Name of the Scholar: Pragya Rai

Name of the Supervisor: Dr. Jasim Ahmad

Department: Institute of Advanced Studies in Education (IASE), Faculty of Education, Jamia Millia Islamia

Title of the Thesis : A Study of the Effectiveness of ADI (Argumentation Driven Inquiry) Model in promoting Scientific Argumentation and Achievement in Biology

Abstract:

Keywords:  Argumentation Driven Inquiry (ADI), Scientific Argumentation, Achievement, Nature of Science, Science teacher educators.

Science has become integral part of our lives. Scientific issues are no longer the part of textbooks and curriculum only. It has become the issue of public understanding as our live revolves around inventions and discoveries led by science. People discuss about scientific issues and its pros and cons in daily lives. Teachers and teacher educators talk about innovative instructional strategies of teaching science but most of them teach with chalk and talk method in their own classroom. To turn on the interest of students towards science, it is necessary to bring change in our approach of science teaching. Various researches have been done on testing of innovative teaching methods in teaching of science. In many researches, argumentation is considered as indispensable scientific thinking skill which students must acquire in the science classrooms. Argumentation is highly relevant and important to classroom learning. Engagement of students in argumentation in science is quite difficult and crucial task. Many studies on ADI model found it effective when specific laboratory activities were designed according to this instructional

model. My study has tried to explore role of Argumentation Driven Inquiry model in promoting scientific argumentation and achievement of students both. However by understanding the fact that testing an instructional model which was designed specifically for improving scientific argumentation might certainly have some limitations such as the complex nature of classroom setting, syllabus and teacher's competence. It is quite difficult to design instructional materials according to model for specific scientific content due to its complex nature of interaction. This study examined the effectiveness of ADI model as a whole on both achievement and scientific argumentation of students. Findings of the study has contributed to the various emerging body of research which has been done in the field of Argumentation Driven Inquiry model and scientific argumentation as firstly, the experiment proved helpful in improving achievement of students in scientific concepts. It has given new insight that Argumentation Driven Inquiry model is not only useful in promoting scientific argumentation of students but also helpful to learn concepts and improve their achievement. Secondly, the treatment also proved useful in promoting scientific argumentation of students as levels of argumentation of experimental group improved from pre argument test to post argument test. Findings also suggested that initially students were not able to formulate meaningful argument before treatment. They were not aware of components of argument. They found it quite difficult during the instructional treatment. But after clear instruction and active participation in experiment, they improved the argumentation significantly.