Computer Assisted Instruction (CAI) programme for Gujarati Language Students having Different Educational Achievements level

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Abstract:
The computer is one of the most important and outstanding inventions that has made an increasing and powerful impact on the working methods of research and development in the field of science and technology and has revolutionized everyday social life in the advanced countries of the world. Computers are being used in the areas of Transportation, Communication, National Defence, Food material production, scientific research and Education. Present study deals with construction and effectiveness of Computer Assisted Instruction (CAI) Programme for Gujarati Language students having different educational achievement level. Effect of High, Middle, and Low educational achievement level of students of standard IX on CAI programme was checked in the study. Total 96 students were selected by purposely from 15 Secondary Schools of Vadali town (S.K.-Gujarat). It is an experimental based research work. Mean, S.D. and Standard Error and't' value were calculated for testing hypotheses. It was found that CAI Programme was effective for students having High and Middle educational achievement level. While more effective for students having Low educational achievement level.

Keyword: *CAI Programme, Different educational achievement level, Gujarati Language, Standard IX, Evaluation test, VIII Exam result, Gujarati medium students, Effectiveness.*

1. Introduction

In the words of Dr. A. P. J. Abdul Kalam, "The competitiveness is powered by knowledge power. Knowledge power is powered by innovation. Innovation is powered by science and technology and technology is powered by resource investment" Education is the only mean through which a society adjusts with its needs. Therefore a society can never exist without education. Through education, the members of a society learn the skills to enrich, transmit and transform cultural heritage as well as existing social and scientific knowledge for the continuous advancement of the society. Teaching learning process has been inseparable to human being since ancient times. Leaders of human thoughts have endorsed memorable words about education, knowledge and learning. An educational system is explicitly based on the quest, what to teach and how to teach. "What to teach" means the learning material. The continuum of learning material swings from linguistic to scientific knowledge. The choice of contents and subject from the multifarious branches of knowledge is subjected to social needs.

According to John Dew "The child should learn through action " and afterwards he gave one educational principle 'Learning by doing' So we accept the importance of students in our education system. For all- around development of students we should make more effective teaching – learning process. For this Educational Technology is pre -requirement. In present scenario the use of new teaching method and educational technology is growing which is good sign for education. Quality has become the key word in the present globe due to the Third wave change, Globalization,

Industrialization and Liberalization. There is no existence in education without quality. The quality of education largely depends on the quality of instruction provided in our classroom as well as depends on teaching methods and techniques used by the teacher.

Teacher's position is in danger in the periphery of learning because the concept of learning is developing or changing day by day. The meaningfulness of learning depends on the learner but the success of learning depends on the teacher who is responsible for adequate class-room interaction. To fulfill this function the teacher should use the various methods and techniques of teaching in the class room. The computer technology has brought a great change in the class room teaching and learning process. So the researcher thought to study effectiveness of Computer Assisted Instruction (CAI) programme for Gujarati Language students having different educational achievement level.

2. Computer Assisted Instruction (CAI)

Computer assisted instruction means Instructions provided with the help of computer using multimedia approach, for self learning. According to Encyclopedia of Britannica CAI means, "A programme of instructional material presented by means of a computer or computer system." Historically, computer aided instruction, which is also called computer assisted instruction (CAI) has roots in Pressey's 1925 multiple-choice machine and the punchboard device, which foreshadowed the network supported tutorials of today. Pressey's multiple-choice machine presented instruction, tested the user, waited for an answer, provided immediate feedback and recorded each attempt as data. Later CAI researchers observed that algorithms for teaching with CAI had to incorporate either the physical programming or authoring to run the computer program and the instructional programming required to learn from the program. Presently different types of CAI are available:

- Tutorial mode
- Drill and practice mode
- Simulation mode
- Discovery mode
- Gaming mode

In the Tutorial mode, information is presented in small units followed by a question. The student's response is analyzed by the computer and an appropriate feedback is provided. This is similar to programmed instruction. As in programmed instruction the information may be given in a linear fashion or in branched pathways. In the Drill and practice mode, the learner is provided a number of graded examples on the concepts and principles learnt earlier. The idea is to develop proficiency and fluency through doing. All the correct responses are reinforced and the incorrect responses are diagnosed and corrected. The computer continues the drill until mastery is achieved by the learner. In the Simulation mode, the learner is presented with scaled down simulated situations bearing correspondence with the real situations. Simulations are made to avoid risk, save money and conserve time. Simulation of an aero plane in flight, an experiment on titration, a nuclear reaction, collision of two bodies etc. are good examples of the simulation mode. In the Discovery mode, the inductive approach to teaching and learning is followed. The learner is encouraged to proceed through trial and error approach, i.e. by solving a given problem, realizing where and how he/she went wrong, trying again and finally solving the complex problem. In the Gaming mode, the learner is engaged in playing opposite the computer or opposite another learner. The extent of learning depends upon the type of the game. Games on spelling, names of places and general knowledge are some examples of the gaming mode.

