Development and Effectiveness of Linear Programme for the Muscles - Skeleton System Unit of the science and technology subject of Standard Seven

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ABSTRACT

The purpose of this study is to develop and check effectiveness of Linear Programme for muscles-skeleton system unit of science and technology subject of standard seven. For this study the students of standard seven from a primary school of Maliya (Miyana) tehsil were selected as a sample. The experimental group was given the treatment of Linear programme based on muscles-skeleton system and the control group was given no treatment. At the end of experiment both the groups were given a post test based on Muscles-Skeleton system unit as a tool for data Collection. The marks obtained by the students in this test were quantitative at the interval level of data. The received quantitative data was analyzed through spss with the use of t-test. Then with the help of obtained result the hypothesis was checked. The Linear programme based on Muscles-skeleton system was effective in present study.

1.0 Introduction

Every child is unique. The speed of learning and ability of understanding is different in every child. With the help of same method and same speed you can not teach every child. That is why the teacher should use the Combination of traditional methods and new technology according to need. If we keep in mind the limitations and abilities of students while teaching we will definitely get success.

Programmed learning is the most appropriate example of latest concept of instructional technology. It is educational innovation. It is not only a technique for effective learning but also a successful mechanism of feedback derive for the modification of teacher-behavior.

So that the researcher decided to develop a Linear programme for the unit muscles-skeleton system of standard seven as the subject matter of muscles-skeleton system could be parting in to small steps. The other reason behind developing this linear programme was there was lack of enough explanation and pictures of muscles-skeleton system in original text book of science and technology of standard seven.

2.0 The objectives of the Study

The objectives of present study are given below.

1. To develop Linear programme for the Muscles-skeleton system unit of science and technology subject of Std.7.

2. To construct a test based on the unit Muscles-skeleton system.

3. To check the effectiveness of linear programme developed for the Muscles-skeleton system.

3.0 The null hypothesis of the Study

1. There will not be significant discrepancy between the mean of marks obtained by the students of experimental group and the students of control group.

4.0 The variables of the study

The variables of this study are given below.

The independent variable of this study is teaching-learning method which includes two grades.

1. The Execution of Linear programme based on Muscles-skeleton system.

2. No treatment

The dependent variable is achievement hear achievement in the sense marks obtained by the students in muscles-skeleton system unit test.

The control variables are,

1. School

2. Medium

3. Subject

4. Standard

5. Unit

The Intervening variables of present study are,

1. Interpersonal Differences

2. Students are deeply interested in science

3. Students have tuition classes for science and technology subject.

5.0   Key Words

1.   Programmed Learning

Programmed learning is a practice of braking down a body of subject matter into its constituent elements and requiring the pupil to master one step before proceeding to the next. It allows M for more pupil involvement in the learning process. Since it is a self institutional device, it is mostly individualized. It is directed towards specific objectives.

2.   Linear Programme

Linear programme is one in which every learner follows the identical sequence that is the frames or didylles are encountered in a single, pre-arranged order. The proponent of this type of programme style is B. F. skinner (1958).

3.   Linear Programme based on Muscles-skeleton system

A linear programme which was developed by broken down the subject matter of muscles-skeleton system in to small steps, including pictures where needed, in a single, prearranged order.

4.   Post test or unit test

The test based on muscles-skeleton system unit which was given to check the understanding of the students at the end of experiment.

5.   Experimental Group

The group which was given the treatment of Linear programme based on muscles-skeleton system.

6.   Control Group

No treatment Group

6.0 Area, type and method of the study

The area of the research was teaching-learning and science education.

The type of the research was experimental research.

The method of the research is experimental research method.

7.0 Importance of the Study

The Linear programme based on muscles-skeleton system is available for the students of standard seven of Gujarati Medium as a result of this study.

Science teachers can use this linear programme in classroom.

8.0 Limitations of the Study

The Liner programme based on Muscles-skeleton system was developed in Gujarati Language so it si useful for Gujarati Medium students only.

The sampling of the present study was random.

The population of the study was Maliya (Miyana) tehsil only.

