Introduction to Research Methods and Design

PSYO 270

PART C:
Student Lab Guide – LAB Examples

V2: August 30, 2017

Introduction and Overview

This Student Lab Guide – LAB Examples contains examples for each LAB assignment from previous PSYO 270 classes. These examples provide a step-by-step overview of projects from start of idea to end with the research poster. Who knows – we may include one of your team's research LAB assignments in next year's Student Lab Guide – LAB Examples manual!

Note that some of the examples may look slightly different from the forms you are using this year. But all of the information is the same.

LAB_01-Example:
Rough Project Idea

PSYO 270: Introduction to Research Methods and Design

In-class Assignment: Week 2

TEAM 27

Rough Project Idea (Group Assignment)

I love how you submitted this as *Team* #27 rather than *Group* 27! Makes me wonder if groups would be more cohesive if they were called teams rather than groups.

*Note: This is a **group** assignment. Only one set of materials per **group** is needed. Upload your completed assignment to Connect and then check that it has been uploaded. It does not matter which group member posts the assignment.*

Purpose: The purpose of today's assignment is to help your group begin to focus on a specific project topic. **After consulting with Derrick, Holli-Anne, or Ran,** write a summary about your topic that includes the following information:

1. Below, state a conceptual research question (if you have extra time or can't decide, state up to 2):

Does ability to solve cognitive tests become worse as the time between the last meal eaten is increased?

Wow - specific question - good one! Was everyone really hungy by any chance? :)

2. Next, try and translate your conceptual research question(s) into testable research question(s):

How does the time in which food was last eaten affect performance on cognitive testing? Will the data suggest a positive correlation for poorer performance as time between meals and testing is increased?

Well done. Think about the word 'correlation' though - this needs to be an experimental study.

3. Now, considering your testable research questions, what is the independent variable?

Time since last food consumption.

Yup. We can't manipulate this in class though. As you work through the rest of the questions, think about how you can test this *in class*. This may change your questions slightly. Your questions at the moment are suggestive of *correlational* resesarch. Remember that is needs to be an *experiment* - so some class participants will be randonly assigned to one condition, and some class participants will be assigned to the other condtion. It has to fit on one sheet of paper and be doable in class. Think about the crux of what you are getting at or are interested in with your original questions--then think of how you can test this experimentally.

LAB_01-Example continued

4. How will the independent variable be manipulated (e.g., Heath et al. manipulated the disgustingness of urban legends by altering the content slightly). What are the levels of the independent variable (Heath et al. had a *low disgust* and a *high disgust* level, for 2 total levels).

Change the amount of time between last meal eaten before preforming the cognitive test.

Yes - need to be more specific about the levels than just "amount of time". See also comments above - how can you get at this aspect without actually manipulating when people ate last.

5. Next, what is your conceptual dependent variable (the outcome of your study; e.g., Heath et al. wanted to know if people would tell others the disgusting story).

Will there be better performance on cognitive tests and tasks when people eat meals shortly before attempting them.

So the DV is .... ? level of performance

6. What are your operationalized dependent variables? (Heath et al. asked participants (a) whether they would pass along the disgusting story and (b) whether they felt disgusted by the story. Try to type an actual question with responses scale in the space below.

Number of questions answered correctly (scale 1-10) in given period of time.

1-2-3-4-5-6-7-8-9-10
(Questions answered correctly)

Yes.

Can you also think of another DV?

LAB_02-Example:
Refined Research Project Idea and First Draft of Project Materials

PSYO 270: Introduction to Research Methods and Design
In-class Assignment: Week 3

Refined Project Idea (Group Assignment) & Rough Materials

*Note: This is a **group** assignment. Only one set of materials per **group** is needed. Upload your completed assignment to Connect and then check that it has been uploaded. It does not matter which group member posts the assignment.*

Purpose: The purpose of today's assignment is to refine your project idea further, using the feedback you received on your initial idea.

1. Below, restate your conceptual research question (if you have extra time or can't decide, state up to 2):

   How do certain stereotypes affect peoples interpretation of other peoples musical taste?

Great! Good work.

Next, try to further refine the translation your conceptual research question(s) into testable research question(s):

Do people interpret introverts as having different different musical taste compared to extroverts?
Nicely done!

Now, considering your testable research questions, what is the independent variable?

Independent variable: Personality types categorized as either introverts & extroverts

You bet!

How will the independent variable be manipulated (e.g., Heath et al. manipulated the disgustingness of urban legends by altering the content slightly). What are the levels of the independent variable (Heath et al. had a *low disgust* and a *high disgust* level, for 2 total levels).

Switching the scenarios of the character prescribed to each personality type (introvert vs. extrovert)

Good stuff.

The different levels being introverted personalities vs. extroverted
Yup

1. Next, what is your conceptual dependent variable (the outcome of your study; e.g., Heath et al. wanted to know if people would tell others the disgusting story).

LAB_02-Example continued

If the people in the study think that introverts and extroverts have differing musical genre tastes
Mostly – it's simply the opinion on musical genre - the difference is what the stats tell us.

You still need a second DV. What other related question could you ask?

2. What are your operationalized dependent variables? (Heath et al. asked participants (a) whether they would pass along the disgusting story and (b) whether they felt disgusted by the story. Try to type an actual question with responses scale in the space below.

How likely do you think person *A* is to listen to *X* genre of music

Scale of 1-5
1- very unlikely
2- somewhat unlikely
3- neither unlikely nor likely
4- somewhat likely
5- very likely

Great! And then for the second DV.

