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**LEARNING STYLES AND ACADEMIC PERFORMANCE AMONG BACHELOR OF SCIENCE IN NURSING**

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**ABSTRACT**

It is imperative to remember that each individual is a unique learner. Neil Flemming Theory have identified that some learners lean toward specific techniques/strategies for learning, referred as learning styles. This study elaborates the preferred learning styles of the Bachelor of Science in Nursing students and the impact on their academic performance. In the conduct of this study, Neil Flemings VARK model was used to identify different learning styles of the students. Descriptive correlational method was used in the study. The data were collected from 136 student nurses of JRMSU Main Campus. Frequency count and percentage was used to determine the profile of the respondents. Chi square was used to identify the significant association in the preferred learning styles of the students and their academic performance. Findings shows that most of the students are female, 18-19 years of age with a prevalent monthly income rate of P5,000-P10,000. Majority preferred android phone and books as their tools in studying. Most of the students are visual learnersthey preferred the use of pictures, flowcharts, diagrams, patterns in studying and they prefer teachers who make use of charts, graphs, diagrams and powerpoint to explain topic. The aural learners preferred if they were tasked to plan and organize events together their colleagues so that they could talk about it. The reading-writing learners preferred teachers who often give handouts and written activities. While the kinesthetic learners preferred things, they can watch and learn from and things that they can do. Majority of the students have good academic performance. The test of difference shows that there is no significant difference on the preferred learning styles of student nurses when analyzed as to their age, gender, year level and socioeconomic status. As to the test of association, it is revealed that there is no significant association between the preferred learning styles and the academic performance of the students. The data did not provide sufficient evidence to conclude that learning styles relate to academic performance. It is recommended that school educators and community shall encourage students/individuals to manage gender related issues and improve the image of nursing profession to male counterparts. Since most of the students are Visual learners Instructors are encouraged to produce instructional materials with power points, pictures and diagrams. Furthermore, students must continually strive and study hard to improve their academic performance towards excellence.

**Key Words:** Learning styles, visual learning, aural learning, reading-writing learning, kinesthetic learning, academic performance.

## 1. INTRODUCTION

Students learn through different ways and methods. This is because people are raised up differently. Some are spoon-fed with lessons while others are left to their own devices. Moreover, people are attuned in a variety of ways that aren't similar with each other, especially when it comes to learning. It might take an incredible long time for one person to learn a single topic but for another, it might only take a few minutes.

According to an experiment entitled "The Moser Experiment" conducted by Jason Moser (2011), there is a significant explanation to why people have the ability to learn faster than others. There are two reactions that occur in the brain after a mistake has been done. The first reaction is what makes people react to a mistake in the first place, and it comes from the anterior cingulate cortex. It is involuntary and called as the error related negativity (ERN). The second reaction is equally vital, because this second act is what makes the person aware of the mistake. It happens a bit slower than the first reaction but it allows for the person to dwell more and pay attention to the mistake at hand. This reaction is called error positivity (Pe). Having a preferred style doesn't necessarily mean that a student who learns slower or quicker than others - it means that they all learn at their own pace.

Not a lot of schools try to implement the learning styles to their students. Schools especially in the Philippines, are often stuck in a very rigid structure that follows a lesson plan or the creativity of the teacher themselves. Because of this, those students who have a hard time learning from listening to a teacher often fail in their grades or even drop-out. Their academic performance is affected greatly simply because they weren't able to keep up with the curriculum. However, in the Philippines according to statistical data (Palanca, 2015) "survival rates have been improving steadily over the past three years with about 60% of the initial class graduating high school in 2015, compared to about 50 in 2013". Perhaps the students have learned to cope with the shortcomings of the educational system but no further studies have supported that claim. There are different models of the learning styles. Kolb (1984) has the experiential learning model, which is later adapted into Peter Honey and Allan Mumford's (1986) own model. However, the researchers have chosen to use Neil Fleming's VARK model (1992) as the basis for their study.

The researchers conducted the study to look into the preferred learning styles based on the grade point average of the students in the College of Nursing and Allied Health Sciences during academic year 2017-2018 in relation to Academic Performance

### Significance of the Study

This study is conducted by the researchers with the hope that the following will benefit from it, to wit:

**Teachers.** The result of the study will give them awareness on what type of learning styles are prevalently used, and will further help them to apply different teaching strategies for better student learning.

**Students.** The result of the study will help them effectively acquire information and knowledge by applying their preferred learning styles.

**Parents.** The result of this study will encourage the parents to get involved in the improvement of the student's performance.

**Researchers.** The result of this study can be used as a tool that will assist them on conducting related research outputs on the preferred learning styles of the students. Further, the result of this study will provide data and information to all the beneficiaries.

**University Administration.** The result of this study will give the administrators insights on how to improve and provide different instructional tools in order to deliver quality instruction in the academe.

### Objectives

The study aimed to determine the learning styles of the Bachelor of Science in Nursing students in the College of Nursing and Allied Health Sciences in relation to their academic performance during the academic year 2017-2018.

