Instructional strategies for different learning styles: a study

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Abstract

Learning is a continuous process for two classes of people (for both teacher & student). We all learns something new every day. It is gaining knowledge by studying; being taught & experiencing, whereas teaching is defined as just a more formal approach to deliver lessons with learning as end result. Teaching & learning are permitted not only within the dimensions, but it should happen beyond that. A learning style can best be explained as the most unique way in which a student prefers to learn new concepts. Students learn quicker and more effectively when teaching style is matched to their individual preferred styles. This paper explains about existing learning styles and also suggests few teaching methodologies that are to be adopted for different learning styles, which creates inter-est in students that leads to outstanding performance in academics.

Keywords: *Learning Styles; Teaching Methodologies; Individual & Collaborative Learning.*

1. Introduction

Effective teaching requires flexibility, creativity and responsibility in order to provide an environment that meets the learner's individual needs. One of the challenges the teachers are facing is, how to match the teaching strategies with the student's learning styles, in order to improve their academic achievement. A student's style is decided by various factors such as by their past learning experiences, and his/her culture in society. Few people use only one style exclusively which they are habituated to. If we consider a class of students, most of them have one common dominant style. This determines our communication styles can show us how best, we can teach or learn the things. When we teach to a group of learners who are having different learning styles, it is very critical for us to involve them through all of the different techniques. Students listen to the people, who creates interest, inspire and who reward their success and encourage them to improve. In order to do this, different types of teaching aids to be adopted.

Teaching aids plays a major role in teaching –learning process. Teaching aids are the materials that the teacher uses in the class room to help the students in understanding the concepts. It is a tool used by the teachers, facilitators/tutors to improve reading skills and knowledge of students. As the technology is advancing, at the same time teaching strategies should be changed. Improved teaching strategies help the student to create interest in them and to upgrade knowledge. This can be done by using various teachings aids explained in this paper. Proper use of teaching aids helps them to learn more concepts in detail. It develops the perfect pictures of concepts in their mind. It helps the students to enhance the conceptual thinking. It motivates the students to learn better. Teacher can assess[1] the student abilities in the class.

2. Learning styles

There are five types of learning styles [2]. They are

2.1. Sensing & intuitive learners

Most of us prefers sometimes sensing & intuitive other time. To be an effective learner & solution finder, we should be able to function both the ways.Sensing learners like to learn facts. They like to solve problems by well known formulas. They dislike complications & surprises. They are good at memorizing facts and doing hands-on work. They don't like courses that have no connection with real world. As they are very much interested in remembering & understanding, the teacher should relate the topics to real world to explain them.

Intuitive learners always prefer to discover various possibilities and connectivity. They are more creative in thinking and they dislike repetition. They are very quick in grasping the new concepts. They tend to work faster and more innovative than sensing learners. They dislike the course which makes them involve in memorization and routine calculation.

2.2. Visual, auditory & tactile learners

Visual learners learn by reading and seeing the images. They are also called as spatial learners. They understand and remember the things by sight. They can imagine and form a picture what they are learning in brain. They are clear, that they often close their eyes to visualize

or remember something. They may get easily distracted by sounds. They are attracted to colour and spoken language (like tales) that is rich in imaginary. They write keywords, ideas and instructions and draw pictures to explain new concepts. They remember best by seeing pictures, diagrams, flow charts, time lines, maps, films, demonstrations. They replace the words with colours and images.

Auditory learners learn by listening. They understand and remember things that they heard. They store the information, by the way it sounds. They often read out loud because they have to hear it or speak it in order to know it. They get lot out of discussions.

Tactile learners are also called as kinaesthetic learners. It involves both information perception and information processing. They remember and understand the things through physical movement. They are hands-on leaner who prefers to touch, move, build, or draw what they learned.

2.3. Deductive & Inductive learners

The very two distinctive and opposing approaches are inductive and deductive. Both methods have its own importance and benefits.

Deductive approach is a teacher centric approach, here the teacher introduces a new concept to students, by explaining them and students has to learn or practice it based on the instructions given by teacher. This is the regular method used in teaching. In deduction one deduces consequences.

