Chapter 7.

High-Quality Comparative Data

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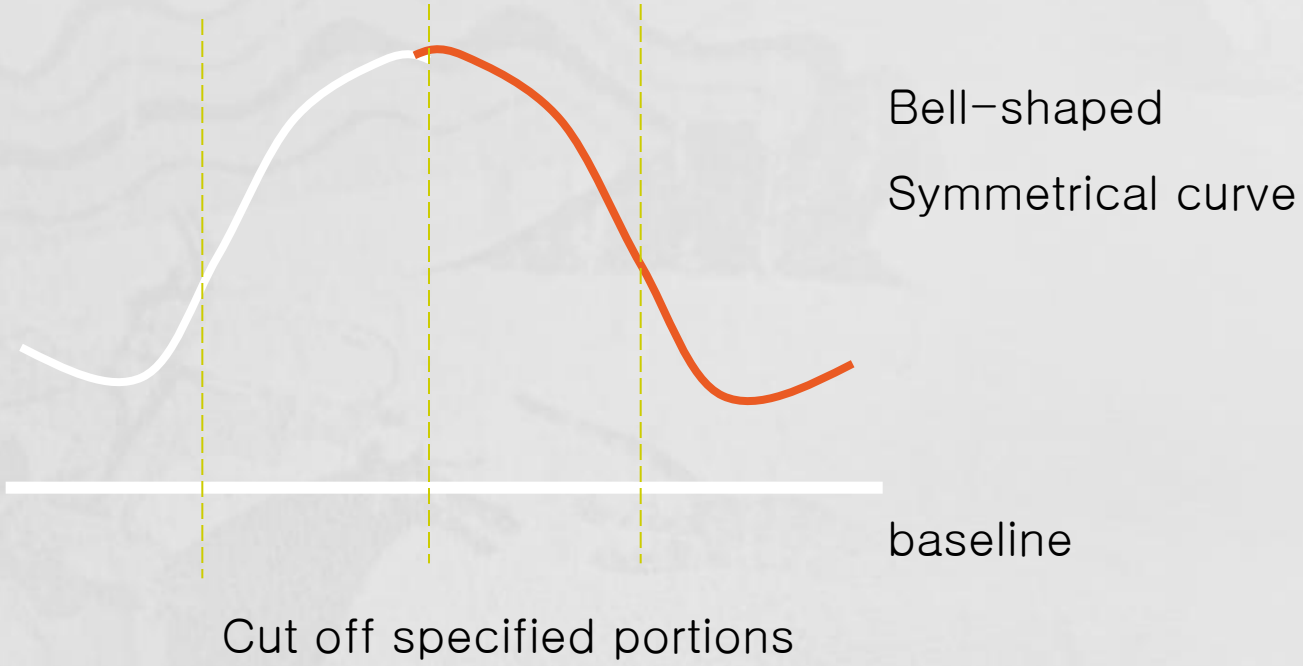
A call for Comparisons in Competitive Contexts



Comparisons are indispensable if we are to make much sense out of an individual's performance.

What is the normal curve?

- Deviation
- Standard deviation
- Normal curve



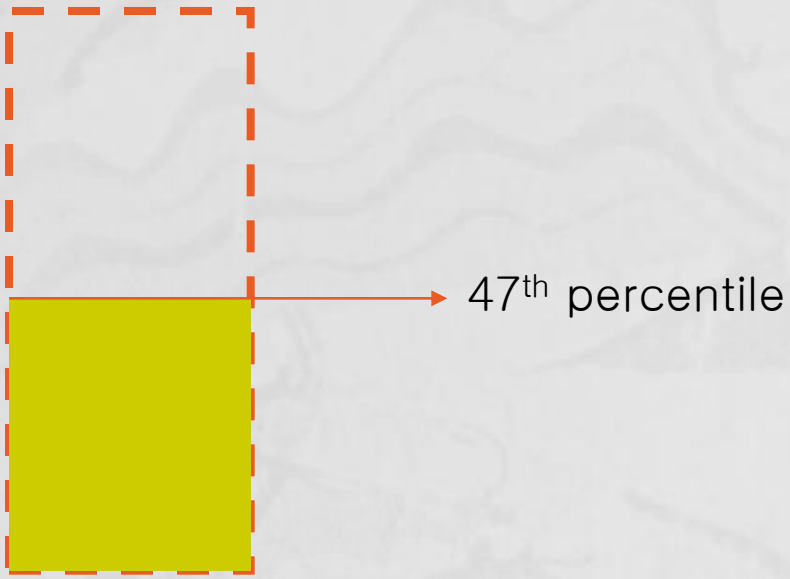
Relative test-score interpretations

- Knowing the distance of an individual's raw score from a normal distribution's mean,

  -> identify the proportions of the normal distribution that fall both above and below the individual's raw score.

