

**IJCRR**

Vol 05 issue 07

Section: Healthcare

Category: Research

Received on: 03/02/13

Revised on: 26/02/13

Accepted on: 16/03/13

## ASSESSMENT OF TYPES OF LEARNING MODES IN MEDICAL STUDENTS

Varun Malhotra, Rinku Garg, Yogesh Tripathi, Usha Dhar, Sanjay, Monish, Ranjana, Abhishek, Pronoy

Department of Physiology, Santosh Medical College, Ghaziabad

E-mail of Corresponding Author: dr\_varun@yahoo.com

### ABSTRACT

*Swadhyaya* or deep study, includes *Sravana* (study) or reading/hearing a concept in physiology, *Manana* (with attention) pondering over the concept read or heard, *Nidididhyasna* or forming a definite concept (3). Visual, auditory and kinaesthetic questionnaire was circulated among 75 medical students. Based on the response, they were categorized into visual, auditory and kinaesthetic learners. Percentage incidence and number of visual, auditory and kinaesthetic learners was calculated. This study enabled teachers to modify their methodology of lecture-delivery pictures (power-point), audio CDs and demonstrations.

### INTRODUCTION

A learning style is a student's consistent way of responding to and using stimuli in the context of learning. Keefe (1979)<sup>6</sup> defines learning styles as the "composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment."

Learning styles may also be defined as those "educational conditions under which a student is most likely to learn." (10). Learning styles are not really concerned with *what* learners learn, but rather *how* they prefer to learn.

The purpose to identify the learning styles in teaching is a) to design learning activities that students will find interesting b) to ensure that learning is meaningful for every student c) to overcome potential barriers and problems to learning d) to improve 1:1 student-teacher communication d) to demonstrate differences to observers and inspectors.(2)

### HISTORY

The VAK approach (Visual Auditory Kinesthetic) to teaching and learning arose out of the development of magnetic resonance imaging (MRI) in the early 1980s. As doctors used MRI scanning to treat brain-injured patients, they accumulated a mass of data about how the brain processes information. Researchers took the results and added them to developing theories in psychology to produce brain-related approaches to learning (2).

It is important to think of learning styles as an opportunity to create a meaningful dialogue with your students (2)

The Felder Silverman model of learning styles uses an online instrument called the Index of Learning styles and measures students across four dimensions: active/reflective/sensory/intuitive/visual/verbal/global (2)

### MATERIAL AND METHODS

Seventy five students of first year MBBS 2012-13 batch of Santosh Medical College, Ghaziabad were given a questionnaire (Appendix 1). Based

on their responses, they were categorized as Visual, Auditory and Kinesthetic Learners (Table 1). a choice implied visual, b choice auditory and c were Kinesthetic of the questionnaire.

## RESULTS

**Table 1**

Type of Learners	Number of Learners	%
Visual	35	46.67
Auditory	27	36.1
Kinesthetic	20	26.67

35 students (46.67 %) are visual learners, 27 (36.1%) are auditory learner and 20 students are kinesthetic learners. Predominant students are visual learners. Many students did not have one learning style. Many responses were multiple, implying that students had a flexible repertoire from which to choose, depending on the content of learning.

