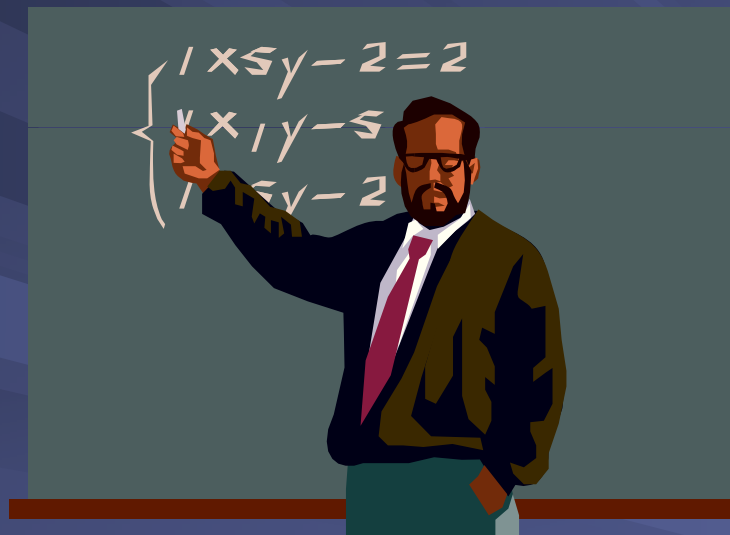


CAUSE AND EFFECT DIAGRAM



Fishbone

Developed from the Contents of
Reginald Leon Green's

Practicing the Art of Leadership: A
Problem-based Approach to
Implementing the ISLLC Standards

Chapter 5

The Cause and Effect (CE) Diagram

- Created in 1943 by Professor Kaoru Ishikawa of Tokyo University and adopted by Dr. W. Edwards Deming

Basic Use of the CE Diagram

- The CE Diagram is basically used to investigate a problem, exploring, identifying, and displaying the possible causes.

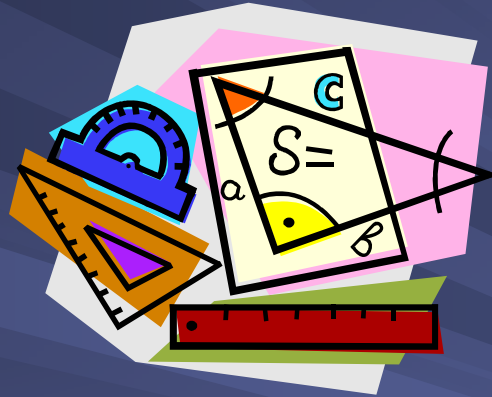


Purpose of the CE Diagram

- To identify the relationship between the effects in a given situation and all of the possible causes
- To find problem sources/solutions



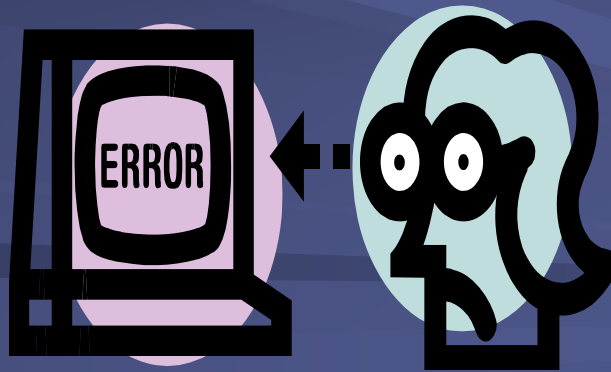
The Fishbone Diagram



An Analysis Tool

The Fishbone Diagram

- A tool used to analyze possible causes of a specific problem or condition



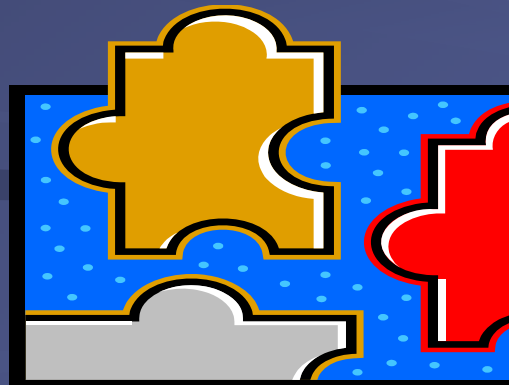
Analyzing the Cause



- Why has membership in Advance Placement courses decreased?
- Why are students not participating in extra-curricular activities?

