

VARK: Linking Teaching Strategies to Preferred Learning Styles in Nursing

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Abstract

Objective: This study aimed to examine the relationship between preferred learning styles and various teaching strategies.

Methods: Students at all levels of a Bachelor of Science nursing program completed a survey regarding teaching strategies at a small Midwestern university. The tool included 12 Likert-type items, four demographic questions, one question regarding VARK questionnaire results, and one qualitative question.

Results: A total of 94 students from a midwestern university Bachelor of Science in Nursing program responded. Common themes emerged across all learning styles and cohorts. Highest-rated activities included simulation, classroom lecture and practice NCLEX-style questions. Lowest-rated activities included student presentations (including posters), case studies, and online lectures. While some activities were rated lower than others overall, all activities were beneficial to at least one student.

Conclusions: Classroom activities are a fun way to capture students' attention and facilitate engagement. Faculty have the opportunity to incorporate a variety of activities into the classroom that meet the learning needs of diverse students. Those activities that appeal to the most students can be implemented to increase success for the class as a whole.

Keywords: VARK, learning styles, teaching strategies, nursing, education

Nursing education is constantly changing in order to meet the ever-changing needs of the nursing profession. Long gone are the days of lengthy lectures and rote memorization. In order to adequately meet the demands of the profession, new and innovative teaching strategies are imperative. Some of these strategies include case studies, student presentations, collaborative assignments, and videos. In order for teaching to be effective, students must be engaged, interested and motivated. In addition, visual and other aids are critical (as cited in Othman & Amiruddin, 2010). Unfortunately, not all teaching styles work for all students. Hallin (2014) asserts that students are more motivated and engaged when lessons are consistent with their learning style.

While there is some ambiguity on a concrete definition of the term learning styles, generally the term refers to the method or methods a student retain information (Leite et al., 2010). The visual, aural, read/write, kinesthetic (VARK) questionnaire is utilized by educators and employers alike in order to identify what methods may be most helpful for individuals to learn. The questionnaire contains 16 questions. Once complete, the results suggest what learning modalities would be most beneficial for the individual ("VARK: A guide to learning preferences," 2019). Nursing faculty at a small, midwestern university administer the VARK questionnaire to all students during the first semester of the nursing program in order to help students identify what study methods may be most helpful to them during the nursing program. Students are encouraged to consider their learning style when studying. In addition, faculty try to employ a variety of teaching strategies that appeal to all learning styles in order to help facilitate learning within the program. The purpose of this study was to link teaching strategies to preferred VARK learning styles.

1. Methods

The study design was a descriptive study that utilized self-reported survey data. Data was collected from nursing students in each semester of a four-semester program in a small Midwestern university over the course of one semester. The surveys were anonymous; no identifying information was collected. Demographic data was requested, including age, gender, current semester in nursing program and expected graduation date.

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Students were asked to self-report their learning style as determined by the VARK questionnaire. Students had the option of choosing one or more than one option for their learning style. Students were then asked to rate a variety of different teaching strategies and activities on a five-point Likert-type scale, ranging from strongly agree (5) to strongly disagree (1). Researchers then used SPSS software to analyze the data to determine what strategies are most helpful to students with different learning styles.

IRB approval was granted through the University Institutional Review Board. Students were invited to participate in person by one of the primary investigators during a regularly scheduled class period. Participation was voluntary and consent was implied by completing the questionnaire. Inclusion criteria included being a current nursing student and willingness to complete the survey. Data analysis was conducted using SPSS version 23 to obtain descriptive statistics, independent t-test, and ANOVA tests. Descriptive statistics including frequencies, percentages, mean, and standard deviation were used to determine the distribution of the variables. Independent t-test and ANOVA was conducted to determine the significant mean difference between semester, learning style and learning activities.

2. Results

A total of 94 nursing students responded. The majority of those were female, with 89% (n=84). The vast majority of respondents report being multi-modal (n=63, 67%). Each learning style was keyed as yes or no to account for those who were multimodal. Visual accounted for 60% of students, 19% were aural, 39% were read/write and 52% were kinesthetic.

