

Self-directed Learning

Dhastagir S Sheriff[✉]

Received on: 10 November 2020; Accepted on: 24 November 2020; Published on: 18 January 2023

ABSTRACT

The need for self-directed learning (SDL) is more now in the lockdown period with the coronavirus disease 2019 pandemic (COVID-19). Online teaching and learning require SDL more than face-to-face teaching. Therefore, curiosity to learn is the first step to learning more, and the first attempt to learn is the need of the hour.

Keywords: Acceptability, Awareness, Health education.

The Journal of Medical Sciences (2022): 10.5005/jp-journals-10045-00216

Lifelong learning is a salient feature of a medical professional. A medical student, therefore, needs to develop a habit of learning by himself. In other words, such learning is known as SDL. It is a learning method that is incorporated into the medical curriculum so that the habit of learning through one's effort becomes a part of medical education.

William Osler said that "The hardest thing to get into the mind of the beginner is that the education upon which he is engaged is... a life course, for which the work of a few years under teachers is a preparation."^{1,2}

Self-directed learning (SDL) became one of the learning methods when online teaching became mandatory during the COVID-19 pandemic. Teachers took different platforms to teach virtually and such virtual teaching required a learner who is willing to learn without a watchful eye or physical supervision of a teacher. The learner initiates the method of learning, devises specific learning objectives, seeks suitable resources for such learning, and evaluates or assesses the knowledge gained.^{3,4} Teacher becomes a facilitator of such a learning process. In other words, the journey of education shifted from teacher-centered education to SDL.

Before we delve deep into SDL, it is better to recapitulate the theories of learning visualized and outlined by Kolb,⁵ Fleming and Baume,⁶ and Gardner,⁷ respectively. These theories are described in the following tables (Tables 1 to 3).

The different models of learning were used and adopted to enhance the learning capacity of the student. A physician, being a lifelong learner, SDL becomes one of the sought methods of learning. Indian medical institutions adopted SDL as part of the curriculum, and a time slot was given in the timetable. Along with introducing SDL, mind mapping is taught to the student so that they can choose and develop the topics for learning (Figs 1 and 2).

One such example of SDL exercise is given below:

An exercise was carried out to initiate SDL in the department of biochemistry.

- Suggest a topic for learning
 - Example: Hemoglobin binds oxygen reversibly.
 - Learn the structure of hemoglobin.
- Frame your questions to understand the concept
 - Why and how?

Department of Biochemistry, University of Benghazi, Benghazi, Libya, Mauritius

Corresponding Author: Dhastagir S Sheriff, Department of Biochemistry, University of Benghazi, Benghazi, Libya, Mauritius, Phone: +23009003159147, e-mail: drdsheiff@gmail.com

How to cite this article: Sheriff DS. Self-directed Learning. *J Med Sci* 2022;8(1-4):20-22.

Source of support: Nil

Conflict of interest: None

- Why hemoglobin is chosen as the molecule for oxygen binding?
- How oxygen binds to hemoglobin?
- Focus on the main biochemical process to be learned
 - Oxygenation and deoxygenation.
 - Heme—why do heme and iron bind oxygen?
- Choose the right resource material for learning
 - Identify the best resource for learning about hemoglobin.
 - Paraphrase the key points related to hemoglobin.
 - Choose the right source for learning.
- Reflect on your understanding of the subject chosen
 - Understand the structure and relate it to its function.
 - Learning is much more enjoyable when you've set your own standards. Whether you receive the grade you want or not, try to measure your progress against your own personal learning goals.
- Gather proper learning resources relevant to the topic chosen
 - Identify the resources that can explain protein structure, heme moiety and;
 - find out the available resources for learning.
- Using the concepts learned, build a model if time permits
 - Build a model of hemoglobin.
- Kindle the curiosity to learn
 - Question why heme is housed in the hydrophobic pocket of globin.

