

'Being a Competent Medical Teacher'



BLDE Deemed to be University
Shri B. M. Patil Medical College Hospital
and Research Centre Vijayapura
Medical Education Unit

Editor

Dr Tejashwini Vallabha



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2 PRINCIPLE OF ADULT LEARNING: THEORIES & LEARNING PROCESS

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How many times have we as teachers been confronted with situations in which we were not sure what to do? I know, usually we managed by doing with our students what had been done with us.

Thankfully, a body of theory exists, based on which a set of guiding principles have been formulated which are evidence /practice based. It is clear that theory has the potential both to inform practice and to be informed by it.

Before dealing with the topic proper, let us have clarity about the terms used in the title of the topic.

1. **Theory** (noun) : a comprehensive, coherent and internally consistent system of ideas about a set of phenomena. (Knowles).
2. **Principle** (noun) : a fundamental truth or proposition that serve as the foundation for a system of belief or behavior or for a chain of reasoning, a fundamental source or basis of something.
3. A. **Learning** (noun): the acquisition of knowledge or skills, through experience, practice, or study or by being taught.
B. **Learning**: Developing a way of thinking and acting that is characteristic of an expert community.

Such a way of thinking consists of three important elements:

- a. The knowledge that represent phenomena in the subject domain.
- b. The thinking activities that construe ,modify and use this knowledge to interpret situation in that domain.

- c. And to act in them.
- C. **Learning:** is the process by which you use your personal knowledge & experience to enable you to:
 - Make sense of things, by thinking
 - Make things happen, by doing
 - Bring about change, by moving from one position to another.

Learning, therefore, is essentially : “I think – I do – I move”.⁴ **Learning process** : a relatively permanent change in behavior based on an individual's interactional experience with its environment.

5. **Adult** (noun / adjective) : a person who is fully grown or developed or of age.

LEARNING OBJECTIVES: By the end of the interaction the participants will have:

1. Overall understanding of essential educational theories relevant to the teaching of adult medical students.
2. Become aware of practice strategies to apply these theories.
3. Able to use these strategies to make students 'life long learners'.

Various educational theories are as follows:

- **Knowles concept of andragogy**
- **Self directed learning**
- **Self efficacy**
- **Reflective practice**
- **Experiential learning**
- **Role modeling**

ANDRAGOGY^{1,2}

Much of our approach to teaching and learning is based on children at school and therefore termed pedagogy [**'Paid'-Greek word meaning ' a child,'Agogus'-Greek word meaning leading**]. Malcolm Knowles studied adults enrolled in evening classes in New York and realized that their approach to learning was different. He coined the term andragogy [**'Aner'-Greek word meaning 'man not boy'**] to cover this approach in his book titled “Modern Practice of Adult Education.”³

Andragogy is defined as '**the art and science of helping adults learn**'. The core basis of andragogy is that the attainment of adulthood is marked by adults coming to view themselves as self directed individuals. It is widely accepted that andragogy is not really a theory of *how* adults learn but a set of assumptions which are merely descriptions of adult learner. These are as follows:

Self-Concept: Adults are **independent and self directing**. They need to be responsible for their decisions on education, involvement in the planning & evaluation of their instructions.

Foundation: They have accumulated a great deal of **experience** [including errors], which is a rich resource for learning & provides basis for learning activities.

Readiness :They value learning that **integrates** with demands of their everyday life, having **immediate relevance** to their work and/or personal lives. **Orientation:** They are more interested in immediate, **problem centred approaches** than in subject centred ones.

Motivation :They are more motivated to learn by **internal** drives than by external ones.

Need to Know : adults need to know reasons for learning something.

Knowles formulated following **principles** based on his assumptions to guide adult learning activities. They are as follows:

1. An **effective learning climate** should be established. Learners should be comfortable, both physically & emotionally. They should feel safe & free to express themselves without judgement or ridicule.
2. Learners should be **involved in mutual planning** of methods & curricular directions. Involvement will help assure that collaboration occurs in the content & learning process. It will also increase the relevance to the learners' needs.
3. Learners should be involved in **diagnosing their own learning needs**. Once again, this will help to ensure meaningfulness & will trigger learners' internal motivation. It will also promote self

assessment & reflection, and effective integration of learning.

