

Chapter III

PLAN AND PROCEDURE OF THE STUDY

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Chapter III

Plan and Procedure of the Study

3.0 Introduction

'Research methodology' can be defined as the discipline of observing how scientific research is conducted (Kothari, 2004). In other words, a research design is a systematic technique or sequence of stages used to accomplish the numerous tasks associated with a research study. The research design establishes the proper path to take to elucidate the research questions. A research design serves as the study's blueprint. The term "research design" refers to designing in advance the methods to gather data and the procedures to be used to analyse them while considering the study's objectives and the available time, money, and human resources. In other words, the research design lays the groundwork for the investigation.

This chapter is the backbone of the thesis. It establishes the framework for the researcher's selected study methods and procedures. This chapter discusses the methodology, including the population, sample, and procedure for developing an ICT-based strategy, the development of tools, data collection techniques, data analysis procedures, and the study's objectives and hypothesis.

3.1 Plan of the Study

The current study is a developmental cum experimental type to study the relative efficacy of ICT based strategy in teaching English as a Second language.

The researcher had conducted the present study in the following four phases -

Phase – I Selection of the School

The researcher had approached Gujarati Medium schools in Vadodara city which had computer, tape recorder, and projector facilities and which also had at least two groups of the IX standard students. Whichever school met these two criteria and the school which granted first permission among all schools with such available facilities required for the

study to conduct the experiment, the researcher decided to seek the permission from such school to conduct the experiment. Vidyut Board Vidyalay Gujarati Medium School of Vadodara met the above mentioned two criteria and also this school was first to grant the permission to conduct the experiment. So the researcher selected this school to conduct the present experiment.

Phase – II Development of ICT based strategy

- a. The researcher observed various divisions of VIII and IX Standard English classes at the chosen school in order to ascertain students' English aptitude, prospective level of comprehension, and other pertinent learning behaviors and the teaching approach of the regular school teacher (English teacher) in the actual classroom.
- b. ICT based strategy had been developed in light of the above mentioned observations of the students and the teacher by the researcher. The components of this strategy were OHP, YouTube clips, LCD T.V., internet enabled computer, and tape recorder to teach ESL to standard IX. It was then revealed to ESL and technology experts, and the experts were made aware about the observation of the students and the teacher of the selected school regarding their level and language ability. The researcher has taken into account the advice given by the experts for the finalization of the development of ICT based strategy.

The Content:

The first semester of the English textbook for standard IX for the academic year 2013-14, on which the researcher had developed the ICT-based strategy, was as follows: (Content is attached in the appendix II).

Unit 1 to 9

Unit 1 - Stories from the Panchatantra

Unit 2 – Life of some identified Heroes and their School.

Unit 3 – Quiz Time

Unit 4 – Money Matters

Unit 5 – The Grandmaster

Unit 6 – Cheetah's Tears

Unit 7 – 26th January 2001

Unit 8 – Reduce Waste

Unit 9 – Growing Smiles, Rain in Summer and Storm (3 poems)

Phase – III Development of the Tools.

In this phase, the researcher developed two tools to collect the data for the study viz. Scholastic Achievement tests and Opinionnaire. The description of these two tools is given below.

1. **Scholastic Achievement tests** - The researcher prepared the scholastic achievement tests viz. formative and summative tests (written and oral) to evaluate the experimental group's and control group's achievement and these tests were revealed to the experts (test papers are attached in the appendix III). The researcher administered the formative and summative tests (written and oral) on the experimental group 'E' while the regular English teacher of the school conducted the same tests on the control group 'C' at the same time.

2. **Opinionnaire** - The researcher had also developed the opinionnaire with the assistance of experts to assess the students' reflections about the mode of learning English taught by the researcher. This opinionnaire was distributed to the experimental group only, and it was conducted at the completion of the experiment. The responses given to the opinionnaire by the experimental group 'E' enabled researcher to understand the likes and dislikes of the students towards the ICT based components used by the researcher during teaching -learning process of the study. This Opinionnaire was developed by the researcher taking help of experts in the field on 5 point Likert scale. (Opinionnaire is attached in the appendix III).

With the help of the experts, 32 statements were finalised in this Opinionnaire out of which 16 were with positive polarity and 16 were with negative polarity. These positive and negative statements were combined in this 5 Point Likert scale to avoid the acquiescence bias that occurs when people tend to agree with statements without

understanding the actual content or due to automatic adaption to a response pattern (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

No direct statements were included in this Opinionnaire, such as ‘Do you like the way in which English was taught to you?’ because there were more chances of getting favorable responses to such statements (to please the researcher as the researcher had developed the bond with the students during the experiment) as a result of which it would not provide the correct picture of the effectiveness of each component of the strategy. Therefore, the researcher attempted to elicit additional information about the developed strategy's components. by including indirect statements in the 5 point Likert scale so that the students may not become aware of the actual intention of the researcher behind this.

3.2 Procedural Details of the Implementation of the Study

The procedural details of the implementation of the developed ICT-based strategy to judge its effectiveness is as under.