- Self-motivated to learn why hemoglobin is called a molecular lung.
- Discuss the topic with the team formed to learn the topic
 - Discuss with peers, fill the gaps in learning, and complete the picture.
- Create a poster or a short video for the presentation
 - Draw the structure of hemoglobin: Make a habit of creating something—a diagram, a song, a journal entry—with the new material you’ve learned. Not only will it help solidify the material in your long-term memory, but it will also help you look forward to future learning endeavors.
- Finalize the specific learning outcomes for the topic
 - Read your specific learning objectives regarding the topic and intended learning outcome.
 - Now’s your chance. Learn what you want, when you want, and how you want.
- Provide a time limit to complete the topic
 - Deadline to complete your learning.
 - Find relevant time to learn.
- Develop the habit of SDL
 - Remember, you are learning to know and understand.
- Create a logbook of your activities
 - Create a logbook and record each and every step of your activity, like specific operative procedures.
- Construct a summary of your learning
 - Make a summary of your learning in a written or recorded format.
- Make a list of topics for SDL
 - Keeping this as a jumpstart—plan your learning and list the topics to be covered.
- Recapitulate what you have learned and share
 - What you have learned-share it with peers in the form of a presentation.

Table 1: Kolb's theory of learning

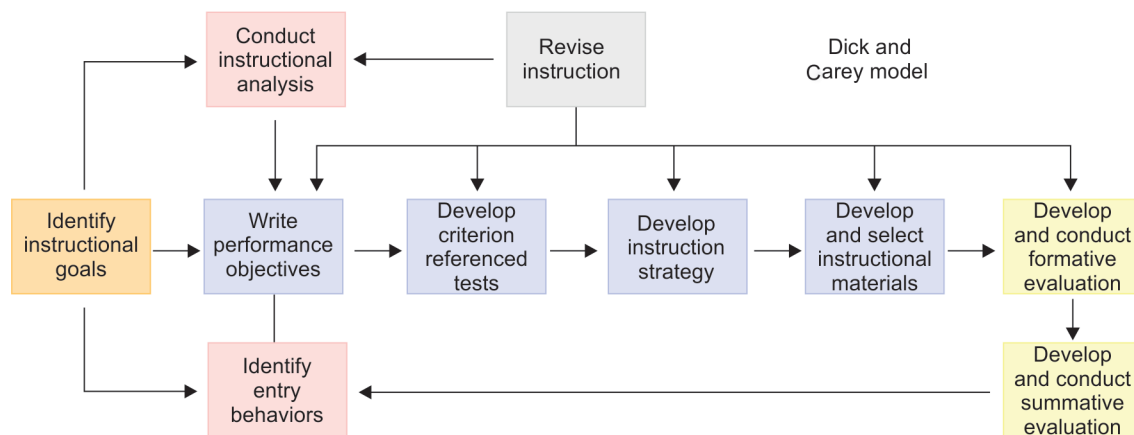
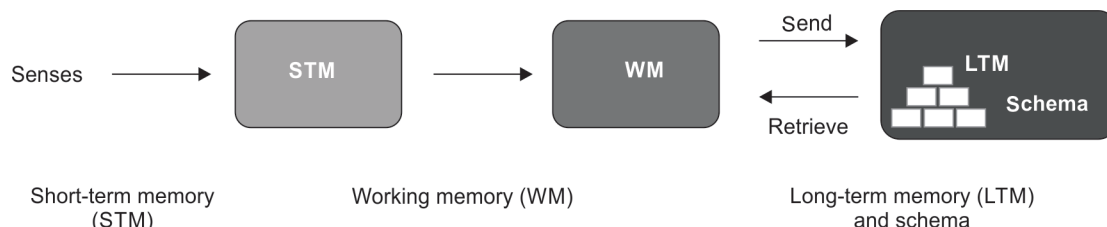
Learning style	Characteristics
Accommodators	Hands-on learning
Converger	Hands-on learning and theory
Diverger	Real-life experience and discussion
Assimilator	Theories and facts

Table 2: Fleming's theory of learning

Learning style	Characteristics
Visual	Preference for pictures and visual aids
Auditory	Preference for lectures and discussion
Kinesthetic	Preference for hands-on learning
Reading writing preference	Prefers to read and write to learn

