



Comparative Study Of Teaching Chemistry Through Super-Learning Techniques And Traditional Methods In District Lakki Marwat

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ABSTRACT- This research aims to compare the effects of super learning techniques from the cooperative learning methods and traditional learning methods of teaching chemistry at the secondary level. That is why the main purpose of the study was to compare the effectiveness of teaching through super-learning techniques with traditional methods of teaching at the secondary level. The study was guided by a null hypothesis that is why the hypothesis of the study was that: there is no significant difference between super learning techniques and traditional methods of teaching at the secondary level. To achieve the desired objectives the researcher randomly selected 20 students for this experimental study as respondents and then divided them according to their age, academic achievement, and intellectual level. An equivalent writing test, developed by the researcher was applied to the control and the experimental groups before the study started to ensure their equivalence; and was also used as a post-test. The result of this study revealed that super learning techniques play a vital role in the teaching of chemistry at the secondary level.

KeyWords: Super Learning Techniques, Traditional Methods of Teaching, Chemistry, Secondary Level Students, District Lakki Marwat

I. INTRODUCTION

(Ava, 2002) found that science plays an important role in all walks of life. That is why chemistry is also an important field of science that may not be neglected but rather appreciated. It may not be wrong to say in the technological progress of any country the importance of chemistry may not be neglected; the same idea regarding the role of chemistry in the technological development of any nation. (Adesoji and Olatunbosun, 2008) highlighted the importance of chemistry in other subjects. Similarly, so far as the various teaching methods are concerned then I may not be wrong to say that teaching methods play a vital role in the teaching-learning process. Teaching is two processes in which teachers deliver something while students gain something from their teachers. Teaching is a process that helps learners in the learning process because the teacher is a facilitator. (Ameh and Dantani, 2012) described the importance of methodology in the teaching-learning process. As we know that there different methods which are used in the teaching-learning process. Every method has its merits and demerits, a suitable method for a suitable subject or field plays a vital role. (Clark and Starr, 2001) stated that the teaching method is a product of the combination of strategies, tactics, and techniques. Thus in light of the above statement, it has been clear that in the teaching-learning process there is not only one single method used but during the teaching-learning process, the

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teacher may use different techniques and tactics while using one method of teaching to facilitate learners to a greater extent. Super learning technique is a cooperative learning method of teaching in which focus is given to expedite the teaching-learning process and facilitate learners to learn in a friendly atmosphere. (Slavin, 1991) stated that co-operative learning methods are important and may not be neglected because students work in small groups and even they may get help from their class fellows. This method is quite helpful at the school level because small children gain enough in cooperative methods of teaching. (Bolling, 1994) narrated that students have small groups and they get help from each other in cooperative learning.

(Maden, 2011) described that students have a learning environment in co-operative learning by taking help from one another. Thus it means that co-operative learning is helpful for learners and the super-learning technique is also a cooperative method of learning. In this method, students are facilitated and supported to learn more and more within a friendly and effective environment. Students are encouraged to learn and different types of activities are arranged for them to facilitate them in the teaching-learning process.

Teacher

As we know a teacher is a person who helps and facilitates learners to gain something which is not clear for learners. In general experience especially at the school level, we see that teacher is a more mature knowledgeable person as compared to students that is why he or she helps learners/ students to acquire knowledge. So far as teaching is concerned it may not be wrong to say that teaching is a process of attending to people's needs, experiences and feelings, and making specific interventions to help them learn particular things. According to (Dewey, 1916) the core of the teaching process is the arrangement of environments within which the students can interact and study how to learn. Thus in light of the above view of John Dewey environment is very much important because if we provide an environment to students then learning automatically takes place because the human being is a social animal. Students learn enough from the environment as compare to the teacher. This point is possible super learning techniques also because in super learning techniques focus is given to the environment of learners to a greater extent.

Teaching Method

A teaching method comprises the principles and methods used by teachers to enable student learning. These strategies are determined partly by the subject matter to be taught and partly by the nature of the learner. As in the above discussion, we have discussed teacher and teaching now here we are going to discuss teaching methods. The teaching method is important and we may not deny the role of the teaching method in the teaching-learning process because the selection of suitable method for the suitable subject and suitable situation according to the nature of the learner plays a vital role in the teaching-learning process and makes the teaching-learning process effective for learners.

Importance of Teaching Method

To develop decision-making skills, problem-solving skills, and critical thinking ability, modern teaching methods are best suited. The new ways of teaching make students more productive and encourage them to collaborate. Thus it is clear that teaching methods play a vital role in the teaching-learning process. There are different teaching methods used in the teaching-learning process and like lecture method, grammar-translation method, inductive method, deductive method, and discussion method of teaching, etc.



