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The Effect of Using VARK-Based Instructional Strategies to Enhance Lexical Competence among EFL Secondary School Students

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Abstract

Multiple learning styles have been associated with individuals in recent comprehensive studies. An individual's learning style is indicative of how well they take in and retain new knowledge. When it comes to sensory attribute classification, VARK's framework is the most well-known among the several learning model methods. The aims of this study are (1) to find out the effect of instructional strategies informed by the VARK model (visual, aural, read/write, kinesthetic) in enhancing EFL learners' lexical competence and (2) to identify which VARK learning modalities (visual, aural, read/write, kinesthetic) are most effective in enhancing lexical competence. It's hypothesized that (1) there is no statistically significant difference in the lexical competence of EFL learners taught using VARK-based instructional strategies compared to those taught using traditional methods. (2) There is no statistically significant difference between the four types of modalities (visual, aural, read/write, kinesthetic) at the significance level (0.05). To achieve these aims, 50 sixth-year school students have been taken from Al-

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Muhsin Secondary School in Diyala province and participated in this study and have been randomly assigned to the experimental and control groups. The experimental group has received VARK-based instructional strategies. In this study a validated test and various statistical tools have been used to analyze the collected data. According to the findings, several conclusions and recommendations are put forward.
Keywords: Learning style, VAK, lexical competence, VARK model, Honey model

الأثر الناتج عن استخدام استراتيجيات التدريس المستندة الى نموذج فارك في تنمية الكفاءة المعجمية لدى طلبة المرحلة الثانوية من متعلمي اللغة الإنكليزية

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المستخلص
ارتبطت أنماط التعلم المتعددة بالأفراد في دراسات شاملة حديثة. إذ يُعد أسلوب التعلم الخاص بالفرد مؤشرًا على مدى قدرته على استيعاب المعرفة الجديدة والاحتفاظ بها. وعند تصنيف السمات الحسية، إذ يُعد إطار عمل "VARK" هو الأكثر شهرة بين عدة نماذج تعليمية، ويتضمن الأنماط التالية: البصري، السمعي، القراءة/الكتابة، والحركي .تهدف هذه الدراسة إلى:
١. معرفة أثر الاستراتيجيات التدريسية المستندة إلى نموذج VARK في تعزيز الكفاءة المعجمية (اللفظية) لدى متعلمي اللغة الإنكليزية لغة أجنبية.
٢. تحديد أكثر أنماط VARK فعالية (البصري، السمعي، القراءة/الكتابة، الحركي) في تنمية الكفاءة المعجمية. وقد وُضعت الفرضيتان الصفريتان التاليتان:

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١.لا توجد فروق ذات دلالة إحصائية في الكفاءة المعجمية بين متعلمي اللغة الإنكليزية الذين تم تعليمهم باستراتيجيات مستندة إلى نموذج VARK وأولئك الذين تم تعليمهم باستخدام الأساليب التقليدية.
٢. لا توجد فروق ذات دلالة إحصائية بين الأنماط الأربعة (البصري، السمعي، القراءة/الكتابة، الحركي) عند مستوى دلالة (0.05). ولتحقيق أهداف الدراسة، تم اختيار (50) طالبًا من طلبة الصف السادس الإعدادي في ثانوية المحسن للبنين في محافظة ديالى، وتم توزيعهم عشوائيًا على مجموعتين: تجريبية وضابطة. وقد تلقت المجموعة التجريبية استراتيجيات تدريس مستندة إلى نموذجVARK ، في حين تلقت المجموعة الضابطة تدريسًا تقليديًا. في هذه الدراسة، تم استخدام اختبار مُحكّم وأدوات إحصائية متنوعة لتحليل البيانات التي تم جمعها. وبناءً على النتائج، قُدِّمت عدة استنتاجات وتوصيات.
الكلمات المفتاحية: أسلوب التعليم ، نظرية فاك ، المعجمات اللفظية ، نظرية فارك ، نظرية هوني

1.1 The Problem of the Study

Many EFL secondary-school students face various challenges when learning vocabulary using VARK-based teaching strategies. One major problem is the discrepancy between students' preferred learning styles and those used by teachers, which often rely heavily on auditory or traditional literacy approaches. As Fleming (2006) stated that when instructions don’t associate with students’ learning styles, their ability to gain and keep vocabulary could be significantly reduced. Additionally, many students lack an understanding of their learning strategies, which limits their ability to benefit from multimodal teaching methods. Furthermore, the integration of many senses in one session may increase students’ cognitive load, especially for those who have low language proficiency. In addition to that, students may face challenges when they are not exposed to vocabulary through different instructional media and if the words are not used in meaningful communication.

