Towards achieving academic accreditation Medical education

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Learning objectives

- High light on some medical education terminologies used in the National standards for accreditation.
- Focusing on learned lessons from curriculum design, including establishing a **mission statement, outcome objectives, instructional methods, and constructive alignment**.
- Stating the importance of different types of assessment, including assessment of the main three domains of learning (knowledge, skills and attitude)

Introduction
Adult learning

Adult Learning , Andragogy Educational Principles

- Constructivism
- Reflective
- Collaborative
- **Learner-centred learning**
- Experiential learning
- Self-directed learning
- Deep learning.

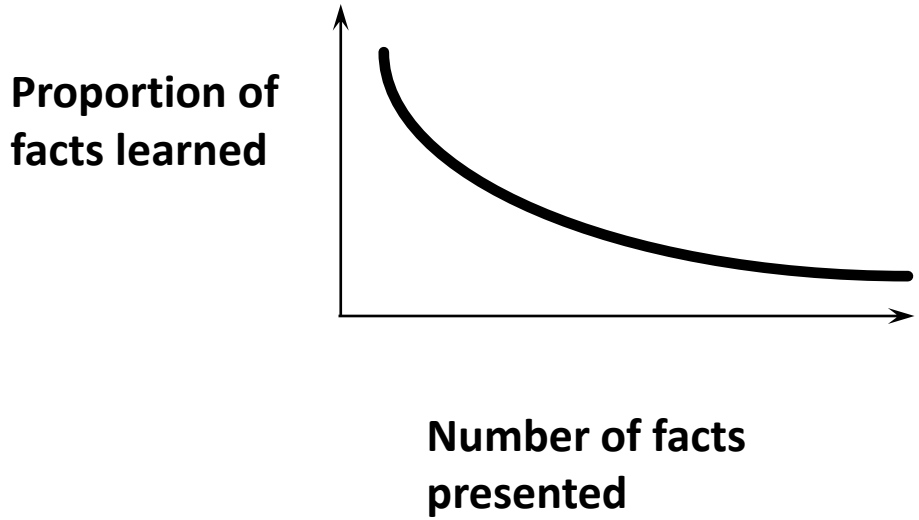
Why is learner-centered learning so important?

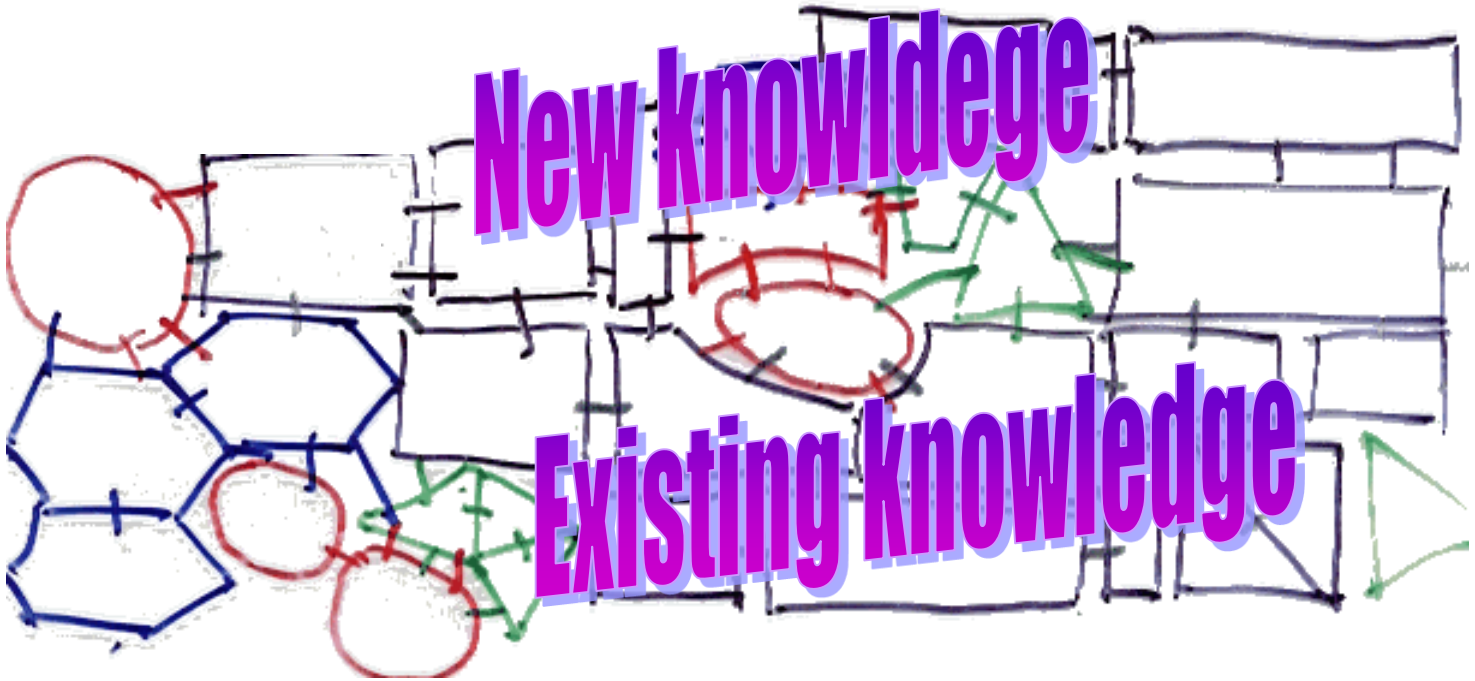
- a response to the **explosion of knowledge** in medicine. The medical curriculum has grown tremendously both in terms of depth and content coverage.
- **Information is fast changing**—it is estimated that medical knowledge **doubles in every five years**. What is being taught in medical school loses its relevance substantially during the practice years

“Learning medicine is like trying to drink from a fire hose”

LESS IS MORE

- What do they need to know?
- What would be nice to know?
- What can they find out for themselves?
- Limit the number of ideas or concepts.

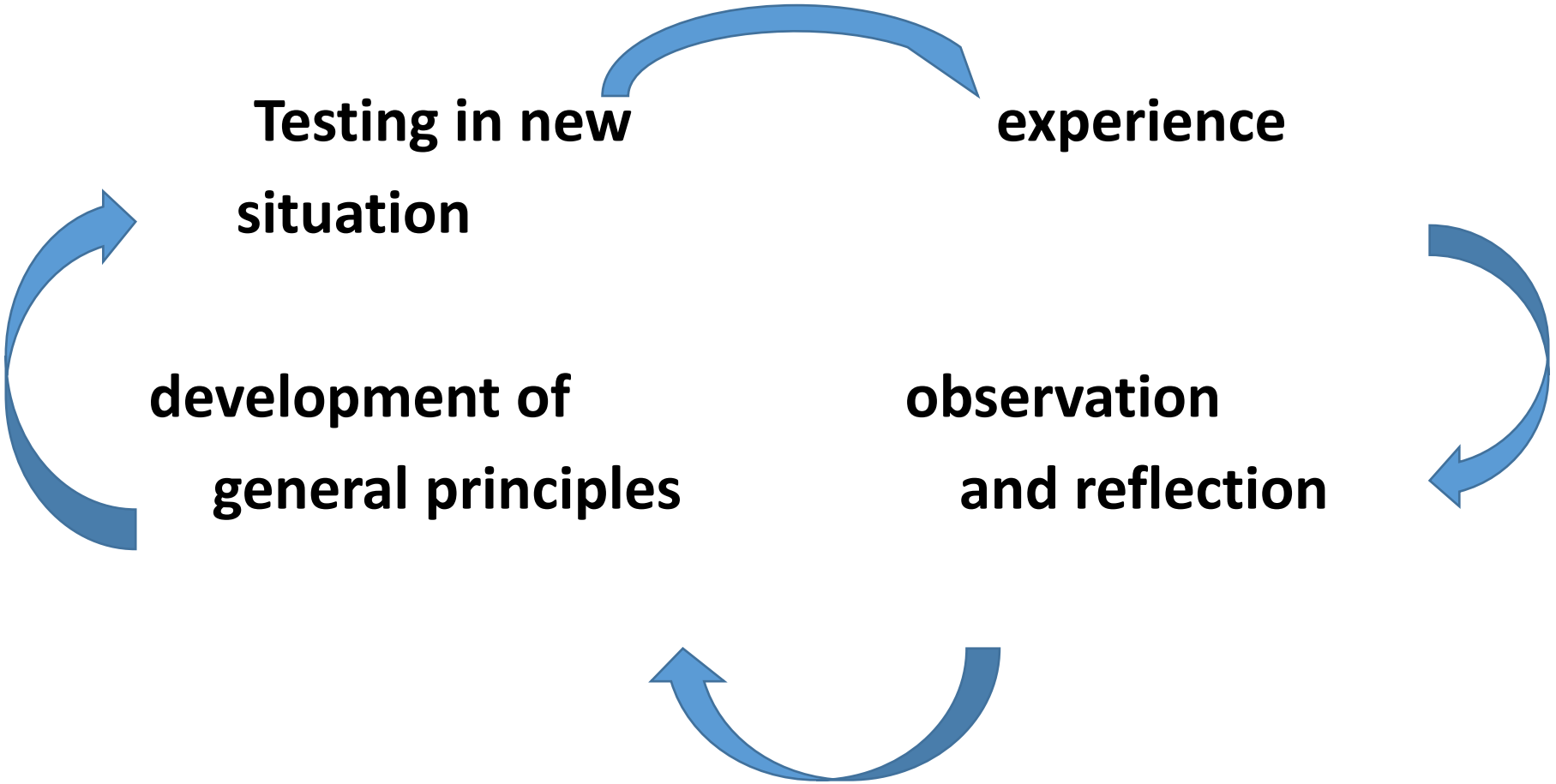



New knowldege
Existing knowledge

Experiential Learning

- Kolb (1984) in his landmark theory highlights the importance **of** ***life experience*** in learning

Kolb's experiential learning cycle



Reflection

تأمل

characterized by deep thought; thoughtful.

