

Effective Learning Techniques in Emergency Medicine Education

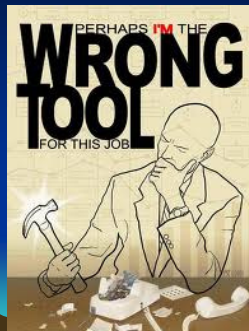
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The Old Learning Style

- See one
- Do one
- Teach one

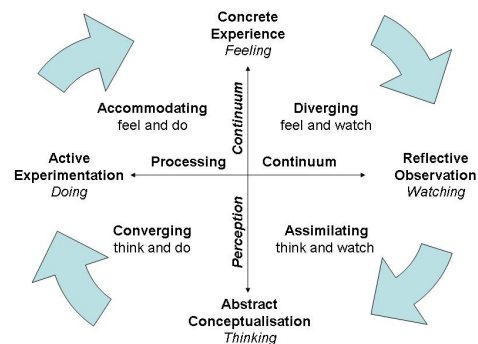


What is effective?

- Depends on the problem
- Depends on the outcome desired
- Learning versus teaching
- Wants versus needs

Learning Styles (David Kolb)

- A continuum defined by two axis
- Processing continuum: from active experimentation to reflective observation
- Perception continuum: from concrete experience to abstract conceptualization
- These define four learning style types
- Not absolute, but most people have a preferential style



Accommodator's

- Dominant learning abilities are Concrete Experience (CE) and Active Experimentation (AE)
- Strength lies in doing things and involving oneself in the experience.
- More of a risk-taker and tends to adapt well in specific circumstances
- Tends to solve problems in an intuitive trial and error manner, relying often on other people's information rather than on own analytic ability
- Suited for action-oriented jobs
- Good with complexity and are able to see relationships among aspects of a system

Accommodator's: teaching

- Anything that encourages independent discovery
- Allowing the learner to be an active participant in the learning process
- This type of student might expect devil's advocate type questions, such as "What if?" and "Why not?"
- Like patient and teacher interaction

Assimilator's

- Dominant learning abilities are Abstract Conceptualization (AC) and Reflective Observation (RO)
- Motivated to answer the question, "what is there to know?"
- Good at creating theoretical models
- Less interested in people more concerned with abstract concepts.
- Learning style is more characteristic of basic sciences and mathematics
- Like accurate, organized delivery of information
- Tend to respect the knowledge of the expert
- Are not comfortable randomly exploring a system
- Like to get the 'right' answer to the problem.

Assimilator's: teaching

- Lecture method
- Followed by a demonstration exploration
- Following a prepared tutorial (which they will probably stick to quite closely) and for which answers should be provided
- These learners are perhaps less 'instructor intensive' than those of some other learning styles
- Will carefully follow prepared exercises, provided a resource person is clearly available and able to answer questions
- Prefer procedures and hands-on laboratories

Converger's

- Dominant learning abilities are Abstract Conceptualization (AC) and Active Experimentation (AE)
- Motivated to discover the relevancy or "how" of a situation
- Strength lies in the practical application of ideas
- Application and usefulness of information is increased by understanding detailed information about the system's operation
- Relatively unemotional and prefer to deal with things rather than people
- Like to specialize in the physical sciences
- Learning style is characteristic of many engineers.

Converger's: teaching

- Interactive, hands-on, not passive, instruction (labs, field work)
- Computer-assisted instruction problem sets or workbooks to explore
- Prefer bedside discussion more than other types

Diverger's

- Dominant learning abilities are Concrete Experience (CE) and Reflective Observation (RO)
- Strength lies in imaginative ability
- Good at viewing concrete situations from many perspectives.
- Prefer to have information presented to them in a detailed, systematic, reasoned manner
- Flexibility and the ability to think on your feet are assets when working with Divergers
- Well suited to be counsellors and managers

Diverger's: teaching

- Lecture method
- Hands-on exploration
- Brainstorming
- Prefer procedures and hands-on laboratories

Constraints to Learning in the ED Environment

- Frequency of interruptions
- 24-h operation
- Variable needs of the learners
- Patient diversity – challenge to teaching
- Independent scheduling of teachers and learners
- Clinical demands of patient care and throughput
- Needs of non-physician staff
- Scheduling inconveniences

What do Learner's Want?