Furthermore, Dornyei (2001) asserts that numerous students might not receive instruction aligned with their chosen VARK learning style, resulting in diminished involvement in vocabulary acquisition. Students can remember the learned words in the classroom, but they are unable to use them in their real-life conversations or communications. It’s noted that

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without repetition and meaningful application, the vocabulary acquired from multimodal input couldn't be retained long term.

To solve the problem, educators can adapt their methods of instruction to meet the needs of their students, who all have unique preferences when it comes to how they learn best. If teachers are aware of how their students learn best, they will be better able to aid kids who are challenging. Becker et al. (2007).

1.2 The Aims of the Study

This study aims at

1. Finding out the effect of instructional strategies informed by the VARK model (visual, aural, read/write, kinesthetic) in enhancing EFL learners' lexical competence.
2. identifying which VARK learning modalities (visual, aural, read/write, kinesthetic) are most effective in enhancing lexical competence.

1.3 The Hypotheses

1.There is no statistically significant difference in the lexical competence of EFL learners taught using VARK-based instructional strategies compared to those taught using traditional methods.

2.There is no statistically significant difference between the four types of modalities (visual, aural, read/write, and kinesthetic) at the significance level (0.05).

2. Literature Review

2.1 Introduction to Learning Style

Speaking and writing are two of the many ways in which English is a powerful language. Yu-Ling (2005) learning style characterizes learning style as "the methods utilized by the student to facilitate the acquisition, retention, retrieval, and application of information, including specific actions undertaken by the student to enhance the ease, speed, enjoyment, autonomy, effectiveness, and transferability of learning to new contexts."

The term "learning style" is used to describe the way a person takes in new information. Jantan and Razali (2002) state that from a psychological perspective, a student's learning style

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can be described as their manner of concentration and the way they absorb and acquire knowledge, information, or experience. From a cognitive perspective, however, learning style is often defined as one of several approaches of perceiving the world and processing data to derive generalizable concepts and principles (Fleming & Baume, 2006). According to Lebar and Mansor (2000), a person's learning style is their preferred method of studying. This has nothing to do with acquiring knowledge but rather with how people naturally take in and make sense of data. A distinct perspective was presented by Yaakub and Hashim (2004), who claimed that learning involves a mental, bodily, and spiritual activity. It is an act that alters one's demeanour and behaviours, evolving steadily and continuously, allowing the person to apply those abilities and knowledge for both their own advancement and the benefit of society. In contrast, Mok (2003) defines a style of learning as the student's chosen method of learning.

Larkin and Budny (2005) assert that "learning style" comprises a biological and developmentally driven set of personal characteristics that make uniform teaching and learning methods advantageous for certain persons and ineffective for others. Drago and Wagner (2004) propose that a minimum of four overarching factors for learning styles is necessary.

1. Mental

Individual information processing involves cognitive processes such as observing, reasoning, remembering, solving issues, and connecting the information to other topics.

2. Emotional

Learning is perceived through one's personality in the emotive dimension. Consider attributes like awareness, emotion, drive, incentive, interest, boredom, worry, and annoyance.

3. The physiological

Physiological aspects of learning are based on biological characteristics, such as the senses (auditory, visual, or kinesthetic) that are used in the learning process.

4. The way psychological learning is connected to one's inner power and uniqueness is one way to view it.

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Learning styles are the framework via which individuals gain knowledge and employ their preferred methods to process information for successful learning. Foley (1999) contended that the notion of style of learning is crucial in recognizing both internal and external differences in individual learners' methods of learning and information processing. He contends that learning styles facilitate enhanced interaction within educational settings.

By taking into consideration student learning styles, teachers may devise successful learning activities and develop an advantageous learning environment that enhances student involvement. Active participation in lectures or classroom activities enhances pupils' ability to process and remember information. Moreover, classroom engagement correlates with favourable outcomes, including increased student satisfaction, improved attendance, elevated grade point averages and test scores, and enhanced persistence (Burris et al., 2008; Sims & Sims, 2006).

