Introduction:

Present world is a world of knowledge explosion which is full of innovative ideas and practices. Educational field is an integral part of this world. It is said that today’s education system is mechanistic, rigid and directed towards wrote learning. There is urgent need to change the education from quantitative growth to qualitative growth. One of the steps towards changing the scenario was done by National Curriculum Framework 2005. NCF 2005 there was shift from behaviourism to constructivism. It has been found that the use of constructivist approach helps to achieve the educational goals. In constructivist approach the student constructs his/her own knowledge according to their previous experiences and it is the basis of constructivism.(Bruner 1973) Vygotski studied social constructivism and concluded that various skills and adjustments can be developed by using constructivist approach.

There are various strategies of constructivist approach and the popular one from these is cooperative learning strategy. Cooperation enhances student’s satisfaction with the learning experience by actively involving students in designing and completing class procedures and course content. Fundamental and social needs can be fulfilled through cooperative learning. Researches shown that use of cooperative learning strategy changes attitudes of student’s from negative to positive towards the instructional methods and the learning subject.

In the present research the researcher studied the effect of cooperative learning strategy on adjustment and attitudes of B. Ed. College trainees. The research is an honest effort to make the subject more interesting and making learner to become successful adults.
Need of the study:

Coming together is a beginning

Keeping together is progress

Working together is success – Henry Ford

A majority of institutions neglect the learning process and focus only on the outcome. Traditional instructional methods focus only on individual goals. Cooperative learning provides learning environment which is cooperative and maximizes the potential of all students. Researches on cooperative learning gave evidences of benefits of cooperative learning over individualistic and competitive learning environment.

Today’s child is the nation builder of future and to make a civilised person is the most important goal of education. For this purpose it is essential to develop logical and critical thinking in the student. The school environment negatively affects on the thinking process and scholastic achievement of the student. How the student behaves among peers, how they interact, how they solve the problem, etc. is not considered in the instruction. In competitive environment student became selfish and never thinks about his peer and always look towards the peer as competitor. The student never thinks that how the peer works for achieving their learning goals. He thinks only about his success and benefits. Thus his attitude became selfish. Due to this the student never socialized. He did not know his responsibility towards others. To inculcate the social skills and to develop proper attitudes it is necessary to work in groups. It is necessary to know the students that the personal goals can be achieved only through
cooperation. By knowing all the above reasons the researcher decided to work on cooperative learning.

When the researcher read about the cooperative learning she became excited to know more about this method. In B.Ed. curriculum various methods are included but cooperative learning method has negligible weightage hence to know the detailed information about this method the researcher selected the topic for research purpose. B.Ed. college trainees are developing the future of the nation. If the B.Ed. college trainees sensitize their commitment towards the society they can develop civilized persons of the nation. While reviewing the literature and researches the researcher found that there are very few researches on cooperative learning at B.Ed. level. Hence the researcher selected B.Ed. level for the study.

Researches on cooperative learning shows that the positive interpersonal relationships caused due to cooperative learning enhances the quality of social adjustment to college life, increase commitment towards college and curriculum, and heighten social membership in college. In cooperative learning the groups work together towards a common goal enhancing self esteem, social competence and general psychological health. (Johnson and Johnson 1998) Hence the researcher wants to study whether cooperative learning can affect adjustment of B.Ed. college trainees?

Researcher was working in B.Ed. colleges since from last eight years. She taught various subjects of B.Ed. curriculum. She found that B.Ed. college trainees attitude towards the subject Instructional System (Instructional Designs revised 2014 of Pune University) was unfavourable. Trainees feel fear for this subject. Hence the researcher sensitized the problem if proper teaching method or strategy can make trainees attitude
favourable? Hence by knowing about the principles of cooperative learning researcher decided to work on impact of cooperative learning strategy on attitudes and adjustment of B.Ed. college trainees.

**Importance of the research:**

In this competitive age jealousy, competition, etc. features are found in each person. Each person has to adjust with self, colleague, environment, etc. We can prove ourselves with the help of our peers. The roots of adjustment are embedded in cooperative learning. The person who helps others will definitely successful in his life, and became socialized. Researches proved that positive attitudes, adjustment, self esteem, leadership, retention, etc. can be developed through cooperative learning. Learning to know, learning to do, learning to live together these pillars of education can be nourished by cooperative learning.

The B.Ed. college trainees have very high burden of the curriculum. They are trained within the period of 9-10 months. The new curriculum (Revised 2014) of B.Ed. of Savitribai Phule University is very vast. Various new subjects, lessons, skills and courses are added in the curriculum. The time limit given to them is very short. But if the trainees learn the curriculum through cooperation then they can achieve their personal goals as well as group goals. Hence to inculcate the cooperative skills and to release the burden of curriculum the present research is helpful. The present research is helpful for preparation of STAD cooperative learning strategy.

The present research is helpful to develop various skills and adjust with self and peers and to the environment. The present research is helpful for changing the attitudes of B.Ed. college trainees towards various subjects
especially the Instructional Designs. In the present research the researcher makes the students more active. The study will be important for changing the views of teacher educators also.

