

Cooperative Versus Traditional Pedagogies: Role in Teaching General Science at Secondary Level

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Abstract

The research work conducted on the topic Cooperative Versus Traditional Pedagogies: Role in Teaching General Science at Secondary Level. This was pure experimental research. The researcher pre-tested the sample and makes two experimental groups with an equal sample size of 30 students in each group. All students were at the secondary level. The results were drawn in tabulated forms then gave small descriptions below the table. The whole sample pre-tested and make two equal treatment groups with the same sample size. One group was treated as cooperative pedagogy and the second was treated as traditional pedagogy. The independent variable was pedagogy and the dependent variable was students' performance in learning science and the clear concepts. The researcher also controls the extraneous variables like home tuitions, parents coaching, the trend of competition, and much more. The researcher also kept in mind the situational variable like, during the exam, the lack of sleep of student, student health during exam, home environment like quarreling parents, etc. researcher observe all the phenomena then tested the students and draw more reliable results. The results were compared through the average and true mean score. Then relation was found through the chi-square test. It was found that the students of the cooperative learning group perform better as compared to the students who were treated as traditional pedagogy.

Keywords: Cooperative Pedagogy, Traditional Pedagogy, Teaching Strategies, General Science, Secondary Level Education

Introduction

Computer literacy and technical skills are necessary for employment in the global economy. Learners essentially be given adequate tools aimed at advanced levels of learning to happen due to the fast pace of technological changes. Students must be got ready to come after, take the place of in the current-day interests, money, goods work in society by making come into existence sound groundings in special to some science or trade and getting questions

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answered expert knowledge, powers to do well, in harmony with to (Engler & Hunt, 2004). Kereluik & Terry, (2013) claimed that the era of knowledge is the end of the 21st century. A new part has been experienced as the 'news worker' within the work-force; persons whose first part is the putting into effect of knowledge. The work today and the future would need working group to be experts in higher-order thought and operation skills. Many teachers do teach to as they themselves have been trained, using common teaching moves near in which the person doing teaching is the starting point of accurate knowledge, in harmony with to (Costa & Kallick, 2004). Some educators discover that organization made up of persons working together work mapped out and training methods give help to learned in theory good outcome and support learners to become having great interest learners about education methods would a) house the demands of learners in a constantly changing general condition. (b) giving support to higher order thought and hard question getting answer to, way out of, and (C) writing house numbers the demands of contemporary society 's in agreement to go with learners.

In order for lifelong learning to occur, existing teaching methods must be analyzed and perfected. Society is requiring that people be problem solvers and higher-level learners, but lifelong learning is a complex asset when they reach the work market of the future. The stresses of policy enforcement in the teaching sector are combined by other influences that students carry to the classroom, such as diverse behavioral patterns, values, skills, and backgrounds. Paez (2006) concluded that teachers require considering not just the various techniques in which their learners think, also their traditionally dissimilar settings in a dynamic, varied, and knowledge-based community in order to build learning environments that will work with them and produce real learning. In order to address the demands of a diverse student demographic, educators must continually refine their skills and comprehension along with their instructional techniques. Holloway (2000) said that the students of today are the ever-changing age of mainstream media. For different factors, inactive learning that operated in the past could not fulfill the needs of students. Cummings (2000) argued that the students today are the outcome of mass-media forces over a given square unit, and that their ways of learning (make, become, be) different from past students. In pre forms to do with man development, making open to mass ways things are done puts into motion learning designs, feelings and actions separate from before groups of students. It is noted that the fast-paced ways things are done to which young children are on condition that are forming, outlining learning designs. Making open to mass ways things are done is often taken into account as to be damaging to the growth of the cognitive and strong feelings powers of a baby. To support teachers to house learner needs that are the product of this mass ways things are done general among a group for a time, an observation of produced by teaching carefully worked design may be necessary. Many students do teach to as they have been doing teaching to, which for today's learners will not be as with a good outcome because common methods have need of action less learning.

Most educators are mindful of the inability of conventional approaches to create self-directed problem solvers. Traditional methods of teaching may fail to yield results because they clearly do not include the learners of today. Slavin (2019) claimed that these teaching approaches are not advantageous to the promotion of higher-level reasoning and problem-solving skills. It is also necessary to discover student-centered, active learning techniques.

