

UPSTART Program Evaluation

YEAR 12 PROGRAM RESULTS



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EVALUATION AND TRAINING INSTITUTE *A non-profit center for research & evaluation*

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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), has prepared this report for the Utah State Board of Education (USBE) to present the results of UPSTART in its twelfth year of implementation (Cohort 12 students were enrolled during the 2020-2021 program year). Due to the continued development and validation of Utah's state preschool assessment, which was to be used to study the program's impact on student achievement, the USBE requested that the Cohort 12 evaluation report contain program implementation results only.

Program enrollment has continually increased over the past twelve years, reaching families in urban and rural areas throughout the state of Utah. Waterford enrolled 16,770 preschoolers in the 2020-21 program year, up from the previous year's enrollment of 15,125. This year's cohort of children also marks the second year of implementing and examining three different tiers of program support for families: Tier 1, UPSTART software only; Tier 2, UPSTART with digital communication for parents to receive text-message program support; Tier 3, UPSTART with full implementation support. Similar to last year, we examined program usage by support tier assignment.

A summary of Cohort 12's implementation findings are below:

- Eighty percent of UPSTART students graduated from the program during the 2020-2021 program year. Students met the graduation requirement based on program usage and/or WACS achievement level.
- Students used the UPSTART program for an average of 39 hours and students who were UPSTART graduates used the program for an average of 46 hours.
- The UPSTART program offered families three tiers of support: Participation in Tier 3, the most comprehension level of parental support, yielded higher program usage compared to families opting for Tier 1 (no parental support).
- Children who did not graduate from UPSTART were more likely to have parents with lower levels of education, be members of an underrepresented racial or minority group, have parents who were not married, and have higher levels of household poverty compared to children who graduated from the program.

Recommendations

It is important for the program to address the risk factors that contribute to lower graduation rates and a lack of consistency in use among the most vulnerable populations of children. While the *total time* is the main criteria set for graduation status, encouraging consistent and high quality *weekly* use may help create productive program engagement so that all children get the most out of their 'seat time.'

More information is needed to fully understand the parental support tiers and whether families differ based on the tier they select. We looked at the average amount of time that families in each tier used the program. An independent t-test was conducted to determine if the average usage for each tier differed statistically from one another. We found that full implementation support with the additional communication structure and program resources (Tier 3) had higher average usage compared to other tiers suggesting that children received the most benefit from Tier 3. We recommend additional areas of inquiry in future evaluations in order to identify the drivers behind support tier selection.

INTRODUCTION

Evaluation Purpose

The Utah State Board of Education (USBE) hired the Evaluation and Training Institute (ETI), a non-profit research and consulting firm, to conduct a multi-year evaluation of the UPSTART program. The current evaluation is part of a five-year study (2019-2024), representing Year 11-Year 15 of the UPSTART program in the state of Utah. Each year comprises a new cohort of preschool children entering into the program. The Year 12 children, (Cohort 12 or C12) participated in UPSTART for the 2020-2021 program year. C12 is the focus of this report.

The overarching goal of the evaluation is to help the state and stakeholders determine the benefits from participating in the program. Due to the continued development and validation of Utah's state assessment instrument, the *Preschool Entry and Exit Profile*, which was to be used to study the program's impact on student achievement, the USBE requested that the annual evaluation report contain program implementation results only.

This year's cohort of children also marks the second year of implementing and examining three different tiers of program support for families: Tier 1, UPSTART software only; Tier 2, UPSTART with digital communication for parents to receive text-message program support; Tier 3, UPSTART with full implementation support.

The **C12 evaluation**, therefore, had two main objectives:

- Document the extent to which participants used the computerized curriculum as it was intended
- Explore the relationship between the support tier selected, and curriculum usage

UPSTART Program Description

Utah Preparing Students Today for a Rewarding Tomorrow (UPSTART) is a project established by the Utah state legislature that uses a home-based education technology approach to develop the school readiness skills of preschool children. The program offers in-home, early education access to unserved and often lower income families by providing support, technology, and internet where needed. Waterford enrolled 16,770¹ preschool children during the 2020-2021 school year, its twelfth year of operation. Families were provided with an adaptive program of computer-based early literacy instruction to prepare them academically for kindergarten. The

¹ For the current evaluation, the 2020-2021 enrollment totals are based on children who enrolled and began the UPSTART program in Fall of 2020. It was important for our analyses that children had the opportunity to use the program for the typical academic year (August – May).

