Cultivating Learning and
Positive Change

Case Study Research of *Study Island* in Ohio

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INTRODUCTION

Study Island is a web-based standards mastery program that combines highly specific and dynamic content with real-time reporting to create a customized assessment, diagnostic, and instructional program based on each state's standards. The content of the *Study Island* program is unique to each state and provides assessment and skill practice in all major subject areas in both tested and untested grade levels.

During program implementation, students answer a customizable set of questions that correspond to a state's standards and learning objectives. If students answer a question incorrectly, the program provides immediate feedback and opportunities for remediation and further learning. The *Study Island* system also uses adaptive testing technology to create individualized learning paths for each student, cycling students down, as needed, to lower levels of practice in skill areas that are building blocks for more difficult skills. This allows students the opportunity to practice continually, build their skills until they reach mastery level for each standard, and demonstrate proficiency at state-required levels. The *Study Island* program also uses motivation tools such as gaming and student-controllable instructional sequences both to engage students and provide students with autonomy over their learning environment.

Through a comprehensive system of assessment and instructional practice tools, the program functions both as an instructional program and a progress-monitoring tool, providing instructors with ongoing and in-depth feedback regarding student progress toward mastery of content standards. Educators can use the system as a stand-alone tutorial program or as a supplement to their classroom curriculum. The flexible nature of the program creates a personalized learning experience for each student, helping instructors to individualize and differentiate instruction in order to meet the needs of all students and target remediation to the areas that are most critical. The web-based platform of the program creates a learning environment that is accessible from any computer connected to the internet, allowing students to practice skills both at school and at home. Through its interactive and flexible instructional platform, *Study Island* provides engaging, ongoing practice and remediation to help students meet their required standards in all major content areas.

Study Island strongly believes that its products must demonstrate proven effectiveness in increasing student learning. As such, it has contracted with Magnolia Consulting, LLC, an external, independent consulting firm specializing in educational evaluation, to provide a summary and extension of pre-existing case study evaluations within the state of Ohio. The purpose of this work is to examine the impact of *Study Island* on student achievement at schools using *Study Island* in order to illustrate the effectiveness of *Study Island*. This Ohio specific report is part of a larger nationwide report, *Case Study Summaries of Study Island*, available through Study Island.

METHOD

The methodology of the full nationwide report, *Case Study Summaries of Study Island,* uses extant data that is available to the public through the state Department of Education databases. The evaluation in the full report employs a quasi-experimental framework with design variations by each case. Data sources for this study include historical, state-level, aggregated achievement data, as well as demographic information for either states or individual *Study Island* schools.

Analyses also vary for each case but include:

- comparisons of student achievement before and after *Study Island* use
- comparisons between schools using *Study Island* and local or state norms
- comparisons of changes in proficiency between schools using *Study Island* and other schools in the district or region not using *Study Island*
- trends in growth of student achievement over time at *Study Island* schools

Specifically, the full study addresses the following overarching evaluation question(s) for each case study exemplar (depending on the data available):

1. Is there significant growth over time in student achievement after the students have used *Study Island*?
2. Is there a significant difference in student achievement between schools using *Study Island* and schools not using *Study Island*?

Evaluators conducted statistical analyses in the full study when possible to quantify changes in achievement or differences in achievement between groups. Because state departments of education typically report student results from state testing in the format of the percentage of students meeting proficiency levels, evaluators chose statistical procedures that evaluate the magnitude of the difference between two percentages to analyze these data points. For example, these procedures allow one to compare the change in the percentage of students meeting standards from one year to the next to determine if there was statistically significant growth in the percentage of students meeting proficiency standards before and after program use. Likewise, one can use these procedures to determine if there was a difference in the percentage of students meeting standards between a school using the program and those schools that did not use the program.

Due to the inherent nature of case study analysis using extant aggregate data, limitations exist with regard to the conclusions that one can draw from these analyses. Without a true experimental design that controls for confounding factors and examines data at a student level, other variables may be interacting with those of interest to produce these results. Although the present report presents findings only from the state of Ohio, the full report includes data and analyses from a variety of states, grade levels, content areas, and learning environments. One can descriptively examine the findings of these analyses together to determine if overarching patterns exist within the data that can support the overall effectiveness of *Study Island.*

This Ohio specific report presents three evaluations that examine student achievement in reading and math in specific *Study Island* schools within Ohio.

