

## **ERROR ANALYSIS: A STATISTICAL APPLICATION AND METHODOLOGICAL EXPLORATION OF CORDER'S PARADIGM IN TEACHING AND LEARNING**

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### **Abstract**

Error analysis (EA) tracks errors that arise from L2 learners and ascertain their recurrence and redundancy to explain their causes. S.P.Corder is the Pioneer of Error Analysis's status as a scientific linguistics approach. In this article, the researcher briefly showcases the paradigm of Corder's five steps in Error Analysis. Firstly, in the collection of a sample, the type of task, data elicitation, and learner's demographic factors are briefly mentioned. Secondly, the identification of linguistic categorisation and surface structure categorisation are described. Thirdly, the syntactic and grammatical errors of the five opted grammar parts are classified. Fourthly, in explaining the errors, the researcher elaborated on the possible sources of learners' errors. Finally, the evaluation of ideas judges the seriousness of learners' errors. For this research, 120 students from two intact classes were divided into experimental and control groups. Both groups were given a pre-test and a post-test to know their writing achievement before and after treatment. Data were analyzed through an Independent Sample t-test, ANOVA, Cohen's D Effect Size, and Gain Score Analysis in SPSS version 20 software. The experience described in this paper tells us that error analysis supports the purpose of language teaching. When teachers realize the nature of students' errors and their possible sources, they make better decisions and fulfil current pedagogical and professional demands.

**Key Words:** Error Analysis, Corder, Statistical Analysis, T-test, ANOVA, Cohen's d effect size, Gain score analysis

### **1. Introduction**

Indeed, the understanding of errors in second language (L2) learning has shifted from considering them mere errors to recognizing their value as indicators of the learning process. This change in perspective has led to various important insights. Corder's work in 1967 marked a significant shift in the perception of errors. Gass and Selinker's work in 1983 highlighted that errors could provide insights into a learner's level of competence in the target language. The types of errors made and their patterns could reveal the specific areas that a learner is struggling with and also allow instructors to tailor their teaching accordingly. Errors also serve as a valuable tool for teachers. By analysing errors, educators can assess the effectiveness of their teaching methods and the importance of revamping the curriculum. Identifying common errors can help to prioritize which aspects of the language need more attention in instruction. Conducting error analysis can

provide insights into the sources and causes of errors. Once the sources of errors are understood, educators can determine the sequence and emphasis of instruction. This is crucial for designing targeted interventions and instructional approaches that address learners' specific challenges. In language learning, tenses, prepositions, articles, concord, and redundancy are crucial components. The majority of students lack the proficiency to employ grammatical component forms correctly and efficiently, which is the basis for the current study. The purpose of this research is to identify and assess many issues surrounding these parts and also strive to provide appropriate reasons to address the majority of the problems that students face in this area.

## 2. Significance of Learner's Errors

The significance of learners' errors in language learning is substantial, as errors play a crucial role in the language acquisition process. Errors often reflect the learner's current stage of language acquisition. As learners progress, their errors tend to become more complex and demonstrate a deeper engagement with the language. Monitoring and analysing errors can provide insights into a learner's development.

Error Analysis proposed by Stephen Pit Corder in the 1960s is a significant approach to understand and explaining the errors made by second language learners. His article titled "The Significance of Learners' Errors" focused on the analysis of language learners' errors and their implications for language teaching, research, and learning. Corder suggested that errors made by language learners can provide valuable insights to teachers, researchers, and learners themselves. First, the teachers can interpret the errors to understand the underlying cognitive processes that learners are using to acquire the language. Errors can also help teachers create targeted exercises and activities that address the specific linguistic needs of their students. In this way, errors become diagnostic tools that guide instructional decisions. Second the researchers, by analysing errors, can uncover the rules, patterns, and structures that learners are gradually internalizing. Third for learners, errors can be powerful learning opportunities. When learners become aware of their errors, they can actively engage in self-correction and reflection. Errors can encourage learners to focus on the specific aspects of language that challenge them the most.

