



Effects of modular and traditional approaches on students' general comprehension

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ABSTRACT

The present paper addresses the differential effect on students' general comprehension taught through modular and traditional teaching approaches at secondary school level. The study was conducted in one male and one female secondary school. Sample for conducting experiment was selected randomly from population of grade 9 students. Data was obtained through administration of general comprehension based teacher-made test. The data was analyzed by applying statistical package for social science through independent sample t test. Conclusions showed that there were significant differences between modular and traditional in general comprehension of students'. Findings depicted that students taught through modular approach gained higher mean score in teacher made general comprehension-based test than students taught through traditional approach. Findings reported significant gender difference in general comprehension of male and female students where male students performed significantly better than female students on general comprehension based test.

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Introduction

Teaching is a human activity. It is an interaction between the teacher and the learner. It is through teaching that student becomes familiar with the values and manner advocated and given priority by the society. It is a skillful activity, and applies knowledge, and scientific principles to the purpose of setting an environment to facilitate learning.

"If teaching is a the design of an environment to facilitate learning, then the teacher, in charge of that environment, has to make many decisions...towards each learner's goals" (Wong, martin & john 1974).

Researches on teaching show that learning atmosphere that is conducive for learning gives better results in successful learning. A good teacher not only intellectually challenges students, but also supports the students in their effective learning and comprehension. There are different kinds of teaching approaches. Here are discussed only two; traditional and modular approaches, and then a comparison of both has been shown in table 1.

Traditional Approach

Lecture method is considered as traditional approach of teaching. According to Hunter (1982) lectures have a bad reputation. "Telling not teaching" as the saying goes.

Sharif Khan and Akbar (1997) state that it is very traditional method. Its history goes back to the period when there was no printing. Knowledge communicated by the teacher to a student orally. The teacher depended upon his memory and transmitted the knowledge orally to his students.

Training conferences criticize them; research proves inadequacies, yet lecturing and demonstrating are still probably the most widely used teaching methods of all in adult education. In many cases the reason is the sheer force of tradition (Jenny, 1989).

Quina (1989) observes that in recent years lecture has been disregarded and maligned by some educators. Much empirical research has been amassed to show shortcomings of the lecture as an instructional vehicle. Lecture method is an effective mean of conveying information on any topic. Lectures could prove very effective to create enthusiasm and excitement about a field. It is also useful for large classes.

However, it is a great disadvantage of traditional approach that in this approach it is assumed "students are empty vessels and the teacher will fill them by his/her knowledge".

Modular Approach

Modular teaching approach is an extension and advanced shape of programmed instruction/learning. The trend of using modules as teaching-learning approach is becoming very popular in recent times. In this approach the teacher uses teaching modules prepared for specific purposes instead of traditional textbook. What is module? Moon (1988) describes module as a unit of teaching activity and learning expressed as an approximate number of hours of study. The module will be self-contained although certain combinations of modules may represent a progression through the curriculum. This change is due to the reason that in about last decade learning theories have moved from a stimulus-response point to information processing. It assists students in understanding complex and difficult concepts. In educational context, now the shift has moved from traditional teaching approach to modular teaching approach.

Modular approach dates from B.F. Skinner's and others' research in 1950s which led to the formulation of different principles of teaching and which later on became main characteristics of programmed instruction such as division of subject matter into small steps, active participation of students,

immediate feedback, and self-pacing. These are all the principles that are used in modules' making.

Moon (1988) describes that the modular studies syllabus seeks to facilitate an approach to learning, which is experiential, practical, and related to life in the community and wider world.

The differences can be shown more systematically by identifying key conditions for effective learning and comparing how these conditions are met or not met by conventional teaching and by modular instruction (Meyer, 1988).

Modular approach has proven to be an effective and efficient tool to help students learn. Most subjects can be taught with this approach. (Husen & et.al, 1986).

The following table depicts a comprehensive comparison of traditional (conventional) and modular (modern) teaching approaches:

Statement of the Problem

The problem under investigation was to assess relative merits of differential textual achievement through modular and traditional approaches at secondary school level.

Significance

The present research area is significant due to the reason that nowadays modular teaching approach has become convincingly a popular teaching approach in all disciplines and the previous studies supported the idea of research in this field as well. Its significance is evident from the fact nowadays there is dire need to introduce new methods of teaching in social sciences.

Objectives of The Study

The present the study had following objectives:

1. to compare the effects of the modular and traditional approaches in textual achievement of students;
2. to assess gender differences in textual achievement

Hypotheses

H₀₁: There is no significant difference between students' achievement in textual comprehension taught through the modular teaching approach and the traditional the aching approach.