Depends on how you are framing the questions. If you are asking:
How likely is it that this person would listen to classical music?
How likely is it that this person would listen to rock music?
That could be your two DVs – likelihood of listening to classical and likelihood of listening to rock.

Excellent start! Good work!

When you are finished, open "Questionnaire Rough Draft" from Connect.

LAB_03-Example:
Second Draft of Research Project Materials

Group #35

You are presented with two different hypothetical situations. Read each scenario and rate how stressful you would find it if you experienced it. Then rate how likely you are to choose the coping mechanisms provided.

Scenario 1: It's Monday morning, you woke up on time and you are ready to start your day. You leave the house at your usual time but there was some construction on the way, which makes you a few minutes late to your first class. Later in the day before your biology lab you're skimming through the lab manual than you realize that there was pre-lab assignment you had to complete before hand. You quickly complete the pre-lab and submit it on connect with just enough time to spare, but you know **it's** not your best work and you're already unhappy about your grade in that class.

Scenario 2: It's Monday morning, you woke up late and leave your house in a rush. You hit some construction on the way to school. You're so late you don't bother going to your first class. Later you find out you missed an in-class assignment that was worth 5% of your mark. Later in the day, before your biology lab you realize there is a lab exam that day. You started studying last minute and lost track of time. You showed up to your exam late and the door was locked, you knocked but since the exam hadn't started the professor wouldn't let you in.
This whole scenario would totally stress me out. Nicely done!!

Now you just need to add your questions and scales.

LAB_04-Example:
Third Draft of Research Project Materials

Student Name: _____ Student Number: _____

Good stuff. There's just some specific formatting now as per what is posted on Connect for tomorrow.

Scenario A
John and Judy are approaching their first year anniversary of their romantic, monogamous relationship. They are coming up to a major turning point in their relationship and are looking back on the times they've spent together. They both rated their first date as enjoyable, which was a strong indicator that they would have a good start to their relationship. Like every couple, however, they've had their ups and downs. The result of their relational experience could determine whether they stay together or whether their relationship will fizzle out.

Questions:

A) How likely is the couple to become life partners?
   5: Very Likely
   4: Moderately Likely
   3: Not Likely or Unlikely
   2: Moderately Unlikely
   1: Very Unlikely

B) If this couple breaks up, how amicable would the break up be?
   5: Very Amicable
   4: Amicable
   3: Neutral
   2: Antagonistic
   1: Very Antagonistic

LAB_04-Example continued

Student Name: _____ Student Number: _____

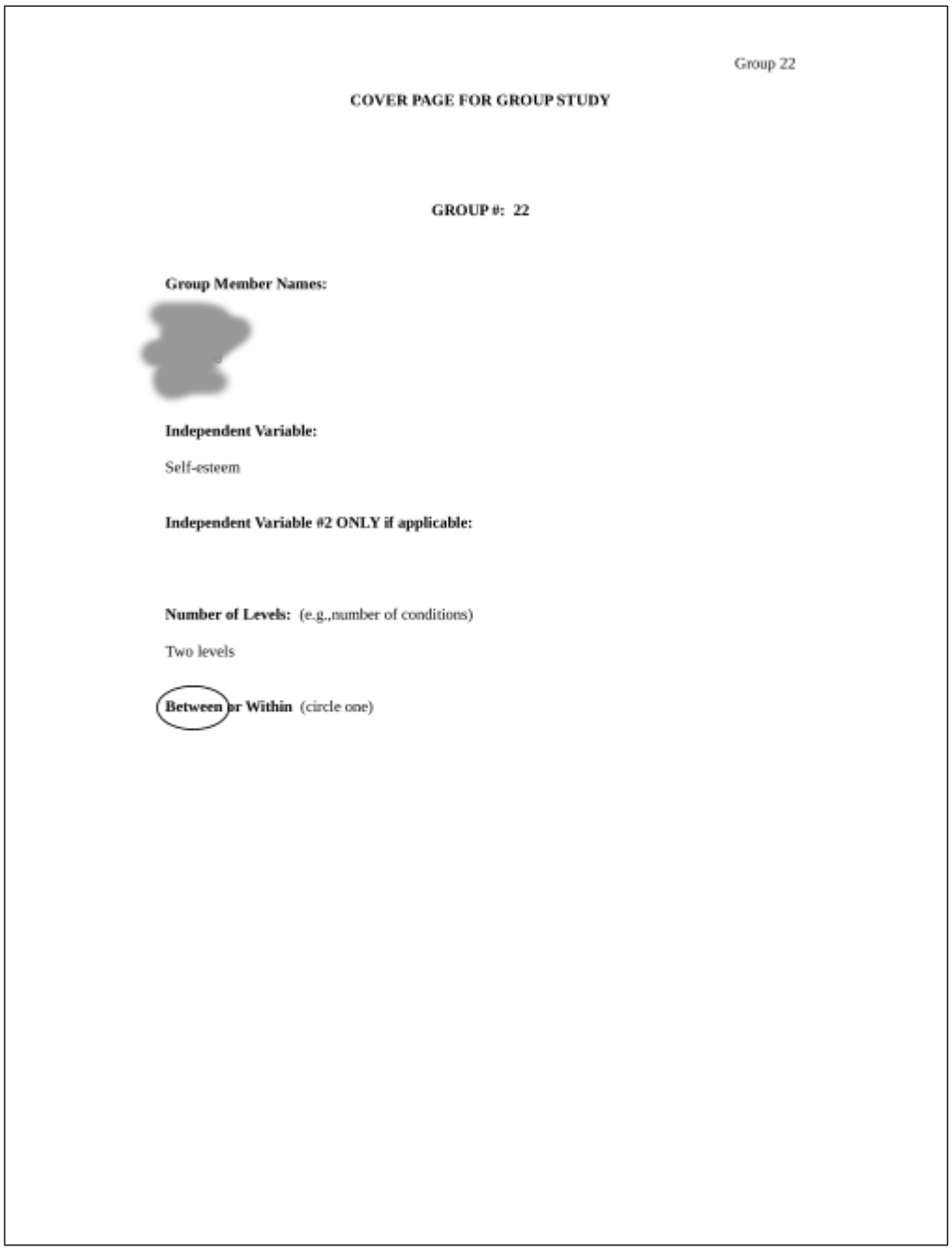
Scenario B
John and Judy are approaching their first year anniversary of their romantic, monogamous relationship. Prior to dating, they were classified as good platonic friends. They are coming up to a major turning point in their relationship and are looking back on the times they've spent together. They both rated their first date as enjoyable, which was a strong indicator that they would have a good start to their relationship. Like every couple, however, they've had their ups and downs. The result of their relational experience could determine whether they stay together or whether their relationship will fizzle out.