Teaching is a lot about self-reflection

- The process of writing educational objectives demands that we, as **teachers**, critically and consciously **reflect upon our teaching efforts and think about the learning activities and progress made by the learners.**
- It involves the teachers' ongoing and deliberate **assessment, reorganization, and planning of educational activities.**
- But we often do not pay adequate attention during the planning of an educational program and tend to be reserved about self-reflection.

Role-Play

- Role-play is the preferred instructional method to instill attitudes and behaviour and to develop the aforementioned skills.
- **It involves two students**; one acts as a patient, and the other acts as a physician. Their play is based on defined learning objectives and well-crafted scripts.
- The audiences actively observe the role-play with predetermined criteria

The basic minimum competency of a medical teacher

- Good teaching also involves skills that must be learnt.
- What are these skills? Are there any minimum knowledge base or skills that medical teachers should possess before they become teachers?
- It is now almost universally agreed that medical teachers should be trained formally in basic educational methods.

Supporting/Nurturing

- Learning is part of growth and development
- People learn in different ways (at different times)
- People have different ‘Learning Styles
- People require different experiences and environments to learn

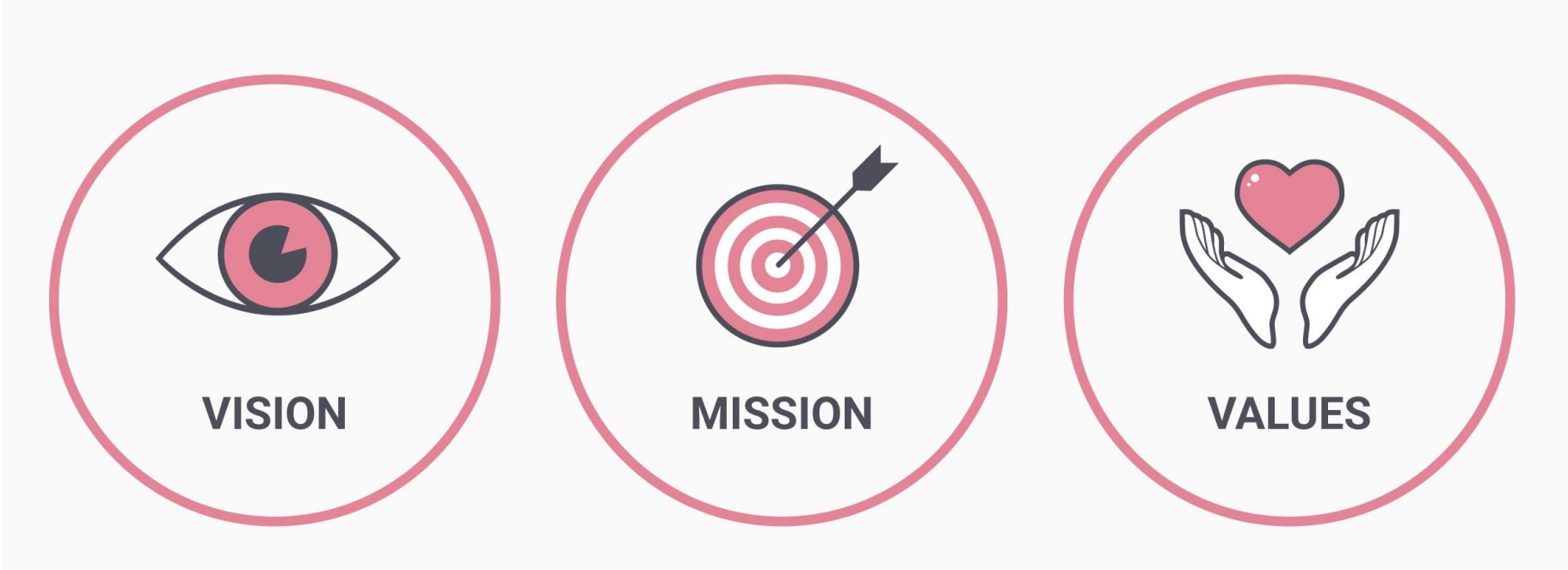
- A good teacher is like a good gardener

Vision

Mission

Values

Outcome/competencies



The vision of the X College of Medicine is to be a world-class medical school recognized for excellence in education, research, and clinical care.

Our values :

Excellence

Professionalism

Integrity

Collaboration

Accountability

Vision

- What will be the institution in the future, blending the Outcomes and values?
- Where to reach.
- Talk about the future.
- Usually less frequently changed.

Mission

- How to accomplish the vision, including the strategy, policies, procedures and resources.
- How to reach.
- Talk about the present.
- More frequently changed.

Mission statement

Vision

- The College of Medicine [illegible] deliver excellent medical education to produce me[illegible]raduates who will be well-prepared to work in Iraq and elsewhere and be able to undertake postgraduate training.

Curriculum description

- The medical curriculum will be outcom[illegible]d, aiming to produce graduate[illegible]il their role as junior doctors in the local health s[illegible]ssess the generic skills expected of students attendin[illegible]sity.

Graduates outcomes

Type of curriculum

- The course will feature increasing opportunities to se[illegible]ne community; a high degree of integration of basic and me[illegible]cal sciences with cli[illegible]ctice; an emphasis on facilitating student learning; and [illegible]n student choice as regards their studies.

Electives

- The course will be organised on a body system basis with a progressive emphasis on learning around undifferentiate problems.
- The approach aching will be based on a problem, cas integrated learning activities complement other teaching and learning activities. There will be syste teaching of some components to ensure competence in key areas.
- Students will become progressively mor rected in their learning, aided by increasing relianc and distance learning materials and activities.

Integration Teaching methods

Core clinical problems

Self-directed IT Based

Assessment

Feedback

Curriculum management

Monitoring and evaluation

Quality improvement

- Assessments will be clo[illegible]o the defined outcomes.
- Students will receive regu[illegible]dback on their progress aided by a personal tutor.
- The curriculum will be managed centrally by a mult[illegible] and led by a Dean of Medical Education.
- A[illegible]stem will be established to evaluate the [illegible] of the curriculum and t[illegible]ess of [illegible]mprovement

Core clinical problems

1. Abdominal pain
2. Abnormal fetal growth
3. Abnormal behavior
4. Acute aggression
5. Acute confusion
6. Acute diarrhea
7. Acute hemiparesis
8. Acute joint pain
9. Acute multi-focal skin lesions
10. Acute multiple trauma
11. Acute spreading skin lesion
12. Altered consciousness
13. Altered menstruation
14. Altered mood
15. Altered voice
16. Anxiety
17. Bed-wetting
18. Bleeding during pregnancy
19. Breathlessness
20. Calf pain
21. Chest pain
22. Chronic diarrhoea
23. Chronic joint pain
24. Chronic multi-focal skin lesions
25. Collapse
26. Constipation
27. Cough
28. Deliberate self-harm
29. Delirium
30. Difficulty breathing (Dyspnoea)
31. Difficulty swallowing (Dysphagia)
32. Distressed patient
33. Dizziness
34. Drug/alcohol abuse
35. Dry eye
36. Dying patient with cancer pain
37. Ear pain
38. Excessive weight gain
39. Failure to thrive in childhood
40. Falls (Syncopy)
41. Fever/rigors
42. Frequency or discomfort passing urine
43. Haematuria
44. Haemetemesis
45. Haemoptysis
46. Headache
47. Impaired gait
48. Impaired hearing
49. Incontinence
50. Infertility
51. Jaundice
52. Labour and delivery
53. Learning disability
54. Leg ulceration
55. Limping child
56. Long bone fracture
57. Lump in breast
58. Lump in groin
59. Lump in neck
60. Lump in scrotum

