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*Research Paper*

# Effectiveness of Learner Centred Techniques in Teaching Computer Science to Low Achievers

**Mrs. N. Nirmala Devi[1], Dr. Sarala[2]**

[1]Research Scholar, Mother Teresa Women's University, Kodaikanal.
[2]Principal, Mother Teresa Women's College of Education, Kodaikanal

Corresponding Author: Mrs. N. Nirmala Devi

## ABSTRACT

The present experimental study was undertaken with two objectives in view (i) to apply learner centred techniques in teaching and learning of Computer Science at plus one level and (ii) to measure the effectiveness of learned centred techniques with special reference to low achievers. Two matched groups of students were constituted for the purpose of this experiment. Fifty low achievers were selected. Out of fifty students, two groups were formed following the systematic random sampling technique. They were placed in an order of merit. All the odd number students formed the control group while even number students constituted the experimental group. Each group consisted of twenty five low achievers. The control group was taught through the traditional lecture method while the experimental group learnt through the learner centred techniques. The obtained results show that the learner centred technique was more effective than the traditional lecture method in teaching and learning Computer Science at plus one level and it enabled the low achievers to cope with the high achievers to a considerable extent.

***Key Words:*** Learner Centred Techniques, Low achievers, Computer science.

## INTRODUCTION

Education is being considered as an agent of modernization. Education system should aim at the all-round development of individual. The effectiveness of any educational system wholly depends upon enhancing the academic achievement of all the learners. In this scientific era, we are bound to make use of appropriate techniques in educational practices to promote better teaching learning process. Appropriate techniques in the hands of a resourceful teacher can ensure better achievement of behavioural objectives.

A classroom contains various students who differ from one another in a variety of ways. As far as learning is concerned, they differ from one another in entering behaviour, learning readiness, learning rate and learning style. Hence, the normal classroom strategy cannot cater to the needs of all the students and it cannot reach out to all learners alike. So a special strategy which enhances the critical thinking of the students and which ensures active participation of the students is very much essential. This is where the learner centred techniques exactly fit in.

Learner-centred education places the students at the centre of education. It begins with understanding the educational contexts from which a student comes. It continues with the instructor evaluating the student's' progress towards learning objectives. By helping the student acquire the basic skill to learn, it ultimately provides a basis for learning throughout life. It, therefore, places the responsibility for learning on the

students, while the instructor assumes responsibility for facilitating the student's education. This approach strives to be individualistic, flexible, competency-based representation.

**Premises of Learner Centred Education:**

1. Learners have distinctive perspectives or frames of reference, contributed to by their heredity, the environment, their interests and goals, their beliefs, their ways of thinking and the like. These must be attended to and respected if learners are to become more actively involved in the learning process and to ultimately become independent thinkers.
2. Learners have unique differences, including emotional states of mind, learning rates, learning styles, stages of development, abilities, talents, feelings of efficacy and other needs. These must be taken into account if all learners are to learn more effectively and efficiently.
3. Learning is a process that occurs best when what is being learned is relevant and meaningful to the learner and when the learner is actively engaged in creating his or her own knowledge and understanding by connecting what is being learned with prior knowledge and experience.
4. Learning occurs best in an environment that contains positive interpersonal relationships and interactions and in which the learner feels appreciated, acknowledged, respected and validated.
5. Learning is seen as a fundamentally natural process; learners are viewed as naturally.

The students who remain in the lowest rung of the ladder are low achievers. They always get fail marks in almost all the subjects. They lack concentration, retention and abstract thinking. These low achievers constitute such a considerable percentage of student population that they cannot be ignored. Children of to-day are the citizens of tomorrow; they are going to be the pillars of the country. Hence it is essential to ensure that each pillar is as strong as the other. This warrants a special instructional strategy for low achievers. Since education happens to be the king-pin of national development we have to accentuate the learning process of the low achievers also. Moreover, the very facts that computer science is the special subject envisage a special instructional strategy for low achievers. Learner centred technique is such a strategy.

## OBJECTIVES

The main objective of the study was to develop learner centred techniques for computer science subject at plus one level. On the basis of the above main objectives, the following specific objectives were formed.

(i) To find out whether there is any significant difference between the pre-test and the post-test mean scores of low achievers in the control group.
(ii) To find out whether there is any significant difference between the pre-test and the post-test mean scores oflow achievers in the experimental group.
(iii) To find out whether there is any significant difference between the post-test mean scores of the low achievers in the control group and the experimental group.
(iv) To find out whether there is any significant difference between the post-test mean scores of the low achievers in the control group and the students in the normal group.
(v) To find out whether there is any significant difference between the post-test mean scores of the low achievers in the experimental group and the students in the normal group.

## HYPOTHESIS

(i) There exists no significant difference between the pre-test and post-test mean score of low achievers in the control group when computer science is taught through traditional method.
(ii) There exists significant difference between the pre-test and post-test mean

score of low achievers in the experimental group when computer science is learnt through learner centred techniques.

(iii) There exists significant difference between the post-test mean scores of the low achievers in the control group and the experimental group.

(iv) There exists significant difference between the post-test mean scores of the low achievers in the control group and the students in the normal group.

(v) There exists no significant difference between the post-test mean scores of the low achievers in the experimental group and the students in the normal group.

