Active Learning

Didactic strategies to make students responsible for their own learning

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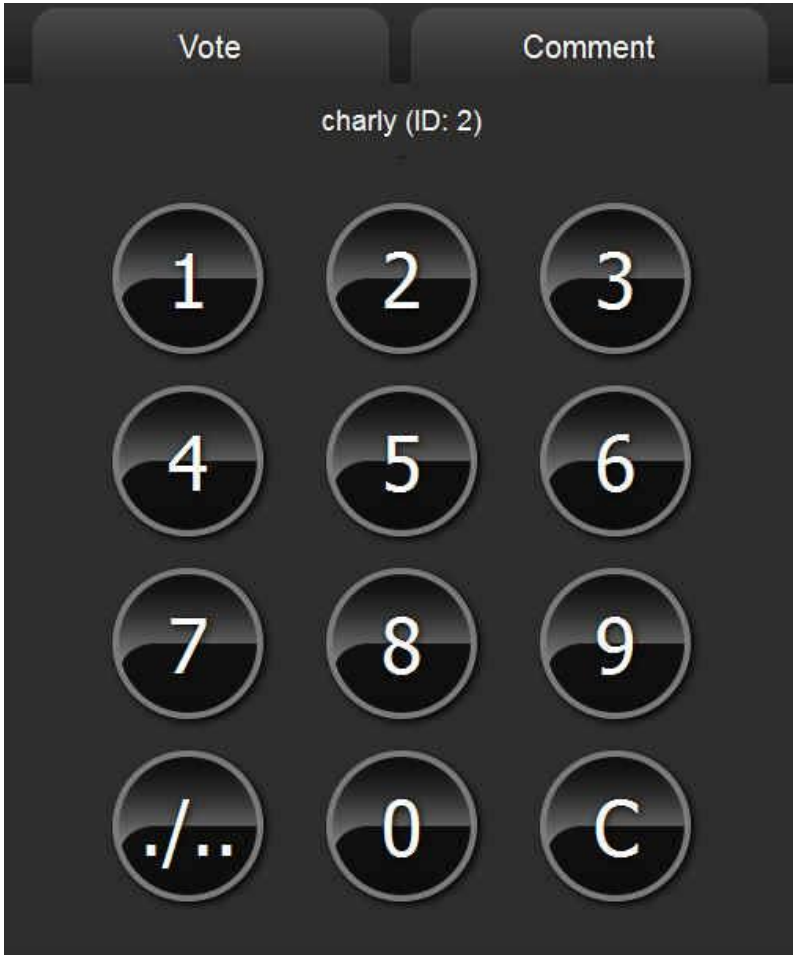
Vermont Medical School Says Goodbye To Lectures

August 3rd, 2017

http://www.npr.org/sections/health-shots/2017/08/03/541411275/vermont-medical-school-says-goodbye-to-lectures

Handset

Smartphone



Active learning

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- Promote higher order cognitive tasks through active engagement with the course content

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Learning is not a spectator sport

Cees van der Vleuten
University of Maastricht, 1999

Education is governed by tradition and intuition

Evidence on teaching and learning

New York Times: Oct 17, 2017

An Experiment on Transfer

Group 1: Read the problem -
Was given solutions

Group 2: Read the problem -
Attempt to problem-solve

Group 3: Read the problem -
Attempt to problem-solve -
Was given solutions

Did transfer take place?

Group 1: Read the problem -
Was given solutions
No transfer - 10% success

Group 2: Read the problem -
Attempt to problem-solve
Spontaneous transfer - 50% success

