Chapter IV

Materials and Methods
4.0 MATERIALS AND METHODS

Pre-intervention, intervention and post-intervention were the three stages involved in the study. The data for the study was collected and elicited through questionnaires, diagnostic test, semi-structured interview, in-depth interview with the students, pre-test and post-test.

4.1 MATERIALS

4.1.1 FEEDBACK QUESTIONNAIRE (Weir and Roberts, 1994)

A feedback questionnaire was administered to the teachers of English belonging to engineering and Arts and Science colleges in Chennai and Kancheepuram districts, personally and through online. The questionnaire was administered to obtain the teachers’ opinions about the first year students’ proficiency level in English language and the perceptions of teachers in using computers to teach English, particularly the flipped classroom method. Out of 180 teachers, 108 teachers responded and out of the 108 responses, two responses were incomplete and hence excluded from the study. Hence, the study involved responses from 106 participants. The questionnaire consisted of three sections and totally nine questions. The first section gathered the personal information about the teachers of English from engineering and Arts and Science colleges, the second section focused on the English language proficiency of the learners and the third section collected the perceptions of the teachers on using computers particularly flipped English classes. The questionnaire prepared was to know the teachers’ personal profile, the skill the
tertiary level students lack most in English, how efficient the students write, whether the students write different type of texts, whether the students write grammatically correct sentences and whether the students are good at mechanics of writing.

4.1.2 PRE-INTERVENTION SELF-ASSESSMENT QUESTIONNAIRE (Weir and Roberts, 1994)

A self-assessment questionnaire was administered to the participants of the experimental group and control group before the intervention. The pre-intervention self-assessment questionnaire provided to the control group elicited details about the respondents’ personal information, proficiency level in English language skills, the attitude of the respondents towards writing in English and the opinions about the Big Writing instruction. In the control group, out of 70 participants 3 participants were absent and so the pre-intervention self-assessment questionnaire was given to 67 participants. For the experimental group, apart from the above mentioned four sections, one more section was included to gather information regarding the perceptions of the participants on the flipped classroom method. In the experimental group, there were 3 absenteees on the day of administering the questionnaire; hence 77 participants participated in the questionnaire survey. The student questionnaire given at the beginning of the study targeted to know the participants’ personal and academic profile, level of proficiency in English language skills, level of proficiency in the selected components of writing, level of proficiency in the
selected writing tasks, opinions about Big Writing session and the participants’ attitudes toward flipped English classes.

4.1.3 ESSAY RATING SCALE OF ESL COMPOSITION PROFILE 
(Jacobs et al., 1991)

The essay rating scale, an analytical scoring tool, from the ESL Composition Profile was adopted to evaluate and score the pre-test essays collected from the participants from the experimental and the control groups. The essay rating scale contained explicit descriptors and weighting system, which made possible the isolation of the specific features of a text for assessing and scoring. Hence, for the current study, the criteria namely vocabulary, organisation for assessing connectives, language use for assessing concord and mechanics of writing were selected as the assessment objectives. Each assessment objective was assessed based on the four levels, excellent to very good, Good to average, fair to poor and very poor, which had scores ranging from 7 to 20 for vocabulary and organisation, 5 to 25 for language use and 2 to 5 for mechanics of writing. The essays of the pre-test and post-test were assessed and the total score was calculated.

4.1.4 POST-INTERVENTION SELF ASSESSMENT QUESTIONNAIRE (Weir and Roberts, 1994)

A self-assessment questionnaire was provided to the participants of the experimental group and control group after the intervention programme. The post-intervention self-assessment questionnaire administered to the control
group elicited details about the respondents’ personal information, proficiency level in the English language skills, attitude towards writing in English and opinions about the Big Writing instruction. In the control group, out of 70 participants 5 participants were absent and so the post-intervention feedback questionnaire was distributed to 65 participants. For the experimental group, apart from the above mentioned four sections, one more section was included to gather information regarding the perceptions on the flipped classroom method. In the experimental group, there were 6 absentees on the day of administering the questionnaire; hence 74 participants participated in the questionnaire survey. The objectives of the student questionnaire given at the pre-intervention programme were the same as the objectives of the student questionnaire given at the pre-intervention.

