

**ISIP Español Growth Study: Pre-Kindergarten to Third Grade**  
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## **Abstract**

Istation Reading en Español is a computer-based supplemental and intervention reading program that teaches Pre-K through 3<sup>rd</sup> Grade students to read fluently with comprehension. This study was completed to answer three research questions: (a) do students who had used Istation curriculum make greater gains in Spanish reading than students who had not used Istation curriculum?, (b) do students who had used more Istation curriculum make greater gains in Spanish reading than students who had used less Istation curriculum?, and (c) do students at risk of reading failure (Tier 3 students) make greater gains in Spanish reading with a sufficient amount of Istation Reading curriculum usage? The Istation assessment scores (ISIP Español) from Grades Pre-K – 3<sup>rd</sup> are used. A large sample size totaling approximately 61,350 students across the United State of America is used in this study. Each student had at least two assessment points consisting of ISIP Español scores from September 2013 and May 2014. Results show that (a) students who had used the Istation Reading en Español curriculum make greater gains in Spanish reading than students who had not used ISIP Español curriculum, (b) students who had used more Istation Reading en Español curriculum make greater gains in Spanish reading than students who had used less Istation Reading en Español curriculum, and (c) students at risk of reading failure (Tier 3 students) make greater gains in Spanish reading with a sufficient amount of Istation Reading en Español curriculum usage.

## Introduction

Instruction in a student's native language is a critical component of all bilingual program models, including dual-language programs. Research among native Spanish speakers shows that once a student masters his or her native language, transitioning to reading in a second language is easier. Effective early Spanish reading instruction systematically develops a strong foundation in the structure of the Spanish language to help students become successful readers and writers in their primary language. Instruction that substantially covers the key reading components has the same clear benefits for Spanish-speaking students as it does for native English speakers.

Istation Reading en Español provides independent, computer-assisted instruction that promotes student engagement. Animated instruction and practice activities provide numerous opportunities for student interaction with the curriculum. Engaging instruction is developed by merging best practices in literacy learning with research on effective gaming practices. As Druin et al. (1999) reported, "Kids want a multi-sensory experience. Not only do they find it more entertaining, but they also find it a more engaging environment." Istation Reading en Español's cutting-edge technology uses multiple forms of media (audio, text, graphics, and animation) to maintain student attention and to promote learning in print-rich and language-enriched lessons. Istation Reading en Español, developed using scientifically based Spanish reading research, delivers computer-based effective authentic Spanish reading instruction that teaches Pre-K through 3<sup>rd</sup> Grade students to read fluently with comprehension. Aligned to the federal No Child Left Behind Act (NCLB) and the findings of the National Reading Panel (2000) and National Early Reading Panel (2008), the curriculum content provides systematic and explicit instruction in the essential reading areas of phonological and phonemic awareness, phonics, vocabulary, fluency and comprehension. Results from ISIP en Español and

curriculum-embedded assessments provide continual data to place students in developmentally appropriate skills and individualized lessons to meet their needs.

ISIP Español is a computer-delivered screener and continuous progress monitoring system of Spanish early reading skills for students in Pre-Kindergarten, Kindergarten, 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grades receiving language arts reading instruction in Spanish. It is designed to: (a) identify children at risk of not meeting Spanish Language Arts and Reading (SLAR) standards for end-of-year expectations in Kindergarten, 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> grades; (b) offer automatic continuous progress monitoring of the above critical skills; and (c) provide immediate and automatic linkage of assessment data to students' learning needs, thus promoting differentiated instruction. ISIP Español is delivered through the Internet in an interactive, animated, game-like format that allows students to accurately demonstrate their true abilities through a high-interest and risk-free format. The assessment is designed as a continuous progress monitoring tool that can be delivered to students monthly (or as often as needed) throughout the year. See Istation (2012) technical manual for full information.

Patarapichayatham and Roden (2014) studied the growth of students using Istation Reading for Pre-Kindergarten and Kindergarten across the United State of America. ISIP Early Reading's Overall Reading Ability score and subtest scores were used in their study. The study was completed to answer three research questions: (a) do students who have used Istation curriculum make greater gains in early literacy skills than students who have not used Istation curriculum?, (b) do students who have used more Istation curriculum make greater gains in early literacy skills than students who have used less Istation curriculum?, and (c) do students at risk for reading failure (Tier 3 students) make greater gains in early literacy skills with a sufficient amount of Istation Reading curriculum usage? Each student had at least two assessment points

consisting of ISIP scores from September 2013 and April 2014. Results showed that: (a) students who have used the Istation Reading curriculum show greater growth in early literacy skills than students who have not used Istation Reading curriculum; (b) students who have used more Istation Reading curriculum experienced greater growth in early literacy skills than students who have used less Istation Reading curriculum; and (c) students at risk for reading failure (Tier 3 students) make greater gains with a sufficient amount of Istation Reading curriculum usage. The study findings confirmed that Istation products help students grow in Reading.