Phase - IV Implementation of the developed ICT based strategy to judge its effectiveness

The experimental group 'E' was taught units 1 to 9 using the researcher's developed ICT-based strategy in the first academic semester year 2013-14, while the control group 'C' was taught the same units (1 to 9) using the conventional method by a regular school teacher. To assess the effectiveness of this developed ICT-based strategy, the researcher administered formative tests to the group 'E' at the end of each unit, while a regular school teacher administered the same test to the group 'C' at the same time. Similarly, following the completion of nine units, the researcher administered a summative test to the group 'E', while a regular school teacher administered the same test to the group 'C' at the same time.

3.2.1 Details of the Content and its Evaluation

The details of the content and its evaluation are as follows -.

Unit no. 1 - Stories from the Panchatantra

This Unit had a collection of two stories from the Panchatantra; 'A Message From The Moon' and 'A Lesson For The Lion'.

Combined strategy: O.H.P. and internet enabled computers

Content points with objectives	Procedural details	Evaluation details
Subunit: 1 – Information about the stories of Panchatantra. Objective- To provide in-depth information on the stories of Panchatantra	Researcher had introduced the 'Panchatantra' and projected the stories 'A Message From The Moon' and 'A Lesson For The Lion' through O.H.P. (internet enabled) to provide the visual effect of the stories which will improve their comprehension of the stories.	Students were expected to search and write one story from the Panchatantra on the moral 'the weak defeats the strong' in the computer lab
Subunit: 2 – Reading the stories Objective - To clarify pronunciation - To develop the reading skills of scanning.	Researcher had read both the stories, the class will listen to it and then individual student will re-read some portion of the story respectively.	Students were told to complete comprehension questions of the textbook. (Q. 1 to 2)
Subunit: 3 –Grammar –Sentence pattern. Objective - To develop the skill of framing the sentence correctly as per S+V agreement	Researcher had given jumbled up sentences from the story "Ant and the Grasshopper" where students had to arrange the sentences in a correct order to frame the meaningful sentences.	Students were told to complete the given homework on jumbled up sentences to make the meaningful sentences.
Subunit: 4 –Past Tense Objective – To develop the understanding and usage of Past Tense.	Researcher had introduced the Past tense with its usages, and examples. She had asked students to underline the past forms of the verb in the given two stories in their text book.	Students were told to complete online grammar exercises on Simple Past tense from the below mentioned website www.esl-galaxy.com
Subunit 5 – Active and Passive voice Objective – To frame	Researcher had bounced a ball on the floor and had asked the student to describe what just happened.	Students were told to complete the worksheet on Active and Passive

<p>sentences with active and passive voice.</p>	<p>Researcher had told them to start the sentence with her name (e.g. Dhruti madam bounced the ball.). Researcher had written the sentence on the board. Then researcher had asked the students to identify the subject (Dhruti madam) and the verb (bounced). After that, researcher had bounced the ball again but this time she had asked the students to describe what happened with “The ball...” and had written the sentence on the board, “The ball was bounced by Dhruti madam.” Now, researcher had asked the students to identify the subject in this sentence (the ball) and the verb (was bounced). Researcher had asked the students to compare these two sentences to locate active and passive sentence. Researcher had explained that the 1st sentence was active because in that sentence the subject ‘Dhruti madam’ was actively bounced the ball where as in the 2nd sentence the subject ‘the ball’ was not actively doing anything but something was happening to it by someone else so it was in passive voice. Then researcher had presented the video on Active and Passive voice through O.H.P. (internet enabled).</p>	<p>Voice.</p> <p>Students were told to complete online grammar exercises on Active and Passive voice from the below mentioned website www.esl-galaxy.com</p>
<p>Subunit 6 – Describe the picture</p> <p>Objective – to be able to use the descriptive words</p>	<p>Researcher had shown the picture from their textbook (Q.4) and had asked the students to verbally identify what they saw in the picture. As students identified the words, researcher had labeled them in the picture. Such as clock, map, teacher, students and benches. Researcher had provided the following frames to students and had asked them to fill-in the gaps with vocabulary (higher</p>	<p>Students were expected to describe the given picture by the researcher (a classroom picture) in 5 to 6 sentences.</p>

	<p>proficiency students can frame their own stances and complete the paragraph).</p> <ul style="list-style-type: none"> - The _____ is next to the blackboard. - There are many books on the _____. - The teacher has _____ hair. - All the students are _____ in the classroom. - There are _____ on the left and _____ on the right side of the door. - The bookshelf is _____ to the door. 	<p>Unit test 1 – formative assessment of group ‘E’ and group ‘C’</p>
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Unit: 2 – Life of some identified Heroes and their School.

This unit contained the life stories of Kiran Bedi, Srinivas Ramanujan, Ilaben Bhatt and Bapu to teach the social awareness through works of well-known people.