Major Causes By Categories

- People – The faculty
- Policies – Stated requirements
- Procedures – The implementation process
- The School Building – The physical plant



The CE Process

- Identify the problem to be corrected
- Identify any possible causes of the problem

The CE Process

- Question the cause of problems in each area, seeking changes that are deviations from the norm
- Repeat for each sub-area

Constructing The Diagram

1. Clearly describe the problem, i.e., the "effect," to be diagrammed (for example: files out of place, too many students in line, or attendance below average).
2. Draw a box around the effect with an arrow heading to it.



EFFECT

Constructing The Diagram

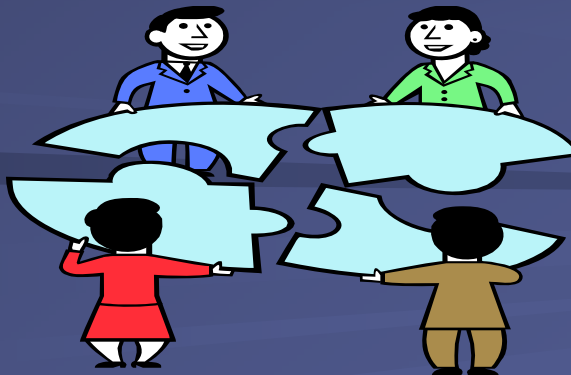
3. Identify the major categories of factors that contribute to the problem and write them on the diagram.

- This will help the faculty organize the causes.

Constructing The Diagram

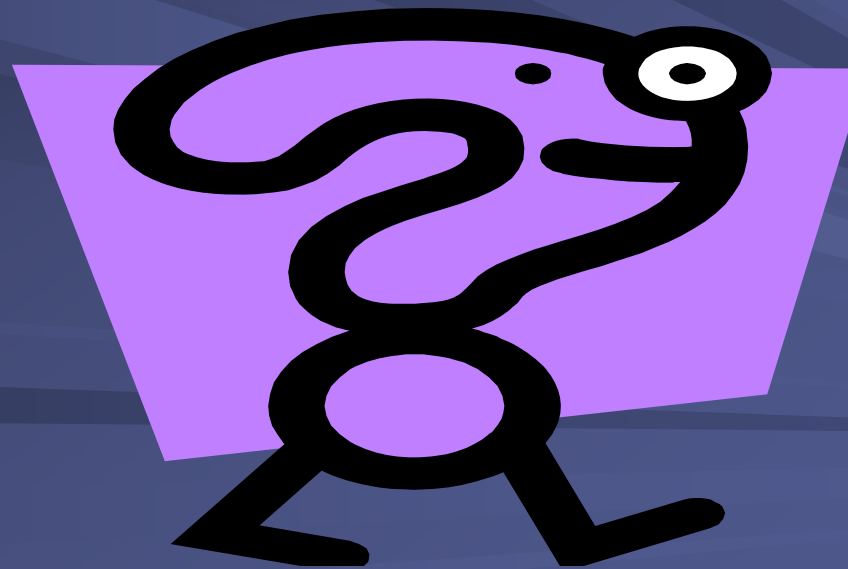
4. Brainstorm the detailed factors that contribute to the problem (i.e., the "effect").

- Ask for each factor, "What causes this factor?"
- Write the causes on the diagram and connect them to the appropriate main category.



Constructing the Diagram

5. Identify any and all sub-causes and place them on the diagram. Continue to ask "why" until the root causes are identified.

