

An Experimental Study of Spatial Vocabulary Teaching in the Subject of English through Four Steps Strategy at Elementary Level

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Received on: 17-01-2022

Accepted on: 19-02-2022

Abstract

The study was an experimental study of spatial vocabulary in the subject of English. The subject was taught through four steps strategy at elementary level. Also the same subject was taught through lecture method. The major objectives of the study were: (i) to explore the effects of four steps strategy on the spatial vocabulary enhancement of elementary school students, (ii) to investigate the effect of four steps strategy on the spatial vocabulary enhancement of male elementary students, (iii) to measure the effect of four steps strategy on the spatial vocabulary enhancement of female elementary school students. To achieve the objectives, the following null hypotheses were tested: (i) there is no significant effect of four steps strategy on the spatial vocabulary enhancement of elementary school students, (ii) there is no significant effects of four steps strategy on the spatial vocabulary enhancement of male elementary school students. All the students of Grade-III from Army Public Schools and Colleges of province Khyber Pakhtunkhwa were the population of this study. Sample of the study was 20 students (girls & boys) of Army Public School and College (Iqra) Risalpur Cantt District Nowshera by using random sampling technique. Pre-test and post-test single group four cycle designs were used as a tool for data collection in this study to measure the performance of the students. In four cycle experimental design, same group was exposed to experiment and lecture method of teaching. After the exposing, groups (experimental/control) were interchanged for getting accurate results. The data obtained was tabulated and analysed using paired t-test in the light objectives of the study. The analysis of the collected data revealed the following findings; it was revealed from the results that four steps strategy had significant effect on spatial vocabulary enhancement at elementary level. The result of the study showed that four steps strategy had significant effect on the spatial vocabulary enhancement of male and female elementary school students. It is recommended that the teacher should apply four steps strategy to foster the academic achievements of the students. This study will be beneficial for students, teachers and curriculum developer.

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Keywords: Four Steps Strategy, Spatial Vocabulary, English.

Introduction

Language a communication system adopted by individuals in a specific region or occupation, or it is a sound, word, and grammar-based communication system. In addition, Hornby and Cowie (1995) argue that the combination of sound and words that humans are using to express their feelings and thoughts is known as language. Language has a significant role in a social development of students. They use language as a tool to communicate with others. It is consistent with its function, as the primary function of a language is to make communication possible among individuals. Learning language is expected to help students to take a part in their society. Ramelan (1992) states that since language are only spoken in a social group of at least two people the speaker and the listener, therefore, language is considered social. As previously stated, the use of language allows individuals of a social group to operate with each other for their collective benefit. Moreover, it is expected that by learning language the students are able to get knowledge from their society that will increase their intellectual knowledge in studying all subjects of study.

Grammar is one of some components that are very important. Students are intended to master grammar because they cannot communicate using English clearly without mastering its grammatical rule. As a consequence, there will be misunderstanding between the speaker and the hearer. As Leech (1982) claims that meaning of a statement delivered through spoken words must be transformed into words assembled according to a set grammar structure, this structure is then transferred through sounds. Grammar is the key part of language, as it connects sounds and meanings or phonology and semantics.

Moreover, Hornby and Cowie (1995) declare that the rules for modifying the shape of words and arranging these words in sentence are known as grammar of a language. Grammar is clearly essential to construct accurate and relevant sentences in the process of communication. It is essential for learning a language since it provides a foundation for understanding the language.

Grammar knowledge contributes to a better comprehension of listening, speaking, reading and writing. On the other hand, a lack of grammatical knowledge will result in misunderstandings in all skill of second / foreign language learning. Furthermore, studying and mastering grammar can increase competency and correctness of the learners while also allowing them to completely understand the sentence structural systems; consequently, teaching of grammar play an important role in English language learning of the students to enable them to communicate effectively. An important part of learning grammar is tenses. In an English sentence, tenses are used to show how timing changes the forms of verbs (Zhong-guo, & Min-yan, 2007).