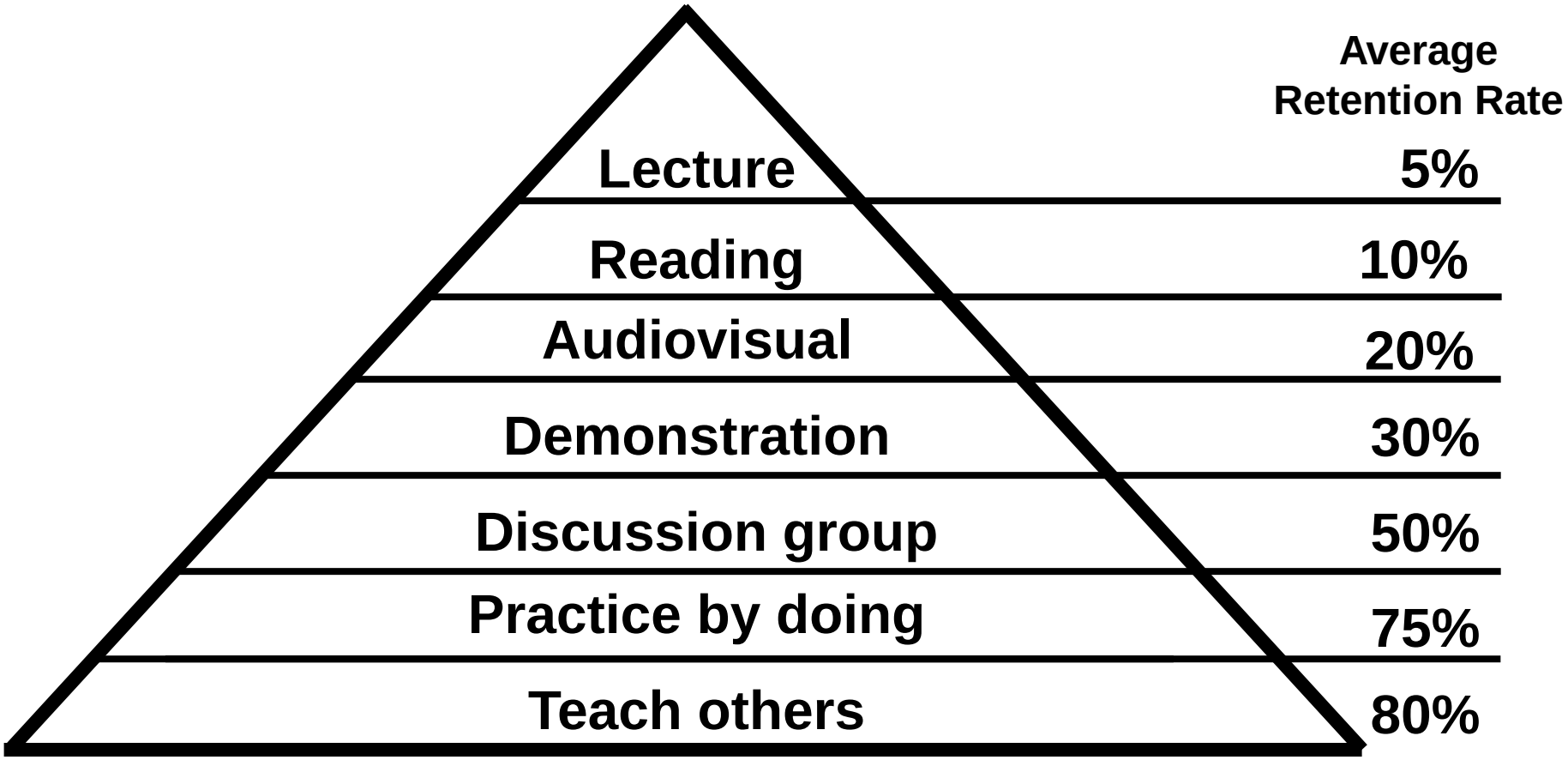
Group 3: Read the problem -
Attempt to problem-solve -
Was given solutions
Informed transfer - 75% success

Needham and Begg, 1991

Assumption

Teaching = Learning

The Learning Pyramid



National Training Laboratories, Bethel, Maine, USA

Tomorrow's Doctors, GMC, 2009

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  - Their own learning, ...

Nürnberger Trichter

Tomorrow's Doctors, GMC, 2009

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- Doctors (Teachers) are responsible for:
  - Supervising the students for whom they are responsible, to support their learning and ensure patient safety.
  - Providing feedback on students' performance.

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- Medical schools are responsible for:

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- Doctors (Teachers) are responsible for:
  - Supervising the students for whom they are responsible, to support their learning and ensure patient safety.
  - Providing feedback on students' performance.
- Medical schools are responsible for:
  - Managing the curriculum and ensuring that appropriate education facilities are provided in the medical school and by other education providers.