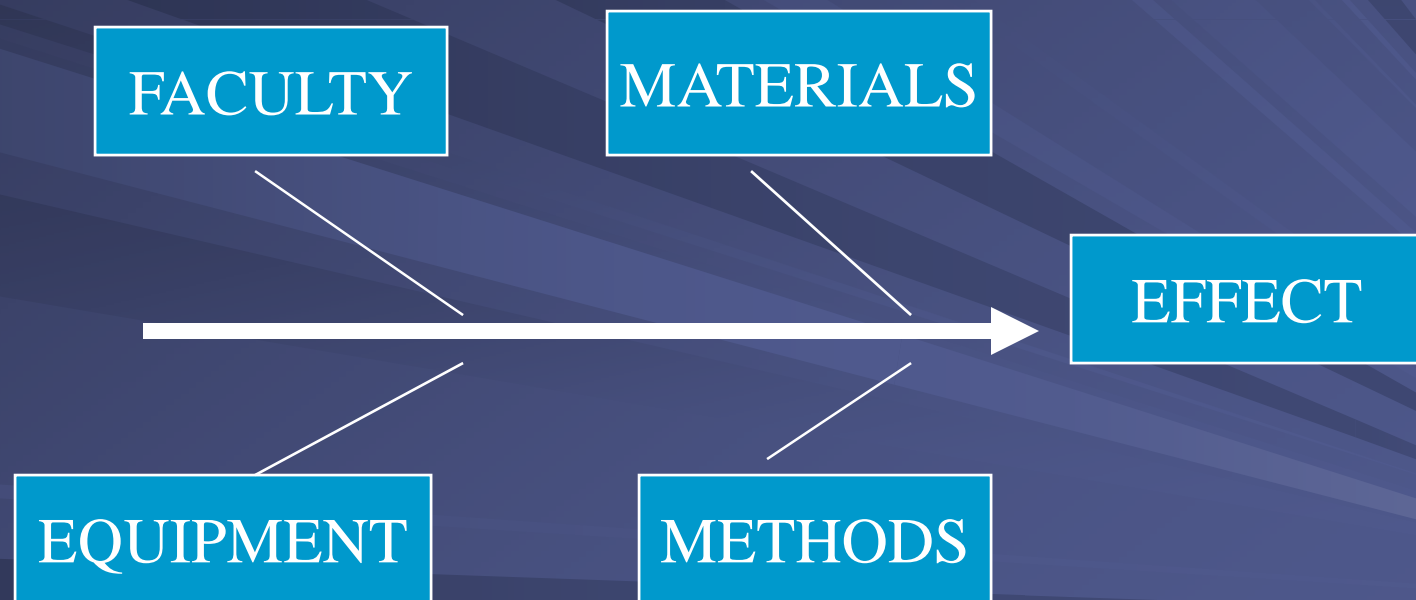


Sample Fishbone Diagram

- An Internet example of a fishbone diagram can be found at the following URL addresses:
 - <http://www.hci.com.au/hcisite/Toolkit/caused.htm#Discover> underlying causes
 - <http://bellnet.tamu.edu/ExFishDiag.htm>
 - http://cbpa.louisville.edu/boyd/CHAP03_Revised/sld069.htm
 - <http://www.goalqpc.com/RESEARCH/MJII/C%26E.html>

Constructing the Diagram

■ Fishbone Diagram:



Reference

The memory jogger for education. (1992).
Methuen, MA: GOAL/QPC.

Internet References:

- *Cause & Effect Diagram.* http://cbpa.louisville.edu/boyd/CHAP03_Revised/tsld068.htm
- *Why Use the Cause & Effect (Fishbone) Diagram? Find and cure causes, NOT symptoms.* The Memory Jogger™ II <http://www.goalqpc.com/RESEARCH/MJII/C%26E.html>

Internet References:

- *Discover underlying causes.* <http://www.hci.com.au/hcisite/Toolkit/causeand.htm>
- *Cause and Effect Diagram.* <http://deming.eng.clemson.edu/pub/tutorials/qctools/cedm.htm#history>
- *Cause & Effect Diagram.* http://www1.star-net.or.jp/prex/new_virtual/web_qc/qc_doc/tlqc006.htm

Internet References:

- *Ishikawa's Message*. <http://www.dmu.ac.uk/dept/schools/business/corporate/tqmex/ish.htm>