On a five-point Likert scale, simulation scored the highest with a mean score of 4.425. Classroom lecture (mean=4.3298), practice NCLEX-style questions (mean=4.3085), collaborative quizzes (mean= 4.2447), and videos (mean=4.1489) all scored above a 4. The lowest scoring item was student presentations with a mean of 2.9681. A similar item, making and presenting posters in class scored slightly higher with a mean of 3.0851. Interestingly, all items were marked as a “5” by at least one respondent.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Items 1-11 state: “_____ helps me understand the nursing content.”					
Item1: Simulation	94	1.00	5.00	4.4255	.78274
Item2: Worksheets	94	1.00	5.00	3.7340	.85730
Item3: Case Studies	94	1.00	5.00	3.6277	.87969
Item4: Online lectures	94	1.00	5.00	3.4787	1.16147
Item5: Pre-class quizzes	94	1.00	5.00	3.6702	1.03059
Item6: Classroom lecture	94	1.00	5.00	4.3298	.85996
Item7: Student presentations	94	1.00	5.00	2.9681	.95548
Item8: Videos	94	2.00	5.00	4.1489	.81594

Item9: Collaborative quizzes	94	2.00	5.00	4.2447	.68291
Item10: Practice NCLEX-style questions	94	1.00	5.00	4.3085	.89234
Item11: Making and presenting posters in class	94	1.00	5.00	3.0851	1.03342
Items 12 states: Knowing my VARK learning style affects the way I study in nursing school.					
Item12	94	1.00	5.00	3.7979	.99006

2.1 Top-rated Activities by Semester

First Semester	Second Semester	Third Semester	Fourth Semester
Simulations	Classroom Lecture	Practicing NCLEX style Questions	Collaborative Quizzes
Classroom Lecture	Collaborative Quizzes	Simulations	Practice NCLEX style Questions
Practice NCLEX style Questions	Simulations/Pre-class quizzes	Classroom Lecture	Simulations

There are some common themes throughout each semester. Simulation is consistently rated as an activity that helps students learn. Simulation includes all learning styles as it is visual, kinesthetic, auditory and requires reading/writing. Classroom lecture is rated high in the first three semesters of nursing school as well. NCLEX style questions are commonly seen as a highly rated activity also. Simulation and NCLEX style questions help build critical thinking skills which is a challenge in nursing school.

2.2 Lowest-rated Activities by Semester

First Semester	Second Semester	Third Semester	Fourth Semester
Making posters in class	Making posters in class	Student Presentations/ Worksheets	Making posters in class
Student Presentations	Student Presentations	Making posters in class	Student Presentations
Online lectures	Case Studies	Pre-class quizzes	Online lectures

One classroom activity used by faculty is to ask students to present information. Making and presenting posters and/or developing other presentations requires many learning modalities, and therefore has the potential to appeal to many students. Interestingly, making posters in class and student presentations are rated low by each semester. This could be related to several factors, including lack of trust in peers or simply the time it takes to do these presentations. If one student or group does not put adequate effort into the project, it is not valuable to the others. This can be frustrating for peers. It is worthy to note that while these activities were the lowest rated, they had a mean score of around three meaning there is some value to them.

Another resource used in some classes is the use of recorded lecture. Recorded lectures are often used in addition to classroom lecture and activities. Many students have previously reported they appreciate having this extra resource, but it did score relatively low on this survey with a mean of 3.47. This may be related to the fact that some students are very resistant to a “flipped classroom” style. While students appreciate having the resource available to review, many have expressed a lack of time or interest in relying on recorded lecture for all lecture content.

2.3 Top-rated Activities by Learning Style

Visual	Aural	Read/Write	Kinesthetic
Simulations	Practice NCLEX style Questions	Classroom Lecture	Simulation
Classroom Lecture	Classroom Lecture	Simulations	Practice NCLEX style Questions
Practice NCLEX style Questions	Simulations/Videos	Practice NCLEX style Questions /Collaborative Quizzes	Classroom Lecture

Interestingly, when activities were evaluated based on learning style the same three activities were in the top three for all. These are simulation, classroom lecture, and practice NCLEX-style questions. While the rank among those three varies slightly, the themes were consistent overall.

2.4 Lowest-rated Activities by Learning Style

Visual	Aural	Read/Write	Kinesthetic
Student Presentations	Student Presentations	Student Presentations	Student Presentations
Making posters in class	Making posters in class	Making posters in class	Making posters in class
Case Studies	Pre-Class Quizzes	Case Studies	Online lecture

Equally as interesting is that many of the same activities scored lowest among all learning styles as well. Student presentations, making posters in class and case studies scored in the bottom three in two out of the four learning styles. Other activities that appeared in the bottom three are pre-class quizzes and online lectures. Not only are these activities rated consistently low across learning styles, but they also rated low across the cohorts.