Induction is a reasoning progression that proceeds from observations and data to rules or laws, theories. Inductive approach is student centric approach, here the students have to notice the examples and after their keen observation they should be able to know the concepts, without involvement of a teacher.

2.4. Active & reflective Learners

Active learners learn and try to understand the concepts by active participation like discussing, applying or explaining to others. They like to work in a group; they can't take decision by their own. They feel difficult to listen to lectures which do not have physical activity.

Reflective learners learn the concepts by thinking about it rather than trying it. They always prefer to work alone. They are slower than active learners.

2.5. Sequential & global learners

Sequential learners learn the concepts linearly which are correlated. They pick up steadily rather than quickly. They always choose to analyze the things in detail.

Global learners learn the concepts by thinking and they are faster than reflective learners. They don't bother about the things to be connected. Once if they have clarity on topic, they are ready to solve any complex problem.

3. Effective teaching methodologies

The explained teaching methods [3] help the students to be active and listen to the classes with more attention.

3.1. Think-pair-share (TPS)/think group share (TGS)

Think-Pair-Share [4] is a collaborative learning method, where the students work together in order to solve a problem or answer to a question. This method makes the students to think the concept individually, collaborates with others by sharing the ideas among them. It helps in improving Oral communication.

In TPS two students formed as a pair thinks about the concept & shares the information, where as in TGS four or five students are formed as a group, and the rest of the activity is followed same as TPS.

3.2. Group discussion

Group Discussion is used to evaluate the student personality. A group of members formed as a team and a topic or concept or subject is given to them to discuss about it among themselves to a limited period and they were asked to give their views on it. This helps the students to come up with different ideas. Students/Participants can able to understand his/her own strengths and weakness.

3.3. Worksheets

Worksheets help the students to explore topics, practice skills and improve their knowledge. It contains fun exercise and beautiful illustrations.

3.4. Role play

In this method, a role is given to student that he/she has to act on it. This enhances creativity skills. It is very interesting and useful to students because it values to real world side of science. It helps to solve complex problems.

3.5. Surprise tests

These tests are conducted in classrooms without prior intimation to students. This helps to know the capability of students, how far they are active in the class. Individual evaluation of students is done.

3.6. Scribe-facilitator

A group of members formed as team, in which two members are identified as scribe and a facilitator. The work of the scribe is to takes notes from individuals and to share it within the group and facilitator ensures the participation of every member in the team

3.7. Jigsaw

Jigsaw [5] helps to promote interactions among the group of students through tasks. Initially the individual's tasks are given to students to solve it and later group assembles to complete the overall assignment.

3.8. Flipped classrooms

Flipped classrooms are a type of blended learning that reverses the regular learning method, students have to learn and understand the concepts or watch videos outside the classroom. Respective exercise is given to them, on the concept which they have learned. Students can seek the favour, guidance & information from teachers to get clarify their doubts.

3.8. Plickers

Plickers[6] is a powerful online tool, that lets the teachers to collect real-time formative assessment data from students. Based on the class roster, individual plicker cards are assigned to students. Display the question on the screen such that every student can view it and students show their response by holding the cards given to them. The role of the teacher is to have a smart device having plickers app to scan the cards by selecting the camera button which will appear at the bottom of the screen. The responses are shown as bar graphs. Here it is very easy to find out how many of students failed to answer the question. We can correct it, explain the concept again.

3.9. Moodle-online quizzes, videos

Moodle [7] is a open source learning platform. It is also called as course management system. It is used as e-learning, flipped classrooms and blended learning technique. Teachers and students can access the moodle by their own credentials. The role of the teacher is to upload the data (videos, assignment, multiple choice questions, puzzles) to that particular subject and evaluate the students in online based in their responses. We can see the performance graph of the students and track their progress very easily.

3.10. Kahoot

Kahoot[8] is a game-based learning platform, used as educational technology in schools and other educational institutions. It consists of Multiple-choice quizzes that allow user generation and can be accessed via a browser. It is used for formative assessment.

