By Jonathan A. Bower

Peer Learning is Better than 1:1 Computing

Since the advent of computer-assisted instruction on mainframe computers, educators have assumed that learners should use computers on their own. More recently, hardware vendors have certainly encouraged the notion that schools need one device for every student. Software developers have simplified their lives by assuming that their programs will be used by one person at a time. Yet, research shows that just as they do in classroom settings, learners learn faster and more easily when they work together at least some of the time. For this reason, Flink Learning offers its **Team** programs which encourage learners to work together, and with adults, increasing both engagement and outcomes.

Why is peer learning more effective? Because at their core, human beings are social learners. In a meta-analysis of studies investigating instructional practices that enhanced motivation for, and engagement in, reading, Guthrie and Humenick identified four instructional practices with significant effect sizes including "opportunities to collaborate with other students in discussion and assignment groups to achieve their learning goals.[1]" During its research phase from 2000 until 2010, The Writers Express found that students improved their writing faster in response to peer feedback along with teacher feedback than from teacher feedback alone[2]. The National Mathematics Advisory Panel sites 31 studies in its 2008 report indicating that various forms of peer learning accelerate the learning of mathematics, eight of which studied peer learning with computer software.[3] The computer science department of Brandeis University created a web-based computer program for skills development (mathematics, geography, and spelling) and found that when they applied a scoring algorithm that rewarded students for the improvement of their peers, the entire group learned significantly faster together.[4]

Aren't computer-based learning programs effective when used 1:1? Not really. Computer-assisted instruction is one of the interventions studied by researcher John Hattie[5] who found that:

- Normal mental development and exposure to a teacher for a year generates an average learning gain of 0.37[6], and
- The use of computer-assisted instruction also shows a gain of exactly 0.37 per year. Students who use algorithmically-controlled software 1:1 see no benefit over students who don't!

How does peer learning with software actually work? Flink's eBook activities provide an excellent example. Learners work in pairs with one reading out loud and the other listening and correcting/ assisting their peer when they make a mistake or get stuck. The reader gets a fluency score based on how quickly they finished the book. Both learners work together to answer a set of comprehension questions, some of which require an analytical conversation between the learners to answer. In this fashion, readers can take on more complex text as requested by the Common Core state standards, gain fluency without the presence of an adult to guide them, and learn from the type of analytical conversation shown to maximize engagement in reading by Guthrie and Humenick.

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1 Motivating students to read: Evidence for classroom practices that increase reading motivation and achievement. JT Guthrie, NM Humenick, *The voice of evidence in reading research*, 2004

2 Deborah Reck, former CEO of the Writers' Express & CAO Language Arts for Amplify Learning

3 National Mathematics Advisory Panel. *Foundations for Success: The Final Report of the National Mathematics Advisory Panel*, U.S. Department of Education: Washington, DC, 2008

4 Unpublished, Jordan Pollack, 2007

5 http://visible-learning.org/2016/04/hattie-ranking-backup-of-138-effects/

6 That is, an effect size of 0.37 from the school experience over one year. Effect sizes of various interventions ranged from -0.3 to 1.44.

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