
Vark Model Integration in Pre-School Learning Materials

Crisvian M. Bacara, MAEd

DepEd., Sindangan, Zamboanga del Norte

ABSTRACT

This study aimed to develop instructional materials in teaching Kindergarten pupils. Specifically, this study discussed the following: the evaluation of the subject matter experts on the developed instructional material; pretest and post-test performance of the DRAM and VARK learning groups; test for significant difference between the performance of the DRAWM and VARK learning groups. The study focused on the development of learning materials for kindergarten pupils with the use of VARK model. This investigation involved the 20-kindergarten pupils, and 1 teacher in Dicoyong Elementary School of Sindangan Central District, Division of Zamboanga del Norte for the School Year 2022-2023.

The developed instructional materials based on VARK model were very satisfactory as evidently shown by the overall mean of 3.42 as evaluated by the subject matter experts and panel of oral examination. The pre-observation of the VARK learning group revealed that most of the pupils were on the visual and audio/hearing learning preferences. Unlike, the DRAM learning group, most of the pupils preferred discussion and memorization. The post-observation of the VARK learning group showed that all pupils were engaged in the different learning styles, namely: visual, audio, reading and writing and kinesthetic. Compared to the DRAM, the pupils were mostly engaged in the discussion, reading and writing and memorization. There is a significant difference in the learning styles of the pupils in the pre-observations and post-observations for the VARK learning group. However, no significant difference was observed from the pupils in the DRAM learning group.

The VARK model's instructional materials received positive feedback from experts, leading to their use in the VARK learning group. The materials reinforced students' learning styles, improving visual, audio, reading, writing, and kinesthetic skills. Although slight improvements were observed in discussion, reading, writing, application, and memorization, the overall learning skills significantly improved.

The study suggests implementing VARK (Visual, Auditory, and Kinetic) learning materials to enhance student performance. School heads should encourage teachers to create instructional materials tailored to individual learning styles and needs. They should monitor classes and encourage continuous improvement of materials. Teachers should use various teaching methods, incorporate discovery learning, problem-solving, and cooperative learning, and provide opportunities for student collaboration. Materials should be visually appealing, relevant, and aligned with learning objectives.

KEYWORDS: VARK Model, Integration, Pre-School, Learning Materials

INTRODUCTION

In accordance with the Republic Act 10157, or "The Kindergarten Education Act" made Kindergarten the compulsory and mandatory entry stage to basic education. Section 2 of this Act provides that all five (5)-year old children shall be given equal opportunities for Kindergarten Education to effectively promote their physical, social, emotional, and intellectual development, including values formation, so they will be ready for school. The Department of Education (DepEd) believes that Kindergarten is the transition period from informal to formal literacy (Grades 1–12), considering that age five (5) is within the critical years in which positive experiences must be nurtured to ascertain school readiness.

Extensive research has shown that this is the period of greatest growth and development during which the brain continuously develops most rapidly and almost at its fullest. It is also the stage when self-esteem, vision of the world, moral foundations are established, and their mind's absorptive capacity for learning is at its sharpest. "The first years of life are important because what happens in early childhood can matter in a lifetime." (Harvard) [1]. In terms of learning, pupils learn in different styles and each may have different learning preferences.

One of the most important uses of learning styles is that it makes it easy for teachers and parents to incorporate them into their teaching. There are different learning styles. The most popular in kindergarten pupils; ones are visual, aural/auditory, reading/writing and kinesthetic in which pupils take in information. 70% of pupils are visual learners, while aural/auditory 10% in reading/writing 5% and kinesthetic learners are 15%. While pupils use all of their senses to take in information, they seem to have preferences in how they learn best. In order to help pupils to learn, teachers and parents need to teach as many of these preferences as possible. The finding showed that the children's preferred auditory learning style by the viewpoint of his mothers. Therefore, the teachers stated that visual learning style is preferred in kindergarten pupils.