Life-long Learning

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Self-directed Learning

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Self-directed Learning

Directed self-learning

Life-long Learning

Self-directed Learning
Directed self-learning

Flipped class-room

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- Create Pre-class Content
  - ✓ Identify and provide key foundational content
  - ✓ Provide clear learning objectives
  - ✓ Use assessments to make students accountable

Flipped class-room

- Create Pre-class Content
- Design In-Class Activities
  - ✓ Guide, coach, inspire, and encourage student learning through planned activities that promote higher order thinking and application
  - ✓ Clarify key concepts using micro-lectures lasting 1-3 minutes
  - ✓ Assess student learning
  - ✓ Don‘t add more content
  - ✓ Be flexible

Flipped class-room

- Create Pre-class Content
- Design In-Class Activities
- Assess Student Learning
  Formative, summative, informal, formal assessment methods
  - ✓ Provide meaningful feedback
  - ✓ Guide future instructional approaches - Flexibility
  - ✓ Build student confidence

Flipped class-room

- Create Pre-class Content
- Design In-Class Activities
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  - ✓ Be flexible
- Assess Student Learning

Vermont Med School Says Goodbye To Lectures

Vermont Med School Says Goodbye To Lectures

Lectures will be replaced with online material and/or readings. Thus all primary information delivery will be removed from the classroom. Faculty lectures online will be streamlined and reduced in length to retain student engagement. ... The average lecture delivered in class can be rendered to a 20-35 minute presentation online.

William Jeffries, Associate Dean, 2017

Vermont Med School Says Goodbye To Lectures (2)

- Lectures are replaced by other didactic methods which encourage active learning
- Students engage in active learning
- Student learning is guided by detailed learning objectives
- Staff development

Vermont Med School Says Goodbye To Lectures (3)

Lectures are replaced by other didactic methods which encourage active learning

- Team-based Learning (TBL)
- Small Group Learning
  - ✓ Clinical case scenarious
  - ✓ Specific learning objectives
  - ✓ Students work collaboratively
  - ✓ Use of Evidence Based Medicine Worksheet
- Flipped Classroom with Readiness Quiz
  - ✓ Learning objectives are posted prior to each session
  - ✓ Quiz must be completed by 11:59pm before class

Vermont Med School Says Goodbye To Lectures (4)

More didactic methods to encourage active learning

- Workshops with Readiness Quiz
- Anatomy Modules with Readiness Quiz
- Imaging Modules (correlate with course material)
- Embryology Modules (correlate with course material)
- Integration Sessions
  - ✓ Clinical Problems covered by clinical Faculty
- Organizing Information from the week
- Formative Quizzes
- Doctoring Skills
  - ✓ Standardized patients and other faculty

Vermont Med School Says Goodbye to Lectures (5)

Students engage in active learning

We had averaged about 20 hrs per week of lecture 7 years ago, and now we are down to less than 10 (less than 30% of contact time). This will end up with an average of 60 total hours of work for foundations students with about 20-30 hours in class and 30-40 hours of preparations time allotted.

William Jeffries, Associate Dean, 2017

Vermont Med School Says Goodbye to Lectures (6)

Student learning is guided by detailed

Learning objectives

Student learning is guided by detailed learning objectives

Cell / Organ Systems

Physiology / Pathophysiology

Apply understanding of basic functions, key regulatory mechanisms, major interactions between systems, and appropriate testing to explain disease and injury

Vermont Integrated Curriculum, November 1999

Apply understanding of basic functions, key regulatory mechanisms, major interactions between systems, and appropriate testing to explain disease and injury

Foundations Competencies

Comprehension. Discuss...

appropriate functional tests to define the pathophysiology of the gastrointestinal/hepatic system

Analysis. Explain...

function and key regulatory mechanisms of the gastrointestinal/hepatic system, including secretion, digestion, absorption, motility, regulation, liver and bilary function

Apply understanding of basic functions, key regulatory mechanisms, major interactions between systems, and appropriate testing to explain disease and injury

Clerkship Competencies

Analysis. Explain...

signs of fetal distress, including electronic fetal heart tracings and peripheral fetal blood gases in terms of the potential metabolic changes occurring in the fetus

Vermont Med School Says Goodbye to Lectures (7)

Staff development

Staff development (1)

Faculty have to convert their lectures to active learning. We have allotted paid time to do this. We also have created the Teaching Academy, which will provide the expertise for active learning, etc.