16,770 children enrolled in C12, participated in UPSTART from August 2020 through mid-May 2021.

The UPSTART software used adaptive lessons, digital books, animated songs, and activities to deliver individualized early literacy content. The reading skills taught by the Waterford Reading Academy at Level 1 of the curriculum² include:

- Phonological Awareness
- Phonics
- Comprehension and Vocabulary
- Language Concepts

Children were encouraged to use the UPSTART program for a minimum of 1500 minutes across the life of the program (or 15 minutes a day, 5 days a week). Depending on tier selection, families were provided with parental resources and technical support from Waterford customer service representatives.

Report Roadmap

The sections of this report are organized in the following way, (1) an overview of the evaluation methodology, (2) program implementation including enrollment, usage, and graduation results across the total program population and by support tiers, and (3) summary and recommendations for the 2020-2021 program year.

² Level One is the beginning point of the curriculum where the preschool child begins as a nonreader and is introduced to skills designed to teach the child to read.

METHODOLOGY

Research Questions

As requested by the USBE, the original research questions were modified for Cohort 12 to focus on the implementation results only.

Our research questions for the C12 evaluation were as follows:

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)?

Research Question 1.3: Do different levels of parental program support (tiers) influence program usage?

Data Collection

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 2020-2021 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. Data included information about the type of equipment provided to the family by UPSTART as well as the tier-level of support selected. 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, graduation rates and support tier descriptives.

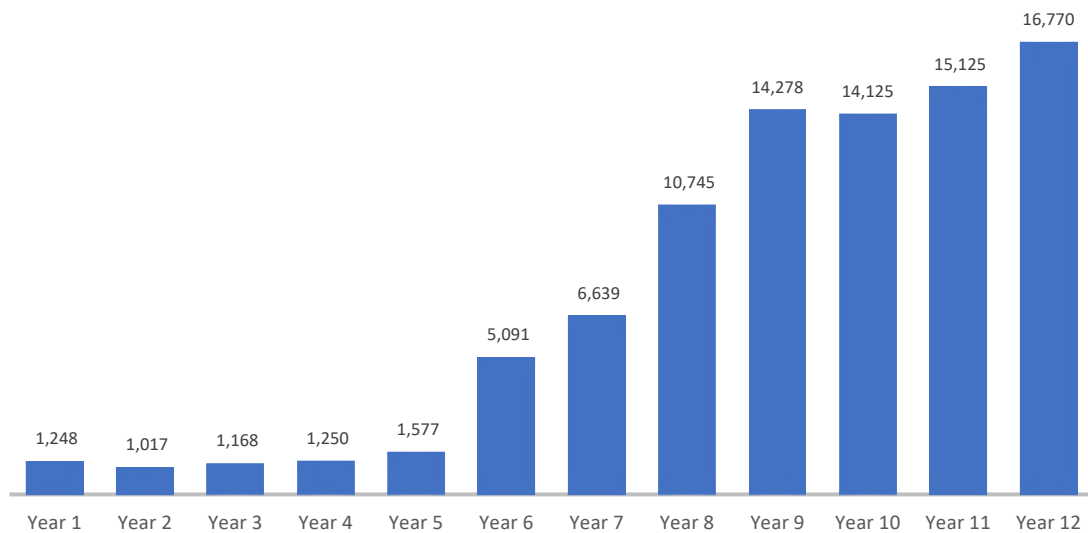
PROGRAM IMPLEMENTATION STUDY

The following section presents our findings from the twelfth-year of UPSTART implementation. Waterford provided a comprehensive dataset to ETI including 2020-2021 UPSTART enrollment, demographic information, provisioned educational technology, UPSTART program usage, and whether or not children completed program requirements as defined by Waterford.

