RESEARCH REPORT

EVALUATION AND TRAINING INSTITUTE
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Utah UPSTART Program Evaluation

YEAR 15 PROGRAM RESULTS

Submitted to Utah's Governor's Office of Economic Opportunity

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EVALUATION AND TRAINING INSTITUTE *A non-profit center for research & evaluation*
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Additionally, we extend our thanks to Claudia Miner, PhD, Haya Shamir, PhD and Erik Yoder from Waterford for continuing to provide ETI with the necessary UPSTART data used to complete the evaluation each program year.

ABOUT EVALUATION AND TRAINING INSTITUTE

Founded in 1974, the Evaluation & Training Institute (ETI) is a non-profit consulting firm, headquartered in Los Angeles, dedicated to working with schools, post-secondary institutions, public agencies, private foundations, community-based organizations, and professional organizations. We specialize in third-party program evaluations covering many fields, including education, literacy, STEM, social services, health, and prevention. Many of our evaluations have been instrumental in the development of public policy as well as state and federal legislation. Throughout, our focus is on helping clients improve their programs as well as maintain accountability to funders and oversight committees.

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EXECUTIVE SUMMARY

The Evaluation and Training Institute (ETI) developed this report for the Utah Governor's Office of Economic Opportunity (GOEO) to assess the UPSTART program in its fifteenth year. This evaluation covers students from Cohort 15, who were enrolled during the 2023-2024 program year. The report includes an analysis of both program implementation and achievement outcomes, as well as an evaluation of kindergarten results for Cohort 14. During the 2023-24 program year, 13,334 Pre-K students used the program, down from the previous year's total of 14,330.

Notable Program Impacts on Student Achievement:

- The Year 15 evaluation revealed that approximately 90% of the UPSTART participants attained proficiency in literacy and numeracy by the program's conclusion, as assessed by Utah's Pre-Kindergarten Entry and Exit Profile (PEEP). This result mirrors the Year 14 outcomes.
- An analysis of UPSTART children identified as "needing support" in literacy or numeracy at the start of Pre-K revealed that the majority of these children improved their proficiency levels to "sufficient prerequisite knowledge" by the end of the Pre-K year. This indicates that they demonstrated the essential early skills needed for successful kindergarten entry.
- The majority of kindergarten students who participated in the UPSTART program during the 2022-2023 Pre-K year began and concluded their kindergarten year at Level 3 proficiency. According to the USBE, this level indicates that they "demonstrated sufficient knowledge and skills" in both literacy and numeracy.

Key Program Implementation Highlights:

- During the 2023-2024 program year, 70% of UPSTART students successfully graduated from the program, holding steady from the previous year's graduation rate.
- All participants, regardless of graduation status, engaged with the UPSTART program for an average of 31 hours throughout the year. Graduates, however, logged around 40 hours on average. Consistent engagement was crucial for achieving the program's time-centered objectives.
- Children who did not graduate from UPSTART were more likely to have parents with lower levels of education, experience higher poverty rates, and belong to underrepresented racial or ethnic groups compared to their graduated peers.

Recommendations

We recommend continuing the UPSTART program due to its positive association with students' early skill development. It is essential for the program to address the risk factors that contribute to lower graduation rates and inconsistent usage among vulnerable populations. We suggest promoting regular weekly engagement to enhance program participation, ensuring that all children maximize their experience and benefits from the program.

INTRODUCTION

Evaluation Purpose

The Evaluation and Training Institute (ETI), a non-profit research and consulting firm, spearheaded a multi-year evaluation of the UPSTART program in Utah. This report presents findings from the program's fifteenth year, covering the 2023-2024 implementation period. The primary aim of the evaluation was to assess the benefits that students derived from participating in UPSTART, aiding the state and stakeholders in understanding the program's impact.

The evaluation was based on a treatment only, pretest/posttest research design, as requested by USBE[1] in response to feedback highlighting the limitations of state-wide PEEP data for comparison students. This research design has been the necessary approach while the state refines the PEEP assessment tool and expands its administration among the Pre-K population.

This report focuses on two main groups: Year 15 Pre-K students (Cohort 15, or C15) and a cohort of kindergarten students (Cohort 14, or C14) who completed their kindergarten year in 2024 after participating in UPSTART the previous year. ETI examined two key aspects of the program: 1) the use of UPSTART during the program year (implementation) and 2) educational achievement outcomes, evaluating progress at both the beginning and end of the year for the participants.

Report Roadmap

The following report is organized to include an overview, which outlines the objectives, describes the program, and details the evaluation methodology. It also addresses program implementation, covering enrollment figures, usage patterns, and graduation results for the entire program population. The report presents a Pre-K student academic achievement analysis of

[1] The Utah State Board of Education managed the evaluation contract originally, and approved all research design decisions.

outcomes for Cohort 15 participants and evaluates kindergarten achievement for Cohort 14 students who completed kindergarten in 2024. Finally, it concludes with a summary of findings and recommendations based on the 2023-2024 program year.

Evaluation Objectives

The current evaluation has two primary objectives: first, to assess Pre-K program implementation by measuring how closely students follow the recommended usage levels, and second, to evaluate achievement outcomes in both Pre-K and kindergarten. While the main focus remains on children's literacy development, reflecting UPSTART's emphasis on early reading, the evaluation also includes an analysis of numeracy outcomes. UPSTART's curriculum addresses both literacy and numeracy, and state Pre-K and kindergarten assessments are designed to measure achievements in these areas. Providing insights into both domains is crucial, as kindergarten readiness involves a blend of literacy and numeracy skills.

For the **C15 Pre-K evaluation**, the key objectives were:

- To document how effectively participants engaged with the computerized curriculum according to its intended use.
- To examine early literacy skills (primarily) and numeracy skills (secondarily) among UPSTART participants at both the beginning and end of the Pre-K year.

The **C14 kindergarten evaluation** had three primary objectives:

- To assess the early literacy and numeracy skills of students who participated in the UPSTART program during their Pre-K year, observing proficiency levels before and after kindergarten.
- To investigate the differences in kindergarten achievement outcomes between students who participated in the UPSTART program and those who did not.
- To analyze the kindergarten achievement outcomes specifically for students from low-income families.

UPSTART Program Description

Waterford recognizes that nearly half of the nation's four-year-olds face socioeconomic barriers that hinder their access to early education. In response, the Utah Preparing Students Today for a Rewarding Tomorrow (UPSTART) program was developed—a home-based computer readiness initiative designed to equip young children for school entry and long-term academic success. This program provides Utah families with Pre-K children, particularly those who are underserved or from lower-income backgrounds, with essential resources such as technology, internet access, and support. Families engage with an adaptive curriculum that offers computer-based instruction in early literacy and math, effectively preparing their children for kindergarten. In the 2023-2024 school year, a total of 13,334 Pre-K children participated in the UPSTART program, marking its fifteenth year of operation.

The UPSTART software used adaptive lessons, digital books, animated songs, and activities to deliver individualized early literacy and numeracy content. Once children met the required literacy usage, they were able to additionally engage in the math/science curriculum. The skills taught by the UPSTART program are outlined in **Table 1**.

Table 1. UPSTART Reading and Math Curriculum

Early Reading Curriculum	Early Math and Science Curriculum
Phonological Awareness	Numbers and Operations
Phonics	Measurement and Data
Comprehension and Vocabulary	Geometry
Language Concepts	Science Concepts

Children were encouraged to use the UPSTART reading program for a minimum of 1500 minutes across the program year (or 15 minutes a day, 5 days a week). No minimum use

recommendation was suggested for the math curriculum. All enrolled families were provided with parental resources and technical support from Waterford customer service representatives.

COHORT 15 PRE-KINDERGARTEN STUDY

The following section presents a summary of the research methods used in the Cohort 15 implementation and achievement outcome studies including the design, guiding research questions, our data collection procedures, sample definitions and the measures used to conduct the analysis.

Research Design

ETI conducted a pretest/posttest treatment group-only design for the Year 15 evaluation. We gathered assessment data on early literacy and numeracy skills from a sample of children enrolled in the UPSTART program. Pretest assessments were conducted before the start of the 2023-2024 Pre-K year, while posttest assessments took place at the end of the Pre-K year. The following timeline illustrates the single group design used to assess program outcomes in emerging literacy and numeracy skills.

	Summer 2023		**Summer 2024**	
Registered UPSTART Students	Pre-Test	**UPSTART**	Post-Test	Kindergarten

Research Questions

The current evaluation was guided by several research questions aimed at assessing the extent to which Pre-K children utilized the program as intended and evaluating the kindergarten readiness scores of UPSTART students. Our research questions for the C15 evaluation were as follows:

Pre-K Implementation Study

Research Question 1.1: To what extent did children use the UPSTART program as defined by Waterford (measured in minutes of instruction per week/total minutes for duration of program)?

Research Question 1.2: What proportion of the participants successfully met the requirement for program completion (i.e., "graduated" as defined by Waterford)?

Pre-K Outcome Study

Research Question 2.1: What proportion of UPSTART students achieved Level 3 ("proficiency") for kindergarten readiness at the completion of the program year?

Research Question 2.2: What proportion of UPSTART students classified at the start of Pre-K as "needing support" in literacy or numeracy skill development, were classified as "proficient" in those skills by the end of the program?

Procedure

Implementation Study. To evaluate the implementation of the UPSTART program, data were obtained from records shared by Waterford for all children who had enrolled in the 2023-2024 program year. The records provided data across all usage variables including average weekly use, average number of days per week, average session duration, and overall average total time with the program. Waterford provided program graduation data indicating whether or not the child successfully met the graduation requirements of the program. Parents additionally provided demographic information about the child and household through the program registration process. These datasets were analyzed by ETI to generate the findings related to program implementation, usage, and graduation rates.

