

# Using Technologies to Reach All Learning Styles

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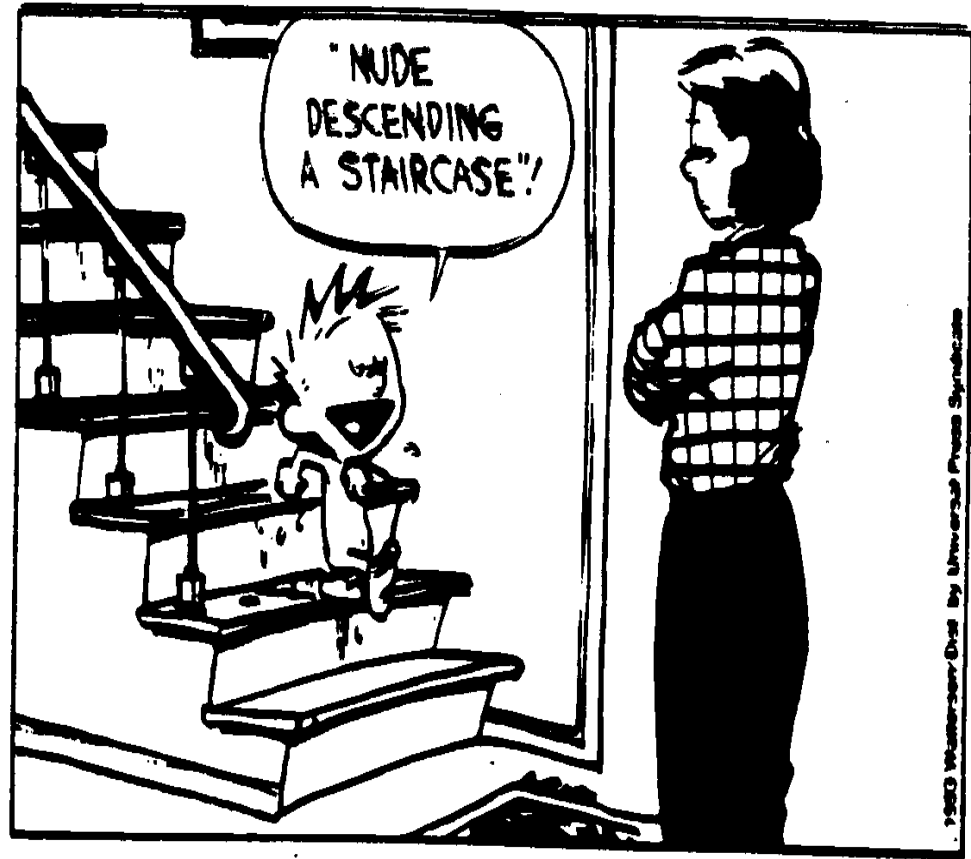
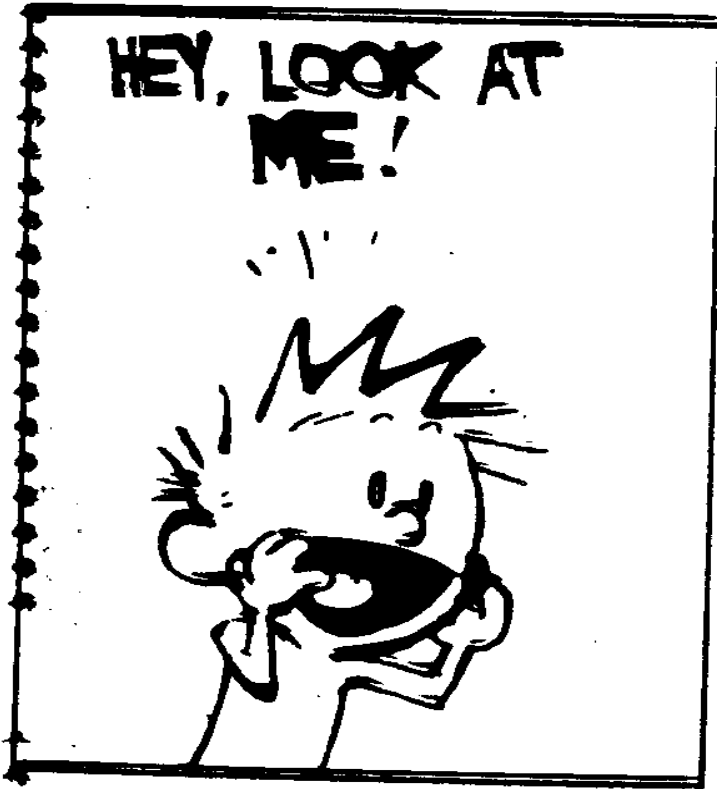





