"Those who educate children well are more to be honored than parents, for these gave only life, those the art of living well."

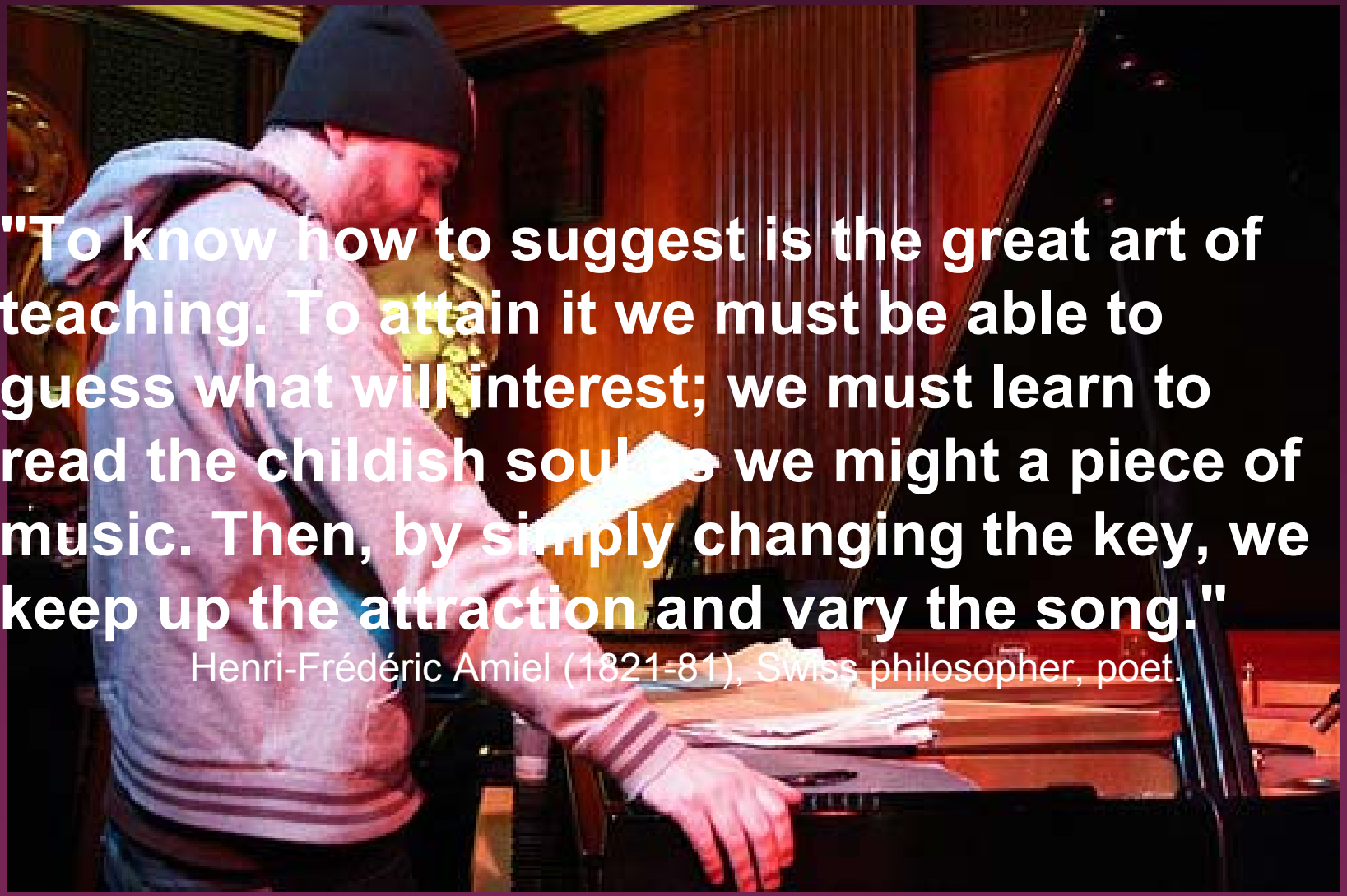
Aristotle (384-322 BCE), Greek philosopher.