61. Lymphadenopathy
62. Mass in abdomen
63. Multiple regional musculoskeletal pain
64. Numbness or tingling
65. Painful eye
66. Palpitations
67. Pelvic pain/discomfort
68. Penetrating injury
69. Personality disorder
70. Pre-eclampsia
71. Pregnancy
72. Pruritus
73. Rectal bleeding
74. Red eye
75. Reduced cognition
76. Retention of urine
77. Salivary gland swelling
78. Seizures
79. Single regional musculoskeletal, including neck and back, pain
80. Solitary, changing skin lesion
81. Sore throat
82. Swollen feet/legs
83. Thirst
84. Tinnitus
85. Tiredness
86. Vaginal discharge/irritation
87. Visual disturbance
88. Vomiting
89. Weakness
90. Weight loss
91. Wheeze

Competencies and Learning Outcomes

Competencies and **learning outcomes** are two related educational terms that can create confusion. **Competencies and outcomes** can be written to describe the learning gained by students in individual courses (**course outcomes**) or the program as a whole (**program outcomes).**

Competency: A general statement that describes the desired knowledge, skills, and behaviours of a student graduating from a program (or completing a course). **Competencies are the applied skills and knowledge** that enable people to perform successfully in professional, educational, and other life contexts.

Outcome: A very **specific statement** that describes exactly what a student can do in some **measurable way**. There may be more than one measurable outcome defined for a given competency.


OUTCOMES


Competence

Outcome objectives

1. History taking of patient, undertake general and system based physical examination of patients, selection of appropriate investigation and interpret the results in problem solving and decision making.
2. Basic knowledge and indications of common laboratory and radiological investigations and the procedures required to obtain the necessary samples.

Competencies

1. **Clinical, practical and procedural skills**:

The ability to recognize patients with threatening condition regardless of etiology, and to administer an appropriate initial therapy. Achieving appropriate standards of the required skills in patient care process

Retrograde planning of outcome objectives

achievements at a basic level regarding knowledge, skills, and attitudes

appropriate foundation for future career in any branch of medicine.

subsequent postgraduate training.

life-long learning

future roles in the health sector

Graduate of medical college

appropriate student conduct with respect to fellow students, faculty members, other health care personnel, patients and their relatives.

What is a curriculum?

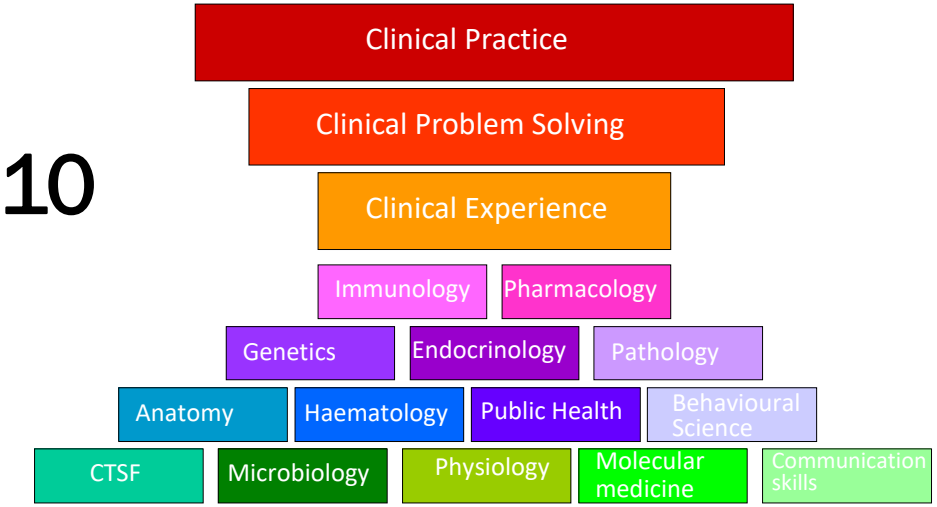
- It is a statement of the intended **aims** and **objectives**, content, outcomes and processes of an educational program, including:

1. A description of the **training structure,** including its **assessment system**
2. A description of **methods of learning.**
3. **The syllabus** content of the curriculum should be stated in terms of **knowledge**, **skills**, and **attitudes**.

A contract shared with learners that describes what they will be able to do after learning what they could not do before.

Traditional Medical Education

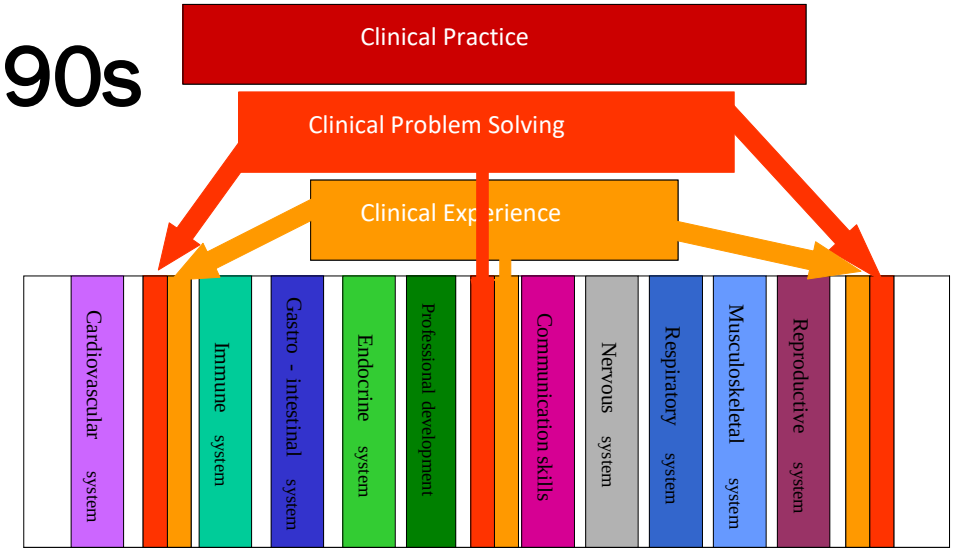
1910



Traditional Medical Education

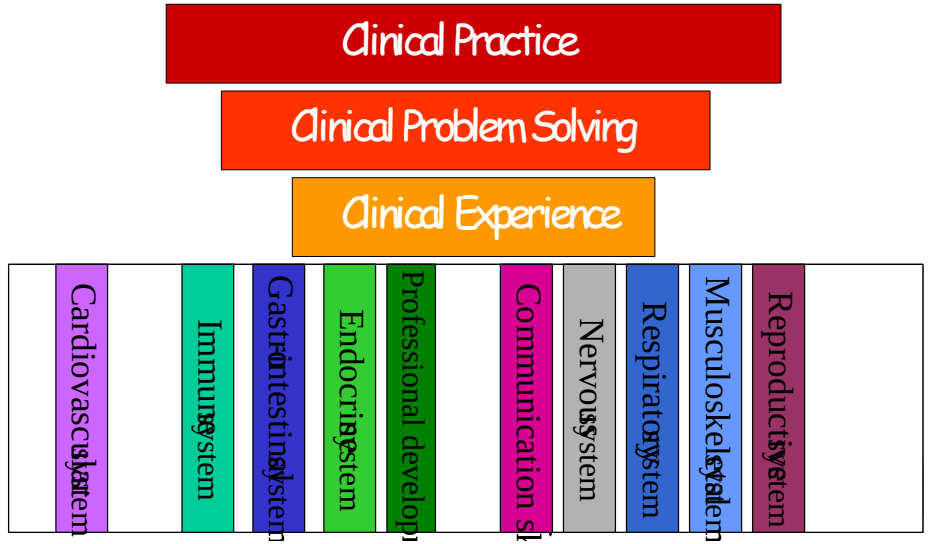
(Systems Based & Integrated)

