ORIGINAL RESEARCH PAPER

Education

KEY WORDS:

ASSESSMENT OF LEARNING STYLE PREFERENCES OF STUDENTS AT ANITS VISAKHAPATNAM, ANDHRA PRADESH.

Malladi Subramanya Sarma* — Professor, Department of Pathology, NRIIMS, Visakhapatnam. *Corresponding Author

Prof. T. V. Hanumanta Rao — Principal, Anil Neerukonda Institute of Technology and Sciences, Visakhapatnam.

Vadrevu Suryaprabha — Professor and Head, Department of Gynecology & Obstetrics, NRIIMS, Visakhapatnam.

INTRODUCTION:

Visual, aural, reading and writing and kinesthetic (VARK) is one of the instruments which can be used to determine the learning styles. The VARK questionnaire was primarily developed by Lincoln University of New Zealand in 1998. It is based on three principles, which are as follows: 1. everyone can learn academic issues; otherwise everyone has their own styles 2. The learner's motivation is increased when different learning styles of learners are taken into account and 3. Educational concepts are learned through utilization of senses and different perceptions [1]. From this perspective, people acquire environmental knowledge through four sensory modalities: visual, auditory, reading/writing and kinesthetic [2]. In other words, students learn the education force process by experience, projection, contemplation and accomplishment [3].

VARK instrument, which is based on interaction and response to learning environment of the students, divides students into four categories, including; Visual (a group of learners who learn best by observation and visual presentation, such as diagrams, pictures and figures, which are associated with clarification), Aural or auditory (a group of learners who learn best through listening and verbal instructions), Reading/ writing (a group of learners who learn best by taking notes during lectures or reading written or printed texts) and Kinesthetic or practical (a group of learners who learn best by doing practicals, through gaining of experience and by manipulation of objects during a physical process) [4].

Learning styles help students learn more easily, remember information longer, think more positively about school and learning subjects, achieve academic goals quickly, and utilize information effectively. Mismatched teaching and learning styles can lead to poor performance, challenges, and uncomfortable learning experiences for the students [5. It has been argued that being aware of these differences in learning styles allows teachers to adjust their methods to better match the preferences of their students, which will increase learning effectiveness and efficiency.[6,7] On the learner's side, identifying one's learning style preference may result in decisions that improve the outcomes of their learning in addition to increasing student satisfaction toward educational process.[6,7,8]

Among the different models that have been proposed, the visual, aural, read/write, and kinesthetic (VARK) model developed by Neil Fleming is one of the most frequently used methods, and describes preferences in terms of 4 types of preferred learning styles (visual, aural, read/write, and kinesthetic) [9]. Learning preferences are also categorized into 4 modes (unimodal, bimodal, trimodal, and quadmodal), based on the number of learning types preferred. The VARK tool is commonly used by researchers in a variety of disciplines, including medical education.

OBJECTIVE –the aim of the study was to investigate the learning style preferences of engineering students at nriims in visakhapatnam , andrapradesh . and examine the academic year levels on these preferences.

Method

Study type -A cross sectional , questionnaire –based study

Place of the study - was conducted at Aneel neeru konda institute of engineering college .

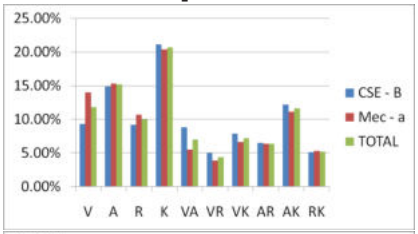
METHODOLOGY -

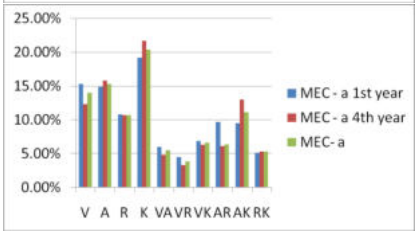
the English version of the VARK questionnaire was administered to the CSE –B 1 st year and 4 th year Mec –A 1 st year, 4 th year students at the college of engineering, Anil neerukonda institutions, vizag. Participation was voluntary, and the survey was distributed to a total of 1669. The questionnaire consist of 16 multiple choice questions , each with four options .the students were requested to choose more than one option if more than one answer applicable. The distribution of the VARK preferences was calculated according to guide lines provided in the VARK website[0] . Accordingly, learning preferences were categorised as unimodel (V,A,R, or K), bimodal (VA,VR,VK,AR,AK,RK).