Altena (2017) states that the student-centered approach is not an unfamiliar idea; yet growth in its implementation within higher education has been gradual. Student-centered learning has become increasingly crucial. This strategy aims to enhance students' acquisition of essential skills for fulfilment in life, including problem-solving and critical-thinking abilities.

Student-centered learning promotes the enhancement of educational approaches. This strategy asserts that student behaviours are crucial indicators of the process of learning and the efficacy of educational results (Zohrabi et al., 2012). This method in English education is linked to flexible learning, learning through experience, and independent learning (Acat & Dönmez, 2009).

When students work independently, they can generate ideas or take notes prior to class discussions, engage in listening tasks, complete brief written projects, or do grammar and vocabulary exercises. Students may collaborate in pairs or groups to compare and debate their responses or to read and respond to each other’s written work while proposing

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enhancements. Students may collaborate in talks or role-plays, exchanging thoughts, experiences, and ideas. Nagaraju (2013) asserts that these activities confer several benefits to students, including more verbal interaction in English, idea sharing, mutual learning, enhanced security, reduced anxiety, and the opportunity to utilize English in a relevant context.

2.2 Theories of Learning Style

Theories of learning styles delineate the degree to which individuals employ various approaches to learning across diverse areas or themes. The assumptions and underpinnings of instructional method theories differ from one another.

2.2.1. Kolb's experiential learning theory

According to Kolb's experiential learning theory, there are four distinct ways that people take in and make sense of new information: accommodating, diverging, convergent, and assimilative. Assimilating is the main approach among medical students, but converging and accommodating are more common among surgical residents and teachers (Engels & Gara, 2010).

A four-stage learning cycle that allows the student to "touch all the bases" is commonly used to illustrate Kolb's experiential learning style theory: When discussing this four-stage learning process, the words "reflective cycle" and "experiential learning cycle" are sometimes used interchangeably.

Effective learning occurs through a continuous cycle underlying reflection, experience, conceptualization, and experimentation, as posited by the fundamental principle of the concept Kolb (1976), which are:

1. **Concrete Experience:** The learner has a physical experience. This may represent a new situation or event, or it may be an update of previous experiences inside new concepts.

2. **Reflective Observation** regarding the Novel Experience: the learner evaluates the novel experience considering their prior

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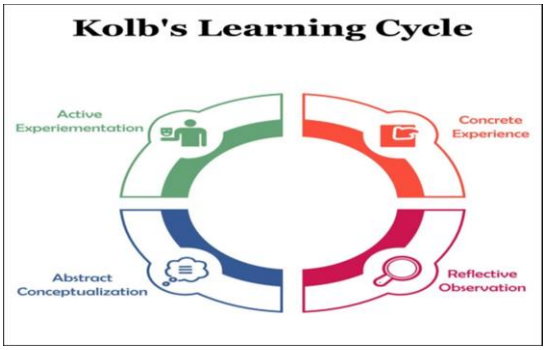
knowledge. Any differences between understanding and experience are particularly important.

3. The procedure by which a person who has gained expertise creates a new idea or alters an existing abstract idea is known as **abstract** conceptualization.

4. **Active Experimentation:** Experimentation is the result of new or modified concepts. The learner applies their thought or thoughts to the surroundings to observe what happens. Refer to the following figure (1):

Figure (1) Kolb's Learning Cycle



2.2.2. Honey and Mumford's Theory

According to Stander et al. (2019), Honey and Mumford's approach classifies students as either activists, reflectors, theorists, or pragmatists. This approach stresses the importance of using a variety of teaching methods to engage all four categories of students.

Mumford (1997) says that four primary learning style preferences have been found by Peter Honey and Alan Mumford:

1. **Activists** are those who acquire knowledge most effectively through practical experience. They are eager to engage in practical tasks and are passionate about embracing challenges and exploring novel experiences.

2. **Theorists** are individuals who excel in learning by comprehending the underlying principles that explain

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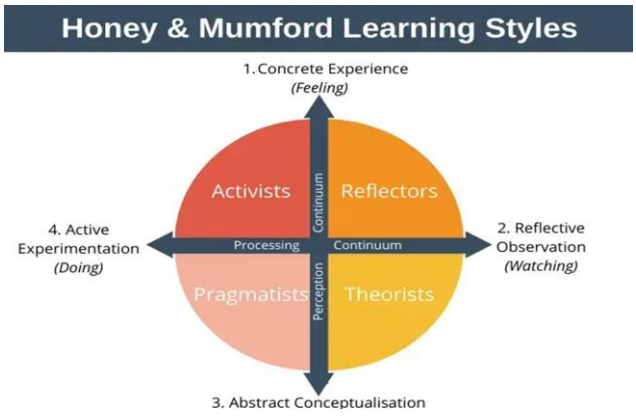
phenomena. They require models, notions, and facts to facilitate effective learning. They like the analysis and synthesis of knowledge to develop their own theories. They prioritize rationality and sensible thought.

