

Extended Summary

The Effectiveness of Cooperative Learning Methods on 7th Level “The Structure of Matter and Properties” Unit

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Introduction

As science lessons consists of abstract concepts, applications which bring to the fore learning by doing and experiencing must prefer in science lessons. These applications provide the students play an active role in their own learning by removing being passive (Yiğit & Akdeniz, 2003). Individuals who learn actively configure knowledge themselves. In today's education system student-centered teaching methods based on Constructivist approach is discussed and applied in active learning. Active learning, students reach their resources in their work, learn the way to obtain information from various sources, organize and offer the knowledge they gained, take responsibility in individual and group projects and share it, interact and collaborate for the production of public information (Akar 2012).

Active learning includes these strategies, methods and techniques. Problem-based learning, inquiry-based learning, project-based learning and cooperative learning takes place within active learning (Aydın 2011). Cooperative learning is one of the Active learning strategies attract attention teachers and researchers and it is one of the models which are widely seen in the field of research and education applications (Graham, 2005; Maloof & White, 2005; Johnson & Johnson, 1999).

Cooperative learning is a method in which students are assigned to small groups both in the classroom, and in other environments, where the students help each other to learn together. Students achieve more and increase their self-confidence as individuals, develop communication skills and participate actively in this method (Şimşek, 2007).

Cooperative learning model is applied with different methods and techniques. Those methods and techniques have various differences and educational philosophy, depending on different learning experiences, ensuring the cooperation formats the evaluation and consolidation processes (Aziz & Hossain, 2010). In this study, Student Teams-Achievement Division (STAD) and Reading-Writing-Application (RWA) methods were used.

The aim of this research are to determine the effectiveness of Student Teams-Achievement Division (STAD) and Reading-Writing-Application (RWA) methods of cooperative learning model on academic achievement at the unit of 7th Level “The Structure of Matter and Properties” and students’ views related to methods.

It is better to use half experimental pattern if the purpose of the study is to determine effect of instructional materials or instructional methods for the different educational environment (McMillan and Schumacher, 2010). For this reason, research is done using half experimental method and pre-test, post-test design with the groups which are chosen randomly. The sample of this research are 102 students from two different secondary school in Ağrı. One of these schools was determined in a random manner as Reading-Writing- Application Group (RWAG) (25) applied reading-writing-application method and the other was Student Teams Achievement Divisions Group (STADG) (n=28) applied Student Teams Achievement Divisions method , another ones was Control Group (AG) (49) applied Traditional Learning method. As data collecting tools, pre-test, academic achievement test and a scale for students about views about methods. For the analysis of the obtained data, one way variance analysis (ANOVA) was used for pre- test and analysis covariance (ANCOVA) for academic achievement test because of significant differences in the groups’ pre- test. Descriptive statistics for students’ views about methods are used. It was found that RWA and STAD have similar effects on students’ academic achievement and students instructed with these techniques are more successful than students instructed with teacher centered instruction.

Citation Information

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