Learning Styles-Some Resources and Literature

I. VARK (Visual/Aural/Read-Write/Kinesthetic)

1. Visual
This preference includes the depiction of information in charts, graphs, flow charts, and all the symbolic arrows, circles, hierarchies and other devices that instructors use to represent what could have been presented in words. Note: this definition does not include the use of television, videos and films. These media are primarily Aural (A) and Kinesthetic (K) because of their presentation of sound and reality (usually). They rarely use graphics.

2. Aural
This perceptual mode describes a preference for information that is "spoken or heard." Students with this modality report that they learn best from lectures, tutorials, and talking to other students.

3. Read/Writ e
This preference is for information displayed as words. Not surprisingly, many academics have a strong preference for this modality.

4. Kinesthetic
By definition, this modality refers to the perceptual preference related to the use of experience and practice (simulated or real). Although such an experience may invoke other modalities, the key is that the individual is connected to reality, either through experience, example, practice or simulation.

From UMUC Learning Styles Resource Center (http://polaris.umuc.edu/~rouellet/learning/about.htm):
Preferences are not the same as strengths. It is possible to be good in one modality and not necessarily have a preference for that modality. Indeed preferences may be masked by life and work experiences. As individuals mature, boundaries between modalities may blur as people learn to use Visual, Aural, Read/write, and Kinesthetic modes to deal with the everyday world.

Last, some Multimodal students may need to process information in more than one mode in order to achieve understanding. Students should try those study strategies listed for all their preferences that they have not tried before. Experience tells us that many students become much more successful if they develop a range of study strategies based upon their preferences. It also indicates that it is not helpful to use strategies that lie outside your preferences (e.g. concept-maps may not help if you do not have some Visual preference; mnemonics may not be helpful if you have low scores for Read/write.)
For more information, see http://www.vark-learn.com/english/index.asp

II. Soloman's Inventory of Learning Styles

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1. ACTIVE vs. REFLECTIVE LEARNERS
- Active learners tend to retain and understand information best by doing something active with it--discussing or applying it or explaining it to others. Reflective learners prefer to think about it quietly first.
- "Let's try it out and see how it works" is an active learner's phrase; "Let's think it through first" is the reflective learner's response.

- Active learners tend to like group work more than reflective learners, who prefer working alone.
- Sitting through lectures without getting to do anything physical but take notes is hard for both learning types, but particularly hard for active learners.

Everybody is active sometimes and reflective sometimes. Your preference for one category or the other may be strong, moderate, or mild. A balance of the two is desirable. If you always act before reflecting you can jump into things prematurely and get into trouble, while if you spend too much time reflecting you may never get anything done.

2. SENSING vs. INTUITIVE LEARNERS

- Sensing learners tend to like learning facts, intuitive learners often prefer discovering possibilities and relationships.
- Sensors often like solving problems by well-established methods and dislike complications and surprises; intuitors like innovation and dislike repetition. Sensors are more likely than intuitors to resent being tested on material that has not been explicitly covered in class.
- Sensors tend to be patient with details and good at memorizing facts and doing hands-on (laboratory) work; intuitors may be better at grasping new concepts and are often more comfortable than sensors with abstractions and mathematical formulations.
- Sensors tend to be more practical and careful than intuitors; intuitors tend to work faster and to be more innovative than sensors.
- Sensors don't like courses that have no apparent connection to the real world; intuitors don't like "plug-and-chug" courses that involve a lot of memorization and routine calculations.

Everybody is sensing sometimes and intuitive sometimes. Your preference for one or the other may be strong, moderate, or mild. To be effective as a learner and problem solver, you need to be able to function both ways. If you overemphasize intuition, you may miss important details or make careless mistakes in calculations or hands-on work; if you overemphasize sensing, you may rely too much on memorization and familiar methods and not concentrate enough on understanding and innovative thinking.

3. VISUAL vs. VERBAL LEARNERS

- Visual learners remember best what they see--pictures, diagrams, flow charts, time lines, films, and demonstrations.
- Verbal learners get more out of words--written and spoken explanations. Everyone learns more when information is presented both visually and verbally.

In most college classes very little visual information is presented: students mainly listen to lectures and read material written on chalkboards and in textbooks and handouts. Unfortunately, most people are visual learners, which means that most students do not get nearly as much as they would if more visual presentation were used in class. Good learners are capable of processing information presented either visually or verbally.

4. SEQUENTIAL AND GLOBAL LEARNERS

- Sequential learners tend to gain understanding in linear steps, with each step following logically from the previous one. Global learners tend to learn in large jumps, absorbing material almost randomly without seeing connections, and then suddenly "getting it."
- Sequential learners tend to follow logical stepwise paths in finding solutions; global learners may be able to solve complex problems quickly or put things together in novel ways once they have grasped the big picture, but they may have difficulty explaining how they did it.

Many people who read this description may conclude incorrectly that they are global, since everyone has experienced bewilderment followed by a sudden flash of understanding. What makes you global or not is what happens before the light bulb goes on. Sequential learners may not fully understand the material but they can nevertheless do something with it (like solve the homework problems or pass the test) since the pieces they have absorbed are logically connected. Strongly global learners who lack good sequential thinking abilities, on the other hand, may have serious difficulties until they have the big picture. Even after they have it, they may be fuzzy about the details of the subject, while sequential learners may know a lot about specific aspects of a subject but may have trouble relating them to different aspects of the same subject or to different subjects.

A survey of learning styles was conducted in a sophomore-level introductory chemical engineering class with an enrollment of 143 students by Susan Montgomery at the university of Michigan. She found that:

- 67%of the students learn best actively, yet lectures are typically passive

- 57%of the students are sensors, yet we teach them intuitively
- 69%of the students are visual, yet lectures are primarily verbal
- 28%of the students are global, yet we seldom focus on the ``big picture.'

III. Steinberg's Formal/Functional Model of "Thinking Styles "
This viewpoint, based on *Thinking Styles: Keys to Understanding Student Performance* by R.J. Steinberg, coordinates typologies of "functional styles" and "forms":

1. The Three Functional Styles:
- Legislative : Concerned with creating, imagining, and planning

Target Activities: Questions like "put yourself in the place of the author and write a different end to this book," or "design an experiment to identify the functions of the two hemispheres of the brain"

- Executive : Concerned with implementing and doing
Target Activities: Short answer and multiple choice tests, performing a planned experiment, doing problem sets

- Judicial : Concerned with judging, evaluating, and comparing
Target Activities: Comparing two characters in a book, judging how one set of events led to another, and evaluating an experiment

2. The Forms of the Styles:
- Monarchic : A single goal or way of doing things predominates
- Hierarchic : Multiple goals exist, each with a different priority
- Oligarchic : Multiple goals exist, all of which are equally important
- Anarchic : Hates rules, procedures, and guidelines