II. STATEMENT OF THE PROBLEM

Mind Mapping is an easy and latest approach to link important words, ideas, and tasks. The key problem for the researcher to probe was the “Comparative Study of Teaching Chemistry through Super Learning Techniques and Traditional Methods in District Lakki Marwat”

III. RESEARCH METHODOLOGY

The method of research which the researcher has used in this present experimental study was that the researcher randomly selected twenty (20) students out of sixty (60) students from girl high school. The students were divided into two equal groups according to their age, academic level, and especially the free test score i.e. experimental group and control group. After the division of students into two groups, the researcher treated them as a teacher for complete one month the experimental group through super-learning techniques and the control group through the traditional method of teaching chemistry at the secondary level. After successful completion of both of the group's control and experimental the researcher administered a post-test to highlight the significant difference between these two teaching methods and to make some valuable suggestions regarding these two teaching methods.

IV. DELIMITATIONS OF THE STUDY

The study was experimental which is why the study was delimited to high school in district Lakki Marwat.

V. RESEARCH OBJECTIVES OF THE STUDY

The objectives of the study were to (1) compare the effectiveness of teaching through super-learning techniques with traditional methods of teaching at the secondary level, (2) suggest some valuable recommendations regarding super-learning techniques and traditional methods of teaching at the secondary level.

VI. HYPOTHESES OF THE STUDY

The research hypothesis of the study was (1) there is no significant difference between super learning techniques and traditional methods of teaching at the secondary level.

VII. PURPOSE OF THE STUDY

The main purpose of mind mapping is that to improve the teaching-learning process. Mind mapping supports the learning process. It facilitates learning, and improves information recording, shows how different facts and ideas are related, and enhances creative problem-solving. Read on to find out more. Thus in light of the purpose of the mind mapping techniques, we may not be wrong to say that mind mapping helps learn especially at the primary level. Mind mapping is also helpful for students because it is a visual representation of information. It is a tool that facilitates learners in the learning process to get new ideas. It can help them map out new ideas, explore concepts in more detail and facilitate a better understanding of relationships and connections.

VIII. RESEARCH RESULTS

The data which was collected by the researcher through pre-test and post-test (research instruments) was successfully analyzed through descriptive statistics like Mean, Standard Deviation, T-test, Co-efficient of variance, and correlation had been used to measure the data properly and systematically and find out the significant difference between the Mean scores of Experimental group and Control group. Then after the successful completion of this process, the results of the study were tabulated in

tables to highlight the main difference between the activities-based learning and without classroom activities teaching-learning process at the primary level.

Table 1: Mean and Standard Deviation of Experimental and Control groups on Pre-test

S. No.	Group	Mean	Standard Deviation
1	Experimental	11.7	4.2
2	Control	11.8	4.2

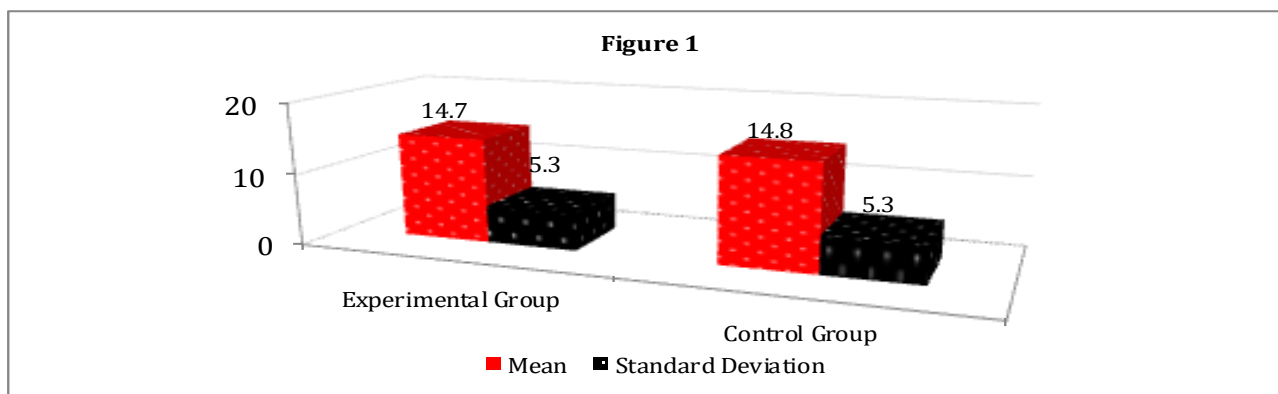


Table 1 along with the figure shows that both the experimental and control group are equal in pre-test scores. The Mean score of the experimental group is 11.7 and the Standard Deviation is 4.2, on the other hand, the Mean score of the Control group is 11.8 and the Standard deviation is 4.2. The above table shows that both of the groups are equal in the light of the pre-test score before the treatment.