Questions:

A) How likely is the couple to become life partners?
   5: Very Likely
   4: Moderately Likely
   3: Not Likely or Unlikely
   2: Moderately Unlikely
   1: Very Unlikely

B) If this couple breaks up, how amicable would the break up be?
   5: Very Amicable
   4: Amicable
   3: Neutral
   2: Antagonistic
   1: Very Antagonistic

LAB_05-Example:
Final Draft of Research Project Materials



Group 22

COVER PAGE FOR GROUP STUDY

GROUP #: 22

Group Member Names:

[redacted]

Independent Variable:

Self-esteem

Independent Variable #2 ONLY if applicable:

Number of Levels: (e.g.,number of conditions)

Two levels

Between or **Within** (circle one)

LAB_05-Example continued

Group 22

Please refer to the picture that corresponds with the gender you identify as, then answer the following questions.

♥ 2,609 likes

Loving.my.life Isn't life great? #lookinggood #goodlife

View all 183 comments

♥ 2,609 likes

Loving.my.life Isn't life great? #lookinggood #goodlife

View all 183 comments

1. On a scale of 1-5 (1 being low self-esteem and 5 being high self-esteem), how would you rate **the person in the Instagram post's** self-esteem?

(low self-esteem) **1** **2** **3** **4** **5** (high self-esteem)

2.On a scale of 1-5 (1 having low self-esteem and 5 having high self-esteem), how would you rate **your own** self-esteem?

(low self-esteem) **1** **2** **3** **4** **5** (high self-esteem)

A

LAB_05-Example continued

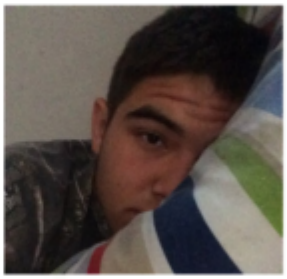
Group 22

Please refer to the picture that corresponds with the gender you identify as, then answer the following questions.

22 likes

l.am.stressed Life sucks
#stressed #tired

View all 2 comments



22 likes

l.am.stressed Life sucks
#stressed #tired

View all 2 comments

1. On a scale of 1-5 (1 being low self-esteem and 5 being high self-esteem), how would you rate **the person in the Instagram** post's self-esteem?

(low self-esteem) **1** **2** **3** **4** **5** (high self-esteem)

2.On a scale of 1-5 (1 having low self-esteem and 5 having high self-esteem), how would you rate **your own** self-esteem?

(low self-esteem) **1** **2** **3** **4** **5** (high self-esteem)

B

LAB_06-Example:
Preparing Data for Analysis of Your Team Research Project

1 IV, 2-Levels, BETWEEN

participant ID	condition 1 = social isolation 2 = not socially isolated	DV#1: Self-Esteem	DV#2: Life Satisfaction

1 IV, 2-Levels, WITHIN

participant ID	DV#1-Condition#1: acceptable – funeral	DV#1-Condition#2: acceptable – birthday	DV#2-Condition#1: introverted – funeral	DV#2-Condition#2: introverted – birthday

1-IV, 2-Levels, BETWEEN-WITHIN (Pre-Post)

participant ID	condition: 1 = mindfulness 2 = control	DV#1-Pre: Stress-Pre	DV#1-Post: Stress-Post	DV#2-Pre: Happiness-Pre	DV#2-Post: Happiness-Post	Diff DV#1: Diff Stress	Diff DV#2: Diff Happiness

2x2 (2 IVs, each with 2 Levels) – DV#1

participant ID	Condition (IV#1 or IV#2): Personality: 1 = highstrung Personality: 2 = LaidBack	DV#1 – Level 1: Coping: Drunk	DV#1 – Level 2: Coping: Sober

2x2 (2 IVs, each with 2 Levels) – DV#2

participant ID	Condition (IV#1 or IV#2): Personality: 1 = highstrung Personality: 2 = LaidBack	DV#1 – Level 1: Music: Rock	DV#1 – Level 2: Music: Classical

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 recieved 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 recieved the introverted scenario. ✓

good job!

