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An explorative study of identifying and teaching the starting-point core mathematics knowledge in primary education

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BACKGROUND

- It often happens that teachers only pay attention to individual chapters without thinking of the whole picture of the related content arranged spirally in different grades.
- In In this study, we call knowledge that are located at the starting point and served as the basis for all the related topics as *starting-point core knowledge*.

This school-based explorative study is designed to support Chinese primary school mathematics teachers cross grades identify the starting-point core knowledge of particular mathematics contents and pay special attention to plan and teach it.

RESEARCH QUESTION

1 What is the **starting-point core knowledge**

2 How to **teach** such starting-point core knowledge ?

METHOD

Participants: A school-based learning community led by an expert teacher

Process: Textbook analysis and mapping out all the related topics in different grades

Describing common misconceptions and errors students cross grades have

Identifying the starting-point core knowledge

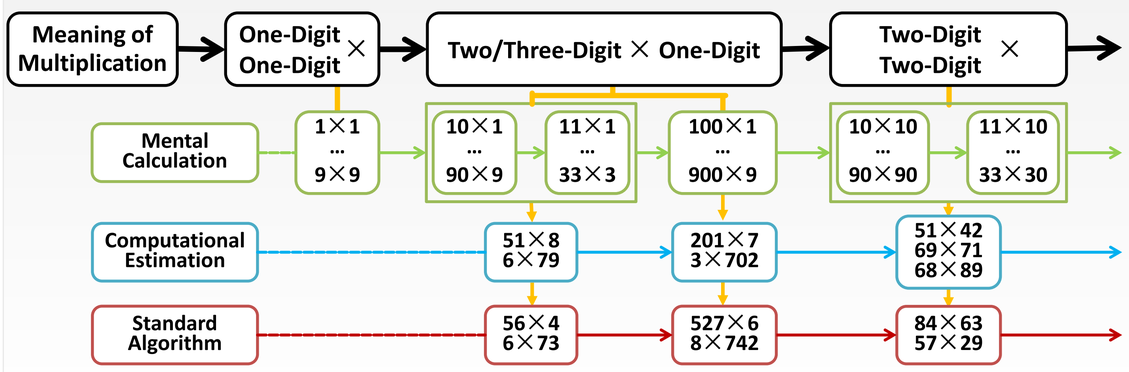
Designing a detailed teaching plan

Implementing in classes in each school to improve the teaching plan several times

RESULTS

Taking the whole number multiplication as an example

Identifying tarting-point core knowledge



Teaching plan of meaning of multiplication

- Starting with multiplication problem with numbers beyond one-digit, 10×3 instead of 2×3
- Introducing the array model earlier
- Pay more attention to the communicative property and students' representations

CONCLUSION

- Identifying and teaching the starting-point core knowledge with the consideration of the overview of all the related knowledge in primary education may significantly reform teachers' instruction.
- A school-based learning community led by expert teachers and including teachers in different grades is very helpful to improve teachers' daily teaching practice.

Reference:

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