

# Learning Style Preferences and Their Effects on Pupils' Academic Performance

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**Abstract:** This study aimed at determining the effects of learning style preferences of pupils to their academic performance. To do this, a sample of 347 Grade 4 Pupils in Plaridel Elementary School, SDO-Bulacan during the academic year 2018-2019 was used. The questionnaire entitled: VAK Learning Styles Self-Assessment Questionnaire by V Chislett MSc and A Chapman (2005) was used to describe the pupils' learning style preferences while the DepEd Order no.8, s. 2013 also known as the Classroom E-Record was used to determine the point average of the respondents' level of performance in Filipino, English, Mathematics, and Science. The collected data were tabulated and processed using Statistical Packages for Social Sciences (SPSS). Findings revealed that from the three learning style preferences, only visual learning style preference took significant effect on pupils' academic performance especially in Filipino. Nevertheless, all three learning style preferences do not significantly affect pupils' academic performance on the rest of the core subjects (English, Mathematics, and Science). In this view, teachers are encouraged to further put some ingredients in delivering their pedagogical instructions according to what would best fit their pupils' learning style preferences.

**Keywords**—Learning Style Preferences, Pupils' Academic Performance, Descriptive-correlational Study

## 1. INTRODUCTION

Every pupils are different from one another. In a particular learning environment, pupils naturally seek learning depending on his/her capability to absorb and catch up new discoveries and insights. The uniqueness of a pupil demands appropriate learning strategies that could eventually lead them in their academic achievement. Inasmuch as pupils are aware of their learning styles, their learning is as quickly as possible and eventually excel in their studies. Thus, helping them determine their learning styles could lead them to acquire skills that are necessary in their lives.

Undeniably, this has always been a challenge for all teachers and their pupils to blend and match their learning strategies with their learning style preferences. Pupils often find difficulties between learning and in receiving their teachers' delivery of instructions. They understand information differently from how their teachers transmit a certain lesson [1]. In this view, it could be nice for teachers to be knowledgeable about their pupils' learning manner depending on their interests and talents. The review of the teachers mode of instructions and in terms of dealing with the learning styles in a conducive environment preferred by the students as part of their professional skills and instructional practices is indeed important [2][3].

Furthermore, there are certain factors that affect pupils' learning styles. Examples of which are gender, years of age, family upbringing, ways of creative thinking and their academic achievement [4]. It was also emphasized by scholars that acquisition of knowledge could be actualized through the four sensory modalities which are visual (by observing pictures, symbols or diagrams), auditory (by listening, discussing instructional material), visual iconic (by reading and writing) and kinesthetic (using tactile sensory abilities). In particular, another popular model of learning styles were the VAK model. The Visual-Auditory-

Kinesthetic (VAK) model was conceived to be one of the simplest channels of vision, hearing, and feeling that could determine pupils' ways of learning.

## 2. RELATED WORKS

Based from the previous research literature, the researcher found out some issues towards preference of learning and pupils' academic performance. A study stated that educational outcomes, intellectual ability, personality and learning approach are significant predictors of the student's academic performance [6]. Similar study affirmed the recent study that personality, learning style and ability were significant factors of students' overall academic performance [7]. It was confirmed that the personality variables and certain learning styles were significant predictors of the working performance. However, several research provided counter-arguments on the effect of matching learning styles with instructional strategies and improved performance. A study reported that there was no improvement in learning outcomes when instructional strategies were matched to learning styles. Other researchers had reported opposing results and had indicated that learning was more effective when learning styles were matched to instructional strategies [8].

Despite the trends and issues aforementioned, there are numbers of important pertinent issues that have yet to be given light. This includes the relationships between learning style preferences, and academic performance. A conflicted results had been found with investigations of the relationship between sensory modality preferences and academic performance. In fact, a study found no relationship between VARK modality preferences and the grade point average of the students [9].

## 3. STATEMENT OF THE PROBLEM

The main aim of this study was to investigate the effects of learning style preferences to the academic performance of Grade 4 pupils in Plaridel Elementary School.