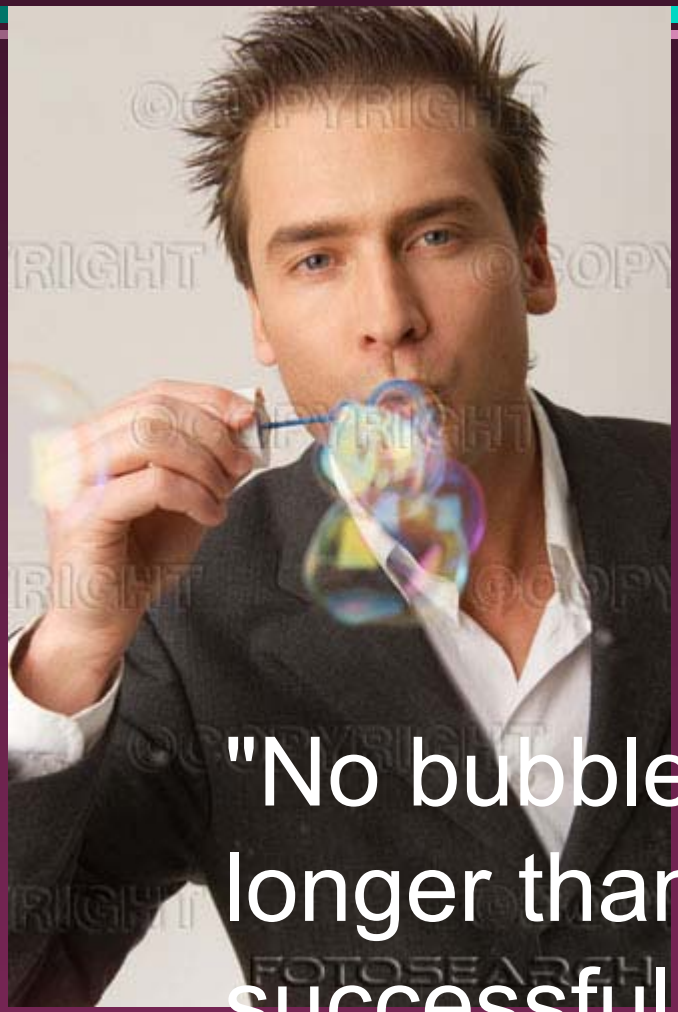
"A schoolmaster should have an atmosphere of awe, and walk wonderingly, as if he was amazed at being himself."

Walter Bagehot (1826-1877), English economist, critic.

Pedagogy …

… the *ART* of teaching







"No bubble is so iridescent or floats longer than that blown by the successful teacher."

Sir William Osler (1849-1919), Canadian physician. Address, October 4, 1911, Glasgow

‘Home’ or ‘Away’?



