

Effect of IXL Tier II Math Intervention on Targeted Students Percentile Ranking in 3<sup>rd</sup> Grade

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In Illinois, all school districts must implement a scientific, research-based intervention model in order to comply with federal and state regulations. After completing the district self-assessment tool, a district will have a better understanding of what it already has in place and what it needs to fully implement RtI. The district plan, due January 1, 2009, will list needs and establish a timeline of activities. District plans must explicitly outline the transition phases describing how full implementation for all grade levels and content areas will occur. Full implementation of RtI was expected by the 2010-2011 school year. (Illinois State Board of Education, 2018).

In a three-tier model, a school district should administer a universal screening tool in core academic areas at the beginning of each year to identify a student's strengths and weaknesses and to examine the effectiveness of the core curriculum and instruction. The team would then discuss which students would benefit from supplemental interventions in addition to the core curriculum (Illinois State Board of Education, 2018).

With the State of Illinois guidelines, it is up to the local school district and their Student Assistance Team (SAT) to make determinations of who is eligible for response to intervention (RtI) services. It is also the responsibility of the SAT to determine what Tier II intervention is going to be used and the length of the intervention for our Tier II students. Concern was raised about using IXL at my school as a Tier II intervention as this was the first year we decided to move to IXL as a resource for student interventions for Tier II. In this study we hope to measure

the effectiveness of IXL and see if it makes a significant difference on students percentile ranking.

## Method

### **Participants**

At the time of this study, twenty third grade students were currently in the IXL program. These third grade students were selected based on this districts fall benchmarking tool, Measures for Academic Progress (MAP). The SAT met and reviewed students MAP scores in math regarding their students and selected twenty students they thought would benefit from IXL and those students were put into the program. There was a small number of students that were excluded from receiving Tier II interventions and those were students who already qualified for special education services and who were operating under an individualized education plan.

### **Materials and Procedures**

In this study we are measuring if 3<sup>rd</sup> grade students that are placed into IXL for a Tier II math intervention is effective and if it makes a significant difference having them in the intervention. In order to measure this we are using MAP benchmark tests from the winter and fall benchmarks. More specifically we are comparing those individual students math percentile ranking in the fall and comparing it to the math percentile ranking in the winter and measuring their growth. This would cause us to use a paired samples t-test.

The RtI students were sent to the computer lab to work on IXL for twenty minutes a day four days a week outside of their normal math instructional time. The lab was staffed by an aide who monitored students while they were on the computer working in IXL.

The twenty third grade students that were put into the intervention had their MAP math percentile ranking recorded. Since MAP is a norm-referenced test administered across the

country we are able to measure where our students compare to other students in the country based off of their percentile ranking.

## Results

### **Percentile Ranking Between Samples**

A paired sample t-test was conducted to examine the effect of students put into IXL as an intervention and measuring the effect of the program by comparing their percentile ranking from the fall and winter benchmark tests. The sample IXL students that were measured in the fall ( $M=14.25$ ,  $SD= 11.5$ ) was the same sample of IXL students that were measured again in the winter ( $M=18.1$ ,  $SD= 15.4$ ). A two tailed t-test was performed with 95% confidence. The t score was  $-2.209$  which was between the upper and lower 95% confidence level of  $-7.498$  and  $-.202$  (see Table 3 for complete t-test summary). The paired sample correlation is  $.871$  (see Table 2 for paired sample correlations).

## Discussion

Results of current analysis suggested that using IXL as a tier II intervention for students that are struggling in math does make a difference. Thus, the data did support continuing IXL as a tier II intervention for math.

This study was generalizable within application to my school. Given the students (sample) test scores, from the fall and winter benchmarks, some of the increase in percentile could have been due to teacher influence. When comparing the same sample from the fall and winter there could be other variables that we have not taken into account that could have caused a positive or negative effect on the test scores.

Looking at the test results it does show a strong correlation between the sample groups first and second benchmark test. The correlation of .871 tells us that is a strong positive relationship between students in IXL and their percentile ranking. Students that are in IXL as a Tier II intervention will likely see their percentile ranking increase in their next benchmark test. We can say this with confidence because the paired sample t-test that we conducted had the t-score fall between the upper and lower intervals causing us to accept the hypothesis.

In conclusion, if I were to do an additional test I would want to collect more data building wide to increase the sample size and to dig deeper into the test scores to further more validate the results. Overall, I would continue the IXL Tier II program with my students and continue to track the data and recommend IXL for a Tier II intervention for other schools.

References

Illinois State Board of Education (2018). *State Resources Frequently Asked Questions about Response to Intervention (RtI)*. Retrieved from [https://www.isbe.net/Documents/rti\\_faq.pdf](https://www.isbe.net/Documents/rti_faq.pdf)

Table 1

*Means and Standard Deviations for Sample Groups Fall Benchmark and Spring Benchmark Percentile Rankings.*

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Fall Percentile	14.25	20	11.456	2.562
	Winter Percentile	18.10	20	15.369	3.437

Table 2

*Paired Samples Correlations between Fall & Winter Math Percentile Rankings.*

		N	Correlation	Sig.
Pair 1	Fall Percentile & Winter Percentile	20	.871	.000

Table 3

*Paired Sample Test Differences*

		Paired Samples Test							
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Fall Percentile - Winter Percentile	-3.850	7.795	1.743	-7.498	-.202	-2.209	19	.040

Table 4

Third grade student data used for Paired Samples Test.

Student	Fall MAP Testing Math %	Winter MAP Testing Math %
Student 1	14	6
Student 2	11	10
Student 3	17	10
Student 4	14	10
Student 5	14	11
Student 6	1	6
Student 7	2	11
Student 8	3	10
Student 9	7	11
Student 10	9	20
Student 11	1	1
Student 12	14	24
Student 13	29	40
Student 14	34	61
Student 15	40	40
Student 16	3	4
Student 17	8	9
Student 18	12	16
Student 19	21	27
Student 20	31	35