

Learning Styles as Predictor of Academic Performance in the Nursing Department of an Asian University and Colleges

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Abstract

There have been many attempts to study the different elements that are keys to academic performance students learn as measured by their learning styles and how this will translate to academic success have been considered as an insignificant component in the academic success of students. This quantitative descriptive-correlational study aimed to determine correlation between learning styles and academics. The participants consisted of 304 nursing students who were randomly selected from eight nursing schools in Marawi City. The Perceptual Learning Style Questionnaire was utilized to carry out the rationale of the study. The results demonstrated that the students were generally doing fairly well in the nursing program and generally exhibited a close balance between all the learning styles. The four learning styles (Visual, Auditory, Tactile and Kinesthetic) were found to have been used by the students simultaneously as major learning styles with most of them expressing preference for Kinesthetic learning style (78%) while expressing minor and negligible preference for Group learning style. The study revealed important relation between learning styles and performance. The findings in this study highlight the importance of recognizing students' varying learning styles. Teachers should be aware that efficacy with more learning styles will allow students to achieve the optimal learning environment.

Keywords: Nursing students, Learning Styles Preference, Academic Performance, quantitative research, Philippines

Introduction

There were several attempts to enhance the level of academic achievement by students and there are plenty of literature whose subject matter focuses on the academic performance of students and the different factors affecting it. Yet, there remains a research gap in the literature when it concerns learning styles, and how this affects or even translates to academic success. Previous researches on learning styles have found varying environments and individual cognitive processing as significant determinants to academic performance. Nuzhat et al (2011) argued that learning processes are affected by the environment and cognition (Abidin et. al, 2011). The study of learning styles has undergone several examinations (Samarakoon et al, 2013). Analyzing the learning process of students, and understanding the cycle of knowledge from classroom to student and back, will go far in helping student be more aware and consequently improve their

academic performance. Reid (1995) says that students have individual propensities and that learning styles are “individual natural, habitual, and preferred way(s) of absorbing, processing, and retaining new information and skills”. Some may prefer visual presentations while others may favor the hands-on approach. On the other hand, Dunn and Griggs (2003) defined learning style as attitudinal. According to the above-mentioned, learning methods may vary and learning styles impact educational processes. Nursing students also learn differently. Hence, it would be worthwhile to study the learning styles of nursing students to enable educators to formulate positive intervention mechanisms. Learning styles also change overtime as students continue to experiment on their effectiveness and develop strong style preferences, eventually the student will favor a certain learning style that has proven helpful in the learning cycle. According to Reid (1995), “perceptual learning styles” are the changes “among learners in using one or more senses to understand, organize, and retain experience”. Reid also identified six learning styles related to individual perceptions, namely: auditory, visual, kinesthetic, tactile, group and individual learning. The common usage of learning style generally follows the abovementioned classifications of perceptual learning style. According to Gurpinar (2010) instructors should be aware of learning styles to enable them to use appropriate educational materials. Moreover, when learning and teaching styles are compatible, this can result to improved understanding of course content (Mlambo, 2011). The reality however is that educators are not really conscious of their learner’s learning styles. Educators generally impart knowledge and skills based on conventions and individual teaching styles, without necessarily considering the different learning styles of students. However, to be more effective in the learning cycle, educators should also consider differences in learning styles among students. While substantive literature exists detailing effects of learning styles on performance in other countries, the impact of learning styles on Filipino nursing students has not been as thoroughly investigated in the Philippines. Choi et al (2014) in their study among pharmacy students found no significant correlation between learning styles and academic performance of the respondents. In another recent descriptive study about the elements determining performance among nursing students in a Philippine university identified study habits and factors relating to school and teachers as having high impact on student nurses’ academic performance (Alos et al, 2015), but the effect of learning styles on performance was not investigated. This study is an attempt to bridge the gap by focusing on learning styles and success of nursing students in Marawi City. At the very least additional literature in this particular area of study will have been presented that can serve as reference for further researches in the importance of learning styles like the model developed by Dunn and Dunn (1978) which has greatly influenced this study. The learning styles model says that individual differences in learning styles are conditioned by biological and environmental factors. By using teaching and educational materials that suit student learning styles, educators can improve academic performance.

