Effectiveness of Computer Multimedia Interactive Strategy on Achievement in Geography Among Ix Class Students

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Abstract: "Geography is science of earth surface, form, physical features, natural and political divisions, climate, production, population etc., Oxford Dictionary. The meaning of geography has undergone many changes like other subjects, from generation to generation and from age to age in accordance with changing intellectual capacity of various races inhabiting different parts of the world.
Geography has to be studied emphatically special skills and abilities such as observation skill, geography process skills and reasoning ability in geography have to be developed among the students. For this purpose educational technology came for assistance to introduced programmed text learning, computer assisted learning and discovery learning etc. Are being introduced in school curriculum.

INTRODUCTION

The present expansion of computer industry has made it possible foe schools to utilise for education purpose. The specific future of computer like integration of multimedia such as text, sound, video, graphics and animation, which together can multiply, the impact of the message. Interactive and storage capacity can advantageously used for teaching to the students through self instructionalprogrammes. Computer facilitate for individualised learning in the true sense. Unfortunately very few attempts have been made by the teachers in this regard and at the same time imperfect commercial products are posing treat to educational field. In this situation the present study is intended to make available quality of multimedia package that could provide assistance to both teachers and students to develop required skill in geography use of multimedia interactive strategy provokes radical changes in the entire teaching learning processes.
Teachers can become facilitators, counsellor in the process of learning insted of being primary providers of information; thereby the teacher will become secondary in the core learning process. Multimedia learning packages are becoming substitutes for traditional teacher-cantered methods. Insure that geography classes have proper equipment. Modern geography classroom should be equipped with at least one computer with appropriate programmes. Access to computer labs for the active manipulation of data and research should be a regular and frequent part of all geography programmes. At secondary school level, programmes with data base manipulation functions and network accesses are needed.

Background:
It is relevant to note that Curriculum of teaching in Vedic period was nothing but Vedas and other holy stories. The teacher used to teach like preacher. The teacher was the centre of the education, the teacher played an important role on his part of teaching and pupils remained passive. The curriculum of education was mostly based on moral values. The

teaching methodology was modified gradually from teacher centered to pupil centered and the curriculum was modified from theoretical to practical. Lecture method was no need to find cause and effect relation in the contents of the curriculum. There was no scientific approach for having real experience to find the facts what the pupils were taught. Reasoning, logical thinking and problem solving should be inculcated among the pupil along with the way of explosion of knowledge in establishing knowledge based society. The present day curriculum is being transacted with activity based teaching using traditional methods in schools. Now the trend has changed and innovative teaching methods are used by using ICT in classroom teaching. Teaching methods like demonstration method, lecture cum demonstration, project method, inductive, deductive method and some other methods of teaching were invented to overcome teaching difficulties in curriculum.

Teaching learning material is being used to replace the traditional methods of teaching and enable the child 16 to understand the content. Great social technological changes confront and inevitably effect teachers and their relationship with learners and learning problems. The nature and needs of learners and development of new information need to change the curriculum to compete with the global learner. Impact of new communication tools and techniques as they relate to pupils expectations and responsiveness, the teacher is faced with three primary and somewhat conflicting needs that are to keep up to date information in his field of learning. The need of hour is to deal with individual differences and school population explosion to understand and apply the best of class room oriented communication practices. The task of teaching is becoming more exacting and more compulsion and it also become more stimulating and more rewarding. The teacher is unable to arrange suitable learning experience and appropriate communication techniques for transacting activity based curriculum in the overcrowded classroom situations. Sharing of ideas or opinions with others can be understood with the definitions of modem educationists and teaching communication teachers. They opine that communication as transmission of ideas attitudes or emotions from one person or group to others primarily through symbols and communication is used to send messages from source to receiver.

Generally, communication involves sender, channel, message and receiver. Communication is essential tool for creation of better teaching and learning process and face the challenges, problems. The teacher has to make use of all necessary ways of teaching to improve his teaching ability. Today schools provide more time in schools so the teacher whose knowledge level is confined to a particular area of the subject could not carry all the leasable information on the text book the core instructional medium will not remain to communicate with efficiency. At this juncture, new communication techniques educational media using ICT are necessary for improving positive attitudes of teachers for communication useful information to the learners. Instructional material like film, filmstrips, slides, charts, models and other Audio-Visual aids should be provided to the teachers for their better teaching. It is important to use the effective ways of communicating to learners, the basic knowledge, skills, understanding and concepts they need in order to move intelligently into a citizenship role but the gap exists between this idea and practice. To reduce this gap and to establish further the need for the greater use of the new media learning sources in schools are required.