Patarapichayatham (2014) applied the same research questions to 1<sup>st</sup> – 8<sup>th</sup> Grades Istation Reading data (Istation Early Reading and Istation Advanced Reading). Large sample sizes across the State of Texas were used. The findings were consistent with Patarapichayatham and Roden (2014) that is: (a) students who have used the Istation Reading curriculum show greater growth in early literacy skills than students who have not used Istation Reading curriculum; (b) students who have used more Istation Reading curriculum experienced greater growth in early literacy skills than students who have used less Istation Reading curriculum; and (c) students at risk for reading failure (Tier 3 students) make greater gains with a sufficient amount of Istation Reading curriculum usage. Istation Reading en Español and ISIP Español are both fairly new to the Spanish reading market. There are currently no studies related to students' growth from using Istation Reading en Español. This study attempted to study how students perform in terms of the Spanish reading growth from using Istation Reading en Español, by using ISIP Español data. The findings of this study will help inform improvement of Istation's Spanish reading products. As Istation's ultimate goal is to help students improve their Spanish skills.

This study applies the same research questions as Patarapichayatham and Roden (2014) and Patarapichayatham (2014). This study aims to answer three different research questions in

terms of the students' growth by using Istation Reading en Español. They are: (a) do students who had used Istation curriculum make greater gains in Spanish reading than students who had not used Istation curriculum?, (b) do students who had used more Istation curriculum make greater gains in Spanish reading than students who had used less Istation curriculum?, and (c) do students at risk of reading failure (Tier 3 students) make greater gains in Spanish reading with a sufficient amount of Istation Reading curriculum usage? The samples were taken from Pre-K through 3<sup>rd</sup> Grade students across the country, for the 2013 – 2014 school year.

## **Methods**

### *Measures*

Results from ISIP Español for Pre-Kindergarten through 3<sup>rd</sup> Grade for the 2013 – 2014 school year are used in this study. The Overall Reading Ability scores are used. Two data points are used in this study: the September scores are considered as the beginning of the year (BOY) data point and the May scores are considered as the end of the year (EOY) data point. Each student had at least two data points from September 2013 to May 2014.

### *Samples*

This sample consisted of students in Pre-Kindergarten through 3<sup>rd</sup> Grade across the United State of America. The large sample size was used to compute the students' growth under this current study. As Patarapichayatham and Roden (2014) and Patarapichayatham (2014) described in their study, Istation has its own rigorous criteria to select samples for the ISIP Early Reading and ISIP Advanced Reading growth study. Istation researchers have studied and developed the criteria based on their preliminary analyses. This study applied those criteria. Since the curriculum usage for each student is recorded every time students log in to Istation Reading en Español curriculum, this study used the curriculum usage as a criterion to select

students into the study. As Istation believes that if students spend time engaged in Istation Reading en Español curriculum, they are likely to do better on ISIP Español assessments. Students who have used Istation curriculum from 1 minute up to 4,000 minutes from September 2013, to May 2014, are selected into this study. Time spent in ISIP Español assessments was not included in these usage totals to ensure this study measures the effect of Istation Reading en Español curriculum.

Patarapichayatham and Roden (2014) and Patarapichayatham (2014) applied campus level usage in their study as they believed if campuses implement Istation products as recommended, their students will grow in reading ability. This study applied the campus level usage with different amounts of Istation Reading en Español curriculum minute usage criteria. Campuses that had more than 1 minute usage are included. This approach ensures that the sample size is sufficient for this current study. We further intend to study the campus level minute usage criteria to identify “Good Implementation Campuses” for Istation Reading en Español.

Because each campus has a different implementation and a different number of students enrolled in the Istation Reading en Español program per grade, the Istation growth criteria can be used in these scenarios: Campus A uses Istation Reading en Español product for 1<sup>st</sup> – 3<sup>rd</sup> Grade students, only 3<sup>rd</sup> Grade met the criteria. All 3<sup>rd</sup> Grade students from Campus A are included in this study. Campus B uses Istation Reading en Español product for 1<sup>st</sup> – 2<sup>nd</sup> Grade students. The Istation Reading en Español curriculum usage for both grades was under the criteria, none of them are included in this study. Campus C uses Istation Reading en Español for Grades Pre-K – 3<sup>rd</sup> students, only 1<sup>st</sup> and 3<sup>rd</sup> Grade students met the criteria. All 1<sup>st</sup> and 3<sup>rd</sup> Grade students from this campus are selected into this study. This way, Istation researchers believe that they can

measure the growth and impact of Istation products accurately. They can ensure that they have selected representative samples for each grade and each Tier. Next, as part of the criteria, they considered individual student level usage in these campuses. For each student in each grade, they considered his/her Istation curriculum usage. Finally, students who had at least 2 time points of scores are selected in this study.