3. Pragmatist. Pragmatists acquire knowledge most effectively when they can observe its practical application in real-world scenarios. They prefer to promptly implement a newly acquired concept. They aim to explore innovative applications of their acquired knowledge in practice. They are pragmatic, realistic individuals that prefer to act and accomplish tasks.

4. Reflector. Reflectors are individuals who acquire knowledge most effectively through observation of others and subsequent contemplation of their observations. They refrain from immediate engagement and opt to observe initially. They prefer to gather facts from diverse sources and viewpoints, thereafter analyzing it meticulously before arriving at any judgment . They are prudent and want to evaluate all aspects before acting. **See figure (2)**

Figure (2) Honey & Mumford Learning Style



2.2.3. VAK Theory

The VAK theory, recognized as a traditional learning theory in education, is commonly referred to as VAKT, encompassing

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visual (V), auditory (A), kinesthetic (K), and tactile (T) modalities (Mackay, 2007). Miller (2001) characterized the VAK learning style as a model of perceptual and instructional preferences that categorizes learners based on their sensory inclinations. Byrnes (2010) asserted that “the VAK framework can be employed to integrate various learning strategies into educational settings and tasks." Mackay (2007) posited that, based on the VAK style of learning, most individuals had a predominant style of learning that may correspond with other preferences. See figure 3.

Figure (3) The Vak Model

2.2.4. The VARK Model

The VARK learning style model, developed by Neil Fleming in 2006, is an adaptation of the VAK model. According to Fleming (2006), children with an aural learning style typically acquire information through discussion and auditory engagement. In reading style, these students can comprehend and interpret printed material. Students with a visual learning preference are more inclined to engage with learning by interpreting charts, graphs, and images. The kinesthetic modality emphasizes learning through sensory experiences, including touch, sight, and sound. Researchers intend to perform a study to gather students' feedback on computer-based learning, informed by the tendencies of each modality. VARK represents Visual (V), Aural (A), Read/Write (R), and Kinesthetic (K).

Fleming (2006) asserts that visual learners favour maps, graphs, charts, diagrams, highlighters, varied colours, images,

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visual representations, and diverse spatial configurations. Aural learners prefer to articulate new concepts to others, engage in discussions with peers and instructors, utilize tape recorders, participate in lectures, and attend discussion groups that incorporate humour. Read/Write learners favour lists, essays, reports, books, definitions, printed materials, readings, websites, and note-taking. Kinesthetic learners prefer experiential activities like as field excursions, trial and error, practical engagement for comprehension, laboratories, recipes, problem-solving, tactile methods, sensory experiences, and the use of collections and samples. Materna (2007) posited that visual learners acquire knowledge most effectively through the observation of material conveyed via talks, videos, and films

Orgodol & Sukhbayar (2023) say that the VARK model serves as an effective pedagogical approach for educators, enabling them to cultivate a more engaged and efficient learning environment by integrating diverse instructional methods that cater to various learning preferences. Educators acquainted with using the VARK model can use it to discern their students' learning preferences and modify their instructional strategies to more effectively address their students' requirements.

This learning approach is adapted by categorizing students into four distinct modes. The modalities derived from various senses—visual, auditory, reading, and kinesthetic along with the model's designation, stem from the initial letters of these senses (V, A, R, and K). Ismail (2010) asserts that categorizing pupils by learning modality is essential for evaluating the efficiency of lessons tailored to various VARK learning styles.

A. Visual (V)

Fleming (2006) states that visual learners favour acquiring knowledge through visual aids, including diagrams, films, and photographs. Individuals generally retain knowledge better when it is conveyed visually. This indicates that their engagement in learning is heightened when visual aids accompany the

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instructional material. Visual learners typically prefer engaging in activities like reading books and seeing films that provide abundant visual elements. They are often proficient in recalling faces and locations, utilizing visual aids such as mental imagery or maps to facilitate memory retention.

