Pakistan Languages and Humanities Review
www.plhr.org.pk

RESEARCH PAPER

Exploring the Effectiveness of Fleming's Multi-Sensory Visual, Auditory Kinesthetic Technique to Teach Vocabulary at Primary Level

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ABSTRACT

Vocabulary learning is very crucial to be fluent in any language, specifically for second language learning. In Pakistan, teachers often rely on traditional methods like cramming or rote learning to teach vocabulary to second language learners. As a result, students associate words and their meanings with specific texts, limiting their ability to apply these words in varied contexts. To cope with this problem, the researcher employed Fleming's (2006) multimodal technique which is the Visual, Auditory, and Kinesthetic technique to teach vocabulary. The research is an experimental study. Pretests and posttests are administered to examine the impact of Visual, Auditory, and Kinesthetic techniques on vocabulary learning of SLLs (Second Language Learners). The sample is selected through stratified sampling. There are 60 students in one class. This group is taught by lesson plans based on the VAK model. The pretests and posttests are analyzed through Rcampus rubrics. After marking them through rubric the data is analyzed through an independent sample t-test. Significant results have been seen that are indicated by p value which is .000. The research is helpful for language teachers who teach vocabulary to second language learners along with students.

| **KEYWORDS** | Bilingual, Fleming's Technique, Quasi-Experimental Study, T-Test, Vocabulary |

Introduction

Vocabulary encompasses knowledge of words and their meanings and is an essential component of language acquisition. Siriwan (2007) claims that words are the key to expressing one's feelings and thoughts. Words play as paraphernalia for the learners in essence because possession of words enables them to think, explore, and analyze. The appropriate word choices according to the context is the key features of an affluent vocabulary. According to Garcia (1991), student's achievement in English language learning is often assessed by their stock of vocabulary. He further says that language students with limited vocabulary experiences have a low level of achievement as compared to the students who have a large and rich vocabulary of the English language.

Vocabulary is central to language learning. As Hunt and Beglar (2005) call it, "the heart of language is the use of lexicon". Generally, vocabulary can be defined as the repertoire of lexical items that a person knows and uses. However, some experts may have different definitions. Newman (2016) defines vocabulary as "words we must know to communicate effectively; words in speaking (expressive vocabulary) and words in listening (receptive vocabulary)." He also states that vocabulary is the knowledge of words

and their meanings, and that vocabulary learning is essential for learning a new language. Furthermore, Burns (2001) defines vocabulary as the stock of words used by an individual to communicate. He also states that vocabulary is the total number of words in a language and a list of words with their meanings. Baumann and Graves (2010) define vocabulary as the total number of words that we know and can use. From these definitions, it can be understood that vocabulary is the total number of words necessary to communicate effectively and to express ideas, thoughts, and emotions. Successful communication is not possible without words. Vocabulary is a critical tool for second language learners, and a limited vocabulary may impede communication. In the classroom, the students who have a good command of vocabulary achieve high scores (Laufer, B., & Nation,2013).

The acquisition of language skills in children involves the gradual expansion of their vocabulary, facilitating the transition from single-word usage to constructing two-word combinations. They must grasp and utilize a diverse array of words to effectively merge nouns and expressions. Typically occurring around the age of three, as children progress in their linguistic abilities, they begin to formulate sentences comprising a subject, vocabulary, and object, exemplified by phrases such as "I kick ball" or "Daddy eats toast." (Ergashevich, 2024). Additionally, the core of a sentence lies in its vocabulary, as it establishes the sentence's argument structure. Scholars worldwide acknowledge that our comprehension of language acquisition remains incomplete if we fail to grasp the process of vocabulary acquisition, as highlighted by Harris et al., (2011). Shah et al., (2022) concluded that language teachers often use rigid and outmoded methods to teach vocabulary learning. Raheem et al. (2021) provided a list of vocabulary for the students to memorize at the primary level at the end of each lesson English book. At the end of the study, feedback was taken from the participants which showed that the students felt bored learning vocabulary through memorization. According to Zarrin and Khan (2014) in schools, the prime focus is on teaching grammatical rules instead of vocabulary. Grammar is considered a part of the syllabus, and teachers pay full attention to grammar teaching. The Grammar Translation Method, which was initiated to translate words from Latin to the target language, is now used by schools to teach foreign language skills to second language learners.

