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Brief

An insight into five-year-old children's number sense in early childhood education using digital tasks

Gunnhild Saksvik-Raanes*, Trygve Solstad & Yvonne Grimeland
NTNU Norwegian University of Science and Technology, Norway

***Contact corresponding author:** Gunnhild Saksvik-Raanes, e-mail: gunnhild.b.saksvik@ntnu.no

Children's early mathematical experiences are essential for their further development. Yet limited means for describing young children's number sense has led to a need for a broader knowledge about children's number experiences. In this study, we leveraged the efficiency and motivation afforded by digital tasks to provide the full distribution of the number sense of children in five different early childhood education institutions. 77 five-year-olds from the municipality of Trøndelag in Norway carried out a digital assessment of their number sense corresponding to the curriculum for the first two years of primary school in Norway.

Quantitative Rasch analyses showed that the variability in number sense was large, and that, as a group, the children had a highly developed number sense that far surpassed what is described in the Norwegian curriculum for early childhood education. While a few children demonstrated mastery of numbers and quantities only up to five, most were familiar with numbers and quantities up to ten, and a few children solved tasks with symbolic two-digit addition and subtraction. Qualitative observations indicated that the children's solution strategies depended on their previous experiences with numbers as well as the digital resources that were available in the tasks. We argue that the latest developments in digital technology can provide more knowledge about children's number sense and facilitate possibilities for all children, regardless of their current mathematical proficiency, to be met with engaging and meaningful mathematical activities in early childhood education.

Keywords: *assessment; FoNS; Rasch analysis; number sense*

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