

Adult Learning Styles:

How the VARK©learning style inventory can be used to improve student learning.

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Abstract:

Students have different learning styles and these can affect how they learn. PA programs can potentially improve student learning by administering an intervention such as learning style inventories. The VARK© inventory is one such tool that is easy to use and can give students information on how to maximize their learning. First-year Emory University Physician Assistant students were asked to take the VARK© inventory and then submit their results. This was followed with a presentation and discussion. In addition, these students were asked to respond to a questionnaire. The students had a positive response to the intervention, and found it to be helpful. The use of learning style inventories appears to be beneficial and their usefulness should be further evaluated.

Introduction:

This article looks at the need to acknowledge that students have different learning styles and proposes that Physician Assistant (PA) student education can be maximized when these learning styles are acknowledged and integrated into their study habits. The make-up of a PA class is one that is diverse with students' possessing different needs when it comes to learning. PA educators can greatly facilitate the learning curve of their students when they recognize that adults learn differently than other students and that tools such as learning style inventories can be used to help students recognize their strengths and weaknesses. The VARK® inventory (Figure 1) is one such assessment tool that is evaluated in this article. The VARK® inventory was administered to the first year PA students at the Emory University PA program. It was then evaluated for its usefulness by providing a lecture and administering a questionnaire asking the students how helpful they found the information. Students responded positively to learning about the VARK® inventory. They showed great enthusiasm when asked if they would incorporate their newfound information into their study habits.

Background:

Dr. Malcolm Knowles' theory about adult learning is widely accepted and is based on the principle that learning should be "learner-centered". As adults learn, they move from a dependent state to one that is more self-directed. Recognizing that adults have a wealth of life experiences that they can draw from, Knowles stated that newly acquired information is integrated into these past experiences and serves as the driving force in the learner's desire to learn. Educators need to facilitate adult learning by actively involving the learner in the education process. Adult learners are highly self-directed and, therefore, learn best when they are active participants in the education process and are not forced to just listen to lectures¹. Professor Lion Gardiner believes that a student's active involvement in learning is so interrelated to effective learning that educational institutions should focus on increasing its students' involvement in learning². In addition, adult learners are motivated to learn when they feel that the material has relevance to real life or is somehow important to their life. Educators need to emphasize the goals of the courses they are teaching because adults function best when they know what is expected of them. Also, it is important for educators to clearly state why the information being taught is important and how it fits into the bigger picture of the education goals. Finally, educators need to show respect toward their students. When students feel like equals to the educator they are more likely to participate in class and become active learners. It is also important to recognize that adult learners tend to personalize mistakes that they make and this may affect their self-esteem. It is for this reason that adult learners tend to be more reluctant when it comes to participating in class. If they feel like an equal to the instructor, mistakes tend to be taken less personally. One way to encourage students' active involvement in their education is to give them tools to help them become better learners regardless of the setting in which they are learning. One tool that can be used to facilitate this is a learning style inventory^{3,4}.

Learning styles is a term used to refer to the methods of gathering, processing, interpreting, organizing and thinking about information. Students have different learning styles, which is the reason for the diversity seen in classrooms in regards to how students acquire information. There have been various models developed to explain different learning styles. These models can be broken down into four general categories according to researchers Claxton and Murrell. They divide the learning styles into the following: personality models, information-processing models, social-interaction models, and instructional preferences models. The personality models examine a person's personality characteristics such as introversion vs. extroversion. This gives the student information on how they are likely to react to information and situations. The information-processing models focus on how students take in and process information. It determines, for example, if the person learns in a serial manner or by looking at the whole concept. The social-interaction models determine how a student reacts and behaves in the classroom. This model, for example, can be used to determine if a student is motivated by grades or by interest in material content. Finally, the instructional preferences models differentiate students by the way in which they best acquire information. For example, does the student learn best by listening, reading, visualizing or experiencing⁵? There are numerous learning style inventories available, but this article specifically examines our program's intervention using the VARK® inventory. The VARK® inventory can be categorized into the instructional preferences model.

Developed in 1987 by Neil D. Fleming, an educator for more than forty years, the VARK® inventory was developed in an effort to improve faculty development and to help students become better learners. VARK®, an acronym for visual, aural, read/write and kinesthetic preference modalities, is a questionnaire that determines a person's sensory modality preferences. Sensory modalities or modal

preferences are learning styles or methods used to process information. A student may have a preference for one modality or be multimodal. Multimodal learners have preferences in more than one mode. It is important to note that this questionnaire was *not* designed to be diagnostic or predictive of ones abilities. A learner's preferences do not necessarily equal what they consider to be their strengths. If a person was found to have an aural preference, or in other words processed information best by listening to it, that would not negate the fact that he/she may feel that reading information was also beneficial to them. One of the main goals of the inventory is to help students who are having some difficulty with their studies, and determine ways they process information and translate this into study strategies and test taking skills.

The VARK© inventory categorizes four different sensory modalities with an extra category for multimodal students. The "V" in VARK© stands for visual. Visual learners process information best if they can see it. Graphs, flow charts and pictures are helpful to them. The "A" stands for aural, and these learners like to hear the information. They process information best by listening to lectures, attending tutorials and using tape recorders to play back learning sessions. The "R" stands for read/write. These students like to see the written words. They like to take notes verbatim and reread these over and over again. They also like to read texts. Finally, the "K" stands for kinesthetic. These learners like to acquire information through experience and practice, and prefer to learn information that has a connection to reality. The additional "multimodal" category encompasses the students who fall into more than one sensory modality of any combination.

