自資高等教育聯盟
Federation for Self-financing Tertiary Education

Federation for Self-financing Tertiary Education (FSTE)

Intensive Teacher Training Programme: Module 3: Understanding student learning and the design of learning activities

Lesson One: How students learn and learning styles

Brief Notes and Suggested Reading

This brief note intends to give participants the blueprints of the contents covered in the module. Suggested readings are listed to facilitate participants in accessing the sources and to obtain more detail information.

1. How students learn?

In the context that learning is the change of behaviour, a highly simplified concept on learning is that there are three main aspects, i.e. how students:

- perceiving information
- processing information
- organising and presenting information.

However, different persons will have their own preferences in these aspects, i.e. different persons will have different learning styles. As such, **there is no penance in learning and teaching**.

A. Perceiving information

Information can be perceived through:
Visual (sight) (including linguistic and spatial),
Auditory (hearing),
Reading/Writing, and
Kinaesthetic (other sensations which include touch and temperature as well as movement).

Visual Learner - you will **remember things best when you've seen them**.

- You will like a stimulating and orderly environment.
- You probably like to use diagrams and charts.

- You probably like reading, and may be a good speller.

Study tips to help people who are visual learners

- Draw pictures, charts and maps to help you understand things
- Use mind-mapping
- Use planners, organisers or goal-setting charts
- Highlight important points with colour (but not in books which you've borrowed!)
- Try visualising ideas and facts in your mind
- Try changing places in the room while you're studying, to get a different perspective
- Use models if they're available
- When you need to revise, read over and recopy your notes.

Auditory Learner - you will **learn best when you're listening** (for example, in a lecture) and when you're involved in discussion. You will **remember things best** when you've heard them.

Study tips to help people who are auditory learners

The key thing is to make use of sound:

- Talk things through as you learn them, with a friend or tutorial group
- Get a friend to read aloud to you
- When you have to learn facts, try reciting them to yourself, or even singing them aloud.
- Find out if you study best in silence, or with music playing in the background
- Realise that some people aren't as good as you at remembering what they are told.

Reading/Writing learner - you will **learn best when you're reading text and writing notes and essays**. When you are studying graphs, charts and diagrams, convert them into words.

Kinaesthetic learner - you will **learn best when you're moving around**. You will remember things best when you've done them (rather than just read about them). You may have trouble with spelling. In lectures you may make lots of notes but tend never to look at them again.

Study tips to help people who are kinaesthetic learners

- Move around as you learn and revise
- Work through problems physically

- Mentally review what you've been studying while you're swimming or jogging
- Use models and machines when you can
- Take plenty of breaks while you're studying.

B. Processing information

Different persons might process information differently according to their own preference. For the mental process as you think about, and memorize, the information acquired, you might have a natural preference on how you:

(a) *Perceive and grasp information*

prefer to deal with:

- abstract concepts and generalisations, or
- concrete, practical examples

(b) *Order information*

prefer to receive facts:

- in a logical, sequential way (to build up a picture one step at a time), or
- with an overview straight away (to show the big picture first, then the details)

(c) *Engage with information*

prefer:

- active experimentation or
- reflective observation

C. Organising and presenting information

Again, different persons might have different preferences. You might prefer to:

(a) *organise information* — with a holistic overview, or with detailed and logical analysis

(b) *present information* — verbally or using images.

2. How the learning styles of students be broadly classified?

Kolb's Experiential Learning Theory (ELT): Experience as the source of learning and development.

Kolb's learning model is based on two continuums that form a quadrant:

The ELT model outlines **two approaches towards grasping experience**:

- **Concrete experience**
- **Abstract conceptualisation**

These two approaches are the two extremes in the **perception continuum**.