The present research will be helpful for its tools: Attitude scale and Adjustment inventory. It will help other researchers to give guidelines. The present study will be helpful for changing the present competitive environment of education system to cooperative.

**Review of related Research:**

In the present research the researcher took reviews from various libraries and websites. The categorization of review is shown in the following table.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Type of review</th>
<th>Attitude</th>
<th>Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Foreign</td>
<td>India</td>
</tr>
<tr>
<td>1.</td>
<td>Ph.D.</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>2.</td>
<td>M.A. dissertation</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>3.</td>
<td>Research project</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>4.</td>
<td>Research paper</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>27</td>
<td>5</td>
</tr>
</tbody>
</table>

**Cooperative Learning:**

Cooperative learning is a strategy for group instruction which is studied under learner centred approach.

Slavin (1995) – Cooperative learning is an instructional program in which students work in small groups to help one another to master the academic content.
Cooperative learning may be broadly defined as any classroom learning situation in which students of all levels of performance work together in structured groups towards a common shared goal.

Students working in cooperative learning groups can achieve various social and academic goals or benefits. Students in cooperative groups in the classroom accomplish significant tasks. Students working in cooperative groups attain higher level of achievement, to increase time on task, build cross ethnic relationships, experience enhance self-esteem, build life-long interaction and communication skills, develop positive attitudes, creative and critical thinking, helps in being productive member of the society.

**Elements of Cooperative Learning:**

Cooperative learning is found to be more effective under certain conditions. The following are the five basic elements of cooperative learning.

1. **Positive Interdependence:** According to Johnson and Johnson (2000) cooperation occurs only when students perceive that the success of one depends on success of the other. Each group member must feel that his or her contribution is necessary for the group’s success. Students have to learn to work together in order to accomplish the given task. Each group member has a unique contribution to make the joint effort because of his or her resources or role and task responsibilities.

2. **Face to face interaction:** Face to face interaction is necessary among students within which they promote each other’s learning and success. Face to face interactions helps to improve following:
   - Orally explaining how to solve problems
• Teaching one’s knowledge to other.
• Checking for understanding
• Discussing concepts being learned
• Connecting present learning with past learning

3. **Individual and Group Accountability:** In cooperative learning the size of the group is small (4-5 students per group). The reason behind this is that each member of the group must be a stronger individual. Hence each individual can be assessed individually. The results of each individual are given back and added to the groups. Therefore the group knows who needs more assistance, support and encouragement in completing the given task.

4. **Interpersonal and small group skills:** Students must be taught the social skills which are needed for both team work and task work includes decision-making, communication, leadership, conflict-management skills, etc.

5. **Group processing:** Group members should think about how well they are corporate as team and how to enhance their future cooperation. Students can discuss what member actions are helpful and not helpful. Here students can discuss and take decisions about their which behaviours to continued and changed.

These five essential components must be present for small group learning to be truly cooperative. There needs to be an accepted common goal on which the group will be rewarded for their efforts. (Johnson and Johnson, 1991).
Theoretical background of Cooperative learning:

By knowing the educational and social benefits of cooperative learning, teachers in the world are using this method for teaching purpose. The most important approaches related to cooperative learning are:

- Approach related to human needs and motivation
- Approach related to cognitive development
- Learning approach
- Individual difference approach
- Social interdependence approach
- Researches related to brain approach

**Approach related to human needs and motivation:**

![Human Needs Pyramid]

Fundamental needs of human being are fulfilled through cooperative learning. According to Maslow’s hierarchy of needs except physical needs, all the four types of needs can be fulfilled through cooperative learning. Physical and emotional safety, love and feeling of importance of relationship, experience of self respect and expression of insight abilities, etc. can be inculcated through cooperative learning.

**Approach related to cognitive development:**
According to Jean Piaget the main factors of social knowledge are language, values, rules, ethics, etc. These can be inculcated through cooperative learning.

**Approaches related to learning:**

The learning theory of Skinner in which reward is given for the proper responses of students is used in cooperative learning.

**Individual difference approach:**

Approaches related to individual difference, Howard Gardner’s multiple intelligence theory, theories related to learning styles, etc. can be fulfilled through cooperative learning.

**Social interdependence approach:**

Kurt Lewin and Morten Dash’s theory of social interdependence is useful for cooperative learning because the principle of positive interdependence is used in cooperative learning for achieving the goals of the group.

**Researches related to brain approach:**

Results of theories related to brain proposed that if physical and emotional security is not given an individual cannot work. Mastery learning is facilitated in fearless and healthy environment with peers. When students work in group in cooperative learning for understanding the concepts there is interaction between the students and due to this the knowledge acquired is stored in long term memory.

**Types of Cooperative learning strategy:**
There are various types of cooperative learning strategy. They are as follows.

1. Learning together
2. Jigsaw I
3. Turn to your Neighbourhood
4. Inside outside circle
5. Pairs of pairs
6. Think pair and share
7. Complex instruction
8. Group investigation
9. Student Team Learning

Student Team Learning includes following types

1. Team Games Tournament (TGT)
2. Jigsaw II
3. Student Teams Achievement Division (STAD)
4. Team Assisted Individualisation (TAI)
5. Cooperative Integrated reading and comprehension

The type used in the present study was Student Team Achievement Divisions (STAD). It was developed by Robert Slavin and his colleagues at the John Hopkins University. STAD has been used in such diverse subject areas as Mathematics, language, Arts, Social studies and Science. In STAD students are assigned to 5-6 member learning teams that are mixed in performance level, gender and regions. STAD has five major components. These are class presentation, team study, quizzes, individual improving scores and team recognition. (Slavin, 1995)
Title of the Research:

A study of effect of cooperative learning strategy on adjustment and attitudes of B.Ed. college trainees of Pune University.

Operational Definitions of title:

1. Cooperative learning strategy:

Cooperative learning strategy is considered as an instructional strategy in which small groups (4-5) of B.Ed. differ college trainees (gender, geographical region and faculty) differ in various level (gender, geographical region and faculty) working together for success of groups and increase self as well as groups knowledge and skills in cooperative environment.

2. Adjustment:

It is the process in which B.Ed. college trainees satisfy their personal (stress and conflict management), educational (participation in activities, thinking towards curriculum) and social (behaviour with peers and others) needs by acquiring some skills for satisfaction of these needs.

3. Attitude:

It is the disposition of B.Ed. college trainees to respond to a set of statements related to cognitive (thinking/beliefs about the subject), affective (sentiments/feelings or emotions towards the subject) and behavioural (actions towards the subject) the subject Instructional Designs in favourable or unfavourable way.
4. **B.Ed. College:**

Colleges giving training to the degree students who desire to work at secondary and higher secondary level as teachers.

5. **Effect:**

It is the behavioural change in the B.Ed. college trainees regarding attitude and adjustment due to cooperative learning strategy.

6. **Trainees:**

The students of B.Ed. colleges of Pune University. (Savitribai Phule Pune University)

**Objectives of Research:**

Following are the objectives of the present research:

1. To prepare a cooperative learning strategy.
2. To study the effects of cooperative learning strategy on attitudes of B.Ed. college trainees.
3. To study the effects of cooperative learning on adjustment of B.Ed. college trainees.
4. To compare the attitude scores of boys and girls B.Ed. college trainees obtained by using cooperative learning strategy.
5. To compare the attitude scores of rural and urban B.Ed. college trainees obtained by using cooperative learning strategy.
6. To compare the attitude scores of Arts, Commerce and Science B.Ed. college trainees obtained by using cooperative learning strategy.
7. To compare the adjustment scores of boys and girls B.Ed. college trainees obtained by using cooperative learning strategy.
8. To compare the adjustment scores of rural and urban B.Ed. college trainees obtained by using cooperative learning strategy.
9. To compare the adjustment scores of Arts, Commerce and Science B.Ed. college trainees obtained by using cooperative learning strategy.
10. To compare the post test attitude scores of boys B.Ed. college trainees of control and experimental group.
11. To compare the post test attitude scores of girls B.Ed. college trainees of control and experimental group.
12. To compare the post test attitude scores of rural B.Ed. college trainees of control and experimental group.
13. To compare the post test attitude scores of urban B.Ed. college trainees of control and experimental group.
14. To compare the post test attitude scores of Arts B.Ed. college trainees of control and experimental group.
15. To compare the post test attitude scores of Commerce B.Ed. college trainees of control and experimental group.
16. To compare the post test attitude scores of Science B.Ed. college trainees of control and experimental group.
17. To compare the post test adjustment scores of boys B.Ed. college trainees of control and experimental group.
18. To compare the post test adjustment scores of girls B.Ed. college trainees of control and experimental group.
19. To compare the post test adjustment scores of rural B.Ed. college trainees of control and experimental group.
20. To compare the post test adjustment scores of urban B.Ed. college trainees of control and experimental group.
21. To compare the post test adjustment scores of Arts B.Ed. college trainees of control and experimental group.
22. To compare the post test adjustment scores of Commerce B.Ed. college trainees of control and experimental group.
23. To compare the post test adjustment scores of Science B.Ed. college trainees of control and experimental group.

Assumptions of Research:

Following are the assumptions of the present research:

1. Man is a social animal.
2. The groups regularly interact with each others.
3. Each individual tries to maintain balance between its needs and the circumstances for his satisfaction.
4. Attitudes are not permanent. They are static and can be changed by any external factor.

Hypothesis of research:

Following are the hypothesis of the present research.

Research hypothesis:

1. There will be significant difference between the mean scores of attitudes of B.Ed. college trainees obtained through traditional and cooperative learning strategy.
2. There will be significant difference between the mean scores of adjustments of B.Ed. college trainees obtained through traditional and cooperative learning strategy.
Null hypothesis:

1. There will be no genderwise significant difference between the mean scores of attitudes of B.Ed. college trainees formed by cooperative learning strategy.
2. There will be no geographical or regionwise (rural and urban) significant difference between the mean scores of attitudes of B.Ed. college trainees formed by cooperative learning strategy.
3. There will be no facultywise (Arts, Commerce and Science) significant difference between the mean scores of attitudes of B.Ed. college trainees formed by cooperative learning strategy.
4. There will be no genderwise significant difference between the mean scores of adjustment of B.Ed. college trainees caused by cooperative learning strategy.
5. There will be no geographical or regionwise (rural and urban) significant difference between the mean scores of adjustment of B.Ed. college trainees caused by cooperative learning strategy.
6. There will be no facultywise (Arts, Commerce and Science) significant difference between the mean scores of adjustment of B.Ed. college trainees caused by cooperative learning strategy.
7. There will be no significant difference between the post test mean scores of attitudes of boys B.Ed. college trainees of control and experimental group.
8. There will be no significant difference between the post test mean scores of attitudes of girls B.Ed. college trainees of control and experimental group.
9. There will be no significant difference between the post test mean scores of attitudes of rural B.Ed. college trainees of control and experimental group.

10. There will be no significant difference between the post test mean scores of attitudes of urban B.Ed. college trainees of control and experimental group.

11. There will be no significant difference between the post test mean scores of attitudes of Arts B.Ed. college trainees of control and experimental group.

12. There will be no significant difference between the post test mean scores of attitudes of Commerce B.Ed. college trainees of control and experimental group.

13. There will be no significant difference between the post test mean scores of attitudes of Science B.Ed. college trainees of control and experimental group.

14. There will be no significant difference between the post test mean scores of adjustment of boys B.Ed. college trainees of control and experimental group.

15. There will be no significant difference between the post test mean scores of adjustment of girls B.Ed. college trainees of control and experimental group.

16. There will be no significant difference between the post test mean scores of adjustment of rural B.Ed. college trainees of control and experimental group.

17. There will be no significant difference between the post test mean scores of adjustment of urban B.Ed. college trainees of control and experimental group.
18. There will be no significant difference between the post test mean scores of adjustment of Arts B.Ed. college trainees of control and experimental group.

19. There will be no significant difference between the post test mean scores of attitudes of Commerce B.Ed. college trainees of control and experimental group.

20. There will be no significant difference between the post test mean scores of attitudes of Science B.Ed. college trainees of control and experimental group.

**Research method:**

Following are the variables of the present research

Independent variable: Cooperative learning

Dependent variables: Attitude, adjustment

In the present research the researcher studied the effect of cooperative learning on attitudes and adjustment of B.Ed. college trainees hence quasi experimental method was used.

**Research design:**

In the present study the researcher used pre test post test quasi experimental design. The researcher was conducting the experiment by using quasi experimental design due to administrative difficulties. The schedule of B.Ed. colleges was already fixed hence the colleges which assure to help were selected in the present study.
Population:

For the present study the population was B.Ed. college trainees of Pune University.

(Now Savitribai Phule Pune University).

Sampling technique and sampling:

For the present study the researcher studied the effect of cooperative learning strategy on adjustment and attitudes of B.Ed. college trainees of Savitribai Phule Pune University hence purposive sampling technique based on non probability method was used. The schedule of B.Ed. college was already fixed hence the colleges which assure to help were selected in the present study.

For the present study the researcher selected two B.Ed. colleges from Nashik city for convenience. The researcher selected Samarth College of Education and New College of Education, Nashik as they are in the same region. The researcher selected 50 B.Ed. college trainees for control group from Samarth college of Education and 50 B.Ed. college trainees for experimental group from New College of Education. New College of Education was selected as experimental group because the researcher was working in the same college and the principal and the faculty agreed to cooperate for the study.

Scope, limitations and delimitations of the research:

Scope of the research:

The results of this study are applicable only to the trainees of B.Ed. colleges studying in Pune University of Maharashtra state only.
Limitations of the research:

The effectiveness of cooperative learning depends upon the responses given by the trainees.

Delimitations of the research:

1. The present research was limited to the trainees of B.Ed. colleges of Maharashtra state only.
2. The present research was limited to the STAD approach of cooperative learning strategy only.
3. The present research was limited to New College of Education and Samarth College of Education, Nashik only.
4. The present research was limited to two group pre test post test quasi experimental design only.
5. The present research was limited to the subject Instructional design of B.Ed. curriculum of Pune University only.

Tools of data collection:

For the present research the researcher used Attitude scale and Adjustment inventory prepared by the researcher. For countercheck of the results obtained through the study the researcher used interview and observation technique. The tools were standardised.

Attitude Scale:

In the present research to collect the information from the B.Ed. college trainees the researcher used rating scale as a tool.

The attitude scale was prepared by the researcher. The scale was self reporting inventory. It is a five point rating scale prepared by using Likert
method. The scale was prepared and standardised by the researcher for the collection of data. The attitude scale has three components viz. cognitive, affective and behavioural. (Baysal, 1981) The scale consists of 30 items or statements. Out of 30 statements 17 statements are positive while remaining 13 statements are negative showing trainee’s attitude towards the subject. The attitude scale has 10 cognitive, 10 emotional and 10 behavioural sentences respectively. The rating for positive statements is from 1 to 5 and it is shown in the following table.

<table>
<thead>
<tr>
<th>Options</th>
<th>Rating for positive sentences</th>
<th>Rating for negative sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree SA)</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Agree (A)</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Undecided (UD)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Disagree (D)</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Strongly disagree (SD)</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

The lowest score for attitude scale is 30 and the highest score is 150. The present tool is enclosed in the appendix ‘A’.

The reliability of this tool was done by using test-retest method and it was found 0.91. The attitude scale appears to have content validity and the method of selecting items supports its suppositions.

**Adjustment Inventory:**

To collect information about adjustment of B.Ed. college trainees the researcher prepared rating scale.
The adjustment inventory is a five point rating scale prepared by using Likert method. The scale was prepared and standardised by the researcher for the collection of data. The adjustment inventory has three components viz. personal, social and educational. The scale consists of 30 items or statements. Out of 30 statements 15 statements are positive while remaining 15 statements are negative showing trainee’s adjustment. The adjustment inventory has 10 personal, 8 social and 12 cognitive sentences respectively. The rating for positive statements is from 1 to 5 and it is shown in the following table.

<table>
<thead>
<tr>
<th>Options</th>
<th>Rating for positive sentences</th>
<th>Rating for negative sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree SA)</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Agree (A)</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Undecided (UD)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Disagree (D)</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Strongly disagree (SD)</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

The lowest score for adjustment inventory is 30 and the highest score is 150.

The present tool is enclosed in the appendix ‘B’.

The reliability of this tool was done by using test-retest method and it was found 0.83 for personal adjustment, 0.87 for educational adjustment and 0.92 for social adjustment.

For collecting qualitative information interview and observation of trainees was conducted.
Procedure of the study:

Review of related literature
↓
Pilot study
↓
Standardisation of tools
↓
Selection of research method (Experimental method)
↓
Selection of research design (two group pre test post test quasi experimental)

Selection of sample
↓
Administration of pre test (Attitude and adjustment)
↓
Use of cooperative learning technique (STAD)
↓
Administration of post test (Attitude and adjustment)
↓
Interview schedule
↓
Analysis of data
↓
Report writing
# Experimental procedure

<table>
<thead>
<tr>
<th>Phase</th>
<th>Events</th>
<th>Duration</th>
<th>Month</th>
</tr>
</thead>
</table>
| I     | 1. Both groups experimental and control group taught by conventional method  
2. Administration of pre test i.e. attitude scale and adjustment inventory | 3 weeks | December |
| II    | 1. Control group was taught by conventional method  
2. Experimental group was taught by cooperative learning STAD method  
3. Administration of post test i.e. attitude scale and adjustment inventory | 3 weeks  
4 weeks  | January  
January and February  
March |
Analysis of hypothesis:

<table>
<thead>
<tr>
<th>Sr.no.</th>
<th>Hypothesis</th>
<th>Statistical technique</th>
<th>Obtained value</th>
<th>Table value</th>
<th>Df</th>
<th>Level of significance</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>H₁</td>
<td>t-test</td>
<td>13.23</td>
<td>2.63</td>
<td>98</td>
<td>Significant</td>
</tr>
<tr>
<td>2.</td>
<td>H₁</td>
<td>t-test</td>
<td>3.29</td>
<td>2.63</td>
<td>98</td>
<td>Significant</td>
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<td>3.</td>
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<td>t-test</td>
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<td>2.01</td>
<td>48</td>
<td>Significant</td>
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<td>4.</td>
<td>H₀</td>
<td>t-test</td>
<td>1.27</td>
<td>2.01</td>
<td>48</td>
<td>Not significant</td>
</tr>
<tr>
<td>5.</td>
<td>H₀</td>
<td>F-test</td>
<td>0.398</td>
<td>3.23</td>
<td>2 &amp; 47</td>
<td>Not significant</td>
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<tr>
<td>6.</td>
<td>H₀</td>
<td>Std t-test</td>
<td>4.29</td>
<td>7.21</td>
<td>48</td>
<td>Not significant</td>
</tr>
<tr>
<td>7.</td>
<td>H₀</td>
<td>Std t-test</td>
<td>2.03</td>
<td>6.36</td>
<td>48</td>
<td>Not significant</td>
</tr>
<tr>
<td>8.</td>
<td>H₀</td>
<td>F-test</td>
<td>3.22</td>
<td>3.23</td>
<td>2 &amp; 47</td>
<td>Not significant</td>
</tr>
<tr>
<td>9.</td>
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<td>Std t-test</td>
<td>1.89</td>
<td>9.98</td>
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<tr>
<td>10.</td>
<td>H₀</td>
<td>Std t-test</td>
<td>4.47</td>
<td>6.54</td>
<td>53</td>
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<tr>
<td>11.</td>
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<td>H₀</td>
<td>t-test</td>
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<td>2.66</td>
<td>57</td>
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<tr>
<td>13.</td>
<td>H₀</td>
<td>t-test</td>
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<td>2.00</td>
<td>57</td>
<td>Not significant</td>
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<tr>
<td>14.</td>
<td>H₀</td>
<td>t-test</td>
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<td>2.57</td>
<td>5</td>
<td>Not significant</td>
</tr>
<tr>
<td>15.</td>
<td>H₀</td>
<td>t-test</td>
<td>5.91</td>
<td>2.704</td>
<td>35</td>
<td>Significant</td>
</tr>
<tr>
<td>16.</td>
<td>H₀</td>
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<td>2.01</td>
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<tr>
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<tr>
<td>18.</td>
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<td>2.75</td>
<td>39</td>
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<tr>
<td>19.</td>
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<td>2.704</td>
<td>57</td>
<td>Not significant</td>
</tr>
<tr>
<td>20.</td>
<td>H₀</td>
<td>t-test</td>
<td>0.12</td>
<td>2.704</td>
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<td>Not significant</td>
</tr>
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<td>H₀</td>
<td>t-test</td>
<td>4.14</td>
<td>2.704</td>
<td>35</td>
<td>Significant</td>
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Findings of the research:

1. There was significant difference between the mean scores of attitudes of B.Ed. college trainees. The calculated t-value at 0.01 level is 13.23 which is greater than table value i.e. 2.63. Thus the research hypothesis was accepted.

2. There was significant difference between the mean scores of adjustment of B.Ed. college trainees. The calculated t-value at 0.01 level is 3.29 which is greater than table value i.e. 2.63. Thus the research hypothesis was accepted.

3. The obtained t-value was 2.30 which is greater than the table value 2.01. Therefore the mean difference between the two unequal groups was found to be significant at 0.05 level. Thus the null hypothesis was rejected.

4. The obtained t-value 1.27 is smaller than the table value 2.01. Therefore there was no significant difference between the mean scores of attitudes of rural and urban trainees. Hence the null hypothesis was accepted.

5. The calculated F-ratio 0.398 is smaller than the table value 3.23 Hence the hypothesis is accepted. Therefore there was no significant difference between the mean scores of Arts, Commerce and Science trainees. Hence the null hypothesis was accepted.

6. The calculated t-value 4.29 is smaller than the calculated t_{5\%} 7.21. Hence there was no genderwise significant difference between the mean scores of adjustment of boys and girls. Therefore hypothesis was accepted.
7. The calculated t-value 2.03 was smaller than the calculated t_{5\%} 6.36. Hence there was no significant difference between the mean scores of rural and urban trainees. Therefore the hypothesis was accepted.

8. The calculated F-value was 3.22 and the observed F-value was 3.23 which is smaller than the table value. Hence the hypothesis was accepted. There was no significant difference between the mean scores of adjustment of B.Ed. college trainees according to their faculty.

9. The calculated t-value 1.89 was smaller than the calculated t_{5\%} 9.98. Hence there was no significant difference between the post test mean scores of attitudes of boys B.Ed. trainees of control and experimental group. Therefore the hypothesis was accepted.

10. The calculated t-value 4.47 was smaller than calculated t_{5\%} 6.54. Hence there was no significant difference between the post test mean scores of attitudes of girls B.Ed. trainees of control and experimental group. Therefore the hypothesis was accepted.

11. The calculated t-value 5.29 was greater than the table t value 2.704. Hence there was significant difference between the post test mean scores of attitudes of rural B.Ed. trainees of control and experimental group. Therefore the hypothesis was rejected at 0.01 level.

12. The calculated t-value 5.36 was greater than the table t value 2.66. Hence there was significant difference between the post test mean scores of attitudes of urban B.Ed. trainees of control and experimental group. Therefore the hypothesis was rejected at 0.01 level.
13. The calculated t-value 1.99 was smaller than the table t value 2. Hence there was no significant difference between the post test mean scores of attitudes of Arts B.Ed. trainees of control and experimental group. Therefore the hypothesis was accepted.

14. The calculated t-value 2.13 was smaller than the table t value 2.57. Hence there was no significant difference between the post test mean scores of attitudes of Commerce B.Ed. trainees of control and experimental group. Therefore the hypothesis was accepted.

15. The calculated t-value 5.91 was greater than the table t value 2.704. Hence there was significant difference between the post test mean scores of attitudes of Science B.Ed. trainees of control and experimental group. Therefore the hypothesis was rejected at 0.01 level.

16. The calculated t-value 0.591 was smaller than the table t value 2.01. Hence there was no significant difference between the post test mean scores of adjustment of boys B.Ed. trainees of control and experimental group. Therefore the hypothesis was accepted.

17. The calculated t-value 6.17 was greater than the table t value 2.704. Hence there was significant difference between the post test mean scores of adjustment of girls B.Ed. trainees of control and experimental group. Therefore the hypothesis was rejected at 0.01 level.

18. The calculated t-value 2.93 was greater than the table t value 2.75. Hence there was significant difference between the post test mean scores of adjustment of rural B.Ed. trainees of control and experimental group. Therefore the hypothesis was rejected at 0.01 level.
19. The calculated t-value 1.29 was smaller than the table t value 2.704. Hence there was no significant difference between the post test mean scores of adjustment of urban B.Ed. trainees of control and experimental group. Therefore the hypothesis was accepted.

20. The calculated t-value 0.12 was smaller than the table t value 2.704. Hence there was no significant difference between the post test mean scores of adjustment of Arts B.Ed. trainees of control and experimental group. Therefore the hypothesis was accepted.

21. The calculated t-value 2.93 was greater than the table t value 2.57. Hence there was significant difference between the post test mean scores of adjustment of Commerce B.Ed. trainees of control and experimental group. Therefore the hypothesis was rejected at 0.05 level.

22. The calculated t-value 4.14 was greater than the table t value 2.75. Hence there was significant difference between the post test mean scores of adjustment of Science B.Ed. trainees of control and experimental group. Therefore the hypothesis was rejected at 0.01 level.

Conclusions of the research:

1. The calculated value 13.23 is greater than the table value 2.63. It indicates that the attitude changes from negative to positive. There was significant difference in the attitudes of B.Ed. college trainees towards the subject Instructional design. The experimental group B.Ed. trainees were found to have more favourable attitude towards the subject as compared to the B.Ed. college trainees of control group.
2. The calculated value 3.23 is greater than the table value 2.63. Hence the adjustment level of B.Ed. college trainees increased. The adjustment of experimental group B.Ed. college trainees was found to be more than the control group B.Ed. trainees.

3. There was genderwise difference between the mean scores of attitudes of boys and girls trainees. The calculated value was 2.30 which is greater than the observed value 2.01. The attitude of B.Ed. girl trainees was found more favourable towards the subject Instructional Design than the boys B.Ed. college trainees.

4. There was no regionwise difference between the mean scores of attitude of B.Ed. college trainees as the calculated value 1.27 is smaller than the table value 2.01. Hence there was no significant difference in the attitudes of rural and urban B.Ed. college trainees towards the subject Instructional Design.

5. There was no facultywise difference between the mean scores of attitudes of B.Ed. college trainees as the calculated value 0.398 is smaller than the table value 3.23. Hence there was no significant difference in the attitudes of Arts, Commerce and Science B.Ed. college trainees towards the subject Instructional Design.

6. There was no genderwise significant difference between the mean scores of adjustment of boys and girl B.Ed. college trainees as the calculated value 4.29 is smaller than calculated $t_{5\%} 7.21$.

7. There was no regionwise significant difference between the adjustment of rural and urban trainees as the calculated t-value 2.03 was smaller than the calculated $t_{5\%} 6.36$.

8. There was no facultywise difference between the mean scores of adjustment of B. Ed. college trainees as the calculated value 3.22 is
smaller than table value 3.23. Hence there was no significant difference in the adjustment of Arts, commerce and Science B.Ed. college trainees.

9. There was no significant difference between the post test attitude scores of the boys B.Ed. trainees of control and experimental group as the calculated t-value 1.89 was smaller than the calculated t_{5\%} 9.98.

10. There was no significant difference between the post test attitude scores of the girls B.Ed. trainees of control and experimental group as the calculated t-value 4.47 was smaller than the calculated t_{5\%} 6.54.

11. There was significant difference between the post test attitude scores of the rural B.Ed. trainees of control and experimental group as the calculated t-value 5.29 was greater than the table value 2.704 at 0.01 level. Hence the attitude of experimental group B.Ed. rural trainees was more than the control group rural trainees.

12. There was significant difference between the post test attitude scores of the urban B.Ed. trainees of control and experimental group as the calculated t-value 5.36 was greater than the table value 2.66 at 0.01 level. Hence the attitude of experimental group B.Ed. urban trainees was more than the control group urban trainees.

13. There was no significant difference between the post test attitude scores of the Arts B.Ed. trainees of control and experimental group as the calculated t-value 1.99 was smaller than the table value 2.

14. There was no significant difference between the post test attitude scores of the Commerce B.Ed. trainees of control and
experimental group as the calculated t-value 2.13 was smaller than the table value 2.57.

15. There was significant difference between the post test attitude scores of the Science B.Ed. trainees of control and experimental group as the calculated t-value 5.91 was greater than the table value 2.704 at 0.01 level. Hence the attitude of experimental group B.Ed. Science trainees was more than the control group trainees.

16. There was no significant difference between the post test adjustment scores of the boys B.Ed. trainees of control and experimental group as the calculated t-value 0.34 was smaller than the table value 2.01.

17. There was significant difference between the post test adjustment scores of the girls B.Ed. trainees of control and experimental group as the calculated t-value 6.17 was greater than the table value 2.7 at 0.01 level. Hence the adjustment of experimental group B.Ed. girl trainees was more than the control group girl trainees.

18. There was significant difference between the post test adjustment scores of the rural B.Ed. trainees of control and experimental group as the calculated t-value 2.93 was greater than the table value 2.75 at 0.01 level. Hence the adjustment of experimental group B.Ed. rural trainees was more than the control group girl trainees.

19. There was no significant difference between the post test adjustment scores of the urban B.Ed. trainees of control and experimental group as the calculated t-value 1.29 was smaller than the table value 2.704.
20. There was no significant difference between the post test adjustment scores of the Arts B.Ed. trainees of control and experimental group as the calculated t-value 0.12 was smaller than the table value 2.704.

21. There was significant difference between the post test adjustment scores of the Commerce B.Ed. trainees of control and experimental group as the calculated t-value 2.93 was greater than the table value 2.57 at 0.05 level. Hence the adjustment of experimental group B.Ed. Commerce trainees was more than the control group Commerce trainees.

22. There was significant difference between the post test adjustment scores of the Science B.Ed. trainees of control and experimental group as the calculated t-value 4.14 was greater than the table value 2.75 at 0.01 level. Hence the adjustment of experimental group B.Ed. Science trainees was more than the control group Science trainees.

**Recommendations:**

1. Cooperative learning strategy and its techniques should be included in the B.Ed. curriculum of all the universities.

2. Cooperative learning strategy should be used at various levels of education.

3. Teachers should be trained to use cooperative learning strategy.

4. Seminars and conferences on cooperative learning strategy should be organised.
5. School authorities should take the responsibility to inculcate cooperative learning skills in the students. Schools should provide necessary facilities for implementing cooperative lessons.

6. Cooperative learning school centres should be established in the school. Staff and administrators should meet once in a week for taking the feedback about the work done by the CL committee.

7. Cooperative learning centres should be established in the universities for enhancing cooperative learning skills in the college students.

8. Lesson plans in various subjects by using CL strategies should be prepared by the teaching staff at school as well as college level.

9. There is need to develop a brochure for guiding the staff that how to conduct the lessons by using CL strategies.

10. Information related to the updated researches and news about cooperative learning and its strategies should be given in the pre service and in service training.

**Topics for further research:**

1. Results of the present research shown that CL strategy enhances adjustment (personal, educational and social) of trainees. Hence other components of adjustment should be studied.

2. The same study was conducted by using true experimental design.

3. There should be additional research on comparison of effectiveness of various cooperative learning strategies.

4. There is need to undertake researches on under what conditions effectiveness of cooperative learning strategy will increase.

5. Researches on intersection of cooperative learning strategy and curriculum should be conducted.
6. The present study should be undertaken on larger sample for extended period also.
COOPERATIVE LEARNING STRATEGY PROGRAMME

ACTIVITY: GROUP WORK

Time: 2 hours

A sample of cooperative learning strategy STAD tool was attached in the synopsis.

Topic: Synectic Model

Objectives:

1. To explain the meaning of synectic model.
2. To explain the concept of creativity.
3. To explain the concept like direct analogy, personal analogy, analog contrast and new analogy.

Performing roles:

1. First two members will gives ideas related to the above four concepts.
2. Third member note down the ideas.
3. Fourth member will take the necessary materials from the teacher for the group and acts as a group leader.
4. Fifth member acts as a timer.

Activity: Group work

Teaching material: Worksheets of steps of synectic model

Procedure:

Step – 1: Teacher will tell the objective of synectic model. Teacher will orient the student about cooperative learning strategy and how to work in the respective group.
Step – 2: Teacher will divide the trainees in group of five students. While making group precaution will be taken that in each group there must be girls, boys, rural trainees, urban trainees and trainees from each faculty. The fourth member will take study material from the teacher and will act as group leader. Teacher will give example of Direct Analogy: 

**Naughty students in the class are the backbone of the society.**

The trainees will compare their experiences and third member will note down the ideas in their respective worksheet given to each group.

Teacher will explain the concept Personal Analogy and will give example of it:

**Naughty students in the class are headache.**

The trainees from each group will give their ideas and that will be written in their respected worksheets. Teacher will observe the behaviour of trainees and praise for their work done in the group.

Teacher will explain the concept of Analog Contrast and will give example.

**Naughty students in the class are not headache but they are entertaining and exciting.**

Trainees will note down their ideas in their respective group worksheet.

Teacher will explain the concept of New Analogy and will give its example.

**Naughty students in the class are like spices in the curry.**

Trainees will note down their ideas in their respective group worksheet.

Teacher will observe the trainees.

Step – 3: After writing the ideas on their respective group worksheets the first and second trainees from each group will share their views about how they get the ideas. After presentation from each group the trainees will be assessed by giving another worksheet to each member of the group. Each
trainee will be evaluated individually. Ex. For assessment teacher will give classwork of: **Construct poem using above ideas in your group on naughty students in the class.**

**Step - 4:** Teacher will evaluate each team based on their activities and behaviours in the group, discussion, time taken for doing classwork, etc. Each trainee will be assessed individually in the group. After assessing all the groups the score of each individual will be added into the score of their respective groups.

**Step – 5:** The highest score of the team will displayed on the bulletin board.
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