4. Learners should be encouraged to formulate their **own learning objectives**. The rationale for this is the same as for 3, above. Learners are thus encouraged to take control of their learning.
5. Learners should be encouraged **to identify resources & to devise strategies** for using them to accomplish their objectives.
6. Learners should be helped to **carry out their learning plan**.
7. Learners should be involved in **evaluating their own learning**. This is an essential step in a self-directed learning process that requires critical reflection on experience.^{1,2,3}

SELF-DIRECTED LEARNING^{1,4}

Self-directed learning (SDL) has been identified as an important skill for medical graduates. In a world in which half life of many facts and skills may be ten years or less, today's healthcare environment has become challenging. To meet these challenges, SDL is most essential. In SDL, learners take **initiative** in making use of resources rather than simply react to transmissions from resources, thus helping learner to learn **more** and learn **better**. Thus, the main propose of education must now be able to develop skills of inquiry, and more importantly to go acquiring new knowledge easily and skillfully the rest of his or her life. The concept of self directedness in learning was first discussed in educational literature as early as 1926. From these writings, a preliminary description of self directed learning emerged. **SDL, in its broadest meaning describes a process in which individuals take imitative with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying learning resources, choosing and implementing learning strategies and evaluating learning outcomes.** SDL has been identified as an important ability for medical graduates.

Why SDL?

For following reasons SDL is important & an essential skill:

1. People who take the initiative in learning, learn more things and learn better.
2. It is more in tune with our natural process of psychological development as an essential aspect of maturing is developing the ability to take increasing responsibility of our lives to become increasing self-directed.

3. Fast changing health care environment.
4. Exponential growth in knowledge and skills.
5. Obsolescence of knowledge

This has led to emphasis on “**lifelong learning skills**”. These include the ability to analyze the problems, define what needs to be learnt, know how to and where to access information, evaluate information, and be aware of the one's own limitations. The rationale is that students who develop such skills will be equipped for whatever the future holds and will keep up to date when they are no longer on formal training programmes.

SDL Strategies for the learner

The skills which help the learner to succeed as a self directed learner are:

1. Ability to question, inquire and solve problems
2. Keeping an open mind to others' point of view
3. Scanning the data and choosing relevant resources quickly
4. Collecting data on own performance through self-observation and feedback from others
5. Assessing the present performance using that data, setting goals to improve own performance
6. Observing and modeling others' performance improve own performance
7. Making a firm commitment to work on own goals
8. Moving through the learning cycle, continually motivating own self
9. Taking note of the skills that make learner feel comfortable with and also which ones the learner would like to strengthen
10. Thinking of how the learner can work on them and improve them. Then making a conscious effort to do it.

SDL strategies for facilitator

1. Climate setting
2. Planning
3. Diagnosing needs for learning
4. Setting goals
5. Designing a learning plan
6. Engaging in learning activities
7. Evaluating learning outcomes

SELF EFFICACY¹⁵

Self efficacy refers to the belief in one's ability to organize and execute the courses of action required to produce a given attainment. Such beliefs influence the courses of action people choose to pursue, how much efforts they put into a given endeavor and how long they will persevere in the face of obstacles & failure. Self efficacy is not a fixed ability that one has or lacks in one's behavioral repertoire : Rather, it is a thinking process, a generative capability in which cognitive, social , emotional and behavioral sub skills are organized and effectively orchestrated to serve innumerable purposes. Self efficacy is concerned not with the number of skills one has, but with what one believes one can do with the skills under a variety of circumstances. Efficacy beliefs operate as a key factor in a generative system of human competence. Self efficacy is an important contributor to performance accomplishments, whatever the underlying skills might be. Personal efficacy beliefs influence the level of interest in occupational pursuits even when the influence of ability is removed.

A sense of personal efficacy is constructed through a complex process of self-persuasion, which is linked to four main information sources : In decreasing order of their strength they are : performance attainment, observations of other people, verbal persuasion, and physiological state. Successes raise our self-efficacy, while failures lower it. Failure are particularly likely to lower self efficacy if they occur early in the learning process and are not due to lack of effort or difficult situations. Observing other people similar to us performing can strengthen our beliefs that we can perform similar tasks, especially when the tasks are unfamiliar. Verbal persuasion from a credible source also can help. Finally the anxiety or nervousness in difficult situation have to re-interpreted as excitement or anticipation, rather than as an ominous sign of vulnerability.