Combined strategy: O.H.P. and internet enabled computers

Content points with objectives	Procedural details	Evaluation details
<p>Sub unit 1– Introduction of Kiran Bedi, Srinivas Ramanujan, Ilaben Bhatt and Bapu</p> <p>Objective-To develop knowledge about the life of Bapu, Kiren Bedi, Srinivas Ramanujan, and Ilaben Bhatt.</p>	<p>Researcher had shown the photos of Kiran Bedi, Srinivas Ramanujan, Ilaben Bhatt and Bapu through O.H.P. and had asked students to identify them. Researcher had talked about the basic education of the people mentioned above and had asked the students to discuss ‘one common thing’ among these personalities such as they all had strong will-power and commitment to take on challenges courageously. Researcher had asked the students to share the information that they already know about them. After that researcher had asked to share about any famous personality of the world that the students know.</p>	<p>Students were asked to search on internet and write 20 sentences about any one world famous leader from the internet.</p>

<p>Sub unit: 2 - Glimpses of the stars of the Nation.</p> <p>Objective - To develop insight on the lives of Kiren Bedi, Srinivas Ramanujan, Ilaben Bhatt and Bapu.</p>	<p>On O.H.P., researcher had shown the P.P.T. about some of the glimpses of the life of Kiren Bedi, Srinivas Ramanujan, Ilaben Bhatt and Bapu.</p>	<p>Students were asked to search the information on internet and write a paragraph on Bapu in 80 words.</p>
<p>Sub unit 3: - Writing (descriptive).</p> <p>Objective - To develop descriptive writing skills</p>	<p>As per the textbook activity, researcher had presented the pictures of the famous monuments of India; Qutab Minar, Gateway of India, Ajanta Caves, Konak Sun Temple, Champaner – Pavagadh Archaeological Park, Jantar Mantar with its historical importance and descriptions on O.H.P. After that, researcher had asked students to match pictures with the description. Researcher had asked the students to highlight the descriptive words. This activity followed by writing the guided descriptive essay on the Tajmahal in the class.</p>	<p>Students were expected to describe Golden Temple in 80 words.</p>
<p>Sub unit 4: - Dialogue.</p> <p>Objectives –1. To develop skills of asking for information</p> <p>2.To develop skills of giving information</p>	<p>Students had watched two role plays on “dialogues on the holiday plan”, over the O.H.P. (connected with internet) and researcher had asked questions on it to check the understanding of the class such as what ‘wh’ questions did they hear, how many open ended and close ended questions were there. After this researcher had discussed their choices of spending holidays and had asked the class to practice on asking ‘wh’ questions to gather more information. This was a group activity.</p>	<p>Students were expected to complete grammar activity ‘A’ of the textbook as well as asked to present the dialogues by role play in the class.</p>
<p>Sub unit 5: - Conjunctions – So / therefore / because</p> <p>Objective - To develop the skills of writing complex sentences.</p>	<p>Researcher had displayed the chart, on O.H.P., of rules on using conjunctions ‘so / therefore / because’. This had followed by the example sentences which researcher had discussed with the</p>	<p>Students were asked to complete the activities ‘B’ and ‘C’ in Grammar section of their textbook. Students were also</p>

	class.	asked to complete online exercise on conjunctions on www.esl-galaxy.com
Sub unit 6: Reading the unit. Objective- To clarify pronunciation	Researcher had read the unit as a model and had asked the individual students to read the unit.	Students were required to accomplish the text book's comprehension task. .
Sub unit 7: - Vocabulary Objective - To understand the meaning and usage of new words.	Researcher had shown the P.P.T. (on O.H.P.) on unit vocabulary with its pronunciation, meaning and example sentences in the class.	Students were asked to write 2 sentences for each word given by the researcher.
Sub unit 8: Fill-in form Objective - To develop the skill of reading for specific purpose.	Researcher had given couple of different forms such as passport form, medical appointment form, driving license form and had asked students to fill out the forms with their personal information. Students had filled the Passport form and medical appointment form with researcher in the class.	Students were expected to fill-in the driving license form with personal information.
Sub unit 9: Reading appointment cards and advertisements. Objective - To develop reading skill for specific purpose	Researcher had shown various appointment cards, advertisement posters on O.H.P. and had asked students to find the different features between these two texts. This had followed by answering comprehension questions of these cards.	Researcher had given two appointment cards and one advertisement poster for students to read and answer comprehension questions based on them. Unit test 2 - formative assessment of group 'E' and group 'C'.

Unit 3 Quiz Time - This unit depicted the real quiz situation by describing the rules and eligibility criteria of the selected quiz participants to play the Quiz Time.

