

# Review of True Experimental Research Studies in Applied Linguistics

Shahla Qasim \*

GC University, Faisalabad, Pakistan  
Shahlaqasim1@hotmail.com

Zeba Imtiaz

G C University, Faisalabad, Pakistan  
Fatima-ahmad1995@hotmail.com

Urooj Alvi

G C University, Faisalabad, Pakistan  
uroojalvi@hotmail.com

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## Abstract

The purpose of this paper is to provide an overview of true experimental research studies in the field of Applied Linguistics and to highlight the methodology and statistical application employed by the researchers. A total of ten true experimental studies are reviewed. The perspectives emerged from these studies have been identified and discussed.

## 1: Introduction

Experimental method is a scientific and systematic approach to research in which “experiments are carried out to explore the relationship between variables” (Nunan, 1992). Experimental research in applied linguistics is intended to “uncover causal links by answering questions such as “What’s the reason for”, “What happens if? / when.....? and what effect does something have.....? Dornyei, (2011).

True experimental research is one of the types of Experimental research which has gained enormous significance in sciences such as sociology, psychology, physics, chemistry and medicine. In Applied Linguistics, Experimental research studies have increased in quantity as they are deemed to establish more reliable, quantified and statistically measured results.

Experimental research contains three main components; dependent variable, independent variable and treatment. *Dependent variable* receives stimulus and is measured for the effect the treatment has had upon it. *Independent variable* is a part of the situation that exists from which originates the stimulus given to dependent variable, includes treatment, state of variable, such as age, size, weight, etc. *Treatment* means either removal or addition of a stimulus in order to measure an effort.

### 1.1. Types of Experimental Research

Experimental research may be of three types; Pre experiment, Quasi experiment and True experiment. All these types have contrastive characteristics.

Pre experiment may have pre- and posttest but lacks a control group.

Quasi experiment has both pre- and posttest and experimental and control groups, but no random assignments of subjects.

True experiment has both pre- and posttests, experimental and control groups, and random assignments of subjects (Nunan, 1992).

This paper aims to review true experimental studies in Applied Linguistics

The criteria of selecting studies for this review are twofold:

- 1- The topics must fall within the area of true experimental mode of research.
- 2- The data undertaken must be analyzed by using a statistical measure.

## 2: Review of True Experimental Studies

This section will present a review of ten experimental studies conducted in the field of applied linguistics. Major research ideas emerging from the collected studies concern with the areas of English language teaching methods, integrated approach of learning skills and use of technology in improving academic performance of students.

### 2.1. English language teaching Methods

Three studies are located on different methods of English language teaching and learning in Communicative

language teaching paradigm. The effects of Task based language teaching (TBLT) on reading comprehension (Malmir, *et al*,2010), Task based language learning and student motivation in vocabulary acquisition (Thanh, Huan, 2012), The effects of Project based learning on students' academic achievement (Bas, 2011).

Malmir, *et al* (2010) made a comparative analysis of the effect of task based language teaching(TBLT) and content based language teaching(CBLT) on reading comprehension. Two groups, one experimental and one controlled, comprising 30 students in each were chosen randomly. A reading comprehension pretest was given to examine their homogeneity. Group A was taught reading comprehension through TBLT and group B through CBLT. Thang, Huan (2012) took data from 76 students randomly placed in two groups. This study employed tests, questionnaires and interviews to check the level of students' motivation regarding task based method. Study conducted by Bas, (2011) gathered data from 60 students randomly assigned two groups. In the experimental group, cooperative learning method was applied and in controlled group, instruction based student text book was used.

Malmir, *et al* (2010) used SPSS to describe performance of groups on the pretest and posttest. T test revealed that subjects in TBLT group performed better than the subjects in CBLT group. Thang and Huan(2012) used four analytical tests (scale test, descriptive statistic test, independent sample t-test and paired sample t- test) to analyze and interpret data.

In third study, statistical analyses were made via SPSS 17.0. Statistical techniques such as mean, standard deviation (Std. Dev.) and the independent samples t-test were used in the analysis of the data. The *p* value was held as .05 X.

All these studies explored the effectiveness of methods which reflect theoretical underpinning of communicative approach. The innovative methods employed by the researchers contribute significantly in promoting interest and motivation level of learners. The pedagogical implication of these studies may be extended if they simultaneously take into account the development of spoken proficiency of learners, which is missing in the reviewed studies.