Step 5: Reporting of Results & Interpretation:
(Name [redacted])

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

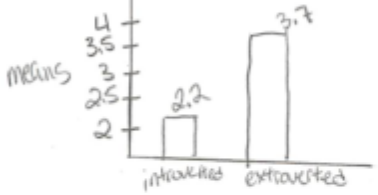
t tests have just one degree of freedom

df = N - #groups = 18.

Inferential Statistics

t(~~20~~ 18) = -2.61 p = 0.018

Graph



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.

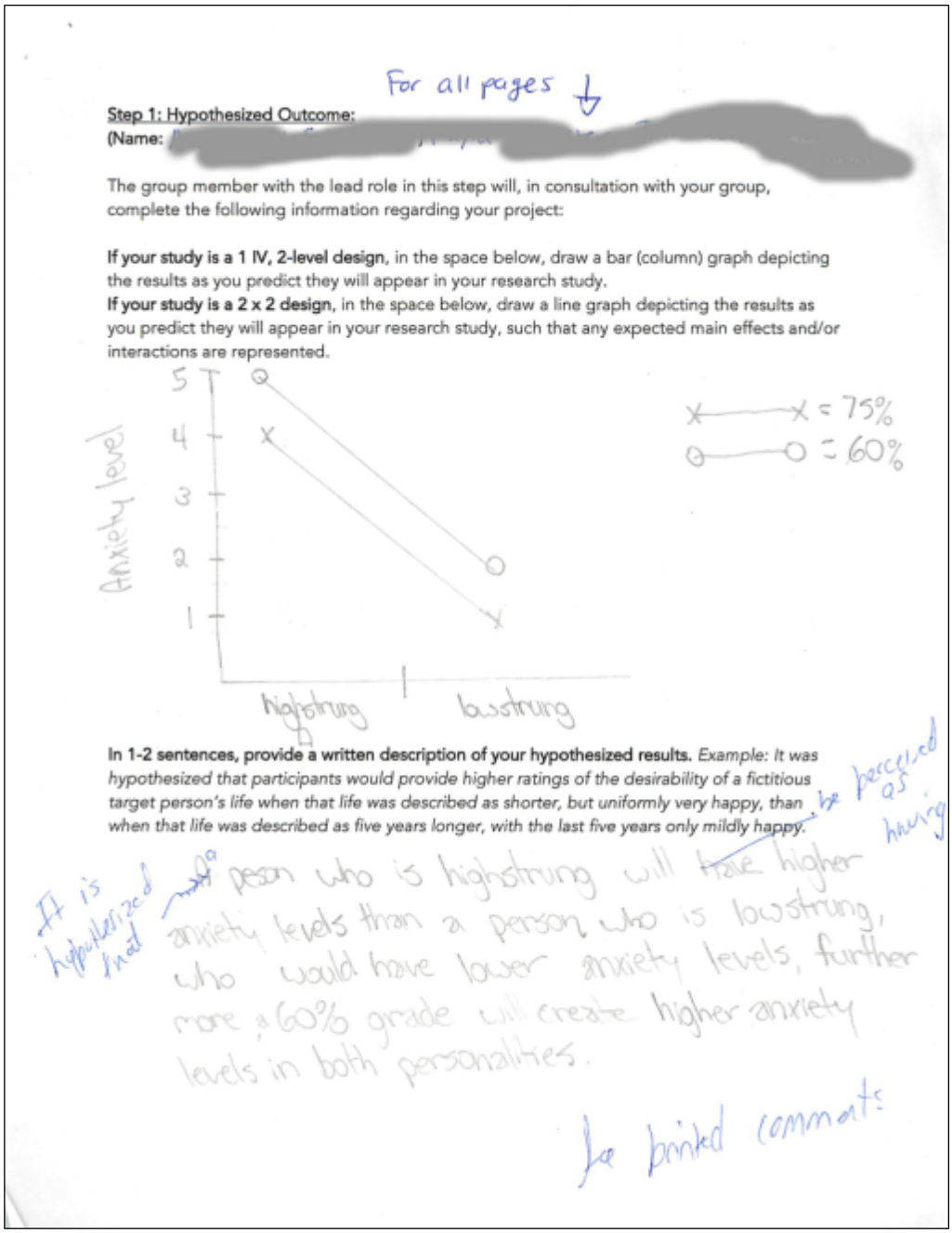
Group 25 – practice analysis – HAP comments

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:



For all pages ↓

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 is hypothesized that a person who is highstrung will have higher anxiety levels than a person who is laostrung, who would have lower anxiety levels, further more a 60% grade will create higher anxiety levels in both personalities. be perceived as having

Le printed comments

LAB_07-Example 2 continued

2 x 2 Design

Descriptive Statistics – Main Effects

Factor 1: Personality

Factor 2:	Level/Condition 1 (Nightmare)	Level/Condition 2 (Lucid dreaming)	
Level/Condition 1 (60% Grades)	4.8	1.8	5.7
Level/Condition 2 (75%)	3.6	1.5	2.7
	4.2	1.8	

