A STUDY OF IMPACT OF ADVANCE ORGANIZERS ON STUDENTS' GENERAL COMPREHENSION

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Abstract

This paper investigates the effects of teaching students through use of advance organizers for general comprehension of learnt material at secondary school level. The study was conducted in one boys and one girls secondary school. Sample for conducting experiment was selected randomly from population of grade 10 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, based on the results of statistical analysis, showed that there were significant differences between the control and experimental groups' achievement. Students taught through use advance organizers gained higher mean score in teacher made comprehension-based test than students taught without using advance organizers. Findings of the study indicated differential influences of use of advance organizer in students' achievement in general comprehension. Findings reported significant gender difference in general comprehension of boys and girls, where boys performed significantly better than girls.

Introduction

The process of education can be explained as "teaching-learning process". In this process, the teacher tries in laboratory (classroom) through difference techniques and tactics for developing students' capabilities and providing them training to live and adjust successfully within the society. Katayama (2003) suggests that for sometime now researchers have acknowledged that the application of learning strategies during the learning process can lead to a better performance on tests. Definitely the objectives of teaching are to make students proficient in the content being taught and to make learnable and understandable for the learners. For this purpose, the teachers use variety of teaching methods in order to achieve the objectives of teaching a specific content/subject matter. Among them includes the use of advance organizer for building up connection of the new information or knowledge with the previous learnt information.

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Advance Organizers (AOs)

Advance organizers (AOs) are the principles, information's or views which the teacher introduces in the beginning of the lesson and on that material he places the major part of his lesson.

According to Ausubel (1963), AOs are based on the prior knowledge of the students. Thus, they activate the learner's prior knowledge. They act as subsuming bridge between the new material and existing related knowledge. Ausubel says that "advance organizer is an 'intellectual scaffolding' to structure the ideas and facts they encounter during their lesson". Ausubel (1963) describes that advance organizer is an "intellectual scaffolding" to structure the ideas and facts they encounter during their lesson. A large number of studies have been conducted on the effects of advance organizers in learning. The studies showed that when the teachers have given explanation of new ideas in such a manner that it related with learners' prior knowledge, it helped a lot in comprehension of text material for the students and so they concentrate more on learning process.

Arends (1998) explained Ausuble's theory of advance organizer in this way. "He was particularly interested in the way the knowledge is organized hierarchically and how the human mind organizes ideas. He explained that at any point in time a learner has an existing "organization, stability, and clarity of knowledge in a particular subject-matter field."

A number of recent research findings have shown that the ability to relate new information to prior knowledge is important text comprehension of the students. Vosniadou (2001) observes that new knowledge is constructed on the basis of what is already understood and believed.

Mary (2003) observes that "Advance Organizers" are also highly useful in the process of transferring knowledge. Because of the deductive reasoning, the students are able to use the rule than the example for learning to occur. Mayer writes in his text: "...the effects of advance organizers should be most visible for tests that involve creative problem solving or transfer to new situations, because the advance organizer allows the learner to organize the material into a familiar structure." (Mayer, 2003 online reference retrieved on 13-03-2009)

Dr. Sufiana (2004) conducted a study on modular approach in which she used the advance organizer in beginning of every module. The findings of her

study depicted better impact of use of advance organizers on students' moral sense development as compared to the traditional approach.

Joyce and et. al (1992) investigated that the conceptual structure defined by organizers needs to be integrated with the information that has been presented and also reconciled with the students' personal intellectual structures.

Herbert and et. al (1999) are of the view that advance organizers help the students to focus on key ideas by enabling them to anticipate which points are important to learn. Understanding the sequence or continuity of subject matter development, moreover, can be motivating.

Joyce (1986) states that essentially, Ausubel has provided us with a method for improving not only presentations, but also student's abilities to learn from them. The more we teach students to become active.

Siddiqui and Khan (1991) describe that "Panda (1986) determined the effect of AO on learning from text material of ninth grade pupils: the effect of set induction on learning of ninth grade pupils, the effect of AO and traditional method of teaching on the achievement of ninth grade pupils. He found that the difference between the mean of achievement of pupils studying through AO set induction and traditional method were significant".

