

# The Nature and Scope of Student Reflective Engagement in Case-based Instruction: A Qualitative Analysis of Post-case Reflections

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## Introduction

- Case-based instruction at the UA College of Medicine uses a structured approach to medical problem-solving integrating scientific method with clinical reasoning and encouraging students' reflective engagement before, during and following the resolution of each case.

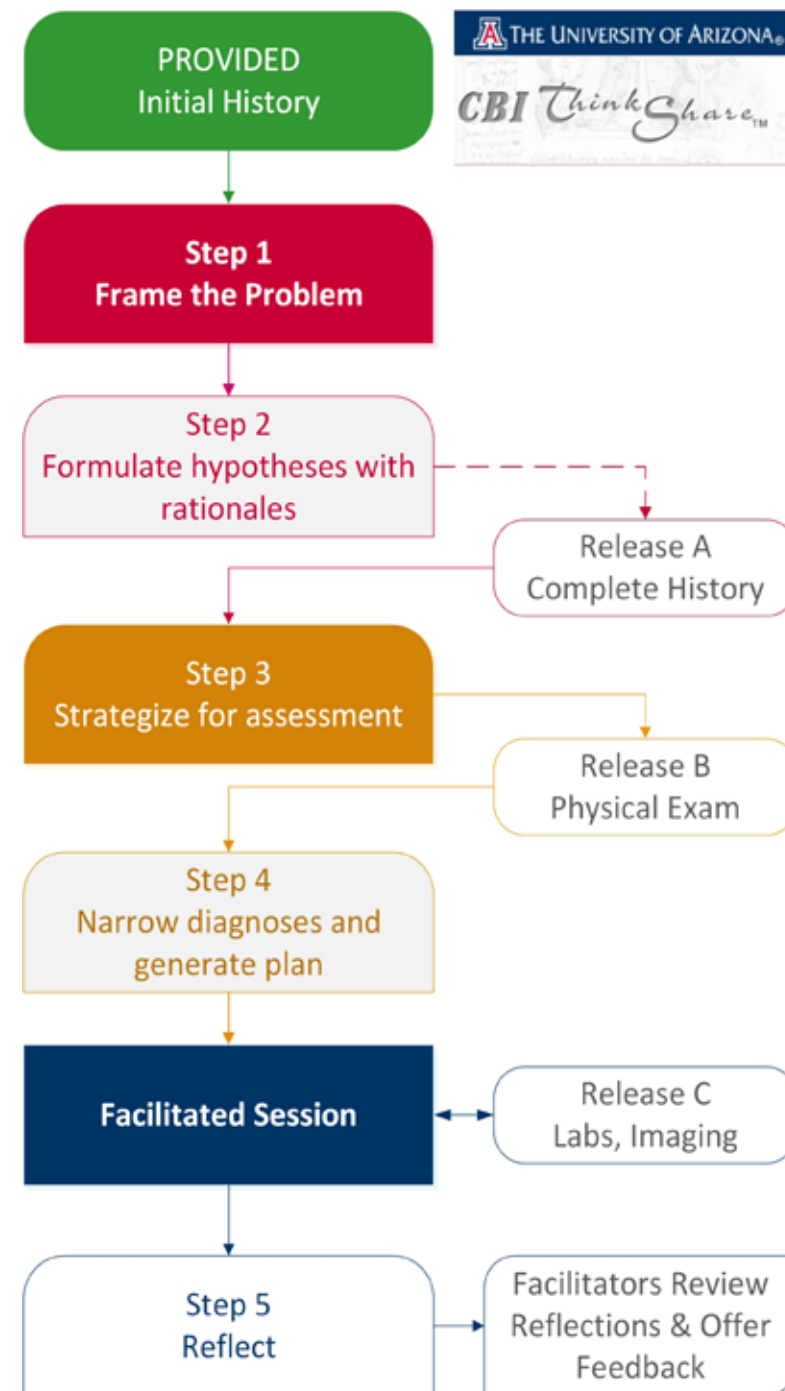
- Students use an online tool, ThinkShare™ (developed at the UA COM), to parse their thinking into five steps (Figure, right).

- Students are asked to articulate reasoning at each step.

- Facilitators and peers may view submissions.

- At the close of each session, students write individual reflections in Step 5 of ThinkShare™.

- We ask students to consider errors they might have made, describe challenges and strategies for overcoming these, and address anything else they deem relevant.



## Research Question

What is the nature and scope of medical students' post-case reflections in case-based instruction?

## Methods

- Data consists of post-case reflections submitted through ThinkShare™ for CBI cases over the course of 5 blocks during Years 1 and 2.

- N=3427 Reflections; 113 Students; Random sample = 7

- Grounded theory<sup>1,2</sup> analysis - Created thematic codes to identify instances of reflection, based upon validated typology of metacognition [Knowledge and Regulation of Cognition]<sup>3</sup> and a validated instrument for measuring reflection based on Bloom's Taxonomy and adapted from<sup>4</sup>.

- Applied principles of narrative analysis (categorizing and connecting strategies)<sup>4,5</sup> to explore the nature and depth of reflections of sample students.

- Analyzed all reflections using Atlas.ti 7.0 per thematic codes.

