

CHAPTER: III

METHODOLOGY

3.0. Orientation to methodology:

The present chapter depicts the research design and method of inquiry adopted for the present research project. This chapter also describes tools, techniques and procedure of data collection and data analysis.

The review of related research studies and identification of research gaps have led the investigator to arrive at rationale of the study and ultimately the same has guided the investigator to frame the statement of the problem for the present research study entitled “**Development of Soft Skills Through Cooperative Learning Among Secondary Student-teachers**”. The focus of the study pertains to three aspects viz. cooperative learning methods, pre-service secondary teacher education and development of select soft skills. The rationale of the study has directed the researcher to arrive at research questions (i.e. both broad and focused questions) and objectives. The present study is guided by the following **broad research questions**, which are supported by corresponding specific research questions:

1. What is the Strategy based on Cooperative Learning Methods to study the process of development of select soft skills among secondary student-teachers?
2. How far do secondary student-teachers develop select soft skills through select Cooperative Learning Methods based Tasks?
3. What do secondary student-teachers perceive about their experiences of learning through Cooperative Learning Methods?

The main purpose of the present research study is to explore , describe and understand the complex phenomenon of development of select soft skills among pre-service teachers of secondary teacher education programme under cooperative learning environment of CLMIP. Hence, the report of this research work is consisted of a thick and in-depth description of this complex phenomena. Thus, the present study aims not only at exploration but also description of the phenomena. To study the process aspect of the phenomena selection of research design and method of inquiry are very crucial. The following passages describes the same in depth.

3.1. Research design:

A 'research design' is 'the set of methods and procedures used in collecting and analyzing measures of the variables specified in the research problem'. The design of a research study defines the type of study (e.g. experimental, survey etc.) and sub-type (e.g., descriptive-longitudinal case study), research problem, hypotheses, independent and dependent variables, experimental design, data collection methods and analysis. Thus, a 'research design' is a 'framework that is created to find answers to research questions'. Sometimes a distinction is made between "fixed" and "flexible" designs. In some cases, these types coincide with quantitative and qualitative research designs respectively. Flexible designs give more freedom to the researcher during the data collection process. One of the reasons for using a flexible research design can be that the variable of interest is not quantitatively measurable, such as culture. ("Research design" (n.d.) retrieved from https://en.wikipedia.org/wiki/Research_design)

The investigator, while working in college of education for more than eight years has observed that the pre-service teachers, irrespective of the method of teaching opted, lacked in language related skills in general. It has been experienced by the investigator that the students learn language in group and pair work in better way. Therefore the researcher thought about study on the methods of cooperative learning that uses pair or group work as one of its major strategy. Cooperative learning has been a research area widely used in school and general college education but it is less travelled in colleges of education. Consequently the investigator has conceptualized the plan and procedure of the study for observing the enhancement of select soft skills under cooperative learning methods based environment.

The present study focuses and aims at the **thick description** of the complex phenomena of enhancement of select soft skills among pre-service secondary teachers as it evolves in natural setup, without any intervention or manipulation. Accordingly, this study uses **qualitative approach** right from preparation of instruments to capture the phenomena, data collection method and the data analysis techniques. Thus, in the present study the design adopted is that of '**Emerging research design.**' The present study has adopted **three phase design**, which has Pre-field work, Field work and Post-field work phases. These phases have their own corresponding sub-parts and cycles of data collection procedure. The following research design have been adopted in the present study.

Table: 3.1 Research design (tentative) adopted for the present study
 (Adopted from Sharma, 1995; Ramkumar, 2003 and Ramchandani, 2017)

Pre-field work →		Field work →			Post-field work	
Biographical factors ↓	Developing rationale and research questions ↓	Selecting Case ↓	Description of the phenomena ↓		Data analysis ↓	Describe emerged research design and arriving at findings ↓
			Implementing CLM based Strategy and recording events by researcher			
Investigator's Personal interest in educational research ↓	Developing Framework of the present study ↓ Developing Methodology of the study ↓	Evolving CLM based strategy ↓ Construction of entry and terminal level tests and designing other data collection instruments	Practice Teaching Phase ↓	Collection of written documents and artefacts from participants ↓	Explore the process of development of select four soft skills with available data ↓	Discussion of findings ↓
Researcher's first-hand Teacher Education experiences and observations ↓ Review of Related literature ↓ Identifying statement of problem →	Developing Framework for data collection and Data analysis →	Review of instruments from the experts and modifying them as per need of the study → Designing procedure for data collection →	Implementing CLM based Instructional Plan and videography of CLMIP sessions	Transcribing data for initial data analysis Data coding & data sorting for initial analysis of data →	Reflections and opinions of participants over learning experiences through selected CLM →	Implications and suggestions for further research

3.2. Research Methodology adopted for present study:

The nature of the research topic, the scope of research questions and objectives had guided the investigator to apply an emerging research design. Although from the very beginning, **qualitative methodology** was found most suitable paradigm to explore the possible ways to answer the identified research questions and research objectives. Consequently, **Case study research design** has been adopted for finding answers of the present study as well as the same design is used for reporting of the evolving phenomena. Moreover, the phenomena itself i.e. ‘the development of soft skills under Cooperative Learning environment’ is considered as a ‘Case’ under this study. The present study was carried out under the natural setting during an academic year 2011-12 and has focused more on the ‘process’ aspect of the phenomena. Overall, the present study adopted **Case Study research design** for exploration and thereby describes the phenomena in-depth of development of soft skills through select cooperative learning methods based tasks.

3.3. Site of the present study:

At the time of the data collection during academic year 2011-2012 in Kutch district, there were five colleges of education (B. Ed) having an intake of 100 students in each. From these five B. Ed colleges, *Dr. H. R. Gajwani College of Education, Adipur, Kachchh (Gujarat)* was selected as a “case” under study through theoretical and purposeful sampling technique. The argument to justify theoretical sampling technique consists that this college of education offers greater heterogeneity among participants that are required for the present study, because it is the only college of education in Kachchh district, having English as medium of Instruction. Moreover, the diversity in terms of medium of instruction, mother tongue, native place, state, schooling background and cultural and social attachment of the participants etc. offered compelling reasons for the investigator to select this site for the study.

The locale for the study was selected purposefully based on the criteria of heterogeneity in language, medium, schooling background, state of India participants belong to, their cultural orientation, personality type, academic achievement, feasibility of study for samples, physical facilities available in the institute, longer time span of study, permission of undertaking study from the trustee management. As the site of the study was fit in the selection criteria theoretically, the researcher had selected Dr. H. R. Gajwani College of Education, Adipur. This institute offers one year regular B.Ed. General Programme. It’s a co-education college of education, having English as medium of instruction. This institute is affiliated with K.S.K.V.

Kachchh University, Bhuj. It gets intake of 100 students every year through centralized admission procedure, and students mostly have various mediums of instructions at schooling like English, Hindi, Gujarati, Sindhi, Marathi, Tamil etc.

(Note: The profile of the institute selected for the present study is given in the appendix for further reference.)

3.4. Context and Situating the phenomena under the study:

In any case study research, especially if it's a explorative and descriptive case of a phenomena, the context and setting are the most crucial and important part of research. The context of the present study was the unique phenomena wherein pre-service student-teachers learn under the Cooperative Learning methods. The focus of the study is to explore the phenomena and describe the process and nature of the development of soft skills in select cases who have participated voluntarily in the study. The description of the case under study requires clear-cut demarcation of the starting point of the event and the end of that event.

