

The effect of using cognitive apprenticeship strategy in teaching mathematics in developing first year prep students' lateral thinking skills and lowering mathematics learning anxiety

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Abstract:

The study aims at investigating the effect of using the cognitive apprenticeship strategy in teaching mathematics in developing first year prep students' lateral thinking skills and lowering mathematics learning anxiety at Fayoum Governorate. The sample included 70 students that were divided into two groups; the experimental group (34 students) and the control one (36 students). The researcher redesigned the 'relative numbers' unit included in first year prep students book first term (2016/ 2017 edition) in light of cognitive apprenticeship strategy principles, characteristics and basics. The researcher also prepared a lateral thinking skills test and a learning mathematics anxiety measure. The two tools were proved valid and reliable then the experiment was implemented. The results of the research were as follows:

- The performance of the experimental group members outdid that of the control group in both tools as there were statistically significant differences in favor of the experimental group post implementation for the two tools.
- There was a strong positive correlation between lateral thinking skills and mathematics learning anxiety shown in the sample performance.

In light of the results, the researcher suggests the following further efforts:

1. The effectiveness of a training program based on cognitive apprenticeship strategy in developing student teachers' at the Faculty of Education complex thinking.
2. The effectiveness of a training program based on cognitive apprenticeship strategy in developing prep stage or secondary stage students' creative thinking.
3. Using cognitive apprenticeship strategy in developing prep stage or secondary stage students' decision making skills.
4. A suggested training program based on cognitive apprenticeship strategy for prep stage teachers' to develop their students' mathematical connections and communication.
5. Carrying out a similar study with different independent variables or other educational stages.

Key words: cognitive apprenticeship - strategy - lateral thinking – skills - mathematics learning anxiety.