## Nude Descending a Staircase

- Painted in 1912 by Marcel Duchamp (1887 - 1968)

# CALVIN AND HOBBES

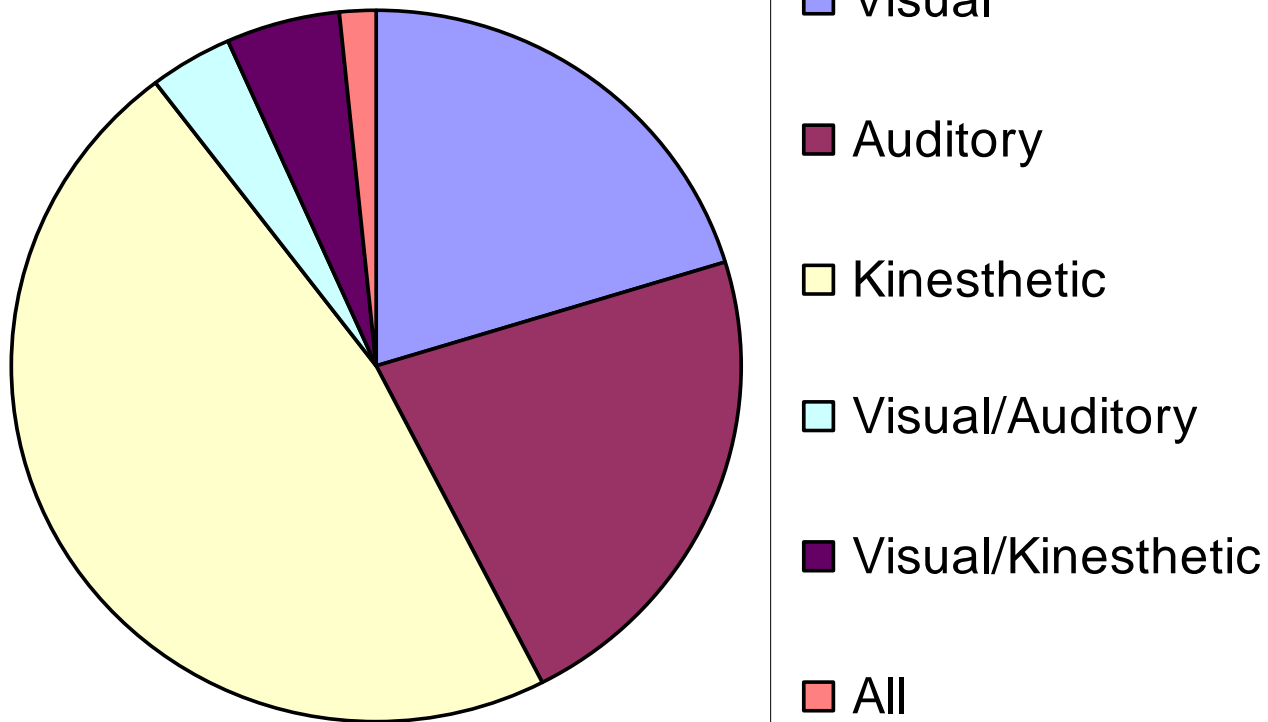


# Focusing on Teaching as a Process

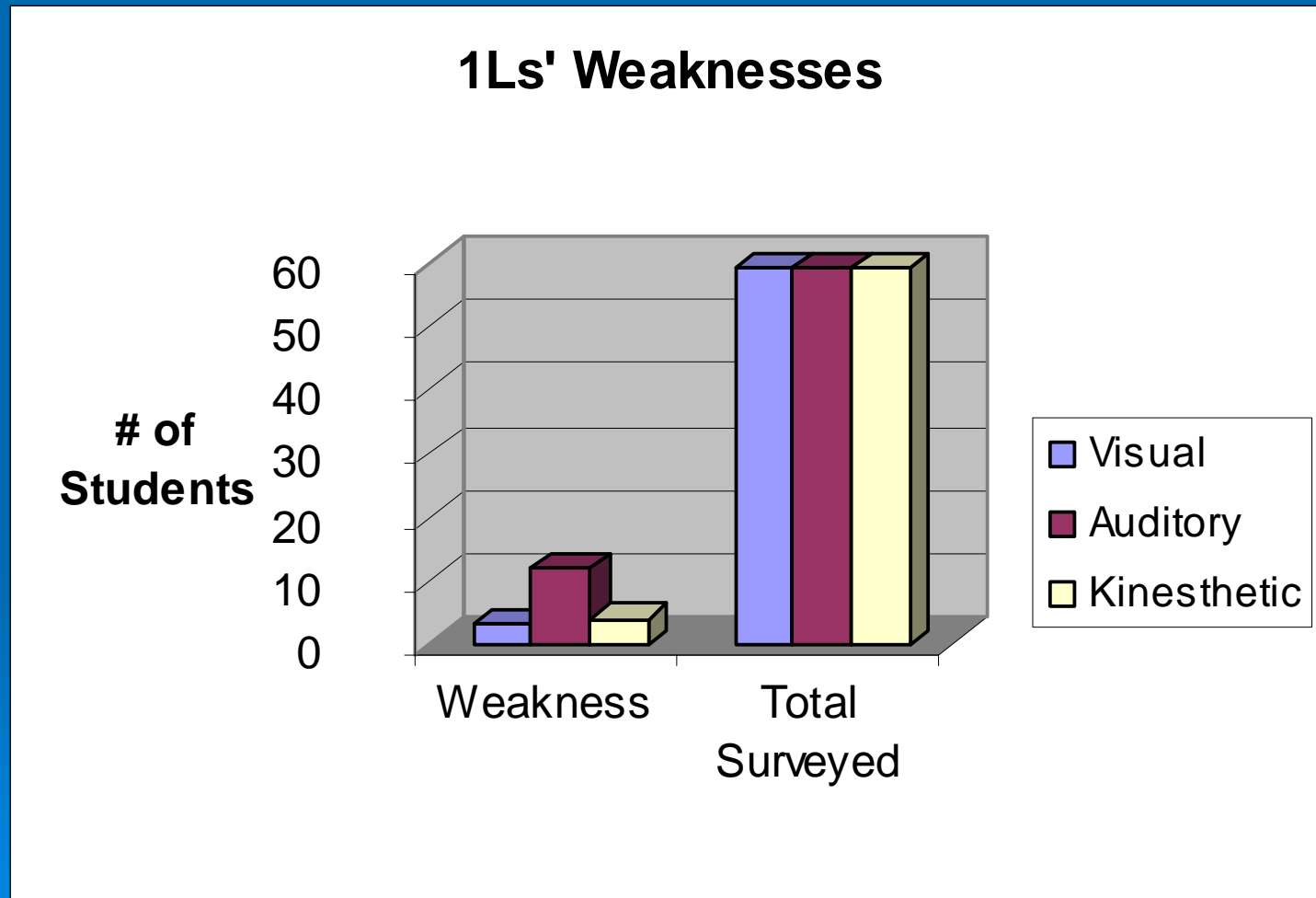
- What are student strengths/weaknesses?
  - What are my strengths/weaknesses?
  - Where do our strengths meet?
  - How do we avoid joint weaknesses?
- 
- The background of the slide is a solid blue color. In the lower right quadrant, there are several decorative elements consisting of concentric circles, resembling ripples in water. These circles are light blue and vary in size and opacity, creating a subtle pattern.

# Boyd's 1Ls -- Strengths

**Boyd's 1Ls' Learning Styles**



# Boyd's 1Ls -- Weaknesses



# Learning Styles – VARK Model (cognitive senses – taking in info)

- **VISUAL (V)** Learners prefer visual representations of information.
  - Preferred techniques: flow charts, graphs, pictures, use of body language/gesturing by lecturer, textbooks with diagrams and pictures, turning visuals back into words (on tests).
- **AURAL (A)** Learners prefer auditory presentation of information.
  - Preferred techniques: lectures, tutorials, discussion, use of taped summaries, speaking answers to questions (on tests).

- **READ/WRITE (R)** Learners prefer verbal representation of information.
  - Preferred techniques: lists, definitions, handouts, textbooks, library readings, lecture notes, essay writing, manuals, outlining prior to expansion of ideas (on tests).
- **KINESTHETIC (K)** Learners prefer use of experience and 'real world'.
  - Preferred techniques: simulations, examples, lab work, field trips, applications, trial and error, use of samples, practice answering test questions, role-play.