Pedagogy



IT'S

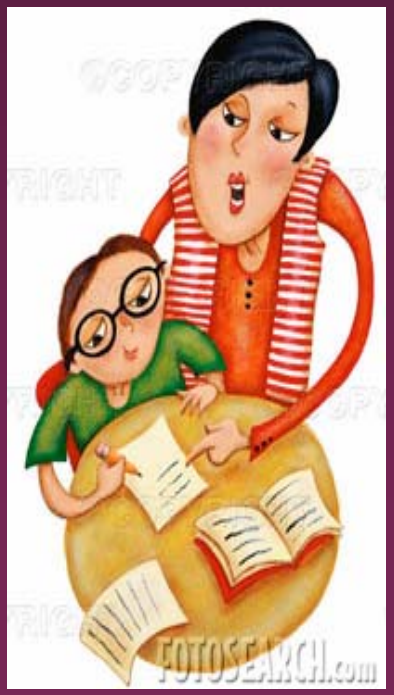


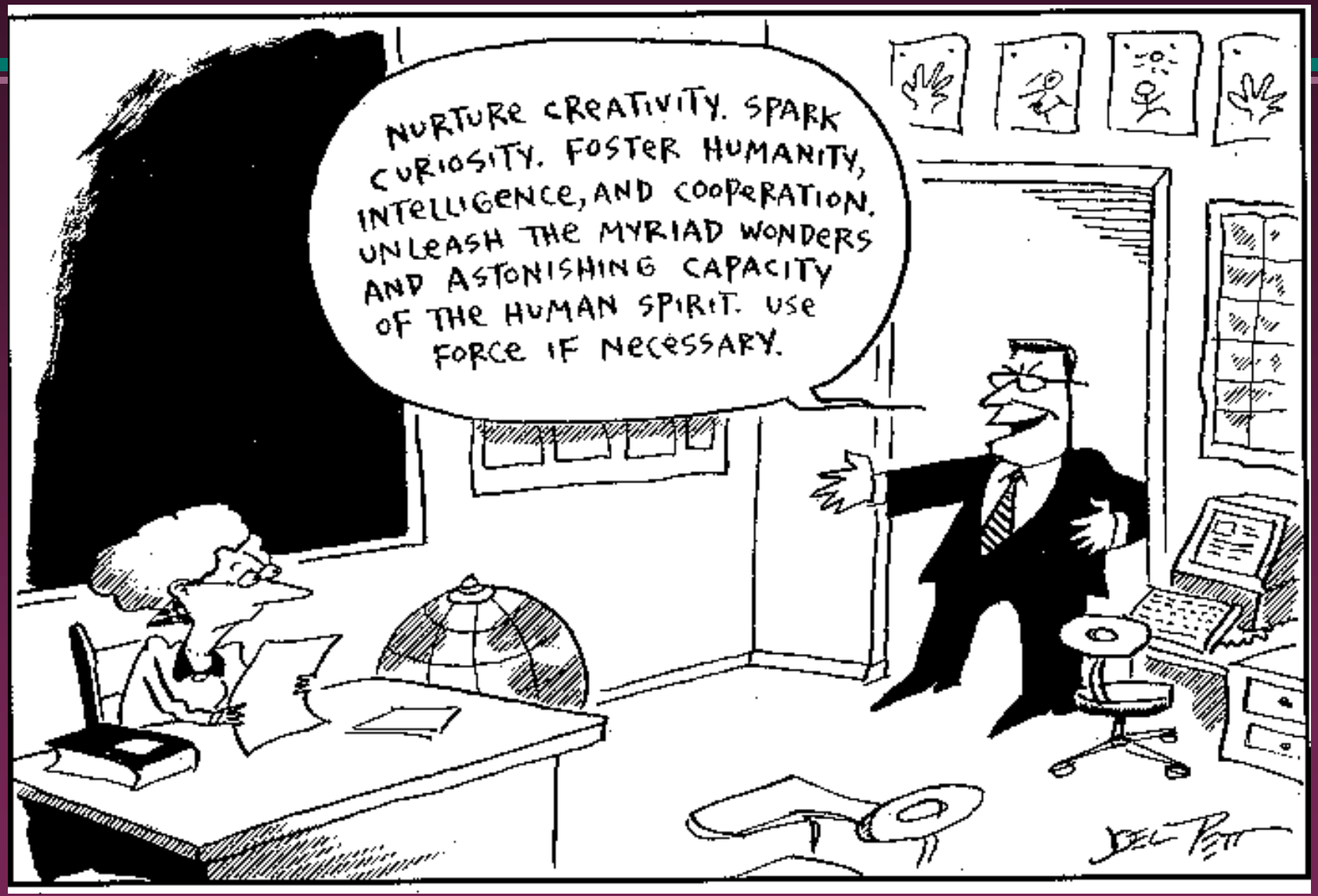
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ABOUT

ME




NURTURE CREATIVITY. SPARK CURIOSITY. FOSTER HUMANITY, INTELLIGENCE, AND COOPERATION. UNLEASH THE MYRIAD WONDERS AND ASTONISHING CAPACITY OF THE HUMAN SPIRIT. USE FORCE IF NECESSARY.
DEL PETT

The Ministry has used the phrase, “Necessary for some, good for all” in relation to certain teaching strategies.

A few weeks ago I heard about a comment made by an educator in which he expressed his dissatisfaction with that phrase, believing that the sentiment was demeaning and insulting to some students – creating the impression that some students were not very bright and not as good (people?) as other students.

What is your reaction to his reaction?

A little story

Agenda

Teaching Inclusively Promotes Success

"Necessary for some … good for all"

Strategies for inclusive instruction → Characteristics of Adolescent Learners → Challenges and Solutions

TIPS Mathematics

“Necessary for some … good for all”

Characteristics of At-Risk Learners

‘Like father, like son …’ pg 294,Levine

Challenges
- Environment
- Assessment

Strategies
- Stop
- Continue
- Start

“…This all thanks to one woman who …”

"One looks back with appreciation to the brilliant teachers, but with gratitude to those who touched our human feelings. The curriculum is so much necessary raw material, but warmth is the vital element for the growing plant and for the soul of the child."

