The Impact of Different Personalisation Algorithms on Literacy and Numeracy in Kenyan Pre-primary Education: A Comparative Study of Summative and Formative Assessments Results

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The EIDU DPL platform runs on low-cost Android devices. Learning units align with the Kenyan curriculum in domains (numeracy and literacy) and strands (e.g., classification).

Engagement partition went through learning units faster) and improve the summative assessment, but may affect learning pathways algorithms on specific learning content.

the pre-test sample consisted of 5,884 learners from 1,177 classes.

In total, 1,571 learners participated across all three partitions: 2,089 Engagement, 2,117 Score, and 2,165 expert-curated.

Different sequencing impacted learning outcomes in different ways depending on the learning strand - Table 2 outlines this variation according to learning strands (e.g., classification, literacy, etc.) in Table 2, Eq. Engagement.

This work contributes to a deeper understanding of how low-cost DPL benefits literacy and numeracy learning for pre-primary learners in LMCs. The findings highlight the varied effects of different content sequencing algorithms on specific learning content. Personalisation had no impact on the summative assessment, but may affect learning pathways (e.g., Engagement partition went through learning units faster) and improve certain content learning.

Future research should focus on investigating and identifying algorithms that are more beneficial for pre-primary learners in LMCs, taking into account the specific subject matter. Further investigation is needed to pinpoint the exact effects of content sequencing algorithms, by comparing different LSTM-based algorithm designs.

REFERENCES


