Terms of Endearment

Using the right word speeds learning and helps getting help

Le Mot Juste

mot juste/mō zoost/ (Fr.) most appropriate word, expression

Learning *le mot juste*, the right word for something, aids us in two ways:

* *Help Learning* … our brains seem to anchor concepts to words & phrases
* *Getting Help* … asking "tech support" for help or using online **HELP** requires us to describe the problem precisely

Terms

Probably familiar terms …

* screen saver

* monitor

* pixel

* RGB

* motherboard

* [micro]processor

* [RAM]memory

Software/Hardware

Hardware refers to physical devices; software refers to programs, the instructions directing a computer

* The main difference is: hardware cannot be changed, while the software can be modified
* The same hardware (computer) runs different software (applications)

Mnemonic

A *mnemonic* is any memory aid

* In IT we try to avoid remembering or memorizing, but sometimes we must … mnemonics can help

A mnemonic for periods and epochs in geology

Camels	Cambrian
often	Ordovician
sit	Silurian
down	Devonian
carefully.	Carboniferous
Possibly	Permian
their	Triassic
joints	Jurassic
creak.	Cretaceous
Perhaps,	Paleocene
early	Eocene
oiling	Oligocene
might	Miocene
prevent	Pliocene
premature	Pleistocene
rusting.	Recent

Definitions for "tangible" parts of IT -- RGB, pixel,... -- are found in glossaries

- A glossary is in the back of *FIT*
- Online glossaries are handy ... locate one
- A useful study aid is to start a document where you store the definitions of the new words you encounter -- later in the term we will show how to set up a DB for them

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... the "intangible" words of IT are even more important

To Abstract

abstract = extract or remove something

"Beppo abstracted the statue as Holmes, LeStrade and I watched"

* In FIT100 abstracting will usually involve removing the core idea or process from a specific situation -- fables
  * The "thing removed" is an *abstraction*
* Humans abstract core ideas, principles, rules, themes, etc. naturally

Imagine a Story ...

"In Kim's chem class the professor assigned challenge problems worth extra credit, but each week Kim couldn't do them and asked for help. The teacher said, 'Don't give up, attempt the problem again each day.' Kim followed the advice and was eventually able to solve the problems."

Abstracting from the situation: A good problem-solving technique is to return later to a problem.

- **Some aspects are relevant**
- **Some aspects are irrelevant**

To Generalize

generalize = infer a rule

* ∗ suppose you notice that faucets
  * turn to the left to turn the water on, and
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* Other knobs, screws, nuts/bolts, ...

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Noticing how devices operate simplifies their use

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So, if you think you're waiting for the computer but there is no feedback, it's waiting for you

One of the most effective habits new users can adopt is to be operationally attuned.

The Speed of Change

Consider running a mile …

* How fast can anyone run a mile?
    * In 1999 Hakim El Guerrouj ran it in 3:43.13
* Compare with Roger Bannister
    * In 1954 Bannister ran a mile in 3.59.4
* Express speed as a rate:

Bannister's rate = 15.04 mph
El Guerrouj's rate = 16.27 mph

* In 45 years the mile run got 7% faster

A Speed Comparison

- Compared to normal people ...
  * How fast can *you* run a mile?
    - Healthy people in their twenties ... ~7:30
  * That is, El Guerrouj is twice as fast as us
  * As a rate, 7:30 is 8 mph
- El Guerrouj is about a factor-of-2 faster than normal people ...

A factor-of-2 is a good rule for human strength

One More Factor

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* Univac I ran 100,000 *adds*/sec in 1954

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Can we comprehend such speeds or factors of improvement???

Factors Precisely

A factor of improvement is different than a percent improvement ...

- factor = new_rate/old_rate
- percent = 100 x (new_rate-old_rate)/old_rate

- Expressing an improvement by it's factor is easier, esp. for large changes
  - El Guerrouj's 7% improvement over Bannister is a 1.07 factor of improvement

Indy 500: 1911 Harroun 74.59mph; 2002 Castroneves 166.5mph

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- The time for the mile run has improved
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Getting information is easy with IT, but we need analysis to understand the significance

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Summarizing

It is essential to learn the vocabulary of a new field

* Words of tangible aspects of IT have definitions in glossaries
* Words for the intangible are key
    • Abstract
    • Generalize
    • Operationally Attuned
* Being analytical is key to understanding