Traditionally, students are asked to say a word aloud and translate that word into their language. This repetition leads to the memorization of words. In Pakistan, the educational system only encourages our students to cram words and their meanings without knowing their proper use in different contexts (Jamil et al., 2014). Vocabulary learning is a skill that needs apt directions and in-depth knowledge to get command over new words and their usage according to context. In Pakistani Government schools, it is generally experienced that teachers do not pay attention to vocabulary teaching (Khan et al., 2016; Irfan et al., 2021). In government schools at the primary level in Pakistan, ignoring vocabulary teaching and learning with new and varied methodologies, may cause everlasting damage to the learners. (Iqbal et al., 2015). According to them, language teachers ask students to underline difficult words and memorize their meanings. Students just cram those words and their meanings without knowing their proper usage in context. It is difficult to retain vocabulary items learned through cramming. In Pakistan due to rote learning, second language learners face difficulties in learning vocabulary. The traditional approaches emphasize memorization without sufficient contextual understanding. This issue needs to be reformed and dealt with to actively acquire vocabulary.

Literature Review

A detailed literature review is conducted to see and analyze research conducted on the VAK model of learning. Furthermore, this literature review also underscores different

dimensions of the VAK model of learning to see the gap. Kassaian (2007) conducted a study to examine the impact of two teaching methods on the retention of unfamiliar words. The study involved sixty-six university students with either auditory or visual learning styles, who participated in teaching sessions that were either visual or aural. The results revealed that students retained those words better which are presented in visual form rather than aural form.

Syofyan and Siwi (2018) researched to analyze the impact of VAK learning styles on economics education teaching. The basic purpose of the study is to give awareness to the faculty of that department about the learning style for economics education students. A total of 100 students of the same department participated in this research. The data was collected through questionnaires. The data was gathered through the use of questionnaires. The data analysis revealed that the students in the economics department have a preference for visual learning. Ramadian, Cahyono, and Suryati (2019) also researched AVK learning styles. They noticed that the English results at a public vocational school, "Akomodasi Perhotelan" ("SMK AP"), were unsatisfactory. The study was action research, and writing skills were enhanced by implementing the VAK learning model. In the class, there were 26 students. After teaching using the VAK learning model, a significant improvement was observed. The students' average score increased from 38.18 points in the preliminary study to 81.49, compared to their initial score of 43.31.

Kusumawarti and Subiyantoro (2020), two researchers attempted to improve the narrative writing abilities of 5th-grade students at primary schools in Surakarta during the 2018/2019 academic year. The research was quasi-experimental. Two groups were formed: a control group and an experimental group. The experimental group was instructed to use the VAK learning model. Proper lesson plans were made for experimental groups. The p-value indicates that the VAK model was highly effective in teaching narrative writing. Masala and Subekti (2021) conducted a study on auditory and kinaesthetic learning styles of undergraduate non-English major university students and their impact on second language (L2) achievement in English. The study utilized a survey for data collection and revealed that students tended to use auditory learning slightly more than kinaesthetic learning, but both styles were employed at low to moderate levels.

Hidayatullah, Munir, and Tawali (2022) explore this method to teach vocabulary. The research was Classroom Action research. The language students found it difficult to learn abstract nouns. Therefore, the researcher aimed to increase vocabulary through the VAK model of learning. The CAR process consists of planning, acting, observing, and reflecting. Activities are included at each step to achieve the research objectives. The sample consisted of seventh graders. A vocabulary test, questionnaire, and observation sheet were used to collect the data. The study finds that vocabulary has greatly improved while using the VAK approach to instruction.

A Multimodal Learning Style

Multimodal learning is the application of many learning styles. Not only may this approach benefit students who want to blend different learning styles, but it can also help students who are unsure about their preferred learning style. It's also an excellent approach to add variety and maintain the enjoyment of learning. Take into consideration, for instance, how a biology lesson may integrate tactile, aural, and visual learning methods. Flashcards with individual animal photos and the names of the species on them could be made for visual learning. A friend could test you on the flashcards to help with auditory learning. Move the flashcards around on a board to depict a food web (food chain) for kinesthetic learning.

