



Didactic Transposition for Sustainable Lesson Planning: Developing Meaningful Mathematics Learning in Teaching Practicum

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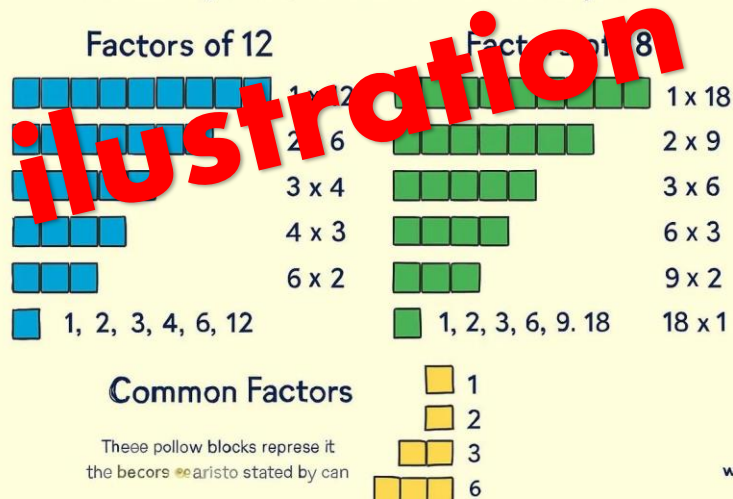
Background and Research Problem

- Teaching practicum provides opportunities for student teachers to translate mathematical knowledge into classroom instruction.
- Lesson planning may emphasize procedural sequences rather than conceptual meaning.
- Students may learn how to calculate the GCF without understanding what the GCF represents.
- **Key problem: Procedural fluency does not necessarily guarantee conceptual understanding.**

An Illustration of the Learning Problem

Understanding Factors and Common Factors with

This image shows how numbers can be broken down into their factors using blocks, and then find the factors they share.



Understand
number

Understand
Number
Factors

Understand
how to find
GCF

IDEAL Condition.

Students understand the meaning.

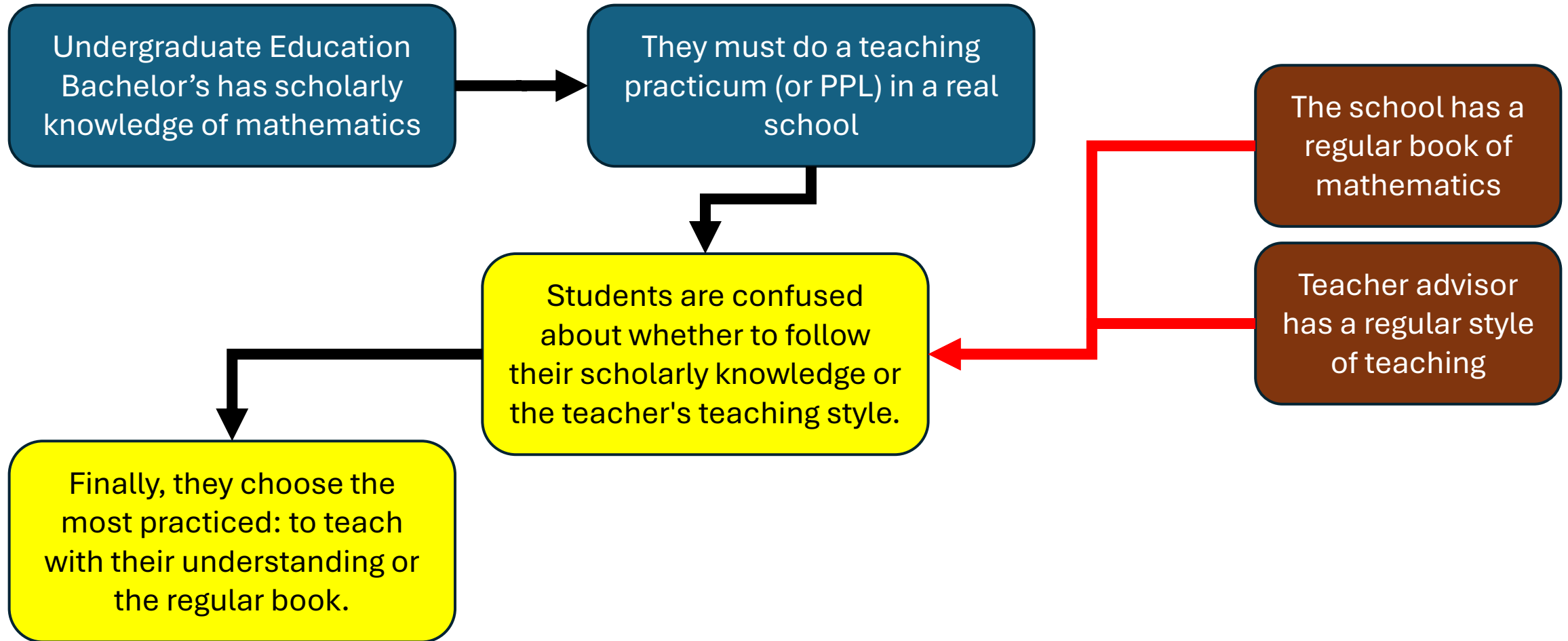
GAP. The student was able to find the GCF but didn't understand what it is or why we need it.