Combined Strategy: - O.H.P. and internet enabled computers

Content points with objectives	Procedural details	Evaluation details
Sub unit 1: Quiz time Objectives – 1. To enable students to play Quiz. 2. To enable students to understand and follow the principles of Quiz.	To give the firsthand experience of the Quiz, researcher had divided the experimental group into four teams i.e. Blue, Green, Red and Yellow. Researcher had used the computer with internet to play the Quiz. The quiz topic was ‘the capital city of the countries’. This quiz had five rounds and the total points were 150. Researcher had used the following web link to play this Quiz. http://www.eslgamesplus.com/countries-capitals-english-vocabulary-quiz-show-jeopardy-game/	Real Quiz situation had been set up by the researcher in the class and the whole class (divided in four groups) had participated to answer the quiz questions.
Sub unit 2: Reading the text Objective- To clarify the pronunciation of the students.	Researcher had read the lesson as the modal for the students and then she had randomly selected 10 students of the class to read the lesson. Researcher had clarified their pronunciation wherever they had made mistake while reading the text.	Students were expected to read the text.
Sub unit 3: Greeting Objective - To develop the conversation skills i.e. skills to start, sustain and end the conversation.	Researcher had played the video on ‘everyday conversation’ on O.H.P. and then had discussed the basic vocabulary to begin, extend and close the conversation in day to day life such as; good morning, hello, how are you, what are you doing nowadays, pardon, sorry, thanks, excuse me, hang on a minute, nice to meet you. As well as gap-filling expressions such as ‘hmmm’, ‘well’, ‘sure’ to give fluency to the conversation.	Students were required to perform the online exercise in a timely manner on everyday conversation in the computer lab. https://eslflow.com/dialogues-and-conversations-for-esl-classes.html
Sub unit 4: Dialogue Objective - To enable students to understand the conversation clearly.	Researcher had shown the PPT on O.H.P. about casual conversation role play. Then she had read the dialogues from the text book and had guided the students to fill-in the blanks. This had followed by asking students to read the complete dialogue with answers. Researcher had asked few students to role play the given dialogues in the	Students were expected to write dialogues on two situations: 1. Dialogues between friends on weekends plan. 2. Dialogues between teacher and student on clarifying homework question.

	classroom.	
Sub unit5: Writing dialogues Objective - To enable students to write the situational communicative dialogue.	Researcher had asked students in pair to work together to write the dialogues by looking at the pictures given in the text book. The researcher next requested few students to role play the full dialogues.	Students were asked to complete writing dialogue activity 'C' from the text book.
Sub unit 6: Quiz questions Objective - To develop skill of asking specific questions.	The researcher assisted the students in developing a set of questions in order to elicit the answers, as specified in text book activity 'D'. This had followed by role paly where one student had asked question and another had answered.	Researcher had given ten statements and students were asked to frame questions for each statement. Unit test 3 – formative assessment of group 'E' and group 'C'

Unit 4 Money Matters - This Unit described the development of Indian coins and currency and showed the importance of money. It also showed the advantages of carrying and using E-cards nowadays.

Combined Strategy:- O.H.P. and tape recorder

Content points with objectives	Procedural details	Evaluation details
Sub unit 1: History on Indian coins and currency. Objective - To enable students to identify old Indian coins and currency.	Researcher had displayed the old coins and currency of India through O.H.P. in the class and had asked questions about their shape and colour and how do they differ from the modern coins and currency.	Students were instructed to jot down the shape and the mettle used to make the coin in the particular era and present the information in the class.
Sub unit 2: Reading the lesson. Objective- To develop reading skill for specific information.	Researcher had read the unit as a model and had asked the students to read the unit. Researcher had developed the reading skills such as break down the unfamiliar word	Students were expected to complete the comprehension questions of the text book.

	into base word, prefix and suffix, and of predicting the contextual meaning of the unknown words in a text.	
Subunit 3:Conversation Objective - To develop conversation with beginning and end	Researcher had given the following topics to the students to develop 2 minutes conversation. She had asked the students to work in pair to complete this activity. <ol style="list-style-type: none"> 1. Money in the olden days 2. Differences between printed currency notes and magazines. 3. What is 'token' money and what replaced this money? 4. What is the origin of the word 'money' and what is barter system? Researcher had recorded conversations presented by few of the students and had played the recording in the class on the next day. The pair got full-marks which had developed the conversation with proper beginning and end and had pronounced all the words with correct tone and punctuation.	Students were asked to practice developing dialogues on the given topics with different beginning and end. <ol style="list-style-type: none"> 1. Money in the olden days 2. Differences between printed currency notes and magazines. 3. What is 'token' money and what replaced this money? 4. What is the origin of the word 'money' and what is barter system?
Sub unit 4: Countable/Uncountable Nouns Objective – to develop the understanding of countable /uncountable nouns.	Researcher had displayed the list of countable/uncountable nouns with pictures, meaning, definition and phonetic transcript through O.H.P. in the class and then had given them question paper where they had to distinguish these two nouns under countable and uncountable nouns.	Researcher had given the list of nouns and students were asked to divide them under countable and uncountable category.
Sub unit 5: Letter writing Objective - To develop formal and informal letter writing skills.	Researcher had displayed two formal letters such as (1) Write an application to the principal complaining against a senior student of your school; and (2) Write an application to the Mayor of the municipality of your town asking him to provide street lights	Students were asked to complete the letter writing activity as given in their text book.