Specifically, this study sought to answer the following questions:

1. How may the pupils' learning style preferences described in terms of:
  - 1.1 visual;
  - 1.2 auditory; and,
  - 1.3 kinesthetic?
2. What is the profile of students' academic performance in the following subjects:
  - 2.1 Filipino;
  - 2.2 English;
  - 2.3 Mathematics; and,
  - 2.4 Science?
3. Do the learning style preferences of the students significantly affect their academic performance?
4. What management implications may be drawn from the finding of the study?

#### 4. METHODOLOGY

The researcher utilized the descriptive-correlational research since this method is concerned with describing the independent and dependent variables. A correlational research design comprises collecting of data to determine whether there is an existing relationship between two or more variables in the study. Specifically, it aims to know if the learning style preferences of the pupils significantly affect their academic performance, or not.

The respondents of the study consisted of 347 Grade 4 pupils from the Schools Division of Bulacan, District of Plaridel, Plaridel Elementary School in the school year 2018-2019.

To gather necessary information for this study, the researcher used the VAK Learning Styles Self-Assessment Questionnaire which was coined by V Chislett MSc and A Chapman (2005) to describe the pupils' learning style preferences while the DepEd Order no.8, s. 2013 also known as the Classroom E-Record was used to determine the point average of the respondents' level of performance in Filipino, English, Mathematics, and Science.

The data collected were tabulated and analyzed using Statistical Packages for Social Sciences (SPSS). In order to do this, the following statistical processors were utilized. The learning style preferences of pupils were quantified using frequency schemes. Specifically, the respondents were asked to mark A, B, or C in accordance to the prescription of the VAK questionnaire. The academic performance of pupils in Filipino, English, Mathematics, and Science were quantified using their second quarter grades during the school year 2018-2019. To determine the effects of learning style preferences on pupils' academic performance, multiple correlation and regression were utilized.

The manner of gathering the data was a questionnaire and documentary analysis method. In doing this, the researcher followed the following:

1. A permission letter was secured and was sent to the Schools Division Superintendent of SDO-Bulacan, to the District Supervisor of Plaridel, and to the school principals of the District of Plaridel to seek permission to conduct the study.

2. With the important approval of the Schools Division Superintendent of SDO-Bulacan, the District Supervisor of Plaridel and the school principals, the researcher then gave the questionnaires to the respondents personally.

3. The researcher collected the questionnaires from the respondents and had a second look whether all questions were answered completely.

#### 5. RESULTS

The main purpose of this study was to describe the pupils' learning style preferences and test their affects to the academic performance in Filipino, English, Mathematics and Science.

The study assessed the learning style preferences in terms of visual, audio, kinesthetic.

Table 1. Pupil's Learning Style Preferences (Visual, Audio, and Kinesthetic)

Learning Styles	Frequency	Percentage
Visual	153	44.09
Audio	113	32.56
Kinesthetic	81	23.34
<b>Total</b>	<b>347</b>	<b>100.0</b>

Table 1 showed the distribution results and the category of the learners based on the category of VAK Visual Audio and Kinesthetic, out of 347 respondents, 153 fall under Visual learners with (44.09 %), 113 Audio (32.56%) and 81 respondents are Kinesthetic with (23.34 %).

Table 2. Pupils Academic Performance in Filipino, English, Mathematics, and Science

Subjects	Mean	Std. Deviation
Filipino	82.33	4.424
English	81.32	5.282
Mathematics	78.45	4.365
Science	80.49	4.223

It may be gleaned in the table 2 the frequency distribution of the grades of the 347 respondents in the 1<sup>st</sup> Quarter of School Year 2018-2019. This showed the mean score of grades of pupils in general for each core subjects prescribed by the Department of Education. Filipino subject got the highest mean of 82.33 and standard deviation of 4.424, followed by English subject with mean of 81.32 and 5.282 standard deviation.

Table 3. Regression Analysis of Learning Styles on Pupils' Academic Performance in Filipino

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	69.834	5.774		12.094	0
Visual	1.985	1.082	0.343	1.834	0.076
Audio	4.034	1.729	0.46	2.334	<b>0.026</b>
Kinesthetic	1.201	1.857	0.124	0.647	0.522

R-squared = .176  
 F-value = 2.274  
 p-value = .099  
 alpha = 0.05

Results of the data analysis indicated in table 3 that learning style preference in terms of visual, audio, and kinesthetic affect pupils' academic performance in Filipino as shown by the non-zero coefficients. A closer look at the obtained B coefficients, one could deduce that one variable yielded B coefficients of 4.03 (audio) with associated probability less than the significance level set at 0.05. This means learning style preference in terms of audio significantly affect students' academic performance in Filipino that for every unit improvement in learning style preference in terms of audio, students' academic performance in Filipino can be expected to increase by 4.03. The rest of the two variables (visual and kinesthetic) also affect students' academic performance in Filipino but not to a significant extent.

