

## Nursing and midwifery students: A study about learning preferences

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**Abstract:** Learning preferences are about the ways that people want to interchange information, and it includes Visual (learning by seeing), Auditory (learning by hearing), Read/Write (learning by reading/writing), and Kinesthetic (learning by doing) (VARK). VARK is very important to facilitate the development of nursing and midwifery students, helping translate theory into practice, and making what is learned in the classroom a reality. Due to the learning preferences of the nursing and midwifery students never been observed, this study is very important. The objectives of the study were 1) to identify the differences of learning preferences between two programs, 2) to compare the first and the second-year of students' learning preferences, and 3) to determine the association between GPA (Grade Point Average) of students and learning preferences. A descriptive cross-sectional study was performed by using VARK questionnaire version 7.8. A total of 241 students including 125 nursing and 116 midwifery students were participated in this study that selected using stratified random sampling techniques, and data analyzed used the chi-square test and one way annova ( $\alpha=0.05$ ). The study showed that 61.7% and 67.8% nursing and midwifery students in the first year, and 70.8% and 63.3% in the second-year were used multimodal learning preferences, respectively. There was no significantly differences learning preferences between the first and the second-year as well as between nursing and midwifery students ( $p>0.05$ ). The average of GPA for nursing and midwifery students are 3.23 ( $SD=0.302$ ), and there is no associated between GPA and learning preferences ( $p>0.05$ ). Based on the study, we concluded that nursing and midwifery students have varies on the learning preferences, however the majority of the students used multimodal. Therefore, an active learning method that covered all the learning preferences is recommended.

**Keywords:** Learning preferences, Nursing and midwifery students, VARK questionnaire.

### Introduction

Adult education assumes that students at universities and colleges have developed efficient study skills and have acquired appropriate learning strategies to adapt their learning to the lessons and tutoring methods used by teachers. When nursing students have studied with strategies congruent to their learning style preferences they have been motivated, felt responsibility and achieved high grades<sup>1</sup>. -

VARKS is very important to facilitate the development of nursing and midwifery students, helping translate theory into practice, and making what is learned in the classroom a reality. Due to the learning preferences of the nursing and midwifery students never been observed, this study is very important. The objectives of the study were 1) to identify the differences of learning preferences between two programs, 2) to compare the first and the second-year of students' learning preferences, and 3) to determine the association between GPA of students and learning preferences.

## Materials and Methods

A descriptive cross-sectional study was conducted by using VARK questionnaire version 7.8. that consisting of 16 questions with multiple choice of four sensory of modality and has been translated into Indonesia language. To calculate the sample sizes, Yamane formula (1967) was performed <sup>2</sup>. A total of 241 students including 125 nursing and 116 midwifery students were participated in this study that selected using stratified random sampling techniques. The differences of learning preferences in the first and the second-year between nursing and midwifery students was analyzed using the chi-square test, whereas between GPA and learning preferences using one way annova ( $\alpha=0.05$ ), and IBM SPSS Statistics 21 software was applied.

VARK questionnaire is one method that helps in acquiring information about students' learning styles, it has 16 multiple choice questions. For each question, students have to choose the statement that best explains their learning style preferences <sup>3</sup>. If more than one choice matches their perception, then more than one statement can be selected. VARK was selected because it is concise and quick <sup>4</sup> and easy to administer with free online availability. It is an excellent tool to alert the student and teacher to the variety of learning preferences in a class. We obtain permission for using the print version from Neil Fleming.

## Results and Discussion

Based on the study, a total of 61.7% and 67.8% nursing and midwifery students in the first year, 70.8% and 63.3% in the second-year were used multimodal preferences, respectively (Table 1). Among nursing students who preferred more than one mode learning (multimodal) in the first year, the majority (30.0%) were bimodal, 20.0% were trimodal and 11.7% were quadmodal, whereas midwifery students, 30.4% were bimodal, 17.9% were trimodal and 19.6% were quadmodal. In the second-year, among nursing students who preferred multimodal, the majority (30.8%) were bimodal, 16.9% were trimodal and 23.1% were quadmodal learning preferences, and for midwifery students, 25.0% were bimodal, 16.6% were trimodal and 21.7% were quadmodal (Table 1).

There is no significantly differences learning preferences between the first and the second-years ( $p>0.05$ ) as well as between nursing and midwifery students ( $p>0.05$ ) (Table 2). The average of GPA for nursing and midwifery students are 3.23 (SD=0.302), and there is no associated between GPA and learning preferences ( $p>0.05$ ) (Table 3).

**Table 1. The learning preferences of nursing and midwifery students the first and second-year**

Learning preferences	Nursing students		Midwifery students	
	First year	Second-year	First year	Second-year
	No. of students (%)	No. of students (%)	No. of students (%)	No. of students (%)
Unimodal	23 (38.3)	19 (29.2)	18 (32.2)	22 (36.7)
Multimodal	37 (61.7)	46 (70.8)	38 (67.8)	38 (63.3)
▪ Bimodal	18 (30.0)	20 (30.8)	17 (30.4)	15 (25.0)
▪ Trimodal	12 (20.0)	11 (16.9)	10 (17.9)	10 (16.6)
▪ Quadmodal	7 (11.7)	15 (23.1)	11 (19.6)	13 (21.7)

This study finding was consistent in which 62% were multimodal to health profession students <sup>5</sup>. Likewise the study finding that was showed that 69.9% in the first year medical students preferred multimodal learning style <sup>6</sup>.

However, our finding in this study was inconsistent towards the first students MBBS course, found that unimodal learning preferences were 62.3% <sup>7</sup>. The conducted research to nursing students, in which the percentage of the students preferred unimodal learning preferences were 54% <sup>8</sup>. Other studies showed that unimodal learning preferences more dominant (67%) <sup>9</sup>.

**Table 2. The differences between the first and the second-year and in learning preferences of nursing and midwifery students**

Learning preferences	Nursing students			Midwifery students		
	First year	Second-year	p	First year	Second year	p
Unimodal	23	19	0.375	18	22	0.751
Multimodal	37	46		38	38	
Total	60	65		56	60	

Furthermore, the result of this study was also inconsistent, revealed that learning preferences of nursing students significantly differed from the first academic to the third academic year<sup>10</sup>.

**Table 3. One way analysis of variance between the learning preferences of nursing and midwifery students based on GPA**

*GPA=3.23 (SD=0.302)	Comparison	Sum of squares	Df	Mean square	F	Sig
	Between two programs	0.046	1	0.046	0.500	0.480
	Within two programs	21.956	239	0.092		
	Total	22.002	240			

\*Grade Point Average

More about GPA and learning preferences was consistent with the research that found no satisfisically significant between GPA and learning preferences<sup>11,12</sup>. Nevertheless, there are some controversy result of which personality traits and learning preference better predict students academic achievement<sup>13</sup>. The researchers examined the effect of the big five (emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness) on cognitive and affected academic performance including GPA, individual score and satisfaction<sup>14</sup>.

## Conclusion

Based on the study, a total of 61.7% and 67.8% nursing and midwifery students in the first year, and 70.8% and 63.3% in the second-year were used multimodal. There was no significantly differences learning preferences between the first and the second-years ( $p>0.05$ ) as well as between nursing and midwifery ( $p>0.05$ ), and there was no associated between GPA and learning preferences ( $p>0.05$ ). We concluded that nursing and midwifery students have varies on the learning preferences, however the majority of the students used multimodal. Therefore, active learning method that covered all the learning preferences is recommended.

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