1990s



Traditional Medical Education

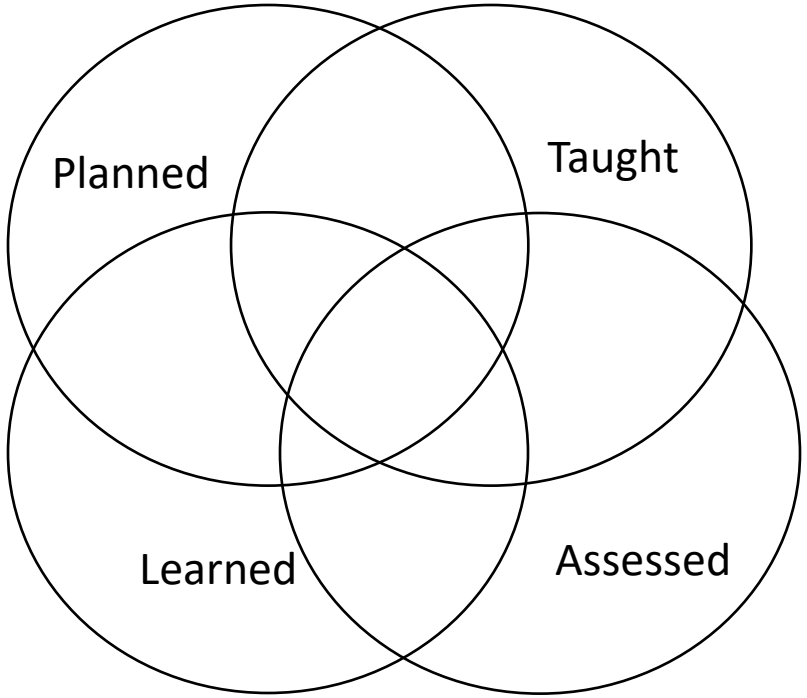
Systems Based



Problem Based Learning

1960s

The Curriculum



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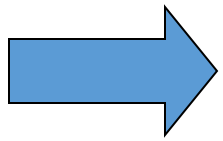
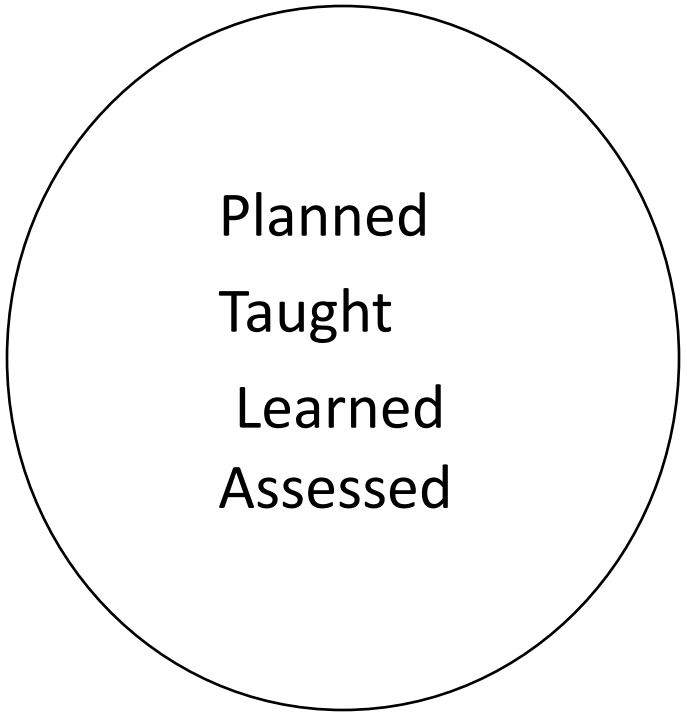




هو مجموعة المفاهيم والعمليات العقلية والاتجاهات والقيم والأداءات التى يكتسبها المتعلم خارج المنهج المعلن أو الرسمى طواعية وبطريقة التشرب ودون اشراف ونتيجة تفاعل المتعلم تفاعلات مختلفة مع زملائه ومعلميه والادارين فى المدرسة ومن خلال الأنشطة غير الصفية وبالملاحظة والقدوة.

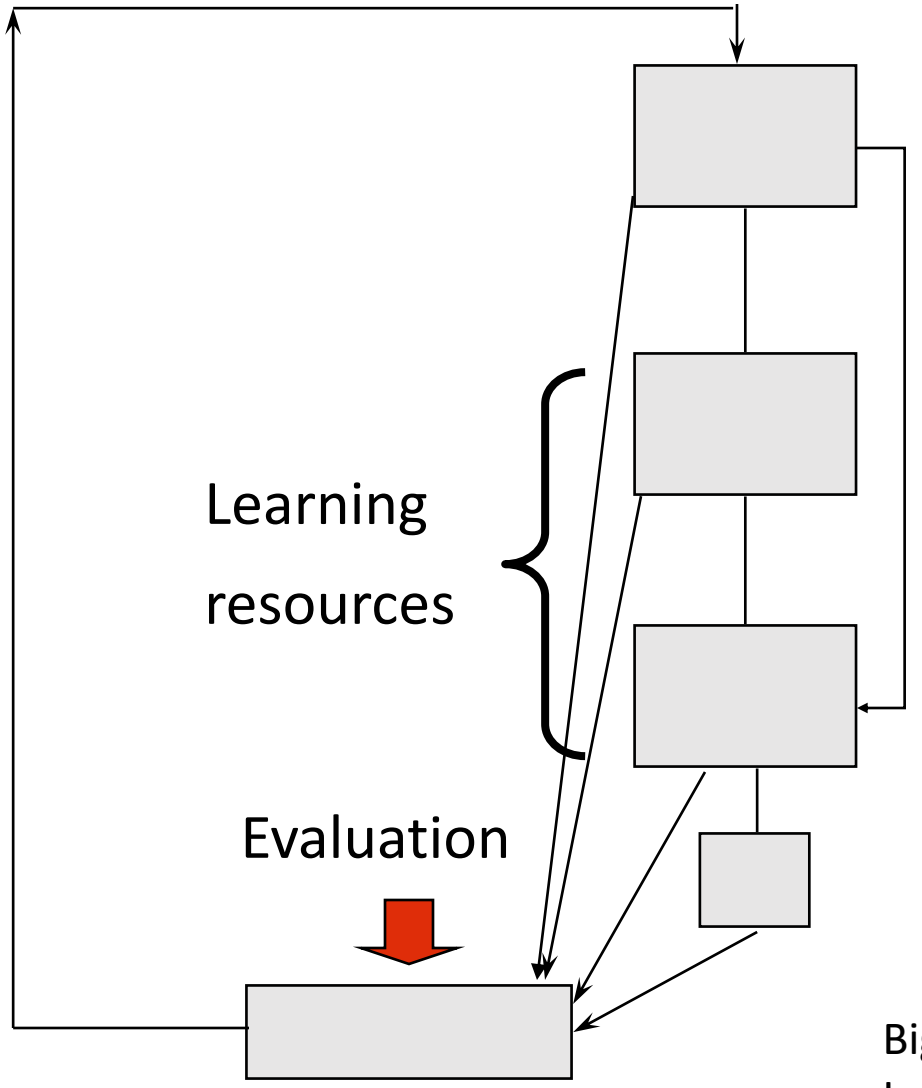
للمنهج الخفي إيجابيات وسلبيات بناءً على نوعية السلوكيات التي يكتسبها الطالب

السلبيات: إبراز الصراع بين ما يتضمنه المنهج الرسمي وما يتعلمه الطالب في الحياة اليومية

وقتل الإبداع

النزعة المظهرية وذلك عندما يهتم بالشكل دون المضمون

Constructive alignment



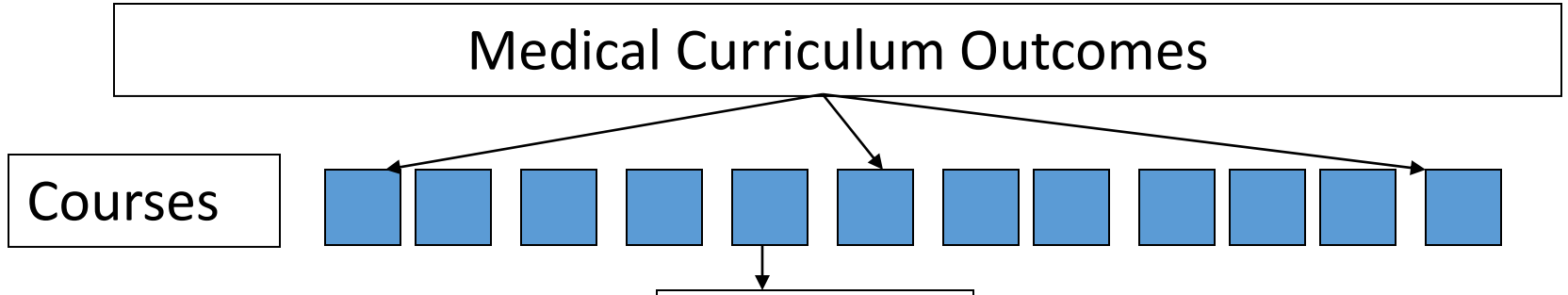
- Outcomes
- Objectives
- Aims
- Goals

Teaching/learning sessions

Learning experiences

Assessment

Biggs: 'Teaching for Quality Learning at University' (1999)