	<p>in your locality; on the O.H.P. in the class and had asked students to read them. Researcher had asked few questions on the format of the formal letter such as greeting and, body parts (1st paragraph, following paragraphs and last paragraph of the letter). After this, researcher had displayed few informal letters on the O.H.P. in the class such as 1. Write a letter to your cousin describing your school's most recent special award ceremony. 2. Your old school friend resides in Ahmedabad. Your city is hosting an international art fair. Invite him to stay with you and visit the art fair in a letter. Researcher had asked students to read these letters aloud and then asked to find the differences between formal and informal letters in terms of vocabulary, greeting and body part of each type of letter.</p>	
<p>Sub unit 6: Reading pay –in- slip Objective - To enable students to read pay-in-slip.</p>	<p>Researcher had displayed the pay – in-slip on the O.H.P. and had distributed the same pay-in-slip in the class and had guided them on how to fill this form. As they discussed, researcher had asked students to fill-up the given form in the class. Students could also look at the model pay-in-slip, displayed on the screen.</p>	<p>Students were required to complete a pay-in slip provided by the researcher.</p>
<p>Sub unit 7: Reading Cheque book Objective - To enable students to read cheque book.</p>	<p>Researcher had displayed the cheque on the O.H.P. and had distributed the same cheque in the class. Researcher had guided the class on how to read the cheque and then displayed the model cheque with filled-in information on the O.H.P. to discuss it further in detail. This discussion followed by group activity to assist students to fill up the cheque.</p>	<p>Students were instructed to correctly complete the information on the cheque book given by the researcher.</p> <p>Unit test 4 – formative assessment of group ‘E’ and group ‘C’ -</p>

Unit 5 -The Grandmaster - This lesson described the life of young Vishwanathan Anand as a Chess champion. It described how his mother developed an interest in child Vishwanathan for Chess at the age of 6 and then it described his journey to become the world famous Chess Master. The aim of the unit was to develop interview skills.

Combined Strategy - YouTube and O.H.P

Content points with objectives	Procedural details	Evaluation details
Sub unit 1: Listening to an interview. Objective - To develop interview taking/giving skills	Researcher had played the recorded interview of Sachin Tendulkar from the YouTube on OHP in the class. Later, researcher had asked few questions on expression, gesture, type of interview questions and the skill of answering interview questions.	Researcher had given a list of mock interview questions as homework and students were expected to write their responses Students were asked to role-play the interview in the class.
Sub unit 2: Reading the lesson. Objective - To develop reading skill for specific purpose	Researcher had read the lesson as a model reading and had asked the students to read it after her. Researcher had asked the students to predict the contextual meaning of some of the new words while reading the text to reinforce the skill of reading.	Students were expected to accomplish the text book's comprehension questions.
Sub unit 3: Simple Tenses – Present / Past and Future Objective- To develop the skill of framing a sentence using the Present / Past /Future Tense.	Researcher had given few minutes to students to ask their partner about the food they like or don't like. Students had come out with answers like 'Sonal likes Pizza but she doesn't like Burger'. After this, researcher had displayed few sentences on O.H.P. such as "Sangeeta ate dinner. Reyansh reads the newspaper. Devanshi will sing a solo song in the school.", and had instructed students to label the sentences as Past, Present, and Future. This had followed by the display of the chart on the rules and examples of these tenses on	Students were expected to complete the Q.5 from their textbook.

	O.H.P. for illustration and discussion.	
Sub unit 4: Interview Objective - To develop interview taking/giving skills.	Researcher had shown the recorded interview of Vishwanathan Anand from YouTube on O.H.P. This had followed by role-play of the interview. Researcher had paired the students as one with weaker English skills and another with stronger English skills. Researcher had reinforced the interview techniques such as keeping eye contact, speaking clearly, asking follow-up questions, and remaining on the same topic are all necessary.	Students were expected to response to the dialogues of the Q.3 of the textbook. Unit test 5 – formative assessment of group ‘E’ and group ‘C’.

Unit 6: Cheetah’s Tears

This lesson was about the love of mother Cheetah for her baby. It described the pain of mother Cheetah on losing her cub. A hunter took her cub to fulfill his wish and after hearing her cry one of the wise man of the village returned her cub from the hunter. This unit also gave facts about the Cheetah.

Combined Strategy - YouTube and O.H.P.

Content points with objectives	Procedural details	Evaluation details
Sub unit 1: Listening Objective - To develop skill of listening for the specific purpose.	Researcher had played the video on the facts of Cheetah from the YouTube on O.H.P. in the class and then had distributed a list of questions to individual students on the facts about Cheetah to clarify their understanding. Researcher had asked the following questions– What is the height and weight of an adult Cheetah? Mention two differences between cheetah and leopard? How many cubs born at a time? And,	Students were expected to accomplish the activity ‘A’ and ‘B’ from their text book.

