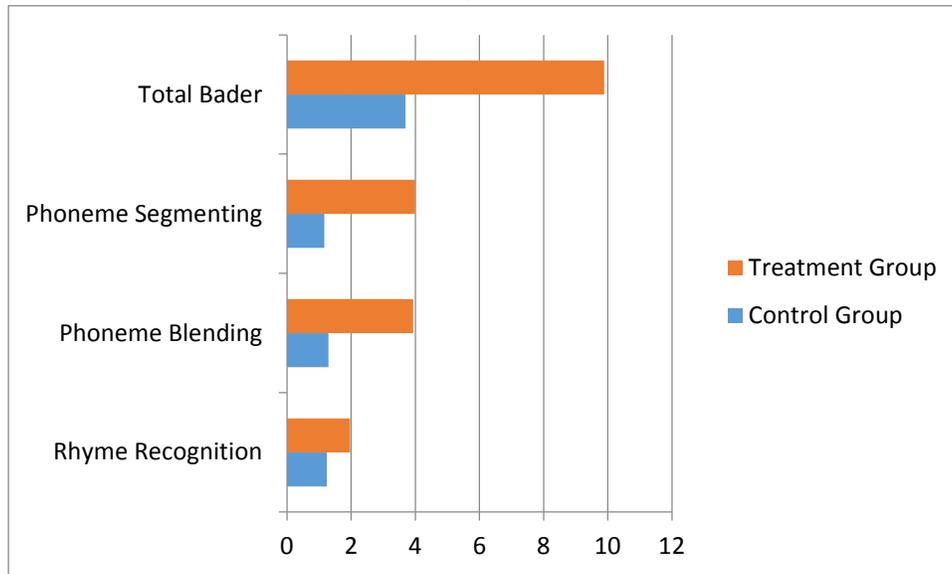
Bader posttest results showed a statistically significant treatment group effect for Phoneme Blending and Phoneme Segmentation as well as for the Total Bader.

### ***Bader Growth Score Results.***

The UPSTART treatment group showed significantly stronger growth rates relative to the control group on the Total Bader and on two of the three Bader subtests. Specifically, *the UPSTART treatment group showed stronger growth rates from pretest to posttest for*

*Phoneme Blending and Phoneme Segmenting skills as well as for the overall Bader assessment. These results are shown in Figure 3.*

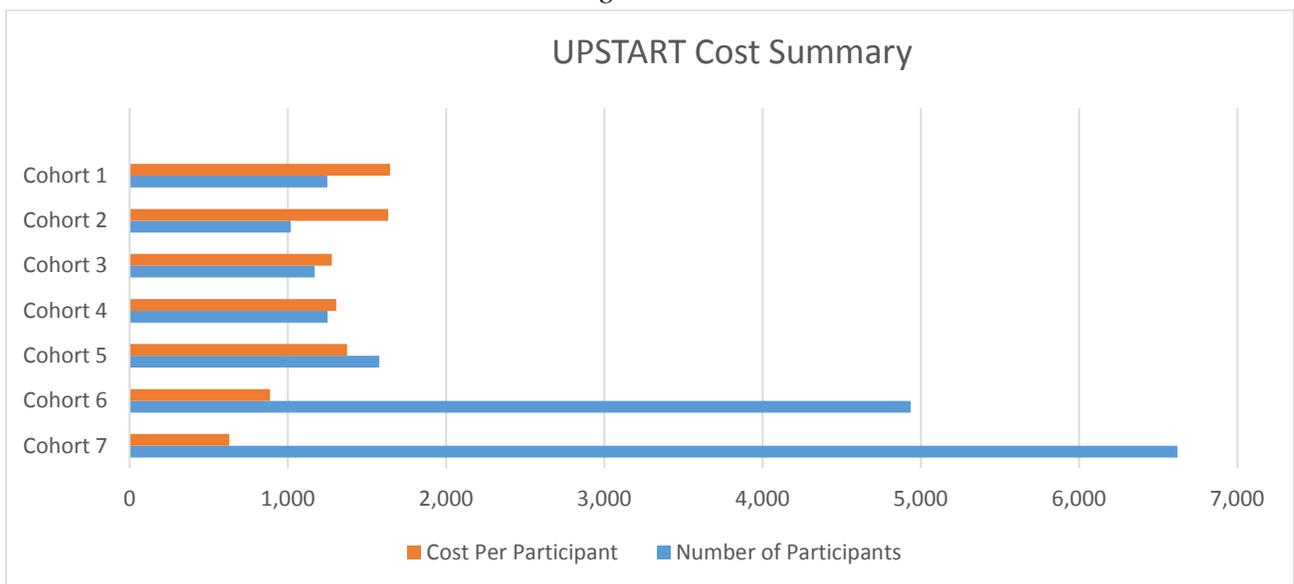
*Figure 3*



***Participant Cost Summary***

Figure 4 represents the per participant cost for each cohort of the UPSTART program since the program’s inception. Cohort 7 is a projected number of participants, as recruitment is still underway. Significant costs savings have occurred over the course of the program. This is primarily due to increased participant ownership of the required technological equipment.

*Figure 4*



### *Implications for Practice*

The results of the usage analysis have the greatest implications for UPSTART instructional practice. The C5 children who benefitted the most from UPSTART in terms of developing their early phonics-related skills – as measured by the Brigance assessment – were those children who used the online curriculum for at least 65 hours. Alternatively, those children who benefitted the most in terms of developing their phonological awareness skills – as measured by the Bader assessment -- were those children who used the online curriculum for at least 77 hours. These results suggest that young children may need more instructional time for developing phonological awareness skills relative to basic phonics skills.