Table 2: Mean and Standard Deviation of Experimental and Control groups on Post-test

S. No.	Group	Mean	Standard Deviation
1	Experimental	31.8	4.03
2	Control	23	7.04

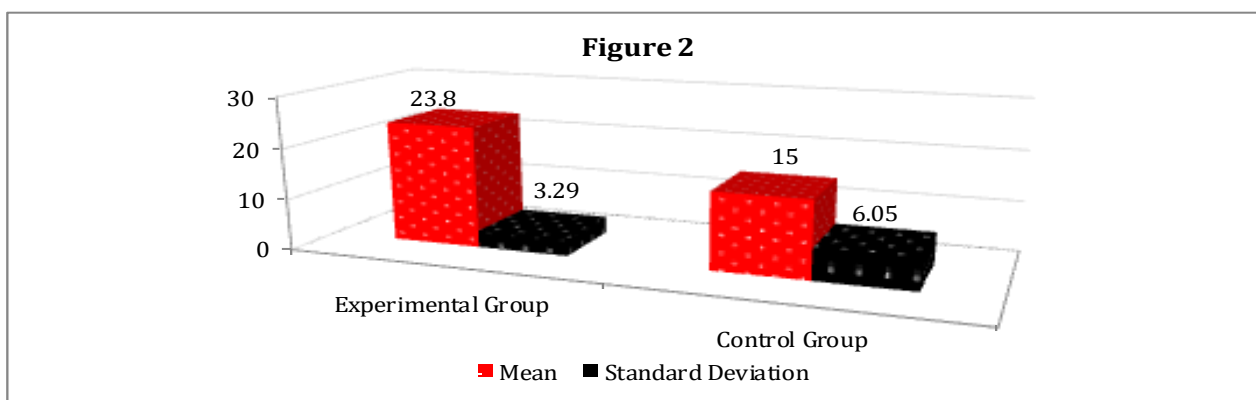
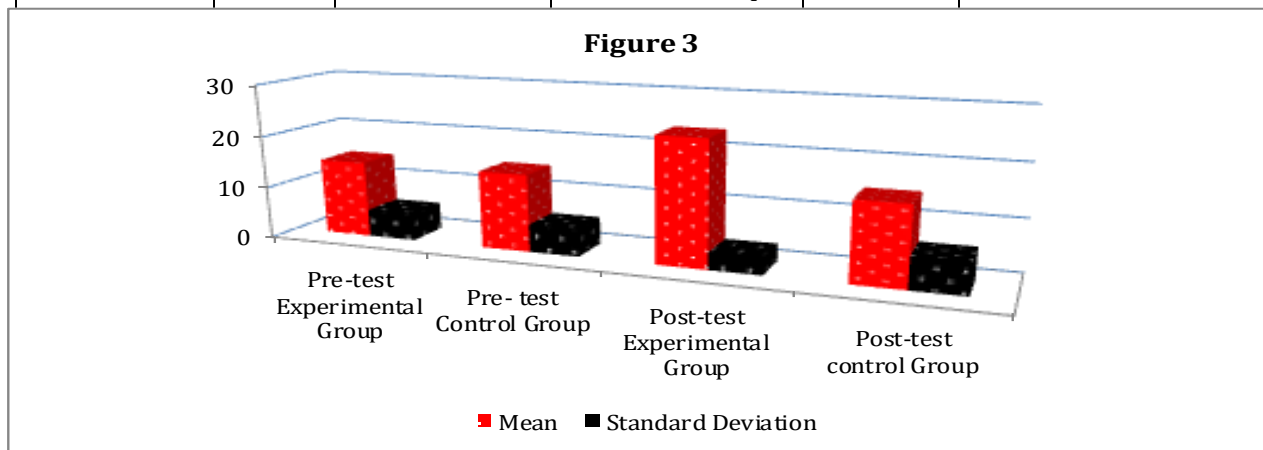


Table 2 along with the figure indicates that the learning achievement of the experimental group is better than the control group. Thus the Mean score of the experimental group is 31.8 and the Standard deviation is 4.03 and on the other side the Mean Score of the control group is 23 and the Standard Deviation is 7.04. This table shows the clear difference between the learning process of the experimental group and the control group in a proper manner. The result of the post-test highlights

that classroom activities increase facilitate the teaching-learning process may help the learners in the learning process.