9.0 Population

The population of the present study was the primary students of standard seven from Gujarati medium of Maliya (Miyana) tehsil.

10.0 Sampling

The Khakharechi Mishra Shala was selected intentionally for the experiment. Then two equivalent Groups were classified by the researcher using the random sampling technique odd-even numbers. In this way total 60 students were divided in two groups. 30 students in each.

11.0 Linear Programme based one Muscles-Skeleton System

The following principles are considered to be the basic ones for programme learning.

1. Objective specification

2. Small step size

3. Overt Responding

4. Minimal Error

5. Immediate feedback

6. Logical, graded progress

7. Self pacing

The Linear programme based on muscles-skeleton system developed in present study was developed with the help of above principles. The subject matter of muscles-skeleton system was broken down into small steps and then frames were encountered in a single pre-arranged order. There were total 28 frames in this Linear Programme included pictures where needed.

12.0 Tool

The dependent variable of present study was the knowledge and understanding of students about muscles and skeleton system. At the end of experiment, it was necessary to measure it. So that a post test based on muscles-skeleton system was given to the students. There were M.C.Q., short answer, match the item, short note, figure types of questions included in the test. The total marks of test were 25. The time for the test was 60 minutes.

13.0 Data Collection

The researcher met the principal of the sample school and made him aware of the purpose of the study. She also talked about time and help needed for experiment. After getting permission from the principal the researcher applied the Linear Programme based on Muscles-skeleton system in given time period. At the end of experiment the unit test based on muscles-skeleton system was given to the sample students as post test.

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The marks obtained by the students on this test was quantitative at the interval level of data.

14.0 Analysis and Interpretation of Data

The treatment of linear programme based on muscles-skeleton system was given to the experiment group, there was no treatment in control group, during the experiment. At the end of the experiment an unit test based on muscles-skeleton system was given. The marks obtained by the students on this test was quantitative at the interval level of data. The method of sampling used in present study was random sampling method. Classification of groups and treatment distribution was also random. So the received quantitative data was analyzed through spss with the use of t-test. Then the null hypothesis was checked with the help of obtained result.

The result is given below as a table No. 1

Table-1 Statistic

N	Mean	Range	Std. Devi.	Skew ness	Kurtosis	Minimum	Maximum
60	16.78	19	5.23	-0.21	-.93	6	25

There were 60 students in the sample of present study. The value of mean is 16.78. The value of standard deviation is 5.23. The value of skewness is 0.21 and the value of kurtosis is 0.93. The value of skewness is 0.21 which is negative. So, it is not a normal distribution.

15.0 Effectiveness of Linear program based on Muscles skeleton System.

One of the purposes of present study was to check the effectiveness of Linear Programme based on muscles-skeleton system. This effectiveness was checked using experimental method, with the help of.

"Two equivalent groups only post test design."

Duration of Experiment

After the execution of the experiment on the sample students was done the sample students were given a test based on muscles-skeleton system. Then the received quantitative data was analyzed through spss with the

help of t-test.

The result of this analysis is given in below table No. 2

Table-2 Group Statistic

No.	Group	N	Mean	Std. Devi.	t value
1	Experimental	30	19.74	4.183	5.34**
2	Control	30	13.80	4.460	

** 0.01 Level Significant

After observing table-2 we can say that the mean of the marks obtained by the students of experimental group is 19.77 and standard deviation is 4.18. The mean of the marks obtained by the students of control group is 13.80 and standard deviation is 4.46.

The t-value is 5.34 which is more than 2.58 the value of significant level 0.01. So received t-value is significant at 0.01 level.

The null hypothesis of the present study "There will not be significant discrepancy between the mean of marks obtained by the students of experimental group and the students of control group" is rejected here. So that the research hypothesis "the mean of marks obtained by the students of experimental group on post test is higher than the mean of the marks obtained by the students of control group on post test" is not rejected here.

16.0   Conclusion of the study

The Linear Programme based on muscles-skeleton system developed during present study was effective. The understanding of experimental group about muscles-skeleton system was higher that the control group.

In this way the Linear Programme was effective to develop the understanding of the students about Muscles-skeleton system.

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