

# How ViLLE – learning platform can be used to learn mathematics with Finnish 4th graders

EXECUTIVE SUMMARY

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## Problem and context

Teaching complex mathematical concepts like decimal numbers to young learners is challenging. Traditional methods often fail to address the diverse learning paces and styles in a classroom. The Finnish education system emphasises inclusion, meaning all students, regardless of their needs, learn together. This requires teaching methods that can cater to individual needs effectively.

## Implementation (the story)

The study used ViLLE, a research-based learning management system developed by the University of Turku, to teach mathematics to 4th graders. ViLLE provides detailed feedback and learning analytics, helping teachers understand students' progress and challenges.

### 1. Class setup

- **Participants.** A typical Finnish 4th-grade class of 20 students, aged 10-11.
- **Frequency.** Used ViLLE once a week for mathematics, during lessons or as homework.
- **Content.** Focused on curriculum-related content for 4th-grade mathematics, especially decimal numbers.

### 2. Data collection and use

- **Data.** Collected automatically, including progress, accuracy, time spent, and task interaction.
- **Feedback.** Provided real-time feedback to students and teachers.
- **Customisation.** Teachers could adjust tasks based on individual student needs, providing simpler or more challenging tasks as required.

### 3. Monitoring and support

- **Real-time Monitoring.** Teachers used data to monitor progress and identify students needing support.
- **Interventions.** Immediate actions were taken, such as assigning simpler tasks or providing one-on-one guidance.

## Lessons learned

1. **Effective Use of Data.** ViLLE's analytics helped teachers tailor instruction to individual needs, making learning more inclusive and effective.
2. **Real-time Feedback.** Immediate feedback motivated students and helped them understand their progress.
3. **Customisation.** The ability to customise tasks ensured that all students could work at an appropriate level, enhancing their understanding of mathematical concepts.
4. **Teacher Training.** Proper training for teachers is essential to maximise the benefits of ViLLE.
5. **Engagement.** Gamified elements like rewards (bronze, silver, gold trophies) kept students engaged and motivated.

This study highlights the potential of ViLLE to transform mathematics education by providing detailed insights into student learning, enabling personalised instruction and fostering a more inclusive learning environment.



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