4.2 METHODS

4.2.1 IN-DEPTH INTERVIEW

(Carolyn Boyce and Paleana Neale, 2006)

An in-depth interview was conducted with five teachers of Management department and eight teachers from English department in Hindustan University regarding the first year students’ English language proficiency level, students’ attitude towards learning English and, in particular, writing in English. Through the in-depth interview, the English teachers’ insights into different teaching methods they adopted during English classes were elicited. The teachers of English suggested the first year students of B.B.A and B.Com for the subjects of the study since these two batches were demonstrating poor
performance in English and more importantly, they did not display a positive attitude towards English classes and were seemed to be less confident and less motivated. However, the batches for experimental and control groups were decided randomly. From the in-depth interview, an insight into the background of the learners and the learners’ language issues was elicited.

### 4.2.2 DIAGNOSTIC TEST (Alderson, 2005)

A diagnostic test was conducted to identify the existing proficiency level of the students, particularly in writing and to identify the language needs of the learners. A letter writing task was chosen for the diagnostic test task to evaluate the English language proficiency of the learners, to identify the errors the learners make in writing and to adapt a method that will cater to the needs of the learners. The test was conducted by selecting 20 students from the experimental and the control group at random in a formal setting. The topic of the diagnostic test was, ‘Write a letter to your class teacher seeking three days leave.’ The students were given 15 minutes to write the letter in a formal setting. The data collected through the diagnostic test was analysed, particularly for the errors the students had committed in the various language components such as vocabulary, sentence structure, grammar and mechanics of writing. Hence, the diagnostic test was not scored. The error analysis of the diagnostic test substantiated the fact that majority of the students made mistakes in the different language components under study.
4.2.3 PRE-TEST (Angelo and Cross, 1993)

Pre-test, an important research instrument was used at the beginning of the experiment to collect data from the participants belonging to both experimental and control groups. The main objective of conducting a pre-test is to identify learners’ existing level of proficiency in the given writing task before the intervention. Essay writing task was chosen as the pre-test since it was one of the significant writing tasks at tertiary level. The topic of the pre-test essay was Advantages and Disadvantages of Using Internet. The word limit was fixed as 300 and the duration of the task was 30 minutes. The pre-test was conducted simultaneously for both the experimental and control groups in a formal setting. In the experimental group and control group, there were three absentees respectively and hence, the pre-test was conducted for 77 participants in the experimental group and 67 participants in the control group. The essays were collected and assessed using the essay rating scale of ESL Composition Profile.

4.2.4 INTERVENTION PROGRAMME: BIG WRITING SESSION FOR TERTIARY LEVEL LEARNERS, THE VCCM APPROACH (Harland et al., 2012)

The intervention programme, Big Writing instruction, VCCM approach, adapted from Ros Wilson’s Big Writing approach, was designed particularly to develop the tertiary level learners’ writing skills. For the intervention programme, various types of interactive tasks that focused on enriching the learners’ knowledge of vocabulary, connectives, concord and mechanics of writing were constructed which in turn would develop the overall writing
abilities of the learners. Most of the tasks involved either pair work or group work so the participants had immense opportunities to learn from peers particularly to develop the knowledge on the writing components: VCCM. The control group participants underwent regular English classes that did not involve using technology, during the intervention tasks. The materials for the control group were given as handouts and read in the class for understanding and comprehending the content. On the contrary, the experimental group participants were given Big Writing instruction through flipped classroom method.

4.2.5 INTERVENTION PROGRAMME: FLIPPED CLASSROOM METHOD (Bergmanns and Sams, 2012)

For the experimental group, the English classes were flipped and so a group mail was created at the beginning of the intervention programme to send the out of class materials. The materials related to the topics selected for teaching the Big Writing elements under study were sent to the experimental group participants in the form of videos, audio-files, PPT, images, articles, and posters.