Pre-K Outcome Study. To evaluate the kindergarten readiness of UPSTART students, we analyzed test performance from a sample of children enrolled in Year 15 of the program. ETI collected pretest and posttest data, focusing on early literacy and numeracy skills. Before testing,

parents of UPSTART children provided informed consent for the procedures and completed a parent survey online. All assessment data were gathered through one-on-one live virtual sessions conducted by trained administrators. Testing took place at both the beginning and end of the Pre-K year, using the same state-mandated assessment tool that included various literacy and numeracy scales. The entire assessment process averaged 30 to 40 minutes, following consistent procedures for each UPSTART child.

Measures

Pre-K Study. The primary outcomes of interest for the UPSTART evaluation focused on foundational literacy skills, including phonological awareness, letter knowledge, and vocabulary. Additionally, we explored numeracy skills such as numeral recognition and quantity discrimination. To assess achievement outcomes within our treatment group, we utilized Utah's Pre-Kindergarten Entry and Exit Profile (PEEP). This assessment, recently developed by Utah educators, higher education faculty, and members of the Utah State Board of Education, is specifically designed to evaluate early learning outcomes.

Utah's PEEP is intended to inform various stakeholders, such as parents, teachers, and leadership, on the academic and lifelong learning practices essential for entering and exiting Pre-K students. The assessment is designed to provide the following information:

- Current levels of performance upon entry and exit of Pre-K.
- Identify students who may need early intervention instruction and promote differentiated instruction for all students.
- Analyze the effectiveness of programs.
- Provide opportunities for data-informed decision-making and cost-benefit analysis of early learning initiatives.
- Identify effective instructional practices or strategies for improving student achievement

outcomes in a targeted manner.

- Understand the influence and impact of Pre-K in both the short- and long-term[2].

We were most interested in identifying performance levels, determining program effectiveness, and understanding the influence of a Pre-K intervention for the purposes of this evaluation. PEEP exit subscales measured literacy constructs such as *vocabulary* and *letter knowledge*, while the numeracy constructs included skills such as *counting* and *numeral discrimination*. The PEEP exit consists of two subscales and produces a total score for literacy and a total score for numeracy. All question areas are presented in **Table 2**.

Table 2. PEEP Exit Profile

Literacy (Score range 0-108)	Numeracy (Score range 0-36)
Oral language	Oral counting
Alphabet knowledge: uppercase	Numeral identification
Alphabet knowledge: lowercase	Number sense: 1-1 correspondence, cardinality, and quality to numeral
Writing letters	Number sense: numeral to quantity
Phonological awareness	Discrimination: quantity
Alphabetic principle	Discrimination: shape creation
Concept of print: directionality	
Concept of print: letter and word	
PEEP Exit Profile updated June 2024	

The PEEP was also designed to categorize students' performance levels based on their overall literacy and numeracy scores. Students at PEEP entry (prior to starting Pre-K) are grouped into two levels, defined by USBE as either Level 1 "support needed" or Level 2 "at benchmark." Students at PEEP exit (after completing their Pre-K year) are grouped into three levels; Level 1, "does not demonstrate prerequisite knowledge and skills," Level 2, "has minimal prerequisite knowledge and skills" or Level 3, "has sufficient prerequisite knowledge and skills." The

[2] Information cited from the PEEP administration manual. https://www.schools.utah.gov

performance classifications are considered separate for literacy and numeracy, where a student may be considered (for example) "level 2" in literacy but "level 1" for numeracy. The performance levels are summarized in **Table 3.**

Table 3. Summary of PEEP Performance Level Descriptors

	PEEP Entry	PEEP Exit
Performance Level 1	Demonstrates limited prerequisite knowledge and skills in literacy or numeracy (support needed)	Does not demonstrate prerequisite knowledge and skills in literacy or numeracy
Performance Level 2	Has sufficient prerequisite knowledge and skills in literacy or numeracy (at benchmark)	Has minimal prerequisite knowledge and skills in literacy or numeracy
Performance Level 3	--	Has sufficient prerequisite knowledge and skills in literacy or numeracy

See Appendix A for more detail on PEEP performance level descriptions.

It is important to note that the PEEP is a relatively new measure, developed by the state to use a common assessment for Pre-K students. The state of Utah administered the PEEP for the first time in 2021, due to a suspension of state-wide testing in the Spring of 2020 as a result of the pandemic. Psychometric properties of the PEEP, such as reliability and validity of the measure, have not yet been established. The evaluators used untransformed (raw) PEEP scores to conduct the descriptive analysis.

PRE-KINDERGARTEN IMPLEMENTATION STUDY RESULTS

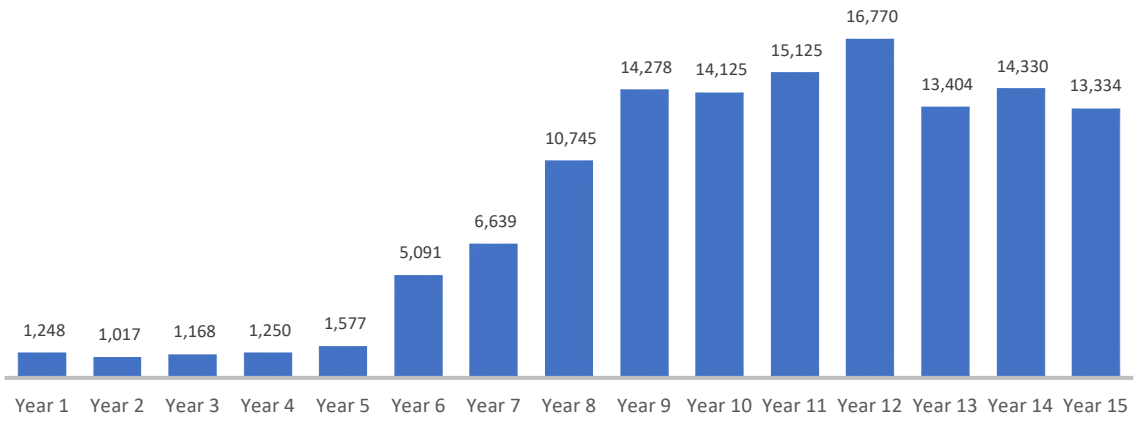
The following section outlines our findings from Year 15 of the UPSTART implementation. Waterford supplied ETI with a comprehensive dataset that included enrollment figures for 2023-2024, demographic information, details on provided educational technology, program usage data, and records of whether children met the program requirements as defined by Waterford. These

implementation findings are based on the performance of all children statewide who participated in the program.

UPSTART Enrollment

During the 2023-2024 program year, 13,334 Pre-K students used the program as part of C15, down from the previous year's cohort (N = 14,330). **Figure 1** illustrates the growth of the program's reach over time from (Year 1, N=1,248) to the most recent Year 15 (N=13,334).

Figure 1. UPSTART Program Enrollment Over Time



The demographic makeup of C15 was similar to previous program years, with the vast majority of the cohort classified as Caucasian/White (74%) with 10% from Latino/a origin (**Table 4**). Approximately one quarter (25%) of the families in Year 15 were under 185% poverty.

Table 4. Demographic Characteristics of C15 Population

Demographic Categories		C15 UPSTART
Child's Gender		*(n=13,334)*
	Male	51%
	Female	49%
Child's Ethnicity		*(n=13,334)*
	Caucasian/White	74%
	Latino/a	10%
	Asian/Pacific Islander	2%
	African American/Black	1%
	Other	10%

Demographic Categories		C15 UPSTART
	Decline to Answer	*3%*
Child's Language		*(n=13,334)*
	English	93%
	Spanish	6%
	Other	2%
Parent Educational Attainment		*(n=13,332)*
	High school graduate	10%
	Some College	23%
	College Graduate	44%
	Advanced Degree	20%
	Decline to Answer	2%
Parent Marital Status		*(n=13,261)*
	Married	90%
	Otherwise	10%
Poverty Level		*(n=10,001)*
	Under 185% Poverty	25%
	Above 185% Poverty	75%

Percentages in the table are based on those providing a response in Waterford's participant records and may not add to 100% due to rounding.

ETI acknowledges that not all families provided responses to every demographic question, therefore the percentages represent the proportion among those who provided information. This case-wise deletion method is a conventional, traditional, and simple technique used to manage missing data, particularly when reporting univariate statistics (Schafer, J. L., & Graham, J. W. 2002). For any demographic category with less than the total sample (i.e., 13,334), the sample size of those providing a response was noted within the table.

UPSTART Usage

To what extent did children use the UPSTART program as defined by Waterford (measured in minutes of instruction per week/total minutes for duration of program)?

The C15 academic year spanned 38 weeks of instruction, starting the week of September 4, 2023, and concluding on May 20, 2024. We analyzed program usage data to assess how families

engaged with the program and fulfilled graduation requirements. On average, enrolled families participated for approximately 31 weeks. Waterford recommends a total of 1,500 minutes (or 25 hours) of usage for the reading curriculum throughout the program. This year, the average usage for all students (N=13,334) was around 1,856 minutes (or 31 hours) of reading instruction, a slight decrease from the previous year but still significantly above the recommended amount. Among those who met the graduation requirement (i.e., 1500+ total minutes or high achievement on WACS[3]), the average usage was 40 hours. A summary of the Year 15 data for instructional reading hours is presented in **Table 5**.

