

RESEARCH CONNECTION

The good and the bad in iPad instruction

By Marion Terry, Ph.D., & Louise Loewen, M.Ed., B.A.



Why this research is important

The iPad phenomenon has taken North American educators by storm since Apple released the product in 2010. This research explores the efficacy of the iPad as an instructional tool in middle school classrooms. In particular, the researchers wanted to find out whether incorporating iPad technology would enhance student engagement and strengthen the literacy and numeracy skills of at-risk learners.

How the research was conducted

The two-phase action research project occurred in an alternative school in northern Manitoba, with funding from Brandon University's VOICE SSHRC-CURA grant. In each

What you need to know

Using remedial iPad apps improves student performance in language arts and math skills, but at the expense of student engagement. Using project-based iPad instruction enhances student engagement and it also improves student performance in language arts and math, but to a lesser degree than remedial iPad apps.

phase, the researchers selected 21 grade 5-8 students on the basis of low performance in English language arts (ELA) and math. The students in phase 1 spent 270 minutes per week using remedial iPad language arts and math apps over a period of six weeks. The students in phase 2 spent 210 minutes per week using iPads in projects designed to enrich their regular classroom instruction over a period of 9 months.

Student engagement was assessed by means of the following data:

- quantitative records of attendance and discipline referrals to the office, and
- qualitative anecdotal feedback from staff meeting minutes and instructor feedback sheets.

The students' literacy and numeracy skills were assessed by means of the following quantitative records:

- ELA and
- math test scores.

What the researchers found

Phase 1

Student engagement. There were no significant changes in the students' attendance and discipline referrals between the months prior to the iPad sessions and the six weeks during the iPad sessions. However, anecdotal feedback from the teachers revealed that most of the students did not appear to enjoy spending 90 minutes a day, three days a week, on remedial ELA and math apps.

Literacy and numeracy skills. There were significant increases in the students' ELA and math test scores. In ELA, 12 students (57%) showed improvement: six by a full grade level and three by two full grade levels. In math, 14 students (67%) showed improvement: four by a full grade level and seven by two full grade levels. Moreover, the progress made by the phase 1 students was much higher than the progress made by their classmates who did not experience the iPad remediation.

Phase 2

Student engagement. There were no significant changes in the students' attendance and discipline referrals between the year prior to the research and the year during the research. Anecdotal feedback from the teachers revealed that the students appeared to enjoy the iPad projects, but the 65-minute sessions, three times a week, were still too long. An unexpected benefit was the mixing of students of various ages and grade levels from different classrooms, enhancing student collaboration and interpersonal connections.

Literacy and numeracy skills. There were increases in the students' ELA and math marks. In ELA, six students (29%) improved by a full grade level. In math, two students (10%) improved by a full grade level. Therefore, phase 2's gains in school engagement were offset by less spectacular gains in literacy and numeracy skills (as compared to phase 1's results).

How this research can be used

iPad remedial apps can be effective in raising student math and ELA scores. However, regardless of whether iPads are used for direct instruction or indirect instruction, in terms of project-

based activities to maximise student enjoyment, the research indicates that the time period should be kept to less than an hour for students in grades 5-8.

About the researchers

Marion Terry is a Professor in Brandon University's Faculty of Education. Dr. Terry was the "university researcher" assigned to this VOICE research project. terry@brandonu.ca

Louise Loewen is the Assistant Principal of Mary Duncan School in The Pas, Manitoba. lloewen@ksd.mb.ca

Keywords

instructional technology; youth at risk; student engagement; English language arts; mathematics

External publications based on the research

Loewen, L., Manych, T, & Terry, M. (2015-16). Mobile technology and the at-risk learner: iPad learning project. *The MERN Journal*, 12, 66-74. Retrieved from <http://www.mern.ca/journal/Journal-V12.pdf>

Loewen, L., & Terry, M. (2015, Winter). iPad learning project in a northern Manitoba school. *CAP Journal: The Canadian Resource for School Based Leadership*, 14-17. Retrieved from http://marketzone.ca/ebooks/CAP/2015/CAP_T0115_EMAG/

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This research project has been approved by the Brandon University Research Ethics Committee.

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