UPSTART Enrollment

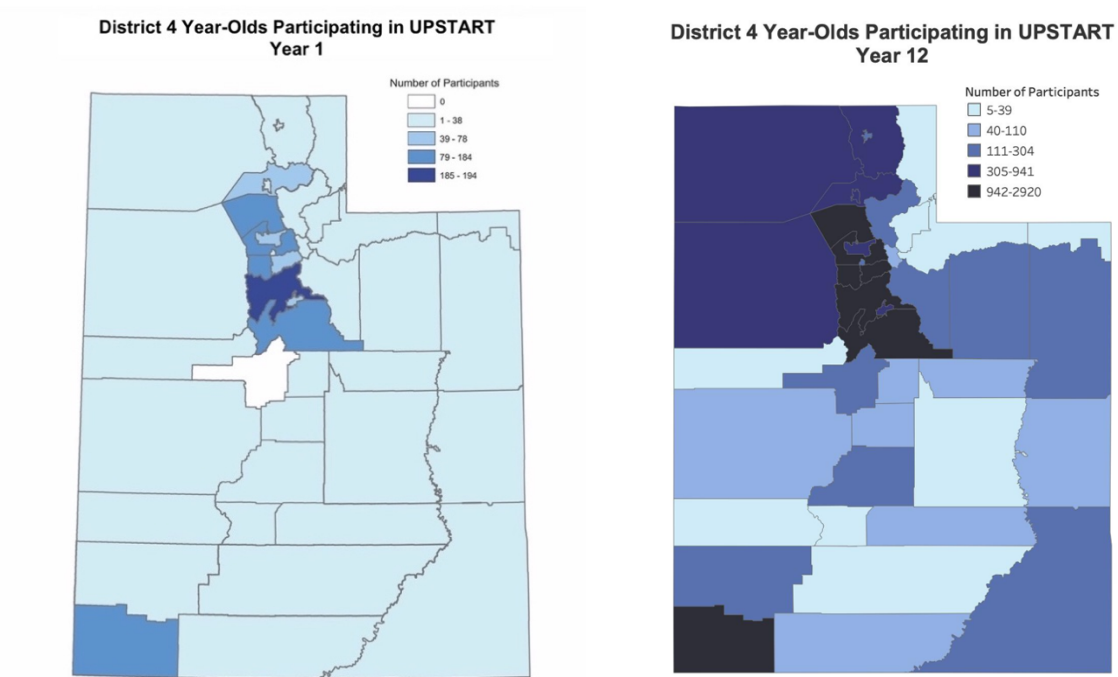
The 2020-2021 program year enrolled 16,770 preschoolers into C12, up from the previous year's cohort (N = 15,125), continuing the trend in enrollment growth since the inception of the program. **Figure 1** illustrates the growth of the program's reach over time from (Year 1, N=1,248) to the most recent Year 12 (N=16,770). The majority of children (90%) used the Waterford website to access the UPSTART curriculum from their home computers. UPSTART provided free personal computers to 10% of the C12 children.

Figure 1. UPSTART Program Enrollment Over Time



The maps depicted in **Figure 2** show the expansion of the UPSTART program's participation by school district over the past dozen years increasing enrollment in both urban and rural areas of the state.

Figure 2. Maps of UPSTART program participation in Year 1 and Year 12 by School District



The demographic makeup of C12 was similar to previous program years, 50% of the preschoolers were male and 50% were female. The vast majority of the cohort was White (82%) with 9% from Hispanic origin. Twenty nine percent of the C12 UPSTART families had incomes less than 185% of the federal poverty level.³ Additional demographic characteristics of the C12 population are presented in **Table 1**.

³ The federal poverty definition consists of a series of thresholds based on family size. In 2021, a 100% poverty threshold for a family of four was \$26,500 while a 185% threshold for a family of four was \$49,025 (see U.S. Department of Health and Human Services poverty guidelines at <https://aspe.hhs.gov/2021-poverty-guidelines>).