Role for the facilitator

1. Modelling or demonstration
2. Setting a clear goal or image of the desired outcome
3. Providing basic knowledge & skills needed as the foundation for the task
4. Providing guided practice with corrective feedback
5. Giving students opportunity to reflect on their learning

CONSTRUCTIVISM^{1,6}

There is now a large consensus amongst expert researchers on learning and on the brain, that we do not learn by passively receiving and then remembering what we are taught. Instead, learning involves actively constructing our own meanings. This literally involves the construction of connections between neurons. We invent our own concepts and ideas linked to what we already know. This “**meaning making**” theory of learning is called “**constructivism**”

The most important implication of this theory is, the **teacher** is not viewed as a transmitter of knowledge but **as a guide who facilitates learning**. Other implications are: learning is based on prior knowledge and teachers should engage students in their learning **in an active way**.

Strategies for constructivist teaching:

Learning should involve activities to process the new material, linking it to what the student already knows. Tasks should be authentic, set in a meaningful context, and related to real world.

As students learn, they will involve errors. Tasks should offer opportunities for self-assessment, correction, peer discussion, teacher feedback etc.

Use:

- Teaching by asking or **guided discovery**.
- Explaining tasks that require students to express their **understanding** to each other and to develop their understanding before expressing it
- Ask '**diagnostic**' **question** and answer and use wrong answers to explore and correct misunderstandings.
- Use '**Socratic questioning**'⁷
 - i) Questions for clarification
 - ii) Questions that probe assumptions
 - iii) Questions that probe reasons and evidence
 - iv) Questions about viewpoints and perspectives. Questions that probe implications and consequence
 - v) Questions about questions.
- Use thought provoking tasks and **questions** that are **high on Bloom's Taxonomy** e.g.

Analysis : 'why' questions

Synthesis : 'how could you..' questions

Evaluation : judgment questions

These higher order questions require students to construct their own conception, of the new material. **You can't reason with material until you have conceptualized it, so questions that require reasoning force conceptualization.**

Use **case studies** that relate the topic to real life or former experience and so former learning.

- Use **group work** requiring students to discuss the material, so that peer checking and teaching takes place.
- Learning involves “ pattern making”, so use **mindmaps** and summaries to point out the **relation** of the parts of a topic to the whole. Also point out the relation of today's topic to other topics.
- Teach **skills** in the context of the topic of your subject. Think yourself as a skills teacher who uses content to teach the skills.
- Stimulation increases the learning rate. So use **rich multi sensory resources**, lively activities and generate a sense of fun where you can.

REFLECTIVE PRACTICE^{8,9}

Reflection has been defined as “**a generic term for those intellectual and affective activities in which individuals engage to explore their experience in order to lead to a new understanding and appreciation.**”

Reflection is integral to competence.

Reflective practice is associated with learning from experience and is viewed as an **important strategy for** health professionals who embrace **life long learning**. The act of reflection is seen as a way of promoting the development of autonomous, qualified and self-directed professional. Engaging in reflective practice is **associated with** the **improvement of quality of care**, stimulating personal and professional growth and closing the gap between theory and practice. When the learners reflect on a situation, the learners do not simply **see more**, they **see differently**. The theory of reflective practice is primarily attributed to **Donald Schon**. He identified two types of reflection:

'**Reflection-in-action**' where the competent practitioner uses knowledge, experience and judgment to guide decisions in real life clinical situations as they are happening.

'**Reflection-on-action**' which happens after the experience, enables learning about clinical practice and promotes development of such practice. Competent medical practitioner continually reflect on their clinical practice critically analyzing and evaluating their own clinical decision making, and their interaction with the patients and team members.

How can reflection be taught?

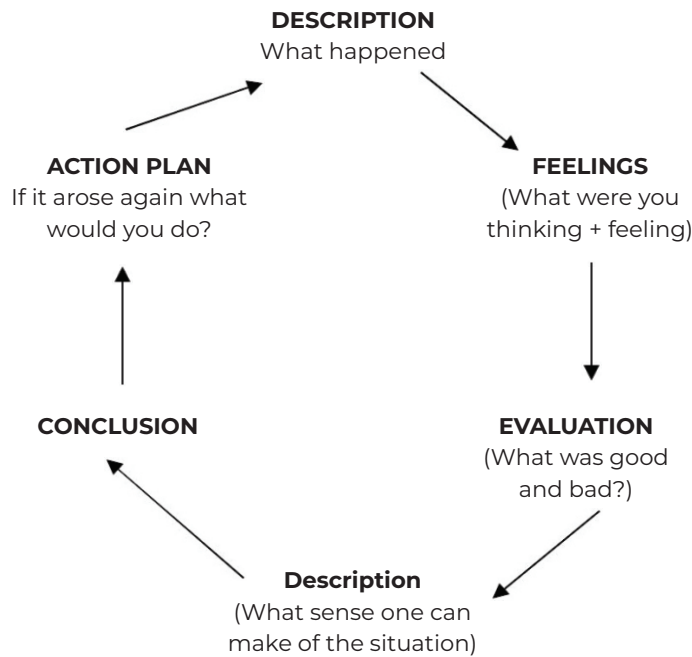
The following approaches might be useful:

- Encourage the use of a **reflective notebook** to jot down questions, thoughts and observations as they occur to the learner while these triggers for learning are fresh and sharp.
- Encourage the use of a **framework** to help the learner adopt the discipline of reflection and so capture learning opportunities.

There are numerous frameworks for structuring the process of reflection. All reflective models comprise of three fundamental processes:

- **Retrospection**: thinking back on events.
- **Self-evaluation**: attending to feelings.
- **Reorientation**: re-evaluating experiences.

One of the important framework is **Gibb's reflective cycle** which is as follows

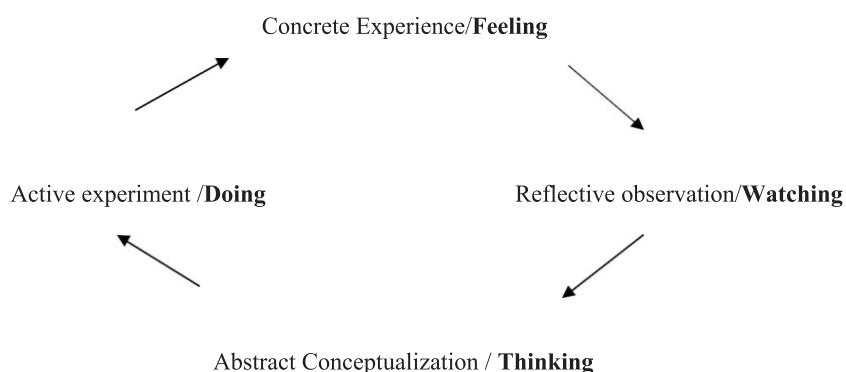


- Allocate a supervisor for the learner to reflect with: the learner needs to share observations and thoughts with someone who will “**provide a sounding board**”, open up different perspectives, and provide support and guidance.
- **Feins** et al (1996) emphasize the importance in the context of doctors as educators and have designed a tool, the '**Teaching Matrix**' to encourage clinicians to reflect on their teaching before, during and after a session. The matrix enables the teacher to focus on five central questions;
 1. Who am I teaching?
 2. What am I teaching?
 3. How will I teach it?
 4. How will I know if the students have 'got it'?
 5. How will I improve my teaching next time?

Potential benefits of Reflection	
Improved practice	* Promotion of deep learning
Development of self-regulation	* Increased awareness
Facilitation and integration of	*Improved thoughtfulness before and after practice
Theory and practice	* Development of personal theories of practice

EXPERIENTIAL LEARNING¹

Kolb's experiential learning theory is derived from the work of Kurt Lewin, John Dewey and Hean Piaget. It is model of learning based on research in social, educational and cognitive psychology and education. **This theory holds that learning is often most effective when based on experience .** The Kolb's model features it as a cyclical process. It links concrete experience with abstract conceptualization (grasping phenomena) through reflection and planning (transforming process). Reflection is standing back and thinking about the experience (what did it mean? How does it relate to previous experience? How did I feel?) Planning involves anticipating the application of new theories and skills (what I will do next time?) The experiential learning **cycle** which **can be entered at any stage**, provides a useful framework for planning a teaching session.



Feeling: this involves learning through the feelings developed when undergoing specific experiences. Thus learning takes place by being immersed in the problem, and relies more on intuition than logic. At this stage one does what 'feels right', based frequently on feelings developed when undertaking similar activities in the past.

Watching: this involves careful consideration of previous experiences, or watching, listening & careful reflection before taking action. Hence it is necessary to reflect upon experiences & feelings so as to formulate expectations for the future.

Thinking : learning at this stage involves analysis of the problem & the application of reflections so as to develop theories for the future. Often this will depend on logical thought, modeling & the development of hypotheses to be tested in the next stage.

Doing : learning at this stage involves the application of thoughts & ideas. It involves learning through trial & error, developing & amending theories to suit the situation. Clearly, this creates a new set of experiences from which feelings are gained & the cycle commences again.