B. Aural (A)

Wolfman & Bates (2005) state that aural learners favour acquiring knowledge through auditory stimuli, such as sound and music. They appreciate auditory stimuli such as talks, debates, and music to aid in information retention. Aural learning, or auditory education, is an instructional style in which individuals favour acquiring knowledge via sound and music. Individuals with this learning style generally prefer auditory stimuli, such as lectures, discussions, and music, to aid with information retention. Aural learners tend to retain information better when it is heard rather than read. They may find Audible books or podcasts advantageous and might prefer listening to recorded lectures instead of taking written notes.

Orgodol and Sukhbayar (2023) state that audio learners can be highly effective when equipped with appropriate tools and resources that align with their learning style. Aural learners can augment information retention and enhance academic achievement by integrating music and sound into their study regimen.

C. Read/Write (R)

Read/write learners favour acquiring knowledge via reading and writing activities. They derive pleasure from studying textbooks while taking notes, and they generally retain material better when they transcribe it (Orgodol & Sukhbayar, 2023).

Zhang (2004) asserts that read/write learners are persons who favour acquiring knowledge by reading and writing. They derive pleasure from reading textbooks and note-taking, and they generally retain material more effectively when it is written down. This indicates that students are more inclined to engage in

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learning when text-based resources accompany the instructional content.

In an educational setting, educators can utilize text-based resources such as books, handouts, and notes from lectures to assist read/write learners in comprehending and retaining the material presented. This is especially beneficial in disciplines like history, literature, and law, where proficiency in written communication is essential. Moreover, read/write learners may find it advantageous to utilize resources like flashcards or to develop their own study aids to facilitate information organization and reinforce essential topics.

D. Kinesthetic (**K**).

Orgodol and Sukhbayar (2023) say that kinesthetic learners favour acquiring knowledge through physical engagement and practical experiences. They relish conducting experiments, engaging in collaborative projects, and participating in role-playing activities.

Fleming (2001). States that kinesthetic learners typically possess robust motor abilities and prefer to utilize their body for self-expression. They typically excel in dance, sports, and other physical pursuits necessitating coordination and balance. They are also proficient in problem-solving through trial-and-error techniques.

The VARK model enables the assessment of individuals' preferences for visual, auditory, reading/writing, and kinesthetic learning modalities. According to the VARK model, visual learners acquire knowledge most effectively when information is conveyed through visual and written formats. Aural learners acquire knowledge most effectively when information is conveyed vocally. Individuals who excel in reading and writing have more efficacy when acquiring knowledge through the read/write modality. Kinesthetic learners acquire knowledge most effectively through bodily engagement in activities (Yeşilyurt, 2019).

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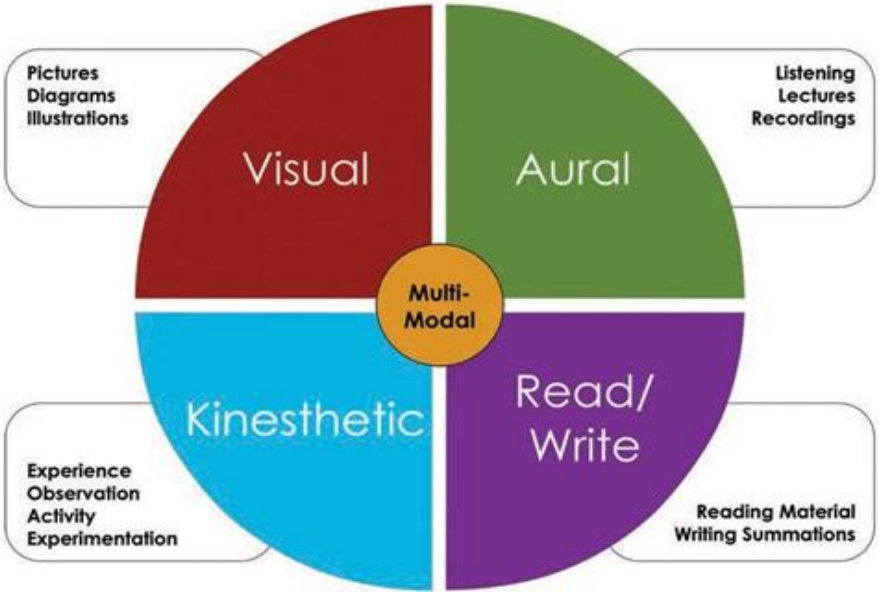
Identifying students' learning styles using the VARK model can improve their educational and training experience. Assessing the learning styles of educators and pre-service instructors will enhance their self-awareness and contribute to their educational development by fostering an understanding of their learning preferences throughout instruction (Düzgün, 2018). See figure (4)