The study started with formal talk with the samples at the site selected for the study. The events started with administering Entry behaviour tests then orientations on CLM, which was followed by practice teaching phase. The study ended with completion of last session under CLMIP and submission of artifacts to the investigator, administration of terminal test and Cooperative learning self-assessment rating scale and filling up reaction scale or Opinionnaire on CLM strategy by the participants.

In nut shell, the phenomena of the study consisted of both aspects in CLM based strategy i.e. Practice teaching phase and CLM designed tasks under CLM based Instructional Plan. Practicum aspect included the data collected from the participants when they were engaged in delivering their lessons using CL methods during practice teaching phase. The second aspect was focused on implementation of CLM based Instructional Plan which was flexible in nature and loosely structured. The instructional plan was based on principles of Cooperative Learning and subsequently CLM tasks prepared for classroom application. There were 12 CL methods selected for the present study. The study comprised of about 14 participants who were regular in attending all the sessions on CL tasks. The study took into consideration four Soft Skills viz., Reading comprehension, Critical thinking, Written communication and Time management skill. The phenomenon under the present study was complex and hence needed variety of sources, methods and multiple tools of data collection.

3.5. Participants & their Selection Procedure:

The Student- teachers who were admitted in Dr. H. R. Gajwani College of Education, Adipur, Kachchh (Gujarat), and had opted English method during the first and second semester of the academic year 2011-12 , irrespective of their principal subject at graduation or Post graduation, consisted of as ‘participants’ or ‘cases’ for the present study. Thus, the entire group of English method course student-teachers of 2011-12 batch were included as cases under study. Purposive sampling technique was employed as per the requirement of the study in order to identify small size sample. The following seven criteria were employed in selecting the participants for the study.

- Maximum heterogeneity among selected participants
- Availability of Participants on the site
- Ready to devote extra time from participants voluntarily being part of the study
- Punctuality and regular attendance
- Sincerity and politeness
- Variety in personal background in terms of mother-tongue, culture, family background, behavioural traits, personality development etc.
- Variation in educational background and academic achievements
- Opted English method in B. Ed programme as common method subject whether as first or second method course

Dr. H. R. Gajwani College of Education, Adipur (Dist. Kachchh, Gujarat) was selected as site for the present study. It is an English Medium B.Ed. college, self-financed recognized by NCTE, UGC and Government of Gujarat, affiliated to KSKV Kachchh University, Bhuj. Students were given admission through Centralized Admission procedure of the university. Generally on an average around 12 to 20 students admitted in English method. The Centralized Admission Committee appointed by the university generally allot 12 seats but about 20 students opted English Method as principle method or second method. Based on past experiences, it is observed that students admitted in the college have varied schooling background belonging to various states of the country. The students generally had ESL background at their schooling. Those who opt English as second method may or may not have subject background of English Literature as one of the courses at their graduation or post-graduation studies. It is noticed that students of other subject background (like science, social science, accountancy, commerce etc.) had also opted

for English as second method during their one year regular secondary teacher education programme. Thus the participants were from various subject backgrounds which was one of the criteria for the present study.

The present study engaged Human instruments; as the student-teachers of B.Ed. General one year full time or regular programme at secondary level was considered as 'case'. The phenomenon under study was the most complex and was planned to be carried out in natural setting hence no manipulation was done to cases. The responses of the participants were most natural and honest as they were written by the participants themselves for the study. Concluding what is stated above, the investigator had selected limited participants on the volunteer basis because the present study required only those participants who were capable of promising greater time span i.e. ready to devote one full academic year consisting two semesters excluding exam, curricular and co-curricular activities for being the sample of the study.

(Note: The affiliated university's database of student-teachers of English method course in the academic year 2011-12 is given in the appendix for further reference.)

3.6. Ethical procedure involved in the study:

The investigator had first of all sought consent from the authorities of the institute selected as site for the study. The in-charge principal and the management trustees of Dr. H. R. Gajwani College of Education, Adipur; had given their oral consent initially and then a formal permission through a written application to carry out the study was taken. Having got the positive response from the institute, the selection of the participants began. Those student-teachers who showed their willingness orally to be part of the study were afterwards asked to fill up the consent forms attached with Student-teacher's Profile. The participants were asked to give their consent for joining the programme and be part of video shooting.

3.7. Method of Data Collection used in the present study:

When a researcher has to deal with a design which is not fixed and predefined, then the last resolve for investigator is to opt for a flexible design. **An eclectic method** of data collection is considered as the most suitable method of inquiry. The present research has adopted **Case Study** as major research type in the beginning of the data collection process. Hence, in the present study, the researcher has to use **Bricolage method** of data collection. The following table depicts the same.

Table: 3.2. Bricolage method of data collection adopted for the present study

Data Collection methods	Purpose of adopting methods	Source of Data(Tools of data collection)	Type of information provided
Prior Performance Test and Posterior Performance Test on select soft skills	To determine the entry and terminal level of performance on select four soft skills	Entry and Terminal tests on RCS, CTS, and WCS (GS) was taken by Participants. TMS is to be assessed through first and last CLM task.	Grades obtained on seven points scale on components of four soft skills
Documentation	To know the participant's learning experiences during practice teaching and CLMIP on select soft skills	Student-Teachers' Profile and Artefacts submitted by participants from practice teaching phase includes- Self-Evaluation Sheet For Assessing One's Own Practice Teaching Lesson Peer Observation Schedule for Performance Evaluation of other participants during Practice Teaching Lesson Cooperative Learning Methods based Lesson Plan Transcripts	Reflections and opinions by participants on their learning experiences using CLM during practice teaching
Indirect instruction during CLM Tasks	To know the status and progress of participants on the level of performance on select four soft skills	Cooperative Learning Methods based Instructional Plan that includes CLM based tasks	CLM Task based performance of the participants
Field notes	To record the daily events	Field Notes taken on the site by the researcher	Description of events, actions, conversations that occurred naturally during CLM tasks
Observations	Record the personal reflections, emotions and	Researcher's Observation cum Reflective Diary	Data recorded from investigator's point of view

Data Collection methods	Purpose of adopting methods	Source of Data(Tools of data collection)	Type of information provided
	experiences of investigator while using actual classroom pedagogy		
Assessment of Performance: Self evaluative rubrics on four soft skills and Researcher's observation based assessment of participants based on Evaluative Rubrics on select four soft skills	To know the level of performance on soft skills	Evaluative Rubrics on soft skills	Evaluative Rubrics provide information about the overall performance of participants on components of select soft skills
Student-teacher's Portfolio	To see the gradual enhancement of selected four soft skills among the participants	Documentation and artefacts Submitted by Participants includes- Task based Worksheet on selected content in each CLM task Self-reflective reports include Main Task based Individual Report and Group Report of the participants	Task related evidence and individual participant's outcome of soft skills
Interaction Analysis	Contextualization of data Thick description of Events	Video sessions of CLMIP and transcript of dialogues of sessions	Description of setting, context, actions and natural dialogues taking place during CLMIP
Self-assessment	To know the perception of learning through CLM	Cooperative learning Self-Assessment Rating Scale	Reflecting on group work and self-assessment of participants on cooperative learning methods
Self- reflection	To know the reactions and opinions of participants	Opinionnaire	Reflections of participants on overall learning experiences

Data Collection methods	Purpose of adopting methods	Source of Data(Tools of data collection)	Type of information provided
	towards CLM based strategy		through CLM

3.8. Plan and Procedure of Data collection:

The entire study was divided and carried out mainly in three phases keeping in view the time frame required for the study. The plan of data collection dealt with preparation of required tools and the purpose of their use to collect specific data as per objectives of the study. The procedure depicted the details of how the tools implemented to collect rich data.

