

## **Bachelor's Thesis Opponent Review**

**Thesis title:** The Impact of Metacognitive Strategy Instruction on Creative Problem-solving Performance among University Students

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**Opponent:** Ellen Zakreski, Ph.D.

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**Recommended grade (pending defense performance): 1**

Using an experimental design, this thesis aimed to compare the effects of metacognitive and creative problem-solving instructions on creative problem-solving in university students. Students were randomly assigned to receive either instructions in metacognition and creative problem-solving, instructions in creative problem-solving only, or to a control group (no instructions). Students completed a creative problem-solving task before and after the intervention. The author then examined whether the manipulation affected the originality and usefulness of creative solutions to the tasks, the accuracy in self-evaluations of solutions, self-perceived difficulty and mental effort, as well as interest in the task. Most of the hypotheses were not confirmed. Overall, the thesis was very interesting, well-written and clearly organized. The empirical section has a few issues, but these are tempered by the superb introduction and other aspects of the methodology.

### **Introduction:**

The quality of the introduction goes well beyond the undergraduate level. The student does an outstanding job defining, explaining and integrating different theories and has clearly done a very thorough literature review. The student provides a compelling justification for their research, and the hypotheses are clear, and well-supported. I particularly appreciate the student's comprehensive discussion of how the concept of creativity has evolved from something that is passive and external to an important cognitive ability that can be cultivated. I also appreciate the nuanced comparison of different theoretical perspectives on creativity, as well the discussion of the strengths and limitations of different methods for assessing creativity.

### **Methods**

The methods fit the research objectives and are described in sufficient detail to replicate the experiment. One minor exception is the lack of information on the experts used to evaluate participants' solutions (what were they experts in?). In terms of the statistics section, I was impressed by the student's power analysis and examination of interrater reliability, however I would like to see more about the analysis plans in the methods. The type of ANOVA should be specified. The student should also explain how they determined that the assumptions of ANOVA were met.

### **Results:**

The results were well-organized and properly reported. It is good that the student visualized their findings, but there were a few issues. The figures were difficult to interpret because there were no error bars. Also, figures should have meaningful axis labels and should be larger. A figure should be on its own page, or on the same page as the corresponding results. Additionally, the student should interpret findings in the discussion (not results section).

**Discussion:**

The discussion was sparse. While some results are put into the context of other research, key results are repeated but not adequately explained. When findings are non-significant, you should discuss potential reasons for why and suggest improvements. For example, why did perceived difficulty decrease in the experimental groups? While this was mentioned in the introduction, it is important in the discussion to put findings into the context of theory and research laid out in the intro. In the limitations and future directions section, the student makes astute observations and recommendations, such as emphasizing the importance of multi-session interventions or selecting creative problem-solving tasks that are more relevant to university students.

**Potential questions for student**

1. You mentioned that there is a lack of research examining the effects these interventions on creativity in university students. What do you think university students would be different from populations already studied?
2. It appears there may have been baseline differences in creative skills between the three groups. How could this affect your results and how would you resolve this issue in future research?
3. Did you personally use any of the strategies from the interventions to plan your research or prepare this thesis?