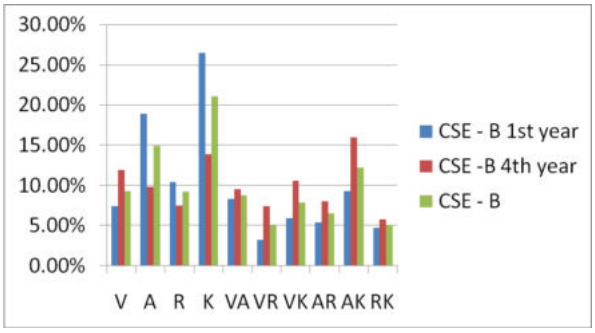
A total of 3110 of engineering students completed the questionnaire. The multi model learning style was preferred by 41.8% of the respondents, with the remaining 57.7% having unimodel style preferences . the aural(A) – 15.2% and kinesthetic(K) - 20.7% styles were the most preferred unimodel styles.

RESULTS

About 41.8% of the total students described having multi model learning preferences with the bimodal learning style being preferred by the AK - 11.6%, AK was most preferred method, VR - 4.4%, was least preferred method.







DISCUSSION

There is a relative abundance of studies looking at the different learning styles in variable fields of study such as medicine [10,11], engineering[12], nursing[13], and allied health specialties[14]. Existing studies examining VARK learning preferences among engineering students are few with some limitation. The objective of this study was to investigate the learning preferences of ANITS engineering students in Vishakhapatnam, andhrapradesh, while examining the the effect of enginnering branch , academic level on the learning style preferences.

All students included in this study finished the college preparatory year before starting the required four years of engineering college. This allows for inclusion of GPA as an indicator for past academic performance. The participation in the study was voluntary, and the questionnaire disbursed in class room it self. The response to this study was much higher from Mechanical branch of engineering students. Since there is separate sections and branches of enginnering students, differences in scheduling of classes and exams might contributed to disparity between Mechanical engineering and computer science engineering student participation.

CONCLUSION –

Majority of the student participants were found to have kinaesthetic unimodel learning style and in bimodal AK style among mechanical and computer science engineering students. It means they are learn best by touching and doing . Hands on experience is important for kinaesthetic learning style , and Aural /auditory learn best from lectures, tutorials , tapes, group discussion, email, using mobile phones , speaking, webchat, and talking things through, it include talking out as well as talking to yourself. Based on our data students with a multimodal learning style tend to have achieved better academic results. Teachers should attempt to tailor their educational subject delivery to accommodate the styles of their students, especially those with a unimodel style of learning. On the learner side , student with a unimodal learning preferences try multimodal learning styles to improve their academic performance.

VARK QUESTIONNAIRE followed:

LEARNING STYLES QUESTIONNAIRE

This questionnaire aims to find out something about how you learn best. The follow up materials will then give you tips on how to use your preferred style for maximum benefit.

Choose the answer which best explains your preference and circle the letter next to it. Please circle more than one if a single answer does not match your perception. By the way, there are no 'right' or 'wrong' answers! No further information can be given as it may prejudice your responses.

When you have completed the questionnaire, use the marking guide to find your score for each of the categories, Visual, Aural, Read/Write and Kinaesthetic.

1.How many syllables are in your first name?
(a) one
(b) two
(c) three
(d) more than three

2.You are about to give directions to a person who is standing with you. They are staying in a hotel in town and want to visit your house later. They have a rental car. You would:
(a) draw a map on paper
(b) tell them the directions
(c) write down the directions (without a map)
(d) collect them from the hotel in my car

3.You are not sure whether a word should be spelled 'dependent' or 'dependant'. I would:
(a) look it up in the dictionary
(b) see the word in my mind and choose the way it looks
(c) sound it out in my mind
(d) write both versions down on paper and choose one