## 3. Review of Related Literature

The research paper "*Error Analysis*" by Mukhtar Nasser Hawash Muqbel, published in 2018, makes an effort to define error analysis. Definitions of errors, the stages of error analysis (detect, describe, and explain), and the importance of errors are all included. Additionally, it distinguishes between errors and mistakes, lists sources of errors, and categorises errors.

A paper titled "*An Examination and Analysis of a Learner's Errors from the Perspective of a Pedagogical Grammar*" by Farah Chaudary and Mario R. Moya (2019) presents and discuss the theoretical background on error analysis whilst reflecting on the role of errors in SLA and also identify and analyse the errors taken from a learner's written work following the framework put forward by Dulay, Burt, and Krashen (1982).

A 2020 article titled "*Error Analysis in English as a Second Language Students' Writing*" by Mahrukh Shakir, Alia Rasool, and Marina Khan examines the learners' proficiency in a second language by identifying, analysing, and explaining the various types of errors they commit at the sentence level as well as the potential causes of these errors.

In the paper, "*A Review on Error Analysis stages in Teaching English Structure*" published in 2022, Evi Agustinasari, TiurSimanjunta, and Muhammad Bambang Purwant identified four main stages of error analysis: detecting, locating the errors, describing the errors, and classifying the errors. Each stage provides detailed information about students' performance that helps teachers improve the quality of their instruction, including the subject matter and presentation methods.

The writing of third-semester students of Bina Sarana Informatika University is examined in an article, "*An Analysis of Errors in English Writing: A Case Study the Third Semester Students of UBSI*" by Lia and Cicih in 2021 with an emphasis on grammatical, semantic, and substantive errors. The most common errors are in the capitalization, tenses, verbs, and literal translation, followed by adjectives, subject-verb agreement, punctuation, and spelling.

200 English sentences from Sriwijaya State Polytechnics students were assessed by Evi and colleagues in 2021's "*An Error Analysis of English Sentence Construction in Writing Subject*," with an emphasis on errors in grammar. The most frequent errors were the misuse of prepositions, improper third-person singular verbs, and absence of articles. The study assists instructors in choosing efficient teaching strategies and resources, as well as syllabus designers and exam conductors. Students should utilise English Structure textbooks with exercises and skills connected to grammatical errors to overcome typical errors.

English sentence structure errors have been studied in paragraphs written in English by fourth-semester students at IAIN Curup in "*Error Analysis of English Sentence Structure in Students' Written Paragraphs*" by Dike Sundari and Team in 2021. The study's mixed-method approach produced quantitative results that identified four different forms of errors: omission, addition, misformation, and disordering. Qualitative research results uncovered elements including mother tongue influence, overgeneralization of English rules, and the teacher's instructional style. To lessen these writing errors, the research recommended reading ideas connected to SLA and EFL instruction. It also covered interlanguage theory.

#### 4. Research Gap

The researcher discovered three important gaps from earlier research and literature, the first being the contextual gap, the second the methodological gap, and the third the empirical gap.

**4.1. Contextual Gap:** This gap pertains to the absence of research conducted in specific contexts related to Corder's model. The demographic contexts mentioned include aspects like gender, medium of instruction, board of studies, location of college, parents' educational qualifications, and parent's annual income. The above said review of literature lacks exploration and investigation of how Corder's steps apply and function within these specific contextual factors. Addressing this

gap would involve conducting research that delves into how these factors might influence the application of steps and checking whether any variations emerge due to these contextual variables.

**4.2. Methodological Gap:** The methodological gap indicates that previous studies may have shortcomings in their research methodologies or might lack certain perspectives necessary for a comprehensive understanding of the topic. The mention of inconsistencies and contradictions in studies related to Corder's steps suggests that the methodologies used in these studies might not have been uniform or robust enough to provide clear insights. The mention of categorizing studies into "Control and Treatment groups" indicates a need for a more structured and standardized approach to studying Corder's steps.