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Social learning proponents agree that the interests of the students of the new generation are better addressed by constructive learning methods. Pelletier, (2002) noted that while many pressures are put on educators, and various variables relate to the distinct disposition of learners, it is important to analyze instructional methods that promote successful learning. Instructional techniques that take into justification the required growth of higher-order thought abilities must be introduced, while at the same time allowing for the intense diversity displayed among students.

In addition, current educational methods must be harmonious with government regulations that teachers are expected to enforce, according to Daniels & Perry (2003), which makes teaching a very difficult career. Because of the miscellaneous learning patterns of the present classroom, the conventional methods in which the teacher is the imparter of knowledge are not successful. Gatto (2019) recognized that conventional work is literally meaningless in classrooms; teacher-centered instruction does not facilitate problem solving or include interactions in the real world. It is important to reevaluate conventional teaching methods and adopt modern techniques. The typical sermon in which the speaker imparts knowledge and learners are inactive hearers is not genuine for learners, many researchers explained. The classroom's conventional style misleads pupils from working hard and is not helpful for solving problems. Dewey (2003) indicated that traditional schooling is not fruitful because it is not meant as a way of identity [community] for that sort of classroom and does not cater to the new world. Some theorists have constructivist viewpoints that play an important role in social learning. In reality, many thought conventional teaching methods were stifling student learning.

Costa & Kallick (2004) concluded that the character of the information disseminator in facilitator was crucial for educators. Most educators and experts in this area advocate the use of co-operative models of study, in which the teacher facilitates and the students are actively involved. Researchers observed that active engagement in learning courses encouraged a learning environment to which students took chances and greeted to challenge. Palincsar & Herrenkol (2002) noted that several experiments have defined progress in the classroom by introducing active learning techniques for students of different ages. As active learning is incorporated, students begin to take control of their learning. The development of higher-order thinking abilities through the use of cooperative learning approaches has been established by several clinicians. Siegel (2005) claimed that when students worked together in a non-threatening atmosphere, problem solving was apparent. Some practitioners indicated that there was a greater sense of engagement and enthusiasm and those students showed a willingness to take control of initiatives and welcomed individual responsibility. When students monitor their own learning, Ardichvili, & Polesello, (2016) says that self-directed learning begins to emerge. Because of effective learning, a number of researchers note that self-directed learning is facilitated and students start controlling themselves and organizing their learning processes themselves. These exercises will make students permanent learners.

Papert (2020) indicated that any debate about developments in instructional design should be considered in order to improvement insight into the evolving learning landscape and how the new strategies influence learning. Traditionally, learning has been based on knowledge transfer in a textbook and lecture format. Under this format, the student is a passive receiver

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of information. Old and wise education views schooling like a savings Bank 1 where news given is stored for possible unused quality use. Much of this knowledge remains slow, without power of motion and that is not got, even though it is necessary for hard question getting answer to, way out of. The material gained is less likely to stay inactive while awareness is obtained in a problem-solving process, rather than a factual mode (Ahmad et al., 2023; 2024; Altaf et al., 2023; Dehraj & Hussain, 2024; Hussain et al., 2023; 2024; Muhammad et al., 2023; Sindhu et al., 2023; Zafar et al., 2023; Shahzadi et al., 2023; Hussain & Khoso, 2021).

Hasselbring (2014) clarified that students ought to consider why, where and how different abilities and principles are important or may not use the experience. Students require the capacity to think autonomously. Instead of merely listening to the challenges posed by others they should be able to recognize and describe concerns and establish solutions for addressing these issues on their own. The anchoring of learning in practical problem-solving contexts is one approach to help students become critical thinkers. Scenarios, case studies, hands-on projects etc. provide examples of problem-solving settings. It trains students in the learning environment to become more committed learners by presenting students with big problems to overcome. Students will see the consequences of their first new understanding and learn to use this knowledge under the necessary circumstances. Providing a context-rich, problem-solving environment for students will improve learning and retention. In order to help learners learn, modern teaching methods, especially cooperative learning approaches, can provide problem-rich environments.

Rationale of Study

In the present teaching situation, students see a conventional curriculum system focused primarily on the subject of textbooks, and the teacher sees the teacher as a pivotal force in education. This is a big issue, and innovative approaches to teaching learning processes successfully are required. The goal of this study was to examine the outcome of the cooperative learning methods and to identify the impact on the progress of students in the university. The experiment was performed on 60 students of 9th grade who were split into two classes and research groups in a single classroom.