## METHODOLOGY

### Method

Experimental method was followed in the study. Fifty low achievers were selected. Out of the fifty students finally selected for the study, two groups were formed following the systematic random sampling technique. They were placed in an order of merit. All the odd number students formed the control group while even number students constituted the experimental group. Each group consisted of twenty five low achievers.

### Tool

Achievement test was constructed by the investigator on the basis of item analysis. The content validity of the tool by expert opinion, item validity by item analysis and the reliability of the tool by split half method were established.

### Sample Design

For the purpose of the investigation fifty low achievers of plus one level from S.S.H.N. Higher Secondary School, Muhavur were selected.

### Data Collection

The experiment was conducted for a period of thirty working days. At the end of the experimental period, a post-test was conducted for the low achievers of the experimental group, low achievers of the control group and the students of the normal group. The responses given by three groups formed the vital data required for the analysis.

### Scoring procedure

The achievement test consisted of 100 objectives type questions. These test items were selected on the basis of item analysis. The total score of the test was 100. For each correct answer, the score was one and for each wrong answer, the score was zero.

### Statistical techniques used in the study

The data thus obtained were then analysed by using appropriate statistical techniques, such as mean, standard deviation and t-test.

### Findings

1. The control group low achievers showed no significant difference between the pre-test and post-test scores whey they were taught through traditional lecture method. Further, their performance in the post-test was no better than their performance in the pre-test.

| Name of the test | N | Mean | S.D | Calculated t-value |
|---|---|---|---|---|
| Pre-test | 25 | 25.6 | 3.77 | 1.30@ |
| Post-test | 25 | 26.4 | 4.38 | |

Note: @ not significant at 0.05 level

2. There is significant difference between the pre-test and post-test scores of experimental group low achievers when the subject is learnt through learner centred techniques. Further, their achievement is higher in the post-test than in the pre-test.

| Name of the test | N | Mean | S.D | Calculated t-value |
|---|---|---|---|---|
| Pre-test | 25 | 26.2 | 3.74 | 16.42** |
| Post-test | 25 | 44.6 | 4.18 | |

Note: ** significant at 0.01 level

Moreover, an analysis of the rate of progress made by both the control group and experimental group throws light on the effectiveness of learner centred techniques. The rate of progress shown by experimental group taught through learner centred techniques is 70.3% while the rate of progress made by the control group low achievers is 4.9%. This vouchsafes the

advantage of learner centred techniques over the traditional lecture method.

3. There is significant difference between post-test scores of control group low achievers taught through traditional lecture method and the experimental group low achievers who learnt through learner centred techniques. Further, the achievement of experimental group low achievers is higher than the achievement of control group low achievers.

| Name of the group | N | Mean | S.D | Calculated t-value |
|---|---|---|---|---|
| Control group | 25 | 29.4 | 4.38 | 12.56** |
| Experimental group | 25 | 44.6 | 4.18 | |

Note: ** significant at 0.01 level

Moreover, the rate of progress made by the experimental group low achievers is higher than that of the control group low achievers. The variation in the rate of progress made by both the groups is the resultant product of operation of learner centred techniques and it vouches for the effectiveness of learner centred techniques.

4. There is significant difference between the post-test scores of control group low achievers and the normal group students. Further, the achievement of normal group students is higher than the achievement of control group low achievers.

| Name of the group | N | Mean | S.D | Calculated t-value |
|---|---|---|---|---|
| Normal group | 25 | 49.9 | 8.97 | 10.3** |
| Control group | 25 | 29.4 | 4.38 | |

Note: ** significant at 0.01 level

The mean value obtained the control group low achievers reveals that though they have made progress by traditional lecture method, they could not narrow down the gap between them and the normal group students. It means that the traditional lecture method could not enable the control group low achievers to cope with normal children.

6. There is significant difference between the post-test scores of experimental group low achievers and the normal group students. Further, their achievement of normal group students is higher than the achievement of experimental group low achievers.

| Name of the group | N | Mean | S.D | Calculated t-value |
|---|---|---|---|---|
| Normal group | 25 | 49.9 | 8.97 | 2.09** |
| Experimental group | 25 | 44.6 | 4.18 | |

Note: ** significant at 0.05 level

However critical analysis of mean values signifies that the experimental group low achievers significantly improved their achievement after the experiment. Moreover, the learner centred technique enabled the experimental group low achievers to cope with normal children to a great extent. The narrowed down gulf of difference between both the groups bears testimony to the effectiveness of the learner centred technique. Further, a comparative study of table 4 and the table 5 testifies to the advantage of learner centred technique over the traditional lecture method.

## IMPLICATIONS

1. The results of the study have proved that learner centred technique is more effective than the traditional lecture method in teaching of computer science of Std XI to the low achievers. When it is very effective to the low achievers, it has to be equally effective, if not more effective, to the normal students also.
2. Teachers of higher secondary schools can be given orientation as to how to develop learner centred techniques.
3. Keeping the result of the study in mind, the NCERT and SCERT may take up the work of producing learner centre technique as they produce teacher hand book and different learner centre techniques can be developed and supplied to the schools.
4. The techniques adopted in the experimental strategy can be applied at higher level to prepare the students for higher-level competitive examination. The utility and efficacy of the strategy will find an expression in the performance of the students in the higher order competitive examinations like the Civil Service Examinations.

5. Since the use of learner centred techniques enhances the achievement of low achiever, their use will diminish wastage and stagnation in our schools. So a necessary orientation may be given at the DIET level also so that awareness can be developed among high school teachers also.

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