Statement of the Problem

Nursing as a profession, requires precision and accuracy, as well as attention to detail. The very life of another person relies on these qualities possessed by nurses. In the course of acquiring this knowledge, nursing students are exposed to a unique learning environment and their performance can be affected by their preferred learning styles. Nursing Students may come from various backgrounds but when they join the nursing program teachers often use instruction without considering learning styles. Thus, students may favor certain subjects depending on the suitability of teaching styles to their very own learning styles. This study was initiated to determine the learning style preferences of nursing students. We will also investigate the relationship between academic performance and learning styles among student nurses in Marawi City.

Research Design

The primary goal of this quantitative study was to examine the correlation of learning styles to academic performance as measured by their grade point average. To accomplish the purpose of this study, these questions were used. 1. What are the learning styles of nursing students in Marawi City? (2) What is the academic performance of nursing students in Marawi City? What is the relationship of learning styles to academic performance? The hypothesis statements in this study concentrated on academic performance as measured by GPA. Therefore, after controlling for the demographic variables of the students, the hypothesis to be tested was there is no significant relation between academic performance and learning style. The descriptive design was used to describe the learning style preferences and academic performance of nursing students who were enrolled in all the nursing schools in Marawi City during the Second Semester of School Year 2014-2015. The correlation method of research was used to determine the relation between learning styles and academic performance.

Significance

Nursing education needs continued improvement. Understanding learning styles is a way for educators to upgrade the delivery of instruction by enabling students to optimize their learning capabilities. The results of this study can be used to facilitate dialogue between students and faculty members on the nature of the learning process, and what can be done to improve it. Hopefully, it will enable nursing students to get more of the academic process. Awareness of learning styles will enable students to use their strengths to achieve academic success. If a learning experience is adjusted to accommodate diverse styles, students will be able to use their strengths to achieve academic success. Attention to learning style theory may improve learning outcomes and academic performance.

Method of Procedure

This study is descriptive and will attempt to find out if the learning styles of nursing students will influence their overall academic performance. The study used the survey method through a list of questionnaires. The questionnaire was expanded to include the demographic data such as the age, sex, year level, and GPA (general point average) of the respondents. The questionnaire assessed the preferences of student learning styles based on their perceptions. It consists of 30 self-report statements using 5-point Likert scales. The 30 items are distributed equally among the learning style preferences: Five (5) items each for statements regarding Visual, Auditory, Kinesthetic, Tactile preferences, and two social aspects of learning: Group and Individual preferences. The inventory was scored by the student respondents themselves. The learning style categories with the most points determine an individual's preference for those categories. An advanced study was conducted to analyze and revise the questionnaires. Its validity was assessed through computing Cronbach's alpha, which shows the reliability value of .764 indicating the high reliability of items used in the questionnaire. For the purpose of selecting the setting of the study, all the eight nursing schools in Marawi City (seven privately-funded schools and one government-owned school) were selected as the locale and focus area of the study. The respondents were randomly selected from these schools. The respondent sample comprised of who are currently enrolled in the nursing program during the Second Semester of School Year 2014-2015. The respondents were almost evenly distributed between all year levels.

Collection of Data

The researcher requested permission to seek participation of the students from the Deans of the nursing schools prior to initiating the study. The randomly selected nursing students were briefed on the purpose of the study and their role as respondents. Participating students were given a consent form. After consent was obtained, the students were given standardized information on how to answer the questionnaire then each student was given a copy of the Learning Style

Questionnaire along with a scoring sheet to complete. After forms were completed they were returned to the researcher for verification of compliance. Three hundred fifty questionnaires were distributed to all nursing students. Three hundred four questionnaires were completed and collected (86.6% response rate). The data gathered were tallied, tabulated, and then subjected to statistical treatment.

Treatment of Data

The data was analyzed by statistical method. Scores for each set of variable in the learning style dimension was classified into major, minor and negligible. A score of 38-50 a major preference towards a particular learning style. A score of 25 to 37 indicates a minor preference. A score of 0 to 24 indicates a negligible preference towards a particular learning style. Frequency count was used to complete a student's learning style profile. The occurrence of each learning style among nursing students in Marawi City was then presented through descriptive statistics (frequency and percentages). The other method used is inferential statistics. As such, Spearman Rho Correlation was used to get results to determine statistical significance. We conclude that the methods of data analyses are enough to find answers to the research questions in the study.