Statement of Problem

In Pakistan there the quality of education is very low due to quality of teaching staff and teaching method. Teachers still taught through traditional teaching method, which meet no need of students according to new critical syllabus, students are unaware to new concepts of terms and scientific ideas. In the world there are many teachings method, one of them the cooperative method, scholar found this method is very useful for teaching general science because there is many research conducted by scholars about cooperative learning. Scholar was took interest in this method. So, scholar adopted this topic to conduct a research on both pedagogies. This study was conducted on 9th class students' gender female subject general science.

Objectives of the Study

The research goals were as below:

1. To explore the scores of pre-tests of 9th class students in general science before

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making control groups for the experiment of different pedagogy.

2. To examine the relation of post-test scores between cooperative and traditional pedagogies.
3. To identify the relation between traditional teaching methods and cooperative methods in enhancing the knowledge of general science.
4. To investigate the relation between traditional teaching methods and cooperative methods in enhancing the concepts of general science.

Hypotheses

Ho1. There existed no significant relationship between the score of pre-tests between cooperative pedagogy and traditional pedagogy in general science at the secondary level.

Ho2 There existed no significant relation of post-test scores between cooperative and traditional pedagogies.

Ho.3 There existed no significant relation between traditional teaching methods and cooperative methods in enhancing the knowledge of general science.

Ho.4 There existed no significant relation between traditional teaching methods and cooperative methods in enhancing the concepts of general science.

Significance of the Study

The study results will support to use a secondary-level teaching approach that is more beneficial. In order to make teaching more successful, this research is likely to inspire teachers in their class to perform similar experiments. The findings of this study can lay the groundwork to improve the standard of teaching in general science. This thesis would inspire other scholars to conduct more studies in related fields of endeavor. The outcomes of this research will affect student-centered methods, such that they can be efficiently used by general science pre-service and in-service teacher education programs. This study lets educators learn the importance of co-operative methods in learning and train students to think in an advanced order. As an effect, teachers who are unwilling to employ cooperative learning techniques are stimulated to integrate these approaches into their daily instruction and training. Finally, the study could demonstrate that instructors only have adequate time and money to learn multiple teaching approaches when they have sufficiently trained and have fully established policies.

Research Delimitations

The research was delimited to the one girl's high school in District Vehari, Government High School 493 EB for Girls.

Research methodology

Research methodology is related to methods and procedures adopted for the study. This chapter talks about the research design of the study, population of the study, sampling and its techniques, detail and description of instruments used in the study and data collection methods.

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Procedure of Research and Approach

Purpose of the conducting the research was to study the comparison between “Cooperative VS Traditional Pedagogies: Role in Teaching General Science at Secondary Level”. To comparison between cooperative learning and traditional pedagogies was experimental in nature. As already known that nature of this research was experimental in nature because independent variable was manipulated which was teaching styles, and see its effects on dependent variable that was student’s learning. For this research two groups were formed, pre-test conducted for equal level of students, and post-test was conducted after the treatment. Research was experimental in nature and both groups were controlled.

Population

Table No. 1

Population of The Study

Category	Total Schools	Total Students	Total Population
Female	01	80	80

For a generalization of the results population of the study plays a vital role. For a generalization of the results of the present study, a population was selected. The population of the study was selected in District Vehari. The population was one girls higher secondary schools of District Vehari. The population contained only 9th class student of GHS 493 EB.

Sample of The Study

Inclusion of Sample

After pre-test 60 students were chose for sample of equal ability. Students had equal IQ levels, equal social interaction and had equal background.

Exclusion of Sample

From population 20 female students were excluded from selection for sample, they were high and low achievers. Only 60 girls were selected for the study.

Table No. 2

Sample of The Study

Category	Total Schools	Total Students	Total Sample
Female	01	60	60

The minimum sample was selected according to the requirement of the experimental study. There were selected only (60) girls’ students for both groups. (30) girl students were selected for treatment group and (30) girls’ students were selected for the traditional group.

