

## Learning Preferences of Nursing and Midwifery Students

Ivan Elisabeth Purba<sup>1</sup>, Janno Sinaga<sup>2</sup>, Rinco Siregar<sup>2\*</sup>, Amila<sup>2</sup> and Rinawati Sembiring<sup>3</sup>

<sup>1</sup>Directorate of Postgraduate, <sup>2</sup>Faculty of Nursing and Midwifery,

<sup>3</sup>Faculty of Public Health, Sari Mutiara Indonesia University

\*E-mail: rincosiregar@yahoo.co.id

### บทคัดย่อ

รูปแบบการเรียนรู้เป็นแนวทางของบุคคลที่ต้องการจะพัฒนาข้อมูล ซึ่งประกอบด้วย การสังเกต การเขียน และการลงมือทำ รูปแบบการเรียนรู้ดังกล่าวเป็นสิ่งสำคัญที่จะช่วยส่งเสริมสนับสนุนพัฒนาการของนักศึกษาหลักสูตรการพยาบาลและการผดุงครรภ์ รวมทั้งแปลความหมายจากทฤษฎีสู่การปฏิบัติ ซึ่งจะนำไปสู่การเรียนรู้ที่เหมือนสภาพจริงในห้องเรียน วัตถุประสงค์ของการศึกษาประกอบด้วย 1) ความแตกต่างของรูปแบบการเรียนรู้ระหว่างนักศึกษา 2 หลักสูตร 2) เปรียบเทียบคะแนนเฉลี่ยของรูปแบบการเรียนรู้ระหว่างนักศึกษาชั้นปีที่ 1 และ ปีที่ 2 และ 3) หาความสัมพันธ์ระหว่างผลการเรียนสะสมของนักศึกษาและรูปแบบการเรียนรู้ การวิจัยครั้งนี้ใช้แบบสอบถามวาร์ค (VARK Version 7.8) โดยนักศึกษามีทั้งหมด 241 คน แบ่งเป็นนักศึกษาหลักสูตรพยาบาลศาสตร์ 125 คน นักศึกษาหลักสูตรผดุงครรภ์ 116 คน สุ่มกลุ่มตัวอย่างแบบแบ่งชั้น และวิเคราะห์ข้อมูลโดยใช้ไคสแควร์ และ One way annova ผลการศึกษาพบว่า ร้อยละ 61.7 และร้อยละ 67.8 ของนักศึกษาหลักสูตรการพยาบาลและการผดุงครรภ์ เป็นนักศึกษาชั้นปีที่ 1 และร้อยละ 70.8 และ 63.3 ของนักศึกษาชั้นปีที่ 2 ใช้รูปแบบการเรียนรู้หลายลักษณะ รูปแบบการเรียนรู้ระหว่างนักศึกษาหลักสูตรการพยาบาลและการผดุงครรภ์ชั้นปีที่ 1 และชั้นปีที่ 2 ไม่แตกต่างกัน ( $p>0.05$ ) ค่าเฉลี่ยของผลการเรียนสะสมของนักศึกษาหลักสูตรการพยาบาลและการผดุงครรภ์ คือ 3.32 (SD=0.302) ซึ่งพบว่า ไม่มีความสัมพันธ์ระหว่างผลการเรียนสะสมและรูปแบบการเรียนรู้ ( $p>0.05$ ) จากผลการศึกษาสะท้อนให้เห็นว่านักศึกษาหลักสูตรการพยาบาลและการผดุงครรภ์ มีรูปแบบการเรียนรู้ที่หลากหลาย ดังนั้น วิธีการส่งเสริมการเรียนรู้ให้ผู้เรียน ควรวางแผนให้ครอบคลุมลักษณะการเรียนรู้ทุกรูปแบบ

**คำสำคัญ:** รูปแบบการเรียนรู้ นักศึกษาหลักสูตรการพยาบาลและการผดุงครรภ์ แบบสอบถามวาร์ค (VARK)

### Abstract

Learning preferences are the ways that people want to interchange information and include Visual, Auditory, Read/Write, and Kinesthetic (VARK) approaches. They are important in the development of nursing and midwifery students, helping translate theory into practice, and making what is learned in the classroom a reality. The objectives of the study were 1) to identify the differences of learning preferences between nursing and midwifery students, 2) to compare the first and the second-year of students' learning preferences, and 3) to determine the association between Grade Point Average (GPA) and students' learning preferences. A descriptive cross-sectional study was carried out between May and June 2014, and VARK questionnaire version 7.8. was administered. A total of 241 students participated in this study selected by stratified random sampling. Data analysis used Chi square test and One-Way ANOVA ( $\alpha=0.05$ ). The study showed that 61.7% of the nursing and 67.8% of the midwifery students in first year and 70.8% of the nursing and 63.3% of the midwifery students in second year used multimodal learning preferences. There was no significant differences in learning preferences between first and

second year students and between nursing and midwifery students ( $P>0.05$ ). Furthermore, there was no association between GPA and learning preferences ( $P>0.05$ ). Based on the study, it was concluded that nursing and midwifery students had a variety of learning preferences but the majority used multimodal.

