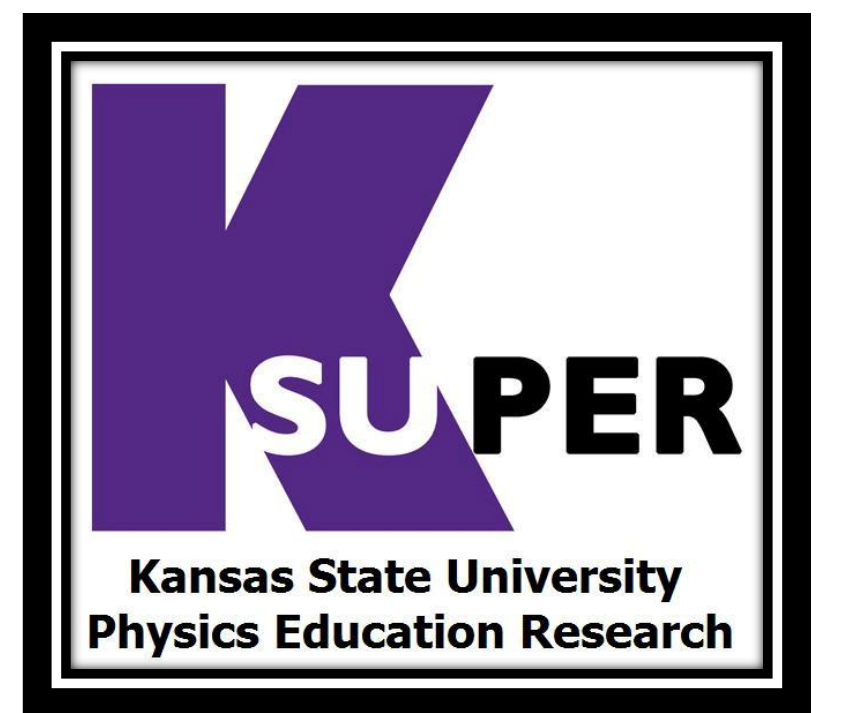




Inhibitors of Problem Solving Strategies for Representational Task Formats

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Supported in part by NSF grant 0816207