Specifically, it sought to:

1. Determine the profile of the respondents according to: Age; Gender; Year Level; Socio-economic Status; and Gadgets used in studying.
2. Determine the preferred learning style of the nursing students as to: Visual; Aural; Reading/Writing; and Kinesthetic.
3. Discuss the academic performance of the respondents based on their grade point average.
4. Determine if there is a significant difference in the preferred learning styles of the nursing students when analyzed as to age, gender, year level/course, and socio-economic status.
5. Determine if there is a significant association in the preferred learning styles of the nursing students when analyzed as to academic performance.

### Review of Related Literature

The quality of education in the country has gotten significantly lower with further statements saying that "the country's youth literacy rate, while still being high by regional standards, fell from 96.6 percent in 1990 to 95.1 percent in 2003, making the Philippines the only country in South-East Asia with declining youth literacy rates (World Education News + Reviews, 2018)." In order to tackle such declining numbers, the Philippine government has implemented many programs that will hopefully increase the academic performance of the entire country. Some of these programs include "The Kindergarten Education Act" which was passed in 2011, "2013 Basic Education Act" and of course, the 12-year education cycle which is the K-12 Program.

Another study concerning the academic performance of college students was conducted by Gerardo Sicat and Marian Panganiban (2009). It was concluded, amongst other factors affecting their high school background, that “the results of the study affirm that individual student ability is the main building block of academic performance in the university”. Academic Performance is simply not based on a well-funded school or a good financial situation. When it comes to academic performance, the results tend to come from the ability of the student itself.

With the facts and numbers backing up the fact that the Philippine Educational System is failing with its current system, it is clear that the students are struggling to cope. There is a discrepancy between the ability of the student and the academic performance of the country. The students simply cannot catch up with amount of workload they have to do. Some students score higher grades than others even though they are given the same lessons. That is mostly because they learn differently.

The learning styles can be applied in the declining academic performance of the Philippines. Because all students differ in their preferred learning methods, the overall academic performance of a single class would not be consistent with each other. Learning styles and academic performance are relative in a way that they affect each other by default. By understanding the root of the problems within a small majority, the decline of the academic performance in the Philippines would be lessened.

Learning Styles is defined as “the way in which different individuals learn” by Boneva&Mihova (2011), the term learning styles has been used in psychology since the 1930s. As with concepts and ideas, there are many different interpretations towards it. Della-Dora and Blanchard (1979), for example, refer to “a personally preferred way of dealing with information and experiences for learning that crosses content areas,” when faced with learning styles. David Kolb (1984) defines it as a result of hereditary equipment, past experience, and the demands of the present environment combining to produce individual orientations that give differential emphasis to the four basic learning modes postulated in experiential learning theory.”

Since learning styles was not spearheaded by a single person, there have been many models and additions about its concept. Some of these models contradict while others simply add or subtract to whatever modalities the previous model had. Many factors also add to the characteristics of a model, such as emotional, environmental, sociological and etc. Results about a person’s learning preference could vary differently with the model used. Kolb’s model focused on the experiential learning while Gardner’s model focused on seven distinct intelligences, which is more complicated than the other models. On the other hand, Neil Fleming’s focused on VARK.

Neil Fleming in a 2006 article described VARK as “a starting place for a conversation among teachers and learners about learning.” It is an acronym for Visual, Aural, Read/Write, and Kinesthetic. The motivation behind the creation of VARK was due to the discrepancy between excellent teachers not being able to reach some learners, even though poor teachers had. This led Fleming to realize that “some parts of a learning preference are comparatively difficult for an individual to change, or for an education system to respond to - for example, preferred time of day to study, or preferred time for food intake, or motivation. But attention to preferred learning

modes allows flexibility for students and teachers to modify their behavior, if not their preference.” Fleming has developed a questionnaire that can identify which of VARK they were most comfortable with. The results of the questionnaire have supposedly helped many students and teachers adjust accordingly to what it says. By having the teacher to discuss a lesson in a more visual manner, a different set of students were able to excel, according to a French professor Fleming interviewed. Students have the initiative to take the test themselves and ask the teachers to teach in a way that is compatible with their preferred learning method. Fleming has continued to provide workshops regarding his VARK method. In his 2006 article, he stated that, “we are in the middle of a five-yearly review of the questionnaire. We have modified some questions, removed some and added some. We are using the strong visitor numbers in autumn 2006 to test these so that we know who is choosing each option and who is not.” Fleming’s model is one of the most common and widely used categorizations of various types of learnings. It is also a model of sensory modalities used to take in information (Fleming & Mills, 1992.) It follows four modalities that are extracted from the experiences and preferences of the students, namely:

**Visual;** this preference includes the depiction of information in maps, spider diagrams, charts, graphs, flow charts, labelled diagrams, and all the symbolic arrows, circles, hierarchies and other devices that people use to represent what could have been presented in words

**Aural/Auditory;** this perceptual mode describes a preference for information that is “heard or spoken.” Learners who have this as their main preference report that they learn best from lectures, group discussion, radio, email, using mobile phones, speaking, web-chat and talking things through.