The VARK Model in learning materials preparation for kindergarten pupils has been employed. This application of teaching methods that consider *visual (V)*, *Aural/Auditory (A)*, *reading/writing (R)* and *kinesthetic (K)* preferences for learning has been used for a number of years in the economics classes at elementary school, kindergarten of Dicoyong Elementary School, Sindangan Central District. However, its effectiveness has not yet been evaluated and identified. This study aimed to measure the effectiveness of The Use of VARK model in learning materials preparation for kindergarten pupils.

STATEMENT OF THE PROBLEM

This study aimed to develop instructional materials in teaching Kindergarten pupils. Specifically, this study sought answer to the following questions:

1. What is the evaluation of the subject matter experts on the developed instructional materials?
2. What is the pretest and post-test performance of the DRAM and VARK learning groups?
3. Is there a significant difference between the performance of the DRAWM and VARK learning groups?

METHODS

This investigation involved the 20-kindergarten pupils, and 1 teacher in Dicoyong Elementary School of Sindangan Central District, Division of Zamboanga del Norte for the School Year 2022-2023.

The developed instructional materials were subjected to a validation process by three subject matter experts. The ratings, comments and suggestions of the evaluators served as basis for revision and modification before it was implemented to the kindergarten pupils. The evaluation of the subject matter experts was considered in describing the instructional materials based on its content and structure, engagement and interactivity, clarity and readability, and visual design and aesthetic.

One group of pupils was taught with the DRAM model while the other group was taught with the aid of the developed instructional materials using the VARK model. Both groups were subjected to a posttest to determine whether the instructional materials are helpful in the pupils' learning on the given competencies by comparing their scores.

The frequency and percentage distribution were applied to analyze and interpret the distribution of the pupils in terms of the VARK model. The mean was used to analyze the evaluation of the subject matter experts. The t-test was used to establish the significant difference between the learning styles of the pupils before and after the VARK model instructional materials utilization.

RESULTS AND DISCUSSIONS

Evaluation of the Instructional Materials Based on Subject Matter Experts

Table 1 shows the evaluation of the instructional materials based on subject matter experts' judgments.

The subject matter experts rated the instructional materials as to the content and structure, engagement and interactivity, clarity and readability and visual design and aesthetic. In general, the developed instructional materials based on VARK model were very satisfactory as evident by the overall mean of 3.42.

In terms of content and structure, it registered a mean of 3.0, which is denoted as satisfactory. Evaluating the content and structure of instructional materials means assessing the quality of the contents included in materials used for instructional purposes. In this study, it could be that the instructional materials were satisfactory insofar as the accuracy, relevance of the content, organization and presentation and supporting the various objectives.

In terms of engagement and interactivity criteria, it can be observed that the mean of the experts' evaluations is 3.33 which denotes satisfactory. This means that the instructional materials satisfactorily meet the needs of the pupils, capture the pupils' attention, and engaging. The materials allow learners to engage interactively leading to better retention and comprehension of the content.

On the aspect of clarity and readability, it registered a mean of 3.67, interpreted as very satisfactory. This implies that the developed instructional materials were easy to understand and clearly convey

the desired content. The materials were written in a concise, logical format and accessible to all learners. It employed simple language, and provided plenty of examples.

The visual design and aesthetic aspect of the instructional materials were very satisfactory as evident by the mean of 3.67. The materials reached out to learners in a meaningful way, aesthetically pleasing, with colors and graphics that are eye-catching and relevant to learning objectives.

Wang and Kaufman [2] found out from their survey and interview among middle and high school English language arts and mathematics teachers that instructional materials should be engaging and appropriately challenging for students, and easy to use for teachers. In addition, materials should be connected to the real world and to students' interests.