4.2.6 VOCABULARY INSTRUCTION (Takac and Singleton, 2008)

The vocabulary learning strategies established by Tatakan Singleton were used to teach vocabulary. The materials for teaching vocabulary included worksheets on grouping words, finding the odd man out, matching meaning and words, and sentence completion. Apart from these materials for writing
activities, oral activities that involved productive use of words in conversations and vocabulary quizzes were also conducted. The vocabulary taught to the students was taken from the topics decided to teach the different learning objectives formulated for the instruction. The oral activities on vocabulary were conducted in groups. The worksheets were given to each participant of both groups individually and the completed worksheets were collected, evaluated and returned with constructive feedback. In both the groups, there were few absentees every day. However, active participation was observed in the experimental group rather than the control group since the experimental group’s classes were flipped and the out of class material that they had received gave the participants the language input to take part in the in class activities. For the control group, the materials were given as handouts and the participants read and discussed in the class.

4.2.7 TEACHING CONNECTIVES (Garcia-Belina, 2012 and Crosson And Lesaux, 2013)

Connectives used for different purposes namely adding, cause and effect, sequencing, contrasting, emphasising, illustrating and comparing were taught in the intervention programme. The experimental group participants were sent a power point slide on the types of connectives with explanation and examples. Moreover, videos on native speakers such as speeches by Steve Job were also sent and the participants were instructed to identify the connectives used as sign post language. However, the control group participants were taught through the regular classroom instruction. The activities for teaching
connectives included both oral and writing tasks, which were conducted in groups and individual. Sorting out the connectives as per the types, sharing a recipe using connecting words, just a minute speeches using sign post language and group discussions using functional expression and transition words were the oral activities conducted in the classes. Worksheets on sentence combining exercises and paragraph writing were given as writing tasks for both the groups.

4.2.8 TEACHING CONCORD (Rhalmi, 2009 and Benner, 2000)

The participants of both the experimental and control groups were taught Subject-Verb Agreement rules and usage; the experimental group participants received the materials in the form of PPT, web links to know about the rules and usage of subject-verb agreement and online exercises to write error free sentences. On the other hand, the control group participants were given lecture based on the subject-verb agreement rules and usage followed by worksheets for homework. Activities on subject-verb agreement included matching subjects and verbs, choose the correct form of the verb that agrees with the subject and gap filling exercises.

4.2.9 MECHANICS OF WRITING INSTRUCTION (Whitaker, 2005)

Rules for capitalisation, punctuation and spellings were taught as a part of the intervention programme for both the experimental and control groups. To teach the different punctuation marks, power point slides on punctuations and articles as reading materials to model writing were sent to the participants of the
experimental group. However, the participants in the control group received instruction for mechanics of writing through regular classroom method. Activities to teach mechanics of writing included punctuate the sentences and paragraphs exercises, spelling bee, dictation tests and peer correction tasks.

4.2.10 POST-TEST (Bond, 2005)

Post-test, one of the principle research instruments was used at the end of the intervention programme to obtain data from the participants to measure the progress in writing in English after the Big Writing instruction. The post-test in this study aimed at ascertaining the effect of teaching Big Writing elements adapted as per the needs of the tertiary learners through flipped English classes to the experimental group and traditional English classes to the control group. The post-test essay writing task topic was Effects of Pollution on the Environment. The word limit and the duration were 300 and 30 minutes respectively similar to the pre-test task. The post-test was administered to both the experimental and control groups simultaneously at the end of the intervention programme in a formal setting. In the experimental group, out of 80 participants 6 participants were absent so a total of 74 participants took part in the post-test essay writing task. Likewise, in the control group, out of 70 participants 5 participants were absent. Hence, the post-test essay writing task was conducted for 65 participants in the control group. The essays were collected and evaluated and assessed using the essay rating scale from the ESL Composition Profile, which was used for assessing the pre-test essays. The
assessment variables of the post-test were vocabulary, connectives, concord and mechanics of writing, similar to the assessment objectives of the pre-test.

