**Converting Raw Scores to Scale Scores**

If we first convert a set of raw scores to standard (*z*) scores, we can then convert (transform) the set of z-scores to a new scale having a mean of  by adding to all the scores. For instance, suppose we want a new scale with a mean of 100. All we have to do is add 100 to all the z-scores. Now the set of (scale) scores will have a mean of 100 and a standard deviation (s.d.) of 1.Why would we want to do this? Because all the original scores below the mean will have negative *z*-scores. For many people a negative score is either confusing or viewed disapprovingly. Adding a constant to all the scores, thus raising the set of scores above zero sometimes make the score more understandable. You should note that adding a constant to all the scores will in no way change the shape of the distribution.

Now, suppose we want the set of scale scores to have a standard deviation of 10.

Why would we want to do this? If we change the mean of the set of scores to, say 100, but not the standard deviation, then the bulk of the scores (68%) will be in the range: 90 to 110 (i.e., -1*z* to +1*z*). Hence, the scores will have very little spread. Often it is desirable to give the set of scores an, apparently, much larger spread. To accomplish this we multiply all the *z*-scores by, let’s say, 10. This will give us a new set of scale scores with a mean of 100 and an of 10.

EOG and EOC scale scores are nothing more than transformed standard (*z*) scores.

Here are the steps:

First, compute the standard score, *z*:



where *x* is the score to be converted,

is the mean score on the test, and

*s.d.* is the standard deviation of the test.

Next, to convert original scores to a score on a scale with a new mean, , and standard deviation, , use the equation



where  is the new (converted) scale score,

is the new (desired) standard deviation,

 is the standard score (computed above,), and

is the new (desired) mean scale score.

For convenience, an Excel file for converting a limited set of original scores to scores on a new scale, is given [HERE](file:///C:\WebPages\olson\RES5080\Components\Files%20for%20Downloading\Excel_Scale_Conversion.xlsx).