Stage 1 Process of Tool Development

For data collection tool play a vital role. Tool is very essential element for experimental research. For this study two kinds of tools were developed. One was the pre-test tool and second one was the post-test tool. The tool was developed from general science book. Pre-test tool was developed for assess the equal potential of the participants. Then second tool was developed for post-test. Both tools were reliable. First tool consisted on the pack of (100) questions with concepts. Second tool was also with same weightage and consists of (100)

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questions in (10) distributed rubrics forms to obtain reliable data. After treatment each rubric test conducted and obtained the data.

Process of Development of Tool

The tools were developed followed different process. Some are as under;

Stage (1) Prior Literature

For development of tool different sources of literature were reviewed. Krosnick, (2018) stated in his study entitled "Questionnaire design" that all study results and findings revolve around the questionnaire. A reliable tool has much importance. Without valid and reliable tool research has no valid results for generalization.

For my research work different tools scripts were viewed and presented before experts. Then tools were developed.

Stage (2) Expert Opinion

After development of pre and post-test tools, the instrument were presented before the experts. The panel consisted subject specialists of general science, most senior teachers of the schools, head teachers and students of secondary level. In the panel language experts also gave their valuable comments about the tools. The tools language rephrases according to understanding level of secondary students. Some questions were developed and some were omitted. Some new questions were added. In this way a reliable tool was developed.

Stage (3) Pilot Testing

Both tools were tested before conducted to treatment groups. Ten students chose for pilot testing the tool. The results came very good and satisfactory. Question no. 2, 3, 7, 82, 83, 87, 92 were rephrases according to the understanding level of students which they were read in the general science book. The reliability of first instrument was .92 and the pack of second instrument average reliability was .93. Experts showed their satisfaction on both tools.

Table No. 3

Pilot Testing

No.	Type	Items	Cronbach's Alpha
1	Pre-test	100	.82
2	Post-test	100	.83

Stage (4) Final Draft

After pilot testing and expert opinions, the final drafts of tools were developed. It was assured that face validity of instruments was satisfactory. It was also assured that whole content area was covered and content validity was satisfactory. Then final drafts were prepared before expert panel.

Reliability of The Test

The reliability of the instruments was ensured through pilot testing. Some questions were omitted and some were updated with easy language. Pilot testing were done on ten students. The pre and post-test reliability were checked through SPSS V 21. The reliability of first instrument was .92 and the pack of second instrument average reliability was .93. Experts showed their satisfaction on both tools.

Variables

- Teaching styles was independent variable

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- Student's score was dependent variable.
- Teachers who were involved, Time for teaching, Average Age of the students, and Classroom conditions-controlled variables.

I.Q level of the students, achievement in past, socio- economic status of the students, their anxieties, and self-concept about things, interests and attitude of the students were variables uncontrolled.

Data Collection

Two different treatment modalities were used during the investigation. Based on the identical reading passages and activities, the lesson plans for both courses offered the same instructional standards. Nonetheless, the experimental concepts offered chances for team members to share resources and work together in small groups. On the other hand, students in the monitoring group worked independently and shared their solutions with the community. Every group received worksheets, except the research group, which presented a conventional, everyday scenario in the classroom, while the experimental group received the cooperative learning solution as a form of therapy. The trial ran for thirty days. As soon as the experiment was over, the post-test was given to the participants to assess their performance. Thirty students were in the study group and thirty students were in the research group. While the posttest results were used to assess how well the children performed after treatment, the study's pretest results were used to compare the control and experimental grades.

Procedure of The Study

For collection of following procedure was set by researcher;

Class Teacher

The head teacher of the sample school was asked to cooperate with the study, which will help advance education. Madam Iram Nasreen (M. Phil Chemistry) was willing to do an experiment for this class. In this manner, her class was divided into two groups via random selection. Traditional pedagogy came in second, followed by cooperative pedagogy.

Time Table

Both groups were began teaching from the latter week of January and lasts the end of February. Both classes were given the same set of criteria. Both the duration of therapy and the time of day have been equal. The same instructor taught both groups. Both courses were taught the same content. The analysis was place for 30 days, lasting 40 minutes each day. Cooperative learning was used as an instructional strategy for the research group, whereas traditional learning methods were used for the control group. Researchers and science specialists located a teacher who agreed to instruct experimental and control groups. The cooperative learning approach was taught to this instructor in an experimental community. This instructor employed the standard way of learning to educate the kids. The same teacher was selected to teach both classes in order to rule out any potential influences. The teacher who chose to participate in the study was trained to use the components of cooperative learning—heterogeneous grouping, constructive interdependence, cognitive skills, and

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community processing—in her scientific instruction. Improving experiment integrity via attentive training was the aim of this method.