Figure (4) The VARK Multimodal



2.3. Lexical Competence

Ahmadjonovna (2019) states that lexical competence denotes the comprehension of a language's structure and the capacity to employ it effectively. It encompasses the ability to utilize vocabulary, word associations, expressions, and other lexical components, reflecting both understanding and application skills accurately and proficiently. This competence is deemed essential in language acquisition, as adept language use amplifies the learner's interactive and expressive capabilities. Lexical competence facilitates the interpretation of meanings of words and phrases, familiarizes individuals with new vocabulary, and instructs them in the correct and effective usage of language. Cultivating lexical competence is crucial for students' future development in reading, writing, vocabulary, and speech. It empowers students to enhance their linguistic

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proficiency and expand their expressive range, thereby creating avenues for articulating their ideas and achieving communicative success.

The instruction of professional vocabulary in foreign languages is based on general didactic principles (accessibility, scientific rigour, awareness, engagement, systematicity, understanding of information acquisition, competencies, and retention, and the use of visual strategies) and methodical concepts (inspiration and motivation). An advantageous attitude towards specialized foreign language acquisition concerning vocational vocabulary education requires attention to students' professional training and being consistent with the foreign language curriculum's standards. The principle of systematic learning of professionally oriented lexical material should be founded on intricate non-communicative and conditioned communicative reading exercises, fostering the simultaneous development of speaking and writing skills alongside professionally oriented lexical competence. This should be established through practical sequences that incorporate fundamental principles and training content (Olga & Maryana, 2020).

Improving professional vocabulary proficiency of a foreign language is essential for enhancing the level of their language education. Vocational vocabulary is the fundamental component of both expressive and receptive speech activities once students comprehend it, or more importantly, master the lexical material relevant to their profession. Therefore, if applicable in many professional contexts, we can confidently state that the students have achieved both lexical knowledge and competency in all types of conversation. (Bakirova 2022).

2.4 Previous Studies

2.4.1 Md. Zain, et.al (2019) “VARK Learning Style Towards Academic Performance among Students of Private University in Selangor”

This study investigates the influence of the ways students learn on their academic achievement and identifies preferred

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methods of learning among high and poor achievers, as well as across gender and various clusters. It was determined that all pupils were single-modal learners, with Kinesthetic (K) being the predominant preference. High achievers favoured Kinesthetic learning, whereas low achievers favoured Read/Write learning. Male students favoured Kinesthetic learning, but female students favoured Visual learning. Students of social sciences favoured the Aural learning style, but students of pure sciences chose the Read/Write learning style. This study shows that students' academic performance at the private university in Selangor is favourably and significantly influenced by their preferences for visual (V) and kinaesthetic (K) learning styles.

2.4.2 Nurhaliza and Sari (2022) "Improving Eighth Graders' Vocabulary mastery Through Students' Learning Style - VARK-Based Flashcards"

This study aimed to enhance vocabulary proficiency among eighth-grade students at a state junior high school located in Teluk Keramat, Kalimantan. The VARK questionnaire was employed to ascertain students' learning styles, revealing that the majority are Read/Write learners. The research employed classroom action methodology consisting of two cycles and involving 33 participants. The findings indicated that the use of VARK-based flashcards enhanced students' vocabulary proficiency, yielding an average score of 34.9 in the pre-test, 54.2 in the first post-test, and 72.5 in subsequent post-test cycles.

3. Methodology

An experiment is carried out to support the goals of the study and validate its hypotheses. To verify the hypothesis and determine the study findings, the researcher has discovered that the experimental approach is a method that requires a thorough grasp of the relevant system.

3.1 Participants

During the academic year 2024–2025, Sixth-year EFL school students in Almuhsin Secondary school participated in

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the current study. Fifty sixth-year students were split into two groups at random: Group (**A**) was the experimental group, and Group (**B**) was the control group. There were 25 participants in each of the two groups that participated in the current study. Table (**1**) displays the two student groups that make up the study sample.

