

Teaching Strategy Handout

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1. Title of Teaching Strategy

Solvers and Graders Game: Problem-solving Method for AI Independent Classes

2. Foundational Skill(s) Addressed

Problem-solving

3. Learning Outcome & Artifacts/Evidence

The student will be able to demonstrate an understanding of proof-theoretical mathematics.

4. Teaching Strategy Overview (with sources, if applicable)

We developed a method to engage students during the recitation called “Solvers and Graders Game”, which consists of making groups of students to solve exercises on the whiteboard and correct the other groups.

5. Teaching Strategy Implementation

In a class of 20 students, we make five groups of four. First, each group solves two questions, where all of the students should write at least one step of the solutions.

Discussion between the members of the group is allowed. Second, each group moves to the next group to correct/complete the answers and add comments. They must not erase the solver's solutions. Third, all the students go to group 1's whiteboard, and the instructor provides a final comment. The instructor checks all the groups' solutions.

6. Evidence of Impact (*Plan for assessment & evidence collection in advance*)

The course evaluation shows that 94.6% of the students consider the method excellent, and 81.1% strongly agree that the recitation section objectives were clearly stated.

7. Implementation Challenges & Refinements

- Groups with more than 5 students tend to have less interactions between them.
- Discussion: Let the students make the groups, or the instructor randomly make the groups?
- Efficient way to shuffle students to avoid forming the same group.
- The game requires “many” whiteboards to work.

8. Transferability Across Disciplines

- *Courses that require practice in solving problems with a “single solution”.*
- *Solutions in which the justification is considered more important than the final answer.*

9. Specific Implementation Challenges & How to Overcome Them

- *Students learn at different paces. The method consists in encouraging students to ask their peers and the instructor.*
- *The method helps the students to directly contact the instructor more often. They are in front of the classroom which is easy to reach to the instructor.*

For questions or to share feedback, please contact:

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