**Reading/Writing;** this preference is for information displayed as words. Being able to write well and read widely are attributes sought by employers of graduates. This preference emphasizes text-based input and output – reading and writing in all its forms but especially manuals, reports, essays and assignments.

**Kinesthetic;** this modality refers to the “perceptual preference related to the use of experience and practice (simulated or real).” Although such an experience may invoke other modalities, the key is that people who prefer this mode are connected to reality, “either through concrete personal experiences, examples, practice or simulation (Fleming & Mills, 1992.)”

Since learning styles are a type of preference each person has, there are going to be notable differences between certain groups of people or clusters. A study conducted by Hames (2014) entitled “A Study of the Relationship between Learning Styles and Cognitive Abilities in Engineering Students” concluded that cognitive abilities are directly linked to the learning styles of the students, which can lead to student success. It is stated in the article itself that “results indicated that the global–sequential, active–referential, and visual–verbal FSILS learning styles scales are related to performance on cognitive tasks. Most of these relationships were found in response times, not accuracy. Differences in task performance between gender groups (male and female) were more notable than differences between learning styles groups.”

Many certain factors are also involved when it comes to learning styles. The term itself was synonymous to 'cognitive styles' and 'thinking styles.' Many have thought that through gender, there could be a difference between each person's learning style. The paper titled, 'A Study on Learning Styles, Gender and Academic Performance of Post Graduate Management Students in India' conducted by Ariz Naqvi and Farah Naqvi (2017) concluded that results of the study indicate that the distribution of learning style type preference of the chosen sample of students was more concentrated towards assimilating and converging styles. Further results also indicate non-significant difference of learning style and gender in all groups. The performance scores of males were found higher in Finance and Marketing disciplines, whereas scores of females were higher in Human Resource and International Business disciplines irrespective of non-consistency in all the groups. The study concludes that instructors should use a learning strategy matching with the style of each learner in different majors of management opted by the students."

It is also a fact that students have different subjects to deal with and varied interests often conflict with each other, as such there can be differences of learning preferences between certain groups of students studying Law with students studying engineering. For once, Law students might learn better through reading and writing while engineering students learn through application. It was concluded in this related study entitled "The Study of Learning Styles and its Relationship with Educational Achievement Among Iranian High School Student" by Rezaeinejad, Azizifar, & Gowhary (2015) that "according to correlation coefficients, among students in experiential field, there is a positive significant relationship between students learning styles who use Visual-Verbal learning style and their score means and among students in mathematics field. There is a positive significant relationship between students learning styles who use Active-Reflective and Visual-Verbal learning style and their score mean. In humanities field, there is no significant relationship between the students learning styles that use Sequential-Global, Visual-Verbal and Sensing- Intuitive learning styles and their score means. The Kruskal-Wallis test had shown that there is a significant difference between humanities students score means with mathematics and experiential students that have Active-Reflective learning style. There is a significant difference between score means of grade two students in all fields in Active-Reflective and Visual-Verbal learning styles and similarly in grade three students in all fields in Active-Reflective and Sequential-Global learning styles."

## 2.0 Conceptual Framework

According to Fleming (2006), there are various models of learning styles. One of their models is that of Kolb (1984) called "experiential learning model" which is later adapted by Peter Honey and Alan Mumford's (1984) is developing their own model. However, this study is basically anchored on the best-known model "VARK modalities". The model has been modified from VAK to VARK learning style in 2006 by Neil Fleming (Othmana&Amiruddin, 2010), it focuses on the sensory modalities which extracts information from the lessons. There are four learning styles stated by Neil Fleming which are as follows: visual learning, aural learning, reading-writing learning, and kinesthetic learning.

Visual learners have a preference for seeing information or data. They can extract it from pictures, visual aids, graphs, charts and etc. Most of the students are visual learners, that

approximately 65% of the population are visual learner. Preferred test styles for visual learners are essays, maps, and diagramming while the worst test types for them are listening and responding style (Ldpride.net, 2008).

On the contrary, auditory learners are very good listeners. These students will be more likely to record lectures, read their notes aloud and are more appreciative in terms of books on tape. They tend to retain information better through listening rather than written reports. (Ldpride.net, 2008). They learn best from manuals, reports, and etc.

Reading-writing learners are good at taking notes during class. They study best by reading over these notes or copying them out. Such learners needed to be given notes, explanations and essays. They will make use of handouts, make bullet points and divide different parts. They will translate diagrams, flow charts and tables into statement form to improve the process of learning. (Patra, 2017)

Lastly, the kinesthetic learners prefer to learn from experience. They are able to learn best from doing, moving and touching the lessons themselves. It is estimated that about 5% of the population are kinesthetic or tactile learners which means they learn best through doing, direct involvement and manipulating objects (Ldpride.net, 2008). Most of the time, they need to do something to retain some information. Often, they have a hard time learning during lectures because of the lack of involvement. Their body does not have the connection that they are doing something while listening (Roel, 2017).

