

Notes, Distraction, Memory & Blueprints

March 17, 2008

Jeffrey P Schaefer, MD

Truck
Elephant
Cup

Road Map...

- Review a small group session
 - Learning's around note taking
 - Memory and its distracters
 - Blue Print
-
- Objective: We shall be able to improve student performance by creating a suitable note taking environment.

Small Group Video

- Note Taking
 - valuable learning aid?
 - distraction?

Note Taking

- Is it beneficial?
- Is it distracting?



Note Taking Factoids...

- 99% of college students take notes
- 94% of college students find them 'pivotal'
- Some:
 - write every word
 - pick and choose important parts
 - doodle

Dr. C.C. Crawford (1925)

- note taking is better than not
- reviewing notes is key to effectiveness
- organizing notes improves test scores

Ash & Carlton (1953)

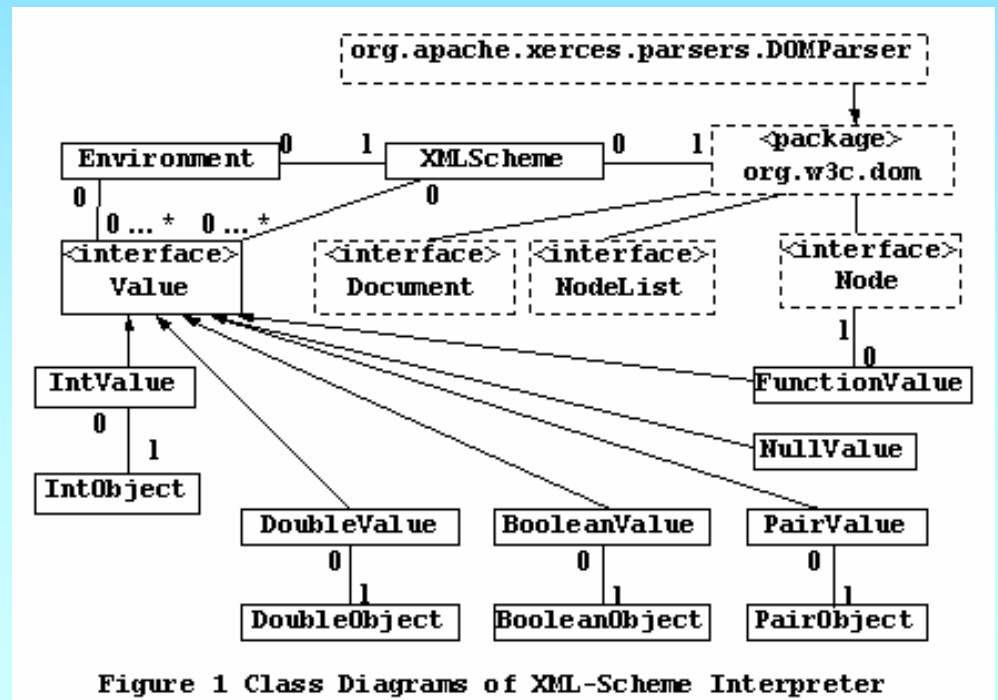
- Given a presentation without pause, without repetition →
- Students will attempt to take notes →
- Note taking will distract from learning

Howe (1970)

- One week after a presentation, note takers were 7 X more likely than controls to remember information 1 week later.
- Note taking = rehearsing

Fisher & Harris (1974)

- integrate 'recording' and 'encoding'
 - give freedom to 'encode' as they choose



Einstein (1984)

- students perform better if:
 - note taking is integrative
 - reprocess ideas in hierarchy
 - semantic encoding
- students perform worse if:
 - note taking is verbatim

Suritsky & Hughes (1974)

1. listening (paying attention)
 - 10 – 98% of students can repeat
2. cognitive processing
 - understanding
 - relating to knowledge base
 - ‘that’s the same as’ ‘that’s like...’