3.8.1. Plan of Data collection: The data collection was planned out in three phases:

- **Pre-field work phase:** This is the Preparation Phase before actual Data collection procedure started. It included tasks like preparing student's profile along with Consent form, Selection of CL methods, Selection of soft skills, forming Components of Soft Skills, preparation of Evaluative Rubrics, Evolving a strategy based on five CL principles, Practice teaching instructional plan, CLM based Lesson Plan Guidance, development of required Instruments or tools for capturing the Phenomena, self-evaluation on soft skills using rubrics by participants and Preparing Entry Behaviour and Terminal Behaviour tests.
- **Field work phase:** This second phase of planning includes three stages in which Prior Performance (i.e. Entry Behaviour) Test is administered after first phase of Practice Teaching. The field work phase has two plans where CLM based Strategy is implemented in two separate instructional plans in two different stages:
 - Cooperative Learning Methods Based Practice-teaching Phase and
 - Cooperative Learning Methods Based Instructional Plan
- **Post- field work phase:** This third phase of planning includes administering Posterior Performance (i.e. Terminal behaviour) Tests on select four soft skills and documents and artifacts to be collected.

These stages of data collection were followed by data organization, coding, categorization and data analysis.

3.8.1.1. Details of the plan of data collection: The data was planned out with three main phases. The first phase dealt with preliminary stage which was divided into three parts. The second phase was administering entry test and plan to execute CLM based strategy in two phases and third phase dealt with collection of documents and administering terminal test. The following passages describe the detailed plan of data collection.

3.8.1.1.1. Part I. Development of instructional CLM based strategy on soft skills and related tools: For this purpose, the investigator planned to move ahead with following steps.

(i) Review and analysis of accessible text from the textbooks and literary books of English

First of all, the researcher planned to evolve a CLM based strategy and for that, selection of subject matter was first task to begin with. The textbooks of English-First Language and Second Language from standard VIII to Standard XII of GSEB and CBSE/NCERT as well as reference books and literary books prescribed for study of English as compulsory subject programmes of general stream i.e. arts, commerce and science-first year with English as compulsory subject were identified and reviewed closely to search some common piece of literature that cut across almost all course and levels. This review was focused on a few selected genres of literature or styles of writing i.e. narrative, expository, persuasive, argumentative, explanatory, and descriptive. The final selection was based on criteria such as ease of language in reading, variety in genre, interest arousing, motivator of learning, level of the cases under study i.e. intermediate level.

(ii) Selection of subject matter suitable for intermediate level adult learners:

As the participants consisted of professional graduate degree programme i.e. B.Ed. one year, there was need to select specific content separately for each of CLM task. All cooperative learning methods have unique and specific steps, so they need specific content for better implementation steps of selected CLM. Based on the review of books on Cooperative Learning, it is observed that there were many versions or variety of CLM and all of the methods may allow all types of content. But the point of difference lies in the difficulty levels of the contents selected. Based on the review and analysis of content, there were about 12 to 20 piece of texts chosen (The details are given under Software materials selected for CL tasks). It was also

found worthy to prepare more number of tasks as part of contingency plans. The selection was based on the following **criteria**:

- Variety in piece of literature;
- Variety in style of writing;
- Age, interest and gender of participants;
- Duration of time available for task,
- Requirement of research objectives
- Selected forms/style of writing i.e. short stories, essays, poems, grammar etc.

After the selection of subject matter, the experts in the field of ELT were consulted and as per some useful suggestions, few changes were made. As they advise that the subject matter should be in variety, hence the investigator had selected texts from all possible forms and genres, including grammar topics. Having made the necessary changes in selection, experts reviewed the subject matter again and gave comments or suggestions for further modifications.

[Note: Software Materials selected is attached in the appendices for further details].

(iii.) Preparing Task sheets or Content based Worksheets:

Based on the selected subject matter, various task sheets or worksheets were designed. For each session on CL task, a worksheet on set of questions were prepared. Keeping in view to assess four soft skills viz., reading comprehension skill, critical thinking skill, written communication skill and time management skills; task sheets consisted list of variety of questions to assess reading comprehension and critical thinking skills.

(Note: The worksheets are given in the appendices for reference.).

(iv.) Identification and selection of Principles of CL:

Based on the theoretical and conceptual framework, the major principles of cooperative learning were identified and selected to incorporate in tentative design of CLM based Instructional Plan. These principles are

- Positive Interdependence,
- Individual Accountability
- Simultaneous Interaction(Face to face Promotive interaction)
- Collaborative Skills
- Group Autonomy or Group Processes.

(v.) Selection of Cooperative Learning Methods:

From the comprehensive review of Cooperative Learning theory of teaching and learning, it is found that there exists a vast variety of CL methods and techniques and all of them are worthy to be applied at all academic levels or standards of school or college education equally. A few CL methods look more suitable for lower level classes whereas some are suitable for higher classes. Hence one needs to be choosy in selecting the methods for higher levels. Based on the selection criteria viz. popularity, ease of stepwise implementation in classroom, duration of time required, interesting activity, variation, able to arise curiosity, suitability with type of subject matter selected, feasibility of incorporating soft skills performance assessment; the following CLM were found suitable for selected participants of pre-service secondary teacher education programme.

- (1) Jigsaw I
- (2) Jigsaw II
- (3) Think-Pair-Share
- (4) Write-Pair-Switch
- (5) Ask Your Neighbour
- (6) Numbered Heads Together
- (7) Paired Writing
- (8) Reciprocal Teaching of Reading (RTR)
- (9) Cooperative Integrated Reading and composition (CIRC)
- (10) STAD
- (11) Question-Answer Pairs
- (12) Group Investigation

(vi.) Evolving Cooperative Learning Methods based Strategy:

CLM based Strategy incorporate three aspects (i) subject matters of various types from English literature which are widely available in anthologies and textbooks (i.e. considering higher secondary school textbooks of GSEB as representative piece of English literature are selected keeping in view some of the criteria), (ii) selected five principles of CL approach and (iii) selected 12 Cooperative learning methods. The strategy consisted of tasks or activities that were developed within approximately six months as prior to the commencement of an academic year. CLM based strategy comprised of two parts: CLM based lessons Practice teaching Plan and CLM based Instructional Plan. CLMIP includes identification of principles and

methods/techniques of cooperative learning; selection of the required content material from English textbook prescribed by GSBST (Standard XI and XII- FL & SL)] for studying the development of selected soft skills, objectives and learning outcome.

The following elements were used for plan, procedure and steps to evolve loosely structured Instructional Plan under CLM Task based strategy:

- 1) Selected principles of cooperative learning
- 2) Selected methods/techniques of cooperative learning
- 3) Selected Soft skills with their components identified
- 4) Identified and selected subject matter based on content analysis of syllabus starting from higher secondary schooling till graduation in English subject.

CLM based Instructional Tasks are designed for Investigator's use. These tasks integrate various components such as instructional objectives, subject matter, task or activity corresponding to selected soft skills and cooperative learning principles and methods. Following steps were used in general in Cooperative Learning Method based Instructional plans. It was flexible instructional plan so it was subject to the changes as per need.

