USE OF AN INTEGRATED APPROACH TO IMPROVE SCIENCE TEACHING TO EIGHTH GRADERS

A PROJECT PRESENTED

BY

G.M.S.I. ARIYASINGHE

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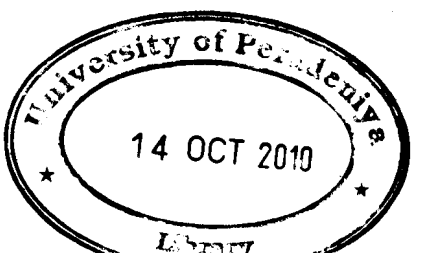
G.M.S.I. ARIYASINGHE

Postgraduate institute of science
University of Peradeniya
Sri Lanka

Although several reforms have been introduced to improve teaching and learning of science in schools of Sri Lanka, the anticipated results could not be achieved. Even the students who succeed at examinations do not possess the capability to comprehend what they learn to apply in real world situations. Science teaching limited to lectures with illustrations on the chalkboard alone does not help meaningful understanding of science. This study used an integrated approach of teaching, using a curriculum model based on constructivism to improve science teaching and learning in two eighth grade classrooms. Based on my experience and difficulties of students, the unit, *"Some Natural Resources used in Industries"* in the grade 8 science and technology syllabus was selected for the study. Two classes from eighth grade in a secondary school in the Kurunegala district was selected after seeking consensus from the principal and the two teachers. Both the classes had forty students and the two teachers had the same qualifications for teaching.

A pretest was administered to identify the level of students. Using the information gathered from the pretest, lesson plans were developed including a variety of



approaches to help students in their learning. These lesson plans were piloted to a small group of students to do modification. One class was considered as the control group and the teaching in this class was carried out by the same teacher (LB method) who did the lessons last year in her own style. The other class was considered as the experimental group. The teacher who taught science in this class used the lessons developed by the researcher (IM method) after having lengthy discussions on subject matter and pedagogy. I observed how lessons were taught in the two classrooms and fieldnotes were made. Work of students was collected as evidence of documents (Annex IX) student comence. Formal and informal interviews were conducted with the teachers and students. After the completion of teaching the thirteen-period unit, a posttest was administered. Although the students in the two groups behaved similar in the pretest, they showed a marked difference in the posttest showing that IM method is better than the LB method. (Two sample T- test P value = $0.001 < \infty = 0.05$) Furthermore, data gathered from observations, interviews, and documents were categorized using grounded theory and then triangulated to formulate the two assertions.

Instruction in the LB class consists mainly of lectures and illustrations on the chalkboard with no interactions with the teacher and students and among students. So, the monotony existed in this classroom did not encourage student learning. All lessons in the IM class took a different approach and let students to be involved in a variety of activities so that they can share their experiences. They learned science together constructing their meaning by clarifying their problems with each other and with the guidance of the teacher. The friendly environment in this classroom encouraged teacher-students interactions and student-student interactions, and behaved as a community of

learners. This study provides several implications for science education in the schools. Teachers' knowledge of the subject and the knowledge of teaching need to be updated through in-service sessions and teachers need to find ways of communicating with each other to improve their practice to enable students to do meaningful learning.