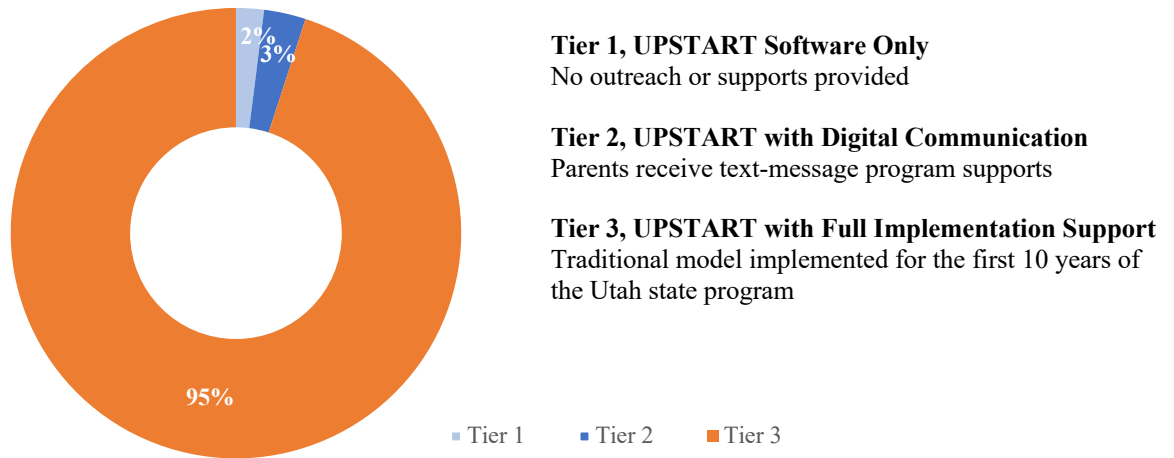
Table 1. Demographic Characteristics of C12 Population

Demographic Categories		All C12 UPSTART (N= 16,770)
Child's Gender	Male	50%
	Female	50%
Child's Ethnicity	White	82%
	Hispanic	9%
	Asian/Pacific Islander	4%
	Native American	1%
	African American	1%
	Other	4%
Child's Language	English	95%
	Spanish	4%
	Other	1%
Parent Educational Attainment	Some high school	2%
	High school graduate	10%
	Some College	31%
	College Graduate	43%
	Advanced Degree	13%
Parent Marital Status	Married	91%
	Otherwise	9%
Household Poverty Level	Below 100%	7%
	Below 185%	29%
	Below 200%	30%

Note: Percentages may not add to 100% due to rounding. Data is from Waterford participant records.

Parents enrolling their children in the program were asked to select the level of support that worked best for their family. All families were given the option to select one of three support tiers. The vast majority of participants in the 2020-2021 year selected Tier 3 (n=15,905) with full implementation support, while approximately 400-500 families selected Tier 1 (n=388) or Tier 2 (n=477). As shown in Figure 3, Tier 1 and Tier 2 made up approximately 5% of the program.

Figure 3. UPSTART Program Enrollment Over Time



We found some demographic make-up differences between those opting for Tiers 1 and 2 and those selecting Tier 3, namely parent education and poverty status (**Table 2**).

Table 2. Demographic Characteristics of C12 Population by Tier

Demographic Categories		Tier 1 (N= 388)	Tier 2 (N= 477)	Tier 3 (N= 15,905)
Child’s Gender	Male	53%	51%	50%
	Female	47%	49%	50%
Child’s Ethnicity	White	90%	91%	82%
	Hispanic	5%	4%	9%
	Asian/Pacific Islander	2%	1%	4%
	Native American	<1%	<1%	1%
	African American	1%	1%	1%
	Other	2%	3%	4%
	Child’s Language	English	99%	99%
	Spanish	1%	1%	4%
	Other	<1%	<1%	1%
Parent Educational Attainment	Some high school	<1%	<1%	2%
	High school graduate	5%	3%	10%
	Some College	23%	25%	31%
	College Graduate	52%	54%	43%
	Advanced Degree	14%	14%	13%
Parent Marital Status	Married	92%	93%	91%
	Otherwise	8%	7%	9%
Household Poverty Level	Below 100%	3%	3%	3%
	Below 185%	19%	18%	29%
	Below 200%	21%	20%	30%

Note: Percentages may not add to 100% due to rounding. Data is from Waterford participant records.

It should be noted that families who needed computer equipment in order to participate in the program were required to opt for Tier 3, which is the only level of support where tech is provisioned. It makes sense therefore, that the families in Tier 3 were also the families with higher levels of poverty compared to families in the other tiers. Tier 1 and 2, had more educated parents and a greater proportion of families classified as White compared to Tier 3.

