

# UBIQUITOUS COMPUTING IN K-12

## THE EFFECTS OF ONE-TO-ONE COMPUTER PROGRAMS ON STUDENT ACHIEVEMENT

Is a 1:1 student-to-computer ratio worth millions of dollars in school district spending? With one-to-one computer initiatives gaining traction in school districts across the nation, this study sought out to examine the effects of this intervention on student academic achievement on standardized assessments.

After one year of program implementation, this study analyzed the scores on the FCAT 2.0 of students at schools implementing one-to-one initiatives and students at schools implementing traditional modes of instruction. Nineteen schools from a large urban school district in Florida were used; 7 one-to-one schools (3 elementary, 3 middle, and 1 high school) and 12 randomly selected schools (6 elementary, 5 middle, 1 high school).

Statistical analyses were conducted to determine the difference in scores between students attending one-to-one schools and those attending other traditional schools. Additionally, analyses were conducted to determine student scores before and after one year of implementation of the one-to-one program. Below are the findings of this study organized by school level.

### ELEMENTARY SCHOOLS

Elementary school students who attended one-to-one schools **scored lower** on the FCAT 2.0 Reading and Mathematics than students who attended comparison schools.

#### FCAT 2.0 Reading

- Students at one-to-one schools had a mean score of **206.22**
- Students at comparison schools had a mean score of **208.32**

#### FCAT 2.0 Mathematics

- Students at one-to-one schools had a mean score of **208.86**
- Students at comparison schools had a mean score of **210.09**

### MIDDLE SCHOOLS

Middle school students who attended one-to-one schools **scored higher** on the FCAT 2.0 Reading and Mathematics than students who attended comparison schools.

#### FCAT 2.0 Reading

- Students at one-to-one schools had a mean score of **232.24**
- Students at comparison schools had a mean score of **230.51**

#### FCAT 2.0 Mathematics

- Students at one-to-one schools had a mean score of **236.31**
- Students at comparison schools had a mean score of **232.78**

### HIGH SCHOOLS

There was **no significant difference** in FCAT 2.0 Reading scores between high school students attending one-to-one schools and those attending comparison schools.

#### FCAT 2.0 Reading

- Students at one-to-one schools had a mean score of **237.41**
- Students at comparison schools had a mean score of **238.72**

### OTHER FINDINGS

- Students at all levels did not score significantly different before and after one-to-one initiative implementation
- Students on free or reduced lunch demonstrated lower learning gains than students not on free or reduced lunch

**What can be concluded from this study?** The findings of this study were limited by only one year of data limiting conclusions that can be drawn. Future research should focus on the long-term impact of one-to-one programs. Students in middle school and students from high SES households generally received the most benefit from one-to-one instruction. The factors that make middle schools ideal for one-to-one programs as well as factors affecting low-SES student computer literacy should be considered when implementing one-to-one programs.