

SELF-INSTRUCTIONAL MODULES IN THE PRACTICE OF PEDAGOGICAL PRINCIPLES

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During the 1974/75 session, the Pedagogical Studies Division which offers a basic compulsory course for all students entitled Practice of Pedagogical Principles initiated a project in which students were required to develop and evaluate self-instructional packages in their respective subject areas. This project involved 5 lecturers and approximately 600 students, in five subject (methods) areas: language, social studies, mathematics, physics-chemistry, biology. The course, Practice of Pedagogical Principles, comprises ten basic lectures on the following topics:

1. Analysis of instructional objectives
2. Analysis of instructional design
3. Analysis of instructional sequences
4. Analysis of procedures of self-instruction
5. Production of self-instructional sets
6. Developing evaluation instruments
7. Testing techniques
8. Techniques of data collection
9. Techniques of data analysis
10. Production of evaluation items.

At the start of the project (course) students were briefed on the course and their assignment which would count as part of the course assignment. The following procedure was adopted:

1. On the basis of their first method subject (or second method subject in the case of those offering Chinese Language, Economics, or Agricultural Science as 1st method) students organised themselves into groups of 5.
2. Each group was assigned a topic based on the relevant Form V syllabuses.
3. Groups discussed informally how the assigned topic might be taught, and how it might be tested.
4. When lectures on Instructional Design and Instructional Evaluation had been delivered, the groups would draft the instructional package.
5. The draft self-instructional package which comprised a self-instructional programme and an achievement test was then submitted to the lecturers for approval prior to production in quantity. A copy of an Interest Inventory was also provided to the group for duplication.

6. During the 1st week of teaching practice, in consultation with the subject teacher of the school, 12 pupils were selected for a try out - 4 above average, 4 average and 4 below average. The pupils were divided into 2 matched groups - the Experimental and the Control Group. The Self-Instructional programme and the Interest Inventory were then administered to the Experimental Group only.
7. Achievement test was then administered to both the Control and Experimental Groups.
8. Results were entered in coding sheets and submitted to the lecturers concerned.
9. For purposes of analysis members of the group:
 - (a) Computed total achievement test scores for both experimental and control groups and compared their scores.
 - (b) Performed an item analysis of the test data.
 - (c) Computed frequencies of responses by experimental group pupils to each item of the Interest Inventory.
10. Students then submitted a report of the study in which the findings on the 12 pupils were discussed.

The chart at the end of this report maps out the time sequence of the various activities of the project.

THE OUTCOME

What has this project achieved? For one thing, as a result of the project a number of Self-Instructed packages have been developed by students. A listing of the packages developed is given below:

BIOLOGY S.I.P.

- Topics:
1. Process of Diffusion and Osmosis
 2. Fruit and Seed Dispersal System
 3. Respiration and Energy Cycle
 4. Soil as a Dynamic Living System
 5. Alimentary and Digestive System of Mammal
 6. Anatomy: Root and Stem Systems of Plants
 7. Processes of Guttation and Transpiration
 8. Axial and Appendicular Skeletal System (Mammal)
 9. Circulatory System (Mammal)
 10. Life History: Adaptive Mechanisms of the Insect (Cockroach and Mosquito)
 11. Photosynthesis and the Energy Cycle

MATHEMATICS S.I.P.

- Topics:
1. Three Diagrams in Probability
 2. Sine Rule
 3. Cosine Rule
 4. Approximating Area under a Curve
 5. Direct Proportions
 6. Inverse Proportions
 7. Shorthand Notation for Transformation
 8. Combination of Transformation
 9. Clockwork Arithmetic

PHYSICAL SCIENCES S.I.P.

- Topics:
1. Electromagnetic Induction
 2. Carbon Compound
 3. Rates of Reactions
 4. Reversible Reactions
 5. Radioactive Decay
 6. Oxidation-Reduction Reactions
 7. Periodicity and Atomic Structure
 8. The Periodic Table

LANGUAGES (ENGLISH & MALAY) S.I.P.

- Topics:
1. Relative Pronouns
 2. Conditional Tenses
 3. Combination of Transformation
 4. Prefixes and Suffixes
 5. Persamaan dan Berbezaan Antara Pantun dan Syaer dari Segi Bentuk dan Isi
 6. Jenis-jenis Pantun Berdasarkan pada Isi dan Bentuk
 7. Penggunaan Sendi Untuk Menyambungkan Ayat Selepas Menjadi Berlapis

SOCIAL STUDIES S.I.P.