UPSTART Usage

The C12 academic year covered 37 weeks of instruction, beginning the week of August 17, 2020 and ending May 16, 2021. Program usage data were analyzed to understand the extent to which families were using the program and meeting requirements for graduation. The average duration in the program for enrolled families was approximately 33 weeks. Waterford’s recommended total usage criteria was 1500 minutes (or 25 hours) across the entirety of the program. The average level of usage for all students enrolled (N=16,770) was approximately 2340 minutes (or 39 hours) of instruction, down marginally from last year but still well above the recommended usage. The average level of usage specifically among those who met the graduation requirement (i.e. 1500+ total minutes or high achievement on WACS⁴), was a total of 46 hours. The Year 12 data for instruction hours are summarized in **Table 3**.

Table 3. C12 Hours of UPSTART Instruction

Group	N	Mean	SD	Range
All UPSTART	16,770	38.75	18.61	0-137.62
UPSTART Graduates	13,380	45.64	13.61	2.33-137.62

We also examined if usage with the program differed by the parental support tiers. We found that as the level of support increased, so did the time spent with the program (**Table 4**).

Table 4. Average Total Hours and Weekly Minutes by Tier

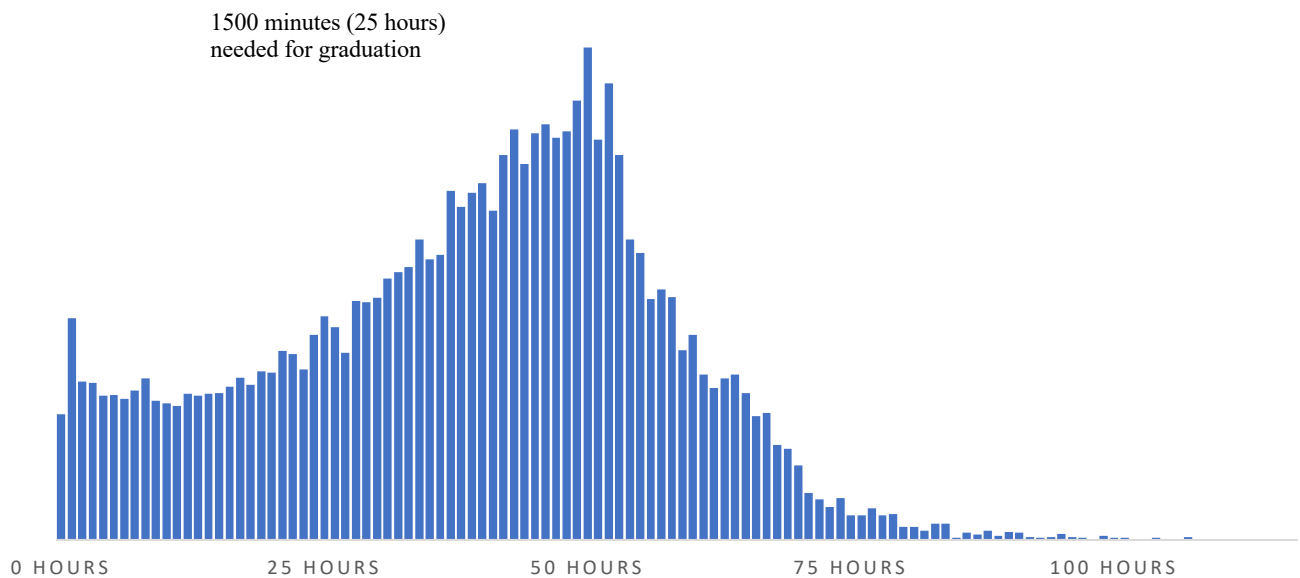
	Avg. Total Hours	Avg. Weekly Minutes
Tier 1	36	62
Tier 2	38	65
Tier 3	39	68

⁴ WACS Waterford Assessment of Core Skills

An independent samples t-test was conducted to determine if the averages for each tier were statistically different from one another. Results showed that families who received no support (Tier 1; $\bar{x} = 36$, $\sigma = 18.72$), spent less time on a weekly basis and averaged significantly fewer total hours with the UPSTART program compared to those who had full implementation support (Tier 3; $\bar{x} = 39$, $\sigma = 16.78$; $t(16291) = 3.1$, $p = .001$).