4.You have just received the latest copy of a magazine with an itinerary for a conference, this is of interest to someone else. You would:
(a) phone them immediately
(b) send them a copy of the printed itinerary
(c) show them on a map of the world
(d) share what I plan to do at each place I visit

5.You are going to cook something as a special treat for your family. You would:
(a) cook something familiar without the need for instructions
(b) thumb through the cookbook looking for ideas from the pictures
(c) refer to a specific cookbook where there is a good recipe

6.A group of students from another school has been assigned to you to find out about the geology of your local area.You would:
(a) drive them to a wildlife reserve or park
(b) show them slides and photographs
(c) give them pamphlets or a book on wildlife reserves or parks
(d) give them a talk on wildlife reserves or parks

7.You are about to purchase a new compass clinometer. Other than price, what would most influence your decision?
(a) the salesperson telling you what you want to know
(b) reading the details about it in a journal
(c) playing with the controls and listening to it (road testing it)
(d) it looks really smart and fashionable

8.Recall a time in your life when you learned how to do something like playing a new board game. Try to avoid choosing a very physical skill, eg. riding a bike. You learned best by:
(a) visual clues – pictures, diagrams, charts
(b) written instructions
(c) listening to somebody explaining it
(d) doing it or trying it

9.You have an eye problem. You would prefer the doctor to:
(a) tell me what is wrong
(b) show me a diagram of what is wrong
(c) use a model to show what is wrong

10.You are about to learn to use a new program on a computer. You would:
(a) sit down at the keyboard and begin to experiment with the program features
(b) read the manual which comes with the program
(c) telephone a friend and ask questions about it

11.You are staying in a hotel and have a rental car. You would like to visit friends whose address/location you do

not know. You would like them to:
(a) draw a map on paper
(b) tell directions
(c) write down the directions (without a map)
(d) collect me from the hotel in their car

12.Apart from the price, what would most influence your decision to buy a particular textbook?
(a) I have used a copy before
(b) a friend talking about it
(c) quickly reading parts of it
(d) the way it looks is appealing

13.A new movie has arrived in town. What would most influence your decision to go (or not go)?
(a) I heard a radio review of it
(b) I read a review of it
(c) I saw a preview of it

14.Do you prefer a lecturer who likes to use:
(a) a textbook, handouts, readings
(b) flow diagrams, charts, graphs
(c) field trips, labs, practical sessions
(d) discussion, guest speakers

15.Ignore question 1.

THEVARK QUESTIONNAIRE SCORING CHART

Use the following scoring chart to find the VARK category that each of your answers corresponds to. Circle the letters that correspond to your answers.

Eg. if you answered b and c for question 4, circle R and V in the question 4 row

Question	a category	b category	c category	d category
4	A	[R]	[V]	K

Scoring chart

Question	**a category**	**b category**	**c category**	**d category**
1				
2	V	A	R	K
3	R	V	A	K
4	A	R	V	K
5	K	V	R	
6	K	V	R	A
7	A	R	K	V
8	V	R	A	K
9	A	V	K	
10	K	R	A	
11	V	A	R	K
12	K	A	R	V
13	A	R	V	
14	R	V	K	A
15				

Calculating your scores:

Count the number of each of the VARK letters you have circled to get your score for each VARK category

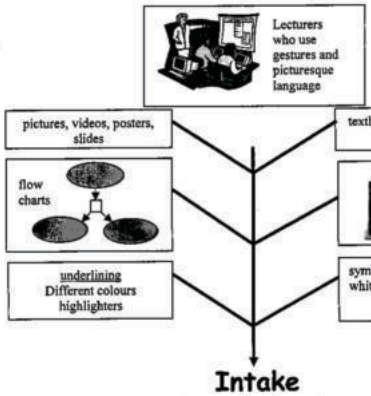
Total number of V's circled =	
Total number of A's circled =	
Total number of R's circled =	
Total number of K's circled =	

Your scores will give an indication of your preference for some of the different ways of learning
ie: V - by Visual Study Strategies
A - by Aural Study Strategies
R - by Read/Write Study Strategies
K - by Kinesthetic Study Strategies

Use the information sheets provided which give advice on how you may improve your performance.

