

Meeting Istation Curriculum Usage Recommendations Increases ISIP Reading Growth

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Key Findings

- Using Istation’s reading curriculum resulted in growth of overall ISIP scores and percentiles across all grades (K-3) and tiers
- Meeting usage recommendations (20 to 40 minutes per week) resulted in higher score and percentile gains than those below the recommendation.
- There was no significant difference between meeting and exceeding usage recommendations, with the exception of kindergarten students.
- Tier 2 and Tier 3 students had substantially more percentile growth compared to Tier 1 students, suggesting the curriculum is particularly advantageous for those students.

Overview

Istation is a digital instructional intervention tool for various content areas aimed at pre-K through eighth grade learners. The reading program includes a formative assessment named Istation’s Indicators of Progress (ISIP™) Reading, which is a computer-adaptive test (CAT) and diagnostic literacy

assessment designed to track student growth over time. Istation Reading also includes an adaptive, online curriculum, which generates personalized student data profiles that teachers can use to make data-driven instructional decisions and assign custom learning interventions. Istation curriculum serves as supplemental instruction to diagnostic testing and has been shown to increase standardized ELA assessment scores (Cook & Ross, 2022), reading achievement scores (Campbell et al., 2022; Campbell et al., 2021), English literacy (Locke et al., 2022), and reading and academic growth (Campbell et al., 2021; Patarapichayatham & Locke, 2020; Idaho Department of Education, 2020) in students from schools that implemented Istation curriculum compared to students without access to the curriculum component.

The current study examined overall ISIP score and percentile gains in relation to meeting the Istation curriculum usage recommendations. The study employed a quasi-experimental design to examine the following questions:

Core Question: What is the effect of meeting the Istation curriculum usage

recommendation on students' achievement as measured on the ISIP from BOY (August/September 2021) to EOY (May 2022)? Do they vary:

- (1) for students by grade (K-3)?
- (2) by tier?
- (3) by exceeding or not meeting the recommendation?

Analytic Sample

Participants in this evaluation included kindergarten through third grade students (n=44,968) in Idaho schools that implemented the Istation curriculum for the 2021-2022 school year. For those who had demographic data, majority of students are White (66%), followed by Hispanic (29%) and multi-racial (2%). Approximately 26% were economically disadvantaged, and 13% were in special education. Students included in the current study had one set of non-missing overall ISIP Reading scores for BOY (August/September 2021) and EOY (May 2022). Of students with no missing score data (n=42,158), 97.1% had positive score growth, and 72.4% had positive percentile growth.

Table 1 shows the total number of students by grade-level and curriculum-usage groups. These groups are based on not meeting, meeting, and exceeding the usage recommendation:

- (1) **Below:** <20 minutes per week
- (2) **Met:** 20-40 minutes per week
- (3) **Exceed:** >40 minutes per week

The results forthcoming utilized analysis of covariance and controlled for the effect of BOY scores and percentiles. In addition, the results reported are from using the previous normed scaled score.

Table 1. Total Population by Grade Level and Recommendation Group

Grade	Below	Met	Exceed
K	6768	2429	769
1st	6251	3054	1407
2nd	6714	2943	1133
3rd	7637	2395	658

Results

ISIP BOY-to-EOY Gains by Grade Level

ISIP score patterns were examined for students in Idaho elementary schools that used Istation curriculum during the 2021-2022 school year. Average BOY-to-EOY score and percentile gains for students by grade level are shown in Table 2 and Table 3.

Generally, ISIP score and percentile gains were lowest in those not meeting the curriculum usage recommendation compared to meeting or exceeding the recommendation. Kindergarten was the only grade level where students exceeding the usage recommendation had significantly higher score and percentile gains than those meeting the recommendation. For first grade, both students who met and exceeded the recommendation had higher score and percentile gains than those not meeting the recommendation. However, the difference between meeting and exceeding the recommendation was not statistically significant. For second and third grade students, those who met the recommendation had significantly higher score and percentile gains than those who were below the recommendation. In addition, second

grade students who met the usage recommendation also had significantly higher percentile gains than those who exceeded the recommendation.