Senapati (1986) in his comparative study found that AO was more effective than both programmed learning method and traditional method. Oppong (1978) investigated the facilitating effects on achievement. The finding shows that the use of AO before each text chapter, showed significant superiority in achievement when compared with the non-organizer group using only text material. Morgan (1985) assessed the effect of two types of pre-laboratory exercises when used as advance organizers in an introductory biology laboratory course on student's achievement and attitude towards biology. The sample consists of 40 students. A Likert scale was utilized. The findings showed that there was a statistically significant facilitating effect of advance organizer on students' achievement and their attitudes.

Walberg and Paik (1999) describe about the importance and the role of advance organizers by stating that more than dozen of studies have shown that when the teachers explain how new ideas in the current lesson relate to previous lessons. Students can connect the old with the new. This allows them to concentrate on the most crucial parts of the lessons.

The studies which have been conducted in the field of advance organizer have provided sufficient grounds for the researcher to conduct a research in the area for students' comprehension of text material. So, the researcher decided to conduct a research on "A Study of Impact of Advance Organizer on Students' General Comprehension".

Statement of the Problem

The problem under study was to explore the impact of the use of advance organizer on students' general comprehension of learnt material.

Rationale of the Study

The significance of study is apparent from the fact that the educational policies of the Government of Pakistan lay emphasis upon developing of critical thinking among the students and enabling them to generate knowledge. The students could be critical and can generate knowledge when they have clear understanding and comprehension of the taught material/ concepts. The policy-makers will benefit from the study.

Objectives of the Study

The study was conducted to achieve the following objectives:

1. To explore effects of use of advance organizer on students' general comprehension;
2. To measure differences between boys and girls students in general comprehension.

Null Hypotheses of the Study

1. There is no significant difference in students' general comprehension of learnt material taught through use of advance organizer and taught without using advance organizer.
2. There is no visible difference in general comprehension of boys and girls students.

Delimitation

The study was delimited to the following factors:

1. To students of class 10^{th} in public sectors institutions.
2. To boys and girls of class 10^{th} of public sector secondary schools.
3. Assessing general comprehension in the subject of Pakistan Studies.
4. Meaning of general comprehension was taken as how well the students had comprehended the general concept underlying a particular text material.

Population and Sample

All the students studying in class 10th in public sector secondary schools, were selected for the study. A sample of 140 (seventy boys and seventy girls) students was selected for conducting the experiment for the study was selected from boys secondary and a girls secondary public sector secondary schools located in Mianwali district. Two male teachers from boys secondary school and two female teachers from girls secondary school, having equal academic and professional qualification (M.A B. Ed) and were teaching Pakistan Studies to the students of 10th classes, were selected for teaching of Pakistan Studies for the treatment period.

Research Instrument

Two kinds of teacher-made pretest and posttest were developed by the researcher. A pre-test was developed which based on the information of general comprehension. The teacher-made posttest was developed in the subject of Pakistan Studies for class 10th. This aimed at testing how well the students have comprehended the general concept underlying a particular text. The test was validated through experts' opinion. Three experts reviewed the test in the light of the objectives of the study, and when they validated, it was administered on the sample.

Procedure of the study

The study was experimental in nature. Pre-test post-test control group design was adopted. This design was adopted in order to avoid the threats of the internal validity. The treatment period was lasted for three weeks. The available related literature in the form of books, research reports, and periodicals, government documents was consulted to develop a theoretical framework for the study. Keeping in view the objectives of the study, the researcher developed three modules using advance organizer for chapter first and second of the textbook of Punjab textbook board Lahore.

The researcher gave two-days training in teaching of Pakistan Studies module to teachers who have to teach using modules of this discipline. Before beginning of a treatment period, a teacher-made pretest administered to boys and girls of 10th class in their respective schools in order to ascertain that all the students were similar. Four groups were formed randomly, comprising 35 students in each group. Two groups were of girls and two were of boys. One group of 35 boys and one group of 35 girls were randomly assigned to control and one group of 35 boys and one group of 35 girls was randomly assigned to experimental group. There were two control groups, one boys one girls and two

experimental for one boys and one girls groups. Male and female teachers were randomly assigned to the control and the experimental groups for teaching of Pakistan Studies at their respective schools. Physical facilities and teaching content was the same for the control and experimental groups at their respective schools.