Table 1. Evaluation of the Instructional Materials Based on Subject Matter Experts' Judgments

Criteria	Subject Matter Experts			Mean
	A	B	C	
Content and Structure	3	3	3	3
Engagement and Interactivity	3	4	3	3.33
Clarity and Readability	4	4	3	3.67
Visual Design and Aesthetic	4	4	3	3.67
Overall Mean				3.42

Legend: 4.21 – 5.00 Excellent (E); 3.41 – 4.20 Very Satisfactory (VS);
2.61 – 3.40 Satisfactory (S); 1.81 – 2.60 Poor (P); 1.00 – 1.80 Needs Improvement (NI)

Pretest and Post-test performance of the DRAM and VARK Learning Groups

A pre-observation of VARK learning study was conducted by the researcher which yielded the following distribution of the pupils according to their preferred learning styles. Figure 2A shows the distribution of the pupils. Out of 10 pupils, nine were observed to visual; 9 learned by audio/hearing; 6 preferred reading and writing; and 7 were kinesthetic. It could be said that most of the pupils were visual and audio learners as observed during the pre-implementation of the instructional materials.

According to Roell[3], one way to be truly successful in the classroom is to identify the different learning styles of the learners. If the teacher knows how the pupils learn best, he can use specific methods to retain what they learn in class. Different learning styles require varied methods to keep the pupils motivated and successful in the classroom.

Visual learners are individuals who learn best by seeing. They prefer visual aids such as diagrams, charts, videos, and demonstrations. They are more likely to remember something if they can create a mental image of it and visualize the information in their minds.

Auditory learners are individuals who learn best through sound. They may prefer listening to lectures, dialogues, stories, and podcasts. They may remember auditory information more easily or remember it for longer periods of time than printed or visual information. They may also be able to draw mental images and connect new information more readily when spoken out loud.

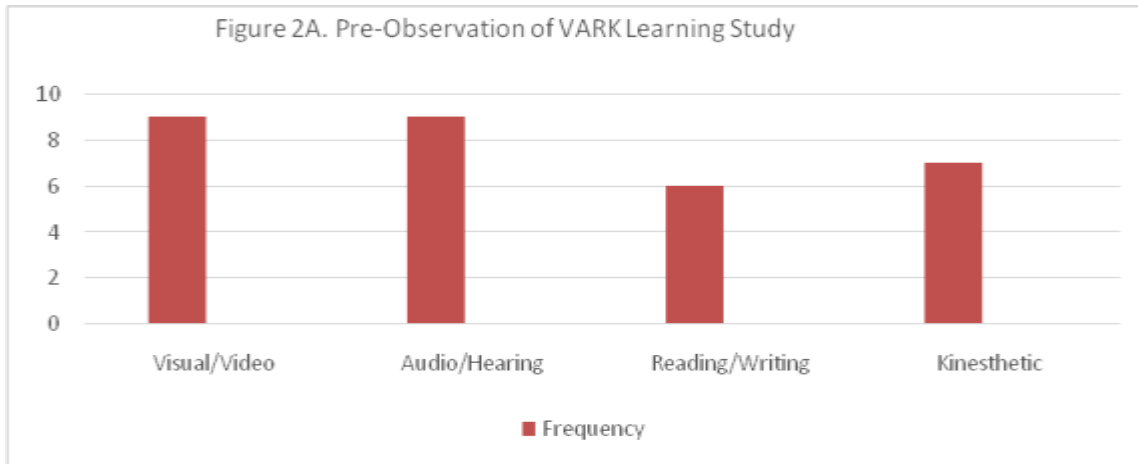
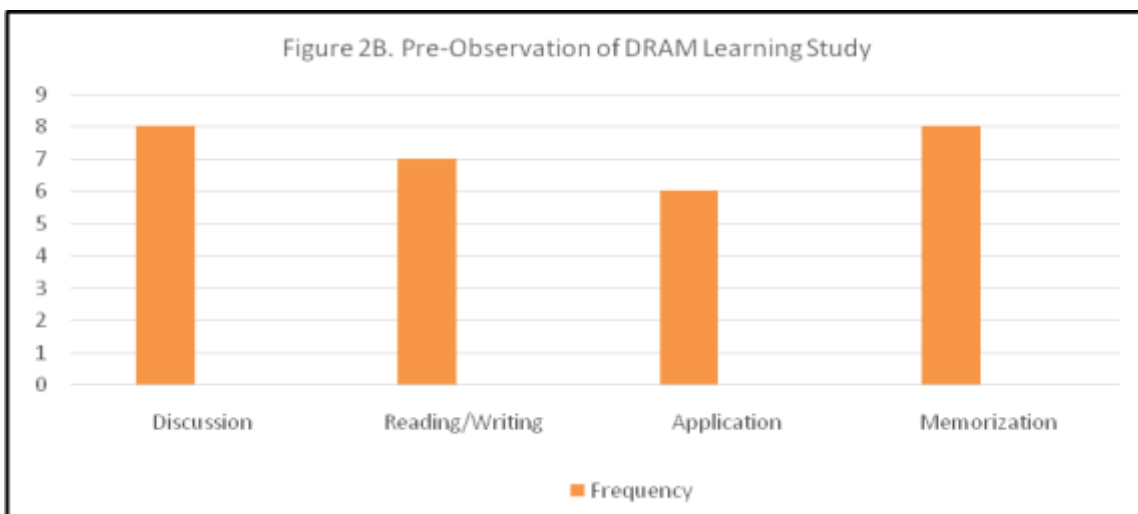


