

Some features of this set of scores may be summarized through the calculation of summary statistics. These pertain to central tendency and variability in the scores and are also shown in Exhibit 7.2.

The indicators of central tendency are the mean, the median, and the mode. Since it was assumed that the data are interval level data, it is permissible to compute all three indicators of central tendency. Had the data been ordinal, the mean should not be computed. For nominal data, only the mode would be appropriate. For example, it does not make sense to compute the average of 1 = managers and 2 = clericals—only the most frequently occurring category is useful information.

The variability indicators are the range and the standard deviation. The range shows the lowest to highest actual scores for the job applicants. The standard deviation shows, in essence, the average amount of deviation of individual scores from the average score. It summarizes the amount of spread in the scores. The larger the standard deviation, the greater the variability, or spread, in the data.

Percentiles

A percentile score for an individual is the percentage of people scoring below the individual in a distribution of scores. Refer again to Exhibit 7.2 and consider applicant C. That applicant's percentile score is in the 10th percentile ($2/20 \times 100$) meaning that 90% of the applicants scored better than applicant C. Applicant S is in the 90th percentile ($18/20 \times 100$), meaning that only 10% of the applicants scored better than applicant S.

Standard Scores

When interpreting scores, it is natural to compare individuals' raw scores with the mean, that is, to ask whether scores are above, at, or below the mean. However, a true understanding of how well an individual did relative to the mean takes into account the amount of variability in scores around the mean (the standard deviation). That is, the calculation must be "corrected" or controlled for the amount of variability in a score distribution to accurately present how well a person scored relative to the mean. Calculation of the standard score for an individual is the way to accomplish this correction. The standard score thus answers the question, "How many standard deviations above or below the mean did a given person score?"

The formula for calculating the standard score, or Z , is as follows:

$$Z = \frac{X - \bar{X}}{SD}$$

Applicant S in Exhibit 7.2 had a raw score of 23 on the test; the mean is 16.9 and the standard deviation is 3.52. Substituting into the above formula, applicant S has a Z score of 1.7. Thus, applicant S scored about 1.7 standard deviations above the mean.