The ELT model also outlines **two approaches towards transforming experience**:

- **Reflective observation**
- **Active experimentation**

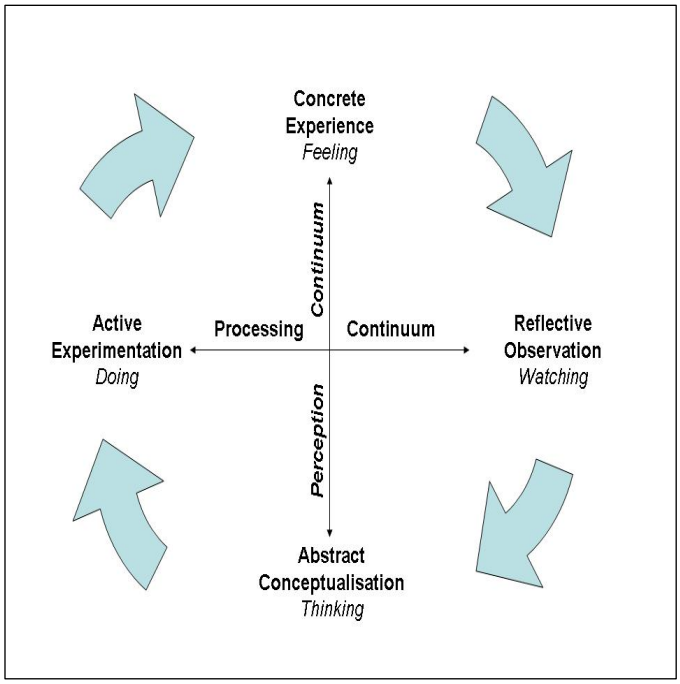
These two approaches are the two extremes in the **processing continuum**.

Example: Learning to ride a bicycle:

- Concrete experience - Receiving practical tips and techniques from a biking expert.
- Abstract conceptualization - Understanding the theory and having a clear grasp of the biking concept.
- Reflective observation - Thinking about riding and watching another person ride a bike.
- Active experimentation - Leaping on the bike and have a go at it.