Research Instrument

A pre-test tutor (Appendix I) was given to students before they were divided into experimental and control groups in order to align the two groups. Participants in the experimental and control courses were given a teacher-made posttest (Appendix II) shortly after the therapy was completed. This exam was designed to assess the students' progress who were taking part in the study. Following a careful examination of test design methodologies, the researcher created a pretest and posttest. The examinations' design piqued the curiosity of both experts and classroom instructors. The post-test's product configurations were altered, but the pretest and posttest stayed the same. Each exam has two parts: subjective and objective measures of a certain kind.

Data analysis

Demographic Information

Table No. 4

Demographic information

Name of school	GHS 493 EB District Vehari
Students, grade	All girls higher secondary school students of grade 9th
Group	Arts
Age group	All students were approximately same age group (14-16 years)
Total schools	01
Total students	60
Sample	60

Table No. 4 indicates that study was conducted in GHS 493 EB District Vehari. Sample was chosen from one girls higher secondary schools of District Vehari. The sample contained only 9th class student of GHS 493 EB. Students had equal IQ levels, equal social interaction and had equal background.

Pre-Test

All sampled students were pre-tested before treatment. The results are given in the following table.

Table No. 5

General Science Concepts (Average of All 10 Test)

No.	Tests	Correct	Incorrect	Concepts
1.	Test 1	24.9	05	27.3
2.	Test 2	24.9	5.1	27.3
3.	Test 3	24.9	5.1	27.5
4.	Test 4	25.2	4.8	27.3
5.	Test 5	27.1	2.9	28.1
6.	Test 6	25.9	4.1	26
7.	Test 7	25.2	4.8	26.4
8.	Test 8	25.3	4.7	26.6
9.	Test 9	25.4	4.6	26.6

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10.	Test 10	25.3	4.7	26.6
Average		25.41	4.58	26.97

Table no. 5 shows that students which were pre-test before the experiment. High and low achievers were not select for the experiment. Some simple concepts of the general science of 9th and secondary level were asked from students, students write their answers on the sheet then marks were obtained for numerical data. It was observed that on average twenty-five students gave correct answers and on average four students writes incorrect answers. The data also obtained from students' concepts, the interview method was used for this procedure, and marks converted into numerical form. It was observed that an average of about twenty-seven students had clear concepts about the questions.

Table No. 6

Traditional Groups All Test Average

No.	Tests	Correct	Incorrect	Concepts
1.	Test 1	21.9	8.1	22.4
2.	Test 2	22.1	7.9	22.5
3.	Test 3	22.1	7.9	24.3
4.	Test 4	23.3	6.7	26.9
5.	Test 5	23.7	6.3	24.4
6.	Test 6	24.2	5.8	24.2
7.	Test 7	20.5	9.5	22.7
8.	Test 8	23.2	6.8	22.4
9.	Test 9	23	7	23.3
10.	Test 10	22.6	7.4	22.8
Average		22.66	7.34	23.59

Table No. 6 shows the results of the traditional teaching method of general science at the secondary level. In this group, students taught general science through the traditional method, then tested through the set of questions. In this table, there are averages of ten set of questions tests. The results were obtained by each test, then average responses were drawn for reliable results. Through average computation, twenty-two plus students gave correct answers and seven-plus students were unable to give correct answers. The correct concepts were computed through student interviews. Then write in numerical form. About twenty-three plus students had clear concepts of question.

Table No. 7

Treatment Groups All Test Average

No.	Tests	Correct	Incorrect	Concepts
11.	Test 1	26.4	3.6	24.7
12.	Test 2	26.7	3.3	27.5
13.	Test 3	26.8	3.2	27.5
14.	Test 4	27.9	2.1	28.2
15.	Test 5	28	2	28.3
16.	Test 6	28	2	27.6
17.	Test 7	28.1	1.9	27.8
18.	Test 8	28.2	1.8	28.3
19.	Test 9	27.2	2.8	27.4

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20.	Test 10	26	4	28.3
	Average	27.33	2.67	27.56

Table No.7 shows the results of the treatment teaching method of general science at the secondary level. In this group, students taught general science through the treatment method, then tested through the set of questions. In this table, there are averages of ten set of questions tests. The results were obtained by each test, then average responses were drawn for reliable results. Through average computation, twenty-seven plus students gave correct answers and only plus students were unable to give correct answers. The correct concepts were computed through student interviews. Then write in numerical form. About twenty-seven plus students had clear concepts of question.