Table 5. C15 Hours of UPSTART Reading Instruction

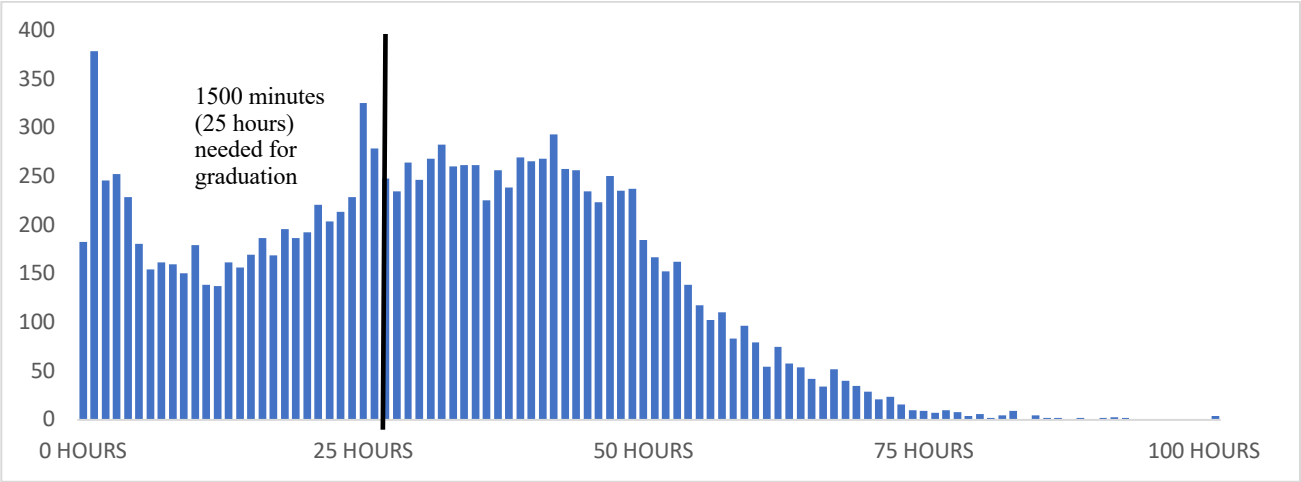
Group	N	Mean	SD	Range
All UPSTART	13,334	30.92	18.01	0.02-122.55
UPSTART Graduates	9,272	39.54	14.00	0.03-122.55

Approximately 97% of students (n=12,922) who participated in the reading program also utilized the optional math software throughout the school year. On average, students engaged with the math software for 879 minutes over the course of 28 weeks, averaging about 28 minutes per week.

Figure 2 illustrates the distribution of reading instruction hours for the total C15 population (N=13,334). As shown, the majority of children surpassed the program's minimum requirement of 25 hours; however, approximately 36% of participants recorded less than the recommended criteria for program completion.

[3] WACS Waterford Assessment of Core Skills.

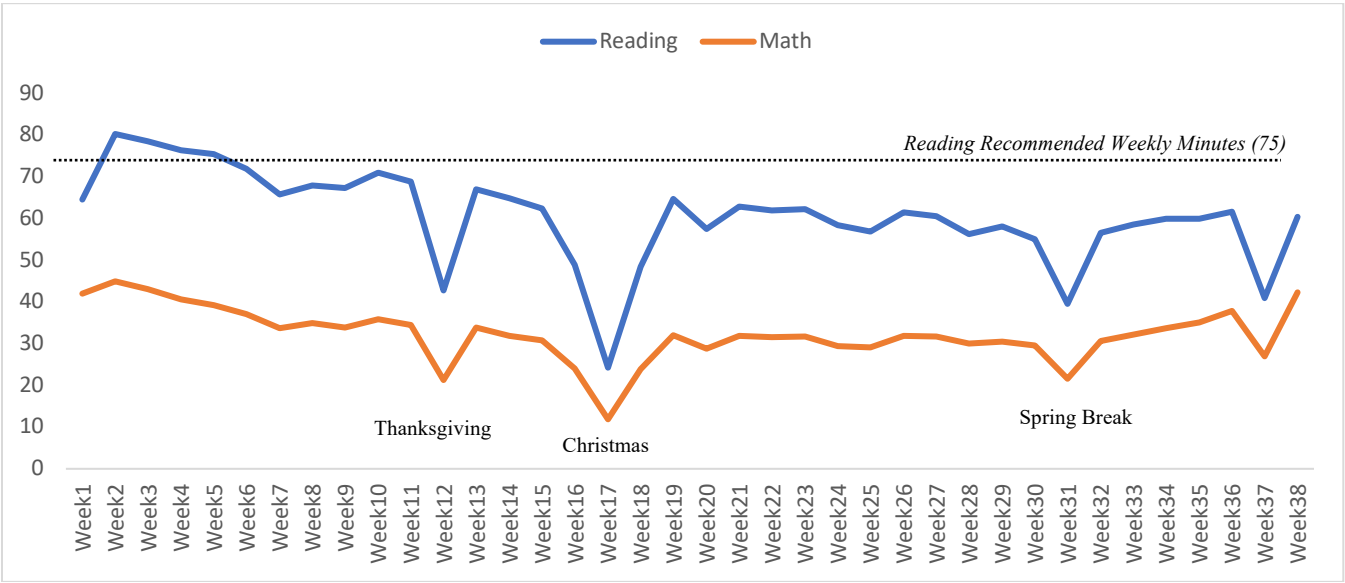
Figure 2. Distribution of Hours of Reading Instruction for C15 Families



The bottom quartile of the C15 population completed 17.10 hours of reading instruction or less, the midpoint of the C15 distribution was 31.30 hours, and the top quartile completed 44.03 hours or more of instruction. Less than 10 students used the program for 100 hours or more.

The pattern of weekly usage throughout the program mirrored that of previous years, with declines in program engagement corresponding to holidays and school breaks (see **Figure 3**).

Figure 3. Average Weekly Minutes of Reading and Math Use



On average, the UPSTART children for the 2023-2024 program year logged just below the recommended weekly reading duration of 75 minutes. Engagement with the math curriculum was lower, as anticipated for an optional component of the program.

UPSTART Graduation Rate

What proportion of the participants successfully met the requirement for program completion (i.e., "graduated" as defined by Waterford)?

Previous ETI evaluation studies have demonstrated that effective usage of the UPSTART program, and consequently graduation from it, is strongly linked to the development of school readiness skills in children. Specifically, curriculum engagement has been significantly and positively correlated with literacy outcomes, as measured by early literacy assessments.

In recent years, Waterford updated its graduation criteria to include a score from the Waterford Assessment of Core Skills (WACS). This adaptive assessment provides precise data for both high and low-scoring students by evaluating key literacy skills such as phonological awareness, vocabulary, listening comprehension, phonics, and reading comprehension. Students can now meet the graduation requirements in a couple of ways: (a) by logging at least 1,500 minutes (25 hours) of instruction with the UPSTART reading curriculum, and/or (b) achieving a specified level on the WACS (see **Table 6**).

Table 6. Waterford Graduation Criteria

	Low Program Usage (Less than 1500 minutes)	**High Program Usage** (1500 minutes or more)
High WACS achievement (>= Kindergarten Beginning AND >= 1 Level of Growth) OR (>= Kindergarten Intermediate AND No Pre-test)	**7%** **High achievement** **Low Usage**	**33%** **High Achievement** **High Usage**
Low WACS Achievement (< Kindergarten Beginning OR <1 Level of Growth) OR (< Kindergarten Intermediate AND No Pre-Test)	7% Low Achievement Low Usage	**19%** **Low achievement** **High Usage**
No WACS	23% No EOY Assessment Data Low Usage	**11%** **No EOY Assessment Data** **High Usage**

Graduation rate and categories provided by Waterford; bold text denotes graduate

As an example, students who achieve high scores on the WACS—indicating readiness for kindergarten—are considered graduates of the program, regardless of their level of program usage. Similarly, students who meet the usage requirement (even if their WACS scores are lower) also qualify for graduation. Approximately 33% of students demonstrated both high achievement on the WACS and high usage, while only 7% achieved high scores with low usage. About 30% of students were unable to engage with the program as recommended and also recorded low or no WACS scores, thus not meeting the graduation criteria for the UPSTART program.

Waterford classified 9,272 children as graduates out of the 13,334 students in Year 15, resulting in a graduation rate of 70% (9,272/13,334 = 0.695). This follows a similar trend observed among Cohort 14 students, where the graduation rate was also 70% (i.e., 9,994/14,330 = 0.697). **Table 7** presents the demographic characteristics of both graduates and non-graduates within Cohort 15.

Table 7. Demographic Characteristics of C15 Population

Demographic Categories		UPSTART Graduates	UPSTART Non- Graduates
Child's Gender		*(n=9,272)*	*(n=4,062)*
	Male	51%	50%
	Female	49%	50%
	Unspecified	<1%	<1%
Child's Ethnicity		*(n=9,272)*	*(n=4,062)*
	White	77%	67%
	Hispanic	8%	14%
	Asian/Pacific Islander	2%	3%
	Native American	<1%	1%
	African American	1%	1%
	Other	9%	11%
	Decline to Answer	3%	3%
Child's Language		*(n=9,272)*	*(n=4,062)*
	English	94%	90%
	Spanish	5%	8%
	Other	1%	2%
Parent Educational Attainment		*(n=9,272)*	*(n=4,062)*
	High school graduate	8%	16%
	Some College	20%	28%
	College Graduate	48%	36%
	Advanced Degree	22%	16%
	Decline to Answer	1%	2%
Parent Marital Status		*(n=9,215)*	*(n=4,046)*
	Married	93%	84%
	Otherwise	7%	16%
Poverty Level		*(n=6,875)*	*(n=3,126)*
	Under 185% Poverty	23%	29%
	Above 185% Poverty	77%	71%

Percentages in the table are based on those providing a response in Waterford's participant records and may not add to 100% due to rounding.

As observed in previous studies, children who did not fulfill the graduation requirements were more likely to belong to underrepresented racial or ethnic minority groups, have parents with lower educational attainment, and experience higher levels of poverty compared to UPSTART graduates.

