**Hypothesis Test Choices**

•Independent-sample *t*-tests

• Sample compared to another sample

• Samples are independent of each other (between-groups design)

• No population parameters

**Independent samples are between-group designs:**

•Each observation has a score in one and only one sample

•Each score is independent of any other score

•Introduces more variability

**Use *t*-test to compare one sample with another sample**

•Dependent samples *t*-test (within-subjects)

•Independent samples *t*-test (between-subjects)

•Ex. SAT scores with or without prep course

**Independent-sample *t*-test assumptions**

• Dependent variable is scale

• Participants are randomly selected

• Populations are normally distributed

• Participants experience one IV condition

• Pop. diff. b/t means is 0 (*μMdiff* = 0)

**How could we assign observations IV levels?**

• Convenience assignment

• Random assignment

**Population distribution of differences between means**

• Same characteristics as distribution of mean differences

• Centered at null diff. b/t means (*μMdiff* = 0)

• Ex. SAT scores with or without prep course

• H0: No difference on SAT scores with vs. without SAT prep course (*μMdiff* = 0)

**What is needed for a *t-*test?**

•Mean for first sample (*MX*)

•Mean for second sample *(MY)*

•Standard error pooled (*sMp*)

**To compute standard error we need:**

•Pooled sample variance (*s2p*)

•Both sample sizes (*n*)

**To compute the pooled sample variance:**

•Variance of *X* and *Y*

•Degrees of freedom for *X and Y*