H₀₂: There is no significance difference between male and female students in textual comprehension.

Procedure of The Study

1. The study was experimental in nature. In this experimental study, the posttest control group design was used in order to achieve the objectives of the study. The study required two kinds of information; Students' achievement in comprehension of the text.

2. Difference in male and female in text comprehension.

For achieving the objectives of the study, two teaching modules for social studies at secondary school level were developed by the researcher. For collection of data the researcher and respective teachers of social studies developed textual-based teacher-made test.

One male and one female secondary schools from district Mianwali[□] were taken for conducting the experiment and the sample for the experiment was drawn randomly from these schools among students studying in 9th grade. The researcher personally visited the sample institutions and met social studies teachers and told them the purpose of the study. The researcher trained male and female teachers in the experimental procedures of modules teaching, and gave them instructions about groups' formation, administration and scoring posttest. The following variables were similar for the control and experimental group at the time of experiment: Teachers' educational and professional qualification, teaching experience, content of the textbook of

secondary level, duration of treatment and classrooms conditions. The experiment period for both the control. and the experimental groups were considered to be equal, that was two weeks.

Total 140 students (70 girls and 70 boys) of grade 9 were randomly selected for the study and randomly assigned to experimental and control groups. Of these 140 students, four groups comprising of 35 students in each group were formed. Two male and two female teacher of the same educational and professional qualification were selected randomly from sample institutions. (Male teachers taught boys whereas female teachers taught girls at their respective sample institutions). Two of these groups, one boy group and one girls group were randomly assigned to the experimental group and the other two groups, one of boys and one of girls were assigned to the control group. It became two experimental groups; one male and one female. Likewise it became two groups of control group; one male and one female. Experimental group of boys and girls received modular instruction from their respective teachers and the control group of boys and girls received traditional instruction from their respective teachers.

The control group was taught through the use of traditional methods of lecturing. The teacher in control group taught two topics from the textbook of social studies. The experimental group was taught through modular teaching approach. The experimental teacher taught two textbook-based teaching modules of social studies developed by the researcher. The experimental teachers did most of their teaching through different kinds of activities for involvement of students in teaching-learning process.

As modules were composed on the manner of linear programming so when the teacher taught a concept then soon after it students had to accomplish the self-assessment task given in the module, (besides the activities given by the teacher at the end of the content of each objective) and before having command over one phase they could not go to next phase.

Throughout the treatment period respective teachers taught students of the experimental and control groups. Teachers from both groups in each sample institution were equal regarding length of their service, their educational and professional qualification. So experimental and control groups of boys and girls were exposed to the same experience and same content, duration of the length of treatment period was same, except the method of instruction. Objectives of social studies teaching were same for both of the classes and teacher-made test measuring achievement in text comprehension were also identical.

At the end of treatment period, textual based teacher-made test was administered to both, the control and the experimental groups at same time, at same day and for the same duration. Test was checked and respective teachers prepared results. Then the data was tabulated and analysis was made applying statistical package for social sciences (SPSS) through technique of independent samples t-test.

Data Analysis

The data for the study was collected through teacher-made test that was textual based. The collected data was analyzed on SPSS. The hypotheses of the study were tested through independent samples t-test. The analysis and interpretation of the collected data is presented below:

Analysis of students' achievement in comprehension based Test

Ho1: There is no significant difference between students' achievement in text comprehension taught through the modula

teaching approach and the traditional teaching approach.

Interpretation:

Table 2 explains that t value (-10.261) is significant at 0.05 level of significance, so the null hypotheses that: there is no significant difference between students' achievement in general comprehension taught through the modular teaching approach and the traditional teaching approach is rejected and it is concluded there is a significant difference between expl and ctrl group achievement in general comprehension. The experimental group who was taught through modular approach score higher mean ((60.41) as compared to the control group (46.96) who was taught through traditional approach.

Gender comparison in General comprehension-based test

Ho2: There is no significant difference between male and female in general comprehension.

Interpretation:-

Table 3 depicts t value (-3.963) is significant at 0.05 level of significance. So the null hypothesis that: there is no significant difference between male and female in general comprehension is rejected and concluded that there is a significance difference regarding gender comparison on comprehension based test as male students gained higher mean score (56.86) than female students (50.31).

Conclusions

It is evident from data analysis that the performance of experimental group (modular approach) is significantly better from control group (control group).

That there was a significant difference of mean scores in teacher-made achievement test where students it was higher in the experimental group i.e. the modular approach than the control group i.e. the traditional approach, which indicated that the modular teaching approach had a better impact on students' comprehension of the text as compared to the traditional approach.