From this sample, students are classified into 2 sub-groups: “No Istation Curriculum Used” and “Some Istation Curriculum Used.” Students who have used Istation Reading en Español curriculum less than 30 minutes from September 2013 to May 2014 are considered to have only taken the ISIP assessments for benchmark or progress monitoring periods and are classified as “No Istation Curriculum Used,” as we do not believe that Istation Reading en Español curriculum has an impact on students’ learning from spending less than 30 minutes in the curriculum over an 8-month period. On the other hand, students who used Istation Reading en Español curriculum more than 30 minutes from September 2013 to May 2014 are considered as “Some Istation Curriculum Used.” The “No Istation Curriculum Used” functioned as a pseudo control group under this study.

We have tested two different models in order to answer the research questions under this current study: “300 Minute Istation Curriculum Usage Model” and “400 Minute Istation Curriculum Usage Model.” Under the 300 Minute Istation Reading en Español Curriculum Usage Model, students are classified into 2 sub-groups: “300 minutes or Less of Istation Curriculum Usage” and “300 Minutes or More of Istation Curriculum Usage.” Similarly to the 400 Minute Istation Reading en Español Curriculum Usage Model, students are classified into 2 sub-groups: “400 Minutes or Less of Istation Curriculum Usage” and “400 Minutes or More of



Istation Curriculum Usage.” Table 1 represents the sample size for this study by Grade, by Tier, and by Istation Reading en Español curriculum usage.

### *Analysis*

The Overall Reading Ability scores of ISIP Español for Pre-Kindergarten to 3<sup>rd</sup> Grade for the 2013 – 2014 school are used in this current study. The students’ growth is computed by subtracting the mean of the Overall Reading Ability scores of BOY, from the mean of the Overall Reading Ability scores of EOY. It is called the delta under this study. Analysis by Grade, by Tier, and by Istation Reading en Español Curriculum Usage was performed. As we strongly believe that students in each Tier are different in terms of their achievement, their growth, and their Istation Curriculum Usage. Next, the deltas were compared with the Overall Reading Ability Istation expected growth. This way, we could evaluate students’ growth whether students met our expected growth or not. Note that there are many ways to compute students’ growth. Since Istation computes the expected growth by using the deltas, this study computes students’ growth in the same way. The actual growth and the expected growth can be compared directly.

Istation has its own expected growth by Grade and by Tier for each Sub-Skill and Overall ISIP Español Ability scores. The ISIP Español expected growth is derived from national norms. The ISIP Español expected growth of the Overall Reading Ability for Pre-Kindergarten is 13 for all 3 Tiers. The ISIP Español expected growth for Kindergarten is 46, 41.5, and 37 for Tiers 1, 2, and 3, respectively. The ISIP Español expected growth for 1<sup>st</sup> Grade is 84, 70, and 56 for Tiers 1, 2, and 3, respectively. The ISIP Español expected growth for 2<sup>nd</sup> Grade is 64, 53, and 42 for Tiers 1, 2, and 3, respectively. The ISIP Español expected growth for 3<sup>rd</sup> Grade is 57, 50, and 43 for Tiers 1, 2, and 3, respectively. Go to Istation website for more information on ISIP Español expected growth.

## Results

There are three research questions under this study. For the first research question, the results show that students who had used Istation Reading en Español curriculum grew faster than students who had not used Istation Reading en Español curriculum. As can be seen from Figure 1, it is clear that students who had spent some time on Istation Reading en Español curriculum usage grew faster than students who had not used ISIP Español curriculum across Grades and across Tiers. To be more specific, for Pre-Kindergarten, students who had used Istation Reading en Español curriculum grew faster than students who had not used Istation Reading en Español curriculum across Tiers. All students performed above Istation Reading en Español expected growth except students who had not used Istation Reading en Español curriculum in Tier 1. For Kindergarten, students who used Istation Reading en Español curriculum grew faster than students who had not used Istation Reading en Español curriculum across Tiers. All students performed above ISIP Español expected growth except students who had not used Istation Reading en Español curriculum in Tier 3. For 1<sup>st</sup> Grade, again students who used Istation Reading en Español curriculum grew faster than students who had not used Istation Reading en Español curriculum across Tiers. Only students in Tier 1 and students who had used Istation Reading en Español curriculum in Tier 2 performed above ISIP Español expected growth. For 2<sup>nd</sup> Grade, students who had used Istation Reading en Español curriculum grew faster than students who had not used Istation Reading en Español curriculum across Tiers. Only students in Tier 1 and students who had used ISIP Español curriculum in Tier 2 performed above ISIP Español expected growth. For 3<sup>rd</sup> Grade, similarly to other grades, students who had used Istation Reading en Español curriculum grew faster than students who had not used Istation

Reading en Español curriculum across Tiers. Only students who had used Istation Reading en Español curriculum in Tiers 1 and 2 performed above Istation expected growth.

