Remedial Teaching Using CAI Programme for the Unit Chemistry in Everyday Life of 12th Science Chemistry

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Abstract:

In present study, investigator implemented CAI method for remedial work and tested its effectiveness. The present study was organized in two phases. Firstly it was concerned with the diagnostic and secondly to assess the effectiveness of remedial teaching. The study was experimental in nature. Teaching at school as well as Higher Education, mostly, concentrates on giving information which is not the sole objective of Teaching. Along with giving information, the other objectives are as follows.

- *Developing understanding and application of the concepts.*
- *Developing expression power.*
- *Developing reasoning and thinking power.*
- *Development of judgment and decision making ability.*
- *Improving comprehension, speed and vocabulary.*
- *Developing self-concept and value clarification.*
- *Developing proper study habits.*
- *Developing tolerance and ambiguity, risk taking capacity, scientific temper, etc.*

Keywords: *CAI method, Diagnosis, Digital Technology, Education, Remedial work, Teaching*

1. Introduction

This is the age of information dominated by the Digital Technology. The Digital Technology has influenced all aspects of human life. Education is not an exception. At present majority of devices are based on Digital Technology. One such device is Computer. The Computer is an electronic device that has the capacity to store, retrieve & process both qualitative & quantitative information fast and accurately. The computers were never developed for improving quality of teaching-learning process. But researchers started using Computers for teaching purpose. It gave birth to Computer Managed Instruction (CMI), Computer Based Instruction (CBI), etc. People started developing CAI for teaching different subjects at school as well as Higher Education level.

It is not only important to teach for a teacher but it is more important to know far the pupils have learnt the taught unit. If a teacher finds out pupils' difficulties, he/she can manage well for further teaching experiences. To test difficulties is called diagnosis. After diagnosing the difficulties, if some remedial work is done then and then only the teaching will be meaningful and effective.

2. Emergence of the Problem

With the present infrastructure, class size, availability of teachers. Quality of teachers, training of teachers, etc., it is difficult to achieve all the objectives. Further, most of the teachers use lecture

Method which does not have potentiality of achieving majority of above mentioned objectives. The objectives are multidimensional in nature, so for their achievement multiple methods should be used in an integrated fashion. At present ICT may be of some use. It is a well known fact that not a single teacher is capable of giving up to date and complete information in his own subject. The ICT can fill this gap because it can provide access to different sources of information. ICT provides flexibility to a learner which is denied by the traditional process and method. Flexibility is a must for mastery learning and quality learning.

3. Important Keywords
3.1 Concept of Diagnosis
Diagnostic test holds significant place in the area of measurement and evaluation. They are designed to identify strengths and weaknesses in specific area.

Educational diagnosis seeks to determine the nature and causes of unsatisfactory adjustment to the school situation. It is concerned with the specific weakness of individual pupils. (Stanley, 1963, P.433).

3.2 Remedial Teaching
Once the ICT is used for diagnosis purpose, the next step is to organize Remedial Teaching Programme. The Remedial Teaching can be done by the teacher if some common mistakes are identified. It may not be feasible to organize Remedial programme for individual students. At this point, the ICT can be used for giving individual Remedial Programme.

3.3 C.A.I. Programme
The main objective of present study was to construct the C.A.I. (Computer Aided Instruction) programme and use it as remedial technique. Remedial teaching is not only re-teaching of the taught unit, but also it is the teaching to remove the weaknesses of the pupils. To construct the C.A.I. programme, investigator selection content through diagnostic test. After selection of content, investigator prepared in slides in Microsoft power point with the help of past studies, experts, teachers, students and also by self experience. The investigator pre-piloted the primary structure of the C.A.I. programme. Then the programme was sent to the expert teachers for their opinions. Then it was finalized to implement on the experimental group.