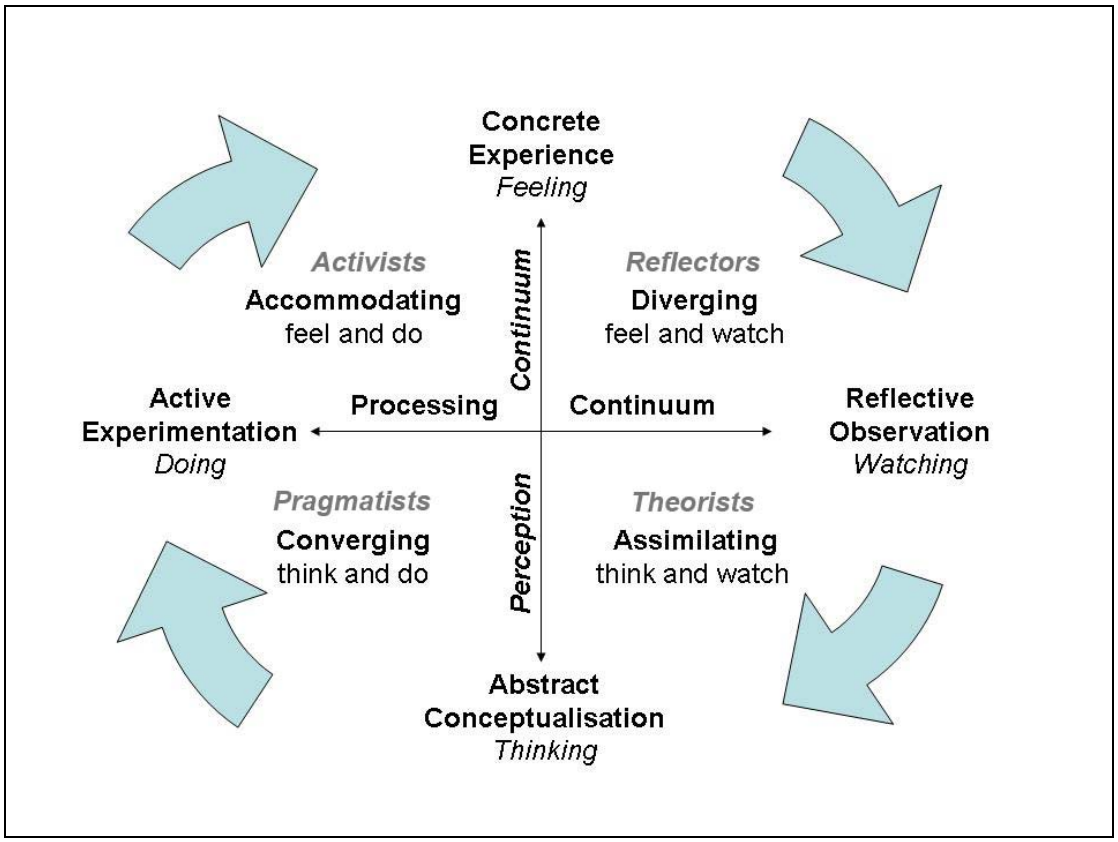
The Learning Cycle

This matrix provides a learning cycle that involves four processes that must be present for learning to occur. Kolb provides a model learning program. Each ends of the continua (modes) provide a step in the learning process.



- **Concrete experience** (feeling): Learning from specific experiences and relating to people. Sensitive to other's feelings.
- **Abstract conceptualization** (thinking): Logical analysis of ideas and acting on intellectual understanding of a situation.
- **Reflective observation** (watching): Observing before making a judgment by viewing the environment from different perspectives. Looks for the meaning of things.
- **Active experimentation** (doing): Ability to get things done by influencing people and events through action. Includes risk-taking.

Basing on these two continua, Kolb classifies learning styles into four broad categories which occupy the four quadrants, namely, converging, diverging, assimilating and accommodating. Honey and Mumford developed their learning style system based on Kolb's model and called them as **pragmatist, reflector, activist and theorist**.



Diverging (concrete, reflective), Reflector –

- Excels in the ability to view concrete situations from many perspectives
- The greatest strengths lie in creativity and imaginative ability
- Emphasizes the innovative and imaginative approach to doing things
- Tends to be imaginative and emotional
- Generate many ideas such as in a "brainstorming" session
- Interested in people
- Tends to be interested in the arts and often has humanities or liberal arts backgrounds
- Counsellors, organizational development specialists, and personnel managers tend to be characterized by this learning style.

Reflectors learn best from activities where they:

- are allowed or encouraged to watch / think / ponder on activities
- have time to think before acting, to assimilate before commenting
- can carry out careful, detailed research
- have time to review their learning
- need to produce carefully considered analyses and reports
- are helped to exchange views with other people without danger, by prior agreement, within a structured learning experience
- can reach a decision without pressure and tight deadlines.

Reflectors learn least from, and may react against, activities where:

- they feel 'forced' into the limelight
- they must act without time for planning
- they are asked for an instant reaction, or 'off the cuff' thoughts
- they are given insufficient data on which to base a conclusion
- in the interests of expediency, they have to make short cuts or do a superficial job.

Assimilating (abstract, reflective) Theorist –

- Excels in inductive reasoning and in synthesizing various ideas and observations into models and theories
- Pulls a number of different observations and thoughts into an integrated whole
- Less interested in people and more concerned with abstract concepts, but is less concerned with the practical use of theories
- Likes to design projects and experiments
- Thinks more important that the theory be logically sound and precise
- Likely to disregard or re-examine the facts
- Prefers the basic sciences and mathematics rather than the applied sciences
- Often chooses careers involving research and planning.

Theorists learn best from activities where:

- what is being offered is part of a system, model, concept or theory
- they can explore methodically the associations and interrelationships between ideas, events and situations
- they can question and probe the basic methodology, assumptions or logic
- they are intellectually stretched, e.g. by being asked to analyse and evaluate, then

generalise
- they are in structured situations with a clear purpose
- they see interesting ideas and concepts, whether or not they are immediately relevant.