Table 3: Pre-Test and Post-Test Results of Experimental Group and Control Group

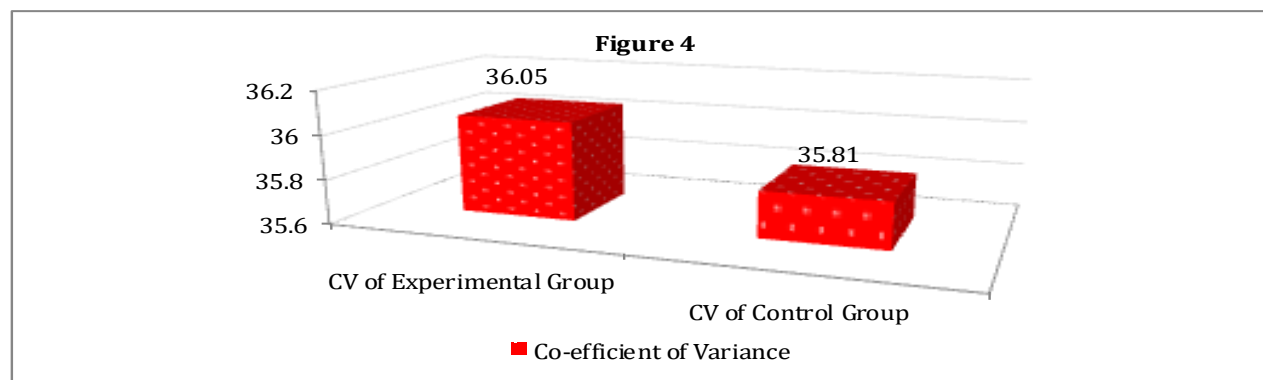
Pre-Test Result			Post-Test Result		
Group	Mean	Standard Deviation	Group	Mean	Standard Deviation
Experimental Group	11.7	4.2	Experimental Group	31.8	4.03
Control	11.8	4.2	Control Group	23	7.04



The data of table 3 is already presented in Tables 1 and 2 but here the researcher has presented the data in one signal table to highlight the difference between the two mentioned groups (Experimental, control clearly and systematically. The above table indicates the significance between the experimental and control group in the post-test result. It means that classroom activities are very important for students at primary level because it motivates them towards the learning process and engages the learners in various activities which are beneficial for them regarding teaching-learning process.

Table 4: Mean, Standard Deviation, T-Value of Experimental and Control Groups on Pre-Test

S.No.	Group	Mean	Standard Deviation	t-value calculated	probability
1	Experimental	11.7	4.2	0.039	0.05
2	Control	11.8	4.2		



In table 4, t-calculated value and level of significance 0.05 are presented along with Mean scores and Standard Deviation of pre-test scores of both experimental group and control group in a very systematic manner to highlight the t-calculated value of the experimental group and control group. Here in the light of the t-calculated value of both the experimental and control group scores clearly show that there is no significant difference between the experimental group and control group in pre-test scores but equal. The Mean scores of the Experimental group are 14.7, the standard deviation is 5.3, and the control group's mean scores are 14.8 and the standard deviation is 5.3. Similarly, the t-calculated values of both of the groups are 0.041, which is smaller than ± 2.0303 at a 0.05 level of significance. And at $df = -18$.

Table 5: Mean, Standard Deviation, t-value of Experimental and Control Groups on Post-test.