The teachers in experimental groups (boys and girls) taught chapter 1-2 by using modules developed by the researcher. In teaching of modules, experimental teachers conducted following practical activities in the class for concept comprehension:

1. Group discussion
2. Preparing Charts and Tables
3. Demonstration
4. Creating Mind Mapping
5. Debates

In experimental groups, the teachers began their lesson by presenting advance organizers. In this way they tried to relate students' previous information with the new information and activate students' schemea. There was an atmosphere of teacher-students interaction. The students had the freedom to ask questions from teacher for clarification of the concepts. After teaching a topic, the teacher invited the students for general discussion so that students might comprehend the topic.

In the controls groups, there was no introduction of advance organizer. Teachers just began their lesson through verbal lecture. There was no atmosphere of teacher students' interaction.

At the end of treatment period, the teacher-made posttest was administered to all the students in control and experimental groups at the same time and for the same duration. Teachers of respective groups marked the tests and handed it over to the researcher.

Data Analysis and Interpretation

The collected data were analyzed by using independent sample t. test and by applying Statistical Package for Social Sciences (SPSS) .15 versions. The hypotheses of the research were tested on 0.05 level of significance. The detail of data analysis is described below:

Table – 1

Analysis of students' achievement in teacher-made pre test

Pretest	N	Mean	T	Df	Significance
Girls	70	23.29	-.372	69	.711
Boys	70	23.47			

Interpretation

Table 1 indicates that t value (-.372) not significant at 0.05 level of significance, so it is obvious that there was no significant difference between students in control and students in experimental group before the beginning of the treatment. They were similar.

Analysis of students' achievement in teacher-made general comprehension test

H_{o1}: There is no significant difference in students' general comprehension of learnt material taught through use of advance organizer and taught with out using advance organizer.

Table – 2

Posttest	N	Mean	T	Df	Significance
Control group	70	46.96	-10.261	135.680	.000
Experimental group	70	60.41			

Interpretation

Table: 2 depicts that t value (-10.261) is significant at 0.05 level of significance, so the null hypotheses that: there is no significant difference in students' general comprehension of learnt material taught through use of advance organizer and taught with out using advance organizer is rejected and it is concluded there is a significant difference between experimental and control group achievement in general comprehension of learnt material. The experimental group who was taught through use of advance organizers scored higher mean (60.41) as compared to mean score (46.96) of the control group who was taught without using advance organizers.

Analysis of Gender Comparison in General Comprehension:

H_{o2}: There is no significant difference in general comprehension of boys and girls students.

Table – 3

Posttest	N	Mean	T	Df	Significance
Girls	70	50.31	-3.963	138	.000
Boys	70	56.86			

Interpretation

Table: 3 explains t value (-3.963) is significant at 0.05 level of significance. So the null hypothesis that: there is no significant difference in general comprehension of boys and girls students is rejected and concluded that there is a significance difference regarding gender comparison of boys and girls as boys gained higher means score (56.86) than girls (50.31).

Discussion and Conclusion

The study explored the impact of use of advance organizer on students' general comprehension. The results of the present research are inconsistent with Opping (1978), Morgan (1985), Panda (1986), Senapati (1986), Joyce and et. al (1992), Herbert and et. al (1999), Mayer, 2003 , Sufiana (2004) and many more explored the effects of use of advance organizers for better learning of the students and they reported effective results in findings of their researches.

In previous researches where such groups that were taught through use of advance organizers, gave better results than those who were taught without using advance organizer. So the results of present research are in consistent with all these researches. The learner has an existing set of concepts and information in a particular subject area and as Ausubel (1963) describes advance organizer as an "intellectual scaffolding" to structure the ideas and facts which they encounter during their lesson. The results achieved from the study are in consistent with Ausubel's theory. The use of advance organizers has broadened the existing schemata of the students. That is why they were in better position to respond questions of general comprehension.

Recommendations

1. Findings of the present study revealed that use of advance organizers in the beginning of the lesson can motivate students for learning and they can organize learnt material for general comprehension.
2. Findings pointed out that the students' achievement in general comprehension may be made better by teaching them through use of advance organizers.
3. The study offers practical implications for using advance organizers as an introductory material in the beginning of lesson.
4. Further researches may be investigated for using advance organizers for the purpose promoting and generating knowledge capability in learners.
5. Findings of the study revealed that boys were better than girls in general comprehension; further research studies may be conducted to determine its reasons.

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