Figure 2B shows the pre-observation of DRAM learning study. The figure that most of the pupils, 9 out of 10 pupils preferred discussion; while the same number of pupils learned best when given memorization activity; 7 pupils preferred reading and writing; while 6 were observed to prefer application activities.

In the pre-observation for discussion the teacher write the letter in the board and discuss without any materials to show to the pupils, 8 pupils are participating the discussion and 2 of them not listening they only take a NAP, Reading/Writing let the teacher write the letter written on the board only 7 pupils can write and the 3 pupils need to carry their hands to write. For Application 3 pupils can't write and 1 pupil cry because he is tired to write. For Memorization the teacher gave 1 letter to memorize, 2 pupils can't memorize and 8 pupils can memorize their assignment.

Shafer [4] emphasized that every child learns at their own pace, so teachers must be patient and provide individualized support as needed. They need to keep activities engaging and interactive to make learning to write letters for example a positive experience for the kindergarten pupils.



In Figure 3A, it shows that 10 of the 10 pupils or 100.00 percent were observed to have participated and engage in the different instructional materials on visual, audio or hearing, reading/writing and kinesthetic exercises. Identifying the learning styles of the learners helps the teacher tailor the learning experiences of the learners to suit their unique preferences. When learners are taught using a method that aligns with their learning style, they tend to understand the material better and retain the information for a longer period of time. This leads to better performance, increased motivation, better engagement, and higher confidence levels.

Determining the learning styles of pupils is important because it allows teachers to tailor their instruction to the individual needs of each student. By determining the learning style of a student, teachers can identify how best to present information, in the most effective way, for that particular student. Studies have shown that students who are taught in line with their learning style are more likely to be engaged, successful, and to retain the information long-term.

Magulod[5] studied the relationship between students' learning styles and academic performance. It was found that a significant relationship between learning styles and academic performance of students. Likewise, it was revealed that students prefer learning with divergent learning styles, as it enhance students' academic achievement.