Hornby and Cowie (1995) states that tense is a set of verb forms or a verb form that expresses the time of an action or state. Individuals will be unable to understand a person's speech or

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writing in English if a person does not use the appropriate tenses. The same idea has been given by Siddiqui (2014) that it is vital to know English tenses in order to improve communication either in written form or in spoken form. The reason for this is that tenses enable an individual to develop excellent communication abilities. Regardless of the method chosen by a teacher to teach his or her learners, improving the students' knowledge of tenses is a mandatory in language learning. Many language-learning approaches or practices can be included into the process of teaching and learning of a language. A drill technique is one of them. Julie (2006) wrote an article for BBC that in foreign language teaching, this drill technique has been in practice since long. It was a crucial aspect of audio-lingual methods to language learning, where the focus was on oral practice by drilling of different structures. According to Mart (2013) in foreign language teaching, drills can be very helpful because they allow learners to perform whatever they've learned. Richards and Schmidt (1992) have the opinion that drilling is a strategy used in language acquisition to strengthen sentence structure or pronunciation of the learners through repetitions and practicing.

The principles of drill techniques stresses that language learning is a habit-forming process. When anything is repeated frequently, the deeper the habit of repetition, the higher the understanding will be (Larsen-Freeman, 2000). The substitution drill involves replacing one word inside a phrase with another.

Previous Researches

In bilingual preschool aged children, the development of dimensional adjective learning was studied by Marchman, Fernald and Hurtado (2010) this research looked into indicators as to how many dimensional adjectives a kid could understand in each language, whether kids are taught an unrecognized word well before recognized inside a combination of totally opposite dimension, as well as the sequence wherein kids acquire dimensional words. In both Spanish and English, all of the kids in the research were examined on their basic vocabularies and multidimensional adjectives understanding. In both Spanish and English, kid's overall vocabularies were found to be positively associated to the understanding of dimensional words inside the languages, kids having greater overall vocabulary knowing greater dimensions' words. It was also investigated what impact a language may have on someone else's understanding of dimensional words. The link across dimension and common words is predictable, given that acquiring dimensional words are dependent on same principles as acquiring another section of terminologies, but somehow it demonstrates internal consistency, which is an essential criterion for a new measure. The researchers found that there was no cross-language correlation, neither fundamental English nor English dimensional words offering predictions about Spanish dimension words and neither with fundamental Spanish nor Spanish dimensional words offering prediction about English dimension words. There was also the chance that there's a link connecting acquiring dimension adjectives in English and Spanish which this research ignored. Although some past researches have not explicitly examined into whether bilingual kid's understanding of dimension words is linked between his or her languages, on the other hand, some researches have indicated both words and other abilities, like response time, are not linked across his or her languages. To evaluate sequence of learning, however, an experimental or a continuous

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investigation of kid's acquiring of dimension words will be required. Another argument would be that kids who've already acquired a term for a topic inside one language will find it simpler to acquire a word for same idea with their other language; for instance, a kid who understands that high signifies may find understanding simpler. Future researches must look into these possibilities since it would show how important theoretical knowledge is in acquiring dimensional adjectives.

Malaver (2012) discovered that according on the location, distinct frequencies of usage for pequeo and chiquito were discovered, with Mexicans residents use this word "chiquito" more frequently as compare to the word "pequeo" and Guatemala residents use this word "pequeo" more frequently as compare to the word "chiquito". Furthermore, even when there is no duplication in concept, there may be variances in which dimensional words are quite often employed across languages.