4. Learning styles vs teaching styles

Table 1: Teachings Aids for Different Learning Style

Learning Style	Suggested Teaching aids to be followed
Sensing Learners	Hands-on, real time examples, facts, well known formulas, algorithms to be discussed
Intuitive Learners	Possibilities & connectivity of data to be explained, surprise test, online tests, puzzles
Visual Learners	Charts, graphs, flowcharts, sight words, maps, visual similarities & differences, role play, online videos, work sheets
Auditory Learners	Group discussion, debate, just -a -minute, oral reading, listening via tapes, videos, think-group-share
Kinesthetic learners	Playing games ,role play, body language/gestures, mime & guess
Tactile Learners	Hands-on experience, writing, tracing, drawing, art projects, building models
Active Learners	Intrapersonal skills, experimentation, acting/role play, team competition –think-pair-share, warm up quizzes, flipped classroom
Reflective Learners	Observations, deductive learning, intrapersonal skills, flipped classroom
Sequential Learners	Connected topics to be explained, class tests, quizzes
Global Learners	Interpersonal, projects, materials, person to person communication, think-pair-share, scribe facilitator, praise-question- polish, observation

The above stated table suggests about the different teaching aids that are to be adopted for different types of learning styles.

5. Individual learning and team-based learning

There are two types of learning approaches. They are Individual Learning and Team Based learning. Individual learning is defined as the capacity to knowledge through individual reflection. Some students are quick in nature, they can learn or solve the problems by themselves, where as some students depend on others during learning. They get the things by discussions by forming the team. This is done in team based learning.

Table 2: Implementation of Teaching Aids Through Individual & Team Based Learning

Teaching Methodologies	Individual learning	Team based learning
Think –Pair- Share	√	√
Think-Group-Share	√	√
Group Discussion	√	√
Worksheets	√	X
Role Play	√	√
Surprise Tests	√	X
Scribe-Facilitator	X	√
Jigsaw	√	√
Plickers	√	X
Flipped Classrooms	√	√
Moodle-Online videos, materials	√	√
Online Tests	√	X
Kahoot	√	√

The existing learning styles can be either individual learning or team based learning or both. The given table explains about the implementation of teaching aids through individual and team based learning approaches.

6. Conclusion

Learning Styles of most engineering Students and teaching Styles of most professors are incompatible to each other in several ways. Students learn best when teaching styles are matched to their learning Style. This paper explains about existing learning styles and also suggests different teaching aids that may match for different types of learners. However all the stated teaching techniques cannot be followed in every class, so it is better to choose an appropriate one that looks feasible for a particular topic. This practice strives the benefits certainly outweigh the costs.

Acknowledgement

References

[1] Prasanthi, B.V.& Vijetha Inti,V.V. (2019). Classroom Assessment methods and Tools:A Review. International Journal of Research and Analytical Reviews,6(2),94-97.
[2] Felder, R. M., & Silverman, L. K. (1988). Learning and teaching styles in engineering education. Engineering education, 78(7), 674-681.
[3] Krishnan, S. (2018). Observations from Faculty Development Workshops in the Current Indian Context. Journal of Engineering Education Transformations.
[4] Azlina, N. N. (2010). CETLs: Supporting collaborative activities among students and teachers through the use of Think-Pair-Share techniques. International Journal of Computer Science Issues (IJCSI), 7(5), 18.
[5] Ali, G. C. E. (2010). A comparative research on the effectivity of cooperative learning method and jigsaw technique on teaching literary genres. Educational Research and Reviews,5(8), 439-445.
[6] Wood, T. A., Brown, K., & Grayson, J. M. (2017). Faculty and student perceptions of Plickers. American Society for Engineering Education, San Juan, Puerto Rico. IP, 5(31.210).
[7] Dougiamas, M. & Taylor, P. (2003). Moodle: Using Learning Communities to Create an Open Source Course Management System. In D. Lassner & C. McNaught (Eds.), Proceedings of ED-MEDIA 2003--World Conference on Educational Multimedia, Hypermedia & Telecommunications (pp. 171-178). Honolulu, Hawaii, USA: Association for the Advancement of Computing in Education (AACE)
[8] Dellos, R. (2015). Kahoot! A digital game resource for learning.International Journal of Instructional Technology and Distance Learning, 12(4), 49-52.