In summary, the findings show that Istation products have an impact on students. It is clear that if students spend some time using Istation Reading en Español curriculum, those students will do better on ISIP Español assessments. Students will score better on ISIP Español assessments, which means that those students grow more or faster than students who do not spend time on the Istation Reading en Español curriculum.

For the second research question, our results show that students who had used more Istation Reading en Español curriculum grew faster than students who used less Istation Reading en Español curriculum. As can be seen from Figures 2 and 3, the findings show that students who used Istation Reading en Español curriculum 300 minutes or more grew faster than students who used Istation Reading en Español curriculum 300 minutes or less across Grades and across Tiers. Similarly to the 400 Usage model, this study revealed that students who had used Istation Reading en Español curriculum 400 minutes or more grew faster than students who had used Istation Reading en Español curriculum 400 minutes or less across Grades and across Tiers. Also, Figure 4 confirms that students who had used more Istation Reading en Español curriculum grew faster than students who have used less Istation Reading en Español curriculum across Grades and across Tiers. To be more precise, students who used Istation Reading en Español curriculum 400 minutes or more grew faster than students who used Istation Reading en Español curriculum 300 minutes or more. Students who had used Istation Reading en Español curriculum 300 minutes or more grew faster than students who had used some Istation Reading en Español curriculum. Students who had used some Istation Reading en Español curriculum grew faster than students who had not used some Istation Reading en Español curriculum.

In summary, the findings confirm that the more students use Istation Reading en Español curriculum, the more students will grow. In other words, students who use more Istation Reading en Español curriculum will grow much faster than students who useless Istation Reading en Español curriculum.

For the third research question, our results show that at-risk students (Tier 3 students) grow faster with a sufficient amount of Istation Reading en Español curriculum usage than Tiers 1 and 2 students. Figures 1 – 4 confirm this finding. To be more specific, Tier 3 students grow much faster with more Istation Reading en Español curriculum usage, especially 300 Usage and 400 Usage across grades. These results make sense because Tier 3 students are at-risk students with whom teachers need to pay extra attention, and help them study. From this study and Patarapichayatham and Roden (2014) and Patarapichayatham (2014) studies, we found that Tier 3 students spend more time using Istation Reading curriculum than Tiers 1 and 2. These study results are evidence to support the growth and impact of Istation Reading en Español products. Again, it is clear that if students spend more time on Istation Reading en Español curriculum, students will grow. The results confirm those findings and the quality of Istation products. Overall, the findings are consistent with Patarapichayatham and Roden (2014) and Patarapichayatham (2014).

### **Conclusions**

This study provides evidence of Istation Reading en Español's growth for Pre-K – 3<sup>rd</sup> Grade students across the United State of America. The researchers believe, based on the findings, that if students spend more time on Istation Reading en Español curriculum, students will do better on ISIP Español assessments. The ISIP Español assessments and the Istation Reading en Español curriculum, are proven to be a valid and reliable assessment of literacy skills

(e.g., Mathes, Toregson & Herron, 2011). Istation Reading en Español curriculum was designed and developed using scientifically-based reading research, specifically in the skills most predictive of future reading success. Using the assessment and intervention curriculum together allows teachers to identify student weaknesses and immediately provides data-informed instruction specific to each child's needs. The findings confirm that Istation products have a significant impact on students' literacy growth, meaning the more students spend time on Istation Reading en Español curriculum, the more students will grow and show gains in their literacy skills.

Although this study provides important evidence of the growth and impact of Istation products on students, this study focuses on only two time points of the data. Although two time points of the data is sufficient enough to see students' growth across the year, the more data points may give more information in terms of students' growth over time. The Overall Reading Ability scores were used in this study. The Overall Reading Ability scores represent students' reading ability in general, as it is computed from all sub-skills each student has taken ISIP Español in each time point (month). It would be interesting to study the students' growth for each sub-skill, as each student might have taken different sub-skills. In other words, the Overall Reading Ability scores of different students might have come from different sub-skills. This study presented the growth and impact by using the delta to derive students' growth. It is reasonable because the Istation expected growth is derived in the same way so that those values can compute and compare directly. It would be interesting to apply other psychometric modeling to study the students' growth, for example, non-linear growth modeling, latent class analysis, growth mixture modeling, latent growth analysis, and the longitudinal growth analysis. A longitudinal growth study across years would be very interesting to explore as well. Also, how

students perform on ISIP Español assessments and ISIP Early Reading or ISIP Advanced Reading would be interesting for further study.

