

PSYC 2317 - Lecture 2

Plan:

- (1) Learn about "standardized" scores and why we might use them
- (2) Learn how to convert between "raw" scores and "standardized" scores

Let's get started

Sometimes, it will be very useful to compare a single measurement to other measurements.

Example: Consider two applicants for a scholarship.

* Applicant 1 scored a 1270 on the SAT

* Applicant 2 scored a 30 on the ACT

↳ which applicant scored the best?

Problem: we cannot directly compare the two scores
↳ they are on different measurement scales.

↳ need a way to get them on the same scale

↳ "standardized scores"

How would this work?

* background knowledge about tests:

→ SAT: mean 1060, standard deviation 210

→ ACT: mean 21, standard deviation 6

* we can see that both applicants scored above the mean

↳ but, how far above the mean?

↳ solution: use the standard deviation as a unit of measurement

Applicant 1

* 1270 on SAT

= 210 points above mean

= 1 SD above mean

Applicant 2

* 30 on ACT

= 9 points above mean

= 1.5 SD above mean

so, Applicant 2 has the higher standardized score.

Formally, this process of standardizing scores has a name:

↳ the "z - score"

↳ Formula:

$$z = \frac{\text{raw score} - \text{mean}}{\text{std. deviation}}$$

or

$$z = \frac{x - \mu}{\sigma}$$

* as you'll soon see, the Greek letters μ ("mu") and σ ("sigma") usually represent mean / SD, respectively

Types of problems to solve

- * convert raw scores to z-scores
- * convert z-scores to raw scores
- * convert raw scores on one measurement scale to another.

Summary:

z-score = # standard deviations from mean