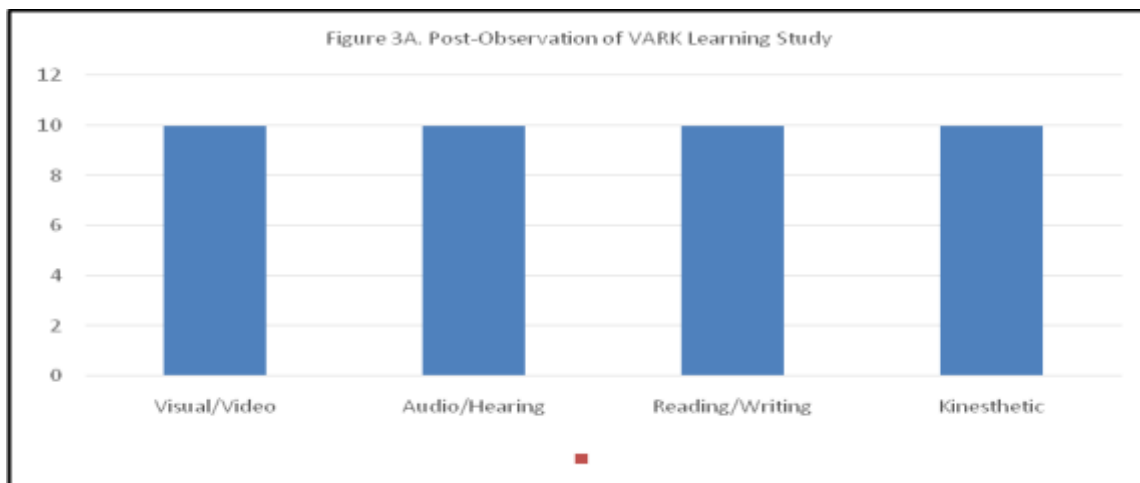
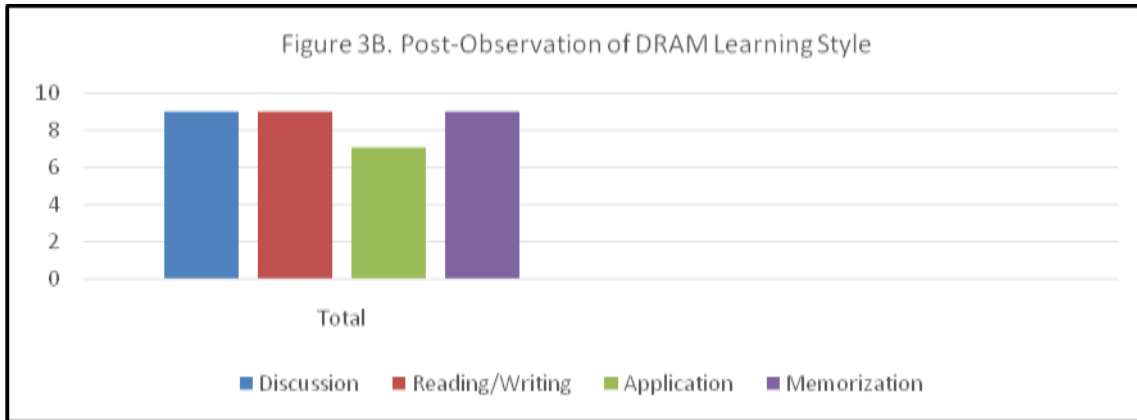


Figure 3B shows the post-observation of traditional learning style. It can be observed that 9 pupils participated in the discussion, same number were able to read and write; and 9 engaged in memorization exercises. Seven pupils engaged in the application activities. The findings pointed out that activities which involved discussion, reading and writing and memorization were also learned and engaged by the pupils in the DRAM learning group.

Pupils engagement to activities requiring discussions, reading and writing and memorization in kindergarten classes is important to ensure a smooth and successful transition from home to school. Through meaningful discussions, reading, and writing, and memorization of activities, young students begin to develop the language and communication skills needed for successful participation in a classroom environment. Socially, these activities ensure that children learn to express themselves, work with their peers, and develop an understanding of the classroom setting. Cognitively, these activities help children to learn new concepts through depth of learning and

enable teachers to see the progress of students. Finally, memorization tasks such as memorizing the alphabet or numbers can introduce fundamental information needed for academic success.