## References

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Table 1

Sample Size by Grade, by Tier, and by ISIP Español Curriculum Usage

Grade	Month	Tier																	
		1						2						3					
		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Pre-K	Sep	69	618	185	502	239	448	46	482	166	362	205	323	92	1,012	338	766	435	669
	May	299	3,617	1,850	2,066	2,289	1,627	166	2,024	1,060	1,130	1,281	909	344	3,370	1,678	2,036	2,029	1,685
K	Sep	233	9,999	1,727	8,505	2,376	7,856	150	3,782	770	3,162	977	2,955	243	3,170	965	2,548	1,140	2,373
	May	242	14,806	3,171	11,877	4,255	10,793	189	6,737	1,741	5,185	2,189	4,737	422	7,044	2,518	4,948	3,050	4,416
1	Sep	700	14,547	4,237	11,010	5,308	9,939	220	4,250	1,154	3,316	1,417	3,053	241	4,144	1,046	3,339	1,268	3,117
	May	633	17,212	5,166	12,679	6,512	11,333	203	5,646	1,683	4,166	2,053	3,796	193	5,228	1,332	4,089	1,643	3,778
2	Sep	787	12,066	4,778	8,075	5,872	6,981	226	3,200	1,114	2,312	1,366	2,060	300	3,955	1,237	3,018	1,511	2,744
	May	643	12,789	5,029	7,403	6,225	7,207	219	3,911	1,451	2,679	1,783	2,347	189	4,704	1,380	3,513	1,731	3,162
3	Sep	1,022	9,614	5,033	5,603	5,982	4,654	248	2,266	1,009	1,505	1,238	1,276	287	2,362	1,099	1,550	1,306	1,343
	May	774	9,266	4,692	5,348	5,527	4,513	260	2,519	1,232	1,547	1,451	1,328	208	2,701	1,201	1,708	1,437	1,472

*Note.* 1 = no curriculum used, 2 = some curriculum used, 3 = 300 minutes or less, 4 = 300 minutes or more, 5 = 400 minutes or less, and 6 = 400 minutes or more