**4.3. Empirical Gap:** This gap highlights that the earlier studies have primarily focused on applying Corder's steps rather than conducting in-depth analyses of the topic. The review of the literature mentioned above has more descriptive information, but there's a lack of empirical research which involves deeper and critical analysis.

## 5. The Aim and Objectives of the Study

The aim is to apply Corder's five steps in conducting error analysis in written tests and to investigate the sources of errors committed by sophomores.

The objectives are

- 1) To collect the samples
- 2) To identify the errors
- 3) To describe the errors
- 4) To explain the errors and
- 5) To evaluate the errors

## 6. Corder's Error Analysis

### 6.1. Collection of a sample of learner language

The very first step for error analysis is the data collection step. In this first step, the researcher collected samples from 120 sophomores from 4 major disciplines in Thanjavur District. The researcher explained the research and conducted item analysis to standardise the multiple-choice questions. The test was conducted on 5 opted grammatical parts with 55 multiple-choice questions. For this experiment, two colleges were taken for the Control Group (Maruthupandiyar College (Arts and Science) and Bon Secours College for Women) and two colleges were taken for the Experimental group (SASTRA University B.Ed., Programme (English, Mathematics and Physics) and (Annai Vailankanni Arts and Science College). To analyse the errors of students in their written language, the pre-test was administered as a diagnostic test rather than a means of calculating their progress. After a week, different methods were taught to the students to measure their level of achievement and improvement by comparative analysis. Then the post-test,

which included 55 multiple-choice questions with 4 options, was completed by the students. The questionnaire contained socio-background information namely the respondent's name, location of the college, gender, medium of instruction, board of study and parents' literacy and economic status. After 10 days, the retention test was carried out to test the knowledge on 5 opted grammar parts.

## 6.2 Identification of errors:

This is the step of erroneous language use and comparing it to possible correct usages. In identifying and description of errors, interpretation is an important task. The errors are presented under different labels of the type they belong to.

Most grammatical errors were identified in tense form. Tense is one of the most troublesome areas for the students. The students find difficulty as to when and how to use the tenses. One of the major errors concerning tense is a tense shift and the inconsistency of using the right tense. The greatest difficulty the students have with the English verb tense is in conveying the intended discourse meaning of a verb in context. They use present tense where past tense should be used or past tense instead of present tense.

## 6.3. Description of errors:

When the researcher identified the errors, she described them in different categories depending on which type of error it was, e.g. if it was verb-related. The syntactic errors are presented below.

Learner Errors	Correct Version
Steven Spielberg <i>was direct</i> TV programmes and then he <i>was starting</i> to direct films.	Steven Spielberg <u>directed</u> TV programmes and then he <u>started</u> to direct films.
What did they <i>saw</i> in the aquarium?	What did they <u>see</u> in the aquarium?
When Tom arrives we <i>will has</i> a party.	When Tom arrives we <u>will have</u> a party.
<i>Have you see</i> Tom yesterday?	<u>Did you see</u> Tom yesterday?

### 6.3.1. Present Tense instead of Past Tense

The highest number of errors was found in the use of the present tense instead of the past tense. The following example illustrates this type of error: '*Nobody wear the school uniforms*

*yesterday.*' As is obvious the learner has used the present tense for a verb where it should be past. The verb should refer to past time because in the context the learner gives information about the time of the event, which is before the time the learner writes. The above error seems to have occurred because they memorize the forms of verbs but when it comes to use they often make errors.

### 6.3.2. Past Tense instead of Present Tense

In the sentence '*Daily, I go to bed early but my brother **went** to bed very late*', the learner talks about habitual actions in the present. Therefore, the verb should carry the present tense instead of the past tense. It usually happens when students try to write a sentence, they forget the tense while writing and switch from present to past.