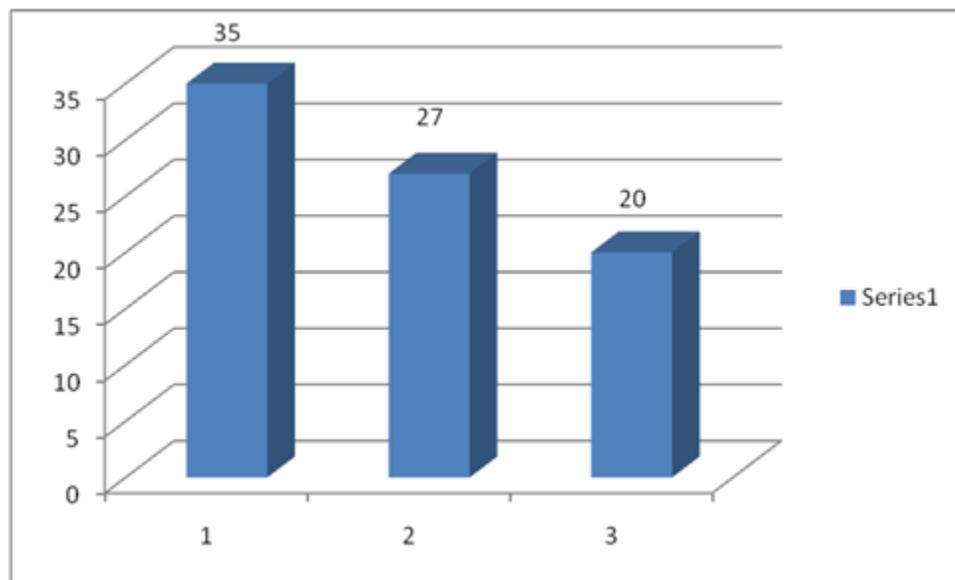


Figure 1: 1=Visual learners 2= Auditory learners 3= Kinesthetic Learners

## DISCUSSION

Other studies data that men have a greater tendency to prefer reading, learning and kinesthetic learning over visual and auditory learning, whereas female tend to have roughly equal preferences for all three modalities. (4)

*Visual learners* (65% of population), respond best when the teacher uses graphs, charts, illustrations or other visual aids, leaves white space in hand outs for note taking, uses gapped handouts for checking retention of knowledge, uses reading materials for in-class and out of class activities, invites questions to help them stay alert in auditory environments, uses flip charts to show

what will come and what has been presented, emphasizes key points to cue when to take notes and uses visualization, diagram-labeling and picture drawing activities (5-11)

*Auditory learners* (30% of population), respond best when the teacher, begins new material with a brief explanation of what is coming, concludes with a summary of what has been covered, questions learners to draw as much information from them as possible and then fill in the gaps with expertise, include auditory activities, such as brain storming, buzz groups or jeopardy, leaves plenty of time to debrief activities, this allows learners to make connections of what they

learned and how it applies to their situation, uses rhymes, songs, background music or advertising jingles to reinforce main points. (5-11)

*Kinaesthetic learners* (5% of population), respond best when the teacher uses hands on, practical activities that get the learners up and moving, uses conversion exercises that translate text into diagrams, scripts, concept maps, pictures, gives frequent stretch-breaks (brain-breaks), uses props and other items which can be handled and investigated, provides sweets or scents which provides a crosslink of scent (aroma) to the topic at hand (scent can be a powerful recall cue), uses colored matches to emphasize key points on flip charts or wipe boards. (5-11)

In our study the students were majority of visual learners, promoting a learning-teaching approach of charts, illustrations and power point. However to let the child learn and nurture his qualities, it is best to use a combination of the three approaches above.

## CONCLUSION

Despite the recent criticisms many educationalists agree that students learn best in the classroom when they are fully aware of their strengths and weakness as learners. It is best to avoid labeling students. Students may prefer one learning style but they respond best to a mix of different activities.

So it is best to use a combination of learning styles, as mentioned above, to ensure all student needs are met. (2)

## ACKNOWLEDGEMENT

Authors acknowledge the great help received from the scholars whose articles cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed. Authors are grateful to IJCRR editorial board members and IJCRR team

of reviewers who have helped to bring quality to this manuscript.