	what is the weight of a cub at the time of birth?	
Sub unit 2: Reading the lesson Objective - To develop skill of reading for specific purpose.	Researcher had read the lesson as a model reading and had asked the students to read it after her. Researcher had drawn their attention if they pronounced the words incorrectly. She had also asked to determine the contextual meaning of the new vocabulary words introduced in the lesson.	Students were expected to accomplish the text book's comprehension questions.
Sub unit 3: - Conjunctions. Objective - To develop the skills of writing complex sentences.	Researcher had displayed the chart on O.H.P. on rules and usages of the following conjunctions - 'either...or / neither...nor/ so...that/since/when/yet' This had followed by group activity on writing example sentences using the discussed conjunctions.	Students were asked to complete the textbook Q.5
Sub unit 4: Jumbled up sentences Objective: To develop the skill of rearranging the words to frame a correct sentence structure.	Researcher had displayed the list of jumbled up sentences on O.H.P. and had asked the students to work in pair to correct the given sentences. Before beginning the activity, researcher had gone through the understanding of the task. For example, <ol style="list-style-type: none"> 1. A sentence always begins with a capital letter. 2. Secondly, find the subject of the sentence because the words used in a sentence must be in a definite order; subject + verb + object. 3. Punctuation marks must be followed in a sentence. <p>The given jumbled up sentences were as below –</p> <ol style="list-style-type: none"> 1. useful / camel / is / animal/ desert / the / most / the / in / the 2. heavy /it / through / carry / can/ loads / sand / hot 3. feet / adapted / walk / are / its 	Students were expected to accomplish the Q.3 of the textbook on the jumbled up sentences.

	on LCD T.V. At the end of the video, she had asked questions i.e. What are the causes of Earthquake? What happens during Earthquake? How can you protect yourself in Earthquake? Students had worked in group to discuss the questions and then convey their points of view to the class.	others in Earthquake and, present the information in the class.
Sub Unit 2: Reading the lesson Objective - To develop reading skill for specific purpose.	Researcher had read the lesson as a model reading and had asked the students to read it after her. Researcher had drawn their attention if they pronounced the word incorrectly. She had also asked the class to determine the contextual meaning of the new terminology in the lesson.	Students were asked to complete the comprehension questions of the text book.
Sub Unit 3: Vocabulary on natural calamities Objective - To develop the specific vocabulary	Researcher had discussed few natural calamities such as flood, tsunami, and bush-fire in the class. She had shown the pictures of such calamities to give the visual image of the situation. She had also read out some of the newspaper cuttings on such natural disaster in the classroom and at the end she had asked students to share their experiences in the class.	Students were expected to search and write different words to describe flood, tsunami, and bush-fire and present the information in the class.
Sub Unit 4: Tsunami, 26th December, 2004 Objective - To give basic information on Tsunami	Researcher had shown the documentary on Tsunami of 26 th December in the computer lab on LCD T.V and had asked questions to students as given in their text book on page no. 64.	Student were asked to write down in detail the causes and effects of Tsunami and present it in the class.
Sub unit 5: Direct – Indirect Speech Objective – To be able to transform the sentences from direct into indirect speech.	Researcher had explained the rules with examples to turn the direct statements into indirect and had asked students to work in group to turn the following statements into indirect.	Students were asked to complete the textbook activity; Q.4, on direct – indirect speech.

	<ol style="list-style-type: none"> 1. The girl said, “I am happy”. 2. The mother said, “We cannot live without air”. 3. The man said, “We must educate our sisters”. 4. The second farmer said, “Your men have taken away everything”. <p>Role-play - researcher had randomly chosen any two students from the class for the role play. She had asked them to sit in the middle of the class to play the interview role play. In this role play, one of the students had to pretend as celebrity of his choice and other student had to ask him questions as an interviewer. The rest of the students of the class were the reporters and they need to note-down the answers of the celebrity. At the end of the interview, the researcher directed the reporters to present the celebrity's responses. This activity reinforced the practice to turn the direct statements into indirect statements.</p>	<p>Unit test 7 – formative assessment of group ‘E’ and group ‘C’.</p>
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Unit 8: Reduce Waste - This unit had depicted the importance of saving the environment by not throwing waste like plastic bags or broken glasses in water or on road because small and big animals as well as under-water animals can die by eating plastic or pieces of glass. It had recommendations on how to utilize some of the wastes; like the waste from kitchen can be utilized in the garden as fertilizer.

Combined strategy - O.H.P. and tape recorder

Content points with objectives	Procedural details	Evaluation details
Sub unit 1: Effects of waste on environment Objective – To	Researcher had shown the documentary on how the waste like plastic bags, used papers, and broken glasses affects the	Students were asked to collect information about garbage, resources, dumping, harmful bacteria, recycling and

develop awareness on the effects of waste on environment.	environment in the class on O.H.P. and at the end researcher had asked the students to write down the ways to save the environment from such waste.	compost from the internet and by using these key words present the information on how to reduce the waste in the class.
Sub unit 2 : Reading the lesson Objective - To develop reading skill for specific purpose.	Researcher had read the lesson as a model reading and had asked the students to read it after her. Researcher had drawn their attention when they pronounced the words incorrectly while reading. She had also asked to find the contextual meaning of the new terminology in the lesson.	Students were expected to accomplish the text book's comprehension task.
Sub unit 3: Past Perfect tense Objective – To develop the skill of using Past Perfect tense.	Researcher had shown the examples of the usage of past perfect tense on O.H.P. and then had asked the students to write few sentences using the same tense.	Students were asked to complete the text book exercise on Past Perfect tense.
Sub unit 4: Listening activity on 'Save Our Planet' Objective: to develop the skill of listening for specific information.	Researcher had implemented the listening activity in the class on 'Save Our Planet'. She had recorded the available online recording on 'Save Our Planet' (from https://www.esl-lab.com/academic-english/recycling-earth/) in the tape recorder and she had played the recording twice in the classroom. She had displayed the post listening questions on the O.H.P. students had listened to the tape recorder and had worked in pairs to answer the questions.	Students were asked to research on how paper and glasses are recycled, and to collect the information on the types of products that are produced from these recycled material and present the researched information in the class. Unit test 8 – formative assessment of group 'E' and group 'C'.