Lindholm et al. (1979) discovered that with a few exceptional cases, student learning of English and Spanish followed the same pattern. They propose that the disparities in the languages are due to variances in the frequencies with which words are used in English and Spanish. In addition, there is unlikely to be a variation in the regularity of term use among Native speakers of Spanish from various backgrounds. Since no research has directly examined this topic from a constructivist perspective, study has attempted at the consistency with which fluent Spanish speakers utilise words. In one research, researchers looked at the use of the verb *estar* and *ser*, both these verbs are used in English language. The research's major objective was to look at the mechanism of dimension word acquisition in multilingual preschoolers. The researchers were able to gather additional experiments and employ more complex stimuli by the use of novel tablets measurement than earlier studies on dimensional adjective. The researcher discovered that kids with bigger overall vocabulary understood additional dimensional words in a language, indicating internal consistency. Neither overall nor dimension word in Spanish had an influence on English dimension word, and in the same way, neither overall nor dimension word in English had an impact on Spanish dimension word. The researchers also discovered that kids were substantially better able to tell only the unidentified word in a pair as compared to simply the identified terms in their second objective, confirming their hypothesis that unidentified words are learnt before indicated words in a language. Furthermore, the researchers examined how youngsters learnt words in various languages and discovered significant structures. There are certainly numerous elements that influence the sequence in which terms are learnt by the learners, and serious study must look in the future at this in multilingual youngsters. Consequently, the findings of this study demonstrate the necessity of examining bilingual kid's grasp of dimension ideas in both their languages they speak.

The findings are same to the findings of earlier research on the relation between spatial thinking and spatial language for instance Pruden et al. (2011) which discovered that at the age of four and a half, the more spatial vocabulary students utilized, the greater these students functioned on spatial thinking tests. The researchers focused on dimensional adjectives, as a kind of spatial language. Furthermore, rather of focusing on output, their

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research focused on understanding of the learners. The results of this research were paired with those of Pruden et al., tested the assumption that preschool spatial language skill is a good determinant of spatial reasoning progress. The researchers feel it is necessary to keep investigating the impact of spatial language in early stages of developments, given the relevance of spatial reasoning in mathematics achievement as well as other technological areas. Following up on the findings reported here, an experimental study will be conducted to evaluate if learning dimensional words enhances scaled capability in the future.

According to Ferrara, Hirsh-Pasek, Newcombe, Golinkoff and Lam (2011); Pruden et al. (2011) the main objective of this research was to see if kid's understanding of dimensional adjective is related to the capacity to scale spatially. When age and kid's overall vocabularies skill in Spanish and English were taken into account, the retention remained. Such results supported the theory that spatial language development in the learners is important in the formation of basic spatial awareness. This was the first research to look at the relationship between spatial thinking ability and dimensional adjectives. Further research studies in the future must examine this relationship throughout time to discover how spatial thinking and spatial language develop at the same time.

There has been an increase in research in the importance of spatial language in early cognitive development in recent years (Bowerman & Choi, 2003; Ferrara et al., 2011; Verdine et al., 2017). These researches focused on how different kinds of spatial language words impact thinking of an individual such as, height, and position and form terms. Dimensional words have always attracted researchers' attention in cognitive development because of the interrelated structure, which enables the researcher to investigate concerns about the study of cognition and language (Bartlett, 1976; Gathercole, 1982). The findings reported inside this research examine ways to connect these diverse study fields, focusing on how dimensional adjectives, correlate to overall spatial thinking and language ability, a subgroup of spatial language.

Statement of the Problem

The purpose of teaching of spatial vocabulary is to able the learners that they categorize the direction of using the preposition. They will be expected to easily identify the place of an object either it is English teaching or any other subject. By using these techniques we will enhance the students thinking.

Objectives

- To explore the effect of four steps strategy on the spatial vocabulary enhancement of elementary school student.
- To investigate the effect of four steps strategy on the spatial vocabulary enchantment of male elementary school students.
- To measure the effect of four steps strategy on the spatial vocabulary enchantment of female elementary school students.

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Method and procedure

Population

The population of this study constituted all students of Grade-III learning English of Army Public Schools and College of Khyber Pakhtunkhwa Province were the population of this study.

Sample

Out of total population, 10 girl's and 10 boy's students of Grade-III from Army Public Schools and College (Iqra) Risalpur Cantt District Nowshera constituted the sample of the study by using random sampling technique.

Research Design

The research was experimental. In this study the research design was single group four cycle pretest-posttest designs. Symbolic representation of design is.