Findings

Table 1. Frequency and Percentage, Distribution, Learning Styles

Learning Styles	Respondents Learning Style Preference based on Scores					
	Major		Minor		Negligible	
	<i>F</i>	%	<i>f</i>	%	<i>f</i>	%
Kinesthetic	237	78.0	64	21.1	3	1.0
Auditory	233	76.6	70	23.0	1	.3
Visual	204	67.1	95	31.3	5	1.6
Individual	199	65.5	95	31.3	10	3.3
Tactile	190	62.5	106	34.9	8	2.6
Group	145	47.7	130	42.8	29	9.5

The findings in Table 1 revealed that the most common learning style among nursing students was Kinesthetic (78%) followed closely by Auditory learning style (76.6%); Visual learning style (67.1%); Individual learning styles (65.5%); Tactile learning styles (62.5%); and lastly by Group learning style (47.7%). Conversely, minority of the respondents at 21.1% have Kinesthetic as their minor learning style preference; followed by Auditory with 23.0%; Visual and Individual learning styles come next, both with 31.3%, Tactile learning style with 34.9%. Kinesthetic learning was the major learning style among the respondents. Consequently, majority of the participants have Group learning style as their minority learning style preference (42.0%). From the results it is clear that respondents were not in favor of group learning. Kinesthetic learning style is the most popular major learning style but the least popular as a minor learning meaning nursing students would rather be active participants in the classroom; they need to move around to learn more effectively. This is in line with the finding of Alsafi (2010) in his investigation of learning styles among 90 medical students, which also yielded similar results. Trinidad (2008) investigated the learning styles of 298 students and found out that (76.6%) preferred kinesthetic learning style. Moreover, Draper (2007) had listed kinesthetic, as the most preferred learning style among college students. On the other hand, Ong et al (2006) revealed that students in education courses mostly preferred kinesthetic learning while auditory learning was the least preference. To supplement or contrast with other past researches, there has been other studies investigating the same research area notably by Mulalic (2009) and Hariharan and Ismail (2003)

which found learning style preferences among students as varying depending on the milieu. These studies showed that some learning styles are less preferred and considered as negative learning styles. For example, Mulalic et al. (2009) studied the learning style preferences of 160 students. The findings showed that those students preferred kinesthetic, individual and tactile learning styles as their negative preferences, and auditory, visual, and group learning styles as their minor preferred. In other words, majority of the respondents would tend to prefer auditory, visual and group learning styles than kinesthetic, individual and tactile learning style. In another study, Hariharan found out that secondary school students in Malaysia did not have any major learning styles. The findings would show that the respondents selected kinesthetic and group as their minor learning styles and chose tactile, visual, auditory, and individual learning as their negative learning styles which contrasts directly with the results of the study of Mulalic et al. (2009) Few studies reveal preferences for major or minor learning styles. For instance, Ahmad's (2011) study had the aim of identifying the learning style preferences of 252 low level students at a local tertiary institution, with the findings showing that the students did not have any major or even minor learning style preference. All six learning styles were negative learning style preference however individual learning style was the least preferred. It was noted that it could be implied from the results of that study that it is possible for one to have no preferred learning style, whether because the student employs a variety of learning styles without any overt preference thus implying flexibility, or because the student himself or herself does not recognize the characteristics of his own learning style thus implying lack of self-awareness. The findings also revealed that the relationship between the frequency and distribution for the learning styles as either major or minor is inversely proportional which means that since majority of the participants use kinesthetic as a major learning style, this also means that only a few participants use kinesthetic as minor learning style since one cannot use a specific learning style as major and minor learning styles simultaneously. Group learning style which is not exactly a learning style but a social aspect of learning ranks lowest. Since most of the participants were female Meranaos who are by tradition conservative and do not feel comfortable when in a group even for studying purposes. As further proof of this, Individual learning style ranks quite highly in the social aspect of learning, which would imply that participants are able to study more effectively alone.

Table 2. Frequency and Percentage Distribution, Respondents' Academic Performance As Measured By Their GPA

Academic Performance	<i>f</i>	%
Excellent	5	1.6
Very Good	44	14.5
Good	108	35.5
Satisfactory	73	24.0
Fair	45	14.8
Passing	29	9.5
Total	304	100.0

Table 2 shows the frequency and percentage distribution of respondents according to their Grade Point Average (GPA), which is the grade points earned, divided by the number of credits. The results show that 35.5% had GPA which is equivalent to Good, followed by Satisfactory

(24%), Fair (14.8%), Very Good (14.5%), Passing (9.5%), and finally a mere 1.6% got an Excellent GPA. The results indicate that although a majority of the respondents have a GPA that is equivalent to Good, only a handful of students are excelling in the nursing program. Based on the data, it is clear that nursing students are doing well in nursing program with academic grades ranging from fair to very good, with majority of the respondents obtaining a GPA that is equivalent to Good. This would mean that academic achievement is indeed present, and it could also mean that the learning styles applied by the students are effective. However, as shown by the findings, only a negligible number attained a GPA of Excellent. This implies that although the respondents are doing fairly well in the nursing program, there is still a need for improvement. Grades as a measurement of academic performance are important to both students and faculty. These findings are very important in the nursing community because these may support the claim that the quality of nursing education has shown signs of deterioration as measured by the quantity of nursing graduates who pass the Board of Nursing licensure examinations.

