

A Study on Learning Styles among Computer Science Students in Coimbatore

Dr. K.Vidyakala¹, Dr. Nithyakala², Dr. J.Deepa³, L.Prathibha⁴, and P.Nandhini⁵

¹(HoD, Department of Business Administration, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India)

^{2,3}(Assistant Professor, Department of Business Administration, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India)

⁴(BBA Student, Department of Business Administration, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India)

⁵(Research Scholar (FT), Department of Business Administration, PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu, India)

Abstract: Technically, an individual's learning style refers to the preferential way in which the student absorbs processes, comprehends and retains information. Students learn differently from each other and it has been determined that brain structure influences language structure acquisition. It also has different hemispheres of the brain contain different perception avenues efficient methods of acquiring, processing, storing and manipulating information, based on the theory that individuals differ on best take in and work with information.

Keywords: Learning Styles, College students

I. INTRODUCTION

Learning styles refer to the variations in student's ability to accumulate as well as assimilate information. Basically, learning style is the method that best allows to gather and use knowledge in a specific manner. It also has different hemispheres of the brain contain different perception avenues efficient methods of acquiring, processing, storing and manipulating information, based on the theory that individuals differ on best take in and work with information. It is necessary and vital evidence based variety of styles that an individual uses to absorb comprehend process remember and retain necessary and vital information to learn effectively and efficiently based on key questions factors and individual experience. It is also a vital tool to empower an individual with the material skills and tools to learn easily and effectively. It is an individual's natural or habitual pattern of acquiring and processing information in learning situations. A core concept is that individual's differ in learning and the idea of individualized learning styles originated in the 1970s and has greatly influenced education proponents of the use of learning styles in education recommend that teachers assess the learning styles of students and adapt the classroom methods to best fit each student's learning style. There are differences in individual thinking and ways of processing various types of information.

Types of Learning Styles

The VARK theory of learning preferences separates learners into four categories that define their best method of learning:

V – Visual

A – Aural/Auditory

R – Read/Write

K – Kinesthetic

1. Visual learners

These learners need to see the teacher's body language and facial expression to fully understand the content of a lesson. They generally prefer to sit at the front of the classroom. These individuals think in pictures and may learn best from visual displays including: diagrams, illustrated textbooks, overhead transparencies, videos, flipcharts, use of interactive whiteboards, and handouts.

2. Auditory learners

Aural (or auditory) learners learn best by hearing information. They tend to get a great deal out of lectures and are good at remembering things they are told. Auditory learning is a style where learning occurs by listening. Hearing and speaking are the two primary ways an auditory learner will use to do so. If something appears to be confusing on paper (words, drawings, etc.), an auditory learner may attempt to associate the concept with sound; perhaps by speaking out loud or playing music.

3. Reading/writing learner

Teachers and students tend to lean towards reading/writing learning styles. The ability to read and write well is qualities in a person that are highly sought after, especially by employers, project leaders, and post-

secondary institutions. As well, the modalities in which reading/writing learning styles present themselves are very common within the school system, and easy to replicate and distribute. A great way to help these students learn is by having them describe diagrams or charts using written statements. Then, they can study their notes later to better retain the information.

4. Kinaesthetic learners

Kinaesthetic learning is a learning style in which one prefers a “hands on” approach to learning, or to learn by doing. Kinaesthetic learners prefer this physical interaction to say, reading a textbook or watching a lecture. Kinaesthetic learners learn through active movement and experience. Some refer to kinaesthetic learning as “tactile” learning, however some researchers argue that tactile learning is another style of learning entirely. “People who prefer this mode are connected to reality, either through concrete personal experiences, examples, practice or simulation .

Objectives of the study

- To assess the learning styles of the respondents

II. RESEARCH METHODOLOGY

The analysis of this paper is based on primary data collected from students and secondary data collected from the related websites, books and articles from different journals.

III. REVIEW OF LITERATURE

Omrod (2008) wrote, some cognitive styles and dispositions to seem to influence how and what students learn. Some students seem to learn better when information is presented through words (verbal learners), whereas others seem to learn better when it’s presented through pictures (visual learners). Thus, educational psychology says that students and aspiring teachers are being taught about particular learning styles and these styles should be accommodated by instruction adapted to those learning styles.

Naimie (2010) examined that the learning styles have shown that “the similarity between teaching and learning styles has a positive impact on achievement and satisfaction”. The learning style specialists have confirmed the theory that students will learn more and enjoy the class experience and environment where they can use their preferred learning styles”.