- Declaration of instructional goal of the lesson
- Formation of heterogeneous group and selection of roles by each team member
- Orientation of cooperative learning principle and method focused in the selected CL method
- Assigning CL method based structured activity or task to each group
- Observation and Monitoring of each group
- Presentations by each group
- Assessment using worksheets and evaluative rubrics on select soft skills
- Reflection in writing

[**Note:** Cooperative Learning Methods based Instruction Plan (CLMIP) and Researcher's Tasks on CLM are attached in the appendices].

3.8.1.1.2. Part: II. Selection of soft skills and identifying their components:

Having prepared strategy on CLM and selecting some soft skills for the present study, the investigator identified four soft skills. Afterwards, experts in the field of ELT were consulted. It was suggested to select such skills that are feasible for assessment and observation. Hence, four soft skills were finally selected for the study i.e. RCS, CTS, WCS, TMS. The ELT experts suggested to keep Grammar as one of the skills but due to the delimitations of the study, the investigator incorporated Grammar as one of the components of WCS. Based on literature available on the select soft skills, their components were identified. The experts in ELT field suggested modifications so the investigator could finalize select soft skill components and their sub-criterion.

3.8.1.1.3. Part: III. Preparation of Prior Performance Test and Posterior Performance Test on select soft skill:

Based on reading and review of various research studies in the field of ESL as well as resources on select soft skills available in academic journals, books and online; a rough draft of Entry and Terminal level performance tests were prepared and subject matter was selected from English classics and were used to assess reading comprehension and written communication skills. ELT experts were consulted for review of the draft and changes were made as per their suggestions and comments. Entry and terminal tests were prepared keeping in view RCS, CTS, WCS, and Grammar. Grammar was one of the components of WCS. TMS was to be assessed at CLM task. These tests of Prior and Posterior performance were designed keeping in view the intermediate levels of the target groups as most of the participants selected had English as second language.

Table: 3.3. Three Phase work schedule of Data collection.

<i>Pre-field work Phase</i>		<i>Field work Phase</i>		<i>Post-filed work phase</i>
<ul style="list-style-type: none"> • Selection of Soft skills • Identifying and finalizing soft skill components and their sub-criterion • Identifying & Selecting CLM • Identifying & Selecting Participants • Ethical measures for select participants • Selecting software materials • Preparing required Instruments • Evolving strategy or instructional plan • Preparing Prior Performance Test and Posterior Performance Test on Soft Skills • Listing probable data sources • Preparing tools or instruments for the thick description of the phenomena • Validating and gaining expert opinion on the instruments • Revising and finalizing the instruments 	Prior Performance Test on Soft Skills conducted	<p style="text-align: center;">Orientation Phase:</p> <ul style="list-style-type: none"> • Orientation of soft skills • Orientation of CL approach and CLM • Orientation of instruments for performance assessment <p style="text-align: center;">Practice Teaching Phase</p> <ul style="list-style-type: none"> • CLM based Lesson Planning Guidance • Practicing CLM in schools • Submission of artifacts and documents 	Posterior Performance Test on Soft Skills administered at the end	<ul style="list-style-type: none"> • Sorting and coding data as per sources • Viewing video recordings of CLM sessions • Tool wise Data analysis • Findings and reporting

(Note: Both Prior (Entry level behaviour) and Posterior (Terminal level) performance tests have been presented in the appendices).

The above table presents the procedure of data collection which is consisted of three phase schedule.

3.8.2. Procedure of Data Collection adopted for present study:

The data for present study was collected using evolving design which had the following three phases during the academic year 2011-2012:

3.8.2.1 Pre-fieldwork Phase:

This is preparation phase that included Preliminary tasks for the present research study. The first phase started with getting clarity of the conceptual framework. Afterwards, based on the nature and type of study and as per requirement of the research objectives, instruments were designed tentatively. Prior to the preparation of final design and finalizing approach for data collection as per the nature and longer duration of the study; the procedure to get issued the permission to carry out the study was started and completed. This phase also included the selection of sample of the study.

Procedure for the selection of participants:

The procedure was started with Formal talk with target group for selecting participants. Formal talk contained a list of questions. Before the actual data collection started ,as the no. of participants who wanted to be part of the study was more in number than the specified cases, it was necessary to churn out the real cases that promise to stay with the study for the longer time period. Hence a formal interaction was employed to identify the required unique cases for the study. The general questions included in the formal talk were- the name of the student, native place, age, mother tongue, place of residence, educational background, interests and reasons for joining the CL programme.

Having sought oral permission from the management where the locale was selected for the study, the procedure for the final selection of participants was started in the month of July 2011. As the study involved longer time span and before or after the working hours at the pre-service teacher education institute selected for the data collection, participation was voluntary but subjected to the fulfillment of the criteria of selection on the basis of theoretical framework of the present study. The consent was sought from the participants using consent forms attached with Student-teachers Profile. The participants identified for the present study were asked to fill up Student-teacher's Profile. Database of selected participants was retrieved from KSKV

Kachchh university website. On the basis of these two aspects, a sample of 14 participants were selected.

3.8.2.2. Fieldwork phase:

This phase of data collection procedure comprised of actual implementation of Strategy and collection of documents and artifacts. The instructional plan or strategy was implemented in three stages.

3.8.2.2.1. Stage-I: Data collection in pre-practicum phase:

It is the stage that consisted of CLM based Practice- teaching Plan. During the first Semester and second semester of the academic year 2011-2012, the data was collected during the practicum i.e. practice teaching programme. The present study was carried out for data collection in first semester of the academic year for the first phase of practicum (i.e. after the completion of Micro-teaching phase, data was collected during practical in practice teaching school). This phase was started with orientation lecture on CL theory and principles, viewing CL videos on how to use CL methods and this was followed by guidance for lesson planning, preparation and delivery of lessons in practice teaching schools assigned by the college to the students as per their method course.

- **Orientation session for Cooperative Learning Methods:**

For the purpose of acquainting the selected participants with the theory of cooperative learning, an initial phase of Orientation session was prepared. In first phase in first week, the **orientation session** on CL theory was arranged in the formal class meet in the institute itself. Here initially, a day was devoted for orientation on-CL theory of teaching, CL principles and CL methods. This included information about history and origin of cooperative learning, principles of cooperative learning, various methods of cooperative learning, classroom environment and roles of learners for cooperative learning, norms and general procedure of methods of cooperative learning etc. A formal lecture presentation was planned for this purpose. After the presentation on CL theory, orientation to lesson planning using CLM was planned.

- **Cooperative Learning Methods based Lesson Planning Guidance Programme:**

It is an open-ended programme to guide student-teachers as how to incorporate CL methods in traditional lesson planning and also how to design and plan activities and tasks based on CL methods. The selected participants were free to

ask any query regarding how to implement CL methods in their lesson plan. Along with the predefined schedule of practice teaching phases during Sept.2011 and Dec.2011 for all the subjects-methods groups, this guidance of CL methods in lesson planning was provided as per student's needs and as per their convenience of time. The major aspects that were included in guidance programme were selection of CL methods by participants that were suitable for the level or grade of school children. The participants were given freedom to select the method of cooperative learning as per the nature of content, class size, time limitation, capacity, interest, readiness and requirements. The student-teachers were asked to choose any of CL method from the following list and they were guided how to design their lesson plans accordingly: Jigsaw I; Jigsaw II; Think-Pair-Share; Write-Pair-Switch; Ask Your Neighbour; Numbered Heads Together; Paired Writing; Reciprocal Teaching of Reading (RTR); Cooperative Integrated Reading and composition (CIRC); STAD; Question-Answer Pairs; Group Investigation. A detail description of steps of each CLM was given to participants so that they can easily incorporate these steps in their traditional lesson plan format. As per nature of content selected in the subject of English, the participants were guided to design warm up activities, team building activities, small evaluation exercises. The following **steps or procedures in CL lesson plan format** (adapted from Jacobs. at el (2002) p.126-127) were used by the student-teachers while teaching at real class in practice teaching school:

- Warm-up activity/Preparation
- Announcing learning objective/s
- Input and Modeling
- Practice
- Assessment
- Closure

The participants were guided for writing self-assessment reports, peer observation sheet report and preparing lesson plan transcripts. There was flexibility in designing the CLM based lesson plans.