Modern communicating systems have made our world as global village. In order to know the world one should be able to experience the communication process fully at first hand. We should provide new appropriate and firsthand experience to the learners because the

world become increasingly more complex as it becomes increasingly impossible to provide children with actual first hand information or experience. Successes in classroom is associated with clarify and understand ability with which the messages communicated by the teacher. The basic communication process in between the sender and the receiver should be clearly recognizable and completely understandable. It is time teachers realized that the school must have effective means of communication, if it is to be held responsible for successfully commanding the attention of children and for arranging suitable instructional opportunities. Now the teacher has challenges of changing the methodologies from teacher centered to child centered education and to get woman centered family, human centered development and acquiring innovation centered knowledge.

The importance of minimum level ofmastery of ICT on the part of teachers cannot be overemphasized. If the ICT in teaching school curriculum is to be successfully implemented in school education programs then teachers themselves should possess the requisite knowledge and proper attitude towards ICT in teaching and teaching preparation programs. A survey of the level of knowledge and attitude towards using ICT in school education and teacher education among teachers can provide a sound foundation for quality in school education. It is pertinent to explore that the increasing level of knowledge of ICT on the part of teachers is related to the attitude of teachers to aware and use of information and communication technology in teaching in our school education system.

Significance

Commonly accepted definition of geography is: It is the science of areal differentiation. Geography is a dynamic and vital, study and coordinating discipline between natural and social sciences. It is studies empirically. It is an observing science, Its emphases on current events.

Unless geography is taught with right method, it is very difficult for the student to understand the world phenomena, cause and effect relation of many geographical factors, such as climate and human culture.

It is a matter of common experience and observations of many teachers and investigators of geography that there is a need for investigation in the field of pedagogy for teaching of geography which helps to improve the level of achievement.

From the privies studies of both national and international level, it can be concluded that the findings of all studies or conclusive, contradictory or conflicting. The reason may be that all privies investigators used different types f tools available, depending upon the severity of the problem to be studied, dealing with different cultural samples and subjects. The other reason may be that they used differential structural design of the study.

REVIEW OF LITERATURE

Shah and Agarwal (2021) conducted a research study to evaluate teachers, attitude towards computer education as well as computer assisted instruction (CAI). They found attitude positive in all the groups, thought female teachers showed more positive attitude towards CAI.

Kothari and Chowdari (1998) studied the significance difference between boy and girl students with respect to pre-test scores, post-test achievement in geography scores of students of secondary schools.

Purushothaman and Stella (2006) studied the effectiveness of teacher control interactive video for group instruction and found that it yielded better academic achievement as compared to the traditional method. The teachers pre-sent with video lessons made the most desired impact. The research study concluded that the teacher's component should not be eliminated.

Scope of the Study

1. **Improving Academic Achievement**

Computer multimedia interactive strategies can enhance students' understanding of geographical concepts such as landforms, climate, and resources, which may lead to better academic performance among Class IX students.

2. **Enhancing Conceptual Understanding**

Multimedia tools like animations, digital maps, and simulations help students visualize complex geographical processes such as volcanoes, earthquakes, and river systems.

3. **Increasing Student Engagement**

Interactive multimedia lessons make geography classes more interesting and encourage active participation compared to traditional lecture methods.

4. **Developing Spatial Thinking Skills**

Digital maps, globes, and geographic simulations help students develop map-reading skills and spatial awareness.

5. **Supporting Different Learning Styles**

Multimedia integrates **text, images, audio, and video**, which helps visual, auditory, and kinesthetic learners understand the subject more effectively.

6. **Promoting Self-Learning and Independent Study**

Computer-based learning allows students to explore geographical topics at their own pace and review content multiple times.

7. **Improving Retention and Memory**

Learning through multimedia experiences helps students remember information for a longer period.

8. **Encouraging Use of Technology in Education**

This strategy promotes digital literacy among students and teachers and integrates modern technology into classroom teaching.

9. **Applicability to Secondary Education**

The strategy is particularly useful for secondary school students (Class IX) because geography at this level includes many visual and practical concepts.

Objectives of the Study

1. To study whether there is interaction effect of teaching groups (conventional, experiment group) and attitude towards geography (Low, High) do not account for significant differences in achievement in geography of secondary school students.
2. To study whether there is significance difference between boy and girl students with respect to pre-test scores, post-test achievement in geography scores of students of secondary schools.
3. To study whether there is significant difference between conventional group and experiment group with respect attitude towards geography of secondary school students.

Hypothesis of the Study

1. There would be no significant impact of conventional group and experiment group with respect to the pre-test and post-test academic achievement in geography of secondary school students.
2. There would be no significant difference between boy and girl students in geography scores of students of secondary schools.
3. There would be no significant impact of teaching groups (conventional, experiment group) and attitude towards geography scores of secondary school students.