D’agustin (2012) analysed the learning quality or time period in which any student grasps the matter. The unique and different pattern of learning styles facilitate the teachers to adopt different types of learning styles which enable them to cope up with gifted and talented people in well-organized manner. It is very common that every university has different type of students who possess different abilities and potentials.

Solvie&Sungur (2012) examined the achievement of third level pre service teachers when they provided instructions based on their learning styles. In this study, Kolb’s learning style inventory was used to identify students preferred learning style preference. An online module was developed for the completion of courses tasks to particular learning styles. Data analysis indicated positive effects of instructions linked to learning style preference on student achievement.

IV. ANALYSIS AND INTERPRETATION

Descriptive Statistics

The following are the descriptive statistics method used in this study. It was analyzed using SPSS software version 16.0.

Mean

Standard deviation

Mean

Mean deviation is the arithmetic mean of the absolute deviation of the values about their arithmetic mean or median or mode.

Standard Deviation

Standard deviation is the root mean square deviation of the values from their arithmetic mean.

Visual Learning Styles

Visual Learning Style of BSc (CS) Respondents

Year of study	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total
Visual learning	N				MEAN				STD. DEVIATION			
I enjoy doodling in my notes	59	58	58	175	3.88	4.4	4.41	4.23	0.98	0.86	0.68	0.88
I remember something better if I write it down	59	58	58	175	4.19	4.41	4.41	4.34	0.96	0.75	0.7	0.81

When reading a novel, I pay a lot of attention to passages which helps me to visualize the description, scenery, setting, etc.	59	58	58	175	4.22	4.26	4.28	4.25	0.77	0.78	0.79	0.78
When trying to remember something, it helps me to picture it in my mind.	59	58	58	175	4.27	4.6	4.48	4.45	0.81	0.62	0.71	0.72
If I am taking a test, I can see the textbook page and where the answer is located	59	58	58	175	3.73	3.97	4.09	3.93	1.13	0.79	0.98	0.98
I look at the person while listening; it helps to keep focused	59	58	58	175	3.92	4.29	4.43	4.21	1.02	0.86	0.7	0.89
Usage of flashcards helps me to retain material for tests.	59	58	58	175	3.75	4.24	4.26	4.08	0.88	0.9	0.91	0.93
It's hard for me to understand what a person is saying when there are people talking or music playing in the background	59	58	58	175	3.98	3.91	4.28	4.06	1.22	1.1	0.77	1.05
In my free time I am most likely to watch television or read.	59	58	58	175	4.07	4.38	4.38	4.27	1	0.81	0.79	0.88
If my professor has a message for me, I am most comfortable when she sends a note.	59	58	58	175	4.02	4.48	4.31	4.27	1.09	0.63	0.88	0.9
When meeting a person for the first time, I notice the style of dress, visual characteristics and neatness first.	59	58	58	175	4.27	4.4	4.43	4.37	1.1	0.84	0.84	0.93
Avg. Mean					4.03	4.3	4.33	4.22				

Interpretation

The above table shows the agreeability towards student's visual learning style among BSc (CS) respondents. When trying to remember something, it helps me to picture it in my mind has the highest mean among I and III years, which implied that visualizing the picture in their mind makes recalling easier for the students. If my professor has a message for me, I am most comfortable when she sends a note has the highest mean among II years which implied that taking notes makes recalling easier. If I am taking a test, I can see the textbook page and where the answer is located has the lowest mean.

The average of total mean score 4.22 implied that respondents agree in their opinion towards visual learning style.