- **Delivering CLM based lessons during practice teaching & submission of related artefacts:**

The main goal in the practice teaching phase is to know the experiences of participants of using CLM in practice lessons. The participants of the study were observed by the concerned teacher in-charge when they would teach through CL

method in the real practice teaching school classroom. As practically it was rather impossible for the investigator to observe and note down records of each student-teachers during practice teaching phase; the data were collected from secondary sources such as self-evaluation sheet report, peer observation sheet report and lesson plan transcript prepared by participants. Participants rated themselves on four soft skills using self-evaluative rubrics during practice teaching phase and submitted the self-assessed rubrics after its completion.

3.8.2.2.2. Stage: II:

A **Prior Performance Test on soft skills** was conducted which had four separate tests i.e. Test on Reading Comprehension, Test on Critical Thinking skills, Test on Grammar and Test on Written Communication skills. A few tasks were designed specifically on grammar topics hence as one of the components of WCS, grammar was assessed separately in the test. The remaining fourth soft skills i.e. Time Management skill was assessed through entry and exit tasks.

3.8.2.2.3. Stage: III:

Implementing CLM based Instructional Plan: It mainly included CLM based Instructional Plan (CLMIP). This second stage of the CLM strategy comprised of CLM based Tasks. Variety of artifacts and documents were collected as part of data collection. Based on the selected five principles of Cooperative learning approach, and selected CL methods, a plan of instructional strategy was evolved. Mainly the strategy included Specific objectives, and behavioral outcomes were stated with twelve sessions based on the selected twelve CL methods. The subject matter was selected on the basis of certain criteria. A time schedule was also corresponding to the prevailing academic calendar provided by the university as well as the calendar of curricular and co-curricular activities proposed by the college of education where the data was targeted to collect. The implementation of CLMIP was started with orientation sessions.

- **Orientation sessions:** These sessions were divided into three phases as per need of the present study.

Phase-1 Orientation session for Soft Skills:

In the second phase of orientation, the selected participants were acquainted about the soft skills. A formal lecture presentation was planned for this purpose. This session included concept, meaning, definitions of soft skills, list of various soft skills important for a profession, their significance in present competitive world of work.

Phase-2.Orientation session for writing assignments and self- evaluative rubrics:

As part of Student -Teacher's Portfolio, many of the assignments and task sheets were involved in the study. With the goal of making student-teachers aware about the self and peer assessment and evaluation, how to fill up information in various forms, to write reports, answer the set of content based questions in worksheets, write assessment in self-assessment sheet based on rubrics etc.; a formal lecture session was devised for the participants. The participants were explained regarding the evaluation procedure followed and ways to use evaluative rubrics based on soft skills.

- **Plan of Data collection during Implementation of Instructional Plan on CL:**

During the second semester of the academic year under the study, the data were collected at the institute where Cooperative Learning Instructional plan with natural class set up, was carried out. Here, participants were assigned selected tasks based on CL methods. The information about the task procedure or steps were written on the chalkboard. Participants were distributed the reading materials and were given worksheets, blank papers to write individual and group reports. Each task was recorded through video shooting and other instruments were used to record the phenomena.

[Note: The CLM based instructional strategy is attached in the appendices for the reference and detailed information.]

3.8.2.3. Post-fieldwork phase:

Having completed the implementation of CLM based strategy, the investigator met the participants and asked about their perception, feedback and opinions regarding learning under CLM strategy. Participants were given Reaction scale to opine on CLMIP and relevant artifacts and documents were collected from participants. At the end, Cooperation skill Self- Assessment Rating Scale and Posterior Performance Test (Terminal Test) was conducted to know the terminal behavior of the select participants on select three soft skills along with grammar skill. TMS was assessed through last CLM task session.

3.9. Strategies adopted for data collection:

The study was in a way longitudinal as it spread across an entire academic year. Due to its open nature, there were constant modifications made in strategy as the study was evolved in natural set up. The investigator had adopted the following strategies for collecting the data.

The study focused on exploration and description of a naturally occurring phenomenon. There were more than nine instruments used to capture the complex phenomena in order to provide thick description. The investigator had to delimit the study in many aspects. The investigator had either prepared or adopted whenever required all the tools of data collection and finalized tools after consulting experts of the field of ESL. The subsequent changes suggested in the tools and Entry and Terminal behaviour tests were made as per suggestions. **The following strategies were used for collecting data:**

- The participants and the investigator both were primary instruments of data.
- The data was also collected using Observation and Written document methods.
- The data was collected using various tools during the implementation of the evolved instructional plan.
- Based on observation of student- teachers' performance at Group and Individual level in each CL task, field notes were written.
- Participant and non-participant observations were made by the investigator and data was recorded through tools such as Field notes; Observation dairy; Rubrics of performance assessment; Task-based self-assessment rubrics on selected soft skills; Written report of the group; Individual Worksheet on the given task; Day wise attendance chart; Lesson Plan Transcript of student-teachers, Lesson observation sheet for student-teachers, Peer Observers' Written Reports. .
- There was flexibility in terms of data collection procedure.

3.10. Instruments designed to collect required data as per specific Research questions and research objectives:

In the present study the researcher has used variety of tools and techniques in order to reach to an insightful understanding of the process of complex phenomena. For the realization of the objectives of the study, multiple instruments were designed and used to collect required data. These tools were of different nature and type as per the requirement of the scope of the study as well as they were based on objectives and research questions of the study. Most of these tools were self-designed and constructed by the investigator himself; so these tools were loosely structured, open-ended and flexible in nature. Before finalizing the tools, the experts in the field were

consulted and their relevant suggestions were incorporated for modifications. The following were the tools used for the collection of data:

- (1) Student-Teachers' Profile and Database of the student-teachers available on university website
- (2) Practice teaching based various submissions includes
 - Self-Evaluation Sheet For Assessing One's Own Practice Teaching Lesson submitted by student-teachers
 - Peer Observation Schedule for Performance Evaluation of other participants during Practice Teaching Lesson
 - Cooperative Learning Methods based Lesson Plan Transcripts submitted by student-teachers
 - Self-evaluative rubrics on four soft skills given to participants to rate themselves during the practice teaching phase
- (3) Student-teachers' Portfolio included
 - Rubrics for assessment of performance of participants on selected four soft skills by researcher
 - Task based Worksheets written by participants
 - Task based Individual Self –reflective report written by the participants
 - Task based Group Self –reflective report written by the participants
- (4) Participant's Cooperative learning Self-Assessment Rating Scale
- (5) Opinionnaire on Cooperative Learning Method based strategy
- (6) Field Notes
- (7) Researcher's Observation cum Reflective Diary
- (8) Video sessions Transcript

For the purpose of clarity, the instruments used for the data collection are classified into following three categories: (I) Instruments used in the Pre-field work phase of data collection; (II.) Instruments used in the Field work phase of data collection; (III.) Instruments used in the Post-field work phase of data collection. The following passages provide a detailed description of instruments.