### 4.2.11 SEMI-STRUCTURED INTERVIEW

*(McDonough and McDonough, 1997)*

The semi-structured interview was selected as one of the research methods to elicit data and to stimulate for further details. The interview was conducted at the end of the intervention programme and it involved both the experimental and control groups since the main rationale of the interview was to gain insights into the perceptions of the participants regarding the existing teaching methods, writing in English, VCCM approach and flipped English classes. There were five participants in each group who were selected randomly out of the population. The semi-structured interview enabled the participants to respond to the questions comfortably as the informal environment of the interview liberated them from tension and anxiety. The questions asked in the interview are listed below.

1. Did the writing instruction you receive in your higher secondary level help you to cope with the writing at tertiary level?
2. Can you write logically organized essays?
3. Do you willingly take part in writing impromptu tasks?
4. Did you have the knowledge of the key components of writing in English before the Big Writing instruction?
5. Are you satisfied with the teaching methods followed in English classes?
6. Are you satisfied with the teaching aids used during English classes?

7. Do you think the VCCM approach will help you to write better in English?

8. Were the out of class materials used during the flipped Big Writing classes effective?

9. Do you think flipped classes are better than regular classes?

10. Did you find the flipped class activities interesting and effective?

4.3 STANDARDISATION OF RESEARCH TOOLS

The standardisation of research materials, a significant process, was done for validity and reliability to collect data before the administration of the materials for efficient data collection. The various research materials and methods including the questionnaires, diagnostic test, pre-test, intervention tasks, interview and post-test were given to language experts and got back the comments, feedback and suggestions. Then, the feedback questionnaire and the self-assessment questionnaire were piloted.

4.3.1 PILOT STUDY (Baker, 1994)

The first draft of the feedback questionnaire prepared for teachers was piloted to ten teachers of English belonging to Hindustan Institute and Technology and Science. The self-assessment student questionnaire was piloted to seventeen first year aviation students in Hindustan Institute of Technology and Science. The students selected for pilot study were akin to the subjects of the study in the English proficiency level and the age group.
4.3.2 ALPHA RELIABILITY TEST (Lee Cronbach, 1951)

The Cronbach’s alpha test was conducted to measure the reliability of the questions, which were based on the opinions and attitude of the participants, used in the students’ self-assessment questionnaire. The alpha test was also employed to measure the reliability of the questions included in the teachers’ feedback questionnaire.

4.4 DATA COLLECTION

The process for data collection was divided into four stages (Table 1). In the first stage, a survey was conducted through a feedback questionnaire, for the teachers of English belonging to engineering and Arts and Science colleges to know about the first year undergraduate students’ learning difficulties in English and also the teachers’ perception on the flipped classroom method. An informal discussion with the teachers of English in Hindustan Institution of Technology and Science was also conducted after setting the context of the study. Then, a diagnostic test was conducted to the subjects of the study, the two batches from Hindustan Institute of Technology and Science, B.B.A and B.Com, to identify the language issues faced by the first year students.

In the second stage, randomly the experimental group and the control group were chosen, as the research was primarily experimental in nature, to measure the efficacy of teaching Big Writing elements adapted particularly for tertiary level learners through regular and flipped classes. A group mail ID was created for the experimental group to flip the class and send materials for out of class
learning. The students’ self-assessment questionnaire was administered at the beginning of the intervention programme to both the control and experimental groups. Moreover, a pre-test on essay writing task was conducted simultaneously for both the groups and a feasibility study was conducted for the experimental group to inspect whether teaching Big Writing elements through flipped classes was possible. The third stage was the main study stage which involved the intervention programme designed for the experiment. Various interactive intervention tasks were constructed for the in-class activities based on the vocabulary, connectives, concord and mechanics of writing. Finally, the post-test was conducted for both the experimental and the control groups, followed by the post-treatment questionnaire, which was given for the participants of both the groups, and the semi-structured interview at the end of the intervention programme.
Table 1: Stages of data collection process

