Reflection Summary for September 20, 2011

Compare and Contract the QCR and Pearson's Correlation Coefficient

QCR

*Resistant to outliers

*Does not consider distance between data point and mean

*QCR is a good approach for leading students to Pearson's CC

*Could show false measures +/- 1 for goodness of fit; i.e., QCR could be +-1 even if not perfectly linear

* QCR =[n(Q1) + n(Q3) - n(Q2) - n(Q4)] / n

*Easier for students to grasp or understand (more intuitive & easier to calculate)

*"How many"

Pearson CC

*Sensitive to Outliers

*DOES consider the distance between data point and mean

r = [SUM (product of z scores for x,y coordinates)] / n-1

r is approximately the average of the product of the z-scores for each point

*More complex thus practically, technology needed to find Pearson r

*Measures form – measures ***linear*** association between two variables

*"How much"

QCR & Pearson

*Measures of strength and direction between two variables

*Use the mean lines for x and y to divide the scatterplot into 4 quadrants

*Unitless values between -1 and +1

GPS/CCSS STANDARDS: N/A

Compare and Contract the Median-Median Line and the Least Squares Regression Line (LSRL)

Med-Med

*Resistant to outliers because uses the median

*Divides data into three equal parts, then find the median point in each part

*Count points

*Easier to find (especially by hand); more intuitive

*Doesn't always pass through the mean point

*How many

LSRL

*Non-resistant to outliers because uses the mean

*Minimizes total area of squares of the residuals (distance between the observed y and the predicted y)

*Considering distance from the mean point of x and y

*Residuals: minimizes vertical distances; sum to zero

*Lines goes through

$$\boxed{(\bar{x}, \bar{y})}$$

*Practically need technology to find LSRL

*How much

Med-Med & LSRL

*<u>Linear</u> (straight line) models that represent the data

*Predicts values for a response variable based on linear lines using an explanatory variable

*Both equations for the line are of the form: predicted y = a + bx ; where a is the y-intercept and b is the slope.

GPS/CCSS STANDARDS: M8D4, MM2D2, S-ID.6, S-ID.7, S-ID.8