The following baseline metrics are contained within the Foundation's Platform, and are coupled with each metric, example and remediation. It is the Foundation's belief that, at a minimum, these metrics should be used interactively and compiled in real-time on all educational systems involving scaffolding with integrated testing to insure the validity and applicability of testing datum utilized.

a) **Cronbach's α (alpha)** has an important use as a measure of the reliability of a psychometric instrument. It was first named as alpha by Cronbach (1951), as he had intended to continue with further instruments. It is the extension of an earlier version, the Kuder-Richardson Formula 20 (often shortened to KR-20), which is the equivalent for dichotomous items.

Cronbach's α is defined as

$$\frac{N}{N-1}\left(\frac{\sigma_X^2 - \sum_{i=1}^{N}\sigma_{Y_i}^2}{\sigma_X^2}\right),$$

b) **Pearson product-moment correlation coefficient** (sometimes known as the **PMCC**) (r) is a measure of the correlation of two variables X and Y measured on the same object or organism, that is, a measure of the tendency of the variables to increase or decrease together. It is defined as the sum of the products of the standard scores of the two measures divided by the degrees of freedom:

c) P-value is the probability of obtaining a result at least as extreme as a given data point, *assuming* the data point was the result of chance alone. The fact that p-values are based on this assumption is crucial to their correct interpretation. More technically, the p-value of an observed value $t_{observed}$ of some random variable T used as a test statistic is the probability that, given that the null hypothesis is true, T will assume a value as or more unfavorable to the null hypothesis as the observed value $t_{observed}$. "More unfavorable to the null hypothesis" can in some cases mean greater than, in some cases less than, and in some cases further away from a specified center.

d) Kuder-Richardson Formula 20 (KR-20) is a measure of internal consistency reliability for measures with dichotomous choices, first published in 1937. A high KR-20 coefficient (e.g., >0.90) indicates a homogeneous test.

Values can range from 0.00 to 1.00 (sometimes expressed as 0 to 100), with high values indicating that the examination is likely to correlate with alternate forms (a desirable characteristic). The KR20 is impacted by difficulty, spread in scores and length of the examination.

In the case when scores are not tau-equivalent (for example when there is not homogeneous but rather examination items of increasing difficulty) then the KR-20 is an indication of the lower bound of internal consistency (reliability).

$$\alpha = \frac{K}{K-1}[1 - \frac{\sum_{i=1}^{N} p_i q_i}{\sigma_X^2}]$$