## BIBLIOGRAPHY

1. Learning styles. Why do they matter? Neil D. Fleming, Charles C Bonwell. Lake Washington of Technology. TRiO Student Support Services Projects [www.lwtech.edu/trio](http://www.lwtech.edu/trio)
2. The FE Toolkit: A Magazine for Grade 1 Teachers: Learning Styles [www.newbubbles.com](http://www.newbubbles.com) p1-18.
3. Swami Sri Sri Yukteshvarji. The Prophet and His Mission: A Tribute on his 150th Birth Anniversary. How Bhakati Yoga is Attained as per "The Holy Science" 2005, p 18, 19.
4. Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). Learning styles and pedagogy in post-16 learning: A systematic and critical review. [www.LSRC.ac.uk](http://www.LSRC.ac.uk): Learning and Skills Research Centre. Retrieved January 15, 2008: <http://www.lsda.org.uk/files/PDF/1543.pdf>
5. Constantinidou, F. and Baker, S. (2002). Stimulus modality and verbal learning performance in normal aging. *Brain and Language*, 82(3), 296-311.
6. Keefe, J. W. (1979) Learning style: An overview. NASSP's Student learning styles: Diagnosing and proscribing programs (pp. 1-17). Reston, VA. National Association of Secondary School Principles.
7. Marzano, R. J. (1998). A theory-based meta-analysis of research on instruction. Mid-continent Regional Educational Laboratory, Aurora, CO.
8. Merrill, D. (2000). Instructional Strategies and Learning Styles: Which takes Precedence? Trends and Issues in Instructional Technology, R. Reiser and J. Dempsey (Eds.). Prentice Hall.
9. Hayman-Abello S.E. & Warriner E. M. (2002). Child clinical/pediatric

- neuropsychology: some recent advances. *Annual Review of Psychology*, 53, 309–339.
10. Stewart, K. L., & Felicetti, L. A. (1992). Learning styles of marketing majors. *Educational Research Quarterly*, 15(2), 15-23.
11. Thompson-Schill, S., Kraemer, D., Rosenberg, L. (2009). Visual Learners Convert Words To Pictures In The Brain And Vice Versa, Says Psychology Study. University of Pennsylvania. News article retrieved July 10, 2011, from <http://www.upenn.edu/pennnews/news/visual-learners-convert-words-pictures-brain-and-vice-versa-says-penn-psychology-study>

### **Appendix 1: Study Skills - Student Development and Counselling VAK Learning Styles Self-Assessment Questionnaire**

Circle or tick the answer that most represents how you generally behave.

(It's best to complete the questionnaire before reading the accompanying explanation.)

1. When I operate new equipment I generally:
  - a).Read the instructions first.
  - b).Listen to an explanation from someone who has used it before.
  - c).Go ahead and have a go, I can figure it out as I use it.
  
2. When I need directions for travelling I usually:
  - a).Look at a map.
  - b).Ask for spoken directions.
  - c). Allow my nose and maybe use a compass.
  
3. When I cook a new dish, I like to:
  - a).Follow a written recipe.
  - b). Call a friend for an explanation.
  - c).Follow my instincts, testing as I cook.
  
4. If I am teaching someone something new, I tend to:
  - a).Write instructions down for them.
  - b).Give them a verbal explanation.
  - c).Demonstrate first and then let them have a go.
  
5. I tend to say:
  - a).Watch how I do it.
  - b).Listen to me explain.
  - c).You have a go.
  
6. During my free time I most enjoy:
  - a).Going to museums and galleries.

- b).Listening to music and talking to my friends.
- c).Playing sport or doing It Yourself.

7. When I go shopping for clothes, I tend to:

- a).Imagine what they would look like on.
- b).Discuss them with the shop staff.
- c).Try them on and test them out.

8. When I am choosing a holiday I usually:

- a).Read lots of brochures.
- b).Listen to recommendations from friends.
- c).Imagine what it would be like to be there.

9. If I was buying a new car, I would:

- a).Read reviews in newspapers and magazines.
- b).Discuss what I need with my friends.
- c).Test-drive lots of different types.

10. When I am learning a new skill, I am most comfortable:

- a).Watching what the teacher is doing.
- b).Talking through with the teacher exactly what I'm supposed to do.
- c).Giving it a try myself and work it out as I go.

11. If I am choosing food off a menu, I tend to:

- a).Imagine what the food will look like.
- b).Talk through the options in my head or with my partner.
- c).Imagine what the food will taste like.

12. When I listen to a band, I can't help:

- a).Watching the band members and other people in the audience.
- b).Listening to the lyrics and the beats.
- c).Moving in time with the music.

13. When I concentrate, I most often:

- a).Focus on the words or the pictures in front of me.
- b).Discuss the problem and the possible solutions in my head.
- c).Move around a lot, fiddle with pens and pencils and touch things.

14. I choose household furnishings because I like:

- a).Their colours and how they look.
- b).The descriptions the sales-people give me.
- c).Their textures and what it feels like to touch them.