PRE-KINDERGARTEN ACADEMIC ACHIEVEMENT RESULTS

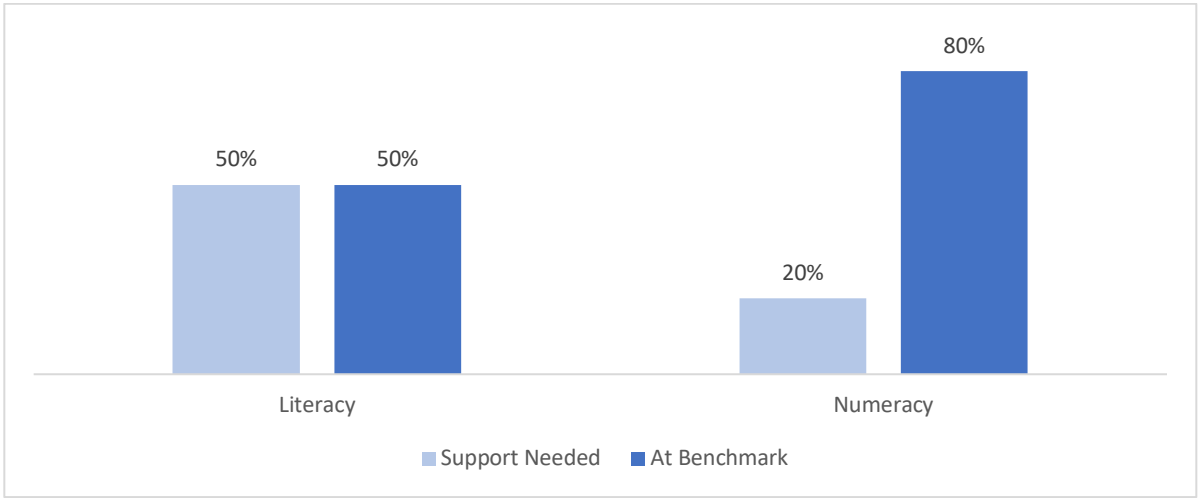
Below, we present our analysis of literacy and numeracy outcomes for a sample of Cohort 15 UPSTART students. We examined PEEP assessment data to address the following research questions:

> **Research Question 2.1:** What proportion of UPSTART students achieved a Level 3 ("proficiency") for kindergarten readiness at the completion of the Pre-K program year?
>
> **Research Question 2.2:** What proportion of UPSTART students classified at the start of Pre-K as 'needing support' in literacy or numeracy skill development, were classified as "proficient" in those skills by the end of the program?

PEEP Entry Performance Levels

We began by assessing the baseline performance of our UPSTART evaluation sample. At PEEP entry, students could be classified into two performance levels: "At Benchmark" (indicating sufficient prerequisite knowledge and skills) or "Support Needed" (indicating limited prerequisite knowledge and skills). Our analysis revealed that 50% of the students were at benchmark in literacy, while 80% were at benchmark in numeracy before starting their Pre-K year (see **Figure 4**; darker blue bars). This indicates that half of the UPSTART students possessed adequate foundational literacy knowledge, and the majority had sufficient numeracy knowledge prior to participating in the program, as measured by the PEEP entry assessment.

Figure 4. UPSTART Student Performance Level at PEEP Entry



Literacy and Numeracy- n=305

PEEP Exit Performance Levels

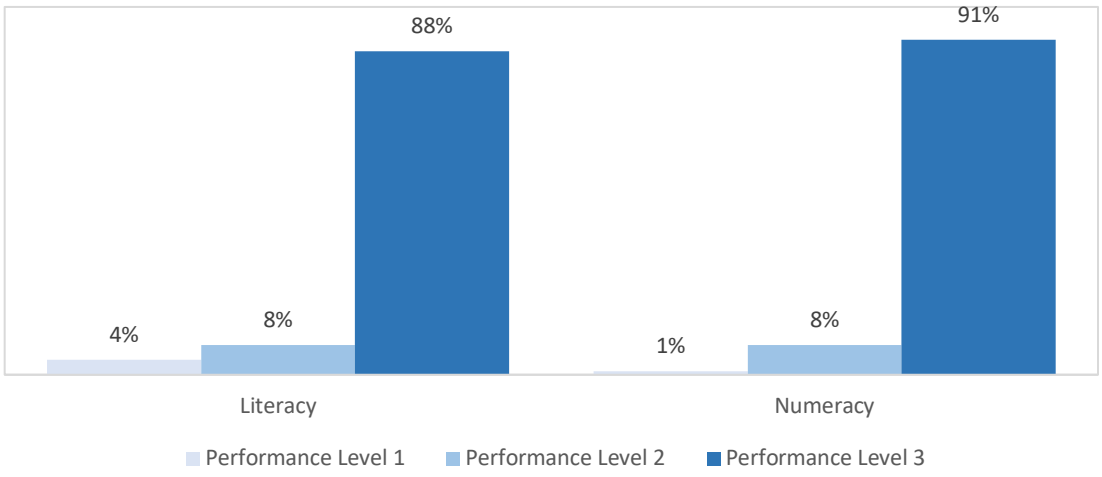
What proportion of UPSTART students achieved a Level 3 ("proficiency") for kindergarten readiness at the completion of the program year?

Students could achieve one of three performance levels on the PEEP Exit assessment, each reflecting their proficiency in the prerequisite skills needed for kindergarten and indicating the level of support they may require. These performance levels are independent of the PEEP entry classifications and are evaluated separately from the entry outcomes. A student at Performance Level 3 upon exit is deemed "Proficient" in either literacy or numeracy, having demonstrated sufficient knowledge and skills for kindergarten readiness. Conversely, students at Performance Levels 2 and 1 have not shown the necessary skills for kindergarten and may need additional intervention to succeed.

As illustrated in **Figure 5**, results indicate that participation in the UPSTART program was linked to enhanced kindergarten readiness in both literacy and numeracy. A significant majority of the UPSTART evaluation sample exited the program "proficient" in both literacy (88%) and

numeracy (91%), demonstrating their readiness for kindergarten in terms of skills and prerequisite knowledge. Only a small percentage of UPSTART students entered kindergarten requiring additional support in either area, with 12% needing help in literacy and 9% in numeracy. These results mirror the Year 14 PEEP outcomes, where 90% of students attained proficiency, demonstrating consistent program outcomes over consecutive years.

Figure 5. UPSTART Student Performance Level at PEEP Exit



Literacy and Numeracy- n=280

We conducted additional analyses to examine how students who were most in need of support—those at the greatest risk of falling behind their peers—progressed in literacy and numeracy skills by the end of the UPSTART program year. The following question guided this inquiry:

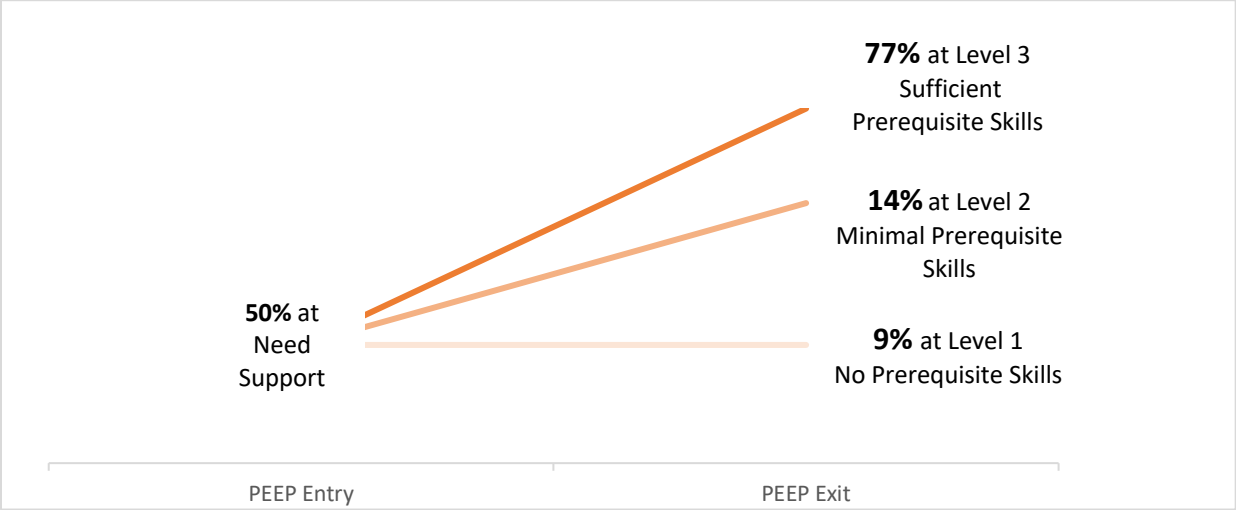
> ***What proportion of UPSTART students classified at the start of Pre-K as "needing support" in literacy and numeracy skill development, were classified as "proficient" in those skills by the end of the Pre-K year?***

In this analysis, we focused exclusively on students classified as needing support at PEEP entry, tracking their performance at PEEP exit. We did not directly link entry and exit scores;

instead, we utilized the USBE's classification system of performance levels to assess potential academic progress within this specific group of students[4].

Literacy. Among the children identified as needing support in literacy at the start of the program, 77% reached "sufficient prerequisite knowledge in literacy" (Level 3) by the end of the program (see **Figure 6**).

Figure 6. Kindergarten Literacy Readiness among Those Needing Support at Entry

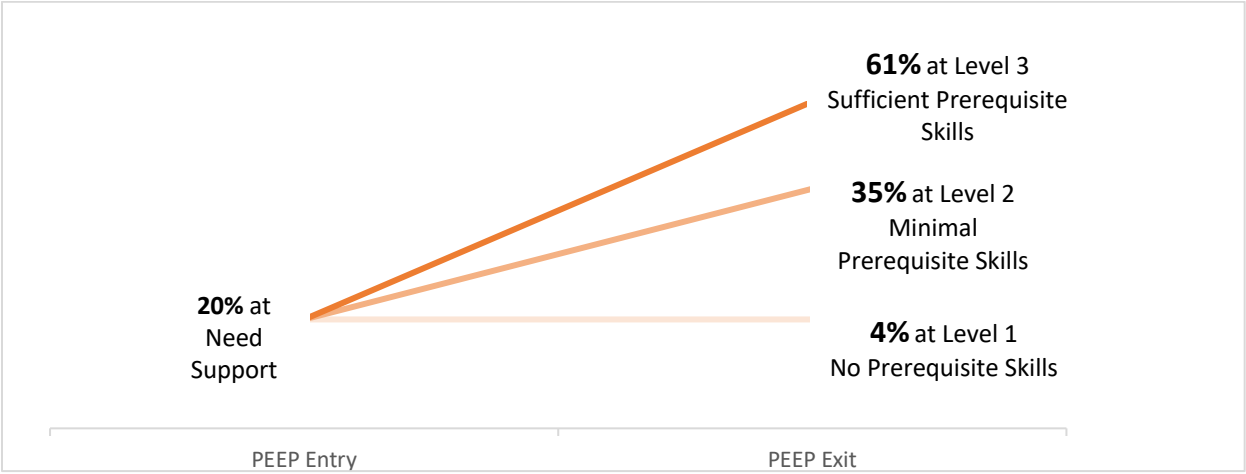


PEEP Entry n=151, PEEP Exit total n= 133

Numeracy. Similarly, we examined the progress of Pre-K students who required support in numeracy at the beginning of the program (n=60). By the end of the program year, 61% of these students achieved Level 3 in numeracy skills (see **Figure 7**).