### 6.3.3. Future Tense instead of Past Tense

'*One day I went to a river for bathing with my friend. There we bathed many times in the river. After that my friend **will wear** clothes.*' In the given example, simple past tense is needed. Instead of 'wore' student has written 'will wear' which makes it ungrammatical. The student thinks that the words 'after that' indicate future.

Even though students made more errors in present, past and future tenses than other tenses; this does not mean that students have full mastery of other tenses. They lack knowledge or simply avoiding using them. Tense errors might also be attributed not only to mother tongue interference but also to intralingual factors. It seems that the learners might not have adequately understood the actual meaning and discourse functions of the English tense since it is not contextualized and teaching is generally based on only presenting the rules of the English tenses. They are quite unable to apply the rules they have been taught.

## 6.4. Explanation of error

The researcher discovered the origins of the errors of pupils in descriptive texts in order to explain errors. According to Chelli (2013), interlingual errors stem from language transfer, which is brought on by the learner's native tongue. Interlingual errors occur when students make mistakes when translating into the target language by relying on their L1 linguistic skills (Richard 1974). Interlingual errors are errors that are ascribed to the native language, according to Corder (1974). These errors arise when learners' habits—patterns, systems, or rules—obstruct or hinder their ability to pick up the target language's patterns and rules. Renowned linguists and psychologists have conducted extensive study and developed comprehensive theoretical frameworks in the area of second language learning. Theoretical work on the forms and determining variables of mother tongue transmission is especially well-developed and methodical. According to Al-Khresheh (2010), literal translation is the source of interlingual error.

1. Mother tongue Interference: Rather than transmitting models from their original language, learners make errors in their endeavour to understand the structure of the target language.
2. Literal Translation: When a learner interprets a statement or idiomatic expression from his original language word for word into the target language, errors occur.

The errors made due to pupils' ignorance were a reflection of intralingual errors. According to Richard, four kinds lead to intralingual errors (1972). Examples of intralingual errors exist.

1. Overgeneralization: This indicates that the learners are creating an abnormal structure in the language of instruction. For instance, pupils generalize the past tense "-ed" and add "s" to multiple verbs. Due to oversimplification, the researcher in this study discovered a few grammatical errors. For example: She has many friends and gets *many loves* from her friends. The overgeneralization error of the phrase makes it wrong. The student in the example put the uncountable noun and determiner in the wrong location. Since "love" is an uncountable noun, the letter "s" should be removed and replaced with "a lot of." The following is how the pupils may correct this: She has many friends and gets *a lot of love* from her friends.
2. Ignorance of Rule Restriction: This is the result of learners ignoring the target language's preexisting structures and creating improper sentences; this is caused by a lack of understanding of rule constraints. For example, in the Simple Continuous Tense, substituting "are" for a single noun, "who" for an animal, and dropping the "-ing". *She born* two years before me, for instance. Since students ignore the L2 grammar structures in the aforementioned instances, ignorance of rule limitation occurs in this situation. The sentence does not contain the word "was," which is supposed to be there. This example shows how students can write descriptive texts without following rules because they lack the necessary grammar knowledge. They can correct the sentence to read: *She was born* two years before me.
3. Incomplete application of rules: When students are unable to fully produce pleasant sentences using a defined English structure, they presume that communication may be created by following a simple guideline. For instance, removing the word "do" from the inquiry phrase "you take this subject?" In this statement, the auxiliary verb "do" should take precedence. Examples of the incomplete application of rule errors in this study include the following sentences: 1. He is fat *because likes* to eat. 2. *He also* not fat. These two instances are false because the students created sentences using a basic rule that they believed were understandable. The student in example (a) did not provide a subject following the word "because." The researcher makes the assumption that the learner formed the statement using a simple rule. In the other instances, the student excluded the subject—which is essential to the sentence—after "is." Among these errors is the rule's insufficient application. Consequently, the researcher proposes modifying the statements to: 1. He is fat because *he* likes to eat. 2. *He is* also not fat.