Male students showed significantly better achievement in teacher made comprehension-based test than female students, which indicated there was a significant difference between male and female students in comprehension of the text.

Recommendations

1. It is apparent from the results of the present study that modular approach may be utilized for general comprehension of concepts in any subject area.
2. Teachers training workshops and seminars may be held to

train teachers in how modules could be developed in their respective subject areas and they can be offered special incentives for this purpose. Such measures can encourage and promote the practices of the modular teaching approach in Pakistan.

3. Curriculum for Islamiat (Compulsory) should be revised by including more topics related to practical life of individuals according to the teachings of the Holy Quran Teachers of all subjects can trained in using modular teaching method and there may be a proper check on teachers to ensure that they are making use of that training.

4. A teacher can fulfill the requirements of various learning styles by using modular teaching approach.

5. More research may be conducted to explore the effectiveness of modular approach on students' achievement in subjects' disciplines other than Islamiat as well, role of modular teaching on students' emotional intelligence.

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Table 1: Comparison Between Conventional Teaching and Modular Instruction

Condition for Learning	Conventional Classroom	Self-Instructional Modular	Design Implications
1. Proximity in time and space of all elements to be learned enhances learning.	Students may not get all the information to achieve the objectives but may later have to follow up with other activities in different places and at different times.	It is essentially self-contained and so all information necessary is available at the same time and place.	All related activities, media and concepts of a given package should be brought together in time and space by the structure of the programme. The relationships between all elements should at all times be clear and explicit.
2. Learning is more effective if individual differences are catered for.	Students are forced to go through the course in a lock step manner. They begin at the same time and are expected to finish at the same time.	Each student can proceed at his or her own rate and is free to skip any portion of the package as long as mastery can be demonstrated. Each student is also free to repeat any portion as often as necessary.	Care should be taken not to have strict time limits for completion of packages by learners. Packages should be designed as self-paced learning experiences. In addition some choice of tasks can sometimes cater for different interests and skills.
3. Learning is more effective if the learners are told precisely what they should be able to do after instruction	Frequently objectives are not written down and teachers are free to interpret content as they wish. Students are not told precisely the objectives of instruction.	Objectives are written down in clear, unambiguous terms.	The package should state in behavioural terms the overall objectives and each unit of the package should also list its objectives in terms of observable, measurable behaviour.
4. Structuring a learning sequence into logical steps enhances learning.	Conventional materials are typically characterized by lectures, reading the text, group discussions and sometimes as isolated laboratory experience. Many-a-time these experiences are not sequentially integrated.	Packages provide for a combination of learning experience in an integrated sequence so that each learning activity can enhance and complement the others.	The subject matter content of the package should be broken down into content elements. These elements are then sequenced in an order consistent with the learning structure of the content covered in the module. Each content element should be presented in the form of input process-output sequences.
5. Stimulus variation enhances attention and thus learning.	Teachers tend to use just one or two strategies such as lectures workshop practice, written assignments, and so on regardless of the many different types of learning in the course. (psychomotor manipulations, cognitive skills and attitudinal changes).	Different learning activities are used to objectives representing different kinds of learning. A variety of instructional activities are used to optimize learning on a given topic. Media are selected to complement the type of learner. A large variety of media can be incorporated into each package.	Each package should involve instructional activities that provide a large variety of stimuli. Learners should move rapidly from activity to activity with variety providing a change of pace and maintaining interest.
6. Active participation in learning enhances its effectiveness.	The student's role usually passive – reading the text, following instructions or just listening to the teacher.	Package provide for active student participation. Students learn by doing. Each is actively involved in manipulating the instructional materials.	Each package should involve the learners in activities, responses and in creative output. Modules based on passive reading, looking or listening will be ineffective.
7. Learning is more effective if learners receive information quickly on their rate of progress.	In traditional courses students are reinforced and corrected only after major examinations. Many times there is a considerable delay between the time when it is graded and returned.	The package permits immediate reinforcement and correction at every step of the learning.	After each active response by the learner the package should provide feedback in the form of a correct or model answer.
8. Learning as a member of a group enhances the learning of an individual.	This is catered for in conventional classes although the size of the class is often too large to reap full benefit.	Most learning packages are entirely individualized, but group experiences can be built in.	Care must be taken to build into a package small group activity wherever possible and desirable. e.g. moderation of objectives and test items, discussion sessions and so on.

Source: Modules from Design to Implementation by Meyer, 1988

Table 2

CBT1	N	Mean	t	Df	Significance
Control group	70	46.96			
Experimental group	70	60.41			

Table 3

CBT	N	Mean	T	D	Significance
Girls	70	50.31			
Boys	70	56.86			