OHIO RESULTS

Miamisburg City Schools

Miamisburg City Schools — Miamisburg, Ohio

Table 1.
School Characteristics and Demographics for Miamisburg City Schools in Miamisburg, Ohio

Miamisburg City Schools, OH (Total Enrollment = 5,611)	
School Characteristics	**N**
Type of School	Public
Metropolitan Status	Suburban
Grade Span	PK–12
Number of Teachers	322
Demographics	**Percentage**
Gender	
Male	50%
Female	50%
English Language Learner	1%
Free or Reduced Lunch	25%
Ethnicity	
White	87%
Black	6%
Hispanic	2%
Asian Pacific Islander	3%
American Indian	<1%

Background and Analysis

As shown in Figure 1, after third- and fourth-grade students in Miamisburg School District in Ohio began using *Study Island* during the 2006–2007 school year, student achievement in reading rose on a district-calculated proficiency score that is based on scores across multiple measurements. In both the third and fourth grade, the percentage of students scoring at or above a proficient level grew the year students began using *Study Island*. Although this gain was not significant, the trend in growth is positive. In both grade levels, a higher percentage of students were proficient in reading after students used *Study Island* for one school year.

However, as demonstrated in Figure 2, the results are more robust when examining the same group of students longitudinally over time from third to fourth grade. In the 2005–2006 school year, the year prior to the introduction of *Study Island*, 84% of third-grade students were at or above proficiency in reading as determined by the state-calculated proficiency score. When students began using *Study Island* in the 2006–

2007 school year, 89% of students now in fourth grade scored at or above a proficient level in reading. This growth in achievement was statistically significant (z =1.95, $p < 0.05$). This growth of 5% was also higher than students in both the county (2%) and the surrounding region (3%) experienced, and the proficiency scores in the *Study Island* school were overall higher than in both the county and region as well.

Analysis on the results from the Ohio Achievement Test alone shows an even more pronounced growth in achievement. Prior to the introduction of *Study Island*, 81% of students scored at or above a proficient level in reading. This percentage grew significantly (z = 2.56, $p < 0.01$) to 88% after students had used *Study Island* for one year (see Figure 3).

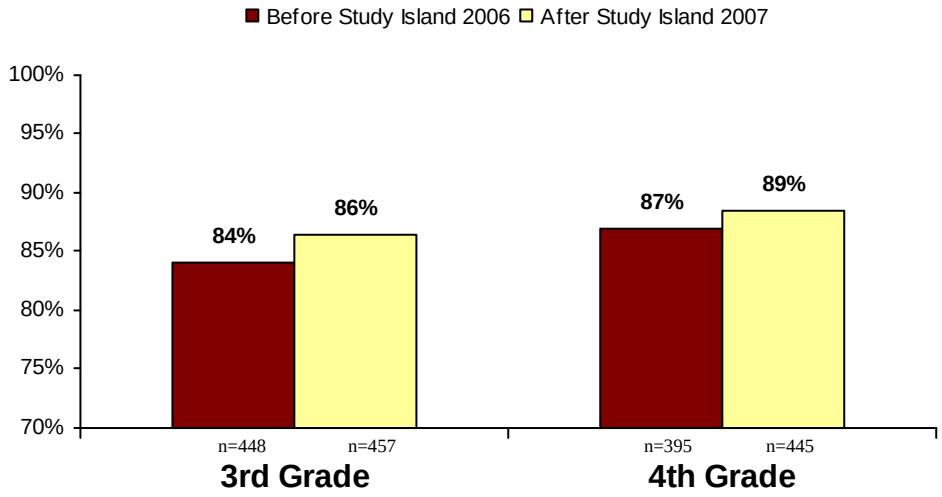

Figure 1. Percentage of third- and fourth-grade students at or above proficient performance in reading before and after using *Study Island.* Results are from a district-calculated report card score based on multiple state assessments.