Inferential Statistics

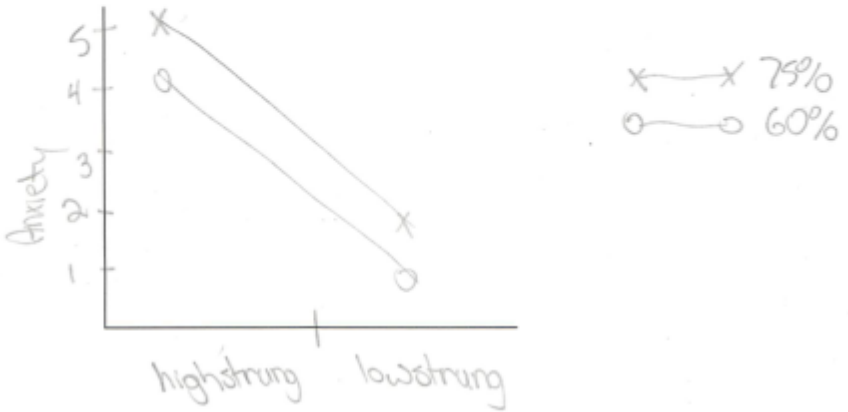
1. Is there a main effect of factor 1 (are means ≠)? (Yes) / No
   a. Now, consult your inferential stats for the following:
      i. $F(1, 18) = 3.78$, $p = .067$
      ii. Was the main effect statistically significant? Yes / (No)

2. Is there a main effect of factor 2 (are means ≠)? (Yes) / No
   a. Now, consult your inferential stats for the following:
      i. $F(1, 36) = 6.063$, $p = .021$
      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, $p =$ .07

      ii. Was the interaction statistically significant? Yes / (No)

Pretty close! after 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., $p < .001$).

LAB_08-Example:
Data Collection

Participant packages will be provided in class for completion!

LAB_09-Part I Example:
Entering/Analyzing Your Data and Interpreting Your Results

1 IV, 2-Levels, BETWEEN

participant ID	condition 1 = social isolation 2 = not socially isolated	DV#1: Self-Esteem	DV#2: Life Satisfaction
101	1	4	3
102	1	5	4
103	1	4	3
104	1	4	3
105	1	5	4
...			
126	2	7	4
127	2	9	3
128	2	6	5
129	2	7	4
130	2	9	3

Mean DV#1 – Condition 1	4.32	SD DV#1 – Condition 1	0.476095229
Mean DV#1 – Condition 2	7.28	SD DV#1 – Condition 2	1.275408431

Mean DV#2 – Condition 1	3.32	SD DV#2 – Condition 1	0.476095229
Mean DV#2 – Condition 2	4.04	SD DV#2 – Condition 2	0.840634681

...DV#1

Independent Samples							
Mean group 1	4.32	Mean group 2	7.28	M_{diff}[Low; High]	-3.507444315	Cohen's d_s	3.074892523
SD group 1	0.476095228569523	SD group 2	1.275408431		-2.412555685	Cohen's d	3.13829904
n group 1	25	n group 2	25	*t*	-10.87138677	Hedges's g_s	3.026595782
				df	48	CL effect size	0.985157844
				p	0.0000		

DV#2

Independent Samples							
Mean group 1	3.32	Mean group 2	4.04	95% CI M_{diff}[Low; High]	-1.110666909	Cohen's d_s	1.048252562
SD group 1	0.476095228569523	SD group 2	0.840634681		-0.329333091	Cohen's d	1.070323457
n group 1	24	n group 2	25	*t*	-3.668119855	Hedges's g_s	1.031435676
				df	47	CL effect size	0.771945986
				p	0.0006		

LAB_09-Part I Example continued

1 IV, 2-Levels, WITHIN

participant ID	DV#1-Condition#1: acceptable – funeral	DV#1-Condition#2: acceptable – birthday	DV#2-Condition#1: introverted – funeral	DV#2-Condition#2: introverted – birthday
101	4	6	5	7
102	9	2	7	1
103	7	3	6	5
104	8	1	3	1
105	5	5	8	2
106	4	8	4	9

Mean DV#1 – Condition 1	6.1	SD DV#1 – Condition 1	1.96136146
Mean DV#1 – Condition 2	4.26	SD DV#1 – Condition 2	2.447906227
Mean DV#2 – Condition 1	5.52	SD DV#2 – Condition 1	1.740748138
Mean DV#2 – Condition 2	4.22	SD DV#2 – Condition 2	3.138243367

DV#1

Correlated (or Dependent) Samples							
Mean 1	4.26	Mean 2	0	M_{diff}	4.26	Cohen's d_z	1.74026274061579
SD 1	2.447906227	SD 2	0	S_{diff}	2.44790622736231	Cohen's d_{rm}	2.84142018832177
n pairs	50	*r*	-0.332942097	SE_{diff}	0.346186218615334	Hedges g_{rm}	2.79770603157835
				M_{diff}[Low;	3.5643	Cohen's d_{av}	2.46110316987142
				High]	4.9557	Hedges g_{av}	2.4232400441811
t	12.30551585	*df*	49	*p*	0.00	commended:	Gav
						CL effect size	0.959093553342497

DV#2

Correlated (or Dependent) Samples							
Mean 1	4.22	Mean 2	0	M_{diff}	4.22	Cohen's d_z	1.34470132074284
SD 1	3.138243367	SD 2	0	S_{diff}	3.13824336668963	Cohen's d_{rm}	1.90169484513554
n pairs	50	*r*	0	SE_{diff}	0.443814633119987	Hedges g_{rm}	1.87243800136422
				M_{diff}[Low;	3.3281	Cohen's d_{av}	1.90169484513554
				High]	5.1119	Hedges g_{av}	1.87243800136422
t	9.508474226	*df*	49	*p*	0.00	commended:	Gav
						CL effect size	0.910639146017717