2.1 Advantages of CAI

Contemporary CAI is either downloaded from an Internet site and run locally, or it is shipped on DVD with a colourful reader and links to a companion website. Some CAI programs even run interactively online. The main advantages of developing CAI Includes;

- One-to-one interaction.
- Great motivator.
- Freedom to experiment with different options.
- Instantaneous response/immediate feedback to the answers elicited.
- Self pacing - allow students to proceed at their own pace.
- Helps teacher - can devote more time to individual students.
- Privacy helps the shy and slow learner to learn.
- Individual attention.
- learn more and more rapidly.
- Multimedia helps to understand difficult concepts through multi sensory approach.
- Self directed learning – students can decide when, where, and what to learn.

3. Limitations of CAI

CAI has its own limitations like;

- Learner may feel overwhelmed by the information and resources available.
- Over use of multimedia may divert the attention from the content.
- Learning becomes too mechanical.
- Lack of infrastructure.
- Non availability of good CAI packages.

4. Objectives

Researcher has decided to work on the following objectives.

1. To construct the Computer Assisted Instruction (CAI) Programme for unit ' Compound word ' of Gujarati subject of Standard - IX.
2. To develop the Evaluation test for unit ' Compound word ' of Gujarati of Standard IX.
3. To study the effectiveness of Computer Assisted Instruction (CAI) Programme with reference to High, Middle and Low educational achievement level of students.

5. Hypotheses

1 There is no significant difference between average result score of the Standard -VIII examination and Evaluation test of the students having High educational achievement level.
2There is no significant difference between average result score of the Standard -VIII examination and Evaluation test of the students having Middle educational achievement level.
3There is no significant difference between average result score of the Standard -VIII examination and Evaluation test of the students having Low educational achievement level.

6. Variables of the Study

6.1 Independent Variable

- High Educational Achievement level
- Middle Educational Achievement level
- Low Educational Achievement level

6.2 Dependent Variable

- Computer Assisted Instruction (CAI) Programme

6.3 Moderator Variable

- Gender: 1. Boys 2. Girls
- Control Variable
- Area: Vadali Town (S.K.)

- Standard –IX
- Subject: Gujarati

7. Limitations

1. The study was done on the students of Gujarati medium schools of Vadali Taluka of Sabarkantha District.
2. Only 96 students of four high schools were taken for research work.
3. CAI programme was prepared for Unit ' Compound word ' of Gujarati subject of Standard - IX.
4. In present study researcher was considered High, Middle and Low educational achievement of students.

8. Methodology

8.1 Population

There were total 1200 students (Year : 2014-15) of Standard IX from 15 Secondary Schools of Gujarati language of Vadali Town at the Sabarkantha District of Gujarat State were Considered as the pulation for the study.

8.2 Sample

Total sample of 96 students of Standard IX were selected purposely from the four different Secondary Schools of vadali Town . Sample for the study shown in following Table as under.

Student (Gender) Education Achievement level	Boys	Girls	Total
High	16	16	32
Middle	16	16	32
Low	16	16	32
Total	48	48	96

8.3 Tools

In present study researcher constructed three different tools such as (1)Computer Assisted Instruction (CAI) Programme for unit ' Compound word ' of Gujarati subject (2) Unit Evaluation Test , (3) Opinionnaire for CAI Programme .

8.4 Research Method

This study was carried out by using Experimental research method. Investigator followed three groups, equal number of students having high, low, middle educational achievement level and only post test design was selected for the present study. DATA ANALYSIS : After administrating the CAI Programme and Unit test on the students having different educational achievement on selected sample. Researcher used 't' test for the data analysis. In present study frequency distribution, Mean, S.D., SED and 't' values were calculated on the basis of scores obtained by the students for testing null hypotheses.

8.5 Testing of Hypotheses

Hypothesis -1

Table - 1 Average result scores of the Standard -VIII examination and Evaluation test of the Students having High educational achievement level.

Result	Students	Average	S.D.	SE_D	t-value	Significant level
Standard -VIII	32	76.375	4.095	0.65	4.56	0.01
Evaluation test	32	79.34	9.52			

Table -1 shows that the t-value is 4.56 which is significant at 0.01 level. Thus Ho1 was rejected.

Hypothesis - 2

Table - 2 Average result scores of the Standard -VIII examination and Evaluation test of the Students having Middle educational achievement level.

Result	Students	Average	S.D.	SE_D	t-value	Significant level
Standard -VIII	32	65.56	3.118	0.658	4.28	0.01
Evaluation test	32	68.41	10.72			

Table -2 shows that the t-value is 4.28 which is significant at 0.01 level. Thus Ho2 was rejected

Hypothesis -3

Table - 3 Average result scores of the Standard -VIII examination and Evaluation test of the Students having Low educational achievement level.

Result	Students	Average	S.D.	SE_D	t-value	Significant level
Standard -VIII	32	54.34	3.95	0.65	7.46	0.01
Evaluation test	32	59.18	9.68			

Table - 3 shows that the t-value is 7.46 which is significant at 0.01 level. Thus Ho3 was rejected.

9. Findings of the Study

1. In teaching of unit 'Compound word' of Gujarati subject of standard IX through Computer Assisted Instruction (CAI) Programme was effective for the students having High educational achievement level.
2. In teaching of unit 'Compound word' of Gujarati subject of standard IX through Computer Assisted Instruction (CAI) Programme was effective for the students having Middle educational achievement level.
3. In teaching of unit 'Compound word ' of Gujarati subject of standard IX by Computer Assisted Instruction (CAI) Programme was more effective for the students having Low educational achievement level.

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