International Journal of Research Publication and Reviews

A Study on the Effectiveness of Using Direct Instruction Model on Geometric Figure Drawing Skills in Mathematics Subject of Girl Teachers of Teacher Training School of Akole Taluka.

Dr. Manohar Erande

Assistant Professor, Pu. Ahilyadevi Adhyapak Mahavidyalaya, Sangvi (Su). Tal.Ahmedpur, Dist. Latur.
DOI: https://doi.org/10.55248/gengpi.5.0524.1365

Introduction

The important task of pedagogy is to acquire a systematic knowledge of the process of education and its conditions. The main goal of educational research is to discover the necessary rules, useful methods and principles in the work of improvement related to various aspects of the education sector. There are different levels of education which include lower primary, upper primary, secondary and higher secondary. The objectives of education are determined according to the level of education. To achieve the objectives of education, the curriculum is prepared and various teaching methods and techniques are adopted to convey the components of the curriculum to the students.

Capacity between any two students there are differences in background, personality and physical environment. Not all students can learn the same content, in the same manner, in a fixed period. There is individual variation in them. Students also take different time to respond. Motivation is also different. Hence personal instructions are needed today. Self-study is done by each student according to his own strength, pace and study style. Today it is possible to teach each student independently at his own pace. Various methods and techniques are being developed for this. Every student is expected to study according to his own pace and ability. For that, the arrangement of literature must be complementary to their studies. That is why it is necessary to use different teaching models.

The goals of education are achieved only through classroom teaching. The goals are achieved through teaching at various levels. Goals are long-term goals while objectives are short-term goals. Goals can be reached only through objectives. Objectives are considered in classroom teaching. In the practical field, students were expected to be able to perform precise action skills. E.g. Accurate Sketching (Chavan Kishore, Mathematics Education, Page No. 56,60) Student teachers face difficulties in sketching geometric figures in mathematics. Some student teachers do not acquire the skill of diagramming when teachers teach. Teachers need to teach specially so that all students can learn the skill of drawing geometric figures. Student teachers cannot draw geometrical figures accurately. It is seen that they are not able to structure the composition in the correct order. However, if the school teachers are not properly trained in sketching, then there are shortcomings and mistakes among the students. This creates problems in achieving the basic objectives of diagramming. There is a need to understand those problems and eliminate them in time. For this, the teacher should guide the student teachers in this regard in a proper and timely manner, so that the student teachers will develop an interest in geometric figure drawing.

The presented problem was mainly felt by the researcher while teaching in the teacher's training school. The effectiveness of this technique was felt more than the traditional teaching method while studying based on the Models of Teaching included in the post-graduate curriculum of the year 2008-09. Also, teaching through models can achieve the goal of skill acquisition for every student teacher. From this experience, the researcher chose the presented problem for research and decided to research it. The presented problem was realized by the researcher from his own experience. In this background, the researcher has chosen the said problem for research.

Objectives

1. To assess the geometric figure drawing skills of student teachers.

2. Selecting content with a geometric figure in a mathematics textbook.

3. Teaching geometric figure drawing skills by planning lessons according to the principles of the direct instruction model.

4. Examining the effectiveness of using a direct instruction model for student teachers' geometric figure drawing skills.

Research Method

The present research is expected to establish the correlation between the two variables of teaching and geometric figure-drawing skills with the help of the direct instruction model. Therefore, in the present research, the researcher has used the experimental research method.

There are various variables of experimental research. E.g. Fragmented variable, Unbroken variable, Self-sufficient variable, Sheltered variable, Biological variable, Intermediate variable, the variable that can take two prices, etc. The meaning of these variables must be known. "Any concept that can be expressed in numerical or qualitative values is called a variable."

The only research method that can truly test hypotheses that show causal relationships is the experimental method. One event or symptom is responsible for another event or symptom. A statement that expresses this is a hypothesis that shows a causal relationship. This method is related to the future and the purpose of sponsored research is to find out the causal relationship between two variables by examining the effect of specific changes in the situation. Experimental research is concerned with controlling all external factors and leaving only the factors whose effects are to be studied to see what kind of fruits are produced under these particular conditions.