[Note: Sample of all tools used for data collection are attached in the appendices.]

3..10.1. Instruments used in the Pre-field phase of data collection: Apart from the major instruments meant for data collection, the following tools were also

designed and used before actual data collection started and they were used in the beginning of the study:

3.10.1.1. Database of the students from university

This was readymade database of student-teachers of year 2011-12 batch available on the KSKV Kachchh University, Bhuj; under the name of the site or the institute from where the participants were selected for the study.

3.10.1.2. Student-Teachers' Profile:

This contained preliminary personal information of the student-teacher who willingly chose to be participants in the study. It consisted items like name, date of birth, place of birth, gender, mother tongue, family background ,educational qualification, economic condition of the family, personality traits one possess, years of learning English etc. The participants were supposed to put their signature at the end of Student-teacher's Profile as consent given for willingness to undergo the CLM based strategy. They needed to declare orally for commitment to remain present for all sessions conducted, completing writing task or assessment tools, seek oral permission from their guardians or parents to be part of research project, permission for videography while they get engaged in task completion.

3.10.2. Instruments used during the Field work phase of data collection: The data were collected during field work phase which consisted of practice teaching stage and CLM task based instructional plan, during the field work phase the following instruments were planned to use.

3.10.2.1. Self-Evaluation Sheet for Assessing One's Own Practice Teaching Lesson:

This was meant for the student-teachers themselves .The participants used this tool for collecting and recording data of their own teaching. There were twenty eight items in this questionnaire. The items were based on the lesson delivered by student-teachers in the actual classroom when they went for the practice teaching. The questions were reflecting the student-teachers experience of teaching the content using Cooperative learning methods and evaluating one's own performance at what extent they could teach through cooperative learning methods and also they assessed their own skill of reading comprehension, written communication, time management and critical thinking.

3.10.2.2. Peer Observation Schedule for Performance Evaluation of other participants during Practice Teaching Lesson:

This questionnaire was meant for the student-teachers who observed their peer learners' lesson. There were twenty five items consisting area of lesson planning, use of CLM task, use of communication and critical thinking skills along with time management and teamwork skills. This questionnaire comprised of both items of close and open ended nature which required the students-teachers to describe their observation in adequate detail. The participants were asked to reflect upon what and how their peer participants delivered in their lesson in the classroom at the actual school during the practice teaching phase.

3.10.2.3. CLM based Lesson Plan Transcripts by student-teachers:

These artifacts were written record of what the student teachers delivered in their CL lesson while teaching English subject at secondary school classrooms. After the completion of the practice teaching the participants were asked to submit their lesson plan transcripts.

3.10.2.4. Self-evaluative rubrics on select soft skills:

They were prepared on four soft skills and were given to participants during first phase of practice teaching programme. The participants were supposed to rate themselves twice i.e. on starting of practice teaching programme and at the completion of practice teaching programme. After the completion of practice teaching, the selected participants submitted their self-rating of soft skills using self-evaluative rubrics to the researcher.

After the completion of practice teaching phase, the study further carried out at main site at HRGCE implementing CLMIP. During the phase the following tools were used.

3.10.2.5. Prior Performance Test (Entry Behaviour test) on Soft Skills:

The investigator had prepared working tests to check entry level behaviors on selected soft skills. The participants who gave consent to be part of the study were invited to take Prior Performance Test on Soft skills before implementing the strategy on CLM. There were four separate sections in the Entry level test i.e. Test on Reading Comprehension, Test on Critical Thinking skills, Test on Grammar skill and Test on Written Communication skills. The rest of the fourth soft skill i.e. Time Management skill was tasks based, so first (Entry level) and last (Exit level) CLM task sessions were meant for their assessment of performance on TMS.

3.10.2.6. Videography and Transcripts of Video Sessions: The sessions conducted during the CL methods based Instructional Plan were recorded in the form of videos. Transcripts were prepared of all the accessible video sessions.

3.10.2.7 Field Notes:

The investigator had recorded all of the major series of events, various aspect of the phenomena under study and had written all sorts of factual data starting from seeking permission from the management or principal of the college, consent forms filled up by participants and then the design of the phases of data collection, practice teaching details, record of lessons delivered, submission of lesson plans, orientation of CL Approach to student- teachers, CL activities programme and record of worksheets submission, individual and group reports, videography details.

3.10.2.8. Researcher’s Observation cum Reflective Diary:

It was a record of events based on the observations starting from the study of the phenomena till the end of last CLM task. The diary also included reflections i.e. all feelings, personal experiences, difficulties faced by the researcher in his journey of the study etc. This tool was helpful for the investigator himself as it was by nature had two aspects in it, i.e. first it was a record of what he observed during the entire phenomena and second what he felt and experienced during the course of time.

3.10.2.9. Comprehensive sheet of Evaluation Rubric for assessing four soft skills:

This was meant for the researcher keeping in view to cross check ‘what’ and ‘how’ participants evaluated themselves on their own performances of soft skills. This was a holistic, open-ended evaluation. It was an assessment sheet for researcher’s use to evaluate how participants actually performed while they were engaged in the assigned task. This observation sheet was helpful to evaluate participant’s performance on select four soft skills.

3.10.2.10. Student-teacher’s Portfolio:

Portfolio is comparatively a modern instrument, used for continues and comprehensive evaluation of students especially at present in schools in India and abroad and it can be seen in digital form for the college students especially in foreign universities. As per its usage today in the international educational organisations, it includes student teachers’ internal and external exam results, unit test results, participation in curricular and co-curricular activities, seminar, debate presentation, life skills, attendance, behavior, dressing, cleanliness etc.

The term 'Portfolio' here in the present study referred to the artifacts collected for select participants. The selected cases were required to submit all documents in every CLM session. It comprised of filled in handwritten worksheets based on task assigned, peer and self-assessment sheets for practice teaching, self-evaluation rubrics of soft skills selected, lesson plans transcripts, individual and group reports on task and Self-assessment sheet for Cooperation skill.

3.10.2.10.1. Individual Performance of participants on Evaluation Rubric each on selected four Soft Skills:

There were four Soft Skills selected for the present study, viz. Reading comprehension skill, Critical thinking skill, Written communication skill and Time management skill. All of these Evaluative rubrics were designed by the investigator, keeping in view the needs of the study, the objective of the research and the basic principles of rubric designing. The evaluative rubrics were initially prepared on five point scale but on the suggestions of the experts the rubrics were modified into seven point scaling. Rubrics contained behavioral traits on each components of the concerned skill.

3.10.2.10.2. Task based Worksheet:

These worksheets were based on the subject matter selected for each CL methods. The main purpose for this worksheet was to record the performance of participants on reading comprehension skill, critical thinking skills and writing skill. The worksheets were exclusively based on selected content in CLM strategy which consisted of prose- stories, poems, essays, grammar topics etc. All questions were descriptive in nature. Objective based test items were not included because the prime reason was to capture not only the comprehension of content but also thinking, attitude and over all characteristics of personality of students. The writing skill is reflected, best judged and evaluated in descriptive writing hence worksheets were prepared to record comprehension and thinking.

3.10.2.10.3. Task based Individual Report of the participants during main task

Task based Individual Report of the participants were included in order to explore the experiences of the participants. This was a simple plain paper distributed to each participant. In Individual report, the participants were required to write about what they did during the main task and how they discussed the content given in CLM tasks.

