

The effect of mathematical education based on the content-pedagogical and technological model (TPACK) on changing teachers' beliefs

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Abstract

In this research, the main aim of the study was to investigate the effect of mathematical education on the basis of the content-pedagogical and technological model (TPACK) on changing the beliefs of high school teachers regarding the rate of application of mathematical education software in the teaching process. This goal, in the form of the main research question Considered and reviewed. The researcher used a semi-experimental two-way pre-test and post-test method to observe the changing beliefs of teachers before and after the implementation of a workshop training in software. Based on Cochran's formula, 73 male and female teachers who served at the seventh and eighth grade were considered as examples of research. The standard questionnaire used in this research was made by Zambak (2014), based on theoretical foundations. In this research, SPSS software was used. The results of statistical analysis of this study showed that the holding of a mathematical training workshop using GeoGebra in the form of a "content-pedagogical and technological model (TPACK)" on the beliefs of high school math teachers about using modern technologies in education Has had a positive impact.

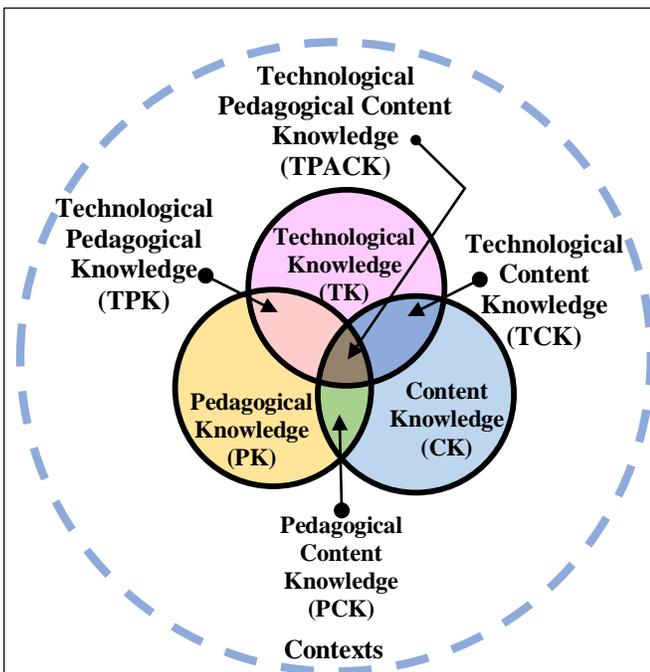


Fig.1. The Technological Pedagogical Content Knowledge (TPACK) model (Mishra and Koehler, 2006)



Fig.3. Workshop on the use of software in mathematical education

Table 1. Educational topics of the seventh-grade book in the educational workshop

Major Subjects	Sub subjects
Geometry and reasoning	Line segment - angle- drawing triangle and geometric shapes
Vector and coordinates	Directed line segment - equal vector- coordinate
Geometric and parallel drawings	Triangle and its components-parallel and diagonal lines

Conclusions

The results of statistical analysis of this study showed that:

- Some mathematical teachers are worried about the unilateral intervention of technology in understanding and understanding a math subject in the classroom.
- Developing the knowledge of the teachers and their relative domination over the use of modern mathematical teaching techniques transforms their beliefs to a large extent.
- Holding a math workshop using the GeoGebra tutorial software in the form of a content-pedagogical and technological teaching (TPACK) model has had a positive effect on the beliefs of high school math teachers regarding the use of new technologies in teaching.