Figure 4 shows the distribution of hours of instruction for the total C12 population (N=16,770). As illustrated, the majority of children exceeded the program’s minimum requirement of 25 hours, yet roughly twenty three percent logged less than the recommended criteria for program completion.

Figure 4. Distribution of Hours of Instruction for C12 Families.



The bottom quartile of the C12 population completed 29.25 hours of instruction or less, the midpoint of the C12 distribution was 58.5 hours, and the top quartile completed 87.75 hours or more of instruction. The pattern of usage across the duration of the program was similar to prior years where dips in program use map to holidays and breaks from school (see **Figure 5**).

Figure 5. Average Weekly Minutes of Program Use

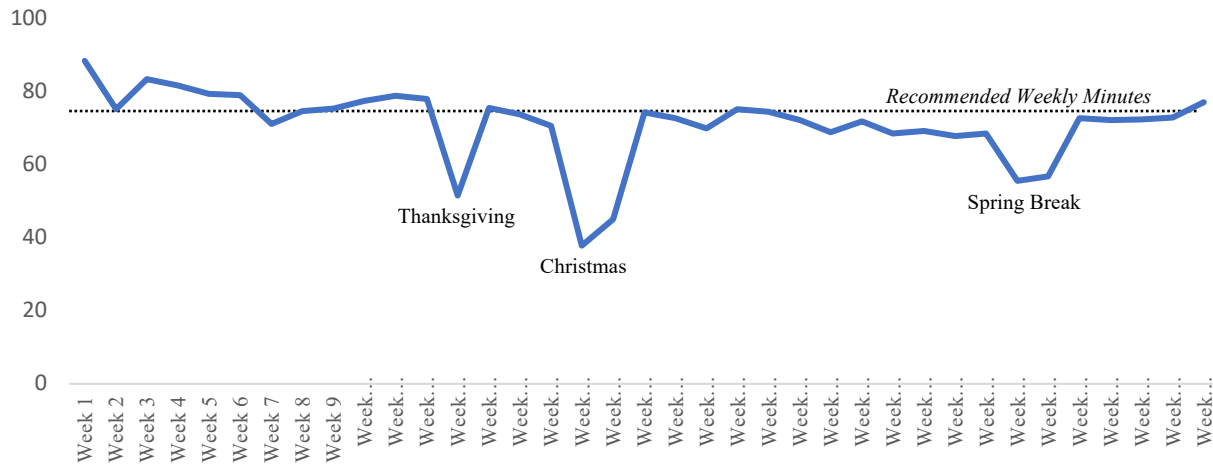
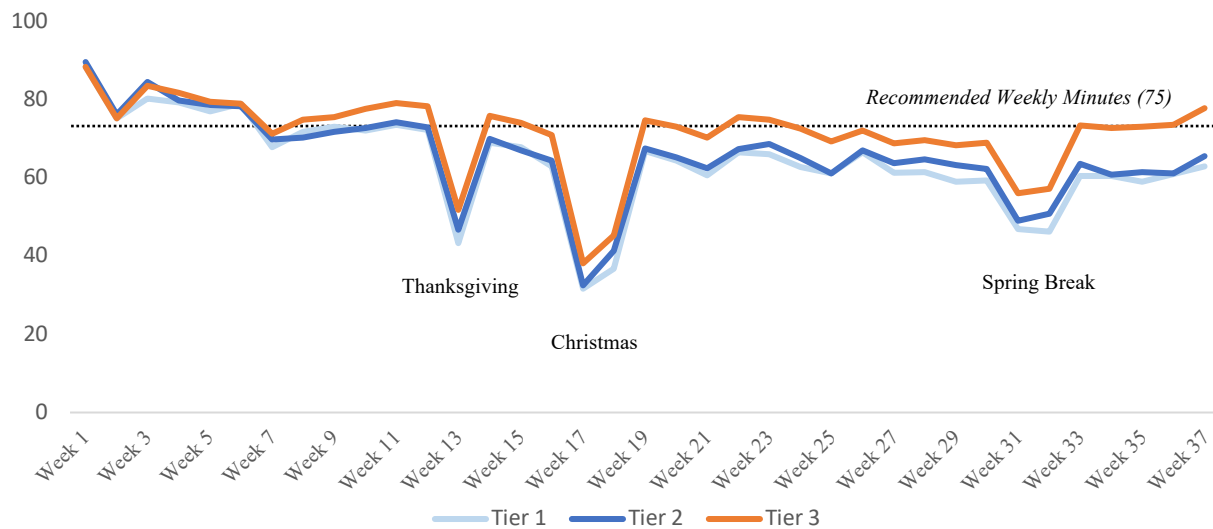


