Design, Implementation and Evaluation of a Systems Thinking Course for Teachers in an M.A. Program in Learning Sciences
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Abstract

Although the Systems Thinking approach in education is not new worldwide, implementations in K12 education are very recent in Turkey. We present the first Systems Thinking course incorporated in a MA program in Learning Sciences. Our research aims to investigate the effectiveness of the developed Systems Thinking course curriculum on problem definition and analysis.

Introduction

Systems Thinking Society is working for the infusion of systems thinking approach into the people of Turkey starting from K-12 education by incorporating this approach into the curriculum of K-12 education in schools and faculties of education in universities.

Methodology

The study was conducted in a non-profit private university in Istanbul/Turkey in 2018-2019 summer semester. A total of 12 MA students in Learning Sciences were involved in the study. MA students were also actively teaching in various grade levels ranging from preschool to secondary school.

Questions asked in the beginning and end of the course:

- Identify an ongoing problem that you think important (personal, local, global). Write the problem in a few sentences:
- Analyze the problem with available information. Propose a solution if any.

Results

A paired, two-tailed t-Test is computed on student’s pre and post test results.

- Percentage of Analysis: 0.0217
- Depth of Analysis: 0.0251
- Width of Analysis: 0.0009
- Number of Relations: 0.0003
- Number of Causal Loops: 0.0003

Conclusion

The assessment showed that the participants demonstrated statistically significant improvements in the analysis of a given problem. Stock flow diagram was the most used tool in the analysis. It was followed by the causal loop diagram.

We can conclude that the use of ST/SD tools is effective in the improvement of analysis skills.