William Jeffries, Associate Dean, 2017

Staff development (2)

We are also creating a development team, with 2 developers, 2 instructional designers and faculty director of active learning to help convert the entire curriculum.

William Jeffries, Associate Dean, 2017

The purpose of an education is to fill vessels and to light fires …

The purpose of an education is to fill vessels and to light fires …

Today we fill the vessels so full, they overflow and put out the fire

General Medical Council (GMC), Tomorrow's Doctors, GB, 1993

Factual information must be kept to the essential minimum that students need at this stage of medical education.

General Medical Council (GMC), Tomorrow's Doctors, 1993, 2003

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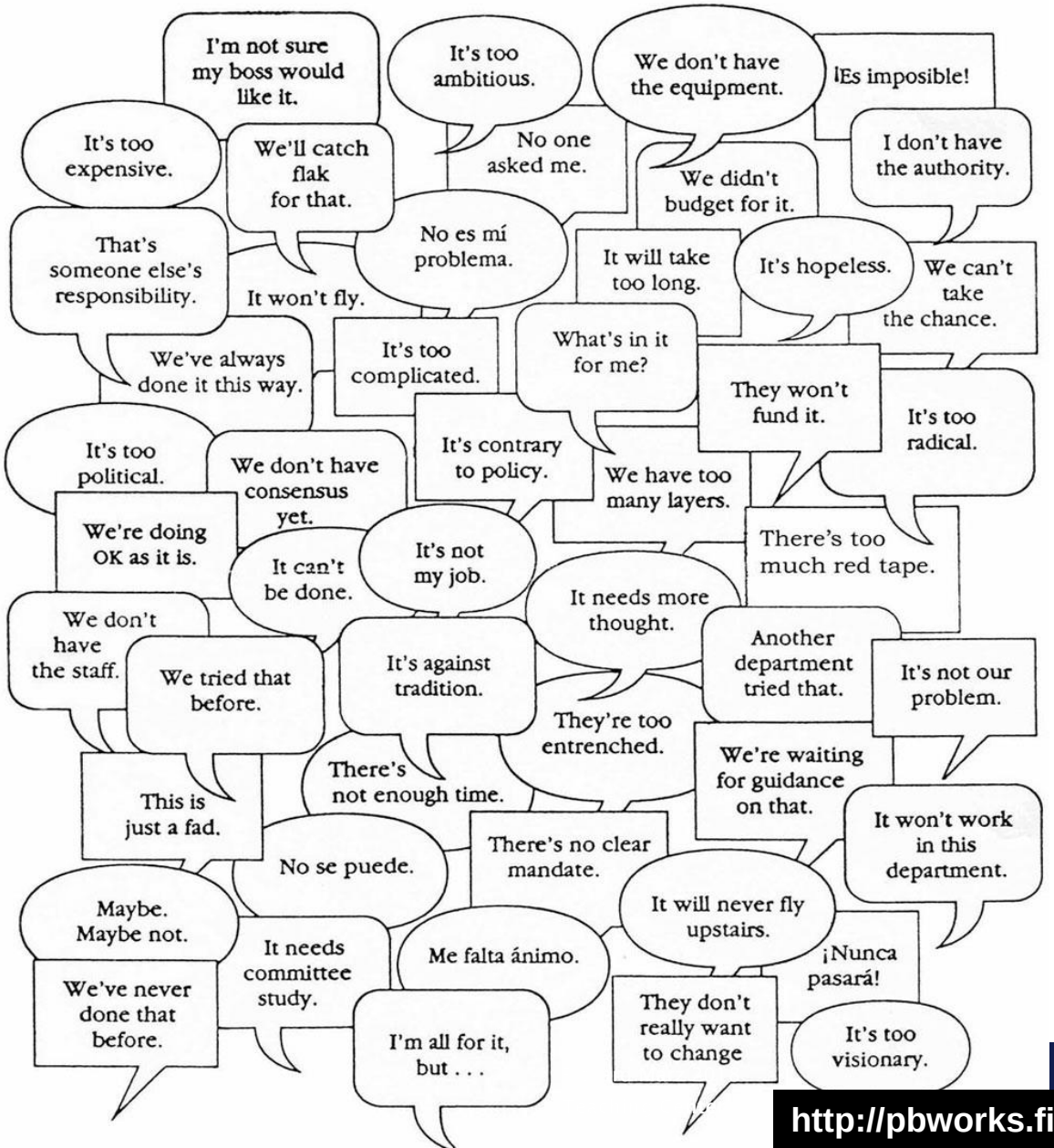
Less is More