Gains were largest in kindergarten for those exceeding recommendations, with average BOY-to-EOY score gains of 36 points and 28 percentiles, compared to 33 points and 21 percentiles in students who met the recommendation. In all other grade levels, those who met the usage recommendations had the largest score and percentile growth (18-25 points and 11-12 percentiles) compared to both students who exceeded and did not meet usage recommendations (17-24 points and 9-11 percentiles).

Table 2. Average ISIP BOY-to-EOY Score Growth by Grade Level

Grade	Below	Met	Exceed
K	29.3	32.5*	36.3**
Sample Size	6768	2429	769
1st	24.0	24.7*	24.4*
Sample Size	6251	3054	1407
2nd	20.1	21.3*	20.4
Sample Size	6714	2943	1133
3rd	16.9	18.0*	17.0
Sample Size	7637	2395	658

*Indicates significant difference compared to Below ($p < 0.05$)

+Indicates significant difference compared to Met ($p < 0.05$)

Table 3. Average ISIP BOY-to-EOY Percentile Growth by Grade Level

Grade	Below	Met	Exceed
K	15.0	21.3*	28.2**
Sample Size	6768	2429	769
1st	10.9	12.1*	10.7
Sample Size	6251	3054	1407
2nd	10.7	11.8**	10.1
Sample Size	6714	2943	1133
3rd	9.4	10.5*	9.6
Sample Size	7637	2395	658

*Indicates significant difference compared to Below ($p < 0.05$)

+Indicates significant difference compared to Met ($p < 0.05$)

ISIP BOY-to-EOY Gains by Tier

Average BOY-to-EOY score and percentile gains for students in Tier 1, Tier 2, and Tier 3 are shown in Table 4 and Table 5. Similar to grade levels, ISIP score and percentile gains in students meeting the curriculum usage recommendation were significantly higher than those below the recommendation in all tiers. While students who exceeded the recommendation also had higher scores than those below the recommendation, they did not differ with those meeting the usage recommendation. Furthermore, Tier 1 students who exceeded the recommendation did not have significantly higher percentile growth than those who were below the recommendation. ISIP score gains between those who met the recommendation and those who exceeded the recommendation were relatively similar in all tiers, with both groups having approximately 22 to 27

points of score growth and 7 to 21 points of percentile growth, on average. More notable differences were observed in Tier 3 students, with those meeting or exceeding the recommendations having overall score growth 2 to 3 points higher and percentile growth 4 to 5 points higher. Overall, Tier 2 and Tier 3 students experienced higher percentile growth than Tier 1 students, independent of curriculum-usage group.

Table 4. Average ISIP BOY-to-EOY Score Growth by Tier

Tier	Below	Met	Exceed
Tier 1	21.2	22.3*	22.4*
Tier 2	23.2	25.0*	25.6*
Tier 3	23.6	26.4*	27.1*
Sample Size	27370	10821	3967

*Indicates significant difference compared to Below ($p < 0.05$)

Table 5. Average ISIP BOY-to-EOY Percentile Growth by Tier

Tier	Below	Met	Exceed
Tier 1	5.9	7.3*	6.6
Tier 2	17.0	20.1*	20.8*
Tier 3	15.8	19.5*	21.0*
Sample Size	1427	7120	30975

*Indicates significant difference compared to Below ($p < 0.05$)

ISIP BOY-to-EOY Gains by Tier and Grade Level

Average BOY-to-EOY score and percentile gains for students by grade and tier level are shown in [Figure 1](#). In line with previous results, the largest score gains were observed in

kindergarten and first grade students across all tiers. However, the largest percentile gains were observed only in kindergarten across all tiers.

Kindergarten students across all tiers who met the usage recommendation had higher score gains than those below the recommendation (29 to 36 points vs. 27 to 32 points), and those who exceeded the recommendation had higher score gains than the other two groups (32 to 40 points). Similarly, kindergarten students across all tiers who met the usage recommendation had higher percentile gains than those below the recommendation (12 to 26 percentiles vs. 7 to 20 percentiles), and those who exceeded the recommendation had higher percentile gains than the other two groups (17 to 34 percentiles). The remaining percentile gains varied by grade level and tier, with third grade students having the next highest percentile gain in Tier 1, second grade in Tier 2, and first grade in Tier 3.