4. False concepts hypothesized: It results from the students' poor understanding of target language divergence, which makes it impossible for them to distinguish between two words with different meanings. However, they believe those terms to be interchangeable synonyms. In the sentence "I do a mistake," the word "do" is used instead of "make." Although these terms have distinct meanings, pupils believe they may be used interchangeably. Examples of incorrect notions that have been predicted in this study include as in a. [...] because Priya is funny and nice. It demonstrates to readers that the example uses the wrong word and that the student is unable to distinguish between the meanings and applications of "nice" and "pleasant," assuming that they are equivalent. It can be rewritten as [...] because Priya is funny and pleasant.

### 6.5. Evaluation of errors

Determining the significance of a student's errors is a necessary step in the evaluation process. The concepts of global and local errors are introduced by Ellis (1997). Incorrect word order in a sentence is a global error. Errors that impact individual words within a phrase are known as local errors. Inflections of nouns and verbs, as well as improper usage of articles and prepositions, are all involved. The results of this study indicate that pupils mostly employ local errors. Therefore, the local errors are eliminated with appropriate pedagogical activities. The researcher evaluated the errors made and used the errors' weight or severity to determine which grammatical regions needed correction.

### 7. Data Analysis

The data was first entered into Excel files and then exported into SPSS(R) 20.0 version. Thus, using SPSS software, the present study results were analyzed. Missing data, outliers, and logical checks were performed at the first level. The accuracy of the data was checked by proofreading the questionnaires against the SPSS data window. **Data were analyzed through an Independent Sample t-test, ANOVA, Cohen’s D Effect Size, and Gain Score Analysis in SPSS version 20 software.**

**Table – 1**  
**The table that shows the mean and standard deviation of**  
**Control and Experiment Group in Learning the Grammatical Categories of English**

Score	Group	Mean	SD
Pre-Test	Experimental Group	19.83	4.94
	Control Group	15.83	3.45
Post-Test	Experimental Group	49.45	1.60
	Control Group	22.03	4.05
Retention Test	Experimental Group	46.86	1.77
	Control Group	18.83	2.83

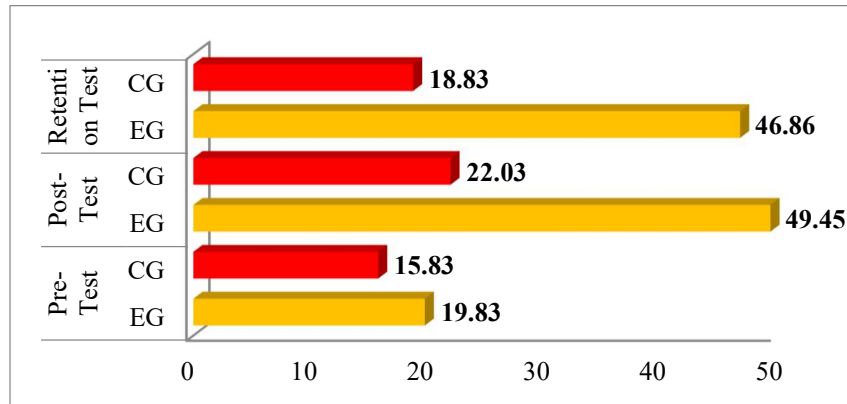


**Table – 1.1**  
**ANOVA Analysis of Control and Experiment Group in Learning the Grammatical Categories of English**

Group	Test	Sum of Squares	df	Mean Square	F
Control Group	Between Groups	1153.30	2	576.650	47.640
	Within Groups	2142.45	177	12.10	
Experimental Group	Between Groups	32292.4	2	16146.21	1603.64
	Within Groups	1782.11	177	10.06	

The calculated ANOVA values for the Control and Experimental group are 47.64 and 1603.64 is higher than the table value. Hence, there is a tremendous improvement in the achievement means score of the students in the post-test of the experimental group in learning the grammatical categories.

