

LAB_07-Example 1: Hypothesized Results and Practice Analysis

Step 1: Hypothesized Outcome:

(Name: [redacted])

The group member with the lead role in this step will, in consultation with your group, complete the following information regarding your project:

If your study is a 1 IV, 2-level design, in the space below, draw a bar (column) graph depicting the results as you predict they will appear in your research study.

If your study is a 2 x 2 design, in the space below, draw a line graph depicting the results as you predict they will appear in your research study, such that any expected main effects and/or interactions are represented.



In 1-2 sentences, provide a written description of your hypothesized results. Example: It was hypothesized that participants would provide higher ratings of the desirability of a fictitious target person's life when that life was described as shorter, but uniformly very happy, than when that life was described as five years longer, with the last five years only mildly happy.

It was hypothesized that participants who received the extraverted scenario would be more likely to rate the likelihood of listening to rock music as higher on the five point scale, compared to those who received the introverted scenario.

good job!

LAB_07-Example 1 continued

Step 5: Reporting of Results & Interpretation:

(Name: _____)

The group member with the lead roles in these steps will, in consultation with your group, will provide a complete reporting of the hypothesized results as per the in-class examples for the Class Experiments 1 and 2.

2-Level Design

Descriptive Statistics

Condition 1 (introverted) write-in description

M = 2.2 SD = 1.23

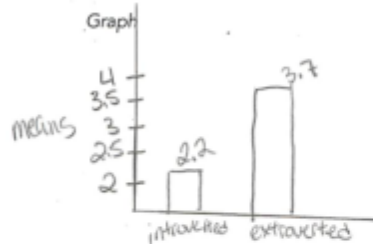
Condition 2 (extroverted) write-in description

M = 3.7 SD = 1.34

Inferential Statistics

t (~~18~~) = -2.61 p = 0.018

t tests have just one degree of freedom
df = N - #groups = 18.



Description of Results

To evaluate whether participants view extroverts as more likely to listen to rock music than would introverts, means and standard deviations were calculated. Consistent with the hypothesis, extroverts were rated as more likely to listen to rock music (M=3.7, sd=1.34) than introverts (M=2.2, sd=1.23).

See printed comments. Missing a paragraph.

Group 25 – practice analysis – HAP comments

Inferential stats. You've just reported the descriptive stats – the means and standard deviations. You need the part referring to the inferential stats – the t-test.

To determine the probability that this difference in means would occur if the null hypothesis is true, a t-test was conducted. The t-test showed that there was a less than 2% chance that these results are due to sampling error, $t(18) = 2.61$, $p = .018$. Therefore, it appears that participants view extroverts, compared to introverts, as more likely to listen to rock music.

Note: Your p value is .018 – moving the decimal over 2 places = 1.8%, this is not less than 1%, thus, why I listed it as less than 2% chance.

LAB_07-Example 2:

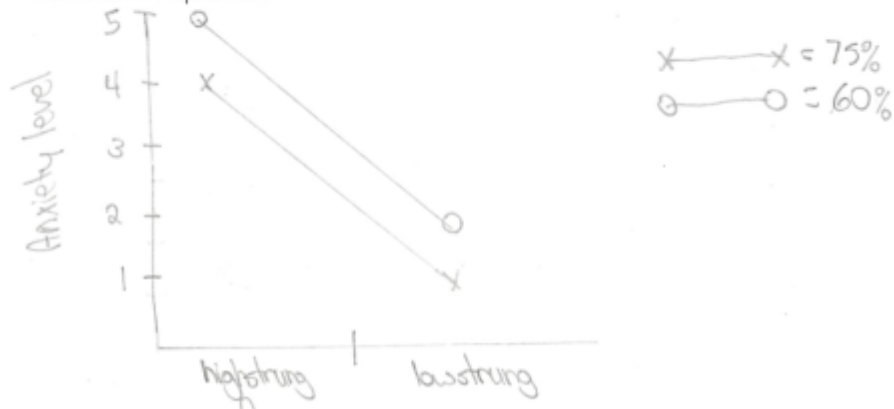
Step 1: Hypothesized Outcome:

(Name: _____)

The group member with the lead role in this step will, in consultation with your group, complete the following information regarding your project:

If your study is a 1 IV, 2-level design, in the space below, draw a bar (column) graph depicting the results as you predict they will appear in your research study.

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In 1-2 sentences, provide a written description of your hypothesized results. Example: It was hypothesized that participants would provide higher ratings of the desirability of a fictitious target person's life when that life was described as shorter, but uniformly very happy, than when that life was described as five years longer, with the last five years only mildly happy.