Table 3. Correlation, Respondents' Learning Styles and Their Academic Performance

Independent Variables	Spearman Rho Correlation Value	Computed p Value	Interpretation
Kinesthetic	.168	.003	** Significant at the .01 level
Auditory	.234	.000	** Significant at the .01 level
Visual	.309	.000	** Significant at the .01 level
Individual	.216	.000	** Significant at the .01 level
Tactile	.317	.000	** Significant at the .01 level
Group	.003	.961	Not significant

** Correlation is significant at the .01 level (2-tailed).

The results in the above table show that out of the six learning styles mentioned, only Group learning style is found to have no significant relationship with the respondents' academic performance which means that Group learning style does not have any bearing on the respondents' academic success. Visual, Auditory, Tactile, Kinesthetic, and Individual learning style are all positively correlated with the academic performance of the respondents with 100% confidence level at a level significance of 0.01 for all learning styles with the exception of kinesthetic, with 99.7% confidence level. In other words, as the students' preferences for visual, auditory, tactile, kinesthetic, and individual learning styles increase so does their academic performance, and vice-versa. These findings contradict the findings of Urval et. al. (2011) and Gurpinar et. al. (2010). Both studies show no relationship between the learning styles and the academic performance of medical students in India. Meanwhile, Choi et, al. (2014) in their study assessing the learning styles of pharmacy students in the University of the Philippines found no significant relationship between learning style and academic performance. However, Alkhasawneh et al (2008) suggested that learning style is an important factor in students' achievement. The successful learner has different ways of learning but would tend to favor one style over the others in a given situation. Of the learning styles mentioned, students selected five that they consider as major learning styles. A combination of these learning styles can positively

impact academic performance. Group learning style preference is not significantly correlated with the respondents' academic performance. Group learning style and Individual learning style are not really learning styles per se, but more on the social aspect of learning or the attitude of a student towards learning. This would imply that the social aspect in terms of learning with a group do not affect how the respondents learn and process information. Moreover, a majority of the respondents have Group learning style as their minority learning style preference (42.0%)

Conclusions and Implications of the Study

This study provided valuable information regarding the preferred learning styles of undergraduate nursing students. Some of the findings of this study agree with the Learning Styles Model of Dunn and Dunn, as well as the results of previous learning style studies, lending support to the construct validity of Reid's Learning Style Questionnaire. In line with the foregoing findings, the following conclusions have been reached: 2Within the learning style dimension, the findings revealed that majority of the respondents exhibited a close balance between all the learning styles with predominance towards kinesthetic while disfavoring group learning style. In terms of academic performance, majority of the respondents were doing well in the nursing program with academic grades ranging from fair to very good, with majority of the respondents obtaining a GPA that is equivalent to Good. Lastly, this study revealed a significant relationship between learning style preferences and academic performance. The study also showed that the majority of the respondents have multiple learning styles or a combination of more than one. Overall, it can be deduced from the findings the each student is most comfortable learning in ways personally unique to himself or herself and that the respondents have different learning styles which they made use of in their journey as students which in turn have an impact on their academic performance2According to Dunn and Griggs (2003), multi-style learners tend to achieve more and score better than learners with one or two learning styles. As such, it is inferred that learning styles do make an impact on the students' overall academic achievement. The present study 2uncovered the existence of different learning styles, multiple learning styles and a variety of major, minor and negligible learning styles among students. Most educational psychologists would agree that multiple learning styles significantly enhance academic achievement (Felder 1995). Dunn and Dunn (1986) state that in most cases, a successful learner learns in several different ways. Thus, students with naturally one or two learning styles can improve significantly when taught through other learning styles. It is of prime importance that teachers become aware of effective methods of teaching and not only that but also of the learning styles and study methods of their students. This way, teachers can optimize learning for most students. The findings in this study highlight the importance of recognizing the variety of learning styles that students may have. Teachers must know the utility of learning styles and how this connects to the ease of learning of students for effective learning to take place. 24The more that teachers become aware of their students' style preferences, the more effectively they can orient their instruction and method of teaching to be interwoven as an overall strategy which can complement 1those style preferences. Some learners might need instruction presented more visually, while others might require more lectures, which appeal to their auditory senses, and still some may prefer hands-on learning as they would be kinesthetic or tactile learners. 1Without adequate knowledge about their individual students' style preferences, teachers remain ignorant and lack key information that they would need to optimize the learning process that will bring out the best results from students. To emphasize the importance of knowing student learning styles, they should complete a learning style profile at the start of a course. There are plenty of standardized tests and questionnaires, which are easy enough to complete in a quick span of time. The results of the learning style instrument not only act as a guide for the students, but also for the teacher as well. It is also a good opportunity for students to develop their interpersonal skills by being more aware of the learning styles and studying preferences of their fellow colleagues. Furthermore, it allows students to train themselves in managing and being part