These different learning styles help the students cope with their own pace of learning and they are able to get the best results possible if they follow through with their preferred method. As shown in the schema of the study, the moderating variable consists of students' profile, which include age, gender, year level, socio-economic status and gadgets used in studying. The dependent variable comprises the academic performance of the students in the different subjects. The arrow pointing to the dependent variable from the independent variables represents the relationship between and among these learning styles – Visual, Aural, Reading-Writing, and Kinesthetic; on the academic performance of the students in the subjects they have taken.

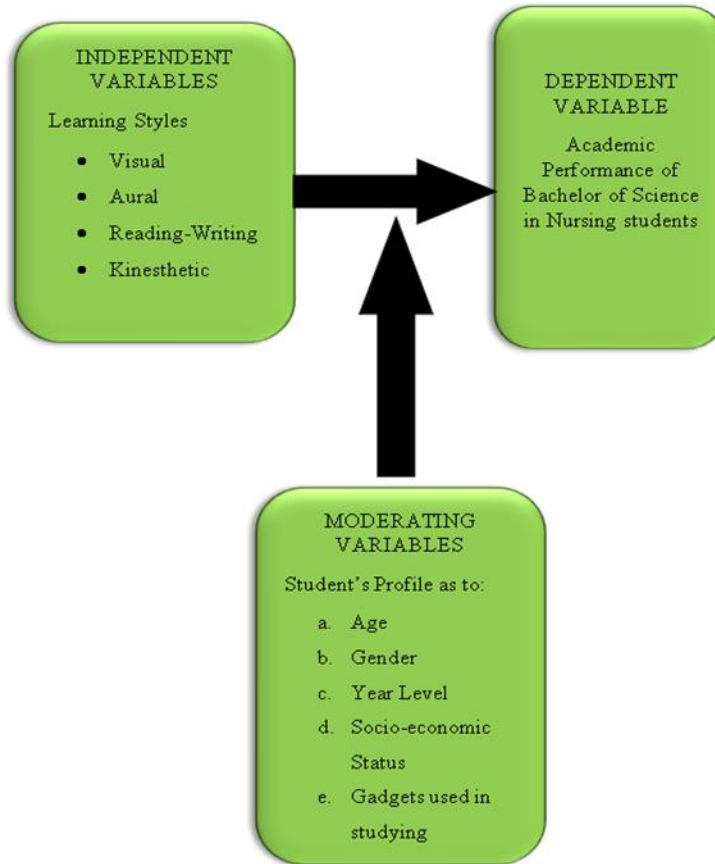


Figure 1. Schema of the Study

### 3.0 Research Methodology

#### Method Used

The researchers used a descriptive correlational quantitative type of research. The study was conducted within the locale of Jose Rizal Memorial State University, specifically the College of Nursing and Allied Health Sciences. After seeking approval from the respective offices, the researchers then distributed the questionnaire to the research respondents. The study aimed to have an in-depth understanding of the learning styles most students prefer.

#### Research Environment

The study was conducted within the locale of Jose Rizal Memorial State University, Main Campus, Dapitan City. This institution for higher learning is the only State University in the province of Zamboanga del Norte. However, its roots started as secondary school, offering the first two years of general secondary curriculum. It is known as the Dapitan Junior High School. Later on, it became a vocational school: the Jose Rizal Memorial National Vocational School.



Then, in 1996 with RA 8193, it became a state college. In the year 2009, with RA 9852 the said college was converted into Jose Rizal Memorial State University. In this investigation, the College of Nursing and Allied Health Sciences students were the main respondents of the study. The study was restricted from first year to fourth year student nurses.

### Research Respondents

The respondents of the study are the students who are currently studying in Jose Rizal Memorial State University, Main Campus, Dapitan City for the academic year 2017-2018. As of the year 2018, there are a total of 337 students from the College of Nursing and Allied Health Sciences studying in JRMSU Main Campus, Dapitan City. The First year level has 244 students but because of the huge number of enrollees, this study only includes 50 respondents from the first year level, Second year level has 26 students, Third year level has 30 students; and, the Fourth year level has 30 students which are shown in Table 1.

The total number of frequencies are the actual respondents of the study.

Table 1. Frequency and Percentage by Year level as of School year 2017-2018

Year Level	Frequency	Percentage
First Year Level	50	36%
Second Year Level	26	19%
Third Year Level	30	22%
Fourth Year Level	30	22%
<b>TOTAL</b>	136	100%

### Research Instrument

The researchers have modified Neil Fleming’s own VARK questionnaire. It consists of two parts. Part 1 asked for the respondents’ profile. Part 2 contained the different learning styles such as Visual, Aural, Reading/Writing, and Kinesthetic. The researchers handed the questionnaire to the respondents and gave them time to answer it. After they finished answering, the researchers put all of the data into a statistical framework and discussed the results.

### Validation of the Research Instrument

To ensure the validity of the said instrument, this study was checked by Grace R. Abad, BSN, RN, MAN, the adviser and Ed Neil O. Maratas, M.A, the statistician. The research instrument was fielded to a chosen college outside of the target respondents.