Carl Jung (1875-1961), Swiss psychiatrist

Pedagogy 101 – ‘Consistency’

Good and Brophy (1997) list several ways in which teachers unknowingly treat high and low achievers differently.

And then there’s the report from Saracho, 1991

‘Treated differently’: is it a problem?

“Excellence in mathematics education requires equity—high expectations and strong support for all students.”

- NCTM Standards

“All students, regardless of their personal characteristics, backgrounds, or physical challenges, must have opportunities to study--and support to learn--mathematics. *This does not mean that every student should be treated the same*.”

Strategies … which one to try?

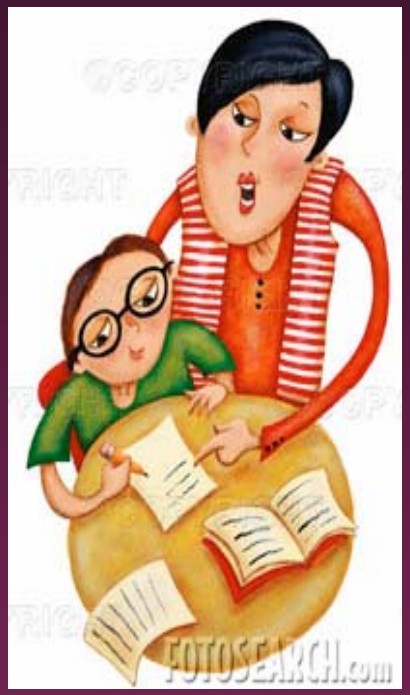




Accommodations

"Accommodations are practices used to work around a kid's area of weakness, but they don't purport to fix it. Accommodations circumvent the problem or breakdown point, enabling a student to keep learning and feeling reasonably good about himself without risking humiliation." – Levine

Interventions



"While accommodations work *around* a problem at a breakdown point, interventions work *on* the problem."

- Levine

To see one attempt to produce materials for remediation and intervention …see the PRISM-NEO web-site
http://www.nearnorthschools.ca/it/PRISMNEO/index.asp

Grade 11

/PRISMNEO/Grade11/index.asp
Search Web Answers My Yahoo! Yahoo! Mail 360° Save to My Web Sign in Music
ld Tab

Grade 11 Sketches

Exponentials

- properties of the function	PropertiesExp.gsp
- transformations of the curve	TransformExp.gsp
- bounce back	BounceBack.gsp
Simple and Compound Interest	Interesting.gsp
Trigonometry	
- Sine Law	VerifySineLaw.gsp
- Cosine Law	VerifyCosineLaw.gsp
- Which law should I use?	SinCosLaw.gsp
- Periodic Motion and Trig graphs	PeriodicMotionTrigGraphs.gsp
Hula Hoop CBR Experiment	HulaHula.gsp
Quadratics	
- Barging through the bridge	Quadratics.gsp
Functions and Inverses	Inverses.gsp

All the Sketches as a zip file

Technology is more than a ‘toy’

- Computer generated visualization/representations represent a new way of thinking, discussing, and building scientific understanding in an inquiry-oriented environment (Schank & Kozma, 2002).
- And, the use of multiple representations in combination supports higher comprehension of phenomena (Kozma, Russell, Jones, Marx, & Davis, 1996).
- Several studies suggest that student generation and continued manipulation of the representation, lead to higher comprehension levels as compared to viewing teacher-generated representations…” (Shank & Kozma, 2002)

So sit back and let them … WRONG!

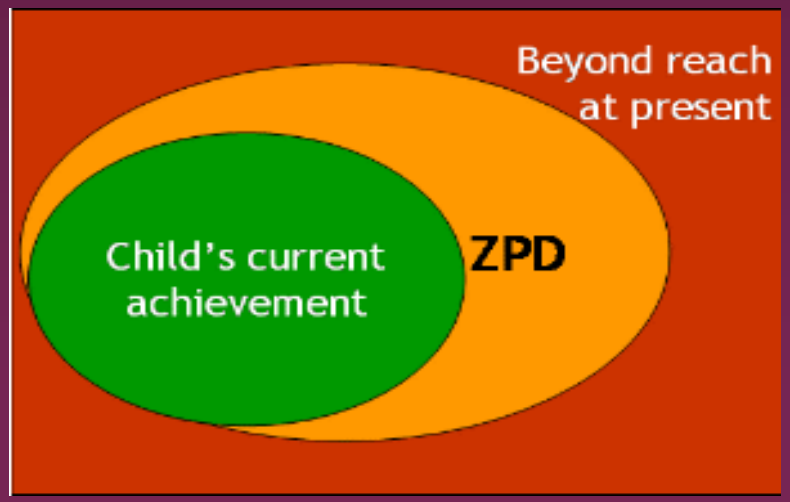
- As students produce and share representations, teachers serve as models and guides to interactive peer collaboration by using various representations in their own teaching and discourse (Lemke, 2000; Crawford, 2000; Schank & Kozma, 2002).

