Tablets instead of paper-based tests for young children? Comparability between paper and tablet versions of the mathematical Heidelberger Rechen Test 1-4

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## Sample

1155 students from 50 schools in Sweden.

## Implications For Educators About

## Implications For Policy Makers About

Other

## Other PolicyMaker Implication

Tablets as an assessing tool for measurng students’ skills

## Implications For Stakeholders About

# Abstract

Tablets can be used to facilitate systematic testing of academic skills. Yet, when using validated paper tests on tablet, comparability between the mediums must be established. Comparability between a tablet and a paper version of a basic math skills test (HRT: Heidelberger Rechen Test 1–4) was investigated. Five samples with second and third grade students participated. The associations between the tablet and paper version of HRT showed that these modes of administration were comparable for three arithmetic scales, but unacceptable for a pictorial counting scale. Scores were lower on tablet. Test-retest reliability for arithmetic scales on tablet was satisfactory, but was inferior for a low-performing sample. The overall convergent validity was satisfactory. No effect of test administrator was found. Arithmetic scales can potentially be transferred to tablet with good comparability and maintained test-retest reliability. Precautions are necessary when transferring pictorial scales into tablet. Separate norms for tablet are needed when interpreting scores.

# Outcome

"Results suggest that arithmetic measures work equally well on tablet, but that pictorial items, or likewise, need special attention and more iterations for optimal adaption to tablet format. Separate norms - as supplied here for the Swedish population - are needed for tablet since students’ scores are lower on tablet than on paper. The study also conveys that repeated testing on tablet does not yield consistent evidence for higher performance. Type of test administrator does not influence reliability on tablet-based tests.... [T]ablet...is potentially more efficient and convenient than traditional paper or computer-based testing, especially among younger students where motor skill requirements can be an obstacle when testing on computers." (Authors, 208)