You can also find the information on the website www.vark-learn.com

Visual Study Strategies

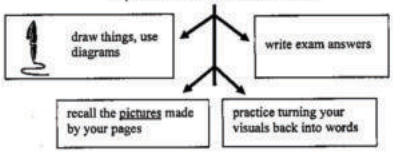


Intake
To take in the information:
→ Use all the techniques above
Reconstruct the images in different ways
.....try different spatial arrangements
Redraw your pages from memory

SWOT
STUDY WITHOUT TEARS

Replace words with symbols or initials
Look at your pages OO
Convert your lecture "notes" into a learnable package by reducing them 3:1 into picture page

Output
To perform well in the examination



You want the whole picture so you are probably holistic rather than reductionist in your approach. You are often swayed by the look of an object. You are interested in colour and layout and design and you know where you are. You are probably going to draw something.

Aural Study Strategies

A

If you have a strong preference for learning by Aural methods (A = hearing) you should use some or all of the following:

INTAKE
To take in the information

- attend lectures
- attend tutorials
- discuss topics with other students
- discuss topics with your lecturers
- explain new ideas to other people
- use a tape recorder
- remember the interesting examples, stories, jokes
- describe the overheads, pictures and other visuals to somebody who was not there
- leave spaces in your lecture notes for later recall and 'filling'

SWOT - Study without tears
To make a learnable package:

Convert your lecture "notes" into a learnable package by reducing them (3:1)

- your lecture notes may be poor because you prefer to listen. You will need to expand your notes by talking with others and collecting notes from the textbook.
- put your summarised notes onto tapes and listen to them.
- ask others to 'hear' your understanding of a topic
- read your summarised notes aloud.
- explain your notes to another 'aural' person.

OUTPUT
To perform well in the examination:

- talk with the examiner
- listen to your voices and write them down
- spend time in quiet places recalling the ideas
- practice writing answers to old exam questions
- speak your answers.

You prefer to have all of this page explained to you.
The written words are not as valuable as those you hear.

Read/Write Study Strategies

R

If you have a strong preference for learning by **Reading** and **Writing (R & W)** learning you should use some or all of the following:

INTAKE
To take in the information

- lists
- headings
- dictionaries
- glossaries
- definitions
- handouts
- textbooks
- readings - library
- lecture notes (verbatim)
- lecturers who use words well and have lots of information in sentences and notes
- essays
- manuals (computing and laboratory)

SWOT - Study without tears
To make a learnable package:

Convert your lecture "notes" into a learnable package by reducing them (3:1).

- write out the words again and again
- read your notes (silently) again and again
- rewrite the ideas and principles into other words
- organise any diagrams, graphs ... into statements, e.g. "The trend is..."
- turn reactions, actions, diagrams, charts and flows into words
- imagine your lists arranged in multiplechoice questions and distinguish each from each.

OUTPUT
To perform well in the examination:

- write exam answers
- practice with multiple choice questions
- write paragraphs, beginnings and endings
- write your lists (a, b, c, d, 1,2,3,4)
- arrange your words into hierarchies and points.

Kinesthetic Study Strategies

K

If you have a strong **Kinesthetic** preference for learning you should use some or all of the following:

INTAKE
To take in the information

- all your senses - sight, touch, taste, smell, hearing
- laboratories
- field trips
- field tours
- examples of principles
- lecturers who give real-life examples
- applications
- hands-on approaches (computing)
- trial and error
- collections of rock types, plants, shells, grasses ...
- exhibits, samples, photographs
- recipes - solutions to problems, previous exam papers

SWOT - Study without tears
To make a learnable package:

Convert your lecture "notes" into a learnable package by reducing them (3:1).

- your lecture notes may be poor because the topics were not 'concrete' or 'relevant'.
- you will remember the "real" things that happened
- put plenty of examples into your summary. Use case studies and applications to help with principles and abstract concepts
- talk about your notes with another "K" person
- use pictures and photographs that illustrate an idea.
- go back to the laboratory or your lab manual
- recall the experiments, field trip...

OUTPUT
To perform well in the examination:

- write practice answers, paragraphs..
- role play the exam situation in your own room.

You want to experience the exam so that you can understand it.
The ideas on this page are only valuable if they sound practical, real and relevant to you.

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