S. No.	Group	Mean	Standard Deviation	t-value calculated	probability
1	Experimental	31.8	4.03	5.09	0.05
2	Control	23	7.04		

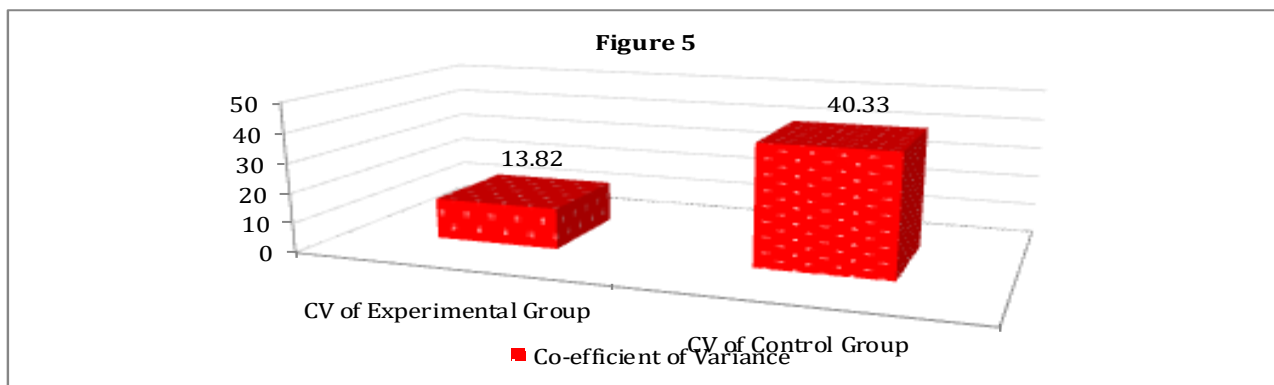


Table 5 along with the figure indicates the mean scores of control and experimental groups in post-test are 31.8 and 23. Thus Standard Deviation of experimental and control groups are 4.03 and 7.04. Similarly, the t-value between both of the groups experimental and control groups is 5.09. This is greater than ± 2.0303 at 0.05 level of significance and $df = -18$ Thus in the light. The table shows that the learning achievement of the experimental group is better than the control group.

Table 6: The Co-Efficient of Variance (C.V) Classroom Activities in Pre-Test Result

C.V of Experimental Group	C.V of Control Group
34.03	34.41

Table 6 shows the co. efficient of variance of pre-test scores obtained by the respondents in this experimental study. The coefficient of variance between the experimental group and control group is 34.03 and 34.41. The co-efficient of the experimental group and control clearly describes that there is no significant difference between the experimental group and control group in pre-test score.

Table 7: The Co-efficient of Variance (C.V) Classroom Activities in Post-test Result

C.V of Experimental Group	C.V of Control Group
17.05	51.44



Table 4.7 highlights that the experimental group is stable than the control group in light of the post-test scores obtained by the respondents. The co-efficient variance between the experimental group and control group is 17.05 and 51.44 which is not a slight difference but it is a great difference between these two groups and the result of the post-test score showed that the role of classroom activities are very important in the teaching-learning process at primary level.

IX. DISCUSSION

The result of the current study clearly showed that super learning techniques play a great role in the teaching-learning process at the secondary level and may not be neglected its status in the teaching-learning process at the primary level. The study showed that it makes the teaching-learning process effective. The study also indicated that super learning techniques create self-confidence among the learners at primary. The study further highlighted that it makes the secondary level learners present their views in front of other class fellows and teacher as well which encourage the learners. The result of the study also showed that super learning techniques engage the learners during the teaching-learning process.

X. CONCLUSION

It was concluded in light of the present experimental study that super learning techniques play a dominant role in the teaching-learning process at the secondary level because they make the learners engage in teaching-learning activities and facilitate teachers especially. Super learning techniques provide a practical environment to learners at the primary level to utilize their talents in various classroom activities and to increase their knowledge regarding various things in the surrounding. The promise is to encourage students to learn actively and constructively. In a cooperative atmosphere, the role of teachers is different as they assist learners like midwives to give birth to their healthy ideas and constructive thoughts (George, Jacobs & Ward, 2000). As they interact with each other, they learn more in the process. They soon discover the significance of student-student communication. Research indicated that cooperative learning reduces misbehavior in the classroom leaving more time for academic instructions and student growth (Baltes et al., 2000)

REFERENCES

1. Adesoji, F.A., & Olatunbosun, S. (2008). Student, Teacher, and Achievement in Senior Secondary School Chemistry in Oyo State, Nigeria. *Uluslararası Sosyal Araştırmalar Dergisi. The Journal of International Social Research*, 1-2.
2. Ameh, P.O., & Dantani, Y.S. (2012) Effects of Lecture and Demonstration Methods on the Academic Achievement of Students in Chemistry in Nassarawa Local Government Area of Kano State. *International Journal of Modern Social Sciences*, 1(1), 29-37.
3. Avaa, A. (2002). Improving Performance in the Sciences, A Support Paper presented at a Workshop held at Federal Government Girls' College, Zaria.
4. Clark, L.H., & Starr, I.S. (2001). *Secondary and Middle School Teaching Methods*, 6th Edition. New York: Macmillian Publishing Company.
5. Maden, S. (2011). Effect of the jigsaw I technique on achievement in written expression skill. *Educational Sciences: Theory & Practice*, 11(2), 911-917.
6. Slavin, R.E. (1991). Cooperative learning and group contingencies. *Journal of Behavioral Education*, 1(1), 105-115.
7. Bolling, A. (1994). Using group journals to improve writing and comprehension. *Journal on Excellence in College Teaching*, 5(1), 47-55.