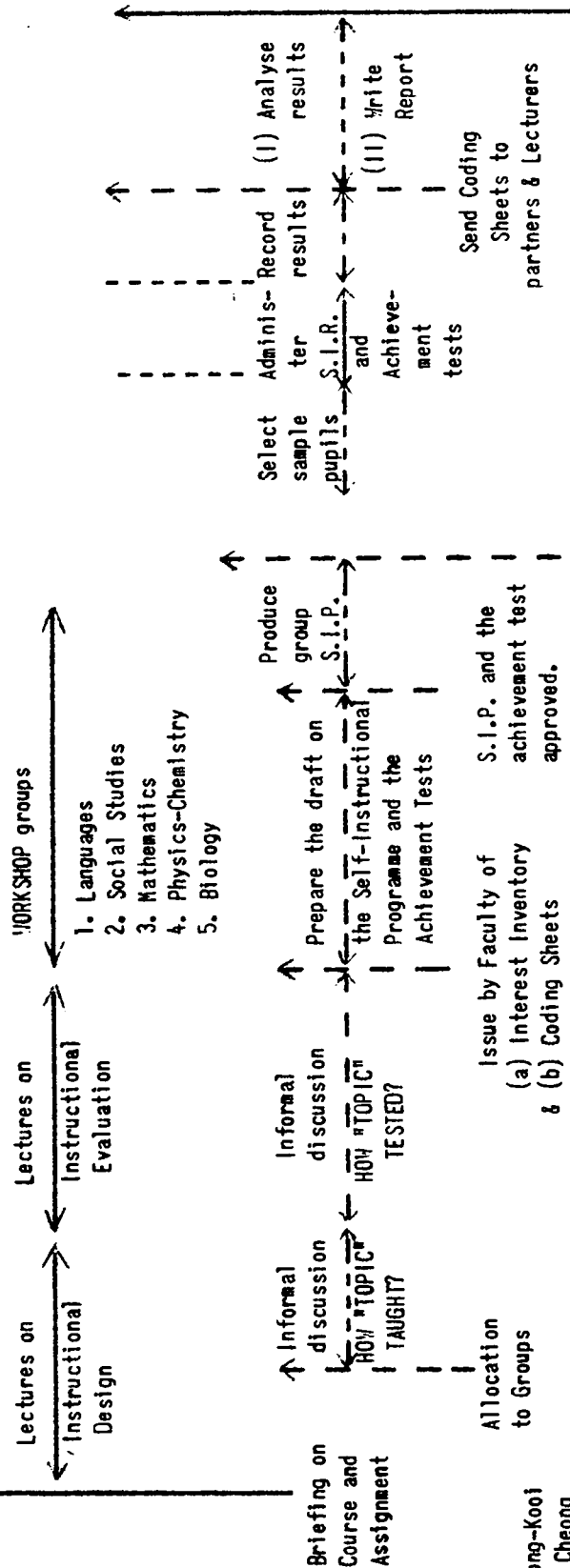
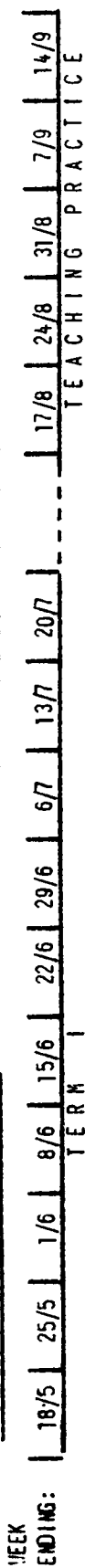
- Topics:
1. Economic Activities and Population Problem
 2. Population Change and Population Problems
 3. Factors Affecting Population Patterns
 4. The Straits Settlements
 5. Causes for the Decline of Malacca
 6. Kesultanan Melaka 1400-1511
 7. Foundation of Malacca
 8. The Advent of Islam and The Muslim Influence on Malay Society (Malacca)
 9. Struktur dan Organisasi Perdagangan di Melaka 1402-1511

In what way was this superior as a training procedure, as compared with the more traditional methods? Comparison of this nature is of course difficult when objectives are different and diverse. However, it can be safely said that for the students the experience was a novel one. They were led through

specific phases of material development, try-out, revision and testing, **and at the end** of the project acquired instructional packages which they could use in the schools, to further revise and improve. Will they become **effective teachers**? It is anticipated that the project team lecturers will include longitudinal studies on these students in the future.

PRACTICE OF PEDAGOGICAL PRINCIPLES

DEVELOPMENT OF SELF-INSTRUCTIONAL PACKAGES



SELF-INSTRUCTIONAL PACKAGE SHOULD BE READY

GROUP WORK:

1. S.I. Package: (a) S.I. Programme (b) Achievement Test (c) Interest Inventory
2. Instructional Design: (a) Listing of Objectives (b) Analysis of Concept Structure (c) Table of Specification

INDIVIDUAL WORK:

1. "Experimental" procedures
2. Date
3. Analyses: (a) Experimental vs Control (b) Item Analysis (c) Analysis of "group" Results

SUBMIT YOUR INDIVIDUAL REPORT

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