Fishbone Analysis for PLC'S

I continued my work this week with the Arkansas State Department of Education, providing training for instructional coaches, staff developers, specialist and administrators. Our sessions dealt with leaders' understanding the change process and practical tools for leading learning community conversations that support continuous improvement.

One of the strategies we practiced was fishbone analysis (also called: Cause-and-Effect Diagram, Ishikawa Diagram) for identifying possible causes of current conditions (effect) and for identifying possible strategies (causes) for achieving a desired outcome (effect)

Here is the example we did as a practice. (illustration below)

Problem: Too few students are enrolling in higher level science classes.

The problem became the head of the fishbone. Then, we brainstormed a list of possible causes and combined them into four major categories:

#1 Perceptions Students held about Science Classes
#2 Lack of Encouragement for Science outside the School
#3 Lack of Encouragement for Science from Teachers
#4 Fear of Failure

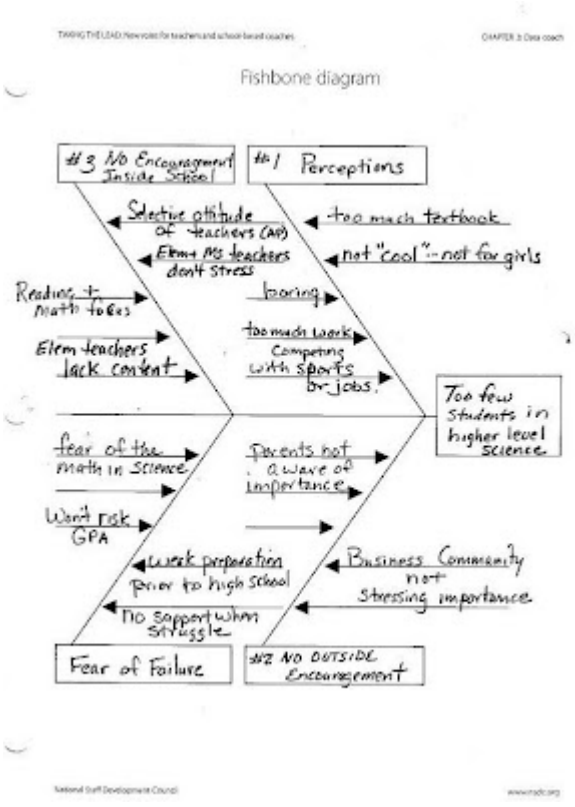
Each of these categories was then take by a group who examined possible causes
#1Perceptions of Science

-too much text book teaching
-not for girls
-not cool to be interested
-boring
-to much work (effort) than payoff
-job or sports more important

#2 No Encouragement Outside
-parents not understanding important role of science
-business community not promoting

#3 No Encouragement Inside
-AP teachers selecting students more than recruiting
-Elementary/Middle teachers uninformed of role of science in students' futures
-Elementary teachers lacking science knowledge/instructional strategies
-Reading and Math getting all the elementary teachers' attention

#4 Fear of Failure
-weak preparation prior to high school
-fear of math elements in science
-GPA more important .. won't risk a low grade in higher level science



Click here to see bigger diagram.

Then we took each of the four major causes and turned them

into the desired “effect” we want:

#1 Creating Positive Student Perceptions of Science Classes
#2 Having Parents and Community promoting Science Study
#3 Having Teachers promoting Science Opportunities
#4 Students Feeling Confident about Taking Science Classes

The same groups that analyzed the causes connected to each major cause now brainstormed how to generate (cause) the desired effects. The desired effect now becomes the “head of the fish.” Here are some of the ideas that discussion produced:

Recruit community business leaders to mentor teachers and students.

Professional development for learning/teaching science for elementary teachers…. perhaps presented by secondary science teachers.

Family field trips to businesses where science skills/knowledge are important.

Tutoring from the start for students in higher level classes.

Building students success in middle school math and science classes.

Exploration of salaries for jobs with science connections.

Presentation to teachers on future jobs requiring science skills/knowledge.

Communications among teacher to assist students in advanced courses in planning their time for assignments.