

ORIGINAL RESEARCH

Active versus passive learning: perceptions of undergraduate nursing students

Kristin Lee¹, Heather Schull², Peggy Ward-Smith *¹

¹School of Nursing and Health Studies at the University of Missouri, Kansas City (UMKC), USA

²Registered Nursing Department at Johnson County Community College, USA

Received: January 6, 2016

Accepted: April 6, 2016

Online Published: May 4, 2016

DOI: 10.5430/jnep.v6n9p63

URL: <http://dx.doi.org/10.5430/jnep.v6n9p63>

ABSTRACT

Background: Knowledge of student learning style preference offers a format for nurse educators to effectively provide classroom instruction. Student learning style was identified based on self-disclosed responses on the VARK© 7.8 to include visual, kinesthetic, read-write, or auditory.

Method: Undergraduate nursing students, enrolled in the didactic portion of a required maternal/child course, completed a self-report tool that determined their learning style preference. Data, which allowed each student participant to describe their satisfaction with course presentation, were collected immediately after a class was conducted using (1) passive and (2) active teaching strategies.

Results: The majority of study participants were visual in their learning style. Each type of learner reported a preference for active teaching strategies, yet this preference dissipated among kinesthetic learners.

Conclusion: Learning style has an effect on course presentation preference. Inclusion of student learning preference may influence the development of critical thinking skills.

Key Words: Learning style, VARK, Undergraduate nursing students, Passive teaching, Active teaching

1. INTRODUCTION

Nurse educators are challenged to provide course content in an academic environment that includes an increased number of students in the classroom, as well as altering the content to include active learning activities. According to Billings and Halstead,^[1] lectures, watching videos or podcasts, as well as completing reading assignments, are passive learning methods. Group work, concept mapping, role playing, and case studies are considered active learning techniques.^[1-3] Research by Fink^[4] has linked active learning to excitement and enhanced learning. Walker^[5] has established active learning activities lead to higher levels of critical thinking. For

nursing, academic instruction needs to provide content, while bridging the theory-practice gap known to be a barrier for evidenced-based practice.^[6] Knowledge of student learning styles provides useful data to students and faculty. Students can use this information to understand how to use their learning style to retain, study, understand and apply course content.^[1,7] Faculty should consider learning styles of their students when developing course content and instructional methods. When students appear to be struggling to comprehend course content, knowledge of their learning style will ensure that the intervention is appropriate, which will heighten its potential for success.^[2] DeYoung^[2] describes the

*Correspondence: Peggy Ward-Smith; Email: wardsmithp@umkc.edu; Address: School of Nursing and Health Studies, University of Missouri – Kansas City, 2464 Charlotte Street, Kansas City, MO 64086, USA.

factors of classroom environment, study habits and learning how to learn in a more efficient manner as important reasons for an assessment of learning styles. As nursing curriculum undergo changes aimed at improving the critical thinking skills of our graduates, James and associates^[8] posit that student learning styles be included in this process. The purpose of this feasibility study was to compare student self-assessed learning style to their preference for course content to be presented using either passive or active teaching methods.

Learning style has been defined as “the habitual manner in which learners receive and perceive new information, process it, understand it, store it, and recall it”.^[2] While learning style can be assessed by a variety of instruments, the VARK©^[1,9] was selected for this research. The VARK© 7.8 is a 17-item, multiple choice questionnaire which measures learning style using four perceptual preferences. These include visual (V), aural (A), read/write (R), and kinesthetic (K). Validity of VARK© subscales has been reported by Leite, Svinicki, and Shi^[10] as .85, .82, .84, and .77 respectively. Visual learners, as defined by the VARK©, appreciate symbols, which are used to categorize information. These individuals prefer information to be presented in graph or chart formats, and frequently develop maps or patterns to process information. Aural, or auditory learners, prefer information to be presented using verbal communication, and are apt to audiotape content presentation. These individuals like receiving information as a verbal exchange, use strategies to hear the content again to assure comprehension. Individuals who are read/write learners use reading and writing as modes of learning. In addition, the note taking that occurs while content is being provided are often reviewed to supplement the original instruction. Kinesthetic learners are individuals who prefer to experience things using a ‘hand on’ approach. These individuals use field trips, role playing, demonstrations, or other activities that provide practice with respect to the information.

Research literature has suggested that faculty are developing and implementing a variety of educational strategies, and use several teaching modalities, in an effort to address the learning needs of students.^[3, 11–15] Active learning strategies include discussion, case studies, games, and problem-based learning scenarios.^[11, 15, 16] These activities, together with knowledge of the student’s learning style, should enhance comprehension and improve retention.

