

Author	Erece-Oda, Evelyn
Title	Cooperative Learning: Its Influence on Academic Achievement, Social Interaction and Self Concepts of College Biology Students
Year	2007
Program	Doctor of Philosophy in Science Education (Biology)

## **ABSTRACT**

This quantitative-qualitative research on cooperative learning used as an intervention in teaching college biology, identified and analyzed the influence of cooperative learning on academic achievement, social interaction, and self-concept among college biology students. Three cooperative learning strategies were utilized- Group Investigation (GI), Team Assisted Individualization (TAI) and Cooperative Integrated Reading and Composition (CIRC). Three cooperative learning groups were used- Personal Selection (PS), Random Selection (RS) and Equal Distribution (ED). Academic achievement was measured by using Biology Achievement Test (BAT) cumulative Academic Scores obtained from nine activities performed during the period intervention... Three biology topics were covered including Development Biology, Ecology and Genetics in the implementation of the cooperative learning intervention during the final term of school year 2000-2001.

Treatment of data, generated from various instruments namely Cumulative Academic Scores, Biology Achievement Test (BAT), Thirty Statement Test (TST), Rubric on cooperation and Collaboration (RCC) and Self Attention Scale (SAS), utilized Analysis of Variance (ANOVA), t-test and the Pearson's correlation while descriptive analysis dealt with the different social interactions exhibited by the students during cooperative learning.

The findings of the study can be featured in five ways:

First, the results of Analysis of Variance (ANOVA) at .05 level of significance, with regards to cooperative learning group influence is:

- A) Significant with Personal Selection (PS) group primarily enhancing the mean score using Biology Achievement Test (BAT) while Equal Distribution (ED) group most influenced cumulative academic scores RS; B) Significant with PS noted to greatly enhance social interaction followed by RS and least by ED; C) Not significant to self -concept.

Second, results of Analysis of Variance (ANOVA) at .05 level of significance in reference the various factors using cooperative strategies resulted to the following:

- A) A significant difference in academic achievement exists in reference to BAT with Group Investigation (GI) showing highest mean score when compared to CIRC and TAI. However, there was no significant difference in relation to cumulative academic scores. Cooperative strategies exhibit a bivalent effect in academic

achievement depending on the nature of the parameters. B) A significant difference in relation to social interaction exists with Group Investigation (GI) as the most appropriate strategy yielding the highest mean score as compared to TAI and CIRC; C) A significant difference in relation to self-concept exists where TAI yielding the highest mean score, thus most appropriate strategy for enhancing self-concept.

Third, comparatively, students exposed to cooperative learning and traditional learning resulted to the following:

- A) Academic achievement significantly varies. Cooperative learning had shown better mean scores thus students expose to these are better in academic achievement; B) Self-attention does not significantly vary; C) Self-concept does not significantly vary.

Fourth, relationships among various factors analyzed using Pearson's correlation show that there exists:

- A) A significant but weak correlation between self-attention and academic achievement; B) A significant but weak correlation between self-attention and social interaction exists; C) A very weak correlation between self-attention and self-concept; D) A weak correlation between academic achievement in reference to academic scores with social interaction in reference to BAT; E) There exists a weak correlation between academic achievement and self-concept in reference to academic scores, however, a high correlation in academic achievement in reference to BAT; F) There exists a moderately negative correlation between social interaction and self-concept.

Fifth, social interactions manifested by the students in cooperative learning were non-verbal interaction and verbal interaction. Non-verbal social interaction included haptics, kinesics, and facial expressions. Verbal social interaction promoted interpersonal skills among students. All of the interactions were essential for social interdependence among the students, at the same time individually active and responsible. These lead students to achieve meaningful learning tasks through cooperation and collaboration.