3. Discussion

While it initially seems overwhelming to plan activities that meet all learning styles, many common themes emerge from this data. Not only were the results consistent across cohorts, but across learning styles as well. While different methods appeal to different types of learners, many classroom activities are ranked high across both cohort and learning style. Those activities that consistently rate high are simulation, classroom lecture, and practice NCLEX-style questions. The data suggests these activities can be used across the curriculum and benefit all students no matter their preferred learning style.

When planning classroom activities, faculty must be cognizant of those activities that have the greatest potential to the greatest number of students. While simulation is often thought to occur only in clinical courses, it may be worthwhile to consider bringing simulation to the didactic classroom as well. This can be done with mannequins or simply having the students role play a scenario. As the NCLEX NGN refocuses on clinical decision making, so too should education. Introduction of simulation in a didactic classroom is one way to accomplish this.

The importance of NCLEX preparation cannot be overlooked. A simple Google search of the words “nursing school” will result in numerous memes about nursing school exams. Students often struggle with differentiating subtle differences presented in exam questions, and need low-stakes practice. This can be done in the classroom as a means of review of content and review of test-taking strategies.

Finally, the importance of faculty-led lecture or discussion cannot be dismissed. Students in this survey indicate they do appreciate this low-tech option as a means of learning. It is the opinion of these authors that traditional lecture is a valuable resource, but should be just one part of the total classroom plan. Long-gone are the days of hours upon hours of lectures, but some short lectures and discussions explaining difficult concepts intermixed with other activities appears to be valuable to the students (Dehghanzadeh & Jafaraghaee, 2018).

Conversely, faculty may want to reconsider the use of student presentations in the classroom. While this is a common practice, it did rate lowest across all learning styles and cohorts.

Faculty report students have stated that while they learn a great deal on the topic they developed, they do not feel as confident in the information presented by peers. This is likely due to lack of quality from some peers, lack of trust in peers, and simply a lack of interest in peers' presentations. One method to overcome this may be to incorporate additional methods to help with both verification and retention of information.

One method to accomplish this is a "round robin" approach. Faculty developed this activity after hearing from students that while they felt they retained the information they presented, they felt less confident about all of the other content. In this activity, students work in pairs to develop a poster and two to four minute presentation about an assigned topic. Then the pairs split (student A and student B) and rotate throughout the room. On the first rotation, student A stays at the poster, while student B moves to an adjacent poster. Student A presents to student B. After the designated time period, they students rotate again, this time student A moves to the adjacent poster and student B stays. Then, student B presents to student A. Ultimately, this leads to every student hearing and presenting the content at least one time, loosely replicating the adage of "see one, do one, teach one."

As previously mentioned, all activities were rated as a five by at least one student, suggesting that all activities have some value to some students. The challenge for faculty using methods that have the greatest value to the greatest number most of the time. Faculty must also consider the underlying reason for students' like or dislike of a particular activity. Students may not always consider the overall value of an assignment or activity, but may only reflect on the amount of work or time the activity takes. Ultimately, those activities that facilitate the most learning are preferable even if they are not rated as highly.

4. Implications for Nursing Educational Practice

Nursing faculty face the challenge of meeting the individual learning needs of all students. This research will help faculty to identify those methods that are most helpful to students, or modify existing activities to better meet the needs of students. The use of diverse modalities can ensure that all learning styles are addressed. Furthermore, faculty may consider focusing on those strategies that appeal to more than one learning style in order to reach the most students with any singular activity.

5. Limitations

This was a small, convenience sample at a single research site. Future research would include surveying multiple sites, including various program types. Additional research addressing multi-modal learners is also needed. The majority of students were multi-modal (67%); unfortunately, the design of this study did not address this.

6. Conclusion

Nursing is a complex profession facing many challenges. The nursing profession continues to become more challenging due to increased patient acuity. This combined with a nursing shortage further complicates nursing care. In order to combat this, more nurses who are well-prepared for the profession are needed. Unfortunately, nursing education is known for high attrition due to its challenging nature. In order to help more students be successful in both nursing school and the profession, faculty must identify ways to help students better understand concepts. One method to achieve this goal is to consider learning styles when planning classroom activities and instruction.

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