- Studies from other areas in medicine (primarily ambulatory settings)
- Learners value
 - A positive teacher attitude
 - Enthusiasm
 - Patient-centeredness
 - Good teaching skills

What Do EM Learners Want

- 28 EM residents, non-EM residents, and students
- 5 focus groups with moderator asking standardized instigating questions
- Number one response: takes time to teach
- Appreciate flexibility

Acad Emerg Med 2005;12:856

Learner-Centeredness

- Takes time to teach
- Tailors teaching to the learner
- Treats learners and colleagues
- Challenges the learner
- Sets expectations for the learner
- Provides independence to the learner

Conceptuality and Relevance

- Uses teachable moments

Effective Teaching Skills

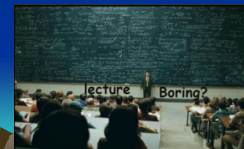
- Teaches procedural skills effectively
- Has formal training in teaching
- Use formal teaching techniques

Good Role Model

- As good teacher attitude
- Possesses useful ED skills

What Don't EM Learners Like?

- Lectures
- Group book review
- Journal club



What do Good Teachers Believe

- Structured interview survey
- 33 exceptional clinical teachers in EM
- Teaching strategies and techniques they used
- What they felt were the prerequisites for being a good teacher
- What they considered to be impediments to good clinical teaching

Ann Emerg Med 2005;45:253

Tailor Teaching to the Learner

- Get to know and understand the learner
- Find out their program, objectives, what they want to get out of the rotation
- Shows you are interested in what they need and improves rapport
- Emphasize needed skills
- Challenge the learner
- Provide the most appropriate degree of supervision.

Optimize Teacher-Learner Interaction

- Make teaching more directed and efficient
- Encourage the trainee to work through the problem, ask questions, get them to do the talking
- Teach at the bedside and bring evidence into the discussion when appropriate
- Teaching scripts, rehearsed focused teaching material directed at common needs of students

Tailor Teaching to the Situation

- The approach may change according to the circumstances
- Teaching time and intensity can be adjusted according to time of day, workload, and type of case.
- Optimize teaching time when it is available
- Avoiding excessive teaching when learners are least receptive, such as late hours on night shifts

Actively Involve the Learner

- Put the learner in a position of responsibility and challenge them to make decisions: "If you don't commit yourself, you'll never be wrong, but you'll never be right, either."
- Encourage the learners to think about how they approach problems and make decisions: "What 3 things did you learn today?"

Actively Seek Opportunities to Teach

- Vigilance for teaching points in discussions and actively labelling them as such: "teachable moment."
- Seek out learners to get them involved in an interesting case: "Call them over when there is a sicker-than-your-average-bear patient."

Agree on Expectations

- Develop learning objectives with students that detail what level of performance they expect from learners and what process tasks they expect learners to complete: "Expected to give plan, management, investigation, disposition plan, and estimate a timeline."
- "How do you want to work today? Do you want to run the department? I'll pick up the slack."

Demonstrate Good Teacher Attitude

- Be approachable
- Demeanor is important: "Some appear receptive to questions but what they are really saying is 'don't bug me; do it the way it seems I want you to.'"
- Know one's limits
- Be respectful

Use Additional Teaching Resources

- Common strategies: pen and paper, blackboards, Web-based teaching modules or resources, radiography files, folders of ECGs or laboratory values for interpretation, and prepared cases for oral examinations.
- The trainee can take the paper with them.
- Before, during, or after shifts

Use Teaching Methods Beyond Patient Care

- Such as mock oral examinations, providing a reference for the learner to review and summarize on the next encounter, procedure mockups, and role playing: "So I'm Mrs. Jones, now what are you going to tell me?"

Be Role Model

- Demonstrate the principles you are trying to teach, specifically in the areas of interpersonal interactions, maintenance of competence, and mentorship
- Actively demonstrate how you address their own limitations in knowledge: "I don't know; let's both look it up."

Provide and Encourage Feedback

- Fundamentals of good feedback: timely, constructive, objective, impersonal, given in private, based on firsthand encounters, and a balance of positive and negative.
- Provide ongoing feedback to learners
- Solicit feedback on their own performance as teachers and clinicians.
- During the shifts and in formal sessions after shifts

Improve the Environment

- Effective learning is a product of a good learning environment.
- Try to find a private place for teaching, optimize access to resources, and advocate for learner-friendly scheduling.

Blended Approach

- Didactic lectures and tutorials
- Multimedia presentations on CDs for self-directed learning
- Training using simulated patients, and skills training sessions
- Self-directed case-based training exercises also provided on CD
- Problem-based learning exercises
- Communication skills sessions