Table (1)
The Sample of the Study

Sections	Groups	No. of sample
A	**Experimental**	**25**
B	**Control**	**25**
Total		**50**

3.2 Validity of the Test

The most crucial factor in the design and assessment of measuring devices is validity. Hughes (2003) shows that if a test measures the desired result, it is valid. In nature, validity refers to measuring what is supposed to be measured (Field, 2005). If a test assesses the intended outcome, it has face validity (Caldwell, 2008). Content validity is the extent to which components of an assessment tool are reflective of and pertinent to the target construct (Saiful, 2019). Face validity is the fundamental form of validity; it represents an assessment by the community of scientists that the indicator accurately measures the construct (Riazi,1999). A jury member with expertise in English who agrees with all the test questions to make sure the test's face validity is exposed to it. See Appendix (A)

3.3 Reliability

Franzen (2013) posits that a fundamental attribute of an effective instrument is dependability, defined as the reliability or stability of the score values produced by the instrument. The test-retest measurement indicates that if identical respondents undertake the test at two distinct time intervals, their replies should be consistent, and the resultant data should be replicable. Joel (2021) describes reliability as the degree to which a test accurately assesses what it intends to measure, considering its

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consistency and precision across various conditions and formats. The posttest's reliability is evaluated using the Alpha-Cronbach formula, resulting in a coefficient of 0.80, which is considered acceptable.

4.Results and Discussion

After using the suitable statistical formula, the obtained result will be discussed below as follows:

4.1 Results related to the first hypothesis.

To test the first hypothesis which states that **"**there is no statistically significant difference in the lexical competence of EFL learners taught using VARK-based instructional strategies compared to those taught using traditional methods." Table (2) shows that the mean score for the experimental group is (51.08) with standard deviation (6.08), whereas the mean score for the control group is (48.92) with standard deviation (8.71). And by using the T-Test formula for two independent samples, the calculated t-value is (1.016), whereas the tabulated is (2.01)) at the degree of freedom (48) and at the significance level (0.05). This result indicates that the experimental student group achieved better than the control one. This shows that there are significant differences between the two groups, so the first hypothesis is rejected.

Table (2)
Means, Standard Deviation, and t-Values of the Two Groups in the Visual Achievement Test

Groups	No. of Students	Mean	SD.	T-Value		DF	Level of Significance
EG.	25	51.08	6.08	Calculated	Tab.	48	0.05
CG.	25	48.92	8.71	1.016	2.01		

4.2 Results related to the Second hypothesis

To test the second hypothesis which states that "there is no statistically significant difference between the four types of

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modalities (visual, aural, read / write, kinesthetic) at significance level (0.05)," the comparison is made to identify which modals that the students prefer. See Table (**3**) below:

Table (3)
Table 3. One-Way Analysis of Variance (ANOVA)

	Sum of Sequence	DF	Mean score	F-Value		Sig.
				Comp.	Tab.	
Between groups	126.850	4	41.660	3.048	2.69	0.05
Within groups	3844.646	299	13.350			
Total	3971.496	303				

This result demonstrates that, at the (**0.05**) level of significance and with DF (**303**), the computed f-value is higher than the tabulated one (**2.69**). As a result, there is a significant difference between students' performance in the four modalities of VARK**.**

Table (4)
The Comparisons of Means Between the Four Types of VARK Modalities

Types of VARK	No. of Students	The Mean score
Visual	25	11.18
Aural	25	9.64
Read/Write	25	10.14
Kinesthetics	25	9.67

According to the table (**4**), The Comparisons of Mean scores shows that the mean scores of the four types are finding visual is (**11.18**), Aural is (**9.64**) , Read/ write is (**10.14**) and finally kinesthetics is (**9.67**) , this means that students favour visual modal more than others , so the second hypothesis which states that there is no statistically significant difference between

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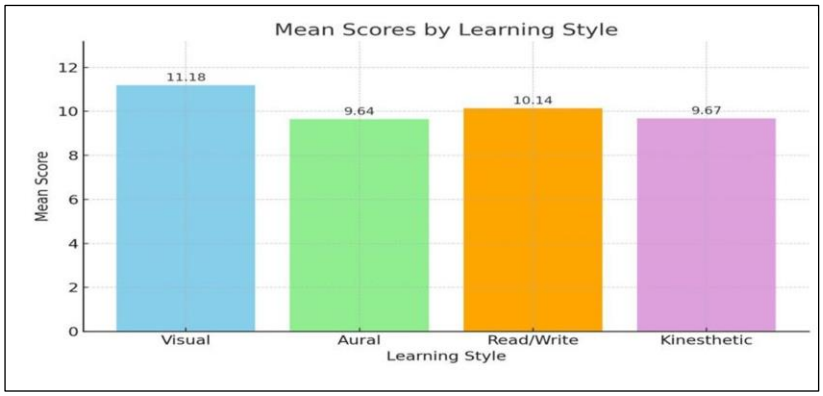
the four types of modalities (visual, aural, read / write, kinesthetic) at a significance level (**0.05**) is rejected.