of a group, allowing them to practice taking maximum advantage of their own learning styles and that of their team mates. This would benefit them in the future, as nurses will often have to work in teams in a professional setting. In conclusion, it is important to raise two main points. First, teachers should consider differences in learning styles among students. When teachers are aware of learning styles, they put the students as their prime consideration when creating their lesson plan. Second, students should be aware of styles and strategies. Awareness of their own learning styles can build self-confidence in the students that can help them excel in the academic field. Some issues emerge from this study such as the inevitable mismatch in teaching and learning styles in the classroom. The researcher recommends further researches in learning and teaching styles. When teachers are teaching in ways that agree with their personal styles and strengths, both students and teachers are likely to benefit. Nursing faculty can certainly help students identify their preferred learning styles and strengthen their natural abilities, while at the same time teaching in a manner that will emphasize their own strengths. The area of learning style is wide and may be approached in various ways. Implications to future researchers would be to conduct alternative approach to studying the different learning styles of students such as a qualitative study focusing in depth on only one or two learning styles, such as Kinesthetic/Tactile or Auditory learning style, so frequently found in nursing. Since the ability to process information quickly and efficiently is so vital to learning, a study focusing only on concept attainment using the cognitive style might be another possibility. In relation, a study of other variables related to learning styles may improve on the present knowledge and application of learning styles to Filipinos, specially Meranaos as is the context of this study, can be discovered and utilized to help students attain their full potentials. Additionally, further testing and refinement of the Learning Style Questionnaire could be carried out to add to its reliability and validity as a tool measuring learning style. While this study was conducted locally, its findings certainly can be applied to educational institutions in other countries. Making adjustments for cultural differences, the findings on learning styles of students may be utilized by teachers in foreign educational institutions to create their own optimal learning models.

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and even Law in the College of Law in MSU, but did not really find these professions to her liking. She became a banker and worked in City Bank, Banco de Oro, and BPI. Despite the well-enough income, the world of business did not really appeal to her. In 2003, with already two very young daughters, she tried nursing at De Ocampo Memorial College and after three years of nursing education, she finished her BSN Degree in 2006. After passing the PNLE in 2006, she worked with two hospitals in the United Arab Emirates where she worked in a variety of settings and nursing positions. She returned to the Philippines in 2008 and immediately decided to pursue her Master's Degree in Nursing, while at the same time teaching at the MSU College of Health Sciences where she held various positions including being the College Secretary, Co-Chairperson of the Accreditation Committee, faculty adviser for their college's undergraduate journal and a member of the editorial board of MSU graduate school journal. She finished her Master of Arts in Nursing major in Nursing Administration in 2011. She is now currently taking Doctor of Science in Nursing at Cebu Normal University in preparation for assuming further responsibilities as core faculty of the future Doctor of Science in Nursing course offering of the College of Health Sciences. Prof. Bangcola has attended several seminars and symposia both locally and abroad and has won 1ST Place in the Research Capsule Development for a paper entitled "The Lived Experiences of Circumcised Meranao Women" during the Seminar-Workshop on Phenomenological Research organized by MSU – Iligan Institute of Technology in Iligan City on March 20-21, 2014. She was also awarded as Best in Oral Presentation in the 3rd International Conference on Multidisciplinary Research held in Hong Kong on December 14-17, 2015. She is currently the primary researcher of a University-funded research on educators' perceptions and understanding of the basis of Outcome-based education and its impact on their assessment practices.