[4] For additional information on how USBE defines Performance levels and cut points refer to Appendix A.

Figure 7. Kindergarten Numeracy Readiness among Those Needing Support at Entry



PEEP Entry n=60, PEEP Exit n = 51

These findings suggest that the UPSTART program may provide the additional support necessary to improve literacy and numeracy skills for students who need the most help before starting kindergarten.

COHORT 14 KINDERGARTEN STUDY

As part of the Year 15 UPSTART evaluation, we examined a sample of UPSTART students from the 2022-2023 program year (Cohort 14 students) who completed kindergarten in 2024. We had access to kindergarten assessment data for over 42,000 students, enabling us to conduct a comprehensive analysis. This included comparing outcomes between program graduates and non-graduates, as well as a more detailed exploration of achievement outcomes among low-income students.

Research Design

ETI conducted a pretest/posttest observational research design using assessment data from the USBE. We identified a substantial sample of Year 14 UPSTART students from the state's dataset and analyzed their kindergarten literacy achievement outcomes. This approach also enabled us to

establish a state-wide comparison group by excluding the UPSTART participants. The timeline below illustrates the evaluation design used to assess kindergarten outcomes.

2022-2023	Fall 2023		Spring 2024
Pre-K UPSTART Program Year	KEEP Entry	**Kindergarten**	KEEP Exit
No UPSTART			

Research Questions

The kindergarten analysis was designed to answer the following research questions:

> **Research Question 3.1:** How did literacy and numeracy achievement for kindergarteners who participated in the UPSTART program at Pre-K, compare to the pattern of performance for Non-UPSTART students?
>
> **Research Question 3.2:** How did the literacy and numeracy achievement for low-income kindergarteners who participated in the UPSTART program at Pre-K, compare to pattern of performance for low-income Non-UPSTART students?
>
> **Research Question 3.3:** How did literacy and numeracy achievement for low-income kindergarteners compare across three groups, (1) those who graduated from the UPSTART program at Pre-K, (2) those who participated but did not graduate, or (3) those who did not participate at all?

Kindergarten Data Collection. We utilized Utah state KEEP testing data, transferred from the USBE, to evaluate the literacy and numeracy outcomes of Cohort 14 UPSTART students compared to their non-program peers. Our analysis focused on KEEP literacy and numeracy data for approximately 12,000 UPSTART students and 30,000 non-program students, collected at both the beginning and end of the kindergarten year[5].

Kindergarten Measures. Our kinder analysis used *Utah's Kindergarten Entry and Exit Profile (KEEP)* to measure the achievement outcomes among all kindergarten students. Like the

[5] Cohort 14 sample sizes are based on those identified in both the state SIS dataset and in the KEEP dataset for the 2023-2024 school year. Not all students had complete KEEP scores.

PEEP, the KEEP consists of two subscales and produces a total score for literacy and a total score for numeracy. All question areas are presented in **Table 8**.

Table 8. KEEP Exit Profile

Literacy (Score range 0-118)	Numeracy (Score range 0-55)
Listening Comprehension	Oral Counting
Phonemic Awareness	Counting Objects
Phonics and Word Recognition	Identify and Compare Numerals
Emergent Reading	Decompose Numbers
Encoding	Decompose Numbers
Writing	Compose and Decompose Teen Numbers
	Addition and Subtraction- Word Problems
KEEP Exit Profile updated October 2018	

Students who take the KEEP are grouped into three levels; Level 1, "does not demonstrate prerequisite knowledge and skills," Level 2, "has minimal prerequisite knowledge and skills" or Level 3, "has sufficient prerequisite knowledge and skills." Similar to PEEP, the performance classifications are considered separate for literacy and numeracy[6].

KINDERGARTEN ACADEMIC ACHIEVEMENT RESULTS

KEEP Exit Performance Levels

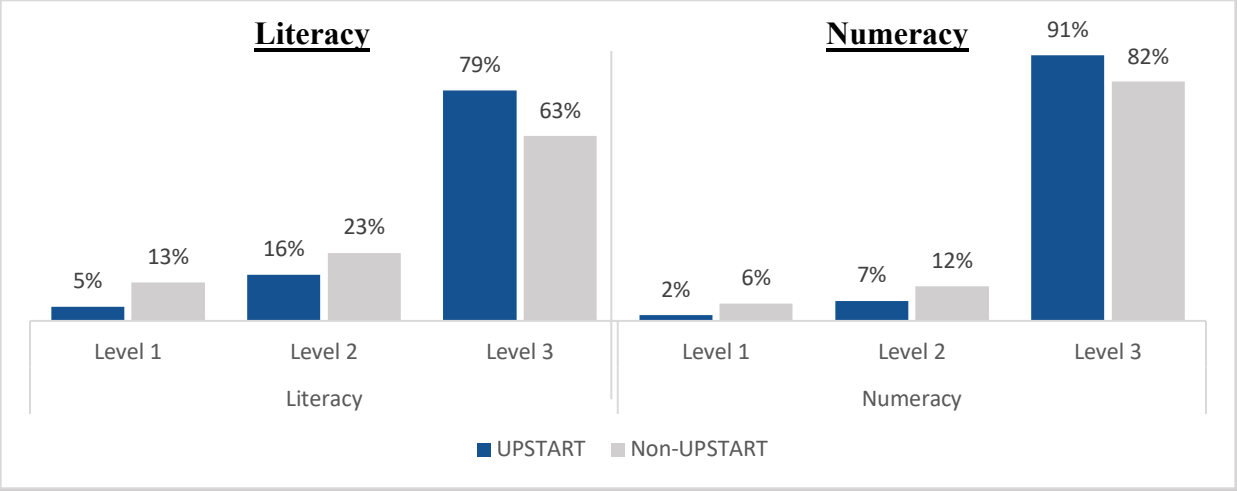
How did literacy and numeracy achievement for kindergarteners who participated in the UPSTART program at Pre-K, compare to the pattern of performance for Non-UPSTART students?

UPSTART students were associated with higher scores at the end of kindergarten, compared to students who did not use the UPSTART software (**Figure 8**). For example, on measures of literacy, 79% of the Cohort 14 UPSTART students (blue bars) finished the year with sufficient literacy knowledge (Level 3), compared to 63% of students who did not use the software. Likewise,

[6] See Appendix B for more detail on KEEP performance level descriptions.

on measures of numeracy, 91% of Cohort 14 students finished at Level 3, compared to 82% of non-UPSTART students.

Figure 8. Performance Levels in Literacy and Numeracy among Program and Non-Program Students at Exit



Note: Literacy Exit: UPSTART n=11,889, Non-UPSTART n=29,865; Numeracy Exit: UPSTART n=11,757, Non-UPSTART n=28,991

It should be noted that we did not control for differences in student characteristics and thus this analysis was descriptive in nature. For more information about KEEP Entry scores for both groups, see **Appendix C**.

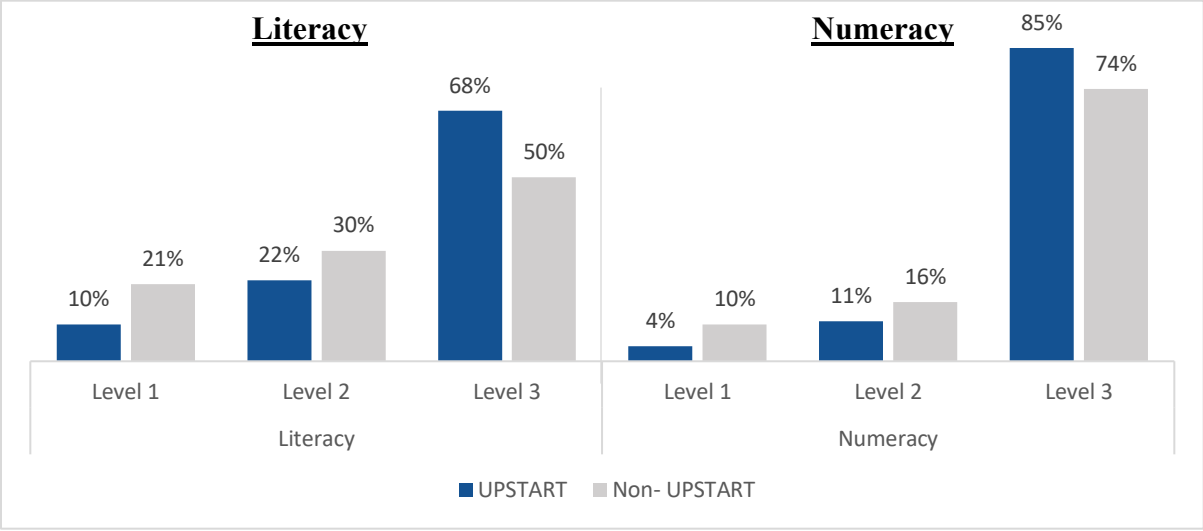
How did literacy and numeracy achievement outcomes for low-income students compare among those who used the UPSTART program at Pre-K and those who did not participate at all?

