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One-to-One Computers in the Classroom: One Size Fits All?

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Research Question:

How can one-to-one computing implementation provide learning experiences, equity and autonomy for students from low-income homes?

> ***One-to-one computing*** is "applied to programs that provide all students in a school, district, or state with their own laptop…One-to-one refers to one computer for every student" (Glossary of Education Reform, 2013, para. 1).

Literature Review:

- When students are given choice, control and see what they are doing as applicable to the real world, they are more likely to become authentically engaged (Donovan, Green & Hartley, 2010; Spektor-Levy & Granot-Gilat, 2012; Suhr Hernandez, Grimes & Warschauer, 2010).
- Students enjoy communicating more through experiences with laptops, and the real life applicable skills that they can develop in the process (Bebell, Clarkson & Burraston, 2014; Prettyman, Ward, Jauk & Awad, 2012; Storz & Hoffman, 2013; Tallvid, Lundin, Svensson & Lindstrom, 2015).
- At-risk students used their laptops more than their non-at-risk peers. They spent more time using their computers to write and edit, gain information online and communicate with others (Warschauer, Zheng, Niiya, Cotton & Farkas, 2014; Zheng, Warschauer & Farkas, 2013; Zheng, Warschauer, Hwang & Collins, 2014).

Methodology:

- Conducted over a four-month student teaching experience with twenty-six fifth grade students.
- Study focused on mathematics, science, social studies, writing, reading and Genius Hour (time for individual student research).
- Implemented Moodle, StoryBird, word processing documents, academic computer games/activities and student-led online research.
- Field notes, lesson plans, student questionnaires and student work were analyzed in a mixed triangulation method.
- Data was analyzed based on categorical trends, repetitions, missing data and similarities and differences (Ryan & Bernard, 2003).

Results and Data Analysis:

- Autonomy and engagement increased through lessons that had real life skills and connections.
- Differentiation of the learning process naturally occurred through the implementation of laptops, but also needed to be planned to be effective.
- Larger learning gains (figure 1) and enjoyment out of lessons occurred through students' equity. However, students still naturally chose paper and pencil over laptops when given an option.
- Limitations included the length of time allotted for the study, lack of sufficient student surveys and data collected with the same class when one-to-one computers were not yet implemented.

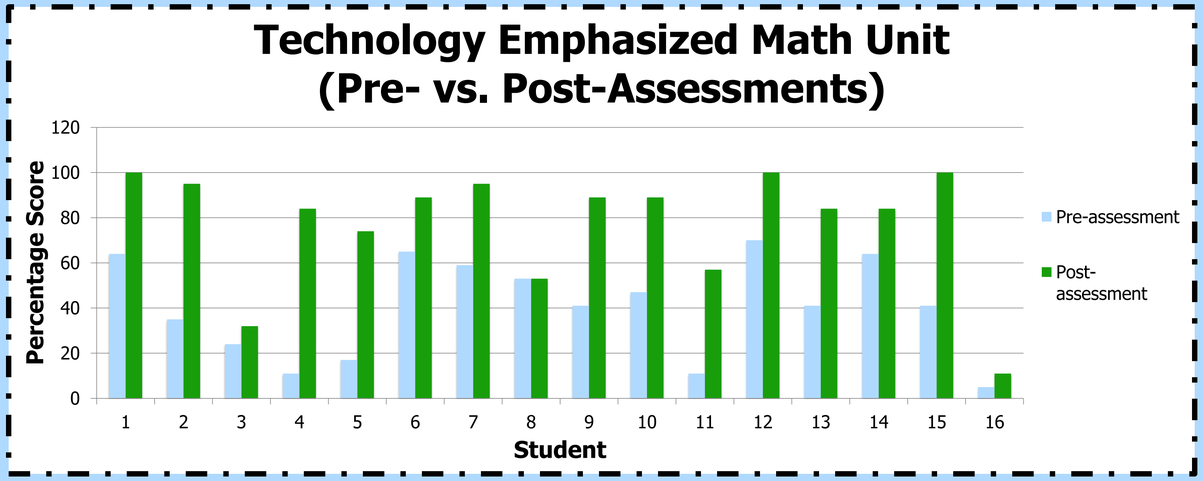

Figure 1: All students exhibited learning gains between pre- and post-assessments. Scores increased by an average of 47.11%.

Conclusion:

- One-to-one computing implementation does provide learning experiences, equity and autonomy for students from low-income homes through real life connections, differentiation and student-centered activities.
- Equity is important for all students because of the positive effects it has on learning, autonomy and engagement.
- Future research should lengthen the time of the study, expand the focus to more than one classroom and gather more data before implementing one-to-one computers for comparison.