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<th>STAGE ONE</th>
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<td>• Pilot study</td>
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<td>• Administration of teachers’ questionnaire</td>
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<td>• In-depth interview</td>
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<td>• Diagnostic test</td>
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<th>STAGE TWO</th>
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<td>• Pre-treatment students’ questionnaire</td>
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<td>• Pre-test</td>
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<th>STAGE THREE</th>
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<td>• Intervention programme / Main study</td>
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<th>STAGE FOUR</th>
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<td>• Post-test</td>
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<td>• Post-treatment students’ questionnaire</td>
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<td>• Semi-structured interview</td>
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4.5 DATA ANALYSIS

The data elicited from the various sources had been analyzed in accordance with the objectives laid down at the time of research plan. The hypotheses of this study were subjected to statistical tests of significance to determine the validity. For this purpose, Statistical Package for Social Sciences (SPSS) Version 24, 2016 was used in the study. Statistical techniques such as frequency distribution, percentage analysis, means, standard deviation, independent samples t-test and paired t-test were employed depending on the type of the data collected from the participants.

The summary of the data analysis is given below.

- The teachers’ feedback questionnaire was analysed and interpreted qualitatively using frequency and percentage.
- The students’ pre-treatment and post-treatment self-assessment questionnaires were analysed, compared, and interpreted using frequency, percentage, means, and t-test analysis.
- The pre-test and post-test essay writing scores of the control group were analysed and compared using the means, standard deviation and t test to find out whether there was any significant difference in the essay writing abilities of the participants before and after the Big Writing instruction through the regular classroom method. To examine the difference in the writing abilities of the participants between the pre-intervention and post-intervention, the mean scores of the pre-test and the post-test scored by the participants in the control group were
compared and then the $t$ test was administered to ascertain if the difference was statistically significant.

- The pre-test and post-test essay writing scores of the experimental group was analysed and compared using the means, standard deviation and $t$-test to find out whether there was any difference in the essay writing abilities of the participants before and after the Big Writing instruction through flipped classroom method. To examine the difference in the writing abilities of the participants between the pre-intervention and post-intervention, the mean scores of the pre-test and the post-test scored by the participants in the experimental group were compared and then the $t$ test was administered to ascertain if the difference was statistically significant.

- The post-test essay writing scores of the control and the experimental groups were compared using $t$ test means and standard deviation to determine whether there was any difference in the essay writing scores between the two groups. The difference in the writing abilities of the participants between the pre-intervention and post-intervention, the mean scores of the post-test scored by the participants in the experimental and control groups were examined and compared and then the $t$ test was administered to ascertain if the difference was statistically significant.

- The pre-test and post-test scores of the participants belonging to the experimental group were analysed to determine whether there was any
difference in the effectiveness of the flipped English classroom method between the female and male participants. Frequency, per cent, means, standard deviation and t test were used to analyse the difference. In order to examine the difference in the writing abilities of the female and male participants, the mean scores of the post-test scored by the female and male participants in the experimental group were compared and then the t test was administered to ascertain if the difference was statistically significant.

- The pre-test and post-test scores of the participants, who had higher secondary level through vernacular medium instruction, belonging to the experimental and control group were analysed to find out the difference in the writing abilities of the participants after the intervention programme. The difference in the writing abilities of the vernacular medium participants of the experimental and control group, the mean scores of the post-test scored by the participants were examined and compared and then the t test was administered to ascertain if the difference was statistically significant.

- The pre-test and post-test scores of the participants, who were first generation learners, belonging to the experimental and control group were analysed to find out the difference in the writing abilities of the participants after the intervention programme. To examine the difference in the writing abilities of the first generation learners of the experimental and control group, the mean scores of the post-test scored by the participants were compared and then the t test was administered to ascertain if the difference was statistically significant.