Unit 9 – This unit had the combination of the content from three poems; Growing Smiles, Rain in Summer, and Storm.

Poem 1. Growing Smiles – This poem had depicted the importance of smiling face.

Poem 2. Rain in Summer – This poem had illustrated the unusual rain of Summer in a beautiful way.

Poem 3. Storm – This poem had described the effects of storm on environment and on people in a poetic way.

Combined Strategy - YouTube and internet enabled computers

Content points with objectives	Procedural details	Evaluation details
<p>Poem 1 – Growing Smiles Poem 2: Rain in Summer Poem 3: Storm</p> <p>Objective:</p> <ul style="list-style-type: none"> - To enable students to recite the poem with clear pronunciation and in tune. - To develop the skill of illustrating the meaning of the poem. 	<p>Poem 1 – Researcher had recited the poem and then she had played the poem twice on YouTube in the computer lab. After that, the class had recited the poem along with the YouTube video. Researcher had explained the new words and had asked the students to work in group to illustrate the meaning of the poem in a nut shell. Researcher had asked the students to work in group and rewrite the 2nd stanza of the poem using their imagination in their own words. Researcher had discussed the comprehension questions with the class.</p> <p>Poem 2: Researcher had given the short introduction of the poet of the poem, W.H.Longfellow and then had gone through the new words of the poem such as – Fiery street Clatter Hoofs Gushes and</p>	<p>Students were expected to complete the comprehension questions of the given three poems from the text book.</p> <p>Students were expected to collaborate and write the poem in groups.</p>

	<p>Spout</p> <p>After that, researcher had played the poem twice on YouTube in the computer lab and the class had recited the poem along with the YouTube video. Researcher had explained the use of the figure of speech Simile with examples and had asked students to find out the Similes in the poem. Researcher had also drawn their attention towards the use of the rhyming words in the given poem. Researcher had asked the students to work in group and illustrate the meaning of the poem. Researcher had discussed the comprehension questions with the class.</p> <p>Poem 3: Storm</p> <p>Researcher had played the poem twice on YouTube in the computer lab. After that, the class had recited the poem along with the YouTube video. Researcher had asked the students to work in group and determine the contextual meaning of new words, and to compile a list of the poem's rhyming words. Researcher had discussed the comprehension questions with the class.</p>	<p>Unit test 9 – formative assessment of group ‘E’ and group ‘C’.</p>
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3.3 Methodology

The current study followed the ‘Developmental-cum-Experimental’ type study by nature. The following sections discuss the methodology in detail, including the study's design, population, sample size, data collection, and data analysis.

3.3.1 Design of the Study

The current study is a Developmental-cum-Experimental type of study that aims to assess the relative efficacy of an ICT-based strategy developed for teaching ESL. The researcher decided to administer the formative test at the completion of each unit and the summative test at the completion of the experiment on the experimental group 'E' while the regular English teacher of the school was given the same formative test to conduct at the same time at the completion of each unit and the same summative test to conduct at the same time at the completion of the experiment on the control group 'C'.

3.3.1.1 Designing Developmental Studies

As discussed by Patadia (1987), the primary advantage of developmental research is that it enables scientific examination of educational processes. The developmental approach broadens both the applicability and the understanding of the teaching process. One justification for employing developmental research is that sophisticated research designs would be unsuitable for studies in real-world conditions. However, this does not imply that scientific rigor must be sacrificed in such studies; instead, more effort must be made to identify appropriate research designs for development studies.

Guba (1965) proposed a variety of methods for designing studies, which he refers to as 'a-experimentation.' He discussed a strategy for conducting continuous time analysis on data that could aid the researcher in highlighting key events in his study. To illustrate this, Guba (1965) provided an example of how educational films might be used as an instructional tool. He stated that continuous measurement of the criterion across time can be plotted against time. This time-series design sounds very similar to quasi-experimental design given by Cambell and Guba (1965). In the time-series design, a periodic measurement procedure occurs on some groups or individuals, and an experimental modification is incorporated into measurements of time-series, resulting in the time-series of measurements being discontinued.

Another technique was suggested by Yates (1971). He stated that retrospective interviewing may be used to elicit information about the origins of observed phenomena.

The disadvantages of this technique are the lack of control over variables and the inability to limit the number of subjects tested. This strategy can be viewed as a jumping-off point for the development of methods suitable for developmental studies in certain contexts (Patadia, 1987).

Different educationists suggested various designs of developmental research. Here it is very important to mention that all of these designs are undefined and untested. and As a result, they would require additional adjustments to enable them to be used in certain research circumstances. In addition, all of these techniques may not be found in a single educational study. There are a variety of research methods that can be used to maximize the amount of new information that is gleaned from any given study (Patadia, 1987).