Tier 1 first grade students that met the usage recommendation had significantly higher score and percentile gains than those below the recommendation (23.4 vs. 22.5 and 4.8 vs. 3.4). In addition, Tier 1 second grade students that met the usage recommendation had significantly higher percentile gains than those below the recommendation (6.8 vs. 5.7). Tier 2 second and third grade students that met the usage recommendation had significantly higher score and percentile gains than those below the recommendation. However, only Tier 2 first grade students who exceeded the recommendation had higher score and percentile gains than those below the recommendation (25.7 vs. 24.5), but gain scores were not significantly different from those meeting the usage recommendation (25.0). In some

instances, Tier 1 and Tier 2 third grade students who exceeded the recommendation had lower score and percentile gains than those *not* meeting the recommendation, and this was not observed in any other grade level. While not statistically significant, every other comparison between usage groups, except Tier 3 third grade percentile gains, showed those meeting the usage recommendation having higher score and percentile gains than both those below and exceeding the usage recommendation.

Discussion

This study provides evidence that using the Istation's reading curriculum can lead to greater overall ISIP score and percentile growth. Furthermore, these gains can be significantly higher with adherence to the usage recommendation of 20 to 40 minutes every week. Generally, growth was largest in kindergarten and first grade, particularly for score gains even when stratifying by tiers. Meeting the usage recommendation primarily resulted in higher score and percentile gains, even compared to those exceeding the recommendation.

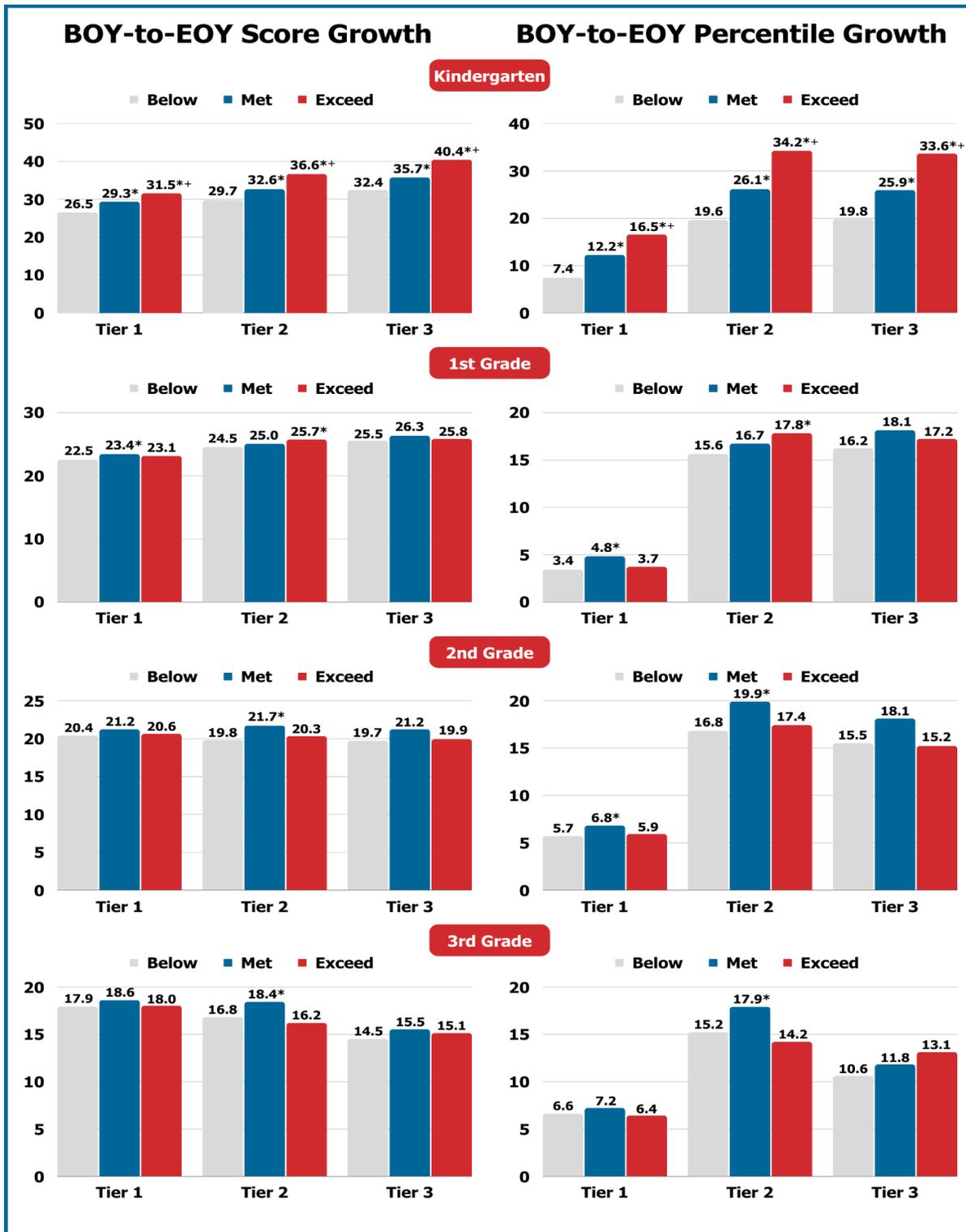
One interesting observation is that kindergarten students who exceeded the usage recommendation had significantly higher gains than those who merely met the recommendation. The results also indicate that the most significant score and percentile gains were observed in kindergarten and first grade students across all tiers. This could be attributed to the fact that kindergarten is a critical developmental period when students are more receptive to learning, so additional exposure to the curriculum may have a more significant impact on their growth. However, it is important to note that