It is hypothesized that a person who is highstrung will have higher anxiety levels than a person who is lowstrung, who would have lower anxiety levels, further more a 60% grade will create higher anxiety levels in both personalities.

be pointed comments

LAB_07-Example 2 continued

2 x 2 Design

Descriptive Statistics – Main Effects

		Factor 1: <u>Personality</u>		
		Level/Condition 1	Level/Condition 2	
		<u>Highstrung</u>	<u>Lowstrung</u>	
Factor 2: <u>Grades</u>	Level/Condition 1 <u>60%</u>	4.8	1.8	5.7
	Level/Condition 2 <u>75%</u>	3.6	1.8	2.7
		4.2	1.8	

Inferential Statistics

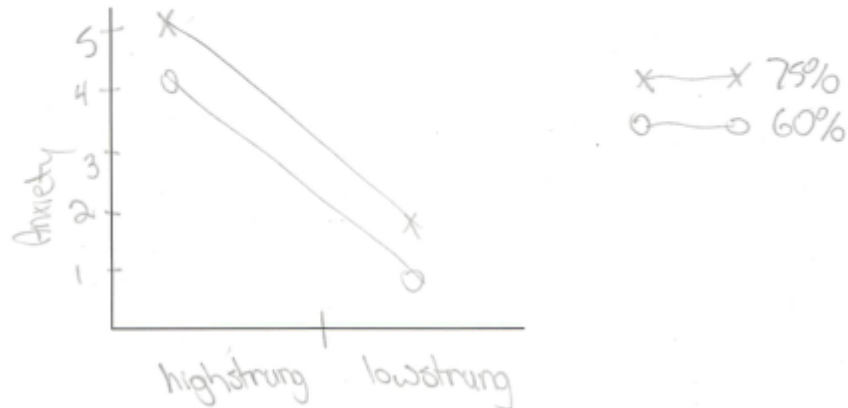
1. Is there a main effect of factor 1 (are means #)? Yes / No
 - a. Now, consult your inferential stats for the following:
 - i. $F(1, 18) = \underline{3.78}$, $p = \underline{0.07}$
 - ii. Was the main effect statistically significant? Yes / No

2. Is there a main effect of factor 2 (are means #)? Yes / No
 - a. Now, consult your inferential stats for the following:
 - i. $F(1, 18) = \underline{60.63}$, $p = \underline{.0001}$
 - ii. Was the main effect statistically significant? Yes / No

LAB_07-Example 2 continued

Interaction

Draw a line graph in the space below to evaluate the interaction.



3. Is there an interaction between the factors? Yes / No

a. Now, consult your inferential stats for the following:

i. $F(1, 18) = 3.79, p = 0.07$

ii. Was the interaction statistically significant? Yes / No

Pretty close! see printed comments.

Description of Results

ANOVA confirmed that there was no main effect of Personality condition $F(1, 18) = 3.79, p = 0.07$. ANOVA confirmed that there was a main effect of grades Condition $F(1, 29.8) = 60.63, p = 0.0001$. ANOVA confirmed that there was no interaction between the two factors personality and grades variables $F(1, 1.8) = 3.79, p = 0.07$

LAB_07-Example 2 continued

Group 32 – practice analysis – HAP comments

Some tweaks to your hypothesis: Be careful when wording these. You are not measuring actual levels of anxiety of actual people who are highstrung.

It is hypothesized that a person who is highstrung will be perceived as having higher levels of anxiety than a person who is easygoing, and that achieving a grade of 60% will be perceived as causing greater anxiety than will achieving a grade of 75% regardless of personality type.

Inferential statistics result reporting:

It's not correct to say that "there was no main effect of personality" just because the p value is greater than .05. There was an effect; it just isn't statistically significant at the traditional level of .05. (There's something we also calculate called an effect size which comes into play. I can explain that to any of you if want; you don't need to know this at this level though.)

To evaluate if personality and grades achieved impact participants' level of anxiety, means marginal means, and standard deviations were calculated. Consistent with the hypothesis, participants perceived a person who was high-strung as having higher levels of anxiety ($M = 4.2$, $SD = x.xx$) compared to a person who was easygoing ($M = 1.8$, $SD = x.xx$). Additionally, participants perceived a person who had achieved a grade of 60% as having higher levels of anxiety ($M = 5.7$, $SD = x.xx$) compared to a person who has achieved a grade of 75% ($M = 2.7$, $SD = x.xx$).

To determine the probability that this difference in means would occur if the null hypothesis is true, an ANOVA was conducted. Results revealed that there was not a statistically significant main effect of personality $F(1, 18) = 3.79$, $p = .070$; that is, there is a greater than 5% chance that these results are due to sampling error. There was a statistically significant main effect of grades $F(1, 28.8) = 60.63$, $p < .001$; that is there is a less than 1% chance that these results are due to sampling error. There was not a statistically significant interaction between personality and grades $F(1, 18) = 3.79$, $p = .070$; that is, there is a greater than 5% chance that these results are due to sampling error.

Note:

When a statistic cannot be 1 or greater, like a p value, the leading zero is not needed. p values are listed to 3 decimals (e.g., $p = .045$), except if the p is less than .001 (e.g., $p < .001$).