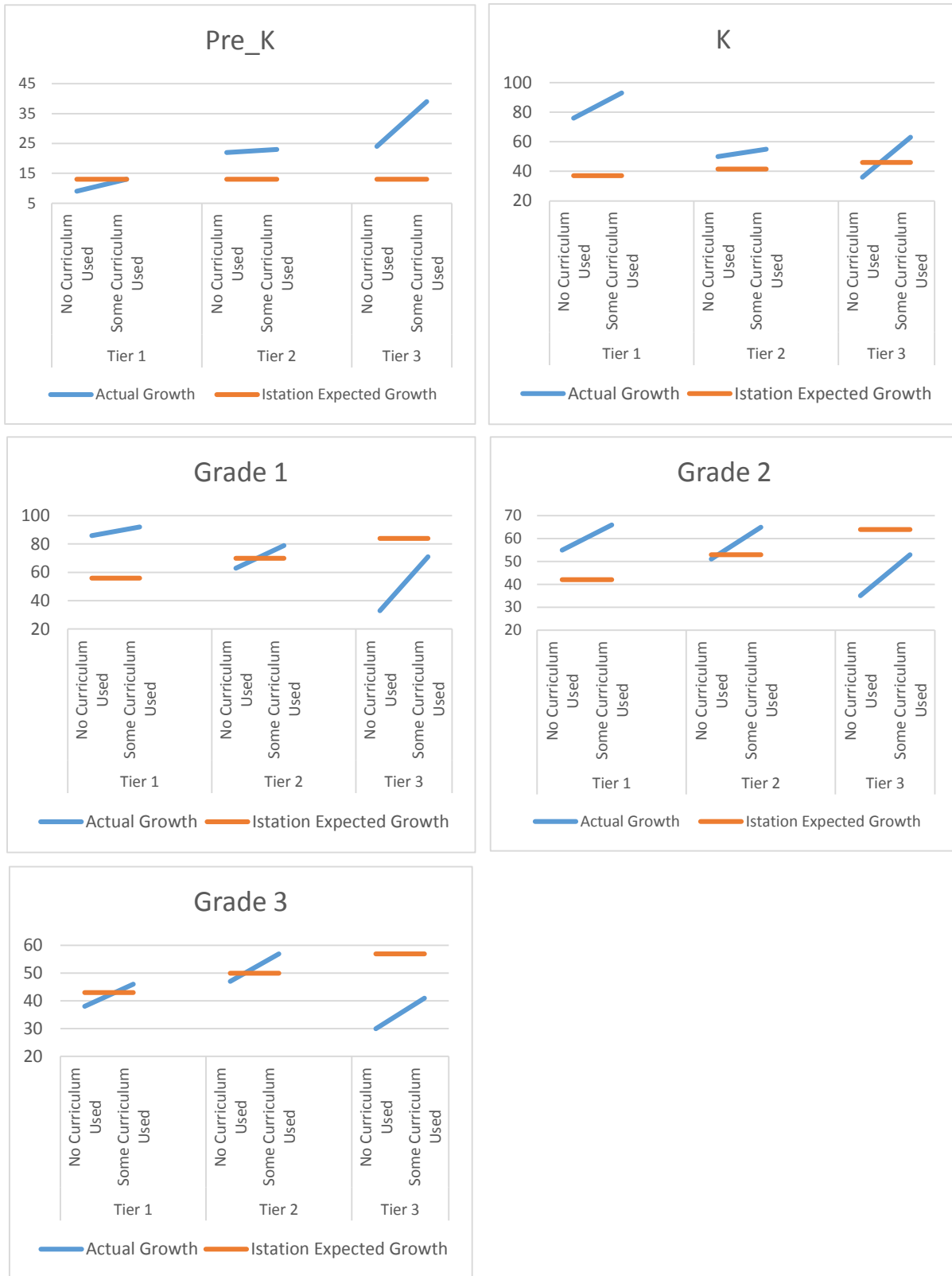


Figure 1: Pre-K – 3<sup>rd</sup> Grade Growth, No Curriculum Used vs. Some Curriculum Used Model