50 Reasons Not To Change



The job of the teacher …

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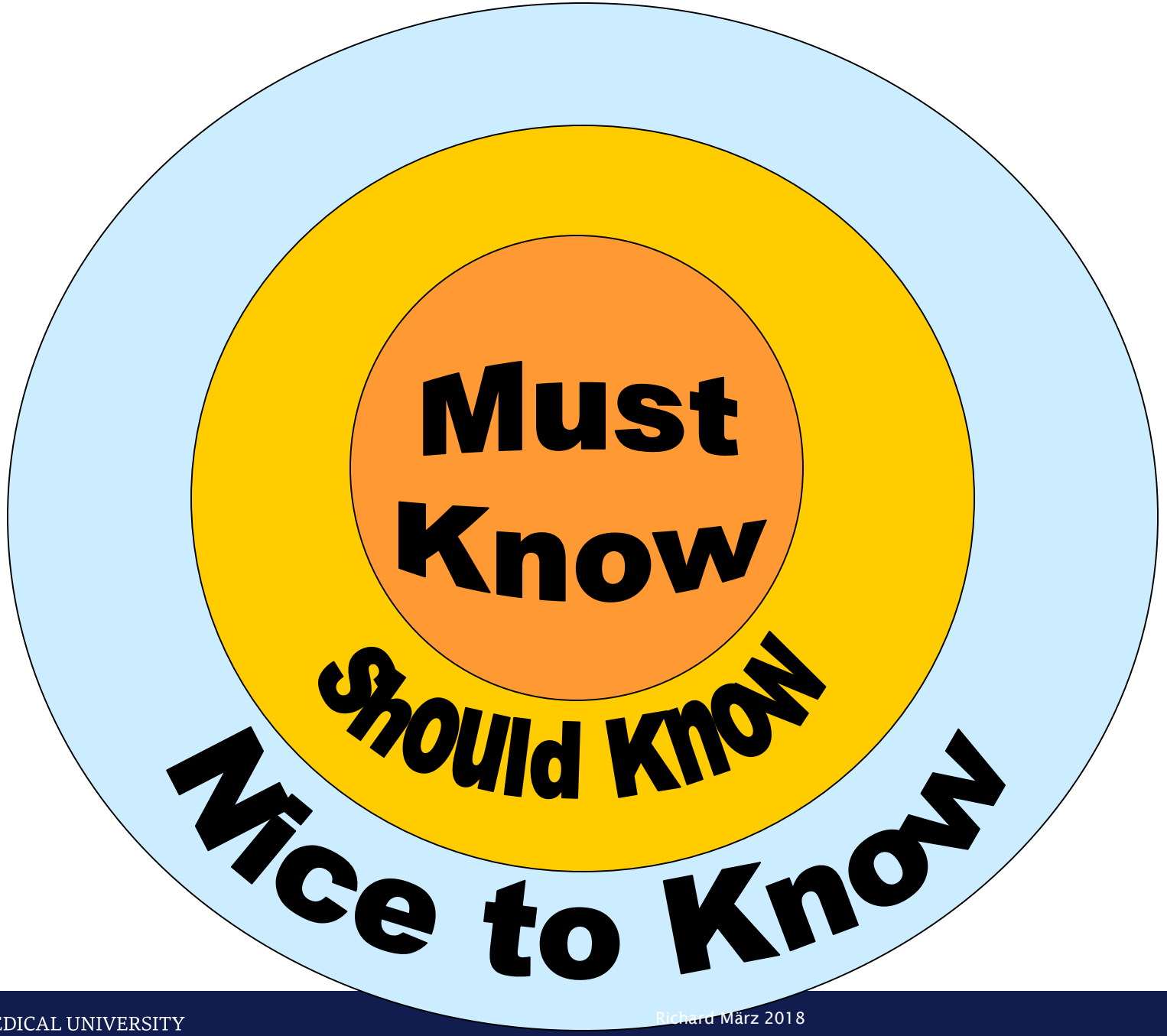
… is to make the task of decision-making so intense, …

The job of the teacher …

… is to make the task of decision-making so intense, … so that the student can only escape by thinking.