Learning styles/ Multiple intelligences

- Already touched on in ‘Assessment’
- Paying attention to these is NOT an ‘accommodation’; it’s good teaching
- The un-reflective tendency is to ‘teach to yourself’
- Just as we like to/should ask students to consider alternate approaches, we should do the same in terms of teaching approaches

Helping an ‘I can’t’ move toward ‘I can’

- It is common in constructing skills check-lists to have columns for "cannot yet do", "can do with help", and "can do alone". The ZPD is about "can do with help", not as a permanent state but as a stage towards being able to do something on your own. The key to "stretching" the learner is to know what is in that person's ZPD—what comes next, for them.
  - (see Vygotsky’s Zone of Proximal Development)



One strategy for doing this is …

‘Co-operative Independent’ stage in …

… How To Teach Problem Solving

- **Group members individually read the problem**
- **Group discussion of what the problem is, using visuals/manipulatives as necessary to clarify understanding**
- **Group discussion of possible approaches/strategies … until ALL have a sense of an approach (ONE set of notes/sketches/models is permitted)**
- **INDIVIDUAL solutions created**

‘Insider’ information

“By the middle of elementary school, most kids are on a mission to save face… Nothing creates a more deeply penetrating wound to pride than embarrassing exposures or encounters before an audience of judgemental peers.”

- Levine

The ‘Prime Directive’

e.g., we might forewarn a student that we will call upon them in the next class, or arrange for a subtle signal to indicate that their attention has drifted off.

‘American Idol’ – “Fools rush in where …”



“What a dork!”

A true ‘learning environment’ – the ultimate goal!
“It is important to build trust between the student and the teacher. Students must feel able to express their ideas and be willing to be wrong.”

Jean K. Stenmark

Formative assessment

- Just a refresher …

"While formative assessment can help all pupils, it yields particularly good results with low achievers by concentrating on specific problems with their work and giving them a clear understanding of what is wrong and how to put it right."

– Paul Black, Dylan Wiliam, 1998, "Inside the Black Box".

Providing 'recognition': $+_s$, $-_s$

- HOW rewards are given
- While abstract rewards, such as verbal praise, are more effective than concrete ones, both have shown to be effective if they are contingent upon the attainment of some standard of performance rather than upon simply doing some activity (which can <u>actually decrease</u> intrinsic motivation).

  - Marzano
- '*Pause, Prompt, Praise*'

Recognition cont'd

Free and easy praise …

"Once aware that gratuitous praise and pity communicate to the student that their, the students', ability is the cause of their poor results, the teachers can strive to communicate more productive and positive messages."

- R. Craig Janes ;

http://www.mun.ca/educ/faculty/mwatch/fall96/examinat.htm

TIPS and TIPS4RM



Identify …

- **the strategies**
- **the ‘procedures’**
- **the formative assessment**
- **the learning styles**
- **the structure(s)**
- **what has to be changed for <u>your</u> class**

Cognitively Guided Instruction

CGI is a brand name for a professional development program that explicitly shows what kind of knowledge students bring to the math learning process and how they connect that knowledge with formal concepts and operations. Three benefits to this approach are identified:

- **A student's self-esteem is supported by majoring on their 'Can Do' aspect**
- **"Leaving wrong answers in the waste bin of an evaluation such as 53% allows flawed or wrong understanding to take root and thereby poison attempts to gain subsequent new knowledge "**
- **Attempts to correct flawed or wrong understanding at a later date are tremendously weakened by both the passage of time having allowed the 'miss'-understanding to harden (like concrete) and by the lack of the original context within which the 'miss'-understanding might more easily have been recognized/clarified.**

Care, concentration, and non-abrasive soap






YOU make all the difference!

A mirror … or a dream?