15. My first memory is of:

- a). Looking at something.
- b). Being spoken to.
- c). Doing something.

16. When I am anxious, I:

- a). Visualise the worst-case scenarios.
- b). Talk over in my head what worries me most.
- c). Can't sit still, fiddle and move around constantly.

17. I feel especially connected to other people because of:

- a). How they look.
- b). What they say to me.
- c). How they make me feel.

18. When I have to revise for an exam, I generally:

- a). Write lots of revision notes and diagrams.
- b). Talk over my notes, alone or with other people.
- c). Imagine making the movement or creating the formula.

19. If I am explaining to someone I tend to:

- a). Show them what I mean.
- b). Explain to them in different ways until they understand.
- c). Encourage them to try and talk them through my idea as they do it.

20. I really love:

- a). Watching films, photography, looking at art or people watching.
- b). Listening to music, the radio or talking to friends.
- c). Taking part in sporting activities, eating fine foods and wines or dancing.

21. Most of my free time is spent:

- a). Watching television.
- b). Talking to friends.
- c). Doing physical activity or making things.

22. When I first contact a new person, I usually:

- a). Arrange a face to face meeting.
- b). Talk to them on the telephone.
- c). Try to get together whilst doing something else, such as an activity or a meal.

23. I first notice how people:

- a). Look and dress.
- b). Sound and speak.
- c). Stand and move.

24. If I am angry, I tend to:

- a).Keep replaying in my mind what it is that has upset me.
- b).Raise my voice and tell people how I feel.
- c).Stamp about, slam doors and physically demonstrate my anger.

25. I find it easiest to remember:

- a).Faces.
- b).Names.
- c).Things I have done.

26. I think that you can tell if someone is lying if:

- a).They avoid looking at you.
- b).Their voices changes.
- c).They give me funny vibes.

27. When I meet an old friend:

- a). I say "it's great to see you!"
- b). I say "it's great to hear from you!"
- c). I give them a hug or a handshake.

28. I remember things best by:

- a). Writing notes or keeping printed details.
- b).Saying them aloud or repeating words and key points in my head.
- c).Doing and practicing the activity or imagining it being done.

29. If I have to complain about faulty goods, I am most comfortable:

- a).Writing a letter.
- b).Complaining over the phone.
- c).Taking the item back to the store or posting it to head office.

30. I tend to say:

- a). I see what you mean.
- b). I hear what you are saying.
- c). I know how you feel.

31. When you think about spelling a word, do you ....

- a).See the word.
- b).Sound the word out.
- c).Write the word down to see if it looks right.

32. When you are really concentrating, are you distracted by ...

- a).Messiness/untidiness.
- b).Noise/talking/music.
- c).Movement.

33. When you recall specific incidents, do you ...

- a).Do it with pictures/images.
- b).Sounds.
- c).See moving pictures.

34. When you are angry, do you ...

- a).Remain silent, but seethe inside.
- b).Shout loudly.
- c).Clench your fists, grit your teeth, stamp about.

35. When you forget an incident that has happened or a person you've met, do you ...

- a).Forget names but remember faces.
- b).Forget faces but remember names.
- c).Remember only where you were and what you did.

36. When describing an object, for example your front door, would you ...

- a).Picture it in your mind.
- b).Describe it with words.
- c).Think how it feels, sounds, opens etc.

37. When you are learning, do you prefer ...

- a).Work that is written down in many colors.
- b).Listening to a person talk or give instructions.
- c).Participating in activities, making or doing.

38. When you do leisure activities, do you prefer to ...

- a).Watch TV, read, play on a computer.
- b).Listen to music.
- c).Play sports and games.

39. When you are talking, do you ...

- a).Talk little and are reluctant to listen for too long.
- b).Like to listen and talk as well.
- c).Talk with your hands and gesture a lot.

40. When you receive praise or a reward, do you prefer to ...

- a).Receive a written note or certificate.
- b).Hear it said to you.
- c).Be given a 'pat on the back' or a handshake.

Now add up how many A's, B's and C's you selected.

A's = B's = C's =