**Graph – 1**



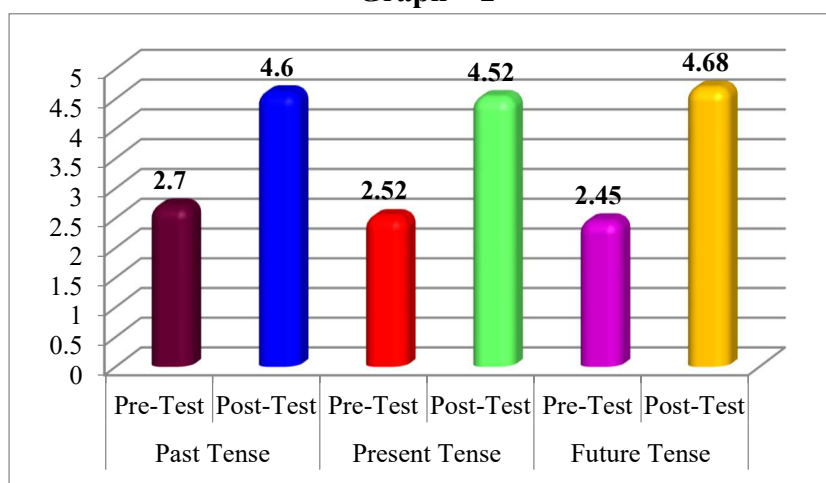
**Table – 2**  
**Mean Score Difference between the Pre-test and Post-Test of the Experimental Group in learning Past Tense, Present Tense and Future Tense**

Group	Tenses	Test	N	Mean	SD	t-value	df	Sig
Experimental Group	Past Tense	Pre-Test	60	2.7	106.6	10.19	59	P<0.01
		Post-Test	60	4.6	16.4			
		Pre-Test	60	2.52	114.98	10.28		

	Present Tense	Post-Test	60	4.52	18.98	11.94		
	Future Tense	Pre-Test	60	2.45	110.85			
		Post-Test	60	4.68	12.98			

The above table shows that the calculated t-value is greater than the tabulated t-value. The formulated hypothesis is accepted at a 0.01 level of significance. Hence, there is a significant difference between the pre-test of the experimental group and the post-test of the experimental group in learning tenses. It is also observed that the mean score values of the post-test of the experimental group are greater than that of the pre-test of the experimental group. Hence, it is concluded that the method enhances the achievement of students in learning the tenses.

**Graph – 2**



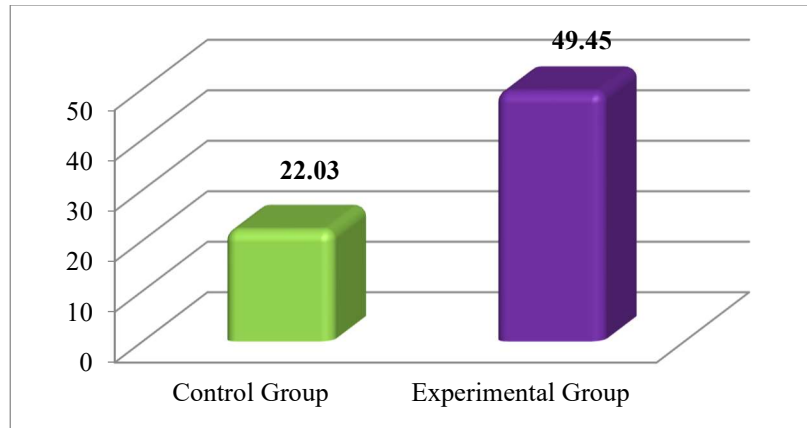
**Table – 3**

**Cohen's D Effect Size Analysis of the Post-Test of the Control and Experiment Group**

Test	Group	N	Mean	Pooled SD	Effect Size
Post-Test	Control Group	60	22.03	3.079	8.90
	Experimental Group	60	49.45		

From the above table, from Cohen's D analysis of effect size (0.2-0.5 = Low effect size, 0.5- 0.8 = Medium effect size, above 0.8 = Large effect size), the post-test scores of the Control and Experimental group (8.90) are high. Thus the language intervention between the control group and experimental group has been effective.

