Can children’s instructional gameplay activity be used as a diagnostic indicator of reading difficulties?


Forskningsemne: Serious games, reading difficulties, reading instruction, reading diagnostics

Teoretisk rammeverk

Early detection of reading difficulties remains a challenge for both researchers and practitioners. While early markers of risk exist, for example difficulties with phonological awareness and letter knowledge, diagnostic tools measuring these skills can still result in over or under-detection of persistent reading difficulties.

An alternative, more dynamic model of reading difficulty detection could lie in tracking and modelling difficulties via a child’s direct response to early reading instruction. The increasing availability of digital instruction programmes offer new opportunities to test this possibility.

Metodologi/forskingsdesign

In this study, game-log data is analysed from 137 first grade children who used the early literacy software, Graphogame. Children played the game in class four days a week over a 25 week period. The group were part of the larger On Track project which had identified a proportion of the children as having a risk of reading difficulties at school entry. The group also included children who were exposed to non-Scandinavian languages at home. Children’s progress through the adaptive game was quantified in terms of the number of trials completed, as well as the level of phonic complexity reached, as captured every fifth week during the period of play. Data was analysed using growth curve modelling.

Forventet konklusjoner/funn

Preliminary findings with quadratic growth curves suggest that the level of phonic complexity children reached across the 5 time intervals time was not predicted by a child’s gender or home language status, but was predicted by initial reading difficulty risk status: children with a greater a risk for reading difficulties at school entry were less likely to reach the more complex levels of the game. 15 weeks into game play; this group of children were also spending less time actively engaged in game play.

Relevans for forskningsfeltet

These findings demonstrate the potential of serious game data to help in both identification of reading difficulty risk, as well as the differentiation between distinct learning profiles e.g. children at risk of persisting reading difficulty versus second language learners. Further exploration of the game data aims to look more closely at complex interaction between the characteristics of an individual learner and the game’s own interface and workings; it is hoped this will enable greater understanding of the relationship between learning risk and learning progress.