Key Finding Learning Problem

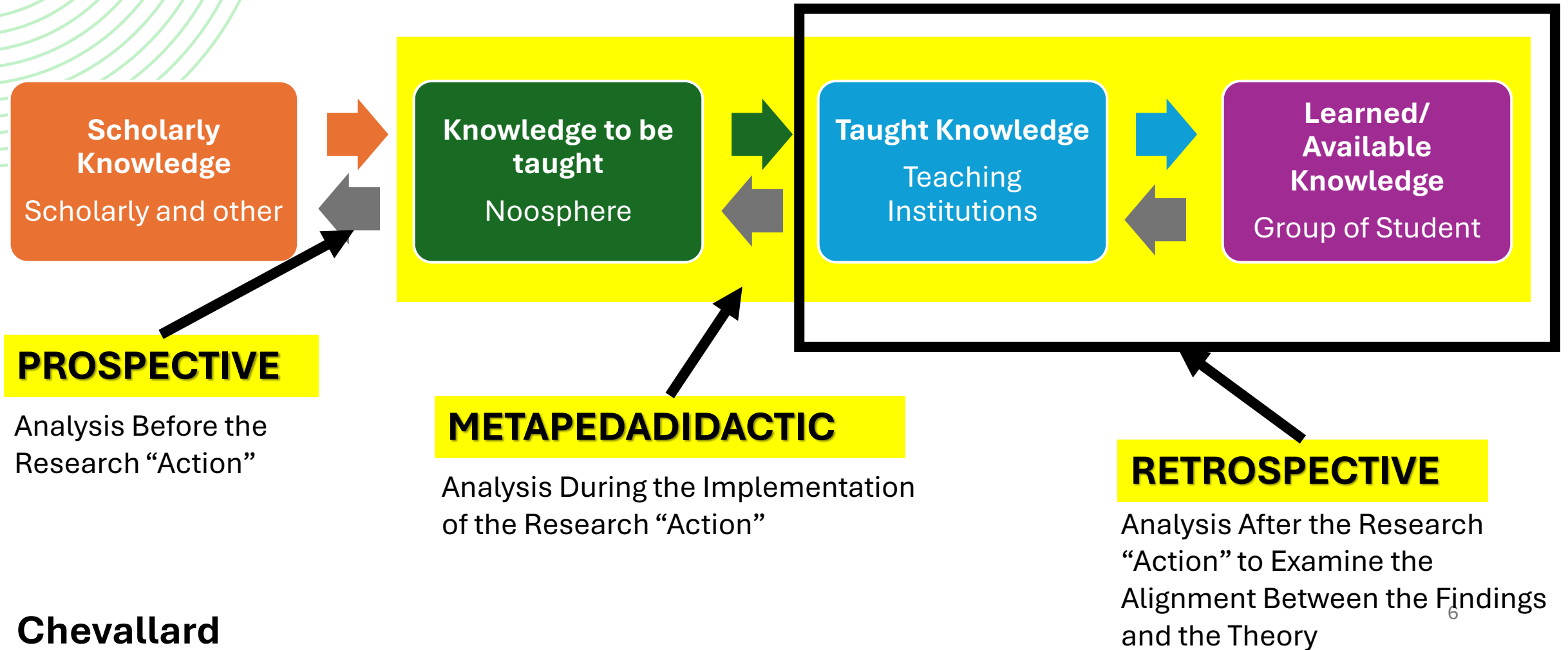
- The student teacher used a structured sequence: factors → number factors → prime factorization → GCF.
- The lesson emphasized the correct execution of mathematical procedures.
- Conceptual meaning was not sufficiently foregrounded in the observed instruction.
- Microteaching-based lesson preparation offers an opportunity to improve the transformation of mathematical knowledge into meaningful learning experiences.