35 hours

10 Lectures

10 Self directed learning

5 SGT

3 Tutorials

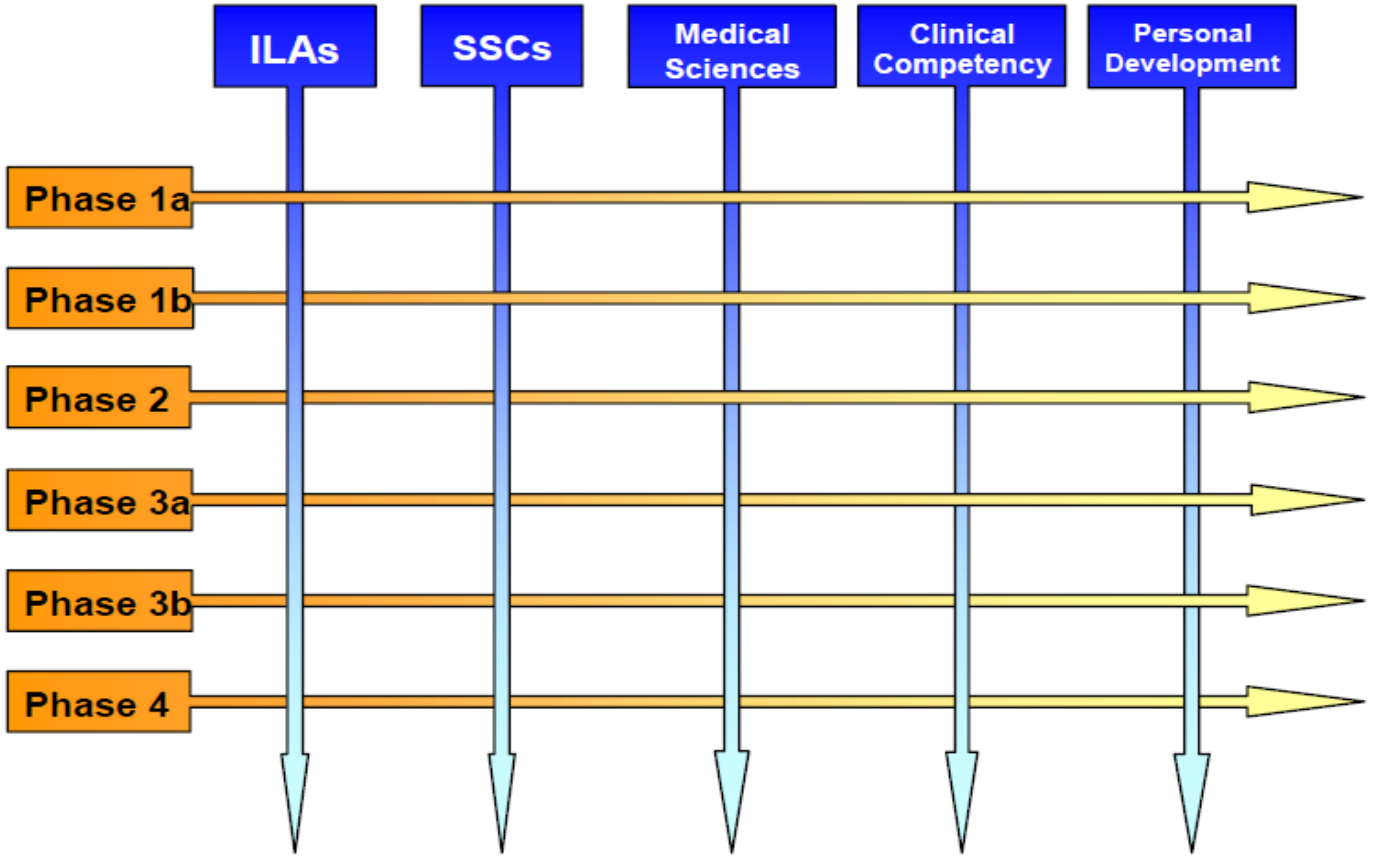
2 Practicals

5 Clinical experience

Sessional Content & Learning Objectives

Curriculum themes Sheffield medical school

Overview of curriculum elements.



College of medicine X Learning outcomes

- The fundamental purpose of medical education in X medical college is to graduate safe, competent lifelong learners and establish a foundation to continue their careers, as expressed in these learning outcomes. The graduates will act at a defined level of competence.

1. Applying biomedical scientific principles, methods and knowledge of basic sciences as integrated disciplines in a system-based model serving the **clinical practice**.
2. History taking of patients, undertaking a general and system-based physical examination of patients, selection of appropriate investigation and interpreting the results in problem-solving and decision-making.
3. Basic knowledge and indications of common laboratory and radiological investigations and the procedures required to obtain the necessary samples.

4. Essential practical and procedural basic skills of daily doctor practice.

5. Using of appropriate communication techniques with patients, and their families, colleagues and all medical staff and managing challenging situations.

6. Administering first aids and doing basic resuscitation and basic life support for all age groups.

7. Working effectively as part of emergency care team in management of life threatening conditions whether due to trauma or disease.

8. Appropriate professional behavior and basic knowledge in principle of medical ethics and legal responsibilities.

9. Technical skills in retrieving, collecting and interpretation of computer based information in relation to patient care, health promotion, advice and information to patients, research and education.

10.Performing the functions required for public health and primary care programs. Identifying preventive and control measures necessary to solve community health problems.

11. Applying quantifying methods and collaborating with peers in medical research and basic knowledge of critical appraisal.

Mapping learning sessions and assessment to outcomes

Learning Outco

Essential pract
procedural basi
daily doctor pra

1st Year College of Medicine

1. Measuring blood pressure (vital signs)
2. Measuring radial pulse (vital sign)
3. Measuring respiratory rate (vital signs)

ature (vital signs)
ation (vital sign)
e
e equipment (gloves,

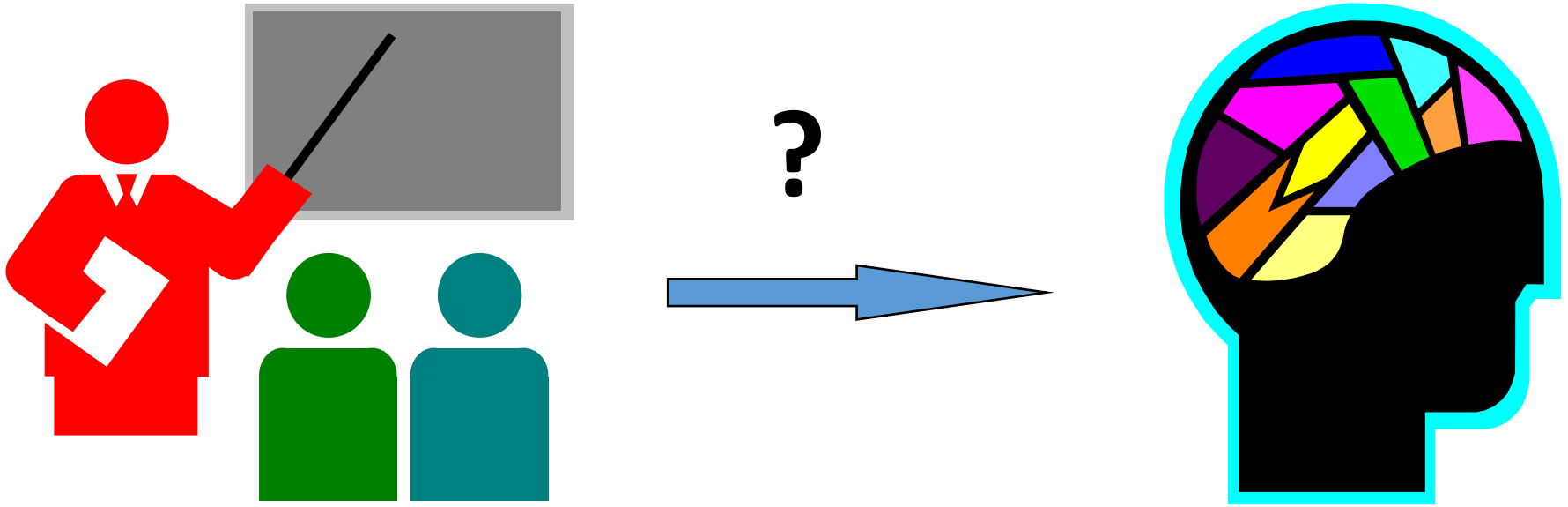
30 weeks in skill lab (60

explain the knowledge
30 minutes demonstration

Mastery assessme
DOPS
Resit, maximum allowed three times

by trainers, 60 minutes practising.
Trainers: After completing the training course, year six medical students, qualified college nursing staff.

What is the relationship between teaching and learning?



What are learning objectives ?

slido

Your preference for this lecture duration is:

ⓘ Start presenting to display the poll results on this slide.

Writing learning objectives

Definition

‘Learning Objective’

A contract was shared with learners that describes what they will be able to do after learning that they could not do before.

If you don’t know where you’re going how can you devise a suitable means for getting there?

If you know where you’re going can you help yourself get there?

If you don’t know where you’re going how do you know if you’ve got there?

Knowledge

Skills

Behavior

Learning domains

What do teachers teach?