2. METHOD

Permission to use the VARK©, Version 7.8 held by Neil D. Fleming, Christchurch, New Zealand was granted.^[9] Approval from the Institutional Review Board (IRB) at the University which oversaw this study was secured prior to any

study activity. As a low risk educational study, consent was implied upon submission of the study materials. To protect students as a vulnerable population, careful consideration was given to reduce possible coercion in the faculty-student relationship and issues with imbalance of power.^[17] There were three stages included in this study. The initial contact allowed the purpose, aim, time commitment, and steps of the research project to be explained and included completion of the VARK©. The second and third stage included completion of the study survey after the appropriate class. Students were recruited and data collected by a researcher not involved in teaching or evaluating the class, and not a faculty member at the school of nursing where data were collected. Furthermore, the faculty member who was a research team member was not present in the classroom during recruitment or data collection. When students were asked to complete the questionnaires, instructions were provided to submit a blank questionnaire if they did not want to participate in the study. Student results were coded and therefore de-identified, protecting their identity and maintaining confidentiality. All analyses were performed on the de-identified data.

2.1 Sample and design

The convenience sample consisted of 63 junior nursing students enrolled in a 16-week maternal/child course provided by an accredited associate degree nursing program (ADN). While all students completed the VARK©, only those that agreed to participate in the study were instructed to develop a study-specific code. This code allowed study data to be compared while maintaining confidentiality. Students received their VARK© report, but were asked to provide this information on subsequent study forms. Study participation then consisted of completing the 10 question study survey after a routinely held class. All students received the course content, only those who desired study participation provided study data. Each class was two hours in length; one presented using active teaching strategies and the other used passive teaching strategies. Data were collected immediately after each class.

2.2 Active class format

Class preparation included completing an assigned reading component and a guided reading form. Using group work, students completed a comparison chart in class based on a specific disease process. Classwork then included pairing groups, which then compared and contrasted the disease processes explored pre-class. Each pair of groups then presented their synthesis to the class and answered questions. The class was summarized, and focused on key facts identified within each presentation. Prior to leaving the classroom, study participants completed the study survey.

2.3 Passive class format

Class preparation consisted of completing an assigned reading and reviewing the planned PowerPoint slide presentation. Class content was presented as a PowerPoint guided lecture, followed by the opportunity to ask questions. Prior to leaving the classroom, participants in this study completed the study survey.

2.4 Study data

Completed surveys were received from 41 individuals, for a study response rate of 65%. Failure to denote the study code resulted in the inability to match 3 responses; these were deleted from the data set. Thus, analyses were performed on the matched responses from 38 participants. Visual review of these surveys identified 4 instances of missing datum, assumed to be random since they did not occur within each survey. This calculates to 0.052% of missing data (20 items \times 38 participants). This is within the realm of acceptable data collection, as described by Pedhazur and Schmelkin.^[18] Each missing datum was replaced with a mean substitution, which determined the most-likely response. The small sample size and the use of a single research site limits the generalizability of these results to other academic settings or programs of study.

3. RESULTS

Study data were collected using paper surveys, which required each participant to self-report their VARK© category and provide minimal demographic data. The survey data were hand-entered into a computerized statistical package (SPSS), and triple checked for accuracy. All calculations were performed by one member of the research team, and checked for accuracy by another member. All data were de-identified prior to analyses, and reported in aggregate form only. This prevents the ability to link any one set of responses to any specific participant.

Demographically, these participants were primarily female ($n = 34$; 89%). Age was self-reported as primarily between 27-34 years ($n = 13$; 34%); eight (21%) reported being between the ages of 21-23 years, 13% ($n = 5$) were either between 24-26 years of age or over 45 years. The remaining 7 (18%) were between the ages of 18-20 years ($n = 4$) or between the ages of 35-44 years ($n = 3$).

Each participant self-identified their primary learning style as one of four possible options. Results describe a study population that perceived their learning style to be primarily visual ($n = 18$; 47%); 11 identified themselves as kinesthetic (28%); the remaining 9 described as read-write learning style ($n = 6$; 16%) or an auditory learning style ($n = 3$; 8%).

Overall reliability of the study instrument, determined by Cronbach's alpha was .915 for the items which assessed active learning, .931 for the items that assessed passive learning, with the study instrument as a whole achieving a reliability of .833. Comparing mean responses to each item by gender revealed no statistical difference, based on gender. Thus, all calculations were done with the total study population.

Responses to both the active and passive learning items were summed, based on the assumption that higher scores correlated to a greater preference for the learning style. Summed scores for the active learning intervention ranged from 11 to 32 (mean = 22.2; SD 5.12) and from 10 to 40 (mean = 19.92; SD 5.67) for the passive learning intervention. While this displays a slight preference for active learning, it is not statistically significant. Summed scores for each of the learning styles is displayed in Table 1.

Table 1. Summed scores by Learning Style

Learning Style	Active Responses	Passive Responses
Visual (n=18)	11-32 (mean=22.67; SD 5.59)	10-14 (mean=18.89; SD 7.50)
Kinesthetic (n=11)	14-30 (mean=21.45; SD 4.82)	16-27 (mean=21.64; SD 3.07)
Read-Write (n=6)	16-31 (mean=21.50; SD 5.46)	13-24 (mean=19.00; SD 3.74)
Auditory (n=3)	18-28 (mean=23.67; SD 5.13)	21-22 (mean=21.67; SD.57)

4. CONCLUSION AND IMPLICATIONS FOR NURSING

These results demonstrate the effect learning style has on teaching preference, in the perception of the student. Visual learners clearly prefer an active learning style, while the other learning styles appear to have no preference, with the kinesthetic learner reporting no preference. Higher education curriculums and teaching methodologies are undergoing change in an effort to improve critical thinking and provide a four-dimensional education to our students.^[19] As our teaching methods evolve, including student preferred learning style information, through VARK© responses or another format, provides some level of assurance that we are maximizing the learning potential. This activity provides evidence-based education, building on our movement toward evidence-based practice.