Table No. 8

Comparison of Both Groups by Average and by Percentages

No.	Traditional Group	Correct	Incorrect	Concepts
21.	Average	22.66	7.34	23.59
22.	Percentage	75.53	24.46	78.63
No.	Cooperative Group	Correct	Incorrect	Concepts
23.	Average	27.33	2.67	27.56
24.	Percentage	91.1	10.99	91.86

Table No. 8 shows the results of both groups. Both groups were compared with each other by average and by percentage. It was observed that the cooperative group showed more good results as compared to the traditional group.

Table No. 9

Comparison of the Mean and Standard Deviation of Both Groups

	Cooperative Method	Traditional Method
Mean	1.10	1.27
N	30	30
Std. Deviation	.305	.450

Table No. 9 shows the comparison results of both groups by the mean and standard deviation. It was observed that the positive mean of cooperative learning was good and the traditional group had a negative mean because there were more incorrect answers as compared to the cooperative learning group.

Table No. 10

Chi-Square Interpretation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.857 ^a	2	.032
Likelihood	7.500	2	.024
Linear-by-Linear Association Ratio	.010	1	.921
N of Valid Cases	24		
Table Value	5.99		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .13.

b. Table Value 5.99 6.857a > 5.99 / CV > TV

Table No. 10 shows the chi-square calculated value which was (6.857), which was greater

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than the table value (5.99). The value of χ^2 was shown No. significant relationship between the traditional group and cooperative group.

Findings of Objective (1)

To explore the scores of pre-tests of 9th class students in general science before making control groups for the experiment of different pedagogy. Student's average score was in the pre-test (overall 10 tests), (correct=25.41), (incorrect=4.58) and (clear concepts=26.97), the results of clear concepts were drawn through interviews. It was found that students have equal efficiency and ready for treatment (Table No. 5).

Findings of Objective (2)

To examine the relation of post-test scores between cooperative and traditional pedagogies. It was found that there was no relation in groups. The researcher applies the chi-square test to explore any relation. The calculated value was (6.857) more than the table value (5.99), the hypothesis rejected (Table No. 10).

Findings of Objective (3)

To identify the relation between traditional teaching methods and cooperative methods in enhancing the knowledge of general science. The aggregate results were drawn in percentage and through average. It was observed that the cooperative group showed more good results as compared to the traditional group, students got good marks and good knowledge which were taught through cooperative pedagogy (Table No. 8).

Findings of Objective (4)

To investigate the relation between traditional teaching methods and cooperative methods in enhancing the concepts of general science. The aggregate results were drawn in percentage and through average. It was observed that the cooperative group showed more good results as compared to the traditional group, students got good marks and clear which were taught through cooperative pedagogy (Table No. 8).

Findings of Hypothesis (1)

There existed no significant relationship between the score of pre-tests between cooperative pedagogy and traditional pedagogy in general science at the secondary level. Student's score was in the pre-test (correct=25.41), (incorrect=4.58) and (clear concepts=26.97), the results of clear concepts were drawn through interviews. It was found that students have equal efficiency and ready for treatment, the hypothesis accepted (Table No. 5).

Findings of Hypothesis (2)

There existed no significant relation of post-test scores between cooperative and traditional pedagogies. The researcher applies the chi-square test to explore any relation. The calculated value was (6.857) more than the table value (5.99), the hypothesis accepted 4.37 (Table No. 10).

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Findings of Hypothesis (3)

There existed no significant relation between traditional teaching methods and cooperative methods in enhancing the knowledge of general science. The aggregate results were drawn in percentage and through average. It was observed that the cooperative group showed more good results as compared to the traditional group, hypothesis accepted because it was found that students got good marks and good knowledge which were taught through cooperative pedagogy.

Findings of Hypothesis (4)

There existed no significant relation between traditional teaching methods and cooperative methods in enhancing the concepts of general science. The aggregate results were drawn in percentage and through average. It was observed that the cooperative group showed more good results as compared to the traditional group, hypothesis accepted because it was found that students got good marks and cleared concepts which were taught through cooperative pedagogy.