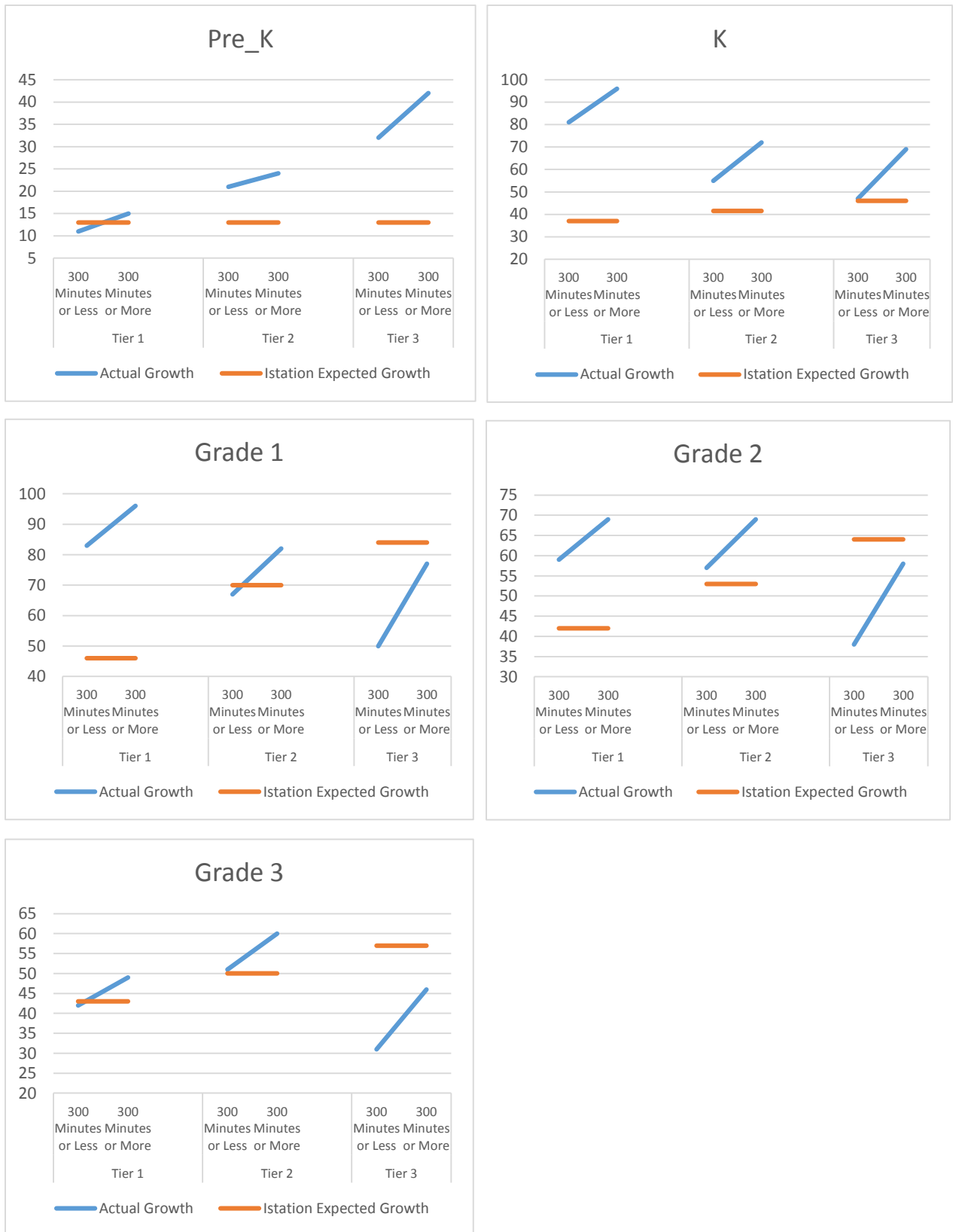


Figure 2: Pre-K – 3<sup>rd</sup> Grade Growth, 300 Minute Model

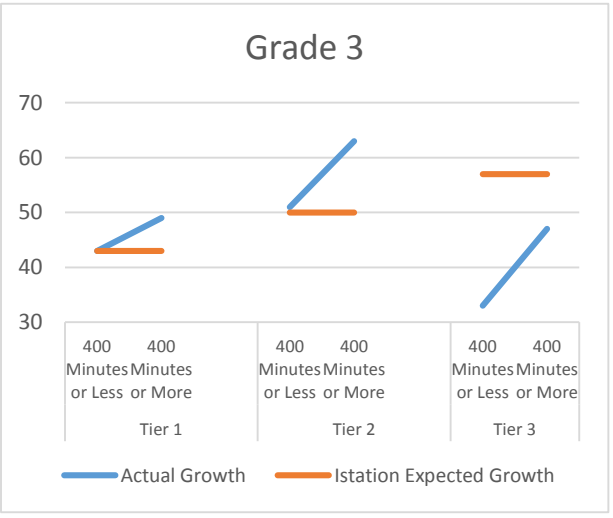
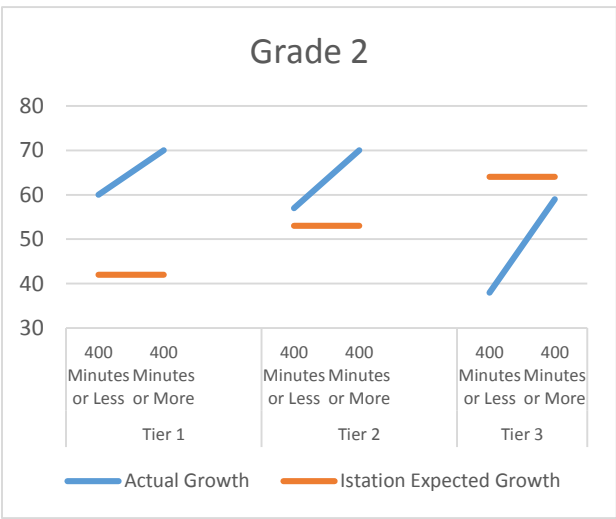
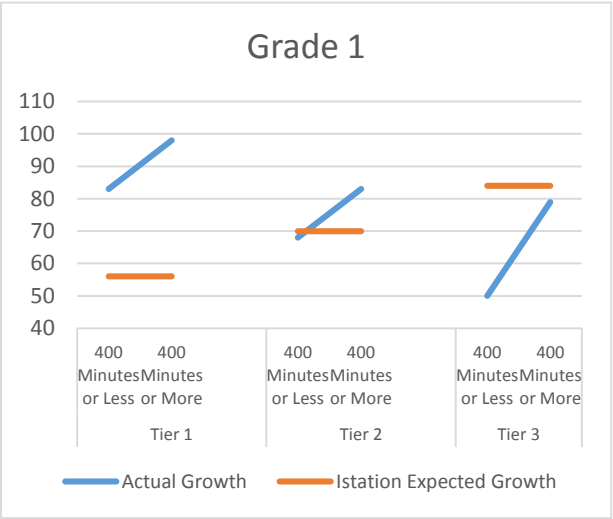
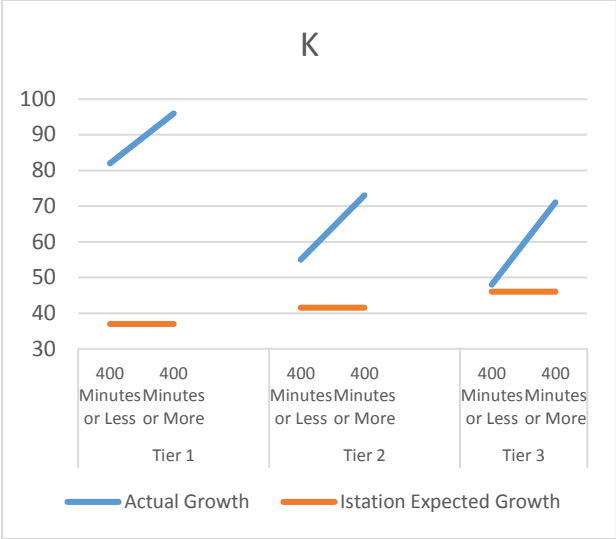
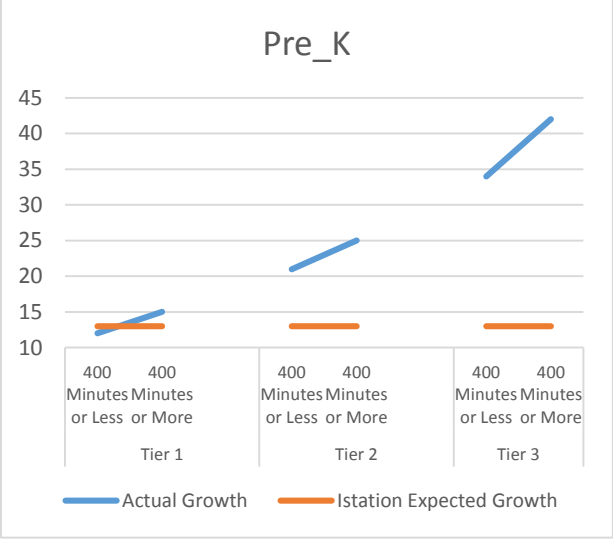