O₁ T O₂

O₃ C O₄

O₅ C O₆

O₇ T O₈

Where

Where O₁, O₃, O₅ and O₇ are pretest and O₂, O₄, O₆ and O₈ are posttests. T is treatment and C is control group (Traditional method) (Farooq & Tabassum, 2017).

T = Treatment (teaching by four step strategy)

C = Control (Teaching by Traditional method)

Research Instrument

It is a tool used in research for collection of data. A test was developed for Army Public Schools and College (Iqra) Risalpur Cantt. There were 6 items in the test. Test was constituted on fill in the blanks and matching the column. The researcher personally developed and administered the test (pre-test and post-test for four week) to the respondents.

Pre-test and Post-test

The researcher developed pre-test and post-test. These tests were developed on the basis of lesson plan objectives as well as study objectives.

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Treatment

The treatment of this research study was following.

The researcher developed lesson plans from the selected lessons of textbook for both experimental and control group having the same learning outcome but control group was taught through traditional method and experiment group was taught through four steps of special learning vocabulary.

Procedure

In this 4cycle experimental design, cycle first and fourth were taken as experimental group, while cycle second and third cycle the same group of students were taken as control group. Eight tests were taken from the students. In which 4 tests were pre-test and 4 tests were post-test 01, 03, 05 and 07 were pre-test while 02, 04, 06 and 08 were post-test. The students in four cycles were treated as:

(1) Demonstrate and label the spatial concept =

When you choose the concept you want to start for example," on "First you have to take certain objects that enable you to stack things on another. Suppose you select a cow and barn. Then out the cow on barn and say the cow is in the barn. Then out the cow on another place and say not now. Now put the horse on and do the same things keep demonstrating objects / things on other objects until you feel absolutely ridiculous. Children with language delay need to be shown a new concept many times before it sticks. Be sure you are saying "on "and "not on "but don't throw it in a concept like "in "or "under"

(2) Following directions with a spatial concept

Once you've thoroughly demonstrated then give your child an object e. g cow and tell him to put it on the house. Then your child can easily put something on something else with command.

(3) Yes/ no questions about a spatial concept =

Now it's time to ask your child is something on .put something on e.g cow on house and ask him again and again then your child will be able to answer yes / no successfully

(4) Where is it=

Now when the learner has done all of this, then its time to say the word. Put something on something else and ask the learner where the ____? Then out it in another thing and ask same question if he and she give correct answer then start teaching him / her second one using this method.

Data Collection

After the treatment was finished, both the experimental and control groups were given a self-developed post-test to measure the achievement of subject under similar environmental conditions to those used for the pre-test.

Analysis of Data

Statistical methods and analyses are often used to communicate research findings and to support hypotheses and give credibility to research methodology and conclusions. For example statistics can use as in data collection, analysis, interpretation, explanation and presentation.

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The collected data from the respondents in this research was tabulated and analyzed by applying paired t-test. Results obtained by statistical analysis were tested on 0.05 level of significance.

Results and Discussion

The collected data were analyzed and interpreted by using t-test in the light of the objectives of the study

H₀₁. There is no significant effect of four steps strategy on the spatial vocabulary enhancement of elementary school students.

Table 1 Significant effect of four steps strategy on the spatial vocabulary enhancement of elementary school students

	Group	N	Mean	SD	V	df	t-value	Significance (2-tailed)	Effect
Experimental	O1	20	2.35	1.78	3.18	19	7.31	0.0000006	Significant
	O2	20	5.35	0.93	0.87				
Control	O3	20	4.35	1.46	2.13	19	0.72	0.479	Not Significant
	O4	20	4.6	0.75	0.56				
Control	O5	20	3.6	2.18	4.77	19	1.52	0.144	Not Significant
	O6	20	4.1	1.91	3.67				
Experimental	O7	20	3.7	1.59	2.53	19	3.68	0.00156	Significant
	O8	20	5.1	0.71	0.51				