Learning Objectives should be: SMART

- **Specific**
- **Measurable**
- **Achievable**
- **Relevant**
- **Timed**

Educational program

Objectives

- Knowledge
- Skills
- Attitude

Instructional methods

- Lectures
- SGL
- Tutorials
- Skill Lab
- Bedside

Assessment and evaluation

Written

MCQ,MEQ, Matching

The Purpose of Educational Objectives

- Together they form the foundation upon which the structure of an educational program is built.
- The weakening of any one of the components is likely to jeopardize the educational program as a whole.
- Good educational objectives benefit both **the teachers and the learners.**

Active verbs for learning objectives

Knowledge

- Define
- List
- State
- Describe
- Apply
- Determine
- Predict
- Analyse
- Criticize
- Evaluate

Skills

- Observe
- Imitate
- Practice
- Perform
- Adapt
- Master

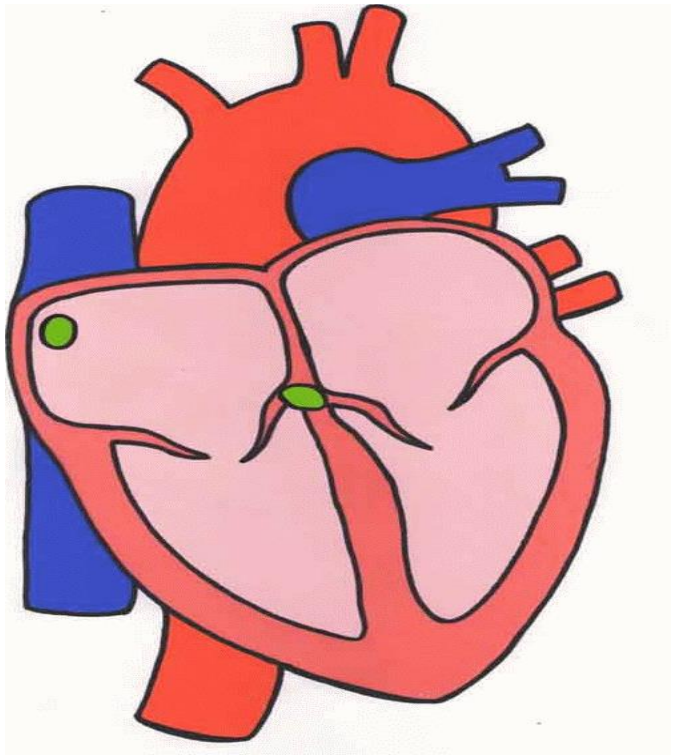
Attitudes

- Listen
- Respond
- Value
- Advocate
- Defend
- Challenge
- Judge

Highest

An example of measurable or observable objectives

- 'Students will correctly *identify* four out of five anatomical structures of the heart as outlined in the figure.



In contrast, an example of non-measurable objective

- 'Students will ***observe*** **the video depicting the dissection of the heart**.' The term 'observe' is non-measurable and is therefore an example of a poor educational objective.

- Educational objectives should be high in clarity and easy to understand. A statement like **'Students will know** about the childhood vaccines' is faulty from the point of educational objectives.

Assessment

Assessment

The means used to measure what students have learned.

WHY do we assess?

Formative Assessment (Developmental)

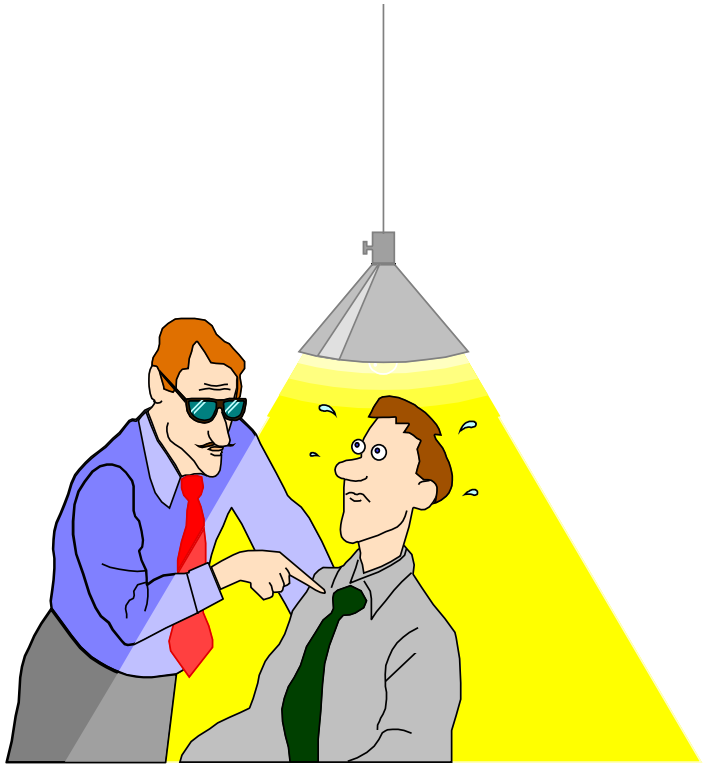
- To provide feedback to students to help to learn
- To diagnose strengths and weaknesses
- To motivate students

Summative Assessment (Judgemental)

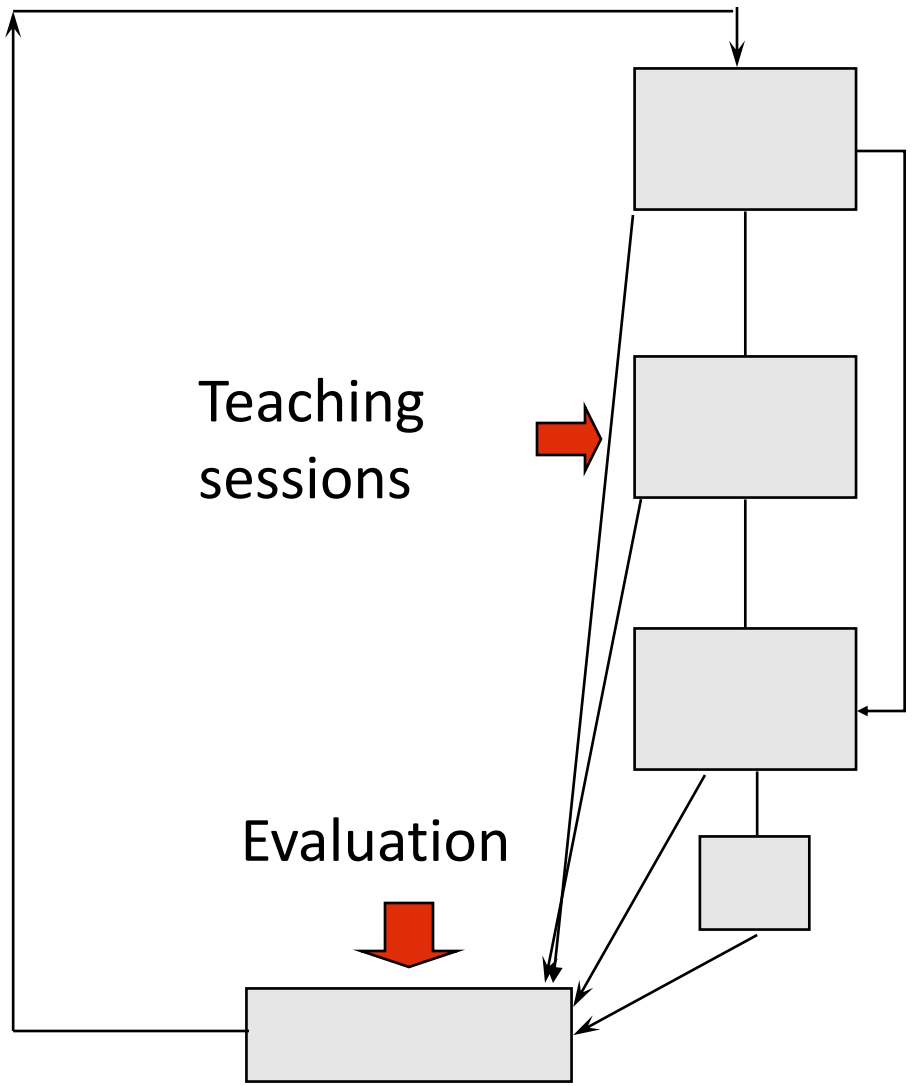
- To grade or rank a student
- To pass or fail a student
- To licence to proceed
- To select for future courses/Employment

Teaching & Course Monitoring

- Encouraging good learning methods
- To provide feedback to teachers
- To motivate teachers
- To evaluate a course
- To accredit a course



Constructive alignment & audit



- Outcomes
- Objectives
- Aims
- Goals

Other
Learning
experiences

Assessment

What can we assess?