**Keywords:** Learning preferences: Nursing and midwifery students: VARK

## 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. But this does not apply to all students. Studies show the importance of teachers adapting pedagogy and didactics to students' preferences. When nursing students studied with strategies congruent to their learning style preferences they have been motivated, felt responsibility, and achieved high grades [1].

Information about learning styles and preferences can help faculty become more sensitive to the differences between students, which in turn might help in designing learning experiences that match students' styles. More specifically, considering learning preferences can help individuals begin to understand their needs and rationalize their choice of teaching strategies suitable for themselves [2]. One method that helps in acquiring information about student's learning style is a questionnaire called VARK developed by Neil Flemming in 1998 [3].

VARk is a questionnaire that provides users with a profile of their learning preferences. These preferences are about the ways that they want to take-in and present information. There are 4 types of learning styles that people use, Visual, Aural, Read/Write, and Kinesthetic [4]. 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 [4].

Learners with a single learning style preference are referred to as unimodal, whereas others preferring a variety of styles are known as multimodal. Of the multimodal learners, there are subclassifications for bi-, tri- and quadmodal learners, who prefer to use two, three or four styles respectively [5].

The objectives of the study were to 1) identify the differences of learning preferences between nursing and midwifery students, 2) compare the first and the second-year of students' learning preferences, and 3) determine the association between GPA and students' learning preferences.

## Materials and Methods

A descriptive cross-sectional study was carried out between May and June 2014, and VARk questionnaire version 7.8. was administered. It consisted of 16 questions with multiple choices of four sensory of modality and had been translated into the Indonesia language. To calculate the sample size, Yamane formula [6] was applied. A total of 241 students including 125 nursing and 116 midwifery students participated in this study and were selected using stratified random sampling techniques. The differences of learning preferences in the first and the second year nursing and midwifery students were analysed using Chi square test,

whereas the association between GPA and students' learning preferences used One-Way ANOVA ( $\alpha=0.05$ ). IBM SPSS Statistics 21 was used for statistical analyses.

The VARK questionnaire consisted of 16 multiple choice questions. For each question, students had to choose the statement that best explained their learning style preference [7]. If more than one choice matched their perception, then more than one statement could be selected. VARK was selected because it is concise and quick [3] 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 the class. Permission was obtained to use the print version from Neil Fleming.

### Results and Discussion

Based on the study, a total of 61.7% nursing and 67.8% midwifery students in first year, and 70.8% nursing and 63.3% midwifery students in second year used multimodal preferences (Table 1). Among nursing students who preferred more than one mode learning (multimodal) in the first year, 30.0% were bimodal, 20.0% were trimodal, and 11.7% were quadmodal. For midwifery students, 30.4% were

bimodal, 17.9% were trimodal, and 19.6% were quadmodal. In second year, for nursing students, 30.8% were bimodal, 16.9% were trimodal, and 23.1% were quadmodal. For midwifery students, 25.0% were bimodal, 16.6% were trimodal, and 21.7% were quadmodal (Table 1). There was no significant differences in learning preferences between first and second year students ( $P>0.05$ ) and between nursing and midwifery students ( $P>0.05$ ) (Table 2). The average GPA for nursing and midwifery students were 3.23 (SD=0.302). There was no association between GPA and students' learning preferences ( $P>0.05$ ) (Table 3).

This study was consistent with Sabo et al. [8] in which 62% of health profession students were multimodal. Likewise the study by Samarakoon et al. [9] showed that 69.9% of first year medical students preferred multimodal learning style. Multimodal students prefer information to arrive in a variety of modes (using two or more learning modalities). It is important to emphasize that students only remember 20% of what they read, 30% of what they hear, 40% of what they see, 50% of what they say, and 60% of what they do. This average increases to 90% for information they say, hear, see, and do [10].