Theorists learn least from, and may react against, activities where they:
- have no apparent context or purpose
- have to participate in situations emphasising emotions and feelings
- are involved in unstructured activities where ambiguity and uncertainty are high
- are asked to act or decide without a basis in policy, principle or concept
- are faced with a hotchpotch of alternative or contradictory techniques or methods without exploring any in depth
- doubt that the subject matter is methodologically sound
- feel out of tune with other participants, for example when they are with lots of activists.

Converging (abstract, active), Pragmatist -

- Emphasizes the practical application of ideas and solving problems
- Seems to do best in those situations where there is a single correct answer or solution to a question or problem
- Can focus on specific problems or situations
- Likes decision-making, problem-solving, and the practical application of ideas
- Relatively unemotional, preferring to deal with technical problems rather than interpersonal issues
- Often chooses to specialize in the physical sciences, engineering, and computer sciences.

Pragmatists learn best from activities where:
- there is an obvious link between the subject matter and a 'real life' problem
- they are shown techniques for doing things with obvious practical advantages
- they have the chance to try out and practise techniques with coaching or feedback from a credible expert
- they see a model they can emulate, or examples / anecdotes
- they are given techniques currently applicable to their own work
- they are given immediate opportunities to implement what they have learned
- they can concentrate on practical issues, such as drawing up action plans or giving tips to others.

Pragmatists learn least from, and may react against, activities where:

- the learning is not related to an immediate need they recognise
- organisers of the learning seem distant from reality
- there are no clear guidelines
- they feel people are going round in circles rather than getting to the point
- there are political, organisational, managerial or personal obstacles to implementation
- there is no apparent reward from the learning activity, for example higher grades!

Accommodating (concrete, active), Activist –

- Greatest strengths lie in carrying out plans and experiments and involving themselves in new experiences
- Excel in those situations requiring quick decisions and adaptations
- Uses trial and error rather than thought and reflection. Good at adapting to changing circumstances; solves problems in an intuitive, trial-and-error manner, such as discovery learning
- Tends to be at ease with people.
- at ease with people but may be seen as impatient and "pushy"
- Educational background is often in practical fields such as business or education
- Prefers “action-oriented" jobs such as nursing, teaching, marketing, or sales.

Activists learn best from activities in which there are:

- new experiences and challenges from which to learn
- short ‘here and now’ tasks involving competitive teamwork and problem-solving
- excitement, change and variety
- ‘high visibility’ tasks such as chairing meetings, leading discussions and presentations
- situations in which new ideas can be developed without constraints of policy and structure
- opportunities for just ‘having a go’.

Activists learn least from, and may react against, activities where:

- they have a passive role (lectures, instructions, reading)
- they are observers
- they are required to assimilate, analyse and interpret lots of 'messy' data

- they must work in a solitary way (reading and writing alone)
- statements are 'theoretical' - an explanation of cause
- there is considerable repetition (practising the same skill)
- there are precise instructions with little room for manoeuvre
- they must be thorough, and tie up loose ends.

References:

http://www.nwlink.com/~donclark/hrd/styles/kolb.html
http://en.wikipedia.org/wiki/Learning_styles
http://www.studyskills.soton.ac.uk/studytips/learn_styles.htm
http://casa.colorado.edu/~dduncan/teachingseminar/KolbLearningStyleInventoryInfo.pdf
http://ttc.coe.uga.edu/surveys/LearningStyleInv.html

VARK Questionnaire

http://www.vark-learn.com/english/page.asp?p=questionnaire

Learning Style Inventory

http://ttc.coe.uga.edu/surveys/LearningStyleInv.html
http://www.personal.psu.edu/bxb11/LSI/LSI.htm
http://www.engr.ncsu.edu/learningstyles/ilsweb.html

FSTE January 2012