Score-reporting techniques - Percentiles

- A point on a distribution below which a certain percent of the scores fall



Score-reporting techniques - Percentiles

- Centile- quartile

ex) 25th percentile: first quartile

Score-reporting techniques - Percentiles

- quartile ≠ quarter
  quartile is a point, not a range of scores.

ex) Most of the students scoring in the first quartile were boys.
-> Most students who scored below the first quartile were boys.

- Most popular technique for comparing different individual's test scores.

Score-reporting techniques - standard score

- in standard deviation units

  where a student's score is with respect to the mean of the distribution.

- z Scores
- T Scores

standard score - z Scores

- In standard deviation units how far a raw score is above or below the mean of its distribution.

ex) (RS)35-(MD)32.8

$$Z = \frac{(SD)2.2}{} = 1.0$$

-> raw score from which it was derived falls one standard deviation unit above the mean of the raw score distribution. (0,1)

standard score - T Scores

- T score is simply a transformed z score.

  $T = 10z + 50$

  $z(0,1) \rightarrow T(50, 10)$

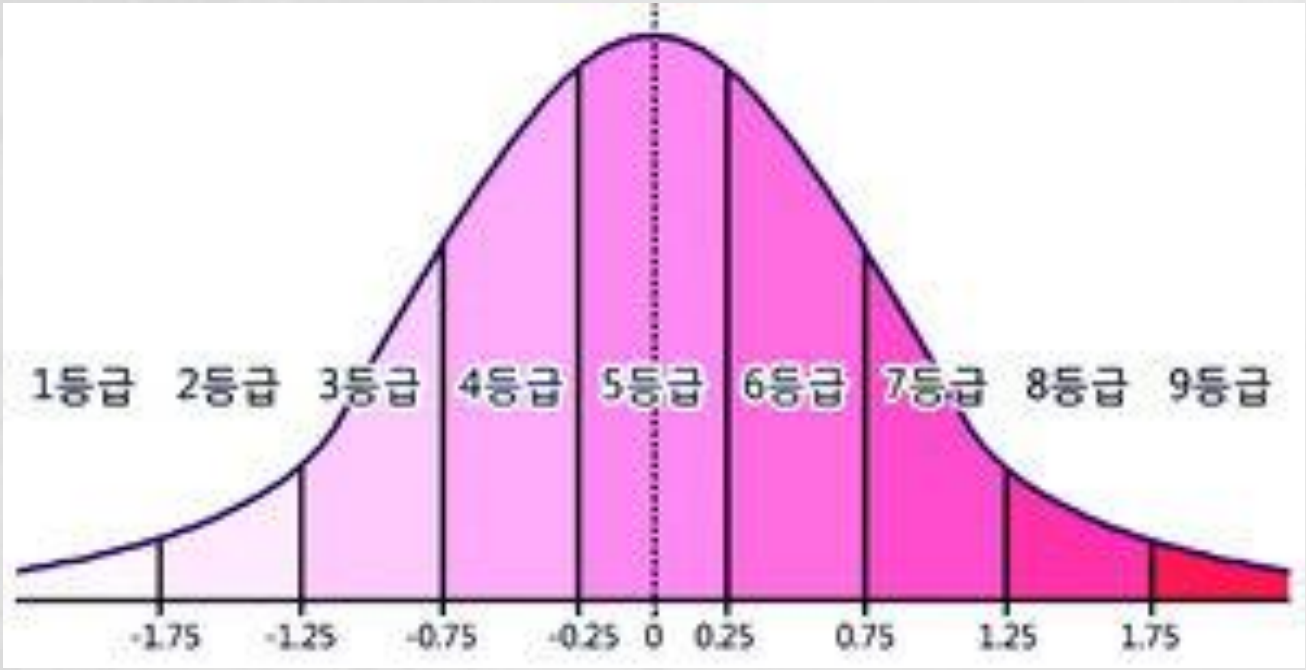
Score-reporting techniques - NCEs

- NCEs(Normal Curve Equivalents):

  A standard score that, based on a raw score's percentile, indicates the raw score's standard-deviation distance from a distribution's mean if the distribution had been normal.

Score-reporting techniques

- Stanines



Scale Scores

Based on the conversion of raw scores to a new numercial scale, a student's relative performance is reported on the converted scale as a scale score.

Converted
Brand-new scale

Item-Response Theory

IRT scale-score reporting systems are distinctly different from raw score reporting systems because IRT scale scores take into consideration the difficulty and other technical properties of each item in the test.

Item-Response Theory

Assumptions

- Unidimensional
- Independence
- Item-characteristic curve

Grade-Equivalents

Score-reporting estimates of how a student's performance relates to the average performance of students in a given grade and month of the school year.

Norms

In general, normative notions are based on the assembled performance summaries of a group of individuals who have been a dministered a particular examination.

Norm Group

The group of test-takers whose scores are used to make relative interpretations of others' test performance.

Criteria for Judging Normative Data

Appropriation

- Sample size
- Representation
- Recency
- Description of procedure

Thank you.