The most effective learning occurs when you actively move around the experiential learning cycle.

The various experiential learning methods in medical education are apprenticeship, internship, mentoring, clinical supervision, on-job training, clinics and case study research.

Why case studies?

- Convey knowledge, facts, information to students
- Apply theory to situation
- Enhance students' decision making skills
- Improve students' technical or behavioral skill, in analyzing the data
- Stimulate students' interest in the subject
- Foster reflection
- Present a realistic picture of the complexities in the situation

ROLE MODELLING¹⁰

Educating future generations of physicians is one of the privileges and obligations of the medical profession. As an important part of this process, doctors historically have patterned their activities on those practitioners whom they have respect and trust. These have been called role models, **“individual admired for their way of being and acting as professionals”** Both consciously and unconsciously, learners model their activities on

such individual. Keeping this in mind the medical educators should strive to be the 'role models' to their students and junior doctors.

The characteristics of role model can be divided into three categories:

- 1) Clinical competence:** This encompasses knowledge and skills, communication with patients and staff, and sound clinical reasoning and decision making.
- 2) Teaching skills:** These are the tools required to transmit clinical competence. A student centered approach incorporating effective communication, feedback and opportunities for reflection is essential to effective role modelling.
- 3) Personal qualities:** They include attributes that promote healing, such as compassion, honesty and integrity. Effective interpersonal relationships, enthusiasm for practice and teaching and an uncompromising quest for excellence are equally important.

The role modelling can happen in a formal way, in an informal way or in a hidden manner, as we now understand there is a formal, an informal and a hidden curriculum.

Strategies to improve role modelling

- Be aware of being a role modeling
- Demonstrate clinical/subject competence
- Protect time for teaching
- Show a positive attitudes for what you do
- Implement a student centered approach to teaching
- Facilitate reflection on clinical experience and what has been modelled
- Encourage dialogue with colleagues
- Engage in pertinent staff development
- Work to improve the institutional culture
- Whenever possible be explicit about what you are modelling.

Strategies to improve the Institutional Culture

- Raising awareness
- Pointing deficiencies
- Reinforcing strengths
- Analysing the local environment and proposing remedial action e.g.

faculty development

- Create an environment that supports positive role modelling

Seven principles to guide teaching practice¹

1. The learner should be an **active** contributor to the educational process.
2. Learning should closely relate to **understanding & solving real life problems**.
3. Learners' **current** knowledge & experiences are critical in new learning situations & need to be taken into account.
4. E-Learners should be given opportunity and support to use **self direction** in their learning.
5. Learners should be given opportunities and support for practice, accompanied by **self assessment** and **constructive feedback** from teachers & peers.
6. Learners should be given opportunity to **reflect** on their practice; this involves analyzing and assessing their own performance & developing new perspectives and options.
7. Use of **role models** by medical educator has a major impact on learners.

REFERENCES:

1. David M Kaufman, Karen V Mann. Teaching and learning in medical education: how theory can inform practice. In Tim Sandwick, editor. Understanding Medical Education Evidence, Theory and Practice. 1st edn. Oxford: Wiley-Blackwell; 2010 p. 16-36.
2. David M Kaufman. ABC of learning and teaching in medicine applying educational theory in practice. BMJ 2003; 326: 213-6.
3. Knowels MS. The modern practice of adult education: from paedagogy to andragogy. 2nd edn. New York: Cambridge Books; 1980.
4. Thoughts on Self-Directed Learning in medical schools: making students more responsible. K. Ramnarayan, Shyamala Hande. Available on education.jhu.edu > ... > Higher Education > Medical School
5. Sara Katz, Amiel Feigenbaum, Shmuel Pasternak, Sholmo Vinker. An interactive course to enhance self-efficacy of family practitioner to treat obesity. Available on www.biomedcentral.com/1472-6920/5/4
6. Constructive teaching, available on www.geoffpetty.com
7. The six types of Socratic questions. www.engin.unicj.edu/~problem

solving/strategy/cthinking.htm

8. Schon, D.A. Reflective practitioner: How professionals think in action. 1st edn. Arena: Aldershot; 1995.
9. School of Postgraduate Medical and Dental education: How to teach reflective practice, Cindy Johnson, James Bird. Available on www.walesdeanery.org
10. Sylvia R Cruess, Richard L Cruess, Yvonne Steinert. Role modeling-making the most of a powerful teaching strategy. BMJ 2008; 336: 718-21