Key finding: A logically ordered lesson does not automatically produce conceptually meaningful learning.

Theoretical Framework: Didactic Transposition

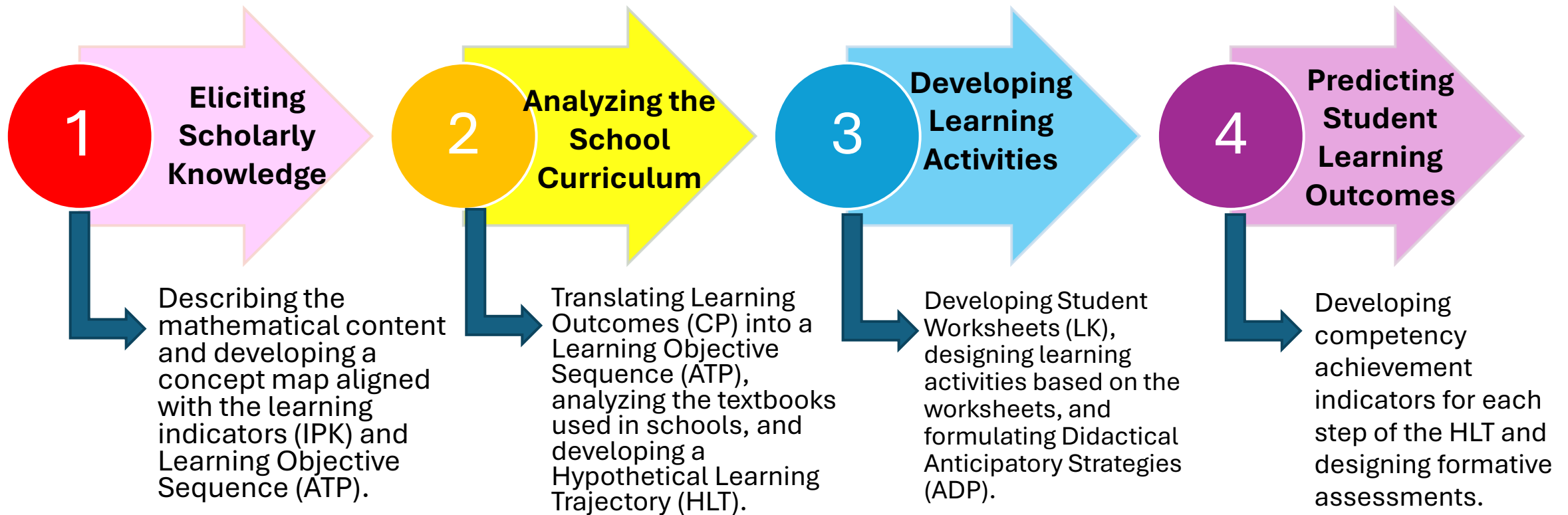


Scope of Discussion: Didactic Transposition

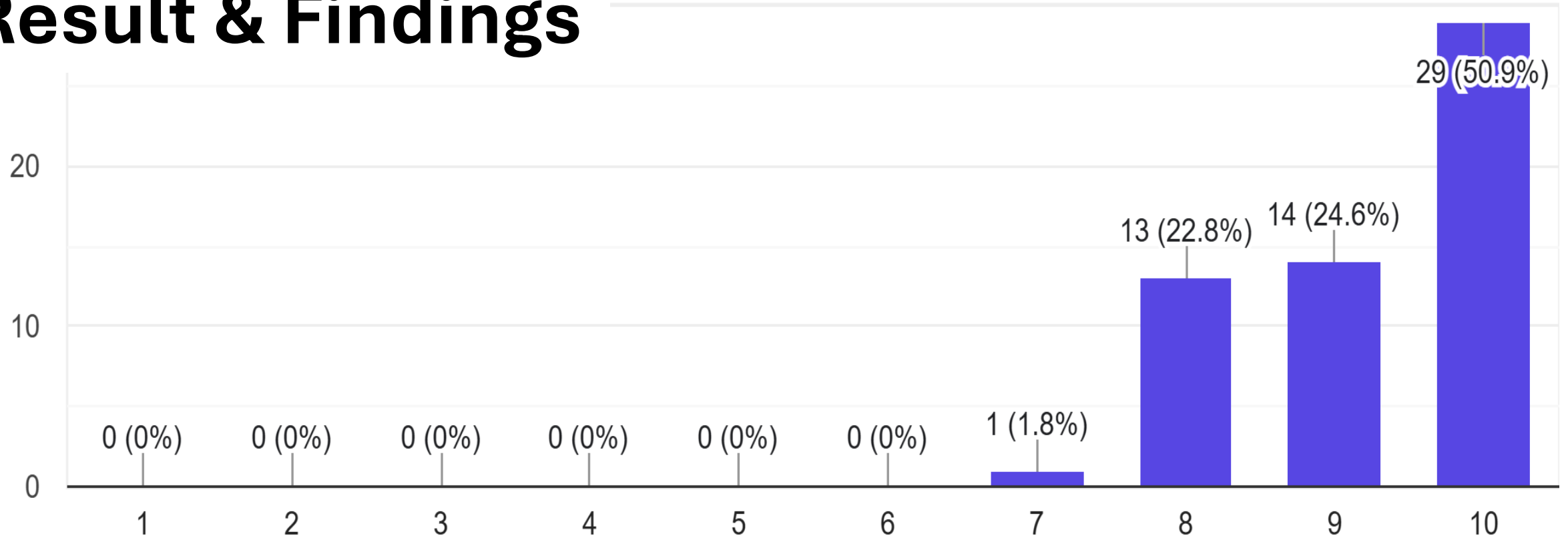


Implementation on Micro Teaching

There are four stages of microteaching that students must go through to be able to design mathematics lessons for schools, namely:



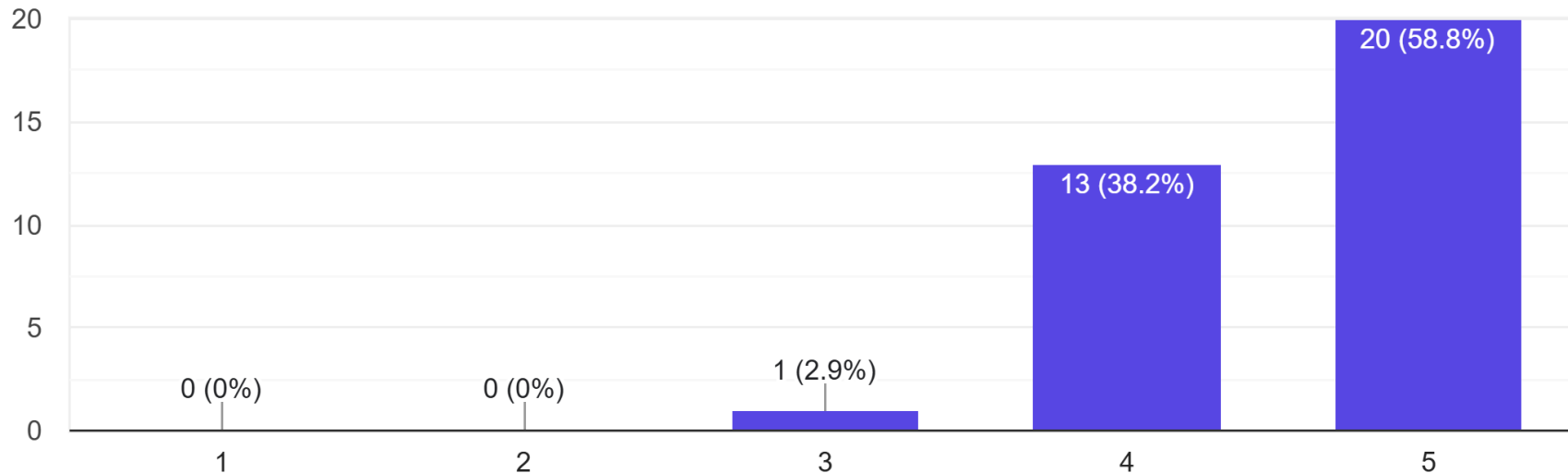
Result & Findings



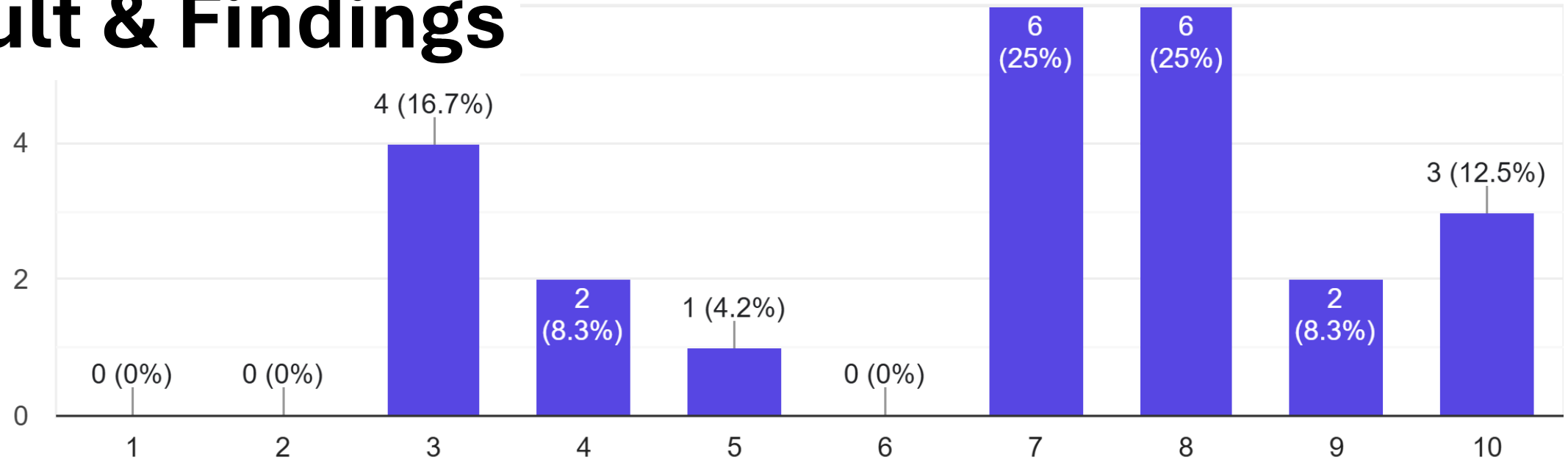
We can see that almost all respondents found the four stages helpful in designing their lesson plans.

Result & Findings

When translating Learning Outcomes (CP) into a Learning Objective Sequence (ATP), you begin by identifying the scientific knowledge, documenting problems found in students' textbooks, and analyzing the curriculum. **To what extent did these activities help you translate CP into ATP during this course?**



Result & Findings



Before this didactic transposition, practice was implemented, and students designed their lesson plans primarily based on school mathematics textbooks. **However, following its implementation, the range of activities in microteaching expanded considerably.**

Result & Findings

Please explain the aspects in which you felt **NOT SUPPORTED** when designing lessons.

- **Assessment and Evaluation Design:** Difficulties in developing formative assessments, evaluating learning outcomes, and creating Student Worksheets (LKPD).
- **Guidance and Specific Examples:** Lack of subject-specific examples of lesson planning, limited guidance on selecting teaching methods, and insufficient feedback due to limited lecture time and online presentations.
- **Content and Learning Media Development:** Challenges in incorporating contextual elements into mathematical content, developing students' conceptual understanding creatively, designing interactive learning media, and adapting instructional methods to different school levels.

