

INTER-RELATIONS BETWEEN CONTROL PROCESSES AND SUCCESSFUL SOLUTIONS OF COMBINATORIAL PROBLEMS

Michal Mashiach Eizenberg
Emek Yezreel College, Israel

The study reported herewith is part of a larger study (Mashiach Eizenberg, 2001; Mashiach Eizenberg and Zaslavsky, in press). In this part I examined the benefits of working in pairs in a combinatorial cooperative problem solving setting. In particular, the following research questions were addressed:

1. How does the work in pairs contribute to the control on the solution processes of combinatorial problems?
2. How does the work in pairs contribute to the success in solving combinatorial problems?

The participants in the study consisted of 14 undergraduate students all of whom had completed a basic course in Combinatorics prior to the study. For the purpose of the study, 6 participants were grouped in pairs (3 pairs) and were asked to collaboratively solve a series of ten combinatorial problems, while the remaining 8 students worked individually. Data consisted of audio taped interviews and field noted observations. Each solution, for each individual or pair, was coded according to the degree of correctness of the solution, and the degree of control on the solution process that was manifested by the participant(s). The analysis of the degrees of control on the solution processes involved a conceptual scheme that was designed for the purpose of the study, based on Schoenfeld's (1985) discussion of the issue of control in problem solving.

The findings suggest that students who worked in pairs exhibited higher levels of control that led to higher degree of success in problem solving.

The poster will present in a visual form (e.g., diagrams) the inter-relations between control processes and success in problem solving for the two groups of students. Additionally, it will illustrate how the verbal interactions between students who worked in pairs contributed to their control.

References

- Mashiach Eizenberg, M. (2001). *Novices and Experts Coping with Control on the Solution of Combinatorial Problems*. Unpublished Doctoral Dissertation, in Hebrew (Technion, Israel).
- Mashiach Eizenberg, M. & Zaslavsky, O. (in press). Students' Verification Strategies for Combinatorial Problems. *Mathematical Thinking and Learning*.
- Schoenfeld, A. H. (1985). *Mathematical Problem Solving*. USA, Academic Press, Inc.