We conducted a targeted analysis of kindergarten achievement outcomes for students identified as low-income based on demographic data from the Student Information System (SIS) at the start of the school year[7]. At the end of the year, we found that 68% of Pre-K UPSTART students

[7] Student information system (SIS) data was provided by Utah State Board of Education (USBE) and collected at the beginning of the year. Students identified as low income are considered to be economically disadvantaged and include students who are eligible for free and reduced priced lunch.

achieved sufficient literacy skills, compared to only 50% of their non-program peers. In terms of numeracy, 85% of Pre-K UPSTART students met the necessary outcomes, while 74% of non-UPSTART students did (**Figure 9**). These findings suggest that low-income and at-risk students participating in UPSTART perform notably better than their non-program counterparts by the end of the kindergarten year. For more information on baseline performance, see **Appendix C**.

Figure 9. Performance Levels in Literacy and Numeracy among Low-Income Program and Non-Program Students at Exit



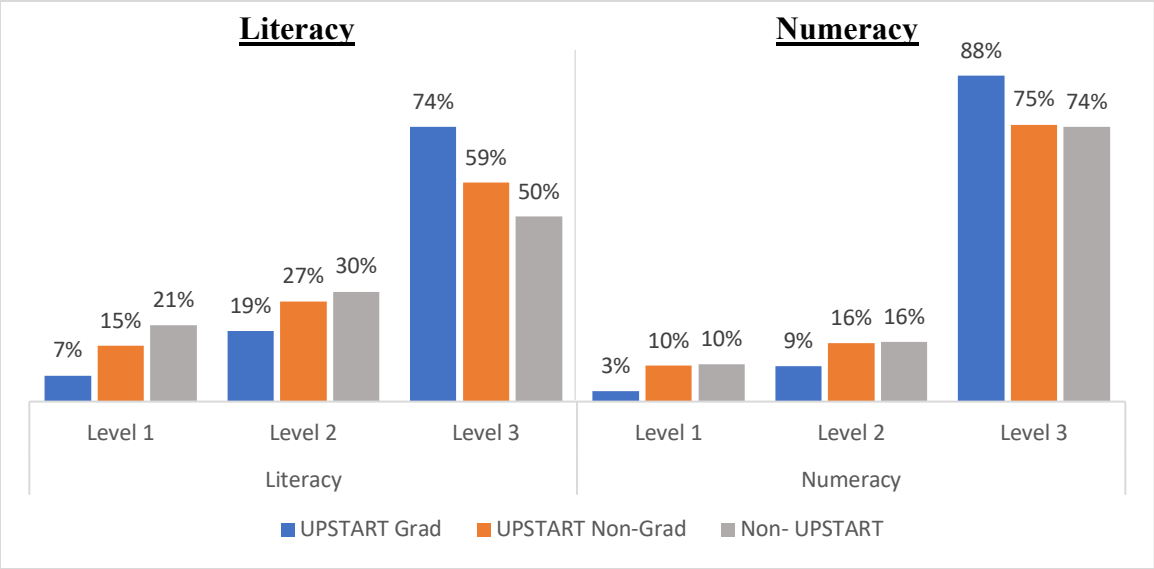
Note: Literacy- UPSTART n= 2,328, Non-UPSTART n=10,299; Numeracy- UPSTART n= 2,282, Non-UPSTART n=9,505

We further enhanced our analysis by comparing low-income non-program students to two groups of UPSTART participants: those who actively engaged in the program and met the graduation requirements, and those who participated but did not meet these requirements. The guiding research question was:

> ***How did literacy and numeracy achievement outcomes for low-income kindergarteners compare among the following three groups, (1) those who graduated from the UPSTART program at Pre-K, (2) those who participated but did not graduate, or (3) those who did not participate at all?***

Figure 10 illustrates our findings on kindergarten achievement among three groups of low-income students. A larger percentage of low-income students who participated in UPSTART at Pre-K—both those who met graduation criteria (blue bars) and those who did not (orange bars)—achieved Level 3 at the KEEP exit compared to students who did not participate at all (gray bars). Specifically, 74% of UPSTART graduates and 59% of non-graduates finished kindergarten with sufficient literacy knowledge and skills, while only 50% of non-program students reached this level.

Figure 10. Performance Levels in Literacy and Numeracy among Low-Income Graduates, Non-Graduates, and Non-Program Students at Exit



Note: Literacy- UPSTART Grad n=1475, UPSTART Non-Grad n=937, Non-UPSTART n=10,665; Numeracy- UPSTART Grad n= 1,457, UPSTART Non-Grad n= 11,211, Non-UPSTART n=10,295

Additionally, approximately 88% of graduates demonstrated adequate numeracy skills by the end of the year. In contrast, about 75% of both UPSTART non-graduates and non-UPSTART students achieved Level 3 in numeracy outcomes. Although all students showed skill development by the end of kindergarten, Pre-K UPSTART students—particularly graduates—exhibited a clear advantage in both literacy and numeracy skills compared to their non-graduate and non-program peers.

SUMMARY & RECOMMENDATIONS

Cohort 15 Program Implementation

During the 2023-2024 program year, 70% of students in Cohort 15 met the criteria for graduation. Graduation was determined by two main criteria: (1) completing at least 1,500 minutes of program usage or (2) achieving a high score on the WACS assessment. The majority of graduates exceeded the usage requirements set by Waterford, while only a small number graduated based solely on their achievement scores. Families of students who did not graduate often faced challenges, including lower levels of parental education, higher poverty rates, and representation in underrepresented ethnic groups. Given the importance of graduation as a program goal, these families may benefit from additional resources to support their success.

Academic Achievement Outcomes

Our pretest/posttest analysis indicated that by the end of the UPSTART program, most Pre-K students were deemed proficient in literacy and numeracy, making them ready for kindergarten. Furthermore, as we tracked the previous year's cohort through their kindergarten year, we found descriptive evidence that UPSTART students continued to perform better overall, with particularly encouraging results among low-income families in the state.

Study Limitations

We have identified several limitations to consider when interpreting the evaluation results, specifically regarding the research design and measurement methods used.

Research Design Limitations: For the final evaluation in the current five-year cycle, and in partnership with GOEO, ETI employed a program group-only pretest-posttest research design to evaluate the PEEP proficiency levels of Pre-K students participating in the UPSTART program. This observational design does not allow for definitive causal conclusions about the program's impact on

students' literacy and numeracy outcomes. Consequently, our analysis focuses on reporting the "association" or "relationship" between program participation and student achievement outcomes rather than establishing causality.

Measurement Limitations: Our analysis was constrained by limited information regarding the psychometric properties of the PEEP assessment, as well as its scoring procedures beyond raw summative scores (such as age-standardized scoring). In consultation with the USBE, we utilized raw summative scores for treatment students in our analysis, which are not age-adjusted. This limitation hampers our ability to interpret the mean PEEP scores and, consequently, the performance level outcomes for the Pre-K study.

Research and Evaluation Recommendations

Based on insights gained from recent evaluation years, we propose several recommendations for enhancing future evaluations:

- Adopt a Quasi-Experimental Design: Future Pre-K program evaluations should utilize a quasi-experimental, matched treatment and control group design. This approach will enable researchers to make causal inferences about the program's impact on student academic achievement. Please refer to **Appendix D** for additional context on this recommendation.
- Ensure Comprehensive Assessment Information: It is crucial to gather thorough information about the PEEP assessment (or any state-adopted assessment), including its psychometric properties and potential score transformations, such as age-standardization.
- Conduct Detailed Analysis During Transitions: As the state shifts from KEEP scores to Acadience scores for the kindergarten study, careful analysis is essential to establish consistency in the skills being measured.
- Explore Long-Term Tracking Opportunities: With the adoption of Acadience, there may be

an opportunity to extend future evaluations to examine the long-term benefits of the UPSTART Pre-K program into the early elementary years. Utilizing state-wide averages for assessment data can provide a robust comparison point, given the large sample sizes available.

Program Recommendations

As UPSTART expands its reach within the state, especially with the implementation of the new Liaison Recruitment program, it is essential to monitor program implementation closely. This will help ensure that increased enrollment does not negatively impact graduation or usage rates—two critical factors for fostering strong literacy and numeracy achievement among students and ensuring the program's future success.

We recommend that Waterford enhance its strategies to address usage challenges and improve graduation rates for the most at-risk students. Promoting consistent program engagement is vital as it serves as the foundation for meeting graduation requirements. We are eager to explore how new partnerships and outreach efforts within school districts and communities can provide innovative support for the upcoming cohorts of the UPSTART program.

Appendix A. PEEP Performance Levels

The USBE created PEEP performance levels to help further identify student needs. At the PEEP Entry, literacy and numeracy scores fall into two performance levels. For both subscales, students who score within the performance level 1 range (0-23 points) are classified as "support needed" and demonstrate limited prerequisite knowledge and skills in literacy and numeracy. Students who score within the performance level 2 category are considered to be at benchmark. **Table A1** provides more information on the skills associated with each performance level.

Table A1. PEEP Entry Performance Levels

Subscale	Performance Level	PEEP Score Range	Level of Support	Associated Skills
Literacy	Performance Level 1	0-20 Points	Support Needed	Identifies few to no correct objects in the picture, Demonstrates few to no concepts of print, Identifies few to no letters of the alphabet, Draws few to no lines or shapes correctly, Can produce the first part of few to no compound words, Associates few to no sounds to the letters of the alphabet, Responds to a question in an incomplete sentence or off- topic or does not respond
	Performance Level 2	21-31 points	At Benchmark	Identifies most correct objects in the picture, Demonstrates concepts of print, Identifies some letters of the alphabet, Draws most lines or shapes correctly, Can produce the first part of most compound words, Associates some sounds to the letters of the alphabet, Responds to a question on-topic and speaks in complete sentences
Numeracy	Performance Level 1	0-23 Points	Support needed	Identifies few to no shapes, Counts few to no numbers from 1 to 10 Recognizes few to no numbers from 0 to 5, Identifies few to no groups that have more objects
	Performance Level 2	24-32 points	At Benchmark	Identifies all or most shapes, Counts most numbers from 1 to 10, Recognizes most numbers from 0 to 5, Counts objects using one-to-one correspondence up to 5, Demonstrates emerging cardinality in counting, Sorts objects correctly by given category, Duplicates and/or extends simple patterns, Identifies all or most groups that have more objects

At the PEEP exit, literacy and numeracy scores are divided into three performance levels. For both subscales, students who score within the performance level 1 range at the exit have not

demonstrated prerequisite knowledge and may require significant intervention. Students who are within the performance level 2 range (Literacy - 26-46 points, Numeracy- 18-28 points) have minimal prerequisite knowledge and may require some intervention in order to succeed. Students with the highest literacy and numeracy scores (literacy- 47-108 points and numeracy- 29-36 points) have demonstrated sufficient knowledge and skills and may require minimal intervention to succeed. **Table A2** provides more information on the skills associated with each performance level.