Figure 6 illustrates the same week to week trend for families based on their tier level. Families with more program support (Tier 3), consistently surpassed the engagement of those in the other tiers. Usage between all tiers was similar in the beginning of the program, yet the gap widened as the year went on.

Figure 6. Tier Support and Usage Over Time



The average weekly minutes spent through Week 6 of the program was similar among all three tiers, yet by the second half of the program, Tier 3 families’ usage consistently hovered above both Tier 1 and Tier 2 families by as much as 10 minutes. The pattern of engagement across the life of the program suggests those who received the full implementation support had children who tended to engage more with the program, meaning the average weekly usage of those in Tier 3 (orange line) consistently exceeded that of those in Tier 1 or 2 (blue lines).

UPSTART Graduation Rate

Prior ETI evaluation studies have shown that successful usage and hence graduation from the program were strongly associated with helping children develop school readiness skills. That is, previous evaluation years have shown that curriculum usage is significantly and positively related to literacy outcomes as measured by early literacy instruments. Children’s early skill development serves as a powerful predictor for their future academic success, so by measuring the extent to which participants meet the graduation threshold provides important information about the program’s ability to impact future outcomes.

Waterford’s 2020-2021 graduation criteria changed to include a Waterford Assessment of Core Skills (WACS) score. The WACS is an adaptive assessment, designed to provide precise data for high and low scoring students by testing students on the following core literacy skills: phonological awareness, vocabulary, listening comprehension, phonics, and reading comprehension⁵. The graduation requirement now takes into account (a) logging at least 1,500 minutes (25 hours of instruction) with the UPSTART curriculum, and/or (b) WACS achievement level.

As seen in **Table 5**, students can meet the graduation requirement in a couple of different ways based on usage and/or achievement level. For example, students with high achievement on the WACS (i.e. demonstrated kindergarten readiness skills) qualify as graduates of the program, regardless of their program usage level (low or high). Additionally, students who meet the usage requirement (regardless of achievement level on WACS) are also considered graduates of the program. Students unable to engage with the program for at least 1500 minutes and who also score low on the WACS do not meet the graduation criteria of the UPSTART program.

Table 5. Waterford Graduation Criteria

	Low Program Usage (Less than 1500 minutes)	High Program Usage (1500 minutes or more)
High WACS achievement	High achievement Low Usage	High Achievement High Usage
Low WACS Achievement	Low Achievement Low Usage	Low achievement High Usage
No WACS	No EOY Assessment Data Low Usage	No EOY Assessment Data High Usage

Note: Graduation rate and categories provided by Waterford, bold text denotes graduate

⁵ Source: Waterford.org

As the criteria for graduation has evolved over time, so must our trending of the data. Both Year 11 and 12 are the first program years to use a higher threshold of minimum usage and Year 12 additionally implemented the achievement level of preschoolers (as measured by WACS). Future evaluation reports will provide year over year trends in the graduation rate, once multiple years have been evaluated under the same graduation criteria.

Waterford classified 13,380 children as program graduates out of the 16,770 enrolled in Year 12. Cohort 12's graduation rate was therefore 80% (i.e., $13,380/16,770 = 0.797$), which is on par with the graduation rate from Cohort 11. Similarly, we found a nearly equal proportion of program graduates regardless of tier (i.e., Tier 1, $308/388 = 0.794$; Tier 2, $397/477 = 0.832$; Tier 3, $12,674/15,905 = 0.796$).

Table 6 displays the demographic characteristics of graduates and non-graduates within Cohort 12.