- Knowledge
- Skills
- Attitudes

Formative

- Purpose: to inform students and teachers about the student's progress, the teaching's effectiveness and the need for further learning.
- Assessment **FOR** Learning
- It’s ‘Feedback’

Formative assessment

- **Process focused**; its primary purpose is to provide feedback to **both student and teacher** while the program is still ongoing.
- Formative assessment tends to be **low stakes** examinations.
- Formative assessment is an important component in education , as good formative assessment with feedback improves student learning and leads to **better performance in summative assessment**.

Summative

- Purpose: to determine the success or failure of a candidate at the end of some period of learning/teaching

- Assessment **OF** learning

Summative assessment

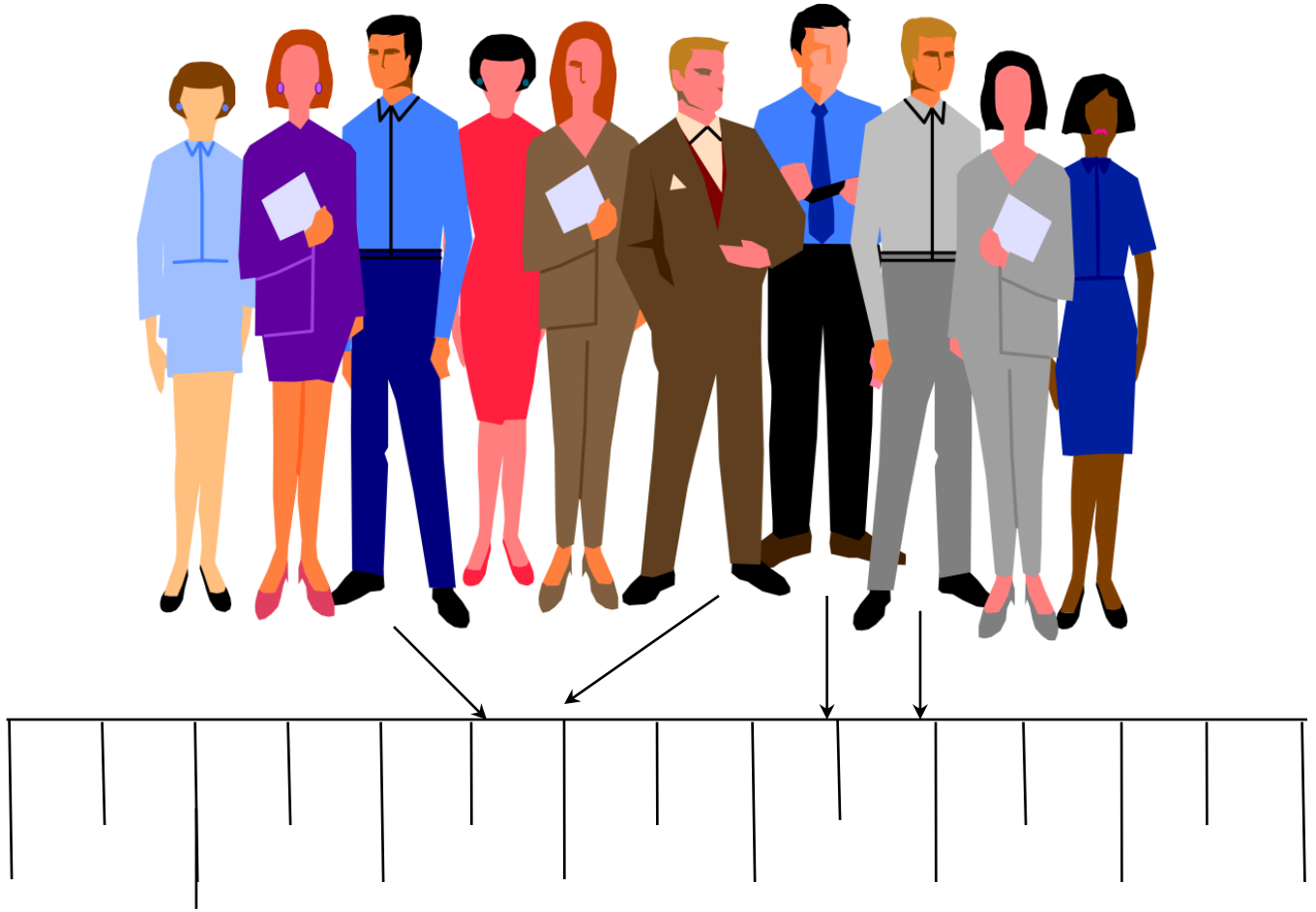
- Is **outcome-focused**; its primary purpose is to determine the achievement of the student or the program.
- Summative assessments are generally **high-stakes** examinations and require substantial developmental effort and strict quality control

Norm and criterion-referencing

- **Norm-referencing**
  - A pre-determined portion of the cohort will pass [or fail]
  - Often used for ranking candidates for competitive entrance exams

- **Criterion-referencing**
  - All those who attain the benchmark will pass

Norm referencing stneduts gnissessa - about each other, to the norm or group average. Marks are distributed, and grade boundaries are inserted <u>according to defined standards afterwards</u> .Students pass or fail and are graded depending on the norm.



Criterion referencing tneduts hcae - is assessed against specific criteria of competence. Students pass or fail depending on achieving a minimum number of specified competencies.

Features of Assessment methods

- Validity
- Reliability
- Feasibility Cost and Acceptability

Validity

- Validity is one of the key properties of an assessment instrument. It determines whether an assessment instrument **tests what it is supposed to test.**
-

- ***Content validity*** *ssenevitatneserpeR :*of learning objectives in the assessment. In practice, this is achieved by **blueprinting** .

- **All learning objectives**

Knowledge, skills, attitude

Levels

Blueprinting

- Blueprinting refers to the process where test content is carefully planned against the learning objectives.

- **Construct validity:** Congruence of assessment instrument with the purpose.

- For example ,**communication skills** should be tested by **tcerid tneitap eht dna etadidnac eht neewteb weivretni eht fo noitavresbo**, not by a paper and pencil test.

- **Predictive validity:** Ability of the instrument to predict future performance .

Reliability

- Reliability usually refers to a test's consistency over time, different cases (inter-case), and different examiners (inter-rater).

Reliability

- **Test-retest reliability**
  - If the learner takes the same test twice, they should get pretty much the same score / result
- **Intra-rater reliability**
  - If the assessor scores the same paper / performance on two separate occasions, you should give it the same result / score
- **Inter-rater reliability**
  - Two assessors should give similar grades to the same paper / performance

- Inter-rater reliability compares scores between different examiners , is measured by **Cronbach alpha** .
- The range of value can be:

Low consistency = 0 to high consistency =1.

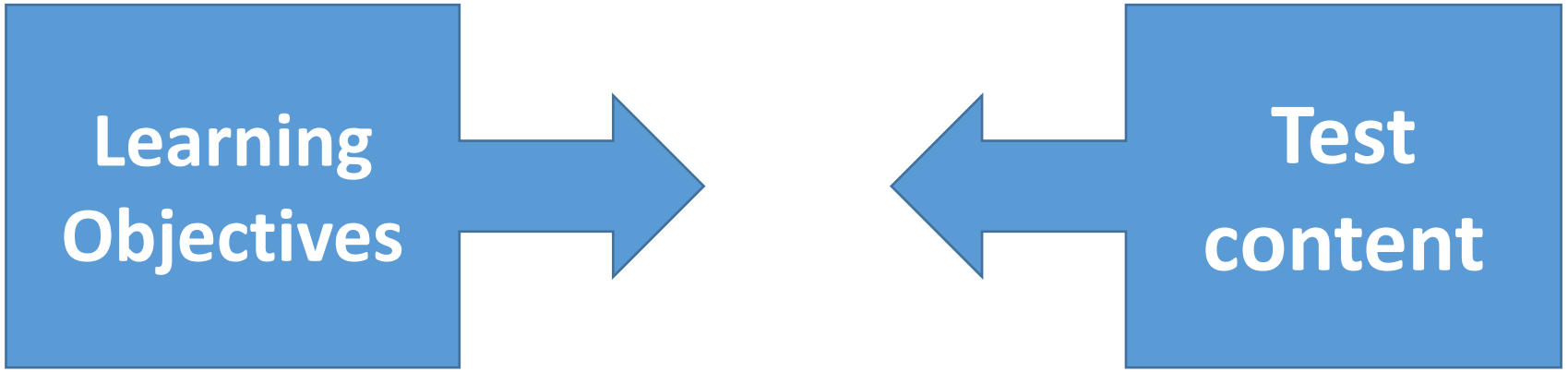
- Some reliability guidelines
- = 0.90high reliability
- = 0.80medium reliability
- = 0.70low reliability