## Results

### Metacognition Type A - Knowledge of Cognition

#### Level I -- MODE: DESCRIPTIVE

[DMH\_Case 5-MS-696]

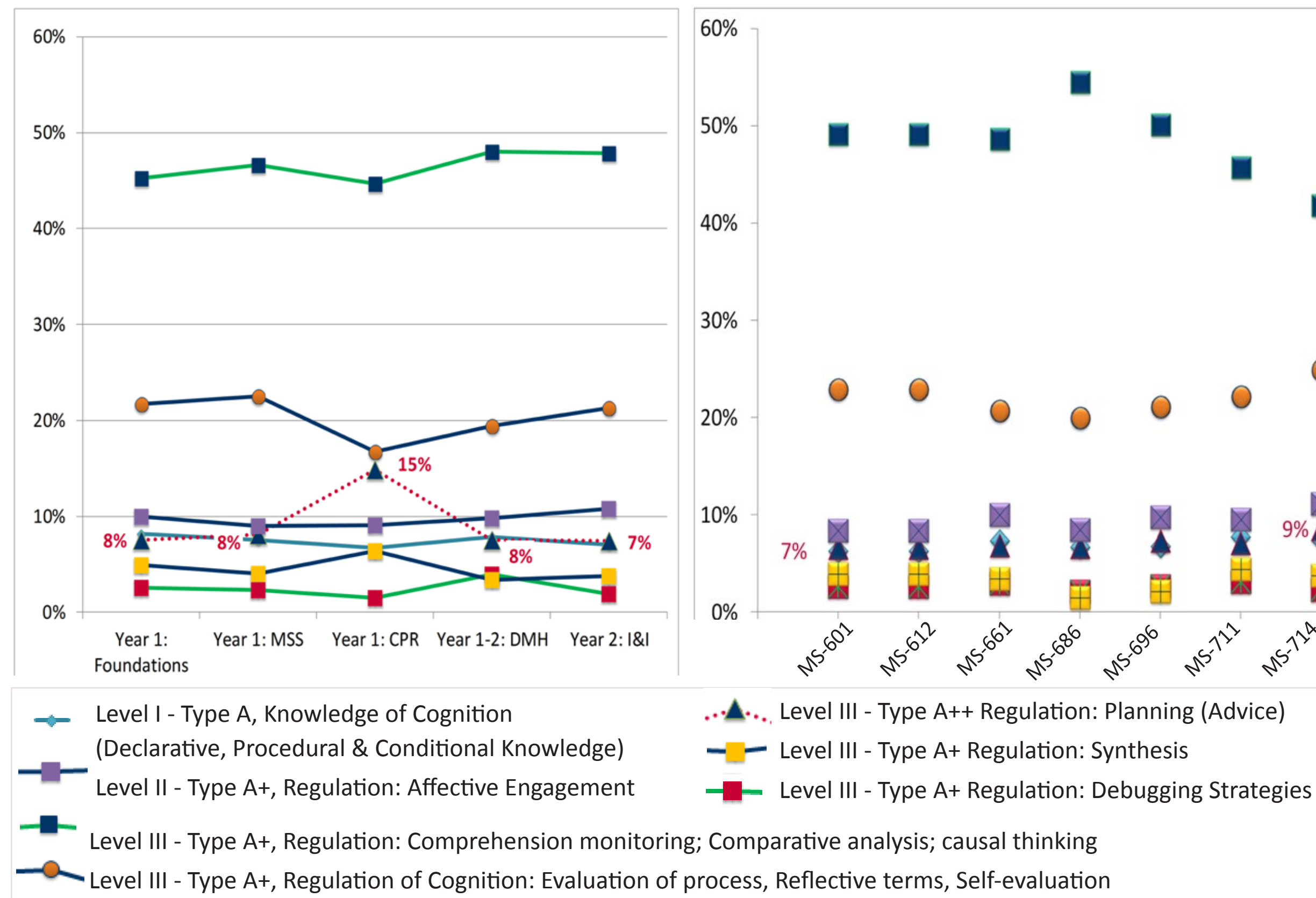
Things that I missed: ▪ the pulse rate was below the mean due to anemia. ▪ I could have done a better job piecing together the timing and knowing that the symptoms began when the mother became pregnant. ▪ for the muscular dystrophy the mother has been giving the antibodies to the baby which could make the baby immunocompromised. ▪ I could have [done] a better job of interpreting the neuro exam and understanding ▪ the seizures and ear infection weren't really related to the case. I learned that a high fever can cause seizures. Overall, even though I wasn't sure about the final diagnosis I wish that I had gone over the biochemistry for my hypothesis once more before I came to class. I think next time I will review the case in the morning before coming to class. Where I can improve on is connection between steps. I don't do a great job explaining where things have changed on my list of differentials, in the priority range, and I don't really explain very well why.

### Metacognition Type A+ - Regulation of Cognition

#### Level II - MODE: ANALYTICAL [Examination of error]

#### Level III - MODE: SYNTHESIS & EVALUATION [Advice]

Relative Percentages of Occurrence of Types of Reflective Thinking in 31 Cases Across 5 Blocks in Years 1&2  
Population Occurrences by Block (N=3427)      Sample - Occurrences by Student (n=7)



## Discussion

- Roughly half of all coded reflections demonstrated higher order thinking (Levels II and III Reflection, Regulation of Cognition).

- Advice\* occurred less frequently in most blocks than other forms of reflection, except for a sharp rise in the third block (\*guidance to improve problem-solving based on analysis or evaluation of experience or synthesis of knowledge).

- Sample post-case reflections demonstrated variation in patterns and progressions of reflective thinking. MS-601, for example, evaluated strategies or performance at first without offering analysis or advice for future problem-solving, but showed an increase in analysis and advice in later blocks.

- Comments about ThinkShare™, the structured problem-solving process and case difficulty declined by 2/3 after the first block, after students became more familiar with using the online tool.

## Implications

- Narrative analysis may be used to:

- Assess student performance on specific cases or over time;
- Evaluate the nature and scope of reflection or metacognitive engagement in learning;
- Describe how students are using their own reflections to improve performance;
- Identify particular cases or blocks that might promote more frequent or in-depth reflection or advice;
- Raises questions about how to evaluate the quality of post-case reflections for future research.

## References

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