Table 6. Demographic Characteristics of C12 Population

Demographic Categories		UPSTART Graduates (N= 13,380)	UPSTART Non- Graduates (N= 3,390)
Child's Gender	Male	50%	50%
	Female	50%	50%
Child's Ethnicity	White	83%	78%
	Hispanic	8%	12%
	Asian/Pacific Islander	4%	4%
	Native American	1%	1%
	African American	2%	1%
	Other	3%	4%
	Child's Language	English	95%
	Spanish	4%	4%
	Other	1%	1%
Parent Educational Attainment	Some high school	2%	3%
	High school graduate	8%	16%
	Some College	29%	38%
	College Graduate	46%	33%
	Advanced Degree	14%	10%
Parent Marital Status	Married	93%	84%
	Otherwise	7%	16%
Household Poverty Level	Below 100%	6%	11%
	Below 185%	27%	35%
	Below 200%	28%	36%

Note: Percentages may not add to 100% due to rounding. Data is from Waterford participant records.

Children who did not meet the graduation requirements were more likely than UPSTART graduates to be a member of an underrepresented racial or ethnic minority group, have parents with lower levels of education, reside in families with parents who were not married, and have higher levels of poverty.

SUMMARY & RECOMMENDATIONS

Program Implementation

During the 2020-2021 program year, 80% of all C12 program students met the criteria for program graduation. This rate was similar to last year (C11) and was based on two main criteria, (1) meeting or exceeding a total of 1500 minutes of program usage, or (2) achieving a high score on the WACS. The vast majority of children earned their graduation status by exceeding the usage requirements set forth by Waterford, with a small minority of children graduating strictly based on their achievement score. Families with children who did not graduate from UPSTART tended to have lower levels of parental education, higher levels of poverty, and be members of underrepresented ethnic groups. Graduation is an important program goal, and families with these risk-related characteristics could be given extra program resources to help them meet the goal.

The implementation data suggest that families without comprehensive program support (Tiers 1 & 2) had lower average use over the life of the program. Tier 3, which includes full implementation support, demonstrated an advantage for influencing successful usage.

Recommendations for Future Research

We look forward to working with USBE to discuss the measurement system and research design for future work.

- Future evaluations intended to measure program impact, should use a quasi-experimental matched treatment and control group research design given a design randomly assigning families to participate is not permissible under the program's legislation. The matching process is key to mimizing preexisting differences between treatment and comparison students, and it depends on collecting sufficient data from potential comparison students. In order to ensure our ability to accurately match control students to treatment students, we recommend that the state continue to collect critical demographic variables and possibly expand the number of these variables collected from preschools. The state currently collects very few variables from the public preschools and zero from the private preschools. Including variables such as child's age would improve our ability to create more balanced groups, as would other student characteristics. More student information needs to be captured at PEEP testing if it is to be used in program evaluations (or other research) that supports data driven policy decisions.
- We recommend a more thorough investigation into the support tiers through an implementation process evaluation that uses qualitative methods to collect data directly from families using the UPSTART program. This type of exploration would be used to identify if and what advantages exist in *lower levels* of tier support and/or reasons parents

choose less or no support over full support. An implementation process evaluation could be used to explore the family characteristics of those selecting the different tiers.

Program Recommendations

As UPSTART continues its expansion, it is important to monitor program implementation so that increased enrollment does not erode graduation or usage rates, two key areas for ensuring strong student literacy and numeracy achievement and future program success. Specifically, we recommend that the program vendor consider the following:

- Develop strategies for addressing usage challenges and graduation rates among the most at-risk students (i.e. those with higher levels of poverty). These may include:
 - Use targeted incentives for families with the highest risk factors for not meeting program usage requirements, such as monthly awards, being highlighted in UPSTART communications to social networks as “Gold Star Families.”
 - Establishing peer support systems among similar groups to discuss strategies for supporting children’s program use. Connect veteran families with first time families to leverage lessons learned.
 - Spread information highlighting evaluation findings that links program usage and graduation with higher achievement outcomes.

- Encourage and promote consistent usage as the building blocks for reaching the total time requirement, but also continue to develop alternatives to time (minutes/weeks) as a measure of program implementation. Not all ‘seat time’ is equivalent across children. The addition of WACS in determining program graduation/kindergarten readiness is a step in the right direction.



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