Suritsky & Hughes (1974)

3. written recording of material

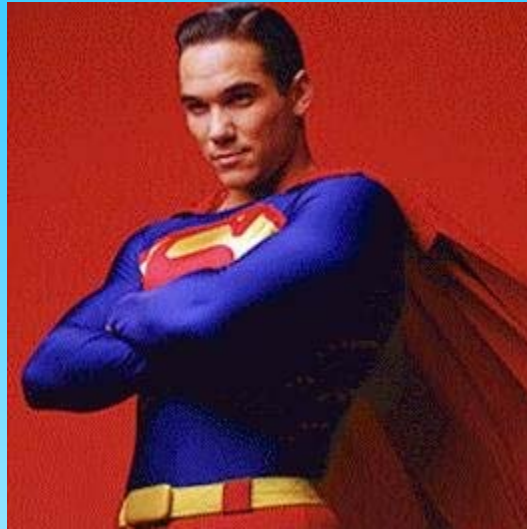
- efficiency (point:word)
- distinguish critical from trivial
- improves with seniority
- 72% senior female / 11% freshmen (30-40%)

4. reviewing noted information

- simply taking notes is insufficient
- instructor's notes vs student's own notes

Best advice...

- Normal vs Fast Speech
 - normal speed = fast-repeated
- Parallel vs Spaced vs No Notes
 - spaced → pause during lectures
- Visual Aids
- Instructor Provided Super / Sub Ordinates
 - link/skeletal & matrix
 - provide student time to fill in



- Standup, fold your arms, sit down/relax
- Standup, fold your arms the opposite way...
- It's hard to change learned behaviors...

Memories



Memory Test

- Observe x 10 seconds
- Recall

- Test 1:
 - observe
 - recall

equipment

saddle

stream

glass

building

eight



equipment

saddle

stream

glass

building

eight



Test 2:

- tap, tap, tap...
- observe
- recall

vital

water

green

heart

well

computer



vital

water

green

heart

well

computer



Test 3:

- blah, blah, blah...
- observe
- recall

screen

waste

media

cat

tire

straw



screen

waste

media

cat

tire

straw



Test 4:

- observe
- recall

TDW

YTE

FPI

KQC

HLE

JZG



TDW

YTE

FPI

KQC

HLE

JZG



Test 5:

- observe
- recall

CBC

NFL

PEI

AMA

NBC

IBM



CBC

NFL

PEI

AMA

NBC

IBM



Memory: Sonja Lupien (EHH)

- Focus
 - registration
- Retrieval
 - Alzheimer
 - Amnestic
- Stress
 - survival issues

Stress

What's Stress?

- “Not enough time...a common response”



What is stress?

- Perception of demand & supply.



Mason's Recipe for Stress

1. Novelty
2. Unpredictability
3. Threat to ego
4. Sense of loss of control

Categories of Stress

- **Absolute Stress**

- threat to life
- earthquake, fire, physical attack...