Wel[6] noted that memorization tasks like learning the alphabet and numbers serve as critical building blocks for academic success. They develop foundational cognitive and literacy skills that are not only useful in specific subjects but also in enhancing overall learning abilities. These tasks provide a solid starting point upon which students can build their academic knowledge and skills as they progress through their education.



Test for Significant Difference Between the Performance of the Traditional and VARK Learning Groups

The t-test was used to establish the significant difference between the pre-and post-observations of both learning groups, namely: VARK and Traditional.

Table 2. Test for Significant Difference Between the Pre and Post-Observations of the VARK Learning Group

Variables	Mean Pretest	Mean Posttest	t-value	p-value	Decision
VARK Learning Group	2.80	3.90	2.74	0.013	Significant

Effect size (Glass Delta) = 0.728

Table 2 shows that the t-value of 2.74 is significant at 0.013, hence the null hypothesis is rejected. Thus, there is a significant difference between the pre and post observations of the VARK learning group. The significant difference between the pre-observation and post-observation of pupils' performance in the VARK learning group is that the post-observation showed improvement in a number of areas, pre-observation mean of 2.80 while the post-observation mean is 3.90, in favor of the post-observation. During the pre-observation, the pupils used the VARK methods to assess the learning objectives, but there was some confusion and they weren't able to apply them correctly. However, after the post-observation, pupils demonstrated greater understanding overall and were demonstrating the ability to apply the VARK methods more effectively. This indicated that they had

increased their understanding of the learning objectives and had a better understanding of how to apply VARK in their academic work.

Analyzing further, the effect size was computed which yielded 0.728. Effect size in a t-test data analysis is a measure of the strength of the relationship between two variables. It takes into account the variability of each group and the difference between their means. Effect size can be used to assess the magnitude of the treatment effect or the statistically significant difference between the outcomes of two groups. The larger the effect size, the stronger the association between the variables.

The effect size of 0.728 based on the Glass Delta value is indicative of a moderate effect size. This means that there is a significant difference between the pre and post-test performance, but the magnitude of that difference is not large.

Alkhasawneh, et al. [7] concluded that a significant difference in the learning preferences of the students in the pre-post-test was found. In the pre-test 54% of students had a multimodal preference whereas 68% of students have a multimodal preference post-test. Lehman [8], in her study has findings which support the use of VARK learning styles to provide reliable correspondence to preferences for educational activities.

Table 3. *Test for Significant Difference Between the Pre and Post-Observations of the DRAM Learning Group*

Variables	Mean Pretest	Mean Posttest	t-value	p-value	Decision
DRAM Learning Group	2.90	3.40	0.908	0.36	Not Significant

In Table 3, it shows that the t-value is 0.908 which is not significant at the p-value of 0.36. This suggests that the null hypothesis is not rejected, thus, there is no significant difference between the pre- and post-observation performance for the pupils in the DRAM learning group. It is evident to conclude that both groups are of the same reading ability level. This means that there is homogeneity in terms of their reading ability.

No significant difference between the pre and post observation performance of pupils in DRAM learning styles means that there was no observable improvement in the pupils' educational performance following the implementation of DRAM learning styles. This could be due to the fact that the pupils had already reached a certain level of educational performance before the DRAM learning styles were introduced, or that the DRAM learning styles were not implemented effectively or for a long enough period to produce measurable results.

The results of the pre- and post-observations indicate that the pupils' performance among the given learning styles did not significantly change. This suggests that the pupils were already comfortable with the learning styles prior to the observations, so there was no significant difference in their performance before and after. It is also possible that the teaching strategies employed during the observations were not very effective or suitable enough to create a noticeable difference in the pupils' performance.

Nash [9] noted that the instructional techniques used in the lessons that were observed may have been deficient in some way. There was no appreciable change in the pupils' performance, which may be attributed to this lack of efficacy or appropriateness. It's critical to recognize that this is a typical educational consideration, as educators and researchers continuously work to improve their instructional strategies in order to better serve students' needs and improve learning outcomes.