Significance level = 0.05, df=n-1 Table Value of t at 0.05 = 2.093
 Table 1 revealed that the calculated t-values 7.31 and 3.68 was greater than 2.093 but 0.72 and 1.52 was lesser than table value 2.093 and the difference between O₁ (Pretest) and O₂ (Post-test) as well as O₇ (Pre-test) and O₈ (Post-test) of Experimental group is much larger

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and significant at significance level (0.05) than the difference between O₃ (Pre-test) and O₄ (Post-test) as well as O₅ (Pre-test) and O₆ (Post-test) of Control group which were not significant at significance level (0.05); hence the null hypothesis is rejected. It means that four steps strategy has significant effect on spatial vocabulary enhancement at elementary level.

H₀₂. There is no significant effect of four steps strategy on the spatial vocabulary enhancement of male elementary school students.

Table 2 Significant effect of four steps strategy on the spatial vocabulary enhancement of male elementary school students

	Group	N	Mean	SD	V	df	t-value	Significance (2-tailed)	Effect
Experimental	O1	10	2.4	1.24	1.6	9	6	0.00020	Significant
	O2	10	4.8	1.03	1.06				
Control	O3	10	4.8	0.78	0.62	9	0.81	0.43	Not Significant
	O4	10	4.5	0.84	0.72				
Control	O5	10	5.4	0.96	0.93	9	0.55	0.59	Not Significant
	O6	10	5.6	0.51	0.26				
Experimental	O7	10	3.6	2.06	4.26	9	2.35	0.04	Significant
	O8	10	5.1	0.56	0.32				

Significance level = 0.05,

Table Value of t at 0.05 = 2.093

Table 2 illustrates that the calculated t-values 6 and 2.35 was greater than table value 2.262 but 0.81 and 0.55 were lesser then table value 2.262 and the difference between O₁ (Pre-test) and O₂ (Post-test) as well as O₇ (Pre-test) and O₈ (Post-test) of Experimental group is much larger and significant at significance level (0.05) than the difference between O₃ (Pre-test) and O₄ (Post-test) as well as O₅ (Pre-test) and O₆ (Post-test) of Control group which were not

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significant at significance level (0.05); hence the null hypothesis is rejected. It means that four steps strategy has significance effect on the spatial vocabulary enhancement of male elementary school students.

H₀₃. There is no significant effect of four steps strategy on the spatial vocabulary enhancement of female elementary school students.

Table 3 Significant effect of four steps strategy on the spatial vocabulary enhancement of female elementary school students

	Group	N	Mean	SD	V	df	t-value	Significance (2-tailed)	Effect
Experimental	O1	10	2.3	2.26	5.12	9	5.24	0.00053	Significant
	O2	10	5.9	0.31	0.1				
Control	O3	10	3.9	1.85	3.43	9	1.44	0.182	Not Significant
	O4	10	4.7	0.67	0.45				
Control	O5	10	1.8	1.95	1.39	9	1.44	0.182	Not Significant
	O6	10	2.6	2.48	1.57				
Experimental	O7	10	3.8	1.03	1.06	9	2.89	0.01	Significant
	O8	10	5.1	0.87	0.76				

Significance level = 0.05,

Table Value of t at 0.05 = 2.093

Table 5 depicts that the calculated t-values 5.24 and 2.89 was greater than table value 2.262 and calculated t-values 1.44 and 1.44 was lesser then table value 2.262 but the difference between O₁ (Pre-test) and O₂ (Post-test) as well as O₇ (Pre-test) and O₈ (Post-test) of Experimental group is much larger which were significant at significance level (0.05) than the difference between O₃ (Pre-test) and O₄ (Post-test) as well as O₅ (Pre-test) and O₆ (Post-test) of Control group which was not significant at significance level (0.05); hence the null hypothesis is rejected. It means that four steps strategy has significance effect on the spatial

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vocabulary enhancement of female elementary school students.