3.4 Concept of Computer Aided Instruction (C.A.I.)
Computer aided instruction (C.A.I.) refers to instruction of remediation presented on a computer. They allow students to progress at their own pace and work individually or problem solve in a group. Computers provide immediate feedback, letting students know whether their answer is correct. If the answer is not correct, the programme shows students how to correctly answer the question.

Computer aided instruction improves instruction for students with disabilities because students receive immediate feedback and do not continue to practice the wrong skills. Computers capture the students' attention because the programme is interactive and engage the students' spirit of competitiveness to increase their scores. Programmes provide differentiated lessons to challenge students who are at risk, average, or gifted. C.A.I. uses a combination of text, graphics, sound and video in enhancing the learning process. The computer has many purposes in the classroom and it can be utilized to help a student in all areas of the curriculum. C.A.I. refers to the use of the computer as a tool to facilitate and improve instruction.

4. Objectives of the Study

The objectives of the present study were as following.

1. To find out the weakness of the pupils in the unit ''Chemistry in Every day Life'' of 12th Science Chemistry with the help of diagnostic test.
2. To develop C.A.I. programme on the unit ''Chemistry in Everyday Life'' of 12th Science Chemistry.
3. To Study the effectiveness of remedial teaching through C.A.I.

5. Hypotheses of Study

The hypothesis of the present study was as following.

Ho$_1$ There will be no significant difference between the mean achievement scores of pretest and posttest of the group taught through C.A.I. approach as the remedial technique after diagnosis.

6. Limitation of the Study

The limitations of the present study were as following.

1. The present study was limited to the Gujarati Medium school students of 12th Science of Palanpur city.
2. Investigator selected 34 students of 12th Science purposively.
3. All the limitations of computer are the limitations of the present study.

7. Research Methodology and Experimental Design

In present study, experimental method was used. ''One group pretest-posttest'' design was used. The test was administered as pretest on the 34 students of 12th Science of Palanpur city who were selected purposively. Then investigator used self-prepared C.A.I. Programme for remedial teaching. Again the same achievement test was used as posttest.

8. Tool of the Study

For present study, diagnostic test was necessary. Investigator used criterion referenced test on the present unit constructed by investigator himself while M.Ed. in 2008. From this test seventy items were selected and used for the testing.

9. Data Analysis

According to the objectives of present investigation, the scores of pretest and posttest were obtained and analyzed through one way t-test. Table 1 presents the 't' value.

Table 1 Mean, Standard Deviation and t-test

Test	N	Mean	SD	SED	Correlation	t-Value	Confident Level
Pretest	34	66.91	18.10	1.07	0.43	6.56	0.01
Posttest	34	20.77	28.05				

Level significance for one way t-test o.o5 = 1.65 and 0.01 = 2.33

10. Testing of Hypothesis

The investigator formulated one hypothesis. Table 2 presents the t-values, the level of significance and the rejection or non rejection of hypothesis.

Table 2 Level of Significance and the Rejection or Non Rejection of the Hypothesis

No.	Hypothesis	t-Value	Level of Significance	Rejected / Non Rejected
1	There will be no significant difference between the mean achievement scores of pretest and posttest of the group taught through C.A.I. approach as the remedial technique after diagnosis.	6.56	0.01	Rejected

11. Result and Discussion

The calculated 't' value is 6.56 and it is significant at 0.01 level as it is higher than 2.33 i.e. table value. It is seen from the observation of the table-1 and 2 that prior to the remedial treatment the mean achievement score of the pupil was 66.91 and after remedial treatment through C.A.I. approach, mean achievement score of the pupils of the group was 20.77 the correlation between the sores is 0.43. It is in favor of the posttest i.e. the mean score on posttest is lower than the mean score on pretest. So, it can be concluded that the remedial work is effective and the students committed less error on posttest.

12. Conclusion

The Major objective of the study was to find out the effectiveness of C.A.I. approach as remedial programme. The present study revealed the effectiveness of C.A.I. approach as remedial strategy.

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