CONCLUSIONS AND RECOMMENDATIONS

The developed instructional materials based on the VARK model received a very good feedback and evaluations from the subject matter experts, thus, utilized by the researcher in the VARK learning group. The pupils in the VARK learning group have already identified their learning styles based on the pre-observations, however, these were reinforced by the VARK learning materials which eventually, all the pupils have developed and improved the visual, audio, reading and writing and kinesthetic learning skills. Compared to the pupils in the DRAM, there were slight improvements in their discussion, reading and writing, application and memorization skills, but these improvements were not that significant. The learning skills of the pupils in the VARK learning group have significantly improved with the introduction and utilization of the VARK learning materials.

Adoption of the VARK or learning materials with the VARK integration. The school heads may provide more encouragement to teachers to create more instructional materials as tools to enhance the performance of their pupils. They may provide trainings and seminars level up their teachers' competencies in developing and curating instructional materials suited for their pupils' individual differences and learning styles. The school heads may facilitate learning of their pupils with varied instructional materials and conduct monitoring of classes, whenever necessary, to check if the teachers have implemented instructional enhancement like continuous improvement of their instructional materials. They may also encourage their teachers to develop supplemental learning materials based on differentiated learning needs and styles of their pupils. The teachers may utilize a variety of teaching methods and materials to accommodate different learning styles such as visual, auditory, and kinesthetic; incorporate discovery learning, problem-solving, and cooperative learning into instruction and learning materials; Create lessons and activities that allow for student collaboration among peers and provide adequate feedback; provide opportunities for students to review and practice newly acquired knowledge through meaningful activities; and ensure materials are visually appealing, relevant to the students, and aligned with the learning objectives.

REFERENCES

- i. Harvard (2009) "The first years of life are important because what happens in early childhood can matter in a lifetime."
- ii. Wang and Kaufman (2021). Wang, Elaine Lin; Kaufman, Julia H. (2021). American instructional resource survey project.
- iii. Roell, Christine (2019). Using a case study in the EFL classroom. English Teaching Forum, V57, p24-33. Retrieved: <https://eric.ed.gov/?id=EJ1236098>

- iv. Shafer (2018). Shafer, J. (2018). “Calling Captain Scaffold!” Interactive Handouts to Stimulate Student Learning. *Engaging Students: Essays in Music Pedagogy*, 6. <https://doi.org/10.18061/es.v6i0.7249>
- v. Magulod (2019). Magulod, G.C., Jr. (2019). Learning styles, study habits and academic performance of Filipino university students in applied science courses: Implications for instruction. *Journal of Technology and Science Education*, 9(2), 184-198. <https://doi.org/10.3926/jotse.504> Miller, C. (2021). Why Learning Preferences Are More Important Than Learning Styles. Retrieved from <https://www.bizlibrary.com/blog/learning-methods/learning-preferences-versus-learning-styles/> on August 2, 2021
- vi. Wei (2014). Wei, W. (2014, April 14). Can integrated skills tasks change students’ learning strategies and materials? *The Language Learning Journal*, 45(3), 336–351. <https://doi.org/10.1080/09571736.2014.905970>
- vii. Alkhasawneh, Esra; MajdMrayyan; Charles Docherty, et al. (2008). Problem-based learning (PBL): assessing students’ learning preferences using VARK. *Nurse Education Today*, 28(5): 572-9. DOI: [10.1016/j.nedt.2007.09.012](https://doi.org/10.1016/j.nedt.2007.09.012)
- viii. Lehman (2019), Lehman, Mary E.(2019). Using VARK Learning Styles to Predict Instructional Preferences. *NACTA Journal*. <https://www.jstor.org/stable/26769624>
- ix. Nash, J. (2016, December 1). New curriculum design and teaching methods to enhance course performance and increase motivation of Saudi Arabian college students. *Learning and Teaching in Higher Education: Gulf Perspectives*, 13(2), 66–82. <https://doi.org/10.18538/lthe.v13.n2.235>