# For Additional Information

- The VARK Website: <http://www.vark-learn.com/english/index.asp>. (Includes assessment tool and “helpsheets” explaining how to key studying to learning preferences).
- Robin A. Boyle & Rita Dunn, *Teaching Law Students Through Individual Learning Styles*, 62 Alb. L. Rev. 213, 227-233 (1998) (discussing various learning styles and instructional strategies).
- Sam Jacobson, *Learning Styles and Lawyering: Using Learning Theory to Organize Thinking and Writing*, 2 J.A.L.W.D. 27, 33-38 (2004) (discussing learning styles and teaching strategies, includes an assessment).

# Daubert

- Reliability Factors
  - Tested
  - Peer Review/Publication
  - Rate of Error
  - Standards controlling technique's operation
  - General Acceptance
- Not a definitive checklist or test
- Inquiry is a flexible one
- Relevance equates to a good "fit"

# Sutera v. Perrier Group of America

## 986 F.Supp. 655 (D.Mass. 1997)

- Trace amounts of benzene (up to 28 ppb) were found in Perrier for product lines from 1/89 to 2/90
- Plaintiff drank Perrier for those 14 months and was diagnosed with Acute Promyelocytic Leukemia (“APL”) on 9/92
- Background environmental levels of benzene range from 2.8 ppb to 20 ppb
- Plaintiff relies on treating physician as expert (oncologist and board certified hematologist)
- Defendants rely on two toxicologists, an epidemiologist, and a hematologist
- Court decides to hold an evidentiary hearing on defendant’s Daubert motion

# Sutera (continued)

- Epidemiological evidence does not support – differing ingestion, amounts, duration and latency; 28 ppb over a lifetime not associated with adverse health affect
- Mechanistic studies do not support – differing dose and no proof mechanics of absorption relevant to case
- Risk assessment approach does not support – less than 1% chance that his disease was due to benzene
- Plaintiff's expert not qualified – limited expertise, ability to diagnose and treat different from ability to assess genesis, no research or publications, unfamiliar with literature, and never previously gave opinion regarding toxic causation

# Making Daubert Learner-Friendly

- The assignment: Prepare for the Sutera evidentiary hearing (High Pass/Pass/Fail)
  - Choose defense experts
  - Take expert deposition
  - Prepare exhibits for evidentiary hearing
  - Research benzene, leukemia, epidemiology, mechanistic evidence, risk assessment, etc.

# Goals

- Allow learners to reach the material through their learning strengths
  - Visual – graph, diagram, turn visuals into words
  - Aural – verbal question and answer
  - Read/Write – list, define, craft documents
  - Kinesthetic – simulations, examples, application

# Scientific Method and Causation

- Look to relevant scientific literature
  - Misreads primary source; relies on study with “no epidemiological significance”; relies on only six references
- Examine individual’s medical records for exposure, social history, and individual susceptibility
  - Doesn’t know tobacco history, occupational exposure, or dietary history

# Scientific Method and Causation (Continued)

- Use scientific studies to determine whether a correlation exists between the specific disease and agent
  - Only one study found APL, and it was one instance
- If an association exists, determine the level and type of exposure
  - Differing ingestion, dose, time, and disease

# The Alliteration Method

- Incomplete
  - Small microcosm of literature
- Insufficient
  - No dose relationship to disease
- Selective
  - Ignores patient's background history
- Suggestive
  - Assumed longer duration of exposure at maximum levels

# The Plaintiff's Position

## ➤ Dr. Wallerstein

- A professional expert – 100% of income
- Retained 40 times in last four years
- 100% for defendants
- Sees no patients

## ➤ Dr. Irons

- Works for institute funded 100% by chemical industry
- Renders opinions 10-20 times per year
- 70% of his income from consulting

# For the Mathlete

- .39% risk of Caucasian USA men getting AML
- Increase benzene concentration in water by 10 ppb = .001% more incidences of any cancer (per WHO)
- Increase benzene concentration in water by 28 ppb = .003% more incidences of cancer
- Assume every incidence of cancer is AML --  
.39% risk + .003% increase = .393% risk of AML
- Divide increased risk (.003%) by overall risk (.393%) = 0.8% chance that AML was due to benzene in drinking water

# A Picture is Worth a Thousand Equations