It has been noted that classes are largely diverse when it comes to preference modalities. Between fifty and ninety percent of classes will be made up of multimodal students. Similarly, approximately fifty percent of faculty members tend to be multimodal. When examining the questionnaire results, special attention should be placed on both zero scores or very high scores since these represent a strong correlation to a preference that should, respectively, be avoided or focused upon.

The VARK© inventory can be a useful tool for faculty because it empowers them to teach more effectively. Educators can take the questionnaire to better appreciate the way they process information as this often influences how they teach. Having such insight may encourage a teacher to make an effort to broaden their teaching style so that they may reach a greater number of their students. As educators broaden the scope of their teaching methods, they are more likely to encourage active learning on the part of their students. Students can benefit from the information provided by the VARK© inventory by focusing their attention on the study skills suggested for their preference modality. In addition, they can improve learning during class time because they will know which teaching method is best suited to their style, and they can take an active part in increasing their learning⁶.

Methods:

The idea for this educational intervention was fostered while researching faculty development resources available on a web page from Hawaii Community Colleges during an Academic Medicine elective at Emory University PA program. The goal of the intervention was to find a learning style inventory that could be easily administered to the first-year Physician Assistant students so that they could determine their best method of learning. It was intended to be an intervention early in the students' didactic phase of education in order to maximize their learning and success. In addition, it was intended to improve faculty awareness of the various learning styles of their students.

Fifty first-year Emory University PA program students were asked to take the VARK© inventory (figure 1), which takes approximately ten minutes to complete, on the computer at the following site www.active-learning-site.com/inventory1.html. They were asked to take this in preparation for a special forty-five minute presentation on adult learning and learning styles. They were also asked to print a copy of their result page and submit these results in order to determine what percentage of the students fell into the following categories, visual, aural, read/write, kinesthetic or multimodal. The students were given one month to accomplish this task. After this time, the students were invited to attend the forty-five minute presentation on how adults learn, how to interpret their learning inventory results, and how they could change their study skills in order to maximize their learning. Approximately thirty-five students attended the lecture. Following the presentation, there was a class discussion and a question and answer session.

Eighteen of the fifty students completed and submitted their inventory results. Following the presentation and discussion, many students who had not taken the VARK© inventory reported that they now intended on taking the inventory. Following this session, the students were asked to give feedback via an e-mail questionnaire about their opinion of the VARK© inventory, the ease of use, the value of the presentation and discussion, and were asked if they intended on using the study skills suggested in their

respective categories. The students were also asked to report, via e-mail, any new study skills they had used secondary to the session and were asked if this study skill seemed to improve their learning. They were given one week to complete this task.

During the presentation, the students showed great enthusiasm. They asked many questions about their results and how they could incorporate the suggested study skills into their study routine. Four out of the fifty students asked responded to the e-mail questionnaire. All reported that they found the VARK© inventory to be helpful. In addition, all the respondents stated that the inventory was user friendly and the lecture was useful. Finally, all four of the respondents claimed that they had incorporated one or more study skills from their preference modality into their studies and had found that the new study skills have improved their learning. Some of the comments received from the students are as follows:

“Thank you for presenting this, I encourage everyone to at least give this a try to see if it will help them. Please encourage the faculty to present this to next years class, possibly after the first round of exams when people may need to adjust their study habits.”

“My opinion of the inventory was positive. I really felt the analysis was useful and able to be incorporated into my learning habits.”

“Good stuff. I would like to see this implemented for the first year class every year.”

The Emory University PA program faculty also reported that numerous student advisees approached them with positive comments about the VARK© inventory, presentation and discussion.

Results:

Fifty students were invited to participate in the intervention and eighteen of these students actually took and submitted their VARK© inventory results. Of these eighteen students, thirteen of the students fell into the multimodal category, four fell into the read/write category and one person fell into the kinesthetic category (figure 2). None of the students fell into the visual or aural learning preferences; however, all of the categories were represented in various combinations in the multimodal category.

Insert Figure 1 and 2

Discussion:

A simple intervention such as administering a learning style inventory can increase a student's learning. The VARK© inventory is a tool that is easy to use and can lead to improved learning for PA students. It already appears to have had a positive impact on the first year PA students at Emory University who participated in the intervention. PA faculty around the country should be encouraged to incorporate the VARK© inventory or other such assessment tools into their curriculum. The PA education process requires that students learn a large amount of information in a short amount of time. It is for this reason that PA students should be given every opportunity to maximize their learning. In addition, the VARK© inventory can be used as a faculty development tool in that it can improve faculty awareness of how students learn and potentially improve their ability to reach and interact with students in and out of the classroom.

It would be worthwhile and interesting to see if other PA programs would obtain similar responses if they too administered the VARK© inventory, or another similar learning styles inventory. If the results observed so far with this small group of students is any indication of its value, then the benefits of incorporating the VARK© inventory into PA education curricula is self-evident. The obvious weakness of the intervention reported in this article was that the sample size was very small as was the response rate. In addition, the students who submitted the VARK© inventory results and those who answered the e-mail questionnaire were more likely to be the students who benefited the most from the intervention. Despite these limitations, the anecdotal responses from students and faculty alike were positive, leading me to believe that such an intervention merits further trial and evaluation.

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