4.3. Discussion of Results

Based on the results, the students perform well in the visual learning style due to the mean scores they have got, so the student perform best when the information is presented in a visual format, such as charts, diagram, videos etc. Students show they are comfortable with read/write learning style according to their highest scores. They benefit from textbooks and written instruction. In kinesthetic learning style, due to the scores that students have got appear to be the least effective mode for this group. The aural style has the lowest means score. This indicate that students are weak at the listening learning style, firstly, since they lack exposure to authentic listening material. Secondly, the students depend on teacher-centered instruction. Consequently, there needs increasing use of technology and explicit listening instruction to help them build competence and confidence in this essential area.

In relation to the previous studies, Md. Zain, et.al (2019), the result shows that this study shows that students' academic performance at the private university in Selangor is favorably and significantly influenced by their preferences for visual (V) and kinesthetic (K) learning styles. Also, depending on the learning style of the students, VARK-based visual aids could be utilized as a substitute tool to help them acquire English vocabulary more effectively, whereas my study as mentioned above has the same preference in learning style, i.e. the students prefer visual and read/ write learning style.

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In sum, and according to the obtained results, using VARK in the EFL classroom requires the teacher to consider the text or the context carefully, the time that the students need, and the students' training. It's clear that adequate teacher training and student support are essential for VARK-based solutions to achieve their potential.

5. Conclusions

From the study's findings, the researcher can draw the following conclusions:

1. Students' performance in the visual learning style is satisfactory.
2. The read/write learning style comes next according to the mean score they got, i.e. the students perform well and accepted.
3. At Kinesthetics learning style, their performances are dissatisfied, so they should expose to activities that support their learning.
4. At aural learning style, the students got the lowest mean scores, so they are weak at listening.

6. Recommendations

The following recommendations are offered in light of study findings:

1. More visual materials might be incorporated such as using charts, diagrams mind map, videos to enhance students' lexical competence and to encourage them reinforce comprehension.
2. A well-structured handouts, reading passages should be provided to students to give them chances to take notes.
3. To improve students' aural processing skill, it should reinforce real activities such as role playing, physical games, pair oral instructions, group discussion, etc.

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Appendices

Appendix (A)the jury members

No.	Name	Specification	University
1	Prof. Israa' B. Abdurrahman	Linguistics	Tikrit
2	Prof. Manal M. Omar	ELT	Tikrit
3	Prof. Nagham Q. Yahya	ELT	Tikrit
4	Inst. Wafaa Naji (Ph.D.)	ELT	Tikrit

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Appendix (B) The Test

Visual Test

Q1: Put each word with the right picture.

(Old, wet, tired, hopeful, and kind)





Aural Test

Q2: Listen to the audio and pick the right answer.

1. The doctor asked the patient to open her …… (eyes , mouth , hand)
2. One minute, the patient felt ……. (cold , warm , hot)
3. The X-ray machine showed that the patient's …… is fractured (wrist , ankle , elbow).
4. The patient was ……. (sitting , running , falling) in high heels.
5. The patient can't swallow because of her ……. (wrist , throat , heart)

Read / Write

Test Q3:

Fill in the blanks in this text with the right words:

I always try to become a ……. friend. I won a ……. last year for written form the best essay. The teacher used to ……. me to perform better. He helped me to find the right …… while I was having trouble. That's why I …….. to join the school's reading club.

Kinesthetic Test

Q4: Make five stations, each with an activity that uses a word from the word.

Station 1: behave out the way you feel after running (tired).

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Station 2: Walk across the room with confidence and clarify why you are optimistic.

Station 3 (ancient): use blocks to construct an ancient structure and then talk about it.

Station 4 (solution): solve a tiny puzzle and use the word "solution" to explain how you did it.

Station 5 (encourage): give your companion a short speech to boost their spirits.