

2009 NCTI *Technology in the Works* Abstract: Developing Number Sense

Can the use of software that integrates the use of developmentally appropriate accessibility options with differentiated instructional settings for individual learning increase student development of number sense?

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Cambium Learning Technologies, in collaboration with assistive technologists EdTech Solutions and Dr. Russell Maguire at Simmons College, designed an experimental research study to demonstrate the effectiveness of *Stages Math: Number Sense* software with six K-2 classrooms. The make up of these classes will not be determined until June but historically are inclusive of students with a range of abilities and disabilities including, but not limited to, English language learners and students with behavioral and other learning challenges. Two classes of students in kindergarten, first and second grades will be pre-tested to determine areas in need of instruction within the eight content areas identified by the *Stages Math: Number Sense* software. Instruction will follow, paired with using the software. Once students have successfully completed the specific area of instruction a posttest, similar to the pretest, will be administered.

Stages Math: Number Sense software offers a comprehensive set of accessible activities that give a K-2 learner unlimited practice in eight key areas of number sense. Settings are pre-programmed for adaptive access devices. When an access device is properly installed and selected in software settings, accessibility is automatic. Research about differentiated instruction and universal design for learning greatly informed the instructional design of the software, resulting in a range of customizable features to scaffold content practice.

Pretest-posttest data will be analyzed to determine: 1) the efficacy of the software as an instructional tool and 2) the effectiveness of the differentiated instructional settings for individual learning.