LAB_09-Part I Example continued

1-IV, 2-Levels, BETWEEN-WITHIN (Pre-Post)

participant ID	condition: 1 = mindfulness 2 = control	DV#1-Pre: Stress-Pre	DV#1-Post: Stress-Post	DV#2-Pre: Happiness-Pre	DV#2-Post: Happiness-Post	Diff DV#1: Diff Stress	Diff DV#2: Diff Happiness
101	1	2	3	3	4	1	1
102	1	5	7	6	8	2	2
103	1	4	5	5	6	1	1
104	1	2	3	3	4	1	1
...							
126	2	2	8	3	7	6	4
127	2	3	9	6	9	6	3
128	2	1	8	4	9	7	5
129	2	2	8	3	7	6	4
130	2	3	9	6	9	6	3

Mean Diff DV#1 – Condition 1	1.36	SD Diff DV#1 – Condition 1	0.489897949
Mean Diff DV#1 – Condition 2	6.32	SD Diff DV#1 – Condition 2	0.476095229

Mean Diff DV#2 – Condition 1	1.36	SD Diff DV#2 – Condition 1	0.489897949
Mean Diff DV#2 – Condition 2	4	SD Diff DV#2 – Condition 2	1.490651138

...DV#1

Independent Samples							
Mean group 1	1.36	Mean group 2	6.32	95% CI M_{diff}[Low; High]	-5.234705005	Cohen's d_s	10.26817552
SD group 1	0.489897949	SD group 2	0.476095229		-4.685294995	Cohen's d	10.47991276
n group 1	25	n group 2	25	*t*	-36.30348271	Hedges's g_s	10.10689528
				df	48	CL effect size	1
				p	0.0000		

DV#2

Independent Samples							
Mean group 1	1.36	Mean group 2	4	95% CI M_{diff}[Low; High]	-3.270973044	Cohen's d_s	2.379421056
SD group 1	0.489897949	SD group 2	1.490651138		-2.009026956	Cohen's d	2.428486446
n group 1	25	n group 2	25	*t*	-8.41252382	Hedges's g_s	2.342047951
				df	48	CL effect size	0.953764499
				p	0.0000		

LAB_09-Part I Example continued

2x2 (2 IVs, each with 2 Levels) – DV#1

participant ID	Condition (IV#1 or IV#2): Personality: 1 = highstrung Personality: 2 = LaidBack	DV#1 – Level 1: Coping: Drunk	DV#1 – Level 2: Coping: Sober	L1sq	L2sq	L1*L2	grand mean		
101	1	2	2	4	4	4		4.2	
102	1	4	3	16	9	12			
103	1	7	5	49	25	35	mean C1 L1		4.36
104	1	4	1	16	1	4	mean C1 L2		2.68
105	1	2	2	4	4	4	mean C2 L1		7.28
106	1	4	3	16	9	12	mean C2 L2		2.48
107	1	7	5	49	25	35			
108	1	4	1	16	1	4	between		369.52
			...						
154	2	8	2	64	4	16			
155	2	9	1	81	1	9			
156	2	5	3	25	9	15			
157	2	7	4	49	16	28			
158	2	8	2	64	4	16			

C1	50	176	**3.52**	3.560816327	-1.36
C2	50	244	**4.88**	7.577142857	
L1	50	291	**5.82**	4.966938776	3.24
L2	50	129	**2.58**	1.75877551	

	SS	df	MS	F	p	eta-sq
rows (conditions)	46.24	**1**	46.24	**19.95253506**	**0.000021685**	**0.172075022**
columns (levels)	262.44	1	262.44	**113.2427184**	**0.000000000**	**0.541202673**
r x c (condition x level)	60.84	1	60.84	**26.25242718**	**0.000001547**	**0.214739517**
error (SS within)	222.48	**96**	2.3175			
total	592	99				

LAB_09-Part I Example continued

2x2 (2 IVs, each with 2 Levels) – DV#2

participant ID	Condition (IV#1 or IV#2): Personality: 1 = highstrung Personality: 2 = LaidBack	DV#1 – Level 1: Music: Rock	DV#1 – Level 2: Music: Classical	L1sq	L2sq	L1*L2	grand mean		
101	1	2	2	4	4	4	4.2		
102	1	4	3	16	9	12			
103	1	7	5	49	25	35	mean C1 L1		4.36
104	1	4	1	16	1	4	mean C1 L2		2.68
105	1	2	2	4	4	4	mean C2 L1		7.28
106	1	4	3	16	9	12	mean C2 L2		2.48
107	1	7	5	49	25	35			
108	1	4	1	16	1	4	between		369.52
			...						
153	2	7	4	49	16	28			
154	2	8	2	64	4	16			
155	2	9	1	81	1	9			
156	2	5	3	25	9	15			
157	2	7	4	49	16	28			

	count	sum	average	variance	
C1	50	176	**3.52**	3.560816327	-1.36
C2	50	244	**4.88**	7.577142857	
L1	50	291	**5.82**	4.966938776	3.24
L2	50	129	**2.58**	1.75877551	

	SS	df	MS	F	p	eta-sq
rows (conditions)	46.24	**1**	46.24	**19.95253506**	**0.000021685**	**0.172075022**
columns (levels)	262.44	1	262.44	**113.2427184**	**0.000000000**	**0.541202673**
r x c (condition x level)	60.84	1	60.84	**26.25242718**	**0.000001547**	**0.214739517**
error (SS within)	222.48	**96**	2.3175			
total	592	99				