### Method of Gathering Data

Before presenting the questionnaire to the respondents, the researchers asked permission from the Dean of the College of Nursing and Allied Health Sciences by sending a letter of request to allow the researchers to conduct a research inside the school premises. After seeking approval, the researchers then distributed the questionnaires to the research respondents.

### Statistical Treatment

The researchers have utilized the following statistical tools.

Frequency count and percentage. This was used to find the profile of the respondents in terms of age, gender, and socio-economic states. Percentage have been calculated by getting the frequency of each category divided by the total number of respondents. The formula of percent is shown below.

Formula:

$$P(\%) = \frac{f}{N} \times 100$$

Where:

$P$  (%) = percentage

$f$  = frequency of respondents

$N$  = total number of respondents

Chi-square. This was used to determine the significant difference in the students' preferred learning style as to academic performance in relation to gender, age, year level and grade point average. This was used to determine the significant association in the preferred learning styles of the nursing students and their academic performance.

$$\chi^2 = \frac{\sum(O - E)^2}{E}$$

Where;

$O$  – Observed frequency

$E$  – Expected frequency

#### 4.0 Results and Discussion

Objective 1: Determine the profile of the respondents according to age, gender, year level, socio-economic status and gadgets used in studying.

Table 2 shows the frequency and distribution of the respondents in terms of age. As shown in the table, there are 68 students or 50 percent who belong to the age bracket of 18-19 years old. While there are only 21 students or 15.4 percent with age bracket of 22 years old and above. This goes to show that the currently enrolled student nurses are in the right age of entering into the nursing profession. According to the published article in 2016 entitled "More Nontraditional Students are Getting into Nursing" Showed that today's student nurses are older, more seasoned and likely to have children attending college. ([www.academicpartnerships.uta.edu](http://www.academicpartnerships.uta.edu)). Moreover, the average age of graduating student nurses from their original program was 24. In contrast to the findings, of the research entitled, "Nursing Education Program Information Survey" published in 2016 which states that the largest proportion of newly enrolled students between 21-25 years of age. ([www.bon.texas.gov](http://www.bon.texas.gov))

**Table 2. Frequency and Percent Distribution of Respondents in terms of Age**

Age Bracket	Frequency	Percent
18-19 years old	68	50.0%
20-21 years old	47	34.6%
22 years old and above	21	15.4%
Total	136	100%

Table 3 presents the frequency and percent distribution of the respondents in terms of gender. As presented in the table, majority of the students who participated in the study are female. This goes to show that females are more dominant than male in the choice of a nurse profession. This is due to the fact that nursing profession is mostly attracted and preferred by female students as a career than their male counterpart. According to Florence Nightingale, nursing profession is considered as a suitable job for women because it is an extension of their domestic roles. In the nursing profession, female has typically meant a caring, hardworking, nurturing, dependency and submission and self-sacrificing given to female are opposite from the ones that are attributed to male society as cited by Ozdemir, et al, (2004).

**Table 3. Frequency and Percent Distribution of Respondents in terms of Gender**

Gender	Frequency	Percent
Male	29	21.3%
Female	107	78.7%
Total	136	100%

Table 4 displays the frequency and percent distribution of respondents in terms of year level. As displayed in the table, most of the student respondents are in the first year level. This is because of the influx of enrollment in the university due to two-year transition period.

**Table 4. Frequency and Percent Distribution of Respondent in terms of Year Level**

Year Level	Frequency	Percent
First Year	50	36.8%
Second Year	26	19.0%
Third Year	30	22.1%
Fourth Year	30	22.1%
Total	136	100%

Table 5 reflects the frequency and percent distribution of respondents in terms of socio-economic status. It was observed in the table, that monthly income of the parent respondents are ranging from 5,000 to 10,000. It can be seen further that most of the students enrolled in bachelor of science in nursing has parent with monthly income of 5,000 and below which is lower than the minimum national threshold. Pinsker (2016) article entitled “Rich Kids Study English” shows a data from National Longitudinal Study and the Bureau of Labor Statistics, and noticed that those graduates from medical courses tend to come from families with lower incomes than other programs like musicians and artists. This indicates that wealth and education levels are still remaining relatively consistent over time. From this angle, entering college starts to look more and more like easily interpreted badges doled out to people based on the wealth and educational levels of the parents they were born to.