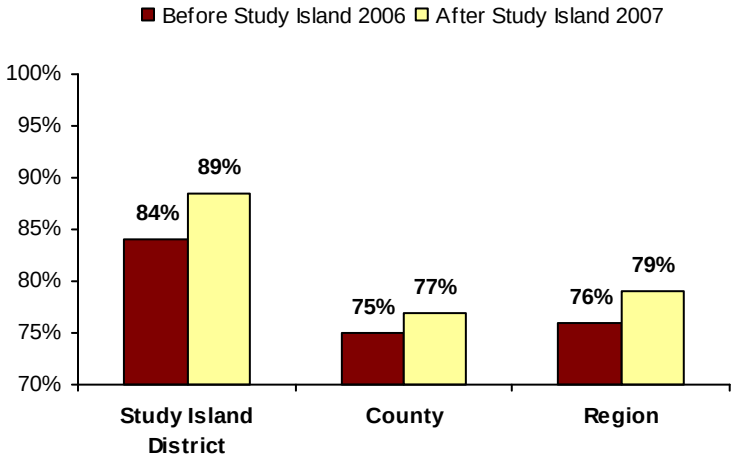

Figure 2. Percentage of students at or above proficient performance in reading before and after using *Study Island* when the same students are followed over time from third to fourth grade. *Study Island* district compared to county and region. Results are from a district-calculated report card score based on multiple state assessments.

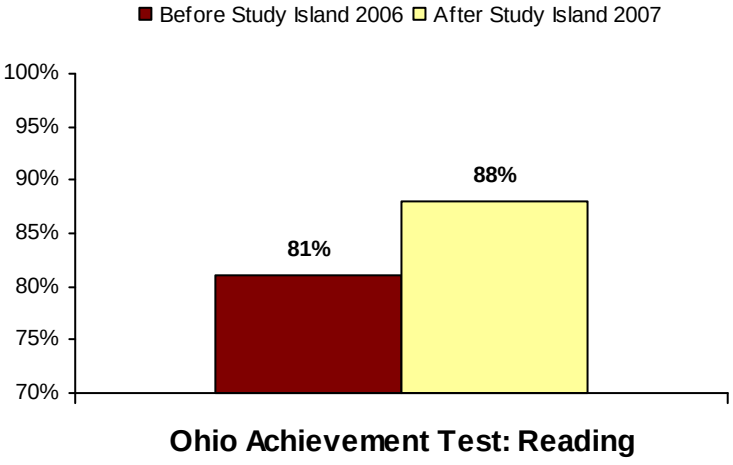

Figure 3. Percentage of students at or above proficient performance in reading on the Ohio Achievement Test before and after using *Study Island* when the same students are followed over time from third to fourth grade.

Kemp Elementary

Dayton City School District — Dayton, Ohio

Table 2.
School Characteristics and Demographics for Kemp Elementary in Dayton, Ohio

Kemp Elementary Dayton City School District, OH (Total Enrollment = 394)	
School Characteristics	**N**
Type of School	Public
Metropolitan Status	Mid-Size City
Grade Span	PK–6
Number of Teachers	24
Demographics	**Percentage**
Gender	
Male	53%
Female	48%
English Language Learner	2%
Free or Reduced Lunch	99%
Ethnicity	
White	62%
Black	28%
Hispanic	3%
Asian Pacific Islander	<1%
American Indian	No Data

Background and Analysis

This Ohio elementary school began using *Study Island* during the 2006–2007 school year to help students prepare for the Ohio Achievement Test and master grade-level standards and content objectives.

After using *Study Island* for one school year, results showed that a higher percentage of fourth- and sixth-grade students were meeting standards in math based on a district-calculated proficiency score, which takes into account performance on multiple state measures. Prior to using *Study Island*, only 33% of fourth-grade students and 34% of sixth-grade students were meeting proficiency in math. However, after students began using *Study Island*, 46% of fourth-grade students and 55% of sixth-grade students met standards in math. The gains seen in the sixth grade were approaching significance ($\chi = 1.83$, $p < 0.10$) and represented a 21% gain in math achievement (see Figure 4).

When compared to the performance of students district-wide during these same years (see Figure 5), the *Study Island* school within this district achieved higher growth in the percentage of fourth- and sixth-grade students meeting proficiency in math. Within the fourth grade at the district level, there was no growth, and

in the sixth grade, there was only 8% growth. After using *Study Island*, students in fourth grade grew significantly ($z = 2.09$, $p < 0.05$) to catch up to the district average and sixth-grade students within in the *Study Island* school significantly outperformed sixth-grade students within the district by 2007 ($z = 3.33$, $p < 0.01$).