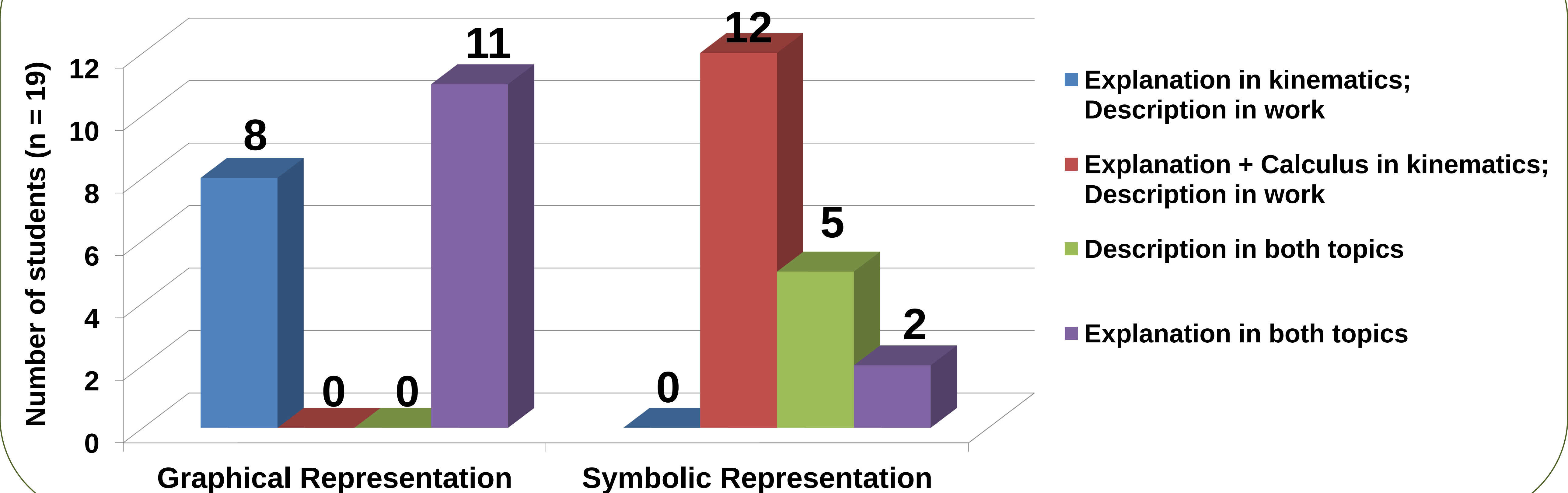
Research Question

What is the effect of representational mode, topic and nature (qualitative or quantitative) of solutions on problem solving strategies?