Data Collection

The sample for investigation consisted of 240 IX class students in Tirupati district. The stratified random sampling was applied in three stages i.e. conventional and experiment group and attitude towards geography, boy and girl students achievement in geography and conventional and experiment group academic achievement in geography. It is 2 x 2 x 2 factorial design with 240 sample. After visiting the schools with the permission of the headmaster the data was collected. The present study is an experimental design of parallel pre-test, post-test experimental design which involving control group (Teaching through conventional method) experimental group (teaching through multimedia interactive strategy) Effects on different treatments determined by pre and post-tests.

RESULTS AND DISCUSSION

Table -1 - The Results of Paired t-Test between Pre and Posttest Scores of Achievement in Geography of Secondary School Students of Conventional Group, Experimental Group 1 and Experimental Group 2 (N=150)

Group	Test	Mean	Std.Dv.	Mean Diff.	SD Diff.	Paired t-value	p-value	Signi.
Conventional Group (N=50)	Pre test	43.7800	6.2802	-1.0000	6.6884	-1.0572	>0.05	NS
	Post test	44.7800	7.9496					
Experiment Group 1 (N=50)	Pre test	35.5000	7.8253	-21.7800	10.1243	-15.2117	<0.05	S
	Post test	57.2800	10.8139					
Experiment Group 2 (N=50)	Pre test	37.3000	8.1497	-22.3000	6.5035	-24.2460	<0.05	S
	Post test	59.6000	7.6211					

From the above Table, we clearly seen that,

1. A difference between pre (mean=43.7800) and posttest (mean=44.7800) Achievement in Geography of students in conventional group is found to be not significant (t=-1.0572, P>0.05, S) at 0.05 level of significance. Hence, the null hypothesis is accepted and alternative hypothesis is rejected. It means that, the pre and posttest achievement in geography scores of students are similar in conventional group.

2. A difference between pre (mean=35.5000) and posttest (mean=57.2800) Achievement in Geography of students in experimental group 1 is found to be significant (t=-15.2117, P<0.05, S) at 0.05 level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the posttest Achievement in Geography are higher than the pre-tests scores of students of experimental group 1.
3. A difference between pre (mean=37.3000) and posttest (mean=59.6000) Achievement in Geography of students of experimental group 2 is found to be significant (t=-24.2460, P<0.05, S) at 0.05 level of significance. Hence, the null hypothesis is rejected and alternative hypothesis is accepted. It means that, the posttest Achievement in Geography are higher than the pre tests scores of students in experimental group 2.

Table-2 The Mean and SD Values of Different Variables in Conventional Group by Gender of the Student (N=50)

Variables	**Summary**	**Boys (n=23)**	**Girls (n=27)**	**Total (n=50)**
Pre Test Scores of Achievement in Geography Test	Mean	43.2609	44.2222	43.7800
	Std.Dev.	6.7704	5.9247	6.2802
Post Test Scores of Achievement in Geography Test	Mean	45.6957	44.0000	44.7800
	Std.Dev.	6.6976	8.9314	7.9496
Attitude Towards Geography	Mean	60.5652	60.1111	60.3200
	Std.Dev.	9.8064	11.6068	10.7104
Reasoning Ability in Geography	Mean	39.6957	41.2963	40.5600
	Std.Dev.	5.1649	4.7783	4.9741
Intelligence (RPM) Scores	Mean	44.0000	43.5926	43.7800
	Std.Dev.	3.7295	3.5976	3.6269
Geography Process	Mean	38.6087	37.7778	38.1600
	Std.Dev.	4.3248	4.5517	4.4233

The above table presents the mean and SD values of pre test scores of Achievement in Geography, post test scores of Achievement in Geography, attitude towards Geography,Reasoning Ability in Geography, intelligence (RPM) and Geography process scores in conventional group by gender. The mean value of pre test Achievement in Geography of students is 43.7800±6.2802. In which, the girl students have higher pre test

Achievement in Geography (44.2222±5.9247) as compared to boy students (43.2609±6.7704). However, the mean value of post test Achievement in Geography ofstudents is 44.7800±7.9496. In which, the boy students have higher pre test Achievement in Geography (45.6957±6.6976) as compared to girl students (44.0000±8.9314). The mean and SD values of other variables i.e. Attitude towards Geography, Reasoning Ability in Geography, Intelligence (RPM) and Geography process scores in conventional group by gender are also presented in the above table.