**Table 5. Frequency and Percent Distribution of Respondent in terms of Socio-economic Status**

Socio-economic Status	Frequency	Percent
5,000 and below	44	32.4%
5,000-10,000	48	35.3%
10,000-15,000	25	18.4%
15,000-20,000	4	2.9%
20,000- above	15	11.0%
Total	136	100%

Table 6 presents the frequency and percent distribution of respondents in terms of gadgets used in studying. As presented in the table, android phone is the most preferred gadget used by the students while studying. It was followed by books, internet connection and laptop as the most common gadgets used in studying. This indicates that student’s life today is much easier and that they can easily access their assigned tasks using android cellphone with internet connection. Prabhu (2017), in his article entitled “Educational Gadgets for Students”, he stressed out that gadgets help students get a deeper insight into subjects, which makes the educational process much more efficient. Calgaryherald.com (2013) in its article entitled “Classroom Gadgets-Using Technology to Enhanced Learning” pointed out that today’s classrooms are equipped with the latest technology to enhance instruction. According to this article, some of the favorite student gadgets for use in day-to-day learning is smartphones. This is used in the classroom as a learning tool. In an interview with CTV, Queen’s University National Scholar and Associate Professor Sidneyeve Matrix compared the situation to when calculators were first used by students in the classroom. However, today had new level of computational skill, and now going to have a whole new level of mobile digital skills when in turn mobile learning on the handhelds.

**Table 6. Frequency and Percent Distribution of Respondent in terms of Gadgets used in Studying**

Types of Gadgets	Frequency(n=136)	Percent	Rank
Android Phone	123	90.44%	1 <sup>st</sup>
IPad	12	8.82%	6 <sup>th</sup>
Tablet	21	15.44%	5 <sup>th</sup>
Internet Connection	94	69.12%	3 <sup>rd</sup>
Laptop	81	59.56%	4 <sup>th</sup>
Books	100	73.53%	2 <sup>nd</sup>

Objective 2. Determine the preferred learning style of the nursing students as to: Visual, Aural, Reading-Writing and Kinesthetic?

**Table 7. Summary of Preferred Learning Styles.**

Learning Style	Percentage	Rank
Visual	67%	1 <sup>st</sup>
Aural	54.4%	4 <sup>th</sup>
Reading/Writing	55%	3 <sup>rd</sup>

Kinesthetic	57%	2 <sup>nd</sup>
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According to Cavanagh, et al.,(2019), there are a lot of ways to determine that students are fully utilizing their opportunities for learning to achieve their fullest potential. Our study shows that nursing students are flexible as to their learning styles as evidenced in the above results where some of them utilized all the said learning styles simultaneously. Table appears that the above findings shows that the Visual Learning Styles has the highest learning styles used by the Nursing students, wherein learners use graphs, charts, maps, and diagrams according to Neil D. Fleming’s VARK learning styles. It also shows that the remaining learning style such as Aural, Reading/Writing, and Kinesthetic exist.

**Table 8. Preferred Learning Style of the Nursing Students in terms of Visual**

Item	Particulars		Rank
	Yes(%)	No(%)	
They use pictures, flowcharts, diagrams, patterns in studying	109(80.1%)	27(19.9%)	1 <sup>st</sup>
They remember the place going to school by the things they saw or know about that place such as plants, sceneries, stores	89(65.4%)	47(34.6%)	3 <sup>rd</sup>
When they plan an event in school, they search through books, magazines, catalogs that feature a lot of designs and good ideas that could be of great use	81(59.6%)	55(40.4%)	4 <sup>th</sup>
When they’re assigned to lead a group project, they most likely to draw or construct the information map of what they will do for the project (flowcharts, tables, hierarchies)	69(50.7%)	67(49.3%)	5 <sup>th</sup>
They prefer a teacher who make use of charts, graphs, diagrams, PowerPoint and such to explain the topic	108(79.4%)	28(20.6%)	2 <sup>nd</sup>

Visual learning style is one of the three different forms of styles popularized by Neil D. Fleming. Basically, the visual learning style means that people need to see information to learn it, and this seeing takes many forms from spatial awareness, photographic memory, color/tone, brightness, contrast and other visual information. According to [www.study.com](http://www.study.com) articles entitled “Visual Learning Style: Definition & Characteristics” visual learning is a way of gathering information associated with images.

Table 8 shows the preferred learning style of the nursing students in terms of visual learning style. As shown in the table, the visual students (learners) use pictures, flowcharts, diagrams, patterns in studying ranked first. According to [www.thought.com](http://www.thought.com) article entitled “The Visual Learning Style” visual learners need things in front of them to help solidify them in their brains. This means that for the visual learner the teachers must not give lectures alone but do supplementary objects such as handouts, diagram, and used modern approach in teaching like video presentation, power-point presentation and the like.

The table also shows that the results with the second highest rank used in visual learners prefer a teacher who make use of charts, graphs, diagrams, and PowerPoints.

**Table 9. Preferred Learning Style of the Nursing Students in terms of Aural**

Item	Particulars		Rank
	Yes(%)	No(%)	
They prefer lectures, class discussion, oral reports and group discussion	85(62.5%)	51(37.5%)	3 <sup>rd</sup>
They remember a place going to school by the sounds they associate with on that place	49(36.0%)	87(64.0%)	4 <sup>th</sup>
If they were tasked to plan an event in school, they will do it by organizing it with some of their colleagues so all of them could talk about it	99(72.8%)	37(27.2%)	1 <sup>st</sup>
If they were assigned to lead a group project, they will be most likely to discuss it with their group mates	95(69.9%)	41(30.1%)	2 <sup>nd</sup>
They prefer a teacher who mainly discusses it with class, not using anything other than his voice and words	42(30.9%)	94(69.1%)	5 <sup>th</sup>

Aural learning style is a style wherein students learn best through hearing directions and speaking answers. Presented in Table 9 is the preferred learning style of the nursing students in terms of aural style. It was observed from the table that aural learner will organize the plan together with their colleagues in order that all of them could discuss and give feedback about the plan of the said event. It added further that every time aural learner is assigned to lead a group project, he/she will be most likely to discuss it with their group mates. This means that typical aural learners prefer to listen to their group mates rather than self-made decision leader. According to Ldpride.net (2008) stress out that aural learner tends to retain information better through listening rather than written reports.