Visual, Auditory, Kinesthetic Model

VAK (Visual, Auditory, Kinesthetic) technique is widely used nowadays. Through this technique, one can learn things according to one's preference. In this technique, learners use all three sensory modalities to learn new things. According to Fleming (2001), in the VAK technique most of the time one or two modalities are dominant in the learning procedure. Some students learn better through visuals and discussions. Some use all three modalities. Dominant learning modality conveys their best learning style. In addition to this, some learners use different modalities for different learning. They occasionally employ one style for a single activity and a mix of styles for various tasks. Fleming (2006), states that the combination of all three modalities in a single class can boost the learning procedure.

The objective of the study is to find out how Fleming's VAK technique effect vocabulary teaching at primary level in Pakistani government schools. In Pakistan, some specific traditional ways are used to teach and learn English vocabulary in the classroom. The learning and teaching can be made interesting by incorporating different techniques inside the classroom. This study is an attempt to help teachers teach vocabulary productively at the primary level. This study seeks to investigate the efficacy of visual, auditory, and kinesthetic techniques in the vocabulary teaching at the primary level. Visual, Auditory and kinesthetic model is used to recognize the learner's preference style till now. The researcher here tries to use the Visual, Auditory, and Kinesthetic model as a teaching methodology. Through visual, auditory, Reading, and kinesthetic techniques, researchers will not only be able to recognize student's preference learning styles but also teach them according to their learning style. In Pakistan, it is difficult to provide them separate classrooms according to their preference style but the researcher tries to use all these styles in one class so all students can learn in one place with all learning styles preferences.

Hypothesis

Fleming's visual, auditory, Reading, and kinesthetic techniques of learning vocabulary will enhance the vocabulary of second language learners at the primary level.

Alternative Hypothesis (H1)

Fleming's visual, auditory, reading, and kinesthetic techniques of learning vocabulary will not significantly enhance the vocabulary of second language learners at the primary level compared to traditional teaching methods

Methodology

This study is constructed on multiple intelligence theory, pioneered by Dr. Howard Gardner back in 1983. Alongside utilizing inventive frameworks and considering student traits, particularly in language, the researchers spotlight one of the nine varieties of compound intelligence predominantly utilized, namely linguistic intelligence (Estaji & Nafisi, 2014). The VAK model is linked to linguistic intelligence. According to Gardner (2011), individuals with strong linguistic intelligence typically excel in reading, writing, storytelling, and memorization. Notably, they tend to align with various learning styles among students, such as visual, auditory and kinesthetic Linguistic intelligence is among the nine types of intelligence. Gardner (2011) describes intelligence as the capability to address life's challenges, to formulate problems for solving, and to create or perform something beneficial. One form of composite intelligence is linguistic intelligence. It

involves a keen sensitivity to both spoken and written language, the capacity to learn new languages, and the proficiency to use language effectively to accomplish objectives (Gardner, 2011; Vincey & Pugalenthi, 2016). This intelligence encompasses the capacity to manipulate the structure of a language, memorize its meanings, and apply the language pragmatically or practically (Derakhshan & Faribi, 2015). Essentially, individuals with high linguistic intelligence often think in words and can use language proficiently both in speech and writing (Christison, Kennedy, & Deborah, 1999).

"Multiple intelligence theory conceives of intelligence as a combination of heritable potentials and skills that can be developed in diverse ways through relevant experiences" (Gardner, 2011). Fleming (2001) proposed a Visual, auditory, kinesthetic (VAK) model. According to Fleming (2001), in the VAK technique most of the time one or two modalities are dominant in the learning procedure. Some students learn better through visuals and discussions. Some use all three modalities. Dominant learning modality conveys their best learning style. Fleming (2001), states that the combination of all three modalities in a single class can boost the learning procedure.