Table-3 - Pair wise Comparison of Conventional Group, Experiment Group 1 and Experiment Group 2 by Scheffes Multiple Post hoc Procedures (N=150)

Variable	**Group**	**Conventional Group**	**Experiment Group 1**	**Experiment Group 2**
Attitude Towards Geography	Mean	60.3200	69.5000	67.9000
	Conventional Group	-		
	Experiment Group 1	0.0000*	-	
	Experiment Group 2	0.0002*	0.6608	-
Reasoning Ability in Geography	Mean	40.5600	44.0800	44.5000
	Conventional Group	-		
	Experiment Group 1	0.0001*	-	
	Experiment Group 2	0.0000*	0.8737	-
Intelligence (RPM)	Mean	43.7800	49.1000	50.8600
	Conventional Group	-		
	Experiment Group 1	0.0000*	-	

	Experiment Group 2	0.0000*	0.1658	-
Geography Process	Mean	38.1600	42.9800	45.2000
	Conventional Group	-		
	Experiment Group 1	0.0000*	-	
	Experiment Group 2	0.0000*	0.0089*	-

***p < 0.05**

From the results of above Table showed that,

- The students of conventional group and experiment group 1; conventional group and experiment group 2 differs significantly with respect to attitude towards geography at 0.05 level of significance. It means that, the students of experiment group 1have higher attitude towards geography scores than the students of experiment group 2 and conventional group.
- The students of experiment group 1 and experiment group 2 do not differs significantly with respect to attitude towards geography at 0.05 level of significance. It means that, the students of experiment group 1 and experiment group 2 have similar attitude towards geography scores.
- The students of conventional group and experiment group 1; conventional group and experiment group 2 differs significantly with respect to intelligence (RPM) at 0.05 level of significance. It means that, the students of experiment group 2 have higher intelligence (RPM) scores than the students of experiment group 1 and conventional group.
- The students of experiment group 1 and experiment group 2 do not differs significantly with respect to intelligence (RPM) at 0.05 level of significance. It means that, the students of experiment group 1 and experiment group 2 have similar intelligence (RPM) scores.
- The students of conventional group and experiment group 1; conventional group and experiment group 2 differs significantly with respect to geography process at 0.05 level of significance. It means that, the students of experiment group 2 have higher geography process scores than the students of experiment group 1 and conventional group.
- The students of experiment group 1 and experiment group 2 do not differs significantly with respect to geography process at 0.05 level of significance. It means that, the students of experiment group 1 and experiment group 2 have similar geography process scores.

Educational Implications of the Study

The present study has many educational implications on various aspects. The purpose of the study is to find out the effective strategy for teaching geography at the secondary school level. It is intended to knowThe effect of multimedia interactive strategy, programmed learning and conventional teaching strategy on achievement in geography. Also the present study reveals the relationship between dependent and independent variable which were

found to be significant. The results of the present study is of much importance and is of vital concern of classroom teacher, curriculum designer and researchers. The results of the present study appear to be hopeful and positive. The key point in the total system is the teacher and pedagogy used for teaching. New technologies and innovative strategies should be used for teaching geography in turn it develops the right type teaching learning environment in school. It help in improving high performance in the subject and also helps in improving the right attitude towards geography, reasoning ability and geography process.

The findings of the present study may be helpful for students, teachers, principals, curriculum designer and school guidance counselor. The teaching and pedagogy should be head and heart touching of the students which provides and fosters their geography process skill, reasoning ability, intelligence and attitude towards geography. Further, the research findings indicate that there is significant positive correlation between dependent, independent and control variables. Hence, the educational practice nor should be taken care of pedagogical information and new innovative strategy in turn which fosters the intellectual ability, reasoning, process skill, attitudinal behaviour of students and achievement. It helps them to lay the strong foundation for their further course of learning. If teacher used multimedia interactive strategy for teaching the subjects which attract the student and helps them to achieve more.

The present study shows high influence on multimedia interactive strategy than PL and conventional strategy. Hence teacher has to develop and standardise multimedia interactive based learning and teaching package which enhances the achievement of learner in addition to it fosters reasoning process skill and change in the attitudinal behaviour of the learner. Teacher has to face many challenges in the present classroom practices. Hence, there is need to make use of effective pedagogy and innovative practices for teaching learning of geography.

CONCLUSION

The study revealed that the computer multimedia interactive strategy is more effective than the traditional teaching method in improving the achievement of IX class students in Geography. Students who were taught through multimedia tools such as animations, videos, maps, and interactive presentations showed better understanding of geographical concepts. The use of computer multimedia increased students' interest, motivation, and active participation in Geography classes.Multimedia learning helped students visualize geographical processes like climate changes, landforms, and natural phenomena more clearly. The strategy supported better retention of knowledge, as students could remember information for a longer period through visual and interactive learning experiences. The study also indicated that multimedia-based teaching helps develop map-reading and spatial thinking skills among students.Overall, the findings conclude that computer multimedia interactive strategy is an effective instructional approach for enhancing academic achievement in Geography among IX class students.Therefore, teachers are encouraged to integrate computer multimedia tools in classroom teaching to make Geography learning more effective and meaningful.

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