Spatial Visualization: A Promising Practice for Promoting Student Equity

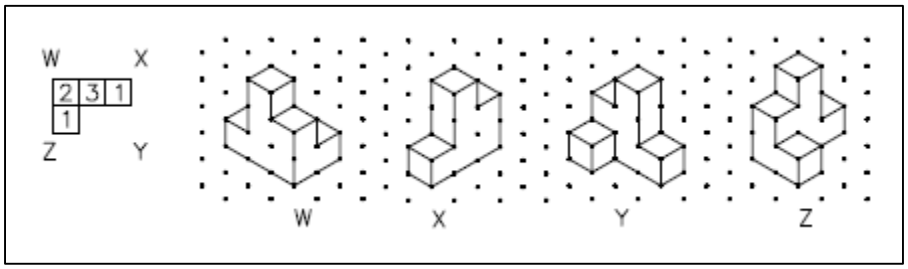
Webinar: April 27, 2016

Spatial Visualization Workshop – Week 1

Isometric Drawings and Coded Plans

1. Chalk Talk
    a. Welcome to SV!
        i. Most correlated measure with regards to success in engineering
        ii. Learnable!
    b. Topics
        i. Week 1 - Isometric drawings + Coded Plans
        ii. Week 2 – Orthographic Drawings
        iii. Week 3 – Single/Double Axis Rotations
        iv. Week 4 – Review + Test
    c. Schedule and Expectations
        i. Attend once a week
        ii. Keep a notebook with your in-class and out of class work
        iii. Study hard!
    d. Today: Isometric Drawings + Coded Plans
        i. Definition: isometric – equal measure
        ii. Equal angle between all axes (120deg) (i.e. – looking down a corner of the object)
        iii. Coded plans: height of object at location depending on viewpoint
2. Stations
    a. Block and Draw Relay
        i. All students at station each build an object. Then, a coded plan with viewpoint and an isometric view are produced for each object. After 2 minutes, each object is passed down to the next student. After all objects are drawn by all students, the group compares results and discusses the correct solutions to each object.
    b. Workbook Drill
        i. Individually, use the workbook and answer the questions on pages iso1 through iso12 in your notebook (NOT in the book). Check your answers as you go.

c. Peer Teach
    i. In pairs, each student draws two isometric view of the following coded plan. Then, each student teaches the partner how they produce the drawing.



    ii. Repeat activity using additional coded plans on pages iso7-9.
d. Computer Aided Visualization (CAV)
    i. Using SV workbook software:
        1. Read through Module 3 – Isometric Drawings and Coded Plans notes
        2. Read and complete *Isometric Drawings and Coded Plans* exercises
    ii. Begin HW #1 on D2L – Spatial Visualization site
        a. Read/listen to PowerPoint (*Isometric Drawings and Coded Plans.ppt*)
        b. Practice with practice problems (*Practice Isometric and Coded Plans*)
        c. Take homework quiz (*Homework A: Isomeric and Coded Plans*)

3. Homework #1
    a. Read/listen to PowerPoint (*Isometric Drawings and Coded Plans.ppt*)
    b. Practice with practice problems (*Practice Isometric and Coded Plans*)
    c. Take homework quiz (*Homework A: Isomeric and Coded Plans*)
    d. Grade your own pretest and bring in copy to class