**Table 10. Preferred Learning Style of the Nursing Students in terms of Reading-Writing**

Item	Particulars		Rank
	Yes(%)	No(%)	
They prefer writing a narrative report, reading books, working alone	40(29.4%)	96(70.6%)	5 <sup>th</sup>
They remember a place going to school by the things that I've read about that place	58(42.6%)	78(57.4%)	4 <sup>th</sup>
They were tasked to plan an event in school, they look up instructions for it or write down that should and not should be included in the event	87(64.0%)	49(36.0%)	3 <sup>rd</sup>
They were assigned to lead a group project, they will be most likely to list all materials, regulations, tasks and all related concepts	94(69.1%)	42(30.9%)	2 <sup>nd</sup>
They prefer a teacher who often gives out hand-outs and / or written activities	95(69.9%)	41(30.1%)	1 <sup>st</sup>

Reading/writing learning style is the preference with information displayed as words. The individual being able to write well and read widely attributes sought by the students itself. This preference emphasizes text-based input and output – reading and writing in all its forms but especially manuals, reports, essays and assignments.

Table 10 shows the preferred learning style of the nursing students in terms of reading/writing style. As shown in the table, those reading/writing learners prefer that a teacher often give hand-outs and written activities rather than listening the teacher talking and discussing. This kind of learners mostly preferred on listing of an objects or materials, regulations, tasks and all related concepts for he/she complete the assigned task by the teacher. Akankska Patra, (2017) corroborates the present findings which states that reading-writing learners are good at taking notes during class. Further this kind of learners make use of handouts, make bullet point divide different parts of the given task.

**Table 11. Preferred Learning Style of the Nursing Students in terms of Kinesthetic**



Item	Particulars		Rank
	Yes(%)	No(%)	
They prefer things that they can watch and learn from and things that they can do	88(64.7%)	48(35.3%)	1 <sup>st</sup>
They remember a place going to school by the things that they remember about that place or imagine myself doing in that place	56(41.2%)	80(58.8%)	5 <sup>th</sup>
If they were tasked to plan an event in school, they will watch tutorials on how to do it or reinvent idea they've done before into the event	77(56.6%)	59(43.4%)	4 <sup>th</sup>
If they were assigned to lead a group project, they will be most likely to be involved in every step of the project (walk with your group mates to every step of the task)	82(60.3%)	54(39.7%)	3 <sup>rd</sup>
They prefer a teacher who utilizes models, first-hand experience or demonstrations	85(62.5%)	51(37.5%)	2 <sup>nd</sup>

Kinesthetic learning style is that learning takes place by the students through carrying out physical activities, rather than listening to a lecture or watching demonstrations. Table 11 displays the preferred learning style of the nursing students in terms of kinesthetic style. As displayed in the table, kinesthetic learner prefers things that they can watch and learn that they can do. More so, it was inferred that they prefer a teacher who utilizes models, first-hand experience or demonstration rather than always giving hand-outs and written activities inside the classroom. Ldpride.net (2008) showed that kinesthetic learners learn best from doing, moving and touching the lessons themselves. It was estimated that about 5 percent of the population are kinesthetic learner which involves in manipulating objects.

Objective 3. Discuss the academic performance of the respondents based on the grade point average

Table 12 shows the academic performance of the nursing students based on their grade point average. According to the Universities' Grading Scale Percentage, those who have an excellent performance have a grade point average of 99%-100%, whilst very good students have an average of 90%-98%, followed by those with good performance of 80%-89% and lastly, those with fair performance of 75%-79% respectively. As shown in the table, majority of the nursing students have grade point average of 1.6 to 2.5 or described as "Good" performance. This means that there are students who are doing good in the academic activities inside the classroom but

need improvement for them to earn a much higher grade as semesters end or as they finished their course. This indicates that nursing students meet the minimum academic requirements in the university. This implies further that students are capable of achieving the competencies needed to succeed in nursing profession (Apple, 2002).

**Table 12. Academic Performance of the Respondents**

Performance	Frequency	Percent
Excellent (99% - 100%)	-	-
Very Good (90% - 98%)	17	12.5%
Good (80% - 89%)	119	87.5%
Fair (75% - 79%)	-	-
Total	136	100.0%

Objective 4. Determine if there is a significant difference in the preferred learning styles of the nursing students when analyze as to age, gender, year level, and socio-economic status.