1. The results of a total of ten tests of the traditional group, in the last the average results were observed, twenty-two plus students gave correct answers and seven-plus students were unable to give correct answers. The correct concepts were computed through student interviews. Then write in numerical form. About twenty-three plus students had clear concepts of the question, (Table No. 6).
2. The results of a total of ten tests of the treatment teaching method of general science at the secondary level. Through average computation, twenty-seven plus students gave correct answers and only plus students were unable to give correct answers. The correct concepts were computed through student interviews. Then write in numerical form. About twenty-seven plus students had clear concepts of the question, (Table No. 7).
3. The aggregate results were drawn in percentage and through average. It was observed that the cooperative group showed more good results as compared to the traditional group, (Table No. 8).
4. It was observed that the positive mean of cooperative learning was good and the traditional group had a negative mean because there were more incorrect answers as compared to the cooperative learning group, (Table No. 9).

Conclusion

The conclusion was drawn from the finding of the study

1. There found no significant relationship between the score of pre-tests and the score of cooperative pedagogy in general science at the secondary level. The null hypothesis is accepted.
2. It concluded that there was no significant relationship found between the score of pre-tests and the score of traditional pedagogy in general science at the secondary level, the null hypothesis accepted.
3. It was explored that there was no significant relation between cooperative and traditional pedagogies, the null hypothesis accepted.
4. There found no significant relation between traditional teaching methods and cooperative methods in enhancing the knowledge of general science, the null hypothesis was

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accepted.

5. There existed no significant relation between the traditional teaching method and the cooperative method in enhancing the concepts of general science.

6. In test No.1 cooperative learning group perform well, maximum students gave correct answers and maximum students had clear concepts about science basic and critical questions. In test No. 2 gave the same results as test No.1. In this test traditional method teaching group score low performance as compared to the cooperative pedagogy group.

7. In test No.3 the students gave less correct answers which were taught through traditional pedagogy and those students who were taught through cooperative pedagogy perform well and get a maximum score as compared to the traditional pedagogy group. In test No.4 students of the cooperative group perform well as compared to those students who were taught through the traditional method. Cooperative pedagogy group score maximum in clear concept portion as compared to traditional pedagogy group.

8. The test No.5 also showed the good results of the group which was treated as cooperative learning, the students of the traditional method group perform low in clear concepts and correct answers. In test No.6 a maximum number of students who gave correct answers and had clear basic concepts were the cooperative pedagogy group. The traditional method group also perform well but was low from the treatment group.

9. In test No.7, those students perform well which were taught through cooperative learning, they had very clear concepts and gave maximum correct answers to the questions as compared to the traditional learning group. Test No.8 also showed the positive results of the cooperative learning group as compared to the traditional group. Students of the cooperative learning group gave maximum correct answers to the questions and had more clear concepts as compared to the traditional pedagogy group.

10. Test No.9 showed good results of the cooperative pedagogy group as compared to the traditional learning group. The students of the cooperative learning group perform better in all sorts of test batteries. But the traditional group performs less in test batteries. In test No.10 the same results were obtained by the cooperative learning group, they perform well incorrect answers and clear concepts as compared to the traditional pedagogy group.

11. It was concluded that the overall cooperative pedagogy group performs well in enhancing their knowledge of science as compared to the traditional group.

12. It was concluded that the overall cooperative teaching group performs well in enhancing the clear concepts as compared to the group which teaches through the traditional pedagogy.

Recommendations

From the finding of the study some very precious recommendation is drawing as follows;

1. It is highly recommended that students should be encouraged to learning through the cooperative group. Group discussion and work on projects.

2. It was concluded that students get more interest in the cooperative learning group, it also increases the student's independent learning and learns from peers.

3. It is recommended that teachers should be trained towards cooperative pedagogy.

4. It explored that some novice teachers were slow to manage students in a cooperative group, so it is the need of era to train the teachers.

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5. When students are working toward a common goal, academic work becomes an activity valued by peers.
6. Students are motivated to help one another learn.
7. Students can translate the teacher's language into "student language" for one another.
8. Students who explain to one another strengthen their learning.
9. When students need to organize their thoughts to explain them to teammates, they must engage in thinking that builds on other ideas (cognitive elaboration) which greatly enhances their understanding.
10. Teammates can provide individual attention and assistance to one another.

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