Furthermore, the State of Illinois adopted the Common Core State Standards in 2010, with them being fully implemented in the 2013-2014 school year. These standards have taken the ideals from No Child Left Behind (NCLB) one step further with children as young as Kindergarten aged being computer literate. For example, instead of writing extended response questions, students are expected to type and compose such responses. Current assessment initiatives require school district to use online testing. The new Partnership for Assessment of Readiness for College and Careers (PARCC), which replaces the ISAT Test in the state of Illinois, will be taken online which is a vast difference between old state assessments and new state assessments. These changes are requiring school districts to provide computers and technology to their students and faculty.

The school district participating in this study adopted an initiative for 1:1 Technology to be a part of classrooms in the last few years. This past school year, the school district was able to have select classrooms pilot 1:1 Technology. Teachers at the high school, junior high, and elementary levels were chosen by district administrators to have laptops as a resource and tool for instruction and learning in the classroom. The school district is working closely with local business for this 1:1 initiative to be district-wide in the near future. Due to the State of Illinois' continued budget concerns, this is not happening as quickly as it was projected to be. Teachers who are using 1:1 Technology are at an advantage over teachers who do not have this accessibility. 1:1 Technology allows teachers to better and more quickly differentiate, to administer enrichment, and to also dive

implementation of technology into schools, elementary and secondary, to promote and encourage student academic achievement, (b) establish and develop technology initiatives in regards to access to technology, (c) assistance for acquisition of technology, which increases the amount of students who have accessibility to technology, (e) professional development initiatives for teachers and administrators, (h) supports for efforts to involve families in education and to help in communication (No Child Left Behind Act of 2001, 2002). The No Child Left Behind Act also sought to decrease the digital divide between students and to also use best practices while integrating technology with teacher training to establish research-based instructional methods.

Again in 2009, President Barack Obama signed the American Recovery and Reinvestment Act, which provided $4.35 billion for the Race to the Top Fund for education innovation and reform (Race to the Top Program Executive Summary, 2009). Spears (2012) cites Duncan (2009), the United States Secretary of Education, refers to Race to the Top as "education reform's moon shot" in a commentary describing the largest unrestricted fund for education in the history of the country. Spears (2012, p. 3) states in her work that the emphasis of Priority 2 of Race to the Top (Race to the Top Executive Summary, 2009, p. 1) is the rigorous preparation of students in science, technology, engineering, and mathematics (STEM). In 2010 the President's Council of Advisors on Science and Technology issued a report to the president. This report indicated that there is the need for urgency of preparing American students with a strong foundation in science, technology, engineering, and mathematics in order for students to transfer this knowledge in their personal and professional lives, which will then also impact the American society. Spears (2012, p. 4) states that the Council acknowledges that ICT can be a driving force for education innovation through the improvement of instructional material quality, the development of high-quality assessments that indicate student learning, and the increased use of data to provide rich feedback to students, teachers, and schools (President's Council of Advisors on Science and Technology, 2010, p. 73).

Although these past presidents were able to have legislation passed, there are still many difficulties with technology being introduced and immersed in schools (Brinkerhoff, 2006). Legislation being passed is not enough. There are so many students without accessibility, and the digital divide still exists in schools to this day. The financial constraints that the school districts and states are under make immersing technology even more difficult. The cost, infrastructure, and technology development in schools across the country is not the same. Most technology used in schools are computer labs that classes can schedule times for students use, or some schools have three to four desktop computers for classroom and teacher use in the classrooms. There are some school districts, however, that are able to provide 1:1 Technology experiences for students, but not all students have this accessibility. In some school districts, it will take many years for 1:1 Technology to be present in all classrooms.

As 1:1 Technology is a rather new phenomenon in the educational world, it needs to be introduced carefully and with consideration. Technology, being laptops or devices, should be seen as tools and

not replacements of best practices for teaching in the classroom. Another important component of 1:1 Technology is student motivation. The teacher in the classroom must understand how and why students are motivated to learn. In her study, Spears (2012) cites the work of Keller. Spears (2012,

will change the teaching practices that are used in those classrooms. Cavanaugh et al. (2011, p. 360) cite the work of Barrios (2004) and note "the primary motivation for laptop classroom technology and accompanying teacher professional development is the belief that the new learning environment will support engaged students an increases in academic achievement." Without professional development for teachers, these academic gains and increases would be nearly impossible. The Florida Department of Education funded program,

Technology was responsible for student academic achievement and motivation. The participants in this study are Fourth Grade students who attend school in Central Illinois. 1:1 Technology is a recent phenomenon in school districts across the country. As our world becomes more enriched with technology, school officials and administrators are looking for the positive impacts that technology can offer teachers and students, alike, in the classroom through meaningful and engaging teaching methods and instruction.

The participants in this quantitative study were Fourth Grade students from two different classrooms, but in the same Title 1 School, located in Central Illinois. According to the Illinois Interactive Report Card (2013), the school has a low-income rate of 84.3%, with 40.5% of the students being African-American, 15.2% Multiracial, 32.3% Caucasian, 10.2% Hispanic, 1.0% American-Indian, and 0.7% Asian.

This study examined how 1:1 Technology affects participants' academic achievement and motivation in the classroom. The study focused particularly on the Discovery Education Assessment, which is given four times a year, and also end of Topic Tests in Math to see if there are any significant differences in student scoring.

To gauge the motivational aspect of this research, monthly attendance records for each class were used. The school participating in this study splits the school day in half into Periods 1 and 2. The number of absences was determined by adding the number of absences from Periods 1 and 2 for each classroom.

