

Measuring the Relationship Between Student Use of Cooperative Learning Techniques and High Level of Competency on the Final Exam

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Introduction:

Engaging learners in content during class sessions is vital to their long-term retention and transfer of that content across the life span. Cooperative learning techniques (CLT) engage students in working together towards accomplishing a shared learning goal (Gillies, 2007; Johnson & Johnson, 1999).

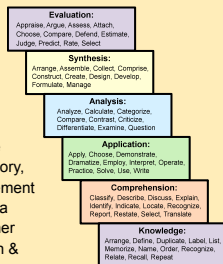
According to Johnson and Johnson (1999), structuring learning situations cooperatively encourages students to work together to achieve group success. Consequently, when students work together towards a common goal, higher achievement and greater productivity typically result (Johnson and Johnson, 1999). Additionally, Johnson, Johnson, and Smith (2007) advocate that cooperative learning fields greater transfer of the content learned from one situation to another, higher-level reasoning and metacognition, and transfer of content material learned from one situation to another.

Theoretical Framework:

Two theories were used to build the theoretical framework; one was Bloom's Taxonomy. Bloom, Engelhart, Furst, Hill, and Krathwohl (1956) established a hierarchy of cognition comprising six levels. As one works through the hierarchy, each level demands the use of the lower level skills. The six levels include: knowledge, comprehension, application, analysis, synthesis, and evaluation.

Bloom's Taxonomy Key Words

The second theory was the social interdependence theory, supporting that the achievement of each individual's goal in a group is affected by the other member's actions (Johnson & Johnson, 2007).



Conceptual Framework:

Four variables, related to the instructor and the student, were examined to describe use of cooperative learning techniques and cognitive competency on the final examination in a ten-week university methods of teaching in non-formal environments course. The two variables related to the instructor were teaching techniques used in class sessions and the cognitive level of reflection items. Student variables included, the cognitive level of reflection items they received, and the techniques they used in their microteaching (see Figure 1).

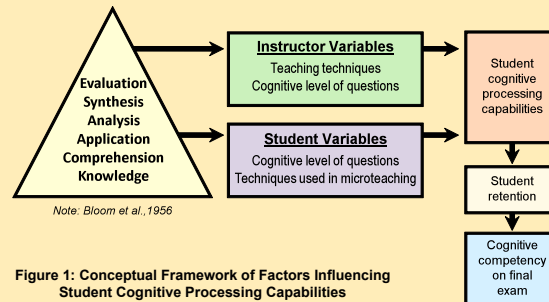


Figure 1: Conceptual Framework of Factors Influencing Student Cognitive Processing Capabilities

Methodology:



In this study, the researchers sought to describe the relationship between adopting CLT in microteaching and student high cognitive competency on the final examination. All learners received identical lectures that contained the following CLT: timed-pair share, jot-thoughts, paraphrase passport, window-paning, inside-outside circle, and Q-approach. A population of 14 students enrolled in a methods of teaching course were used. Analysis was conducted using videos from each student's microteaching labs. Researchers conducted a frequency count of how often the students used higher-level engagement techniques in their lessons. Researchers also analyzed each student's final examination by giving both the final examination and each student a high cognitive weighted score using only the questions asked at the application, analysis, synthesis and evaluation levels of Bloom's Taxonomy. The student cognitive level of competency on the final examination was calculated using the weighting employed by Pickford (1988).

Results:

Out of the 27-microteaching lessons recorded, 12 cooperative learning teaching techniques were used, by five students. The final examination was given a high cognitive weighted score (47.5) based on the level of cognition at which each question was written. Student high cognitive weighted scores ranged from 41.2 to 46.8 with a mean of 44.7.

Four of the five students using cooperative learning techniques scored in the upper half of the population on the high cognitive weighted scale.



Conclusions, Implications, and Recommendations

All student had relatively high cognitive scores on the final examination regardless of use of CLT. However, of the five students who incorporated CLT to their microteaching lessons, four were in the upper half of the high cognitive scores for the final examination. Therefore, students in this study, who adopted CLT, responded positively to higher cognitive questions.

A recommendation is that professors further explore using CLT in class sessions. Ravenscroft (1997) indicated that, research done on cooperative learning shows positive achievement in students. Not only will students put forth more effort to achieve a goal, when participating in structured cooperative activities, they will also develop positive and supportive relationships (Johnson & Johnson, 1999).

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