Analysis of the obtained Beta coefficients would reveal that of the three variables of learning style preferences, audio appeared to be the best predictors of students' academic performance in Filipino.

The outcome of the analysis of variance (ANOVA) of the learning style preferences on students' academic performance in Filipino revealed an F-value of 2.274 with a p-value of 0.099. Since the associated probability of the obtained F-value is higher than alpha (0.05), the null hypothesis is sustained. This means that the three learning style preferences in terms of visual, audio, kinesthetic do not exert significant combined effects on students' academic performance in Filipino.

Table 4. Regression Analysis of Learning Styles on Student's Academic Performance in English

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	76.34	6.461		11.815	0
Visual	1.964	1.211	0.315	1.622	0.115
Audio	1.217	1.934	0.129	0.629	0.534

Kinesthetic	0.775	2.078	0.074	0.373	0.712
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R-squared = .113  
 F-value = 1.353  
 p-value = .275  
 alpha = 0.05

It may be gleaned in table 4, the results of the regression analysis indicated that learning style preference in terms of visual, audio, and kinesthetic affect students' academic performance in English as shown by the non-zero coefficients. A closer look at the obtained B coefficients, one could deduce that no variable/s yielded B coefficients with associated probability less than the significance level set at 0.05. However, the three variables (visual, audio and kinesthetic) affect students' academic performance in English but not to a significant extent.

Results of the analysis of variance of the learning style preferences on students' academic performance in English revealed an F-value of 1.353 with a p-value of 0.275. Since the associated probability of the obtained F-value is higher than alpha (0.05), the null hypothesis has to be sustained. This means that the three learning style preferences in terms of visual, audio, kinesthetic do not exert significant combined effects on students' academic performance in English.

Table 5. Regression Analysis of Learning Styles on Student's Academic Performance in Mathematics

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	79.573	4.691		16.962	0
Visual	0.643	0.879	0.145	0.731	0.47
Audio	0.33	1.404	0.049	0.235	0.816
Kinesthetic	1.593	1.509	0.213	1.056	0.299

R-squared = .080  
 F-value = .928  
 p-value = .438  
 alpha = 0.05

Results of the data analysis would reveal table 5 that learning style preference in terms of visual, audio, and kinesthetic affect students' academic performance in Mathematics as shown by the non-zero coefficients. A closer look at the obtained B coefficients, one could deduce that no variable/s yielded B coefficients with associated probability less than the significance level set at 0.05. However, the three variables (visual, audio and kinesthetic) affect students' academic performance in Mathematics but not to significant extent.

The outcome of the analysis of variance (ANOVA) of the learning style preferences on students' academic

performance in Mathematics revealed an F-value of 0.928 with a p-value of 0.438. Since the associated probability of the obtained F-value is higher than alpha (0.05), the null hypothesis has to be sustained. This means that the three learning style preferences in terms of visual, audio, kinesthetic do not exert significant combined effects on students' academic performance in Mathematics.

Table 6. Regression Analysis of Learning Styles on Student's Academic Performance in Science

Variables	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	T	
(Constant)	75.02	5.275		14.222	0
Visual	0.477	0.982	0.095	0.486	0.631
Audio	3.172	1.564	0.412	2.028	0.051
Kinesthetic	0.58	1.716	0.067	0.338	0.738

R-squared = .134  
F-value = 1.602  
p-value = .209  
alpha = 0.05

It was shown from the outcomes of the data analysis in table 6 that learning style preference in terms of visual, audio, and kinesthetic affect students' academic performance in Science as shown by the its coefficients. A closer look at the obtained B coefficients, one could deduce that no variable/s yielded B coefficients with probability less than the 0.05 significance level. However, the three variables (visual, audio and kinesthetic) affect students' academic performance in Mathematics but not to significant extent.