## 2.2. Development of skills

Four studies are located on development of skills. The effects of reading strategies instructions on students reading comprehension (Pimsarn, 2009), Impact of brain storming strategies on EFL learners Soudi and Haririan (2013, the effectiveness of clustering technique to teach writing skill,(Styati; 2010) and an experimental study of the effect of listening on speaking for college students (Zhang,2009).

Pimsarn, 2009, employed pretest- posttest, control - experimental group research design, containing 30 members in each. Soudi and Haririan (2013) selected 84 students of intermediate level to form four classes, two severed as experimental and two as control. General English proficiency test was conducted to ensure homogeneity. Pre- test of all the students was held and scores were measured. Experimental group participated in 12 sixty minutes session following a post test. Styati, 2010, took data from 40 students divided in to two classes i.e. control and experimental. Control group was taught writing skill by using traditional method while experimental group was taught skill by using cluster technique.

The study conducted by Zhang, 2009 selected 50 students randomly divided in to two groups. Test of spoken English design by ETS was used to identify the oral English ability of participants. CET was conducted to check the listening comprehension.

The first study by Pimsarn (2009) used statistical analysis, but no difference was found in performance of both groups. This is the only study which used quantitative plus qualitative methods .So through interviews, it was gathered that reading strategies have a positive outcome and students felt highly motivated. The second study employed statistical parameters of mean and standard deviation to conclude that brain storming strategies play a vital role in developing the interest and motivation level of the students. Styati, (2010) applied descriptive and inferential statistics using ANOVA and Tukey test to prove the efficacy of the clustering technique to teach writing skill. Zhang, 2009 employed correlation analysis to find the relationship between participants' listening and speaking ability. T- Test and SPSS version 11.5 was used to compute descriptive statistics and to perform Pearson product- moment correlation.

All these studies seem to emphasize the development of reading and writing skills. The comparatively more important skills of listening and speaking are given scant attention. The researches should be initiated keeping in view the objective of improving spoken proficiency of students.

## 2.3. Technology oriented approach

Three studies were located which have used innovative methods to assist English teaching and learning process. Web based CALL to listening comprehension (Chen and Zhang, 2011), Examining the role of computer in EFL instructions (Chen, 2011), The EFL pre- service teachers English language writing experience through Wiki (Genc and Gulozer, 2008). The first study gathered data from two groups of students. The experimental group comprised 269 subjects and control group 260. Both groups took traditional English classes in first term. In the

end of first term, University standardized English test was held taken as pre-test. Both groups attended Web based CALL in second term following a posttest.

Purpose of second study was to explore whether the addition of CAI would have an effect on reducing the EFL students written error rates. The study examined two groups comprising 50 students each. Control group received traditional input while experimental group received CAI instruction to support traditional input. A post writing assessment was administered and errors identified by two native speakers of English to maintain inter-rater reliability. Noticeable fact is that no significant difference was found in the performance of both groups. Reason may be attributed to short duration of computer training (4 weeks duration, 4 hours a week). So, more time should have been spent in CAI instruction to have significant results. Data may also be increased to explore in depth.

Third study was aimed to find out difference between pre- service teachers having traditional writing instruction and those who have on-line discussion and feedback regarding their English language writing performance. Two groups, control and experimental, having 20 subjects each were formed. Website called “write and discuss” was designed for experimental group.

In first study, Chen,(2011), employed SPSS and t- test to find out the difference of performance between the two groups. Second study used ANOVA to judge overall error rate and error rate with in individual category. Overall rate demonstrated no statistical difference between two groups. Individual error rate finding revealed that CAI had produced a significant effect on reducing student error rate in nouns and prepositions.

Third study conducted by Genc and Gulozer, 2008 used Microsoft (2007) Flesch reading Ease Readibility formula to score pre-test and post- test. Results revealed that pre- service teachers assisted by Wiki improved their writing skill.

Technology – integrated teaching approaches are becoming popular these days but poor computer literacy of participants may pose serious constraints in achieving desired results. Moreover technical confrontation may also create problems. As the second study (Genc and Gulozer,2008) did not produce significant result implying certain issues of internal validity.

## Conclusion

To recap, experimental studies in the field of Applied Linguistics were reviewed in this study.

Major research ideas emerging from the studies concerned with the areas of English language teaching methods, integrated approach of learning skills and use of technology in improving academic performance of students. The studies indicated some gaps which may be identified as follows:

- Distinct lack of researches on policy analysis.
- Most of the studies are class based. Larger scale studies with more data are required to ensure authenticity and reliability.
- Most of the research appears to be focused on the issues of college and university students. Problems related with school children are not addressed.

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