

**EFFECTIVENESS OF INDIVIDUALIZED INSTRUCTION
IN ACHIEVEMENT IN MATHEMATICS OF THE STUDENTS
OF IX STANDARD**

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Individualised Instruction

Definition

The Personalised System of Instruction is defined as the method in which each student is served as an individual by another person, face to face and one to one. In spite of the fact that the class may consist of 100 students, the Individualised Instruction teacher expects almost all his students to learn their material well and is prepared to award high grades to those who do, regardless of their relative standing in the class. He accepts the responsibility. He accepts the responsibility of meeting his goal within the normal limits of manpower, space and equipment.

Personnel

Four major individuals are necessary for efficient operations (1) The Individualised Instruction teacher, (2) Individualised Instruction Instructor, (3) Proctor, (4) Class assistant.

The Role of the Individualised Instruction Teacher

The success of Individualised Instruction programme depends upon the competency of Individualised Instruction teacher. He is the leader of this course. He plays a vital role for better output of this operation. His roles are:

1. He works as a manager and an observer
2. He deals with the situations which go beyond the control of Individualised Instruction Instructor and the Proctor.
3. He solves the problems of a student who missed the course for two weeks.
4. Special problems of handicapped students are tackled by him.
5. The deficiencies of his prepared materials for Individualised Instruction course are removed by him.
6. He maintains motivation and interest among the pupils.
7. He arranges all necessary materials and incentive for prompt work.
8. He is responsible for creating cordial and cooperative relations among the personnel. For this he praises the good work of his students and his staff.
9. He brings about democratic environment and avoids threats and punishments.

10. He pays keen attention to the consequences that follow his student's behaviour.
11. He distributes good written materials like study guide and test forms, etc.

Role of the Individualised Instruction

Instructor

1. To design the course instructions.
2. To help Individualised Instruction teacher in preparing competent written materials.
3. To set up adequate book keeping practices.
4. To cope with the inevitable day-to-day decisions regarding classroom policies.
5. To arbitrate any disagreement that may arise between a student and a proctor.

The Proctor

The proctor has the most important aspect of the Individualised Instruction in the classroom. It is through his efforts and availability that the course is 'personalised'. In most Individualised Instruction courses, a ratio of one proctor for every ten students has proved to be effective. He is a helper to the instructor. The selection of the proctors can be done externally and internally. The selection of the proctors can be done externally and internally. Externally the proctors are selected who are graduate students and internally the proctors are appointed from the students who have proved their mastery of the most course units. Internal proctors correct and discuss tests of their classmates who have not progressed so far in the course materials.

Class Assistants

Class assistants are also necessary to run Individualised Instruction courses well. They are responsible for the unit test and check out and help. One or two assistants in the class with less than 100 students are essential for smooth functioning.

Salient Features of Individualised Instruction

The success of Keller Plan depends upon the following steps which are necessary and essential features of Individualised Instruction. These are:

- a. Outcome specifications,
- b. Small units of work,
- c. Immediate and specific feedback at every step,
- d. A requirement of mastery at every step,
- e. Self pacing,
- f. Interaction with Individualised Instruction personnel,
- g. Absence of regular lectures,
- h. Successive approximation,
- i. Active responding,
- j. Critical information written by Individualised Instruction teacher about the learner,
- k. Use of Proctors and Instructors

Individualised Instruction seems to work well because it involves small units of work, immediate and specific feedback at every step and a requirement of mastery at every step. Other features seem to be less crucial.

An important concern in Individualised Instruction research is the student for whom the method is the most effective one.

The Individualised Instruction course is most beneficial for the low aptitude students. High aptitude students would do well through any other methods. It also appears to depend on the course and on the materials and procedure that Individualised Instruction personnel use.

When the content to be mastered is complex and difficult the high aptitude students may be helped more by small steps, feedback and mastery. With less demanding material the low achievers may get the extra boost from PSI methodology.

Significance of the Study

Recognizing differences and the ability to work with individual student's are the main components of teaching. Teachers who take into account student's individual learning styles constantly strive to introduce concepts by using a variety of methods. Each student's abilities and strengths should be used to enrich a curriculum. When introducing a concept, it is best to prepare as many different methods as possible (Slavin, 1986). This view also highlights the importance of a shift from conventional method of teaching to modern methods of teaching.

Objectives of the Study

1. To study the effectiveness of Individualised Instructions in teaching Mathematics.
2. To find out the extent of achievement in Mathematics of the students of standard IX

Hypothesis

The following hypotheses were framed for the study.

1. There will be no significant difference in the mean scores for achievement in Mathematics in the pre-test between control group and experimental group.
2. There will be no significant difference in the mean scores in achievement in Mathematics between the pre-test and Post-test for the control group.
3. There will be no significant difference in the mean scores Achievement in Mathematics between the pre-test and Post-test for the experimental group
4. There will be no significant difference in the mean scores in Achievement in Mathematics for the Post-test between control group and experimental group.
5. Gap closures in experimental groups will be greater than those in control group.