this effect was not observed in other grade levels. This suggests that the Istation curriculum may be particularly effective during these early years of schooling.

Moreover, the findings in this study reveal that students in Tier 2 and Tier 3 demonstrated more substantial percentile growth compared to their Tier 1 counterparts, independent of curriculum usage. One potential explanation for this is that students in the higher tiers, indicative of lower levels, may possess a greater capacity for improvement, thereby facilitating more pronounced percentile gains. Nevertheless, it is important to ascertain the uniform efficacy of the Istation curriculum across all tiers, or alternatively, whether it is particularly advantageous for students in the higher tiers. For example, the results show that students in Tier 3 who met or exceeded the usage recommendations experienced overall score growth 2 to 3 points higher and percentile growth 4 to 5 points higher compared to other groups. This could indicate that adhering to or surpassing the usage recommendation might have a more pronounced impact on students who require additional support or intervention. However, there was no significant difference between those who met and exceeded the usage recommendation.

The absence of a statistically significant difference between meeting and exceeding the usage recommendation for most grade levels and tiers was observed in this study. This trend invites further inquiry into the possible diminishing returns associated with exceeding the recommendation and the subsequent implications. Simply put, more usage does not always equate to higher gains. The students may be

Figure 1. Average ISIP BOY-to-EOY Growth by Tier and Grade Level



*Indicates significant difference compared to *Below* ($p < 0.05$)

+Indicates significant difference compared to either *Met* ($p < 0.05$)

missing key core instruction if the usage guidelines are exceeded regularly. The variation observed in gains by grade and tier, particularly for kindergarten, suggests that the effectiveness of the Istation curriculum could be influenced by the interaction between grade level and tier. Thus, there is caution in recommending students should exceed the recommendation if they are in kindergarten and/or in Tier 2 or 3.

Conclusion

The results of this study provide valuable insights into the relationship between Istation curriculum usage and Idaho elementary school students' ISIP score and percentile gains. However, it is important to approach these findings critically, considering potential limitations and assumptions that may have influenced the results. The primary result that remained consistent across all grade levels and tiers is that using Istation's curriculum for 20 to 40 minutes per week led to higher score and percentile gains than those below the recommendation and, often, those who exceeded the usage recommendation.

References

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