LAB_09-Part II Example:
Entering/Analyzing Your Data and Interpreting Your Results

Provide a written description in APA style of your results below:

t-test:

To evaluate if reading a high- vs low-stress scenario would impact the likelihood that participants would choose a negative coping mechanism, means and standard deviations were calculated. Consistent with the hypothesis, after participants read a high-stress scenario, they rated themselves are more likely to choose to negative coping mechanism ($M = 7.25$, $SD = 1.21$) than after reading a low-stress scenario ($M = 3.80$, $SD = 1.32$). To determine the probability that this difference in means would occur if the null hypothesis is true (that is, if this difference was statistically significant), a *t*- test was conducted. The difference in means is significantly significant; the *t*-test showed that there is a less than a 1% chance that these results are due to sampling error, $t(19) = 9.07$, $p = < .001$. Therefore, it appears that participants' are more likely to choose a negative coping mechanism in response to high-stress than in response to low-stress.

F-test (2x2):

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 ($M = 4.20$, $SD = 1.87$) compared to a person who was easygoing ($M = 1.80$, $SD = 1.45$). Additionally, participants perceived a person who had achieved a grade of 60% as having higher levels of anxiety ($M = 5.70$, $SD = 0.87$) compared to a person who has achieved a grade of 75% ($M = 2.70$, $SD = 1.66$).

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.

LAB_10-11 Example:
Research Presentation Poster

Following are two examples of research presentations from the 2016 PSYO 270 Research Methods Conference. Last year, we did not have a large-format printer so presentations were made on indivdual slides, printed off, and attached to the poster boards to form a poster. You will be developing one single file of a poster (as per the details provided in the Lab Guide and Documents and Templates manual for Lab #10. However, all of the various sections of your poster are the same as the sections on separate pages in the following example documents.

Also following, are two samples of research posters from national conferences.

LAB_10-11 Example 1:
Research Presentation Poster

THE EXPECTED INFLUENCE OF FAMILY SIZE ON PERSONALITY TRAITS

Jae Doiron, Adam Kern, Maddy Obst,
Jackie Yang, Shael Bourne
University of British Columbia - Okanagan

Introduction

- Is one's life affected in any way by family size?

- Yes! The quantity of a family has an influence on the quality of someone's life. Sibling size has an important influence on a child or youth's life quality.

(Blake, 1981)

- Does family size have a relationship how introverted or extroverted a person really is?

-Yes! The family structure mediates personality traits. (Zyrianova, Chertkova & Pankratova, 2013)

Purpose

To determine if the difference in family size affects one's personality traits of introversion and extroversion as well as self-esteem.

To describe the way in which family social organization (sibling size, parents involvement in the family) affects individuals.

(Yabiku, Axinn & Thorton, 1999)

Hypothesis

- People who grew up in a big family tend to be more extroverted and have high self-esteem
- People who grew up in a small family tend to be more introverted and have low self-esteem

Method

Participants

- N = 42 UBCO Students
- Participants were randomly assigned in a second-year research methods and design course

Design

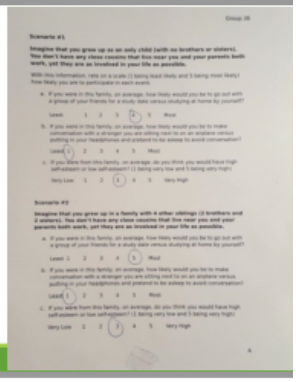
- Two level study
- Within subjects design used

Method Continued

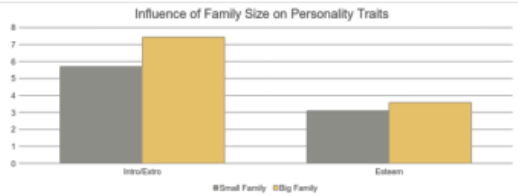
Scale

- Used a 5 point selection scale similar to the Likert scale
- Two questions were used to evaluate extroversion versus introversion (Questions 1 & 2)
- One question was used to evaluate self esteem (Question 3).

Our Survey



Interpreting Our Data



Correlated (paired) *t*-test:
t(42) = 2.89, p=.006

Correlated (paired) *t*-test:
t(42) = -1.79, p=.081

LAB_10-11 Example 1 continued

Results

Introversion/Extroversion:

- The means for being extroverted we higher in a big family scenario (M = 7.45, SD = 1.79) than in a small family scenario (M = 5.70, SD = 2.00).
- It was statistically significant (p = .006).

Strengths and Limitations

Strengths

Simple and easy to understand

Counterbalancing with two versions [A&B]

Limitations

A between-subjects design to test a person's true family size and how it affects their self esteem and personality.

Results

Self-esteem:

- The means for self-esteem were slightly higher in a big family scenario (M=3.60, SD = 0.82) than in a small family scenario (M = .10, SD = 0.97).
- It was not statistically significant (p = 0.081).

Take Home Message

People assumed that if you came from a big family, you would be more extroverted than if you came from a small family.

People did not however, assume that if you came from a big family you would have higher self-esteem.