3.3.1.2 Developmental-cum-Experimental Study

The researcher has two primary objectives in this study. One objective was to develop an ICT-based strategy to teach ESL at IX standard Gujarati medium school of Gujarat, India, and another was to implement this developed strategy to study its effectiveness. To achieve these two main aims, the research decided to teach ESL at IX standard in a selected school with the developed ICT based strategy within a particular system and without resorting to any elaborate sampling process. The researcher did not conduct an experimental study in a strictly controlled laboratory setting, as is customary when undertaking solely experimental research. This is a fundamentally developmental type study in the sense that it is anticipated that the instructional inputs of teaching ESL through the developed ICT strategy will have a measurable effect on the experimental group's achievement scores. So the researcher implemented the instructional inputs according to the developed ICT-based strategy in their natural environment and without causing undue disruption to the natural environment for experimental objectives. Thus, the current study is planned in accordance with the standards outlined in 'a – experimental study,' where the primary objective is to conduct research within realistic conditions (Patadia, 1987). However, treatment comparison was carried out according to the experimental designs. The students of two groups of IX standard were selected for the comparison of the treatment.

The researcher had selected experimental group 'E' and control group 'C' randomly from available equivalent three groups of IX standard Gujarati medium school of Vadodara, India. By the policy of the school, all classes were grouped equivalently with respect of students' academic performance. As a result, the researcher allocated randomly one class to the experimental group 'E' and other to the control group 'C'. Hence the constitution of the control group was not in the strict sense as it would be in the pure experimental study. It was planned to administer the formative test at the completion of each unit in both groups and the summative test at the completion of all units in both groups to compare their performances while following the developed strategy's instructions. However, the groups were compared based on academic accomplishment to determine the effectiveness of the developed strategy. Statistical analyses such as mean, SD, t-test, and p-test were calculated on the percent of scholastic achievement scores in both groups to measure the efficacy of the developed strategy.

Thus, while the present study followed some predefined requirements for statistical analysis of an experimental study, it was not conducted in a strictly controlled environment and adhered to developmental research ethics. Thus, an ICT-based strategy was devised and deployed in an existing setting without regard for external variables indicating that the current study was developmental-cum-experimental type in nature.

3.3.2 Population of the Study

Students in Gujarati medium schools of Gujarat in IX standard made up the study's population.

3.3.3 Sample of the Study

The sample for this study consisted of all students in the experimental group 'E' and the control group 'C' of the IX standard Vidyut Board Vidyalay Gujarati Medium School in Vadodara.

The researcher approached Gujarati Medium schools in Vadodara city to select the school for the sample which had internet enabled computer, tape recorder, OHP and LCD TV facilities and which also had at least two groups of the IX standard students. Whichever school met these two criteria and the school which granted first permission to conduct the

experiment, the researcher selected that school to conduct the experiment. Vidyut Board Vidyalay Gujarati Medium School of Vadodara met the above mentioned two criteria and also this school was first among such schools to grant the permission to conduct the experiment so the researcher selected this school as the sample of the study to conduct this experiment. Thus, the students of two groups of IX standard of Vidyut Board Vidyalay Gujarati Medium School constituted the sample for this study.

3.3.4 Procedure for Data Collection

This study's focus was on two primary areas: the development of an ICT-based strategy for teaching ESL and its actual implementation to determine the efficacy of the developed ICT-based strategy. The approach for developing an ICT-based strategy was previously explained in Phase II. To determine the effectiveness of the developed ICT-based strategy, two types of scholastic achievement tests were devised: formative and summative tests. At the completion of each unit, the researcher administered formative test to the experimental group, while a regular school teacher administered the same test to the control group. Similarly, following the completion of nine units, the researcher delivered a summative test to the experimental group, while a regular school teacher administered the identical test to the control group. The researcher corrected the formative and summative test papers for both groups and obtained the scores of individual students in both groups. After administering summative tests to the experimental group, the opinionnaire (developed in phase III) was administered to the experimental group.

3.3.5 Data Analysis

The scores of the scholastic achievements on the formative and summative tests of the students of both the groups were analyzed quantitatively using appropriate statistics to calculate the percentage, mean, SD, T-value, and P-value. P-value was calculated using online calculator on <https://www.mathportal.org/calculators/statistics-calculator/t-test-calculator.php>.

To analyze the reflections of the experimental group on the effectiveness of each component of the developed strategy, the researcher had calculated the percentage of the scores of each item (statement) of the implemented 5 Point Likert Scale and then divided each statement into 5 categories, according to 5 components of the ICT-based strategy viz, internet enabled computers, O.H.P., YouTube, Tape recorder and LCD T.V., to find the effectiveness of each component (Robbins & Heiberger, 2011). The following chapter provides a detailed analysis.

3.4 Summary

This chapter has offered an overview of the researcher's strategy and procedures for carrying out the experiment in order to accomplish the study's objectives as stated in the first chapter. This chapter contains thorough information on the methodology, development of data gathering tools, and data analysis procedures. The following chapter presents analysis and interpretation of data with extensive implications.