Thank You!

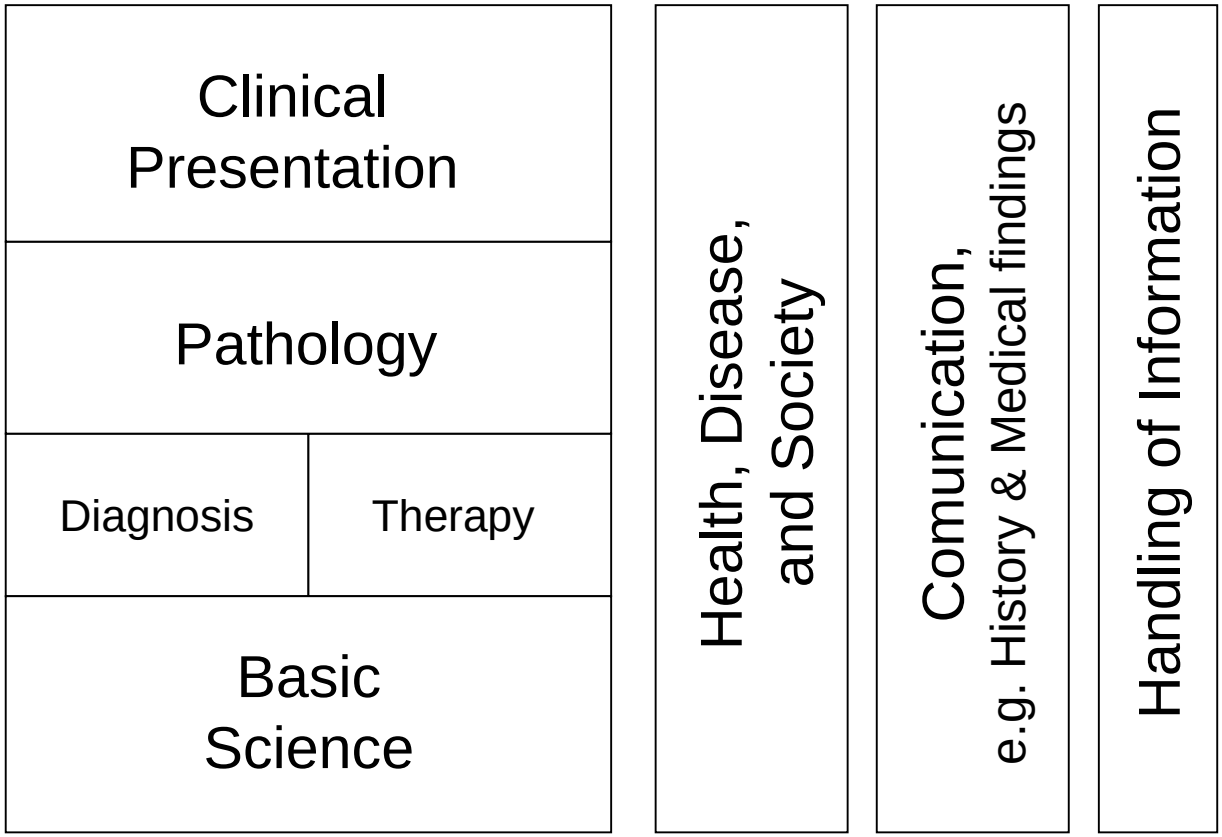

Must Know
Should Know
Nice to Know

Contents of a Medical Curriculum

Knowledge

Skills

Attitudes
Behaviour



Professionalism

Johari Window Luft & Ingram (1955)

	Known to self	Not known to self
Known to others	Known	
Not known to others		

Johari Window Luft & Ingram (1955)

	Known to self	Not known to self
Known to others	Known	Discovery through Discussion
Not known to others		

Johari Window Luft & Ingram (1955)

	Known to self	Not known to self
Known to others	Known	Discovery through Discussion
Not known to others	Discovery through Discussion	

Johari Window Luft & Ingram (1955)

	Known to self	Not known to self
Known to others	Known	Discovery through Discussion
Not known to others	Discovery through Discussion	"Unknown unknowns"