Auditory Learning Style

Auditory Learning Style of BSc (CS) Respondents

Year of study	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total
Auditory Learning	N				MEAN				STD. DEVIATION			
My written work doesn't look neat to me. My papers have crossed-out words and removals.	59	59	58	175	3.54	3.54	3.81	3.59	1.24	1.24	1.03	1.21
It helps me to use pointer (finger, cursor) when reading to keep my pace.	59	59	58	175	3.51	3.51	4.12	3.79	1.09	1.09	0.77	1.01
Papers with very small print, blotchy or poor copies are tough on me to understand.	59	59	58	175	3.69	3.69	4.24	3.99	1.25	1.25	0.84	1.06
I understand how to do something if someone tells me, rather than having to read the same thing to myself.	59	59	58	175	4.07	4.07	4.36	4.18	0.93	0.93	0.61	0.78
I remember things that I hear, rather than things that I see or read.	59	59	58	175	3.63	3.63	4.03	3.82	1.19	1.19	0.97	1.11
When writing becomes tiring, I press down too hard with my pen or pencil.	59	59	58	175	3.56	3.56	4.31	3.89	1.16	1.16	0.84	1.12
When I read, I mix up words that look alike, such as them and then, bad and dad.	59	59	58	175	3.22	3.22	3.91	3.45	1.45	1.45	0.98	1.3
I like to receive information from radio rather than newspaper	59	59	58	175	3.68	3.68	4.14	3.9	1.25	1.25	1.02	1.11
If I had the choice to learn new information through a lecture or textbook, I would choose lecture rather than text book.	59	59	58	175	3.81	3.81	4.17	4.01	1.07	1.07	0.7	0.93
I read out loud or move my lips to hear the words in my head.	59	59	58	175	3.95	3.95	4.22	4.15	1.11	1.11	0.9	0.94
When talking to someone, I have a difficult time understanding those who do not talk or respond to me.	59	59	58	175	3.93	3.93	4.19	3.98	1.03	1.03	0.8	1.03
I do not take a lot of notes, but I still remember what was	59	59	58	175	3.49	3.49	4.12	3.78	1.14	1.14	0.97	1.11

said. Taking notes often distracts me from the speaker.												
When reading a novel, I pay a lot of attention to passages involving conversations, talking, speaking, dialogues, etc.	59	59	58	175	3.93	3.93	4.5	4.18	1.06	1.06	0.66	0.95
I like to talk to myself when solving a problem	59	59	58	175	4.17	4.17	4.41	4.31	0.97	0.97	0.75	0.9
I can understand what speakers speak even if I don't see the visually	59	59	58	175	3.76	3.76	4.31	4.01	1.18	1.18	0.73	1.06
With my free time I am most likely to listen to music.	59	59	58	175	4.12	4.12	4.31	4.32	1.07	1.07	0.78	0.9
If my boss has a message for me, I am most comfortable when he or she calls me on the phone.	59	59	58	175	3.97	3.97	4.31	4.12	1.02	1.02	0.82	0.98
If I had to explain a new procedure or technique, I would prefer talking about it.	59	59	58	175	3.92	3.92	4.31	4.13	1.02	1.02	0.71	0.89
When talking to someone else I have the hardest time handling those who do not talk back with me.	59	59	58	175	3.88	3.88	4.31	4.09	1.04	1.04	0.73	0.94
Avg .Mean					3.78	3.78	4.22	3.98				

Interpretation

The above table shows the agreeability towards student's auditory learning style among BSc (CS) respondents. I like to talk to myself when solving a problem has the highest mean among I, II and III years which implied that most of the respondents like to talk to themselves while solving a problem. When I read, I mix up words that look alike, such as "them" and "then," "bad" and "dad." Has the lowest mean. The average of total mean score 3.98 implied that respondents agree in their opinion towards auditory learning style.

Read and Write Learning Style

Read and Write Learning Style of BSc(CS) Respondents

Year of study	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total
Read and Write Learning	N				MEAN				STD. DEVIATION			
Writing things down helps me to remember what I am learning.	59	58	58	175	4.29	4.36	4.45	4.37	0.81	0.87	0.8	0.83
I prefer the teacher who uses hand outs/ written materials for teaching.	59	58	58	175	4.1	4.14	4.4	4.21	0.92	0.94	0.75	0.88
I regularly take notes during the class hours.	59	58	58	175	3.9	3.9	4.28	4.02	0.96	0.93	0.83	0.92

I read the textbooks or course materials posted on the Internet.	59	58	58	175	3.75	4.07	4.14	3.98	1.04	0.9	0.78	0.93
I understand lectures better when professors write on the board.	59	58	58	175	4.05	4.03	4.17	4.09	0.86	0.95	0.82	0.88
It helps to use a pointer when reading to keep my pace.	59	58	58	175	3.8	3.91	4.12	3.94	0.94	0.98	0.92	0.95
Its hard for me to read other peoples handwriting.	59	58	58	175	3.61	3.53	4	3.71	1.05	1.17	1.06	1.11
I always like if the information given in a printed copy.	59	58	58	175	3.83	4.1	4.16	4.03	1.05	0.91	0.97	0.99
Learning is easy for me if its in the diagrammatic representation or maps.	59	58	58	175	4	4.17	4.19	4.12	1.02	0.99	0.96	0.99
Avg. Mean					3.92	4.02	4.21	4.05				

Interpretation

The above table shows the agreeability towards student's visual learning style among BSC (CS) respondents. Writing things down helps me to remember what I am learning has the highest mean among all the three years which implied that writing things makes recalling easier. Its hard for me to read other peoples handwriting has the lowest mean

The average of total mean score 4.21 implied that respondents agree in their opinion towards visual learning style.