3.10.2.10.4. Task based Group Report of the participants

Group Report sheets were also in blank paper form and it was the group leader, whosoever unanimously selected by the teammates, was supposed to write the report as how the members of the group played their role and how they could complete the task, what problems they faced and what resolutions they brought in. They were free to reflect on their experiences of CLM based task also.

3.10.3. Instruments used in the Post-fieldwork phase of data collection: Having implemented the CLM based strategy, the following instruments were administered.

3.10.3.1. Opinionnaire on Cooperative learning Instructional Plan:

This was a kind of Reaction Scale in semi-structured form, prepared by the investigator. This Opinionnaire includes 60 statements that were close-ended in nature. This tool was meant for student-teachers to record their reaction and opinions on their general experiences and learning gained in the CLM based tasks. There were seventy items in this scale and half of statements were kept on positive polarity whereas rest were on negative polarity in order to cross check the authenticity and honesty of the responses provided by the student-teachers. Participants were free to give their feedback and comments with regard to their opinion and approach towards CLM based strategy. It was helpful for participants to ascertain their opinion on whether CL helped or hindered in developing soft skills.

3.10.3.2. Cooperative Learning Self-Assessment Rating Scale:

This tool enabled investigator to collect information on student-teacher's performance regarding cooperative learning methods. This semi-structured tool was constructed using five point scale and learners were expected to respond on five points from Fully Agree, Agree, Indifferent, Disagree and Fully Disagree levels of responses. There were a total of 53 statements equally distributed on positive and negative polarity of sentences on Cooperation skill, so that same responses can afterwards be verified through comparison of responses. This self-evaluation sheet also contained some items which were of the open-ended in nature where participants were free to reflect and describe themselves as 'cooperative learners'.

3.10.3.3. Posterior Performance Test:

Having completed the practice teaching sessions with selected CLM, and CLM based Tasks; the participants who remained with the researcher till the end of the programme were given a Posterior Performance Test on select soft skills. Their

performances were evaluated separately as well as in comprehensive form. There were four separate tests i.e. Test on Reading Comprehension, Test on Critical Thinking skills, Test on Grammar skill and Test on Written Communication skills. The rest of the fourth soft skill i.e. Time Management skill was tasks based, so the first and last CLM task session was meant for their assessment of performance on TMS.

3.11. Techniques of data collection used in the present study: The following data collection techniques were used.

- **Indirect Instruction:** The investigator did not teach anything directly to the participants. The instructor acted as guide, facilitator, observer, co-participant and co-learner. In all CL method based task, participants were clearly informed to follow the stipulated steps that were written on chalkboard in visible, readable form for participants. Thus, the investigator did not use any direct instruction which may be considered as control variable or manipulation of CL methods. The investigator had used scaffolding and created conducive learning environment, by providing a stage i.e. a set up based on Cooperative Learning Method based task.
- **Direct Observation:** The investigator was himself present at the time of task conducted. While the participants engaged in task, the researcher himself made direct observations of performance of selected 14 participants. No other person was involved in the procedure of observation. During the practical of Practice Teaching and at the time of CL instructional plan, wherever the investigator himself could not make direct observations of participants (because all participants were distributed by the college in separate schools); the researcher was unable to use direct observation of participants' lessons on CLM selected, hence the investigator was dependent on secondary sources of information submitted by the participants.
- **Peer Observation:** The selected student-teachers, who were participants of the study, were given a Peer observation Schedule to observe their fellow trainee-teacher while they deliver the lesson based on CL method during practice teaching in real schools.
- **Self-reflection:** The participants were given various types of blank sheets to reflect upon what they learnt and felt during CLM task.

- **Group work:** It was part of the strategies of cooperative learning methods selected for the study. All tasks on CLM have an inbuilt pair or group work.
- **Self-Assessment:** The participants were supposed to assess their competence on Self –evaluative rubrics on four soft skills as well as they were given cooperative learning rating scale for self-assessment on their learning occurred throughout the duration of the study.
- **Written documents-artifacts:** Artifacts like Rubrics on Soft skills, Lesson plan transcripts, worksheets, individual and group reports provided written evidence during each phase of the study.
- **Dialogue transcription:** All critical or significant episodes of the phenomena were video shoot with home use camera. The phenomena that took place in the natural conditions at the site, was recorded. A prior permission was sought from the participants and their guardians. The investigator assured the participants that Videos were meant only for the purpose of research and it was not intended for publication in any form on digital media or open platform like instagram, face book, twitter, you tube etc.

3.12. Data Analysis: The researcher planned to collect rich data and all the data was sorted and categorized as per the objectives of the study. The investigator planned to follow the following techniques for data analysis.

3.12.1. Techniques of data analysis: Most of the data were qualitative in nature. Data was analyzed after the data collection got completed. The approach adopted for data analysis was open ended analysis. The data that were collected using various tools was systematically organized and analyzed qualitatively using the following techniques:

- Document Analysis
- Case description and Case analysis
- Content analysis
- Hermeneutical analysis for Individual and group reports i.e. self-reflective reports written by participants, written documents- artifacts
- Linguistic analysis for task based worksheets
- Descriptive statistics used for Cooperative learning Self -Assessment Rating Scale and Opinionnaire and grading for evaluation rubric
- Interaction analysis of Video sessions

- Data Triangulation using Corroboration.

The following table provides an overview of data analysis corresponding each tool of data collection.

Table. 3.4: Data analysis techniques corresponding to tools for data analysis

Instruments used for data collection	Number of artifacts / documents/duration planned to receive from most regular participants	Data analysis technique used
• Student-Teachers' Profile	14	Document Analysis
• Field Notes for Investigator's use	Descriptive record of phenomena as evolved during 2011-12 academic year	Event Analysis
• Researcher's Observation cum Reflective Diary	Descriptive record of practice teaching phase and day-wise sessions during CLMIP	Document Analysis and Content analysis
• Comprehensive Evaluation Rubric of soft skills for Investigator's use	One sheet	Descriptive statistics-Grading-seven point scaling
• Self-Evaluation Sheet For Assessing One's Own Practice Teaching Lesson	14 participants*1 lesson on any one CLM selected by participants	Hermeneutical analysis
• Peer Observation Schedule for Performance Evaluation of other participants during Practice Teaching Lesson	14 participants*1 lesson on any one CLM selected by participants	Hermeneutical analysis
• Opinionnaire on cooperative learning methods based instructional plan	14 participants	Descriptive statistics
• Cooperative learning	14 participants at the end of	Descriptive statistics

Instruments used for data collection	Number of artifacts / documents/duration planned to receive from most regular participants	Data analysis technique used
Self-Assessment Rating Scale	CLM based tasks	
<ul style="list-style-type: none"> Individual Performance assessment by researcher using Evaluation Rubrics each on Selected four Soft Skills for Participant 	14 participants * 4 soft skill rubric * 12 sessions	Descriptive statistics- seven point scaling on grading system
<ul style="list-style-type: none"> Task based Worksheet 	02(Performance evaluation) tasks and 10 CLM based task with total 12 sessions	Content Analysis and linguistic analysis
<ul style="list-style-type: none"> Task based Individual self-reflective Report of the participants 	14 participants *12 tasks	Content analysis
<ul style="list-style-type: none"> Task based Group self-reflective Report of the participants 	3 to 4 group reports*12 tasks	Content analysis
<ul style="list-style-type: none"> Lesson Plan Transcripts by student-teachers 	14 participants * 1 lesson	Hermeneutical analysis
<ul style="list-style-type: none"> video sessions of CLMIP tasks 	14 video sessions	Interaction analysis

3.12.2. Unit of Analysis in the present study:

The major aim of the present study was not only to explore but also to describe the process of evolving phenomena. Therefore the **phenomena** of ‘the development of soft skills under Cooperative Learning environment’ were considered as a ‘Case’ under the natural setting. The main purpose of the present study was to explore and describe the evolving events under the holistic phenomena that stretched upon for almost an academic year consisting two semesters, excluding the teaching,

activities, examination. Thus the unit of analysis in the present study was “Events” as unfolded naturally under the phenomena.