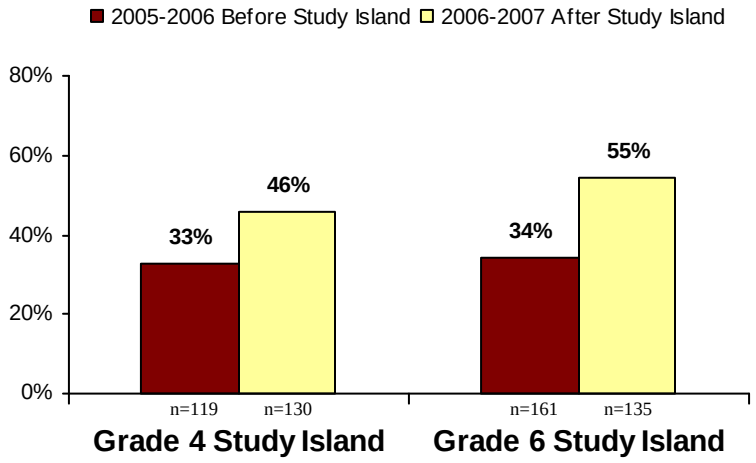

Figure 4. Percentage of fourth- and sixth-grade students meeting math standards at an Ohio Elementary school before and after using *Study Island*. Results are from a district-calculated report card score based on multiple state assessments.

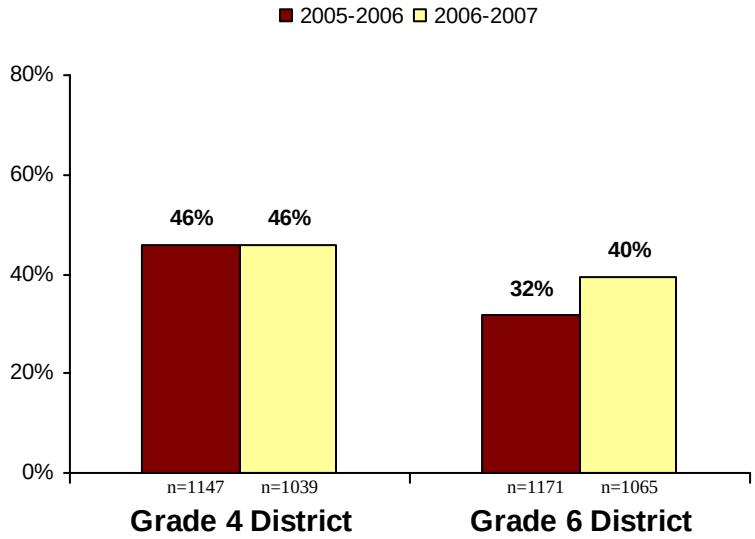

Figure 5. Percentage of fourth- and sixth-grade students meeting math standards within the Ohio school district of which the *Study Island* school is located. Results are from a district-calculated report card score based on multiple state assessments.

Neal Middle School

Matthews Local School District — Fowler, Ohio

Table 3.
School Characteristics and Demographics for Neal Middle School in Fowler, Ohio

Neal Middle School Matthews Local School District, OH (Total Enrollment = 202)	
School Characteristics	**N**
Type of School	Public
Metropolitan Status	Rural
Grade Span	6–8
Number of Teachers	15
Demographics	**Percentage**
Gender	
Male	51%
Female	50%
English Language Learner	<1%
Free or Reduced Lunch	20%
Ethnicity	
White	97%
Black	<1%
Hispanic	<1%
Asian Pacific Islander	<1%
American Indian	No Data

Background and Analysis

This Ohio middle school began using *Study Island* during the 2006–2007 school year as part of its reading program. Prior to using *Study Island*, 89% of the seventh-grade students and 86% of eighth-grade students at the school were meeting standards in reading based on a district-calculated proficiency score that takes into account performance on multiple state measures. After using *Study Island* for one school year, the percentage of seventh-grade students meeting standards increased to 92% and the percentage of eighth-grade students meeting standards increased to 91% (see Figure 6). Although these gains were not statistically significant, there were positive trends in growth.