**Table 13. Test of Difference in the Preferred Learning Styles when analyzed as to their Profile**

Profile	Chi-Square value	p-value	Decision on Ho	Remarks
Age	5.037	0.169	Accept Ho	No Significant Difference
Gender	7.431	0.059	Accept Ho	No Significant Difference
Year Level	16.055	0.066	Accept Ho	No Significant Difference
Socio-economic Status	7.195	0.844	Accept Ho	No Significant Difference

Level of significance set at 0.05

Table 13 shows the test of difference in the preferred learning styles of the nursing students when analyzed as to their profile. It can be inferred from the table that all of the indicated profiles show no significant difference in the preferred learning styles. It was evident with their respective probability value (p-value) greater than the level of significance set at 0.05. Thus, this leads to the acceptance of the null hypothesis. Therefore, there is no significant

difference in the preferred learning styles of nursing students when analyzed as to age, gender, year level and socio-economic status. This can be concluded that the data did not provide sufficient evidence to infer significant difference in the learning styles of nursing students as far as their profile are concerned. A study conducted by Hames (2014) entitled “A Study of the Relationship between Learning Styles and Cognitive Abilities in Engineering Students” contradicts the present finding which showed that differences in task performance between gender groups were more notable than differences between learning styles groups. Zhu et. al. (2018) study addressed that many factors that influence a student’s learning style including the gender, geographical background and educational major among other factors.

Objective 5. Determine if there is a significant association in the preferred learning styles of the nursing students when analyze as to academic performance.

**Table 14. Test of Association between Preferred Learning Styles and Student’s Academic Performance**

Associated Variable	Chi-Square value	p-value	Decision on Ho	Remarks
Preferred learning Styles Vis-à-vis Academic Performance	4.422	0.219	Accept Ho	No Association

Table 14 presents the test of association between preferred learning styles and student’s academic performance. As presented in the table, the computed Chi-square value (4.422) has a p-value of 0.219 which is greater than the level of significance set at 0.05. Thus, the decision is accepting the null hypothesis in favor of the alternative hypothesis. The result shows no significance association between preferred learning styles and the student’s academic performance. The results indicate that the varied learning styles of nursing students did not associates to student’s academic performance. The data did not provide sufficient evidence to conclude that learning styles relate to the academic performance of the nursing students. The study of Rezaeinejad, M., Azizifar, A., &Gowhary, H. (2015) contradicts the present findings which revealed that, among students in experiential field, there is a positive significant relationship between students learning styles who use Visual-Verbal learning style and their score means and among students in mathematics field. There is a positive significant relationship between students learning styles who use Active-Reflective and Visual-Verbal learning style and their score mean.

**Findings**

After all the necessary data of the study were tested accordingly, the following findings were revealed:

1. In terms of the profile of the respondents, majority of their age are ranging from 18 to 19 years old; female is the dominant gender and Php5,000 to Php10,000 is the prevalent monthly income of parents. As to gadgets used in studying, majority preferred to use the android phone and books as their tools in studying.

2. In terms of learning styles of nursing students, based on the summary most of the respondents are visual learners wherein they prefer pictures, flowcharts, diagrams and patterns in studying and they also prefer that their teacher use pictures, flowcharts, diagrams and patterns in presenting and discussing the topic. Further, the aural learner preferred to organized the plan together with their colleagues and discuss the given task. More so, the reading-writing learners preferred that their teachers give hand-outs and written activities rather than oral and listening the teacher talking and discussing. Lastly, the kinesthetic learners preferred things that they can watch and learn that they can do.

3. In terms of the academic performance of the nursing students, it is revealed that majority of them have good performance.

4. As to test of difference, there is no significant difference on the preferred learning styles of nursing students when analyzed as to their profile age, gender, year level and socio-economic status.

5. In terms of test of association, it is revealed that there is no significant association between the preferred learning styles and the academic performance of students.

## **5. Conclusion**

Based on the findings of this study, the researchers hereby concluded that the nursing profession is dominated by women due to the fact that they are caring, hardworking, nurturing and self-sacrificing which are very relevant to the medical profession. It is concluded further that VARK models are evident among nursing students as their mode of learning style. Thus, the students used different preferred learning styles to learn in their subjects but the study shows that most of the nursing students preferred Visual learning style. Furthermore, it is concluded that the preferred learning styles has no significant difference as to Age, Gender, Year level, Socio-economic status. It has also found that preferred learning styles of the nursing student has no significant association as to its Academic Performance.

## **6. Recommendations**

Based on the findings of the study and the conclusions drawn, the researcher hereby offer the following recommendations:

1. School educators and the community should encourage students/individuals to manage gender related issues and improve the image of nursing profession to male counterparts.

2. Since the Nursing students are more into Visual learning styles, the Clinical Instructors should be encouraged to use and produce instructional materials that have to do with vision such as PowerPoints, pictures, and diagrams.

3. The nursing students must continually strive and study hard to improve their academic performance towards excellence.

4. Further studies must be conducted to include other factors related to the academic performance of nursing students.

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