Table 3: Gardner's multiple theory of learning

Intelligence	Abilities
Logical mathematical	Numerical patterns and structured reasoning
Linguistic	Understands sounds and rhythms of language
Musical	Appreciates rhythm, pitch, and timbre
Spatial	Appreciates concepts dealing with the visual-spatial world
Body-kinesthetic	Appreciates movement
Interpersonal	Receptive to people's moods and emotions
Intrapersonal	Able to understand one's own emotions

**Fig. 1:** Dick and Carey model⁸**Fig. 2:** The dynamics of memory and retrieval⁹

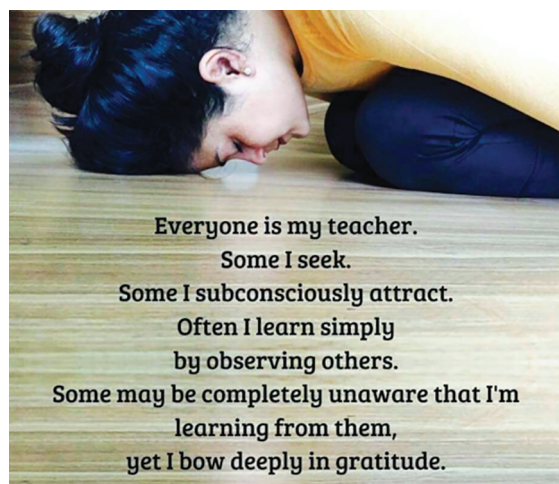


Fig. 3: To learn by observation

- Make your learning measurable
 - Try to evaluate what you have learned.
 - Record the feedback from the team members.
- Make SDL feasible and practical
 - Plan and execute.
 - Try to keep things in perspective and create goals you can reasonably achieve.
- Form a group of like-minded learners with a faculty to facilitate learning
 - Create a group from your batch/classmates.

Some of the responses of students regarding SDL:

- "Self-directed learning as a form of learning method takes time for us to adopt initially—particularly in the preclinical period."
- "With limited lecture hours allotted to biochemistry, it was difficult to allot a regular time slot in the timetable."

Few reflections from faculty:

- "Most of the students are from high school. To understand self-study in the form SDL takes time to implement."

- "That lifelong learning is part and parcel of a physician's life as a concept is too early for the undergraduate to understand."

Therefore, SDL is forced initially to make the student adopt SDL. Over a period of time, the student realized that one has to be self-reliant and confident in learning a subject. SDL, as a method to learn the subject, is indirectly assisted by online teaching during COVID-19.

Therefore, SDL helps the student to learn, recall the facts he/she learnt, understand, and learn to apply it.

"The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."
—Alvin Toffler

It also teaches to unlearn older concepts and relearn newer concepts of learning (Fig. 3).

ORCID

Dhastagir S Sheriff  <https://orcid.org/0000-0002-8549-5211>

REFERENCES

1. Slotnick HB. How doctors learn: education and learning across the medical school-to-practice trajectory. *Acad Med* 2001;76(10):1013–1026. DOI: 10.1097/00001888-200110000-00008
2. Accreditation Council for Graduate. Medical Education (2016). Common program requirements. [cited 2017 Jan 26.]
3. Knowles M. Self-directed learning: a guide for learners and teachers. New York, NY: Association Press. 1975;2(2):256–257. DOI: 10.1177/105960117700200220
4. Knowles M, Holton E III, Swanson R. The adult learner (5th Ed.). Houston, TX: Gulf Publishing, 1998.
5. Curtis K. David Kolb, the theory of experiential learning and ESL. *The Internet TESL Journal* 1997;3(9).
6. Fleming N, Baume D. Learning styles again VARKing up the RIGHT Tree! *Educational Developments* 2006;7:4–7. <http://www.johnsilverio.com/EDU16702/>
7. Kaushik P. Redefining learning: Kolb's theory of learning styles with Gardner's multiple intelligences. *Int J Learn Teach* 2017;9(1):330–339. DOI: 10.18844/ijlt.v8i5.1889
8. Dick W. The dick and carey model: will it survive the decade? *ETR&D* 1996;44:55–63. DOI: 10.1007/BF02300425
9. Stawarczyk D, D'Argembeau A. The dynamics of memory retrieval for internal mentation. *Scientific Reports* 2019;9. DOI: 10.1038/s41598-019-50439-y