The results of the analysis of variance (ANOVA) of the learning style preferences on students' academic performance in Science revealed an F-value of 1.602 with a p-value of 0.209. Since the probability of the obtained F-value is higher than alpha (0.05), the null hypothesis cannot be rejected. This means that the three learning style preferences in terms of visual, audio, kinesthetic do not exert significant combined effects on students' academic performance in Science.

## 6. DISCUSSION

Pupils are unique individuals as they have particular learning style. The preferred learning style of pupils portrays their capabilities, environment and past learning experiences. In some situations, pupils adopt different learning style, but intended to hold their own preferences for a particular learning style. There were no learning styles that are inferior with the other, but such learning styles have different degrees of attributes. Pupils interact with the subject matter differently depending on the various learning styles. Nevertheless, recognizing differences on the manner that the students learn is actually the first step in raising pupils'

awareness of their own learning styles and the existence of other learning styles.

In a study, it was stated that if pupils are knowledgeable about their learning styles, they are expected to learn quickly and eventually excel in their studies since they know their limits and capabilities. In this view, the teachers are expected to assist every students to know their learning references. Besides, it is important that principals could be able to transform their teachers in dealing with all kinds of students, be it in face to face setting or in onliness classes. [10][11][12][13]. Their identification of learning styles could help them acquire problem-solving skills. Before employing relevant strategies, it was important to have an understanding about how these millennial learners have adopted their learning styles. While the impact of learning styles in the digital learning environment can be seen from various perspectives, several researchers have that characteristics highlighted in the Canfield Learning Style Inventory that is closely related to those implicated in success in the online learning environment. Application of the same learning strategies to all the pupils in different classes may be ineffective due to pupils' individual learning style preferences. Presented information used multiple instructional strategies allowed broader integration of new knowledge into memory which would necessitates teachers to more responsible in doing their jobs and responsibilities [14][15]. Thus, in dealing with the concept of connecting teaching and learning styles, these ideas are of particular interest. Over the past decades a great deal of progress has been made toward recognizing the varying needs and characteristics of the learner. In fact, the concept of "differentiated instruction" had become one of the corner stones of modern educational practice [16].

Students learn by digging out the value of ideas and content being presented by the teachers. No students will learn if the learning materials are very dull and boring. Indeed, students are different from one another, that is why, teachers need to be sensitive enough in dealing with these various yet talented students. They should utilization differentiated instructions for visual learners, auditory learners, and kinesthetically inclined students.

## 7. CONCLUSIONS

Based from the results of the study, the following conclusions were extracted to produce appropriate teaching instructions for their pupils, teachers could utilized visual paraphernalia in their pedagogical executions. Audio-visual learning materials are considered to be the best predictors of pupils academic performance of 21st century learners. An insight have raised that teachers might seek ways to further improve the academic achievement of pupils in the field of Filipino, English, Science, and Mathematics. Appropriate learning instructions should be applied according the learning style preferences of their pupils.

All three learning style preferences affect academic performance of pupils in Filipino, English, Mathematics and Science. But only visual learning style preference

significantly affect pupils academic performance in Filipino. This means that it postulates a challenge for English, Mathematics and Science teachers to incorporate learning strategies that are suited for their pupils' learning style preferences in order to increase their academic performance. Teachers' instructional strategies might be a big factor in developing pupils' academic performance but this must also be a challenge for pupils to determine their learning style preferences according to their capabilities and abilities to absorb transmission of knowledge. The help of their guidance counselors to facilitate learning style preferences testing are badly needed. School Administrators as well as parents could collaborate in formulating programs that may increase and develop their pupils' interest and potentials.

## 8. RECOMMENDATIONS

Pupils must know how to use their learning style preferences accordingly to their interest. They must have been interested in improving their learning styles for their academic performance. There were no single best learning style preferences in improving the academic performance of the learners. Each learning style preference may be used all at the same time in order to achieve a better achievement performance. Teacher must be aware of different learning styles of the learners. And think of strategies in teaching that will collaborate to the improvement of the academic performance of the learner. School Administrators, Teachers and Parents must be aware of different learning styles of the learners they are dealing with. They must encourage the learners to do their best in motivating their learners to strive hard in their academic performance. They must be also be aware of ways how to improve the academic performance of the learner and make them interested in doing their schooling career specially in the elementary level.

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