

A STUDY ON CONCEPT FORMATION
IN CHEMISTRY OF
ADVANCED - LEVEL STUDENTS IN
THE WESTERN PROVINCE.

A Thesis submitted to the Faculty of Education of the UNIVERSITY OF
COLOMBO - SRI LANKA for the DEGREE OF MASTER OF
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ABSTRACT

The aim of this Investigation was to examine the extent of Concept formation in Chemistry of G.C.E. Advanced level students. To identify causes for the various levels of concept-attainment observed. This was done with respect to specified factors within the learner and factors in the learning situation.

The study was limited to the Western Province comprising of the Educational Districts of Colombo, Gampaha and Kalutara. From the three Educational Districts, a 15 % proportional sample was selected by a process of random sampling. The final sample comprised of eighteen 1 A B schools.

All G.C.E. Advanced - level students who had completed the twelfth year in the 18 schools during the time of Investigation in September 1995 were selected for the Investigation. The final sample consisted of a total of 476 students.

All Chemistry teachers in the eighteen selected 1 AB schools, teaching the twelfth year students were taken for the study. The final sample consisted of twenty two Chemistry teachers. The acquisition of concepts was tested by means of

a "Concept - test", validated by the writer. The test consisted of multiple choice type of test-item.

To gather further information, separate Questionnaires were administered to students and teachers.

After scoring the test, causes for the various levels of attainment observed were identified. This was done by means of "Diagnostic Tests".

After scoring the test the frequencies and the percentage frequencies of the correct responses for each concept were calculated. Finally the ten concepts which scored the minimum percentage frequencies were selected.

After selecting the ten concepts, ten students per concept were interviewed in depth to diagnose how and why the students went wrong.

These diagnostic tests were essentially of the Piaget type. When ever a student made a mistake the causes for it were probed into.

It was revealed that, students tend to focus on component aspects and tend to perceive a concept within narrow limits. Further, students do not easily give up their

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preconceptions, and they tend to assimilate new information into their existing conceptions.

The general set backs experienced by students were not knowing how to answer questions, not being able to understand what was taught at school, the difficulty of remembering what was learnt, lack of time to study, resulting in poor-performance inadequacy of library facilities, science-books, past-papers. Inadequate basic scientific knowledge of students proved to be a crucial set back. Further the allocated school-time appeared insufficient to prepare students for the Advanced-level Examination.

The conclusions and recommendations would undoubtedly be valuable to those Educational Authorities concerned, namely Curriculum developers, Policy-makers, those who conduct Pre-service and In-service teacher training programmes and especially Advanced-level Chemistry teachers and Principals of schools.

