

Did I Get This? Setting up Hypotheses – Paired Samples

Question 1:

A publishing company wanted to test whether typing speed differs when using word processor A or word processor B.

The typing speeds (in words per minute) are recorded for a random sample of 25 typists using word processor A, and for another (different) random sample of 25 typists using word processor B.

The appropriate set of hypotheses in this case is:

(Ho: $\mu_d \neq 0$) and (Ha: $\mu_d = 0$)

Incorrect. Read the problem carefully again, and pay special attention to how this study was designed. In addition, review this choice carefully and determine why it is not valid.

(Ho: $\mu_d = 0$) and (Ha: $\mu_d \neq 0$)

Incorrect. Read the problem carefully again, and pay special attention to how this study was designed.

None of the above. This is not a matched pairs situation.

Correct. This is not a matched pairs situation. Since two (different) random samples of secretaries were chosen, these two samples are independent, and not matched.

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Question 2:

A publishing company wanted to test whether typing speed differs when using word processor A or word processor B.

A random sample of 25 typists was selected and the typing speeds (in words per minute) were recorded for each typist when using word processor A and then when using word processor B. (Which word processor is used first is determined for each secretary by a coin flip).

The appropriate set of hypotheses in this case is:

(H₀: $\mu_d \neq 0$) and (H_a: $\mu_d = 0$)

Incorrect. Review this choice carefully and determine why it is not valid.

(H₀: $\mu_d = 0$) and (H_a: $\mu_d \neq 0$)

Correct. Since we would like to test whether the typing speeds differ, the appropriate hypotheses are: (H₀: $\mu_d = 0$) and (H_a: $\mu_d \neq 0$).

None of the above. This is not a matched pairs situation.

Incorrect. This is a matched pairs situation. Each of the 25 typists was measured twice; once using word processor A and once using word processor B.