Table A2. PEEP Exit Performance Levels

Subscale	Performance Level	PEEP Score Range	Level of Support	Associated Skills
Literacy	Performance Level 1	0-25 Points	Significant Intervention	Names few to no objects/actions in a picture, identifies no letters of the alphabet, writes few to no letters, isolates few to no first sounds, associates few to no sounds to the letters of the alphabet, demonstrates few to no concepts of print
	Performance Level 2	26-46 points	Some Intervention	Names some objects/actions in a picture and describes it with a phrase(s), identifies few letters of the alphabet, writes some letters, which may include those in their name, isolates some first sounds, associates some sounds to the letters of the alphabet, demonstrates some concepts of print
	Performance Level 3	47-108 Points	Minimal Intervention	Names most objects/actions in a picture and describes it with a sentence(s), identifies some letters of the alphabet, writes his or her name and many letters, isolates many first sounds, associates many sounds to the letters of the alphabet, demonstrates concepts of print
Numeracy	Performance Level 1	0-17 Points	Significant Intervention	Counts few to no numbers from 1 to 20, identifies few to no numbers between 0 and 10, identifies one to no groups that have more objects, draws one to no shapes
	Performance Level 2	18-28 points	Some Intervention	Counts some numbers from 1 to 20, identifies some numbers between 0 and 10 counts some objects using 1-1 correspondence associates numbers to small quantities less than 5, identifies some groups that have more objects draws some shapes
	Performance Level 3	29-36 points	Minimal Intervention	Counts many numbers from 1 to 20, identifies many numbers between 0 and 10, counts objects using 1-1 correspondence, associates numbers to large quantities less than 10, identifies groups that have more objects, draws most shapes

Appendix B. KEEP Performance Levels

Similar to the PEEP, KEEP performance levels were created to help further identify student needs. Though the score range changes from entry to exit, literacy and numeracy scores fall into three performance levels. At entry and exit, students who score within the performance level 1 range have not demonstrated prerequisite knowledge and may require significant intervention. Students who are within the performance level 2 range have minimal prerequisite knowledge and may require some intervention in order to succeed. Students with the highest literacy and numeracy scores have demonstrated sufficient knowledge and skills and may require minimal intervention to succeed. **Tables B1 and B2** provide more information on each level and the different score ranges at entry and exit.

Table B1. Literacy KEEP Performance Levels

Subscale	Performance Level	KEEP ENTRY Score Range	KEEP EXIT Score Range	Level of Support
Literacy	Performance Level 1	0-25 points	0-68 points	Significant Intervention
	Performance Level 2	26-46 points	69-96 points	Some Intervention
	Performance Level 3	47-108 points	97-118 points	Minimal Intervention

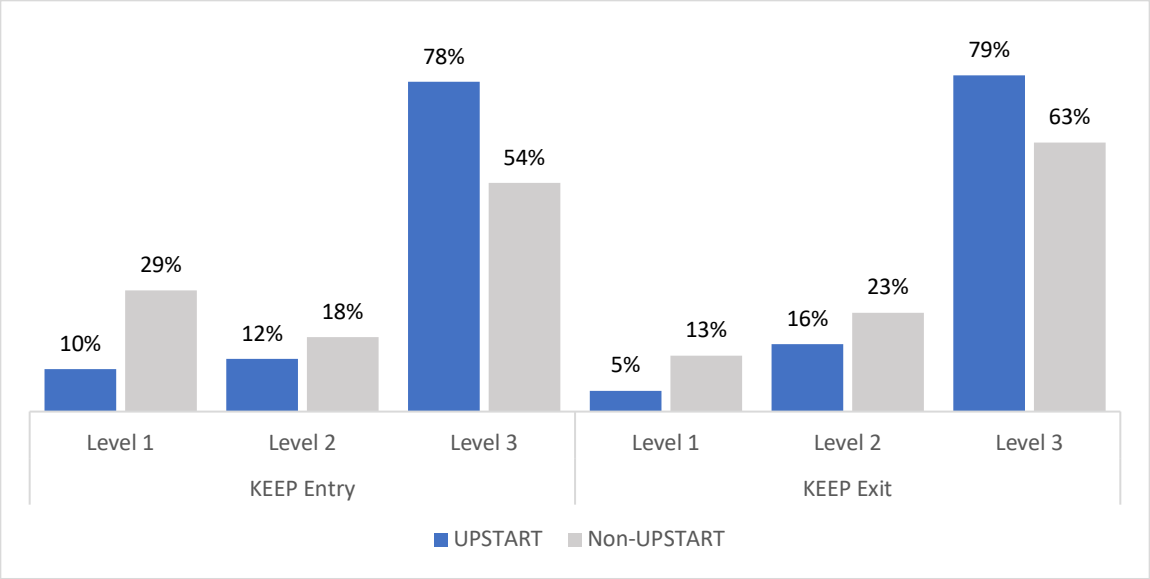
Table B2. Numeracy KEEP Performance Levels

Subscale	Performance Level	KEEP ENTRY Score Range	KEEP EXIT Score Range	Level of Support
Numeracy	Performance Level 1	0-17 points	0-32 points	Significant Intervention
	Performance Level 2	18-28 points	33-44 points	Some Intervention
	Performance Level 3	29-36 points	45-55 points	Minimal Intervention

Appendix C. Literacy and Numeracy Entry and Exit Performance Levels

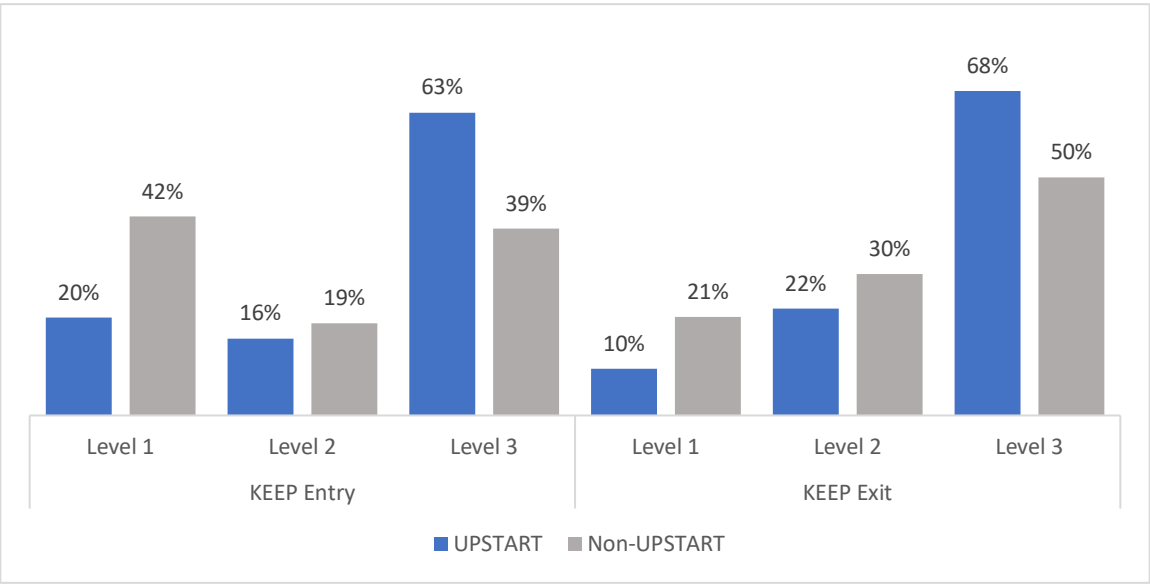
LITERACY

Figure C1. Performance Levels in Literacy among Program and Non-Program Students at Entry and Exit



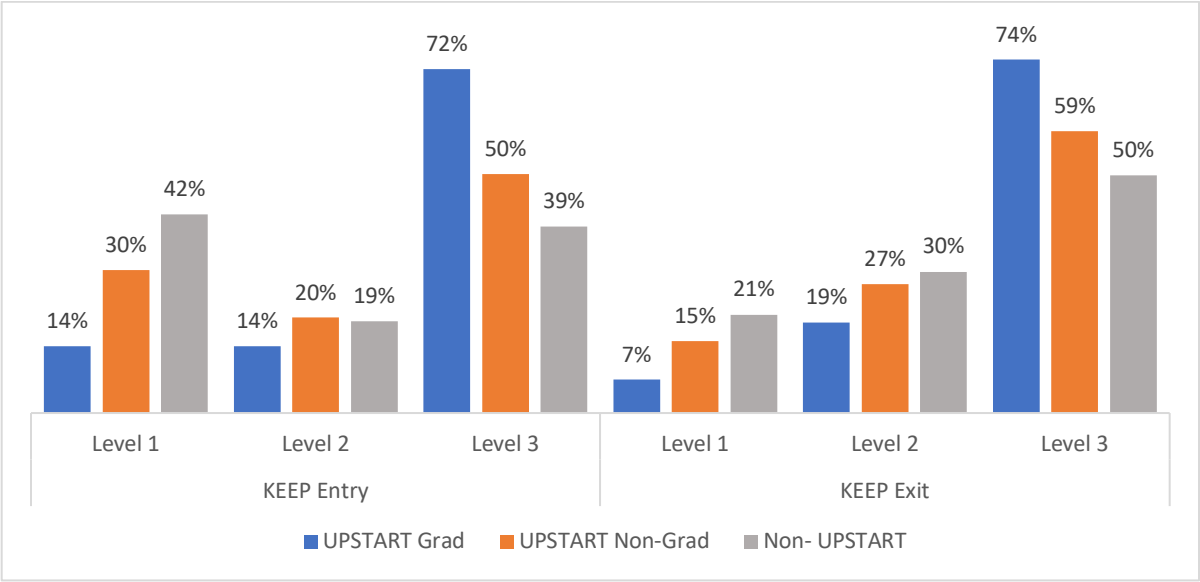
Note: Entry- UPSTART =12,095, Non-UPSTART = 30,675; Exit- UPSTART=11,889, Non-UPSTART = 29,865