Faculty perceptions that students prefer passive learning is not supported by these results. On the contrary, with rare exception, either method seems supportive of student learning. Results suggest active teaching methods can facilitate learning for all learning style preferences and may not be a barrier to infusing active learning styles in the classroom as

once perceived. However, more research is needed to better understand the relationship between learning outcomes, learning preferences, and teaching pedagogies. Considering the call for reform to improve theory-practice connections in our classrooms,^[6] understanding the relationship between

learning styles preferences and active learning pedagogies contributes to the growing body of nursing education science.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

REFERENCES

- [1] Billings DM, Halsteag JA. Teaching in Nursing: A Guide for Faculty; 2012. St. Louis, MO: Elsevier.
- [2] DeYoung S. Teaching Strategies for Nurse Educators; 2009. Upper Saddle River, NJ: Prentice Hall, Publisher.
- [3] Harris K. Multifarious instructional design: a design grounded in evidence-based practice. Teaching and Learning in Nursing. 2011; 6: 22-26. <http://dx.doi.org/10.1016/j.teln.2010.07.002>
- [4] Fink D. Creating Significant Learning Experiences (2nd ed); 2014. San Francisco CA: Jossey-Bass, Publisher.
- [5] Walker S. Active learning strategies to promote critical thinking. Journal of Athletic Training. 2003; 38(3): 263-267.
- [6] Benner P, Sutphen M, Leonard V, et al. Educating nurses: A call for radical transformation; 2009. San Francisco, CA: Jossey-Bass.
- [7] Rassool GH, Rawaf S. The influence of learning styles preference of undergraduate nursing students on educational outcomes in substance use education. Nurse Education in Practice. 2008; 8: 306-314.
- [8] James S, D'Amore A, Thomas T. Learning preferences of first year nursing and midwifery students. Utilizing VARK. Nurse Education Today. 2011; 31: 417-423.
- [9] Fleming N, Baume D. Learning styles again: VARKing up the right tree! Educational Developments, SEDA Ltd. 2006: 4-7.
- [10] Leite WL, Svinicki M, Shi Y. Attempted Validation of the Scores of the VARK: Learning Styles Inventory With Multitrait-Multimethod Confirmatory Factor Analysis Models. Educational and Psychological Measurement. 2010; 70: 323-339. <http://dx.doi.org/10.1177/0013164409344507>
- [11] Meehan-Andrews TA. Teaching mode efficiency and learning preferences of first year nursing students. Nurse Education Today. 2009; 29: 24-32. PMID:18757118. <http://dx.doi.org/10.1016/j.nedt.2008.06.007>
- [12] Hallin K. Nursing students at a university – A study about learning style preferences. Nurse Education Today. 2014; 34: 1443-1449. PMID:24801747. <http://dx.doi.org/10.1016/j.nedt.2014.04.001>
- [13] Koch J, Salamonson Y, Rolley JX, et al. Learning preference as a predictor of academic performance in first year accelerated graduate entry nursing students: A prospective follow-up study. Nurse Education Today. 2011; 31: 611-616. PMID:21093122. <http://dx.doi.org/10.1016/j.nedt.2010.10.019>
- [14] Alkhasawneh E. Using VARK to assess changes in learning preferences of nursing students at a public university in Jordan: Implications for teaching. Nurse Education Today. 2013; 33: 1546-1549. PMID:23454890. <http://dx.doi.org/10.1016/j.nedt.2012.12.017>
- [15] Alkhasawneh IM, Mrayyan MT, Docherty C, et al. Problem-based learning (PBL): Assessing students' learning preferences using VARK. Nurse Education Today. 2008; 28: 572-579. PMID:17983691. <http://dx.doi.org/10.1016/j.nedt.2007.09.012>
- [16] Pugsley KE, Clayton LH. Traditional lecture or experiential learning: Changing student attitudes. Journal of Nursing Education. 2003; 42(11): 520-523. PMID:14626391.
- [17] Ridley R. Assuring ethical treatment of students as research participants. Journal of Nursing Education. 2008; 48(10): 537-541. PMID:19645366. <http://dx.doi.org/10.3928/01484834-20090610-08>
- [18] Pedhazur EL, Schmelkin JH. Measurement, Design, and Analysis. 1999. Hillside, NJ: Lawrence Erlbaum Associates, Publishers.
- [19] Center for Curriculum Redesign. Four-dimensional education. 2015. Available from: <http://curriculumredesign.org/>