In this study, Topic Tests in Math, Discovery Education Assessment (Math) results, and attendance were used to determine whether 1:1 Technology positively impacts student academic achievement and motivation in students. The Topic Tests were derived from the Pearson enVision Math series that has been adopted by the Bloomington Public School District 87. This specific Math series is Common Core State Standard aligned and teaches the language and lessons to meet these learning standards. The Topic Tests are used as summative assessments to gauge the mastery of Math skills.

The Discovery Education Assessment is an assessment that is administered via computer four times per school year. According to the Discovery Education Assessment Research, this assessment is used as a predictive benchmark assessment that provides data using state's curriculum standards and subskills for each item on the test. The Discovery Education Assessment can be used to improve instruction, help strengthen students' academic skills, and increase proficiency, as measured under No Child Left Behind and Race to the Top. These four assessments are administered throughout the school year with 9-12 weeks between each assessment. The predictive benchmark assessments are intended to predict performance on the next high-stakes test the student will take during the school year.
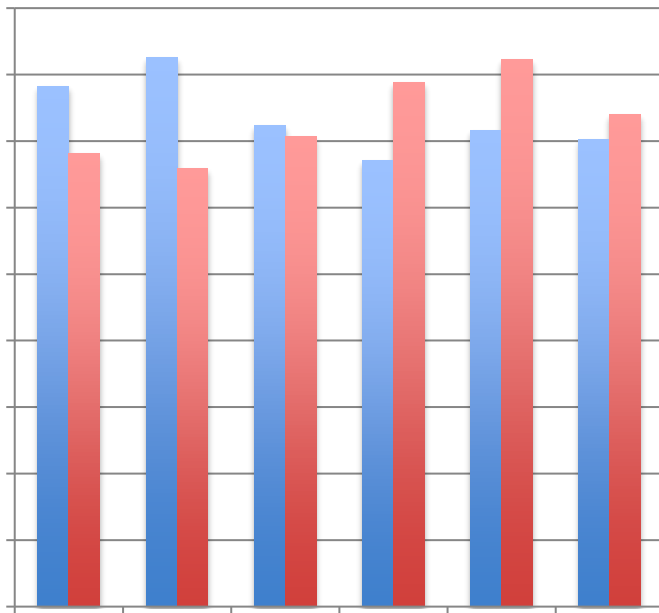
Figure 1. Comparison of Topic Tests Scores between 1:1 Implementation Classroom and the Traditional Classroom

In Table 2, students from the 1:1 Implementation Classroom scored higher on Discovery Assessment A than the Traditional Classroom, but in Discovery Assessment C, the students from the Traditional Classroom scored higher than the 1:1 Implementation Classroom.

Table 2- Comparison of Discovery Assessment scores between the 1:1 Implementation Classroom and the Traditional Classroom

Discovery Assessment A	1436.68	1418.71
Discovery Assessment B	1442.52	1437.86
Discovery Assessment C	1495.35	1506.33

Figure 2. Comparison of Discovery Assessment scores between the 1:1 Implementation Classroom and the Traditional Classroom

In Table 3, the 1:1 Implementation Classroom had about the same attendance in October and November, but in December and January, the 1:1 Implementation Classroom had fewer absences than the Traditional Classroom.

Table 3- Comparison of Number of Absences between the 1:1 Implementation Classroom and the Traditional Classroom

	August	September	October	November	December	January	February

.Tradit3.99 350.33 Tmf168.02 267.53 4.855 14.52 0 EMC q8 0.3bruary (en-US) BDC q16 TmqB267.5f BDC BT3(t)16/Lang (en-US)3 4.855 14

Figure 3. Comparison of Attendance Records between the 1:1 Implementation Classroom and the Traditional Classroom

As noted in the Results section of this study, 1:1 Implementation refers to the technological movement of every child in the classroom, school, school district, etc., having a laptop, or device, in the classroom to manipulate and learn with as a tool. The 1:1 Implementation Classroom was in its first year of implementation for the educator and also for the students participating in this study. This specific Fourth Grade classroom is one of two Fourth Grade classrooms used for Bloomington Public School District 87's technology pilot program.

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In regards to the results from Table 1 and Figure 1, Topic 3 Test was the first test administered by

to work on

an educator standpoint, professional development and teamwork must be on going

Johnson, D. & Maddux, C. (2003). Technology in education: A twenty-year retrospective. 1/2), 1-186.

Keller, J. (1987). Strategies for stimulating the motivation to learn. (8), 1-7.

No Child Left Behind Act of 2001, P.L. 107-110. (2002). Retrieved on 22 February 2016 from http://www2ed.gov/policy/elsec/leg/esea02/index.html

President's Council of Advisors on Science and Technology. (2010). Report to the president. Prepare and inspire: K-12 education in science, technology, engineering, and math (STEM) for America's future. Retrieved on 22 February 2016 from http://www.whitehouse.gov/ sites/default/files/microsites/ostp/pcast-stemed-report.pdf

Race to the Top Program Executive Summary. (2009). Retrieved on 22 February 2016 from http://www2ed.gov/programs/racetothetop/executive-summary.pdf

Sansone, C., Fraughton, T., Zachary, J.L., Butner, J., & Heiner C. (2011). Self-regulation of motivation when learning online: The importance of who, why, and how. (2), 199-212.

Shapley, K., Sheehan, D., Maloney, C., & Caranikas-Walker, F. (2011). Effects of technology immersion of middle school students' learning opportunities and achievement. (5), 299-315.

Spears, S. A. (2012). Technology-enhanced learning: The effects of 1:1 technology on student performance and motivation (Doctoral thesis). University of West Florida.

United States Department of Education. (2002).   Retrieved on 22 February 2016 from http://www2.ed.gov/policy/elsec/leg/esea02/index.html

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