Communications

CSC305 – Software Engineering
The Study of Communications

• Socrates, Plato, Aristotle
  – Sophism
    • Preys upon emotion
    • More like politics
    • The Sophists were “wise men for hire”
  – Logic
    • Reveals the truth through rules of logic
    • Seeks to verify by testing for contradiction
    • Forms the basis of the “Socratic Method”
The Philosophers

• Antiquity is regarded as the period between 800 B.C. and the 5th Century A.D.
• Aristotle lived from 384 to 322 B.C., and was a student of...
• Plato, who lived from 428 B.C. to 348 B.C., who was a student of...
• Socrates, who lived from 470 B.C. to 399 B.C.
• Together, they embodied the concept of “Philosopher”. In modern parlance,
The Philosophers

• ...they were homies; buds; a crew; a lineage of mentors and the mentored.
Aristotle

• Aristotle taught Alexander the Great
Earliest Model of Communications

- Aristotle also produced a work called “Rhetoric”
  - Speaker
  - Speech
  - Audience

Commonly known as a “Transmission Model”

This is Claude Shannon

http://en.wikipedia.org/wiki/Claude_Shannon

• 1916 – 2001
• Related to Thomas Edison
• EE and Math from Umich 1936
• Post Grad at MIT working on Vannevar Bush’s differential analyzer (analog computer)
• Proved that Boolean Algebra and Binary Arithmetic could be used to simplify relay circuits

• Then proved that relays could be arranged to solve Boolean Algebra problems – hence, digital computing.
• Contributed to information theory, communications, game theory, and natural language processing.
• Built a device that could solve Rubik’s Cube.
This is Warren Weaver

http://en.wikipedia.org/wiki/Warren_Weaver

- 1894 – 1978
- Civil Engineering and Math from U Wisconsin-Madison 1919
- Concerned with communications in science
- Co-authored “The Mathematical Theory of Communication” (1949) with Claude Shannon

- Proposed “machine translation”
- Contributed to cryptography, natural language processing, communications, information theory, linguistics, and the application of physics and chemistry to the understanding of biological processes.
The Shannon-Weaver Model

- A “transmission model” with “noise”
This is Harold D. Lasswell

http://www.bookrags.com/biography/harold-dwight-lasswell

- 1902 - 1978
- Started at University of Chicago at the age of 16, graduating in 1922, and then with his Ph.D in Political Science in 1926
- Concerned with behavioral political science
- Published “Propaganda Technique in World War” (1927), an important work in communication theory.
- Influenced by Freud while studying in Berlin.

- Considered a “liberal” in his time.
- A thought leader who combined his studies of psychology and political science in order to produce a number of works in information theory, propaganda, and communications.
The “Lasswell Formula” Model

- Considers the medium of communications, and the effects of the communiqué upon the audience.
This is Kenneth David Berlo

• 1929 - ?
• Ph.D in Communications, University of Illinois, Charles Osgood was his faculty advisor
• A “disciple” of Wilbur Schramm

• Very little information about David K. Berlo.
• Previously served as Director of Department of Communications, Michigan State University
• Joined Illinois State as President of the university (1970-1973)
• Left Illinois State under a cloud of controversy
Berlo’s SMCR Model

- Considers personal attributes and properties of the message and the medium.
This is Gerhard Maletzke


- Born/Died?
- Produced a work called “The Psychology of Mass Communications” (in German)
- Little else available
Maletzke’s Model

- Further elaboration of the factors that influence successful communications.
This is Wilbur Schramm


- 1907 – 1987
- BA, 1928, Marietta College
- MA, American Civilization, Harvard, 1930
- Ph.D, English Literature, University of Iowa
- Considered by many the “Founder of Communications Curricula”
- Worked with Lasswell in 1941-1943
- Founded College of Communication at University Illinois, 1947-1953

- Schramm was the first scholar in the world to carry the title “Professor of Communications”
- Schramm left U of I and joined Stanford, where he spent over 20 years before retiring.
This is Charles E. Osgood

http://web.library.uiuc.edu/ahx/uasfa/1305020.pdf#search=%22charles%20osgood%20obituary%22

- 1916 – 1991
- Ph.D, Psychology, Yale, 1945
- Professor of Psychology at University of Illinois, 1949-1984
Schramm – Osgood Model

• Their “Circular Model” reflects Aristotle
This is Marshall McLuhan

http://en.wikipedia.org/wiki/Marshal_McLuhan

- 1911 – 1980
- Ph.D, Cambridge
- Coined the phrase, “The medium is the message”

- McLuhan believed that the content of a message was irrelevant. He believed that the medium used to convey the message was the essential element in influencing the consciousness of the audience.
Reconciling Aristotle

• Communications is bi-directional
Reconciling Aristotle

- A “speech” can be any “message”
Treatment of Models

• We will assume that a circular, or bi-directional SMCR model holds in all communications relating to Software Engineering.
• We will assume all models have something to offer, and no model is comprehensive.
• We will assume that the job of a Software Engineer, first and foremost, is to communicate with others.
“Seen” messages can be very complex, ambiguous, confusing.
“Seen” Messages
“Seen Messages”
Closer Examination: Berlo’s SMCR Model

“Heard” messages can also be very complex, ambiguous, confusing.
“Heard” Messages
“Haptic” messages can also be very complex, ambiguous, confusing.
“Haptic and Tactile” Messages