The present research is related to student teachers in teachers' training schools. The present research aims to study the effectiveness of first-year student teachers in teacher education using a hands-on instructional model for geometric drawing skills in mathematics. That is, it is expected to establish a correlation between the two variables of students' geometric figure-drawing skills and teaching using a direct instruction model. Therefore, it is appropriate to use an experimental method for the present research. Also, for the present research, the functional design of the experimental design and the same group design of the functional design have been selected. Because one group is taught with the help of a direct instruction model and the other group is taught with the traditional method, the effectiveness of students' geometric figure drawing skills is studied through answer tests. Since it requires two equal groups, it is appropriate to use a two-equal group design.

Population

The entire population from which the researcher selects the sample is the population. The population is the people or things that have the same characteristics as the sample. The conclusions drawn at the end of the research from the sample also apply to the population due to the same characteristics. Population can be finite or infinite. In the present research, the population is also of a fixed nature. The population of the present research is first-year student teachers of Marathi medium teacher training schools in Akole taluka.

Information Analysis Tools

The following statistical tools have been used by the researcher to analyze the collected data in the present research. 1. Medium, 2. Standard Deviation, 3. Correlation coefficient and 4. 't' test.

Table No. 1: Tables showing mean and standard deviation of pre-test and post-test.

Statistical Dimension	Pre-test		Post-test	
	Experimental Group	Controlled Group	Experimental Group	Controlled Group
Median	6.40	6.64	17.32	7.24
Standard deviation	3.79	3.53	4.33	3.74

Pre-test Observation

By classifying the scores obtained by the students in the experimental and control groups in the pre-test related to the geometric figure drawing skill in mathematics, the mean of the central tendency and the standard deviation of the deviation have been calculated. The mean and standard deviation of the experimental group are 6.40 and 3.79 respectively and the mean and standard deviation of the control group are 6.64 and 3.53 respectively.

Post-Test

Experimental and controlled reduction related to geometric figure drawing skills in mathematics subject. Based on the coefficient of the post-test, the difference in statistical parameters (mean and standard deviation) was calculated and the mean difference was 10.08 (17.32 - 7.24) and the difference in standard deviation was 0.59 (4.33 – 3.74) is equal to From the above table it is clear that the mean difference between an experimental group and control group post-test is 10.08. This means that the hands-on instruction model is more useful than the conventional teaching method for student teachers' geometric figure drawing skills in mathematics.

t-Test:

Table No. 2: A table for deriving the t-test

Sr. No.	Statistical Parameters	Experimental group	Controlled group
1	Number of students in group	25	25
2	Pre-test mean	6.40	6.64
3	Standard deviation of pre-test	3.79	3.53
4	Prost test mean	17.32	7.24
5	Standard deviation of post-test	4.33	3.74
6	Correlation coefficient	+0.38	

Coefficient Correlation Analysis

The correlation between the experimental group post-test and the controlled group post-test related to the geometric figure drawing skills of the first-year student teachers of Abhinav Shikshan Sanstha Adhyapak Vidyalaya, Akole is +0.38. That is, the correlation between geometric figure drawing skills and teaching through a direct instruction model in mathematics is positive and moderate. From the statistical table t (t-value) for the degree of freedom 24 the sample t-value at the 0.05 level is 2.06 and the sample t-value is 2.79 at the 0.01 significance level.

't'- value interpretation

The obtained 't' value is 11.08 and the df=24 value is 2.06 at 0.05 significance level. The mean difference is significant as the value of the obtained 't' value (11.08) is higher than the value of the sample 't' value (2.06). So the null hypothesis has to be abandoned. The difference between the two mediums is real. Therefore, it is not a problem to say that the teaching done by the researcher through the direct instruction model has a good effect on the geometric figure drawing skill in mathematics. At 0.01 level, sample 't' = 2.79 and the value of the obtained 't' value is greater than the sample 't' value. Therefore, the difference between the two means is significant even at the 0.01 level.

