

# THE EFFECT OF ELEMENT-INTERACTIVITY IN GOAL-FREE PROBLEMS WHEN LEARNING MATHEMATICS COLLABORATIVELY

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## ABSTRACT

The aim of the research was to investigate the different effect of goal free problems with low and high element interactivity with regards to cognitive load, retention and transfer ability. There were three stages to conduct the research overall: preparation (FGD, developing worksheet and piloting the instruments), experiment in four phases: prior knowledge activation, acquisition, retention test and transfer test. The population was novices who had not studied the learning material, geometry (angle theorems). Using convenience sampling, there were 92 seventh graders from a public junior high school in Yogyakarta participated in the study. Students were randomly allocation into the experiment groups according to the factorial designs that was 2 (grouping strategy: individual vs collaborative) by 2 (element interactivity: low vs high). The results indicated that during low element interactivity tests, students performed significantly better than the high element interactivity. There was no significant difference affected by the grouping strategy during goal-free problem based learning. There was no significant interaction effect either.

Kata Kunci: *cognitive load theory (CLT), instructional design, goal-free problems, collaborative, problem based learning*