Research Design

The researcher used quantitative approaches to collect data following the experimental study. One group is selected. This group has 60 students. Pretests are taken from the group. The researcher determined the student's level of proficiency before the experiment through the pretest. Proper lesson plans are formulated based on Visual, Auditory, and Kinesthetic techniques in vocabulary teaching at the primary level. After 5 weeks of continuous intervention, a posttest has been taken from the group. Furthermore, the researcher compared the Pre - and post-test results to examine the impact of visual, auditory, and kinesthetic techniques. In addition to this, both pretest and posttest are assessed by the summative assessment. The rubric that is used to assess vocabulary is taken from campus rubric development. It is the site which is used to develop the authentic rubric (Balch et al., 2016).

Rcampus rubrics

RCampus employs iRubric as a prevalent electronic rubric design across various educational sectors. iRubric offers a convenient platform freely accessible to teachers for collaborative electronic assessments. The RCampus homepage, as depicted in Figure 1 (https://www.rcampus.com/rubricshowc.cfm?code=T68626&sp=yes&), showcases this iRubric feature. Enabling collaboration and active involvement of educators, students, and other stakeholders in an open and accessible manner constitutes one of its notable advantages. This functionality has found extensive utilization in both formal and non-formal vocational education settings (Rowan, 2013).

Table 1
Vocabulary assessment

	Poor 1 pts	Fair 2 pts	Good 3 pts	Excellent 4 pts
Match words to definitions	Poor Student is able to match only a few words to their definitions	Fair Student is able to match some of the words to their definitions	Good Students is able to match most of the words to their definitions	Excellent Student is able to match all of the words to their definitions
Complete sentences	Poor Student is able to complete only a few	Fair Student is able to complete some of the	Good Student is able to complete most of the senteces with the	Excellent Student is able to complete

	senteces with the correct vocabulary words	senteces with the correct vocabulary words	correct vocabulary words	all of the senteces with the correct vocabulary words
Write definitions	Poor Student is able to write only a few definitions	Fair Student is able to write some of the definitions	Good Student is able to write most of the definitions	Excellent Student is able to write all of the definitions
Write original sentences	Poor Student is able to write a sentence for only a few words	Fair Student is able to write a sentence for some of the words	Good Student is able to write a sentence for most of the words	Excellent Student is able to write sentences for all of the words
Mechanics	Poor Student often misspells, does not capitalize, does not use correct punctuation.	Fair Student sometimes misspells, does not capitalize, does not use correct punctuation.	Good Student seldom misspells, does not capitalize, does not use correct punctuation.	Excellent Student never misspells, does not capitalize, does not use correct punctuation.

Figure 1. *Rubric from Rcampus*.

Sampling

Sampling is one of the major components of conducting a study. It is difficult to deal with large groups, and impossible to test all participants due to time, space, reach, and financial limitations. The sample was taken through a stratified sampling technique. From the primary level, only one stratum was taken as a sample.

Pretest and Posttest

The pretest comprised 20 multiple choice questions which were based on vocabulary items from the text of English for class five. Similarly, in the post-test 20 multiple-choice questions were there from their course book.

Results and Discussion

Table 2
Contrasts between Control and Experimental Groups

Variables	Control group N=60		Experimental group N=60		t	p	Cohen's d
	Mean	SD	Mean	SD			
VAK methodology	10.9	3.45	14.03	2.87	3.8	.000	0.97

Table 1 presents the t-statistics contrasts between the control and experimental groups. The results illustrated in the table indicate significant statistical variances between the control and experimental groups.

Cohen's Effect-Size Test *d*

Cohen's Effect-Size Test d, was employed to assess the efficacy of implementing the VAK model in enhancing vocabulary learning. Cohen's formula, denoted as d, was utilized in computing the effect size for the t-test, as follows:

Cohen's d = $(x_1 - x_2) / \sqrt{(s_1^2 + s_2^2) / 2}$

where:

- x_1, x_2: mean of sample 1 and sample 2, respectively.

- s_1^2, s_2^2: variance of sample 1 and sample 2, respectively

Group 1		Group 2	
Mean (*M*):	10.9	Mean (*M*):	14.0
Standard deviation (*s*):	3.45	Standard deviation (*s*):	2.87
Sample size (*n*):	60	Sample size (*n*):	60

Calculate   Reset

Success!

Cohen's *d* = (14 - 10.9)/3.173279 = 0.976907.

The examination of the effect size utilizing Cohen's d reveals a significant influence of the VAK model on vocabulary learning, with a value of 0.97.