**Table 1** Learning preferences of nursing and midwifery students

Nursing students	Midwifery students
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Learning preferences	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)

**Table 2** Differences between first and second year students' learning preferences

Learning Preferences	Nursing Students			Midwifery Students		
	First Year	Second Year	P value	First Year	Second Year	P value
-Unimodal	23	19	0.375	18	22	0.751
-Multimodal	37	46		38	38	
Total	60	65		56	60	

**Table 3** Association between GPA and students' learning preferences

*GPA	Comparison	Sum of squares	P value
3.23	Between two programs	0.046	0.480
(SD=0.302)	Within two programs	21.956	
	Total	22.002	

\*Grade Point Average

The result of this study was inconsistent with Shenoy et al. [11] who found that 62.3% of first year students in an MBBS course preferred unimodal learning. Meehan-Andrews [12] conducted research of nursing students and found that 54% preferred unimodal learning. Other studies showed that unimodal learning style preferences were dominant (67%) [13].

The result of this study was inconsistent with Alkhasawneh [2] who revealed that learning preferences of nursing students significantly differed from first to third year.

The findings about GPA and learning preferences were consistent with Baykan and Nacar [10] who found no satisfically significant

association between learning preferences and GPA. Nevertheless, there were some controversial results about which personality traits and learning styles preferences better predict students' academic achievement [14]. The researchers examined the effect of the big five (emotional stability, extraversion, openness to experience, agreeable-ness, and conscientiousness) on cognitive and affected academic performance including GPA, individual score, and satisfaction [14], [15]. According to O'Neale and Harrison [16], the contribution of learning style and study habits as predictors of academic achievement in group theory were not significant but learning style has a high contributor.

## Conclusion

There were no significant differences learning preferences of first and second year students in nursing and midwifery. There was also no association between GPA and students' learning preferences. Based on the study, it is concluded that nursing and midwifery students had various learning preferences but the majority of students used multimodal.

Further studies with different design and other factors in addition to grading are needed to provide an increased understanding of students' learning preferences.

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## References

- [1] Billings, D. M. et al. 1992. "Effects of learning style preferences, attitudes, and GPA on learner achievement using computer-assisted interactive videodisc instruction". **J. of Computer Based Instruction**. 19 (1): 12-16.
- [2] Alkhasawneh, E. 2012. "Using VARK to assess changes in learning preferences of nurse students at a public university in Jordan: implication for teaching". **Nurse Education Today**. 33: 1546-1549.
- [3] Murphy, et al. 2004. "Students learning preferences and teaching implications". **J. of Dental Education**. 68 (8): 259-266.
- [4] James, S. et al. 2011. "Learning preferences of first year nursing and midwifery students: Utilising VARK". **Nurse Education Today**. 31 (4): 417-423.
- [5] Erica, A. et al. 2007. "Gender differences in learning style preferences among undergraduate physiology students". **Advances in Physiology Education**. 31:153-157.
- [6] Yamane, T. 1967. **Statistics: An introductory analysis**. 2<sup>nd</sup> edition Newyork: Harper and Row.
- [7] Fleming, N. D. 2014. Teaching and learning styles: VARK strategies. <http://www.vark-learn.com>. 6 May.
- [8] Sabo, R. et al. 2012. "Using online instruments to assess learning styles of health professions: A pilot study". **The Internet J. of Allied Health Science and Practice**. 10 (2).
- [9] Samarakoon, L. et al. 2013. "Learning styles and approaches to learning among medical under-graduates and postgraduates". **BMC Medical Education**. 13 (42): 1-6.
- [10] Baykan, J. and Nacar, M. 2007. "Learning styles of first year medical students attending Erciyes University in Kayseri, Turkey". **Advances in Physiology Education**. 31:158-160.
- [11] Shenoy, U.G. et al. 2012. "Change in the learning styles in medical students during their MBBS course". **International J. of Scientific and Research Publications**. 2 (9): 1-4.
- [12] Meehan-Andrews, T. A. 2009. "Teaching mode efficiency and learning preferences of first year nursing students". **Nurse Education Today**. 29 (1): 24-32.

- [13] Brown, T., Cosgriff, T. and French, G. 2008. "Learning styles preferences of occupational therapy, physiotherapy and speech pathology students: A comparative study". **Internet J. of Allied Health Sciences and Practice**. 6 (3).
- [14] Trapmann, S. et al. 2007. "Meta-analysis of the relationship between the big five and academic success at university". **J. of Physiology**. 215: 132-151.
- [15] Rothstein, et al. 1994. "Personality and cognitive ability predictors of performance in graduate business school". **J. of Educational Psychology**. 86:516-530.
- [16] O'Neale, L.D.G. and Harrison, S. 2013. "An investigation of the learning styles and study habits of chemistry undergraduates in barbados and their effect as predictors of academics achievement in chemical group therapy". **J. of Educational and Social Research**. 3 (2):107-122.