Compared to the surrounding county and region, seventh-grade students in this school made gains in achievement resulting in a higher percentage of students meeting standards in reading after students used *Study Island* for one school year. Seventh-grade students in both the surrounding county and region lost ground, experiencing decreases in the percentage of students meeting standards in reading during this time. Students in eighth grade gained in reading achievement within the school, county, and region from 2006 to 2007, but the gains within the school implementing *Study Island* were higher (see Figures 7 and 8).

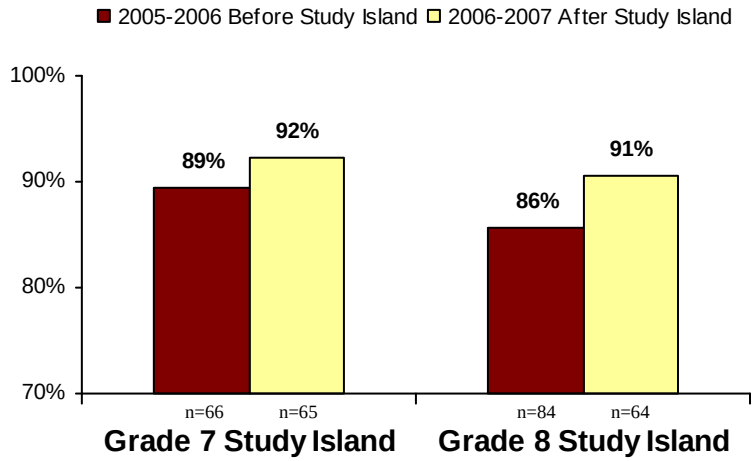

Figure 6. Percentage of seventh- and eighth-grade students meeting reading standards at an Ohio middle school before and after using *Study Island*. Results are from a district-calculated report card score based on multiple state assessments.

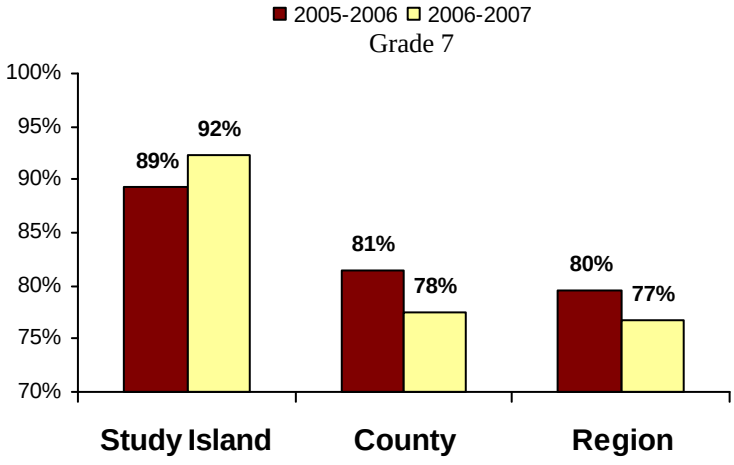

Figure 7. Percentage of seventh-grade students at a *Study Island* middle school, the county, and region meeting reading standards in Ohio. Results are from a district-calculated report card score based on multiple state assessments.

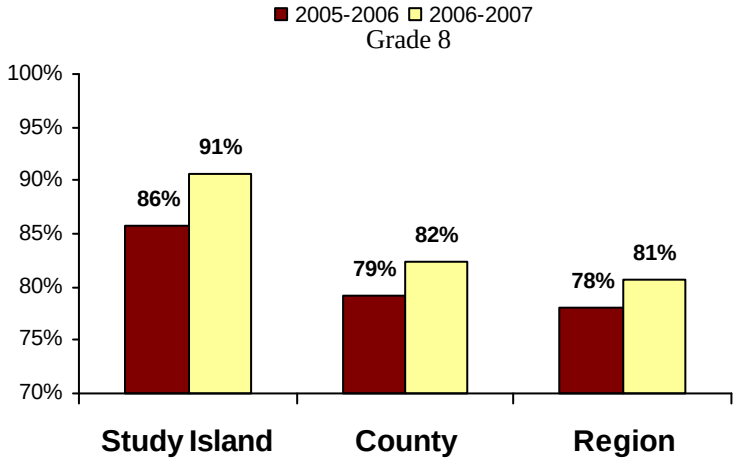

Figure 8. Percentage of eighth-grade students at a *Study Island* middle School, the county, and region meeting reading standards in Ohio. Results are from a district-calculated report card score based on multiple state assessments.