Vocabulary is a crucial part of speech because it is the key building block for constructing meaningful sentences. The research is conducted to evaluate the effect of Fleming's technique on teaching vocabulary at the primary level in Pakistan. Through literature review, it has been noticed that there is no enduring methodology through which language teachers can teach vocabulary. Traditional specific ways are not enough at the primary level. Therefore, new methodologies should be introduced.

Fleming's method of teaching vocabulary has been proven significant as shown by the results. The results are interpreted through SPSS, which is an authentic tool to interpret the results. Following the examination of both the Independent Sample t-test and effect-size assessment, it becomes apparent that the VAK model holds the potential for enhancing vocabulary acquisition. In the Independent Sample t-test findings, the low p-value of 0.000 confirms the rejection of the null hypothesis (H0), thereby supporting the acceptance of the alternative hypothesis (Ha). This suggests a significant difference between the pretest and post-test scores within the group. Additionally, the application of Cohen's d formula on the Independent Sample t-test outcomes reveals a substantial impact of the VAK model on English vocabulary learning. This implies that the integrated approach to teaching vocabulary has helped English language learners to learn vocabulary effectively.

Incorporating auditory, visual, and kinesthetic components into vocabulary learning tasks enhances learner engagement and motivation throughout the educational journey. As outlined by Hamalik (2004), the learning process comprises various aspects like motivation, educational tools, learning materials, learning conditions, and learning environment. During the intervention, the teacher has seen how students are keen on learning vocabulary through the VAK approach. The results coincide with the results of Suaib (2017). He concluded that visual, auditory, and kinesthetic learning techniques in vocabulary instruction enhance the success of students as the researcher compared the means of experimental posttest with control group posttest. His study also reveals that language teachers enjoy more when they teach by amalgamating visual and auditory techniques. Saswandi et al., (2023) also concluded the same results by examining the relationship between VAK and motivation in vocabulary learning.

Considering the diverse preferences among individuals regarding information absorption, educators can promote active participation and comprehension among all

learners by accommodating various modalities. Siregar (2018) also accords the same results. He underscores that the VAK learning model makes learning an effective process as also seen in the case of under-studied research results. Utilizing the VAK model in writing instruction allows students to leverage their learning styles, whether they prefer a single style, a combination of two, or encompass all modalities (visual, auditory, kinesthetic) for vocabulary acquisition. Deporter et al. (2010) support this notion, asserting that the VAK model enhances the learning process, thus establishing its suitability for vocabulary instruction.

Viewed through the lens of multiple intelligences, the VAK model offers avenues for students to align their learning with their styles. Based on the Quantum learning model, the VAK approach is a part of teaching methods that aim to support various types of intelligence, such as linguistic intelligence. In language acquisition, students who have linguistic intelligence can effectively combine the three learning styles available to them (Fathani, 2011). Zoghi (2017) suggests that tailoring instruction to students' learning styles can expedite the enhancement of linguistic intelligence, a factor pivotal in advancing writing skills. Moreover, Brown (2001) emphasizes the significance of considering students' personalities or learning styles in fostering language proficiency.

Conclusion

Vocabulary, being fundamental to every language, occupies a significant position within linguistic structures. Wilkins emphasizes the crucial role of vocabulary, stating that "Without grammar, very little can be conveyed; without vocabulary, nothing can be conveyed". Vocabulary learning is pivotal in acquiring proficiency in a foreign language. English teachers typically approach the teaching of English vocabulary conventionally, yet this method encounters numerous challenges. Keeping in mind the problems, the study is conducted to enhance the vocabulary. The study deals with how language teachers can improve the vocabulary of foreign language learners at the primary level. The language students are taught through the VAK model, and the results are checked through SPSS. The study concludes that the VAK model has proven effective in teaching foreign language learners as the 0.000 *p-value* is achieved which shows the significance effect before and after intervention. Language teachers, in Pakistan, stress students to memorize the vocabulary through rote learning. Therefore, language students are unable to master the skill at a higher level in life. Students need to be taught at a basic level. To conclude, the VAK model has been proven efficient in enhancing the vocabulary of Second language learners at the primary level.

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