Discussion

- Results supported our hypothesis that family size affects a person's personality traits- specifically extroversion/introversion but did not support the hypothesis that it would also influence self esteem
- A possible explanation that self-esteem was not affected could be the result of doing an within rather than a between subjects study due to individual differences.
- To counterbalance our results, two versions of the survey were used in which the order of the scenarios were reversed.

LAB_10-11 Example 2:
Research Presentation Poster

Introduction

-How does ones' personality type affect their level of anxiety around final exam time?
-Does their existing grade impact their level of confidence?

Method

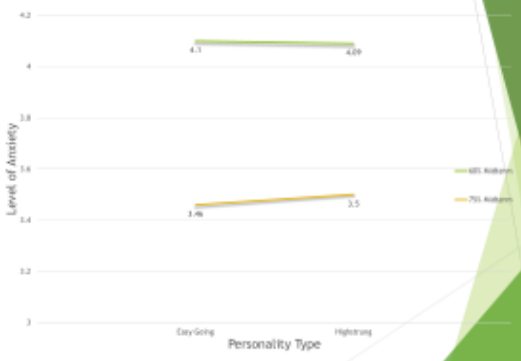
- *N* = 43 psychology students in a second-year research methods and design course
- 1 result was removed due to non-response

Design
- 2 *(easy-going personality, high-stung personality)* x 2 *(60% midterm result, 75% midterm result)*, between-subjects

Purpose

-To determine the projected effects of personality types on anxiety and confidence levels.

Results: Anxiety DV



Research Question/Hypothesis

How do personality and grades effect a person's anxiety and confidence level?

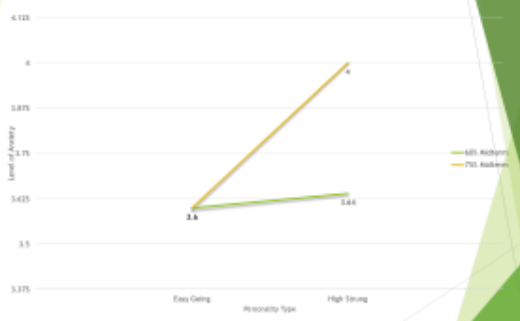
t was hypothesized that a high strong personality with a low grade would result in more anxiety and less confidence in comparison to an easygoing personality with a high grade would result in less anxiety and more confidence.

Results: DV 1

- There is no main effect of Personality Type: F (1, 38) = .02, p = .89
- There is a main effect of Midterm Grade: F (1, 38) = 3.72, p = .06
- There is Personality Type x Midterm Grade
- interaction: F (1, 38) = .00, p = 1.00

LAB_10-11 Example 2 continued

Result: Confidence DV



Strengths and Limitations

By using a between-subjects design there is assurance against...
- Carry over effects
- Ordering effects and...
- Does not require counterbalancing

However...
- Our sample was convenience based
- May not be generalizable
- Further replications would be needed to increase validity

Results: DV 2

- There is no main effect of Personality Type: F (1, 38)= .04, p = .84
- There is a main effect of Midterm Grade: F (1, 38)= 2.54, p = .12
- There is no Personality Type x Midterm Grade interaction:
- F (1, 38)= 2.09, p = .16

Take-Home Messages

- Participants were able to quickly identify another student's (albeit fictional) varying level of anxiety.
- Similarly, participants were consistent with each other in assessing the fictional student's confidence within the given situation.
- Lastly, participants recognized that fictional student's anxiety level and confidence in their abilities depended on their personality.

Discussion

Overall it appears that participants recognized that fictional student's anxiety level and confidence in their abilities depended on their personality.

LAB_10-11 Example 3:
Research Presentation Poster

Canadian Psychological Association's 75th Annual Convention
Vancouver, British Columbia
June 5 - 7, 2014

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

A cross-cultural study of patterns of relationships between meaning in life, vitality, materialistic values, and well-being

Holli-Anne Passmore, Mark D. Holder — *University of British Columbia*
Louise T. Lambert D'raven — *Canadian University of Dubai*

Abstract

This study examined the relationships between meaning in life, vitality, materialistic values, and well-being in university students from two countries: Canada and the United Arab Emirates. Participants completed self-report measures of each construct. For both countries, endorsement of materialistic values correlated positively with a search for meaning in life. Additionally, for both countries, mediational analyses indicated support for a model wherein vitality mediated the relationship between meaning in life and well-being.

Introduction

- Frankl (1959) proposed that meaning in life was what individuals were ultimately seeking.
- However, Joseph Campbell (1988) suggested that what people are really searching for is not meaning in life per se, but rather an "experience of being alive" (p.1).
- Ryan and Frederick (1997) used the term vitality to refer to this subjective sense of feeling fully alive and energized.
- Vitality and meaning in life have been linked in both lay-literature and research literature. For example, Virtue.Net (2011) lists engaging in activities which give one's life meaning as a suggested activity to increase one's vitality; Li and Oh (2007) reported a positive relationship between vitality and meaning in life among Korean nurses.
- Materialism has been linked to low meaning in life and low levels of well-being (Frankl, 1978; Kashdan & Breen, 2007).

Hypotheses

1. Materialism would predict high levels of searching for meaning in life.
2. Meaning in life and vitality would contribute significantly to well-being.
3. Vitality would mediate the relationship between meaning in life and well-being.

Method

Psychology undergraduates completed the following measures:
(CA: N = 394; UAE: N = 195)

* Meaning	Meaning in Life Questionnaire Sense of Meaning Scale
* Vitality	Subjective Vitality
* Materialism	Material Values Scale The