Discussion

The study was carried out to investigate the effectiveness of four steps strategy in study of spatial vocabulary teaching in subject of English through four steps strategy at elementary level. The objectives of the study were (i) to explore the effect of four steps strategy on the spatial vocabulary enhancement of elementary school students. (ii) to investigate the effect of four steps strategy on the spatial vocabulary enhancement of male elementary school students, (iii) to measure the effect of four steps strategy on the spatial vocabulary enhancement of female elementary school students. All students of Grade-III from Army Public Schools and Colleges of Province Khyber Pakhtunkhwa were the population of this study. This study was delimited to students of Grade-III students of Army Public Schools and Colleges to analyze the effect of four steps strategy. 30 girl's and 30 boy's students of Grade-III from Army Public Schools and College (Iqra) Risalpur Cantt District Nowshera constitute the sample of the study by using random sampling technique.

According to table one the calculated t-values 7.31 and 3.68 was greater than 2.093 but 0.72 and 1.52 was lesser than table value 2.093 and the difference between O_1 (Pre -test) and O_2 (Post-test) as well as O_7 (Pre-test) and O_8 (Post-test) of Experimental group is much larger and significant at significance level (0.05) than the difference between O_3 (Pre-test) and O_4 (Post-test) as well as O_5 (Pre-test) and O_6 (Post-test) of Control group which were not significant at significance level (0.05); hence the null hypothesis is rejected. It means that four steps strategy has significant effect on spatial vocabulary enhancement at elementary level. The Table two revealed that the calculated t-values 6 and 2.35 was greater than table value 2.262 but 0.81 and 0.55 were lesser then table value 2.262 and the difference between O_1 (Pre-test) and O_2 (Post-test) as well as O_7 (Pre-test) and O_8 (Post-test) of Experimental group is much larger and significant at significance level (0.05) than the difference between O_3 (Pre-test) and O_4 (Post-test) as well as O_5 (Pre-test) and O_6 (Post-test) of Control group which were not significant at significance level (0.05); hence the null hypothesis is rejected. It means that four steps strategy has significance effect on the spatial vocabulary enhancement of male elementary school students.

As per table 3 revealed that calculated t-values 5.24 and 2.89 was greater than table value 2.262 and calculated t-values 1.44 and 1.44 was lesser then table value 2.262 but the difference between O_1 (Pre-test) and O_2 (Post-test) as well as O_7 (Pre-test) and O_8 (Post-test) of Experimental group is much larger which were significant at significance level (0.05) than the difference between O_3 (Pre-test) and O_4 (Post-test) as well as O_5 (Pre-test) and O_6 (Post-test) of Control group which was not significant at significance level (0.05); hence the null hypothesis is rejected. It means that four steps strategy has significance effect on the spatial vocabulary enhancement of female elementary school students.

Conclusions

- It was concluded from the results that four steps strategy had significance effect on spatial vocabulary enhancement at elementary level.

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- The result of the study showed that four steps strategy had significance effect on the spatial vocabulary enhancement of male elementary school students.
- The result of the study showed that four steps strategy had significance effect on the spatial vocabulary enhancement of female elementary school students.
- The results show that after the treatment with four steps strategy the vocabulary of the students improved.
- The study found that teaching of English through four step strategy was more effective than traditional teaching approach.

Recommendations

- The current experimental report was carried out to assess the impacts of four steps strategy in teaching of English subject. Such findings would be needed to conduct in further disciplines as social study, mathematics, physics and the social sciences etc.
- The report testified an extensive range of fruitful results throughout execution of four steps strategy. Consequently, teachers may apply four steps strategy to foster the academic achievements of the students.
- This study had been managed in Army Public Schools and Colleges of Province Khyber Pakhtunkhwa. Moreover, similar study could be applied successfully in public schools as well.
- Pre-service instructors training organizations may include four steps strategy as a primary part in their syllabus.
- Coaching may be delivered by refresher teaching courses for in service school teachers for teaching them by the adaptation of four steps strategy therefore they could be able to apply four steps strategy appropriately and efficiently.

Acknowledgements

The authors would like to thank all of the participants for their contributions.

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