Categories of Stress

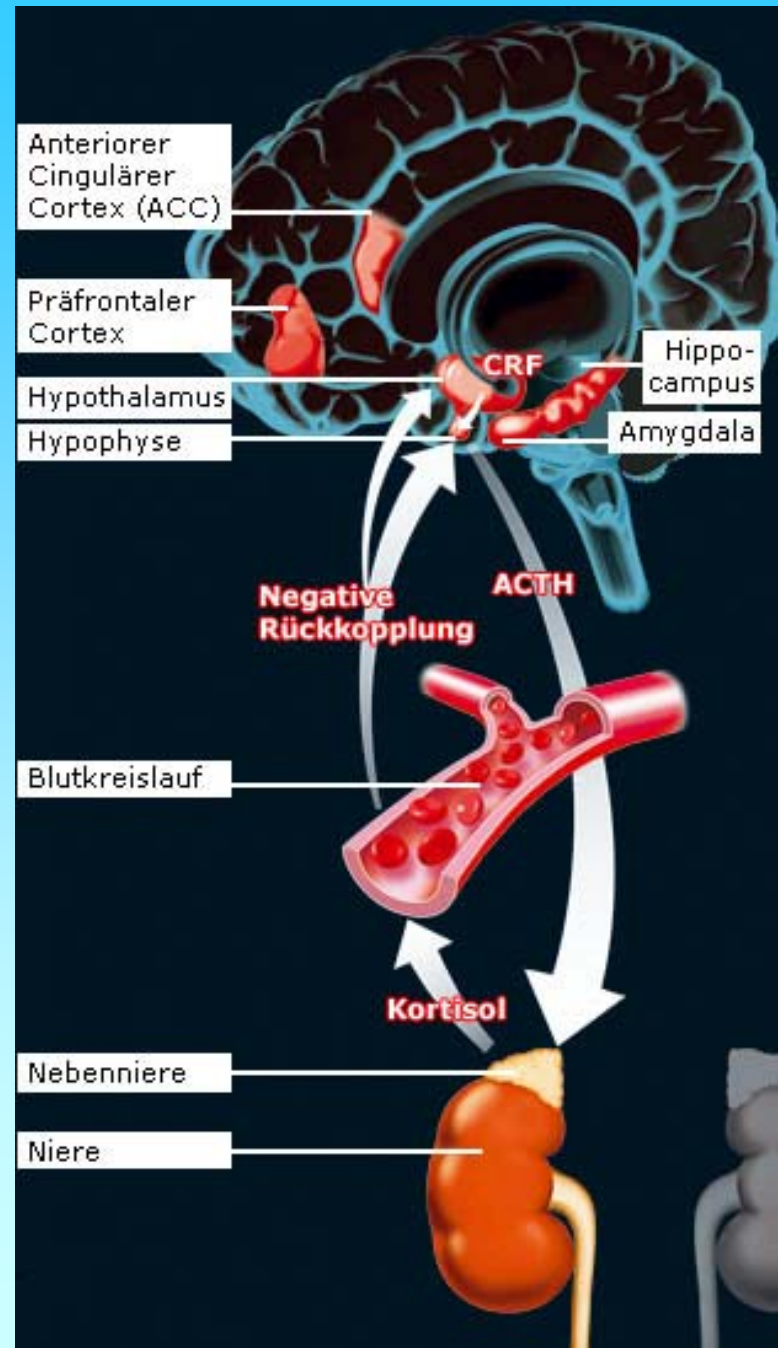
- **Relative Stress**

- implied threat based on interpretation



Cortisol Regulation

- Brain
 - emotion, pain, memory
- Hypothalamus
 - autonomic function
- Pituitary
 - stimulating hormone
- Adrenal Gland
 - cortex



Immediate Effects of Cortisol

- Response to Absolute Stress
 - increase vigilance
 - respond to emotion → don't think
 - raise blood sugar
 - increase psychomotor activity
 - obtain food

Prolonged Effects of Cortisol

- increase appetite
- increase blood sugar
- increase fat stores
- redistribute fat
- salt retention → BP +
- reduce acid barrier
- menstrual cycle problems
- male impotence
- bone calcium loss
- muscle wasting
- insomnia
- irritability
- depressed mood
- memory loss*
- immune dysfunction
- 2006 > Negative fx

Stress Related Disease

Disease Related Stress

- Headache
- Irritable Bowel Syndrome
- Obesity → Diabetes → Osteoarthritis
- Regional Pain Syndromes & Fibromyalgia
- Chronic Fatigue
- Are there others?

Nature Neuroscience 1, 69 - 73 (1998)

doi:10.1038/271

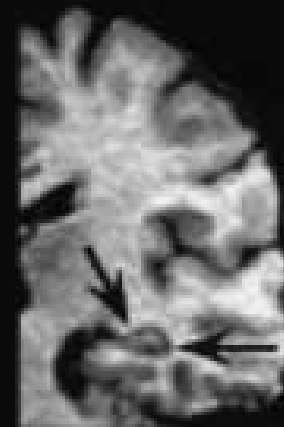
Cortisol levels during human aging predict hippocampal atrophy and memory deficits

Sonia J. Lupien, Mory de Leon, Susan de Santi, Antonio Convit, Chaim Tarshish, N. P. V. Nair, Mira Thakur, Bruce S. McEwen, Richard L. Hauger & Michael J. Meaney

Decreasing / moderate



Increasing / high



- What were those three words...

Truck
Elephant
Cup

Key Messages

- Note taking
 - valuable
 - listen, organize, record, review
 - instructor notes + student supplements best
- Memory
 - avoid distraction
 - build on knowledge base (make connections)
 - destructive force of stress

- Think about the students again?
- What can we do to improve note taking?