

## Using Mindful Movement in Cooperative Learning While Learning Angles

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**Background:** Cooperative learning strategies, in which children learn independently in small cooperative groups by interacting verbally, is considered one of the most productive teaching methods from the point of view of high academic achievement (Slavin, Hurley and Chamberlain, 2003). However, the need for a high level of verbal expression on the part of the child in the lower grades of elementary school over a prolonged period of time of interaction is an obstacle preventing young children from getting the full benefit of cooperative learning (Souvgnier and Kronenberger, 2007; Deering and Meloth, 1993). This research examined a substitute tool - mindful movement - which is a movement used to solve theoretical problems (Ben-Ari, 2002).

**Aims:** Will the use of mindful movement while learning about the subject of angles in cooperative groups improve student achievement more than the conventional method? What is the connection between the learning activities occurring in the cooperative group using the mindful-movement process and the improvement of learning achievement in the subject of angles?

The learning activities included the following: physical contact with the studied environment; use of visual and physical movement modeling; movement and social interaction; social and verbal interaction; suspension of movement learning activities; behaviors not directed towards learning.

**Method:** 261 learners from eight second and third grade classes in six different schools participated in the research. The experimental group included 155 learners from five classes. The control group included 103 learners from three third grade classes.

The students were tested on the subject before and after studying it. The appointed observers carried out their observations of the experimental groups systematically. Each child was observed 24 times, for about two seconds each time.

**Results:** It was found that, compared to the conventionally-taught control group, the experimental group, using mindful-movement in cooperative learning, reached significantly better results in learning about angles taught them in the geometry lesson. Additionally, a significantly positive correlation was found between the variants of learning activities and improvement in learning about angles.

### Discussion and conclusions

Tracking learning activities enables us to peek into the question of how mindful-movement contributes to learning in a cooperative group. However, additional research needs to examine the contribution of mindful-movement in learning of various other subjects at different ages and different strategies.