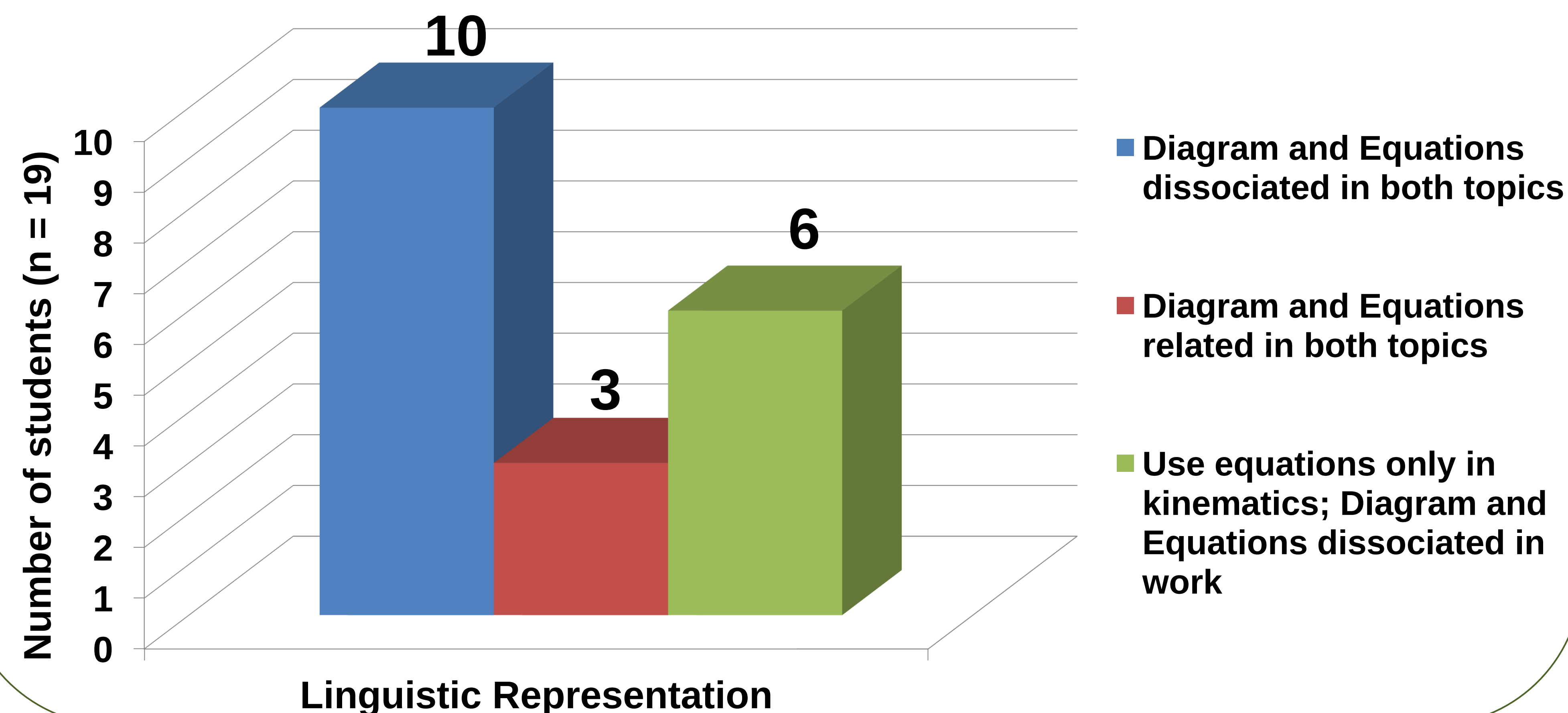
Research Method

- ☐ 19 engineering students; calculus-based physics course
- ☐ 10 non-directed tasks (kinematics and work) with linguistic, graphical and symbolic formats; qualitative or quantitative solutions
- ☐ Complete tasks individually followed by individual interviews
- ☐ Code characteristics of problem solving approaches and interview responses
- ☐ Compare same student's actions and reasoning with same kind of representation across topics

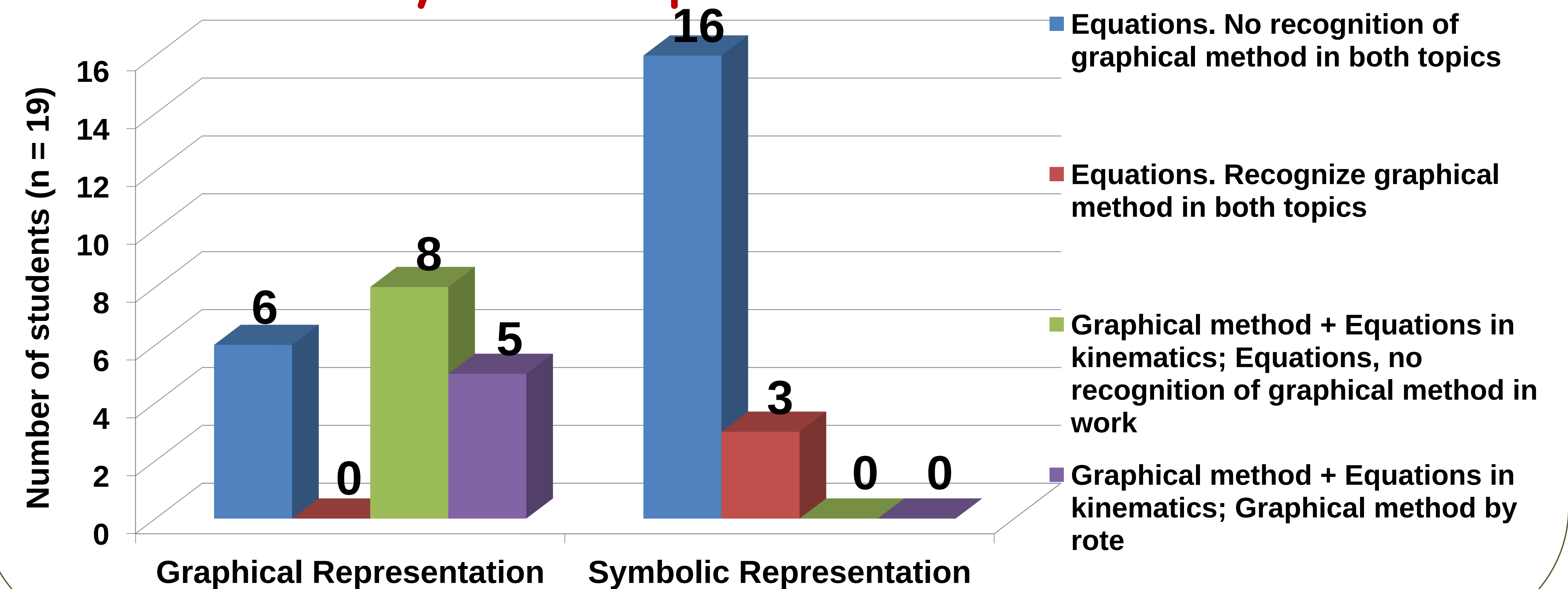
Result I: Interpret Symbolic and Graphical Representations



Result III: Solve for Value from Linguistic Representations



Result II: Solve for Value from Graphical and Symbolic Representations



Conclusion

- ☐ Representational mode impacts on approach used
- ☐ Topic effects on representation interpretation for qualitative solution but no effect on approach for quantitative solution
- ☐ Nature of solution has no direct influence on problem solving approach