Kinesthetic Learning Style

Kinesthetic Learning Style of BSc(CS) Respondents

Year of study	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total	I Year	II Year	III Year	Total
Kinesthetic Learning	N				MEAN				STD. DEVIATION			
I don't like to read directions; I'd rather just start doing.	59	58	58	175	3.88	3.79	4.21	3.96	0.89	0.97	0.77	0.89
I learn best when I am shown how to do something, and I have the opportunity to do it.	59	58	58	175	4.1	4.22	4.4	4.24	0.69	0.96	0.62	0.77
Studying at a desk is not for me.	59	58	58	175	3.66	3.69	4.24	3.86	0.96	1.23	0.66	1.01
I tend to solve problems through a more trial-and-error approach, rather than from a step-by-step method.	59	58	58	175	3.81	3.97	4.22	4	0.94	1.01	0.77	0.92
Before I follow directions, it helps me to see someone else do it first.	59	58	58	175	3.85	3.78	4.22	3.95	1	1.06	0.75	0.96
I find myself	59	58	58	175	4.02	4.07	4.47	4.18	1.01	1.02	0.75	0.95

needing frequent breaks while studying.												
I am not skilled in giving verbal explanations or directions.	59	58	58	175	3.69	3.71	4.02	3.81	1.22	1.18	0.93	1.12
I do not become easily lost, even in strange surroundings.	59	58	58	175	3.64	4	4.16	3.93	1.09	1.08	0.83	1.03
I think well when I have the freedom to move around.	59	58	58	175	4.03	4.29	4.41	4.25	0.81	0.7	0.7	0.75
When I cant think of a specific word, Ill use my hands a lot.	59	58	58	175	3.61	3.88	4.24	3.91	1.05	0.97	0.66	0.94
I am not good at reading or listening to directions. I would rather just start working on the task or project at hand.	59	58	58	175	3.63	3.43	3.97	3.67	1.22	1.11	0.95	1.12
When talking to someone, I have a difficult time understanding those who do not show any kind of emotional or physical support.	59	58	58	175	3.66	3.93	4.33	3.97	1.06	1.14	0.69	1.01
I take notes, doodle, and/or make mind-maps, but I rarely go back and look at them.	59	58	58	175	3.81	3.86	4.29	3.99	0.99	1.07	0.77	0.97
When reading a novel, I pay a lot of attention to passages revealing feelings, moods, action, drama, etc.	59	58	58	175	4.08	4.19	4.26	4.18	0.9	0.85	0.76	0.84
If my boss has a message for me, I am most comfortable when she explains to me in person.	59	58	58	175	3.8	4.19	4.26	4.08	1.08	0.87	0.76	0.93
I often exchange words, such as places or things, and use my hands a lot when I cant remember the right thing to say.	59	58	58	175	3.59	3.95	4.1	3.88	0.98	0.91	0.89	0.95
If I had to explain a new procedure or technique, I would	59	58	58	175	3.69	4.21	4.33	4.07	0.99	0.69	0.82	0.88

prefer actually demonstrating it.												
With my free time I like to do exercise/dance (Physical activities).	59	58	58	175	3.71	3.95	4.09	3.91	1.13	0.91	0.92	1
I feel trapped when seated at a meeting or a desk (I like to move around)	59	58	58	175	3.83	3.95	4.34	4.04	0.91	1.03	0.74	0.92
Avg. Mean					3.8	3.95	4.24	3.99				

Interpretation

The above table shows the agreeability towards student's kinesthetic learning style among BSc (CS) respondents. When reading a novel, I pay a lot of attention to passages revealing feelings, moods, action, drama, etc. has the highest mean among I years which implied that the respondents read a novel and pay a lot of attention. I think well when I have the freedom to move around has the highest mean among II years which implied that the students have their own freedom. I find myself needing frequent breaks while studying has the highest mean among III years which implied that the respondents rarely need a break while studying. I am not good at reading or listening to directions. I would rather just start working on the task or project at hand is the lowest mean.

The average of total mean score 3.99 implied that respondents agree in their opinion towards kinesthetic learning style.

V. CONCLUSION

From the descriptive analysis the study found that BSc (CS I year students prefer Read and write Learning Style whereas II year students prefer both Visual and Read and Write Learning Styles and III year prefer Visual learning style