Figure 3: Pre-K – 3<sup>rd</sup> Grade Growth, 400 Minute Model

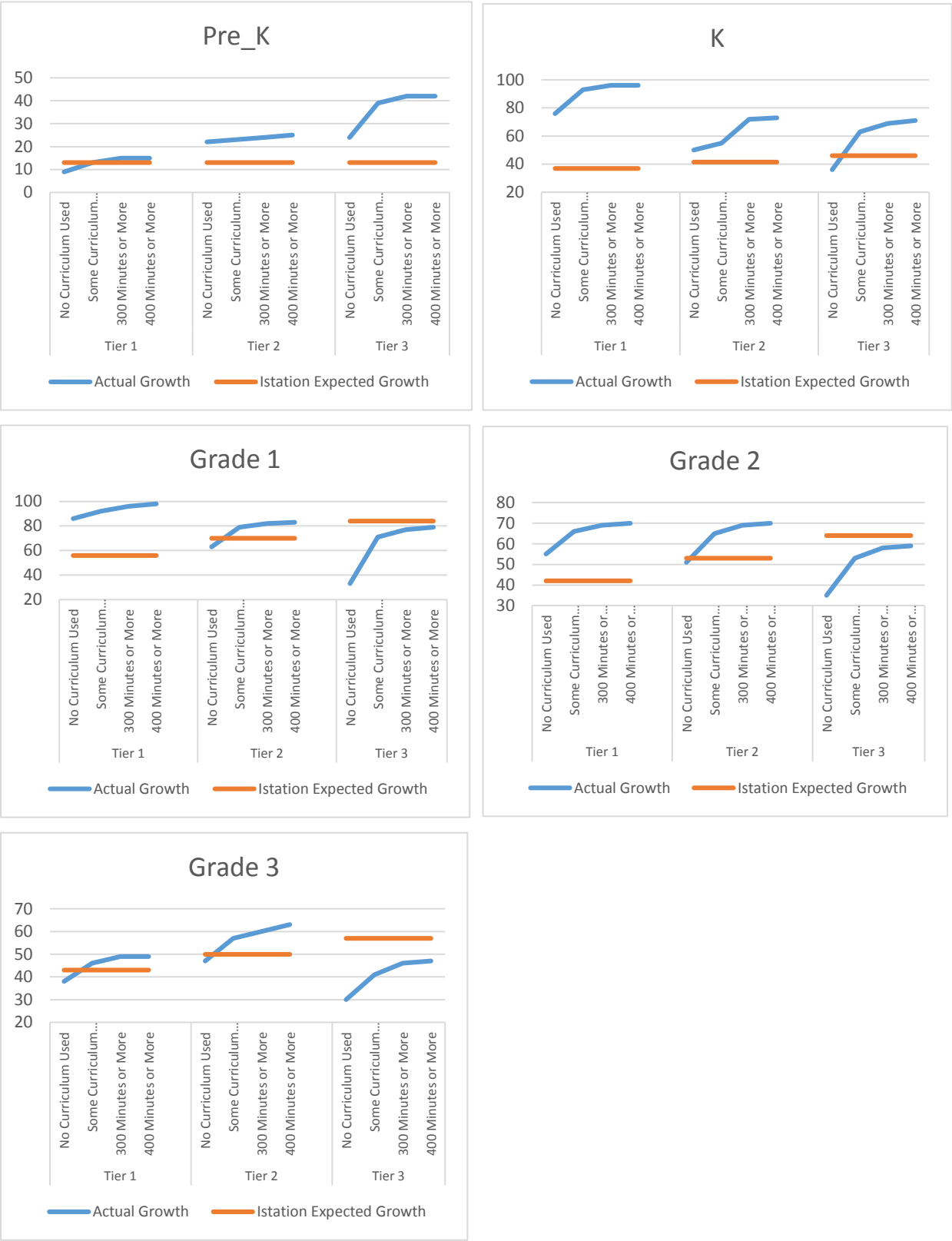


Figure 4: Pre-K – 3<sup>rd</sup> Grade Growth, Combined Model