**Graph – 3**



**Table - 4**

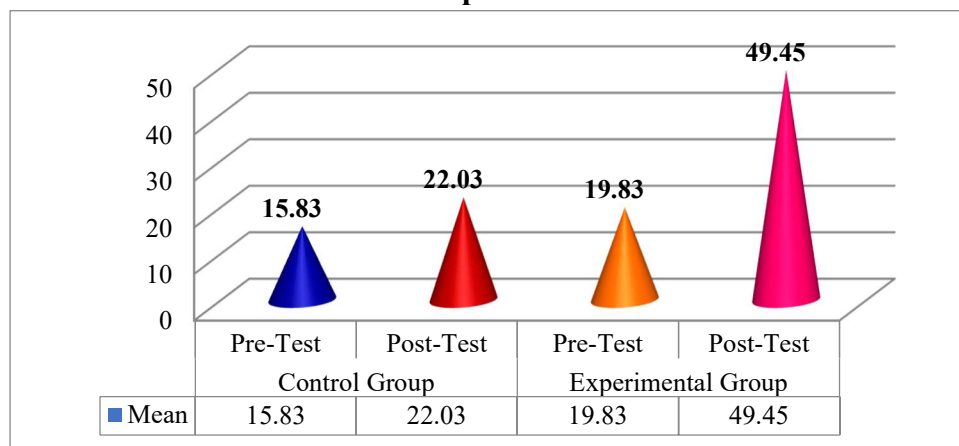
**Gain Score Analysis of the Pre-Test and Post-Test of the Control and Experiment Group**

Group	Test	N	Mean	Effect Size
Control Group	Pre-Test	60	15.83	0.073*
	Post-Test	60	22.03	
Experimental Group	Pre-Test	60	19.83	0.36**
	Post-Test	60	49.45	

\*Low Gain Score \*\* High Gain Score

From the above, the gain score analysis is high in the Experimental group (0.36). There is a significant difference between the Pre-test and Post-test of the Experimental group concerning gain score. Thus the gain score analysis represented the amount of change that occurred for each individual as a result of the intervention.

**Graph – 4**



**8. Delimitations of the Study**

The study focuses only on the errors that learners undergo when using prepositions, concord, redundancy, tense, and articles. The current research is limited to undergraduate students

at SASTRA University, Annai Vailankanni College, Bon Secours College for Women, and Maruthupandiyar College who are majoring in English, Physics, Education, and Mathematics. There were 55 multiple-choice questions with four alternatives offered to the informants for the suggested Pre-test, Post-test, and Retention Test employed in this study.

## 9. Conclusion

Learning a foreign language requires effort and dedication on the part of the teacher as well as the student. To identify and change the teacher's perspective and re-evaluate her approach to the student's knowledge, error analysis is unquestionably a vital instruction. Teachers' ability to make better judgments and meet the demands of both the profession and the classroom will improve when they understand the nature of their students' errors and the possible causes of them. Regarding error analysis, its category divisions may not always be exact since several sources may emerge as potential impacts on an error, allowing them to be substituted with various possibilities. As a result, there may be more than one reason for errors throughout the error analysis process, and the sociocultural setting may also play an important role.

We may infer from the experience reported in this study that error analysis serves the goal of language instruction. Additionally, it can help learners become more proficient communicators, acquire new information, and alter their awareness of errors. As we educate, we may also influence cognitive processes and other changes by helping learners become aware of their errors. Students' choices and level of participation in the language learning process are determined by their unique experiences with language and life. Teachers can better comprehend what factors are influencing students' learning by having a deeper understanding. **When teachers realize the nature of students' errors and their possible sources, they make better decisions and fulfil current pedagogical and professional demands.**

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