Feasibility

- Ideal assessments may not always be possible because of constraints in resources. Some of the constraints in resources that are very pertinent to medical education and need to be considered in detail are:
  - **Availability of examiners**
  - **Time to develop the test**
  - **Time to administer the test**
  - **Time to grade and analyze the papers**
  - **Costs associated with administration of the site, and**
  - **Faculty training**

Blueprinting

- Blueprinting refers to the process where test content is carefully planned against the learning objectives



The examination blueprint

- A proper blueprint is the **first crucial step** in developing a valid examination and must not be overlooked.
- A proper blueprint will ensure **fair representation of all the important curricular objectives in the examination.**

Step-by-step approach to developing a test blueprint in an integrated curriculum

- 1. **Create a table** with **major systems** (cardiovascular, respiratory, etc.) on the top row and **physician tasks** (history taking, data interpretation, management, etc.) on the left-most column

Approach to examination blue print in an integrated curriculum

System Task	CVS	Resp	GIT	Renal	CNS
History taking	X		X		
Physical exam		X			X
Data Interpt.				X	
Disease management			X	X	
Prevention	X				
Pathophysiol.		X			
Epidemioloy.	X				

- 2. Determine the **major disease or presenting problem** of interest for each system

- 3. Determine the **weight** to be assigned to each problem

- 4. Map the **physician's task against the disease** or presenting problem

- 5. Make sure that there is a **cross-mark** for each column and each row

Approach to examination blue print in an integrated curriculum

System Task	CVS	Resp	GIT	Renal	CNS
History taking	Chest pain		Rectal bleeding		
Physical exam		SOB			hemiparesis
Data Interpt.				Acute oliguria	
Disease management			Epigastric pain	dysuria	
Prevention	Hyper TC				
Pathophysiol.		Asthma			
Epidemioloy.	Hyperten.				

- 6. Determine the **most suitable method** for testing the task (e.g. MCQ or OSCE)

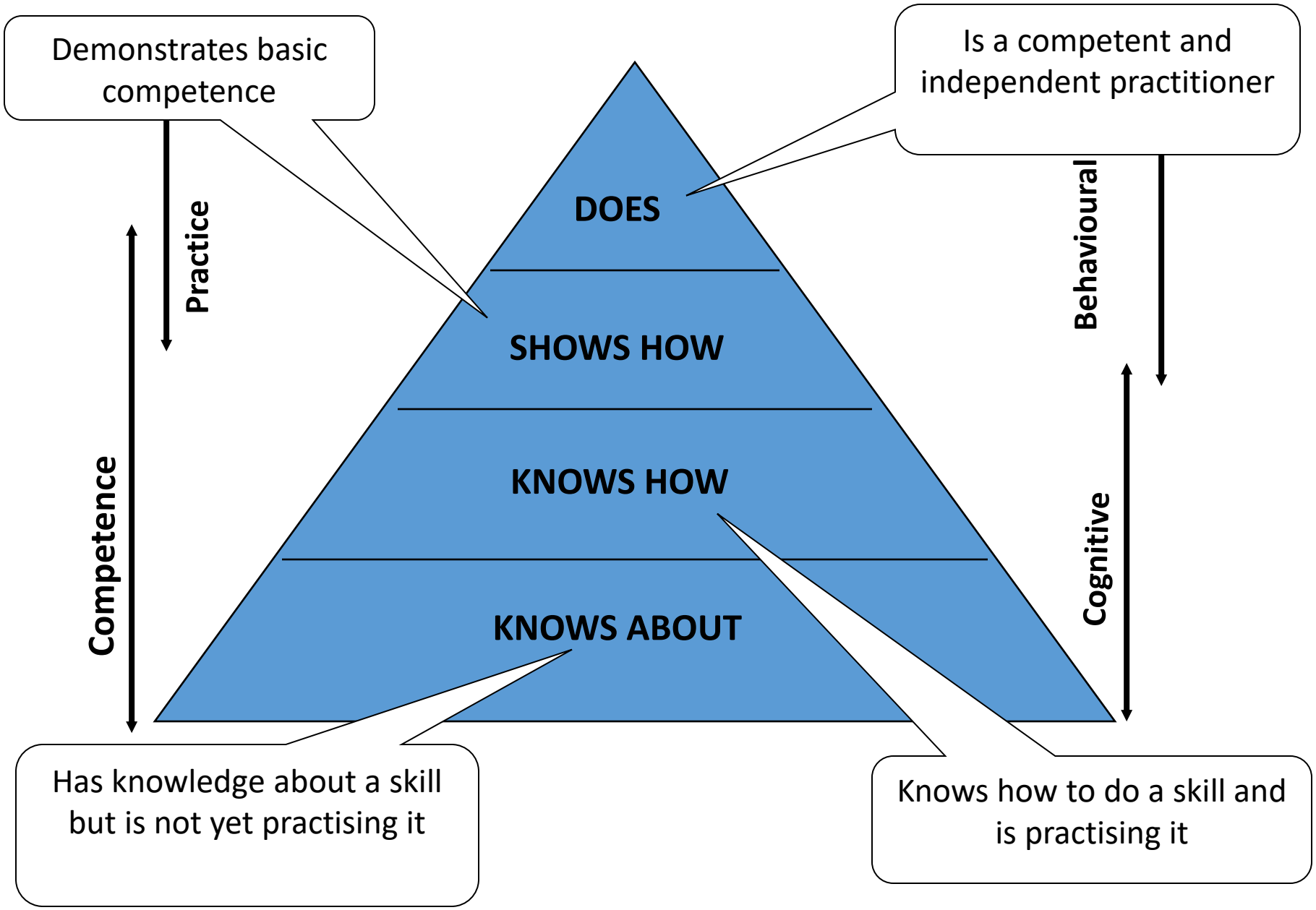
- 7. Assign **faculty member** to develop test questions for each task

	CVS	Respiratory	GIT	Renal	CNS
History taking	OSCE		OSCE		
Physical examination		OSCE			OSCE
Data interpretation				Written test	
Disease management			Written test	Written test	
Prevention	Written test				
Pathophysiology		OSCE			
Epidemiology	Written test				

Clinical Skills

- Objective Structured Clinical Examination (OSCE)
- Objective Structured Long Examination Record (OSLER)
- Direct Observation of Procedural Skills (DOPs)
- Mini-Clinical Examination (mini-CEX)
- Case-based Discussion (CbD)
- Mentor evaluation
- Faculty performance rating
- Chart review
- Evaluation committee
- Portfolio review
- Patient Survey

MILLER'S TRIANGLE



Examples of skills

Examples of skills

Examples of skills

Evidence

- **External Evaluation**:

In certain cases it might be useful to ask **external colleagues or experts to evaluate the curriculum.** They would require access to all curriculum areas and to appropriate documentation and **can produce a report**. This process can provide valuable objective and independent advice on the state of the curriculum and can provide useful recommendations for improvement.

Summary

- Assessment should be designed prospectively along with learning outcomes.
- Assessment method must provide valid , reliable , generalized data.
- Multiple assessment instruments should target all domains of learning at different levels

Large Group Teaching
LGT

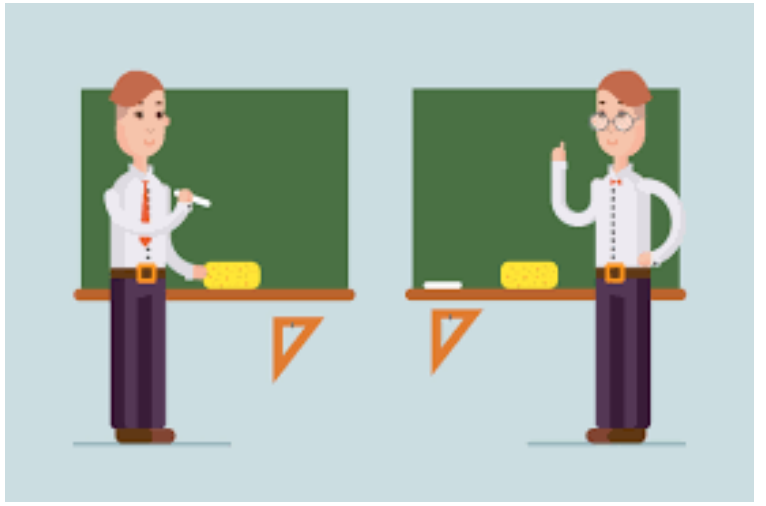
Lecturing – Bologna 1492

“Most people tire of a lecture **in ten minutes**; clever people can do it in five. **Sensible people** never attend lectures at all”.

Stephen Leacock

400 medical students

How to make LGT Interactive



Two teachers : physician and pharmacologist

Attending LGT session at Sheffield medical school
October 2010

Patient with Cushing syndrome

Clickers for two quizzes

How to we teach a large number of medical students in an interactive way?

- Team-Based Learning TBL
- Integrative learning activities ILA


Thank You