Development of Individualised Instruction

Three units in Mathematics for standard IX were considered for developing Individualised Instruction with the objectives of developing knowledge in the chosen unit.

Sampling Design

The sample consist 100 students for the final study. The sample was constituted by student studying in Std IX Control group and experimental group were formed. The two groups were first matched before the treatment.

Instrumentation

For the purpose of evaluating students performance in this study the following tools were developed and validated.

1. Individualised Instruction
2. Achievement Test in Mathematics

The content and the items of the above tools were subject to validation. Experts established the content validity.

Selection of the Content/Unit for the Development of Individualised Instruction

At the High School Level the students are studying Mathematics is as the core subject. Following are the major units included in the Mathematics curriculum at the Higher School Level.

IX Mathematics Unit

Unit 1 – Set Language, Unit 2 – Menstruation, Unit 3 – Trigonometry (Introduction)

Tools Used in the Study

The investigator has developed or adopted the following tools to generate the data for the present study.

1. Individualised Instruction
2. Achievement test

Method of Experimental Study

The investigator had employed three study phases which include two test phases for the collection of data and manipulation of experimental variables (i.e., content and method) of the study. The data collection was spread over for a period of four months from September to December 2009.

Analysis and Interpretation

Null Hypothesis (H₀)

1. There will be no significant difference between experimental group and control group in the pre-test performance in Achievement in Mathematics.
2. There will be no significant difference between pre-test and post test performance for control group in Achievement in Mathematics.
3. There will be no significant difference between pre-test and post test performance of experimental group in Achievement in Mathematics.
4. There will be no significant difference between experimental group and control group in the post-test performance in Achievement in Mathematics.

Table 1 Pre-Test Performance Control Group and Experimental Group

Group	Test	N	Mean	SD	"t" value	Significance
Control	Pre – test	40	25.00	8.66	0.91	NS
Experimental	Pre – test	40	23.25	8.51		
Test	Group	N	Mean	SD	"t" value	Significance
Pre – test	Control	40	25.00	8.66	1.50	NS
Post – test	Control	40	28.00	9.22		
Test	Group	N	Mean	SD	"t" value	Significance
Pre – test	Experimental	40	23.25	8.51	5.77	S
Post test	Experimental	40	34.50	8.94		
Group	Test	N	Mean	SD	"t" value	Significance
Control	Post – test	40	28.00	9.22	3.20	S
Experimental	Post – test	40	34.50	8.94		

Interpretation

This is an experimental study with pretest post test equivalent group design. The groups were matched. The control group and experimental group were identical and this indicates the nature of identicalness in tune with the pre-test mean scores of both groups. All the pre-test 't' value for control and experimental reveal no significant difference among control and experimental groups. This establishes their identical nature and no significant achievement in their pre-requisite knowledge.

The means of pre-test scores and post-test scores of control as well as experimental groups differ significantly (0.01 level) with the post test mean being greater than the pretest mean. The implication of that is that the level of acquiring of the basic skills in Mathematics has increased due to traditional method in control group and Individualised Instruction in experimental group.

The post test scores of control and experimental group differ significantly. The means score of experimental group is greater than that of control group.

Findings

There was no significant difference in the performance of the control group and experiment group in the pre test. This confirms that the control group and experimental group were matched.

There was significant difference in the post test performance of both the control as well as the experimental group. This is due to the effectiveness of the reinforcement by way of conducting the tests and exposure to the students the question pattern and awakening of awareness.

There was significant difference between the performance of the control group and the experimental group in the post test. This is in evidence of the effectiveness of Individualised Instruction.

It could be seen that the Individualised Instruction was more effective than the traditional method in teaching of Mathematics at High School level.

Conclusion

It could be observed through experimentation that Self Learning Package was an advantageous point over the traditional method in teaching Mathematics effectively Self Learning Package may be built in for developing appropriate knowledge for the rest of the units. The students evinced a lot of interest in learning Mathematics through Self Learning Package. The students who had their personal computer system showed keen interest in learning Mathematics. They found the materials quite useful with respect to objective questions and concepts. Individualised Instruction was of great use. Those students who did not have mastery in operating computer were assisted by the students who had a thorough knowledge of operating the system. This indirectly helped peer group learning also. The students who could operate the

system felt elated and very proud. This, in turn motivated the students to learn Mathematics. Concerning the mathematical aspects students knowledge could not be improved overnight.

Most of the students wanted to have Individualised Instruction covering all the units prescribed for the IX standard in Mathematics. Owing to paucity of time the investigator could not comply with the request of the students.

The investigator suggested the students that they should prepare Self Learning Package by themselves. If they possessed sufficient knowledge in programming the material.

When diagrams with labels were projected on the screen it served the purpose of reinforcement. The diagram was explained. The investigator concentrated more or less on the concepts for presenting the materials.

On the whole it could be observed that the Self Learning Package was effective in enhancing the achievement in Mathematics of the students of IX standard.

References

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2. Deobold. B. Van dalen, Understanding Educational Research an Introduction, 1976, p.215.
3. John W.Best, Research in Education, 1977, p.276