Figure C2. Performance Levels in Literacy among Low-Income Program and Non-Program Students at Entry and Exit



Note: Entry- UPSTART n= 2,328, Non-UPSTART n=10,299; Exit- UPSTART n= 2,328, Non-UPSTART n=9,927

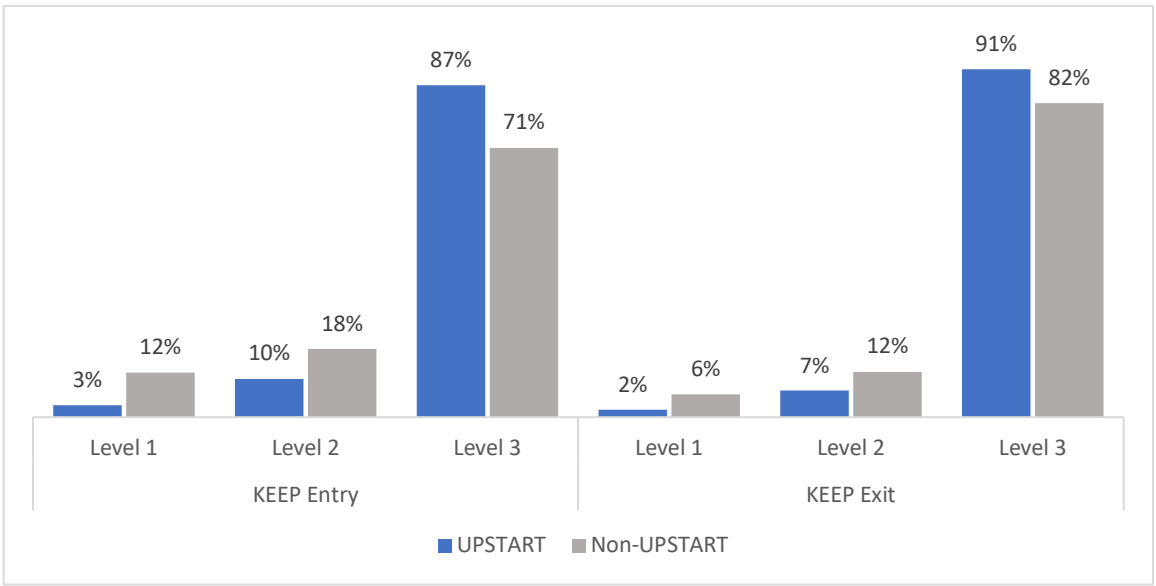
Figure C3. Performance Levels in Literacy among Low-Income Grads, Non-Grads, and Non-Program Students at Entry and Exit



Note: UPSTART Grad n=1436, UPSTART Non-Grad n=892, Non-UPSTART n=2,328

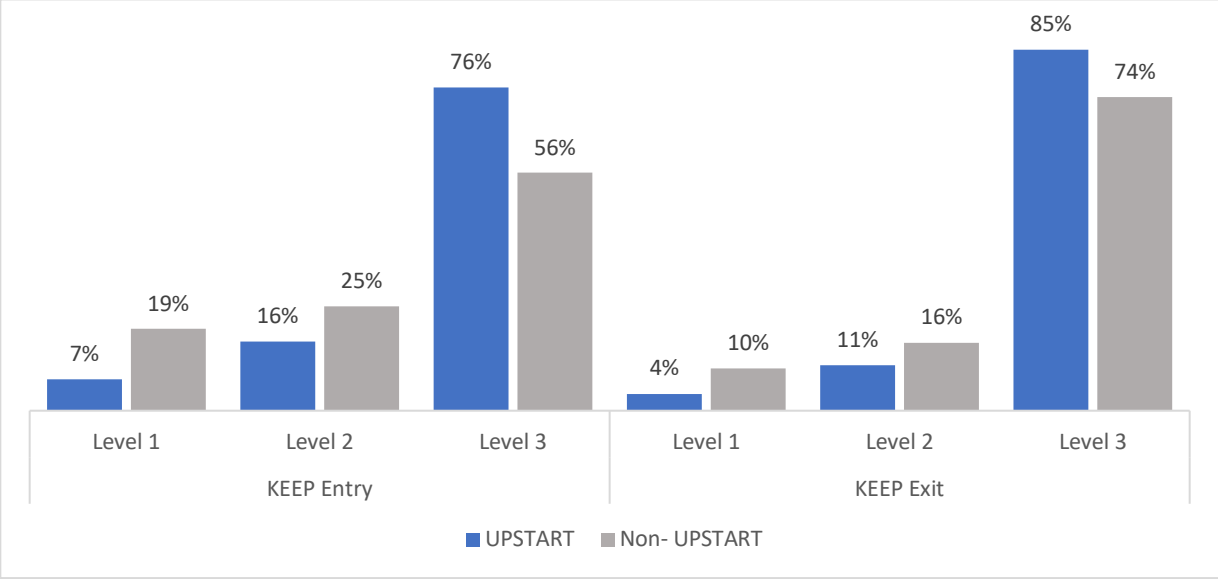
NUMERACY

Figure C4. Performance Levels in Numeracy among Program and Non-Program Students at Entry and Exit



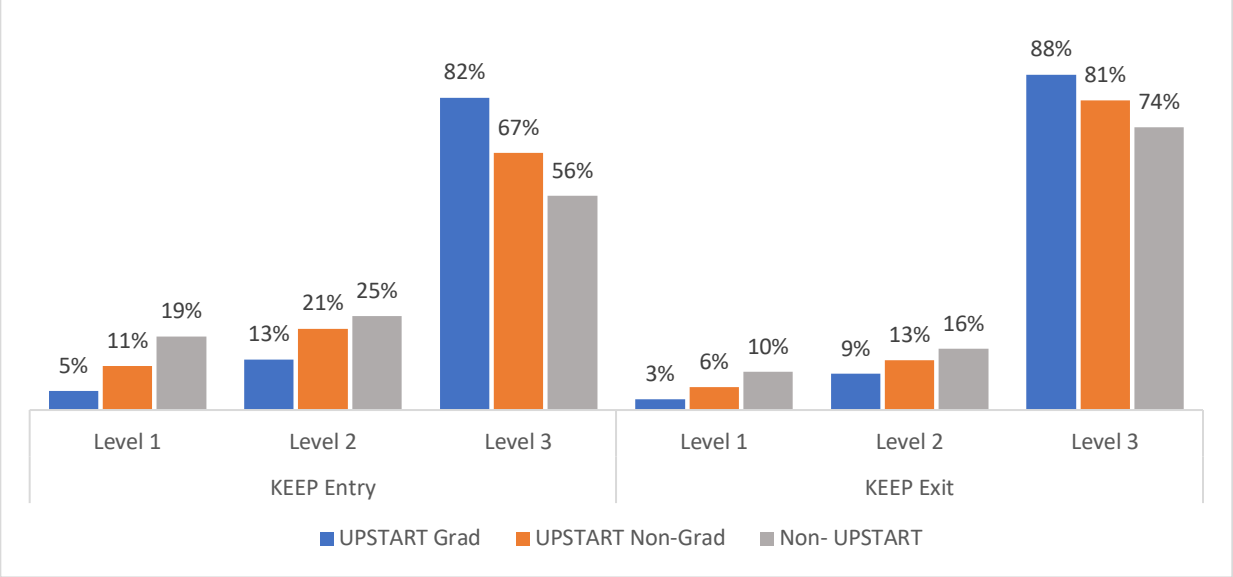
Note: Entry- UPSTART =12,092, Non-UPSTART = 30,744; Exit- UPSTART=11,757, Non-UPSTART = 28,991

Figure C5. Performance Levels in Numeracy among Low-Income Program and Non-Program Students at Entry and Exit



Note: UPSTART n=2,282, Non-UPSTART n=9,505

Figure C6. Performance Levels in Numeracy among Low-Income Grads, Non-Grads, and Non-Program Students at Entry and Exit



Note: Numeracy- UPSTART Grad n=1415, UPSTART Non-Grad n=867, Non-UPSTART n=9505

Appendix D. Historical context for changes in evaluation design

The Utah UPSTART evaluation historically relied on a quasi-experimental research design prior to the 2019 to 2024 evaluation contract. This allowed us to match demographically similar control students to our treatment students to compare outcomes at the end of the program. This process was supported by the USBE, and they provided the state testing data for control students. Several challenges have hindered our ability to form an adequate control group since 2019. It began with the pandemic, which led to school closures and the suspension of state-wide testing. As schools gradually returned to normal, we found significant limitations in the state assessment data available to researchers. We changed our research design and removed the control group comparison to adapt to these challenges, and meet the USBE recommendation to remove the control group comparison.

Two key criteria must be met for successful matching of UPSTART students with comparable control students: (1) essential demographic data for both treatment and control students must be collected and accessible, and (2) the student populations from both groups should be demographically similar, allowing for effective matching. Unfortunately, we found that the demographic data from comparison preschools was either extremely limited or not collected at all. Additionally, the state-wide PEEP administration was restricted to specific types of preschools, which (according to USBE) did not represent the average preschool population across the state.

Limitations related to the state-provided PEEP testing data prevented us from creating an adequate control group or utilizing a quasi-experimental research design during the current evaluation contract period. However, beginning in 2024, we are encouraged with advancements made by the state to secure comparison students in the upcoming years of this evaluation.

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