Conclusion

1. The experimental group pretest mean of figure drawing related to geometric figure drawing skill in mathematics subject of first-year female teachers of Abhinav Shikshan Sanstha Abhyapak Vidyalaya, Akole is 6.40. Whereas the pre-test mean of the control group is 6.64. The mean of the post-test of the experimental group is 17.32 and the mean of the post-test of the control group is 7.24. The mean difference between an experimental group and a control group post-test is 10.08. This means that teaching through the direct instruction model shows an increase in the level of proficiency of the student teachers in the geometric figure drawing skills in mathematics.

2. The pre-test standard deviation of the experimental group of figure drawing related to the geometric figure drawing skill in first-year mathematics subject of Abhinav Shikshan Sanstha, Abhinav Shikshan Sanstha Abhyapak Vidyalaya, Akole is 3.79 and the pre-test standard deviation of the control group is 3.53. Also, the standard deviation of the post-test of the experimental group is 4.33 while the standard deviation of the post-test of the control group is 3.74.

3. Based on the mean of the post-test in the experimental and control groups related to geometric figure drawing skills in first-year mathematics subject of Abhinav Shikshan Sanstha Abhyapak Vidyalaya, Akole, the obtained 't' value is 11.08 with 0.05 significance level of sample 't'. The 't' value obtained is significant as it is greater than the value (2.06). The difference between the two mediums is real. From this, it is not acceptable to accept the effect of direct instruction images in the topic "Study of the effectiveness of using direct instruction models for the geometric figure drawing skills of student teachers in Akole taluka teacher training school".

4. The main hypothesis of the present research is that "There is a significant difference in the acquisition of geometric figure drawing skills of student teachers by teaching using traditional teaching methods and direct instruction model".

5. The second hypothesis of the present research is that "there is no significant difference in the acquisition of geometric figure drawing skills of the student teachers due to the teaching done with the traditional teaching method and direct instruction model". Based on the 't' test it can be concluded that the obtained 't' value (11.08) is greater than the sample 't' value (2.06) at 0.05 significance level. From this, it can be said that the said hypothesis is unacceptable.

Bibliography List

1. Agalave, Pradeep (2000), Research Methodology and Techniques, Nagpur, Vidya Prakashan.

2. Kadam, Ch.P. (2008), Educational Statistics, Pune, Nitya Nutan Publications.

3. Kayande Patil, Gangadharvi (2006), Research Methods, Nashik, Chaitanya Publications.

4. Kurade, B.M. (2007), Scientific Research Methods, Nagpur, Pimpalapure & Company. Publishers. Second edition.

5. Mathematics (2008), Class VIII, Maharashtra State Board of Textbook Development and Curriculum Research, Pune.

6. Ghormode, K. U. and Ghormode, Kala (2008), Fundamentals of Educational Research, Nagpur, Vidya Prakashan.

7. Dandekar, Va. (1992), Educational Evaluation and Statistics, Pune, Sri Vidya Prakashan.

8. Bhadane MA and Desle, S. (2009), Educational Evaluation and Statistics, Nashik, Reshmai Publications.

9. Vamanade, V.Ra. (2008), Educational Research Methods, Pune, Nitya Nutan Prakashan.

10. Mahale, Sanjeevani Res. (2005), Teaching Models and Teaching Styles, Aurangabad, Unique Publication.

11. Due to Res.No. and Umathe, v. tu. (1998), Fundamentals of Educational Research, Nagpur, Maharashtra University Publication Board.

12. Salunke, Kavita (2007), Direct Instruction Model, Yashwantrao Chavan Maharashtra Open University, Nashik.

13. Sohni, Chitra. (2006), Models of Teaching, Pune, Phadke Publications.