3.12.3. Coding used for data analysis: The following codes were developed and assigned to make the analysis more objective.

3.12.3.1. Table: 3.5: Coding for the CLM

Task No.	Selected Cooperative Learning method	Codes assigned for each task
Prior Performance Test	Entry behaviour performance assessment on four soft skills	EBT
CLM 1	Jigsaw- Basic version	J-I
CLM 2	Jigsaw-II	J-II
CLM 3	Think-Pair-Share	TPS
CLM 4	Write-Pair-Switch	WTR
CLM 5	Reciprocal Teaching of Reading	RTR
CLM 6	Ask your Neighbor	AYN
CLM 7	Numbered Heads Together	NHT
CLM 8	Student Teams Achievement Division	STAD
CLM 9	Question and Answer Pair	QAP
CLM 10	Cooperative Integrated Reading and Composition)	CIRC
CLM 11	Paired Writing	PW
CLM 12	Group Investigation	GI
Posterior Performance Test	Terminal behaviour performance assessment on four soft skills	TBT

3.12.3.2. Coding for the participants having regularly attended CLMIP: The following coding scheme of all 14 participants was used for analysis of performance on soft skills. Their real names are not revealed here in order to protect their identity.

Table: 3.6: Participant's codes

Code	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14
Name of participants	-	-	-	-	-	-	-	-	-	-	-	-	-	-

3.12.3.3. Table: 3.7: Coding of the Soft Skills selected

Number codes assigned for select Soft Skills	Specific soft skill selected for the study with abbreviation code	Code assigned to the soft skill
SS1	Reading Comprehension skill	RCS
SS2	Critical thinking skill	CTS
SS3	Writing Communication skill	WCS
SS4	Time management skill	TMS

3.12.3.4. This following table describes the final identification of components of each soft skill and coding used for each soft skill with sub-elements/abilities.

Table: 3.8: Codes of the soft skills and their corresponding codes for components

Code no. to Soft skills	Code assigned to the soft skill	Softs skills selected	Codes assigned for each components of the select soft skill	Major Components of the select soft skill
SS1	RCS	Reading comprehension skill	RCSC1 RCSC2 RCSC3 RCSC4 RCSC5 RCSC6	<ul style="list-style-type: none"> • Comprehension • Analysis • Interpretation • Relation to text • Understanding genre and Using Reading strategy • Critical Reading.
SS2	CTS	Critical thinking skill	CTSC1 CTSC2 CTSC3 CTSC4 CTSC5 CTSC6	<ul style="list-style-type: none"> • Interpretation • Explanation • Analysis • Inference • Evaluation • Self-regulation
SS3	WCS	Writing communication skill	WCSC1 WCSC2 WCSC3 WCSC4 WCSC5	<ul style="list-style-type: none"> • Structuring • Content • Style • Grammar • Mechanics
SS4	TMS	Time management skill	TMSC1 TMSC2 TMSC3 TMSC4 TMSC5 TMSC6	<ul style="list-style-type: none"> • Time utilization • Observing Deadlines • Adjustment due to procrastination • Quality of work within time limit • Punctuality • Getting Task organized.

(Note: Selected four soft skills and their subcategories is attached in the appendices)

Each of the above soft skills have sub-categories which describes the lower to higher levels in the mastery of learned traits and attributes specific to skill. In nutshell, the data collected through Students' portfolio, Observations, comprehensive evaluation Performa, and CLM based lesson plan guidance programme and CLM

based instructional plan required document analysis as the data were in the form of description. The analysis of Grammar was incorporated in WCS.

3.13. Methods adopted to establish credibility in the present study

In any scientific research study, the investigator has to follow a universally accepted framework for research report writing, so that the journey of research to find solution of the related or similar problems can continue even after the completion of one's study. Therefore, most research specialists' advice the researchers to follow a common format for writing the procedure of research and results. As a result different paradigms have suggested different suitable methods. In positivist approach, there are measures like well-defined sample size, sampling techniques, standardization of tools and techniques of data gathering, testing hypothesis, standardized methods of analysis, use of statistical science, reliability, validity, transferability, generalizability, practicability, etc. Similarly in Qualitative study, which is highly subjective in nature and kind, the researcher must follow certain rules to establish credibility of his/her research.

The goal of a Qualitative research is to achieve, as best as possible, understanding - what he describes as a deep knowledge of some social setting or phenomenon. Striving for understanding requires spending extensive time in the field. Experts of qualitative research believe that verification is critical to evaluating the quality of qualitative research therefore generally eight procedures are identified for verifying qualitative research findings and recommends that any research study employ at least two of these procedures: prolonged engagement and persistent observation, triangulation, peer review or debriefing, negative case analysis, clarification of researcher bias (reflexivity), member-checking, rich, thick description and external audits. Moreover, Creswell believes Lincoln and Guba's criteria of trustworthiness, credibility and authenticity should be employed when evaluating qualitative research. (<http://www.qualres.org/HomeCres-3682.html>). Creswell (2002) suggested following four criteria for checking the validity-trustworthiness of the results. Credibility is achieved by strategies including prolonged engagement, persistent observation, triangulation, referential adequacy materials, peer debriefing, and member checks. Transferability is achieved by two ways: through thick description of sufficient detail and precision that it brings the reader vicariously into the environment under investigation and through purposive sampling governed by emerging insights and information achieved during the course of the investigation.

Dependability is achieved through a "dependability audit" which includes construction and maintenance of an archive facilitating access to all documentation as well as a running account of the process of inquiry in the form of researcher logs. Confirmability is achieved via a "Confirmability audit" which allows external reviews to judge the conclusions, interpretations and recommendations of the inquiry. The Dependability Audit and the Confirmability Audits are facilitated by the construction of a project library using commonly available relational database, spreadsheet and word processing software, and Internet technologies.

The present study has followed some criteria and the measures to establish credibility advocated by authorities in the field of qualitative research are explained underneath. Since the present study is an explorative case study of a phenomenon to explore and describe the process of how far student-teachers can develop soft skills under Cooperative Learning Approach, qualitative methodology was adopted. Keeping in view the complexity of the problem, for establishing credibility, first measure undertaken was **individual case analysis of select participants**. Second measure was **Data Triangulation**. Third measure was to **check similarity** in results/findings emerged from participants or cases. Fourth attempt was to study **Negative case/s analysis** and cross check if required. Fifth measure was analysis of Researcher's observation cum reflective diary of personal accounts and experiences. Some of the other measures that were used included coding of participants/cases so that the participants' identity would remain hidden. Description of the events was also used as a measure. In the beginning of the study, ethical procedure was followed for the selection of the samples. For this purpose Consent form was attached with Student-teachers Profile which was a questionnaire filled up and signed by participants. The subsequent passages in the final chapter would give a descriptive account as what sort of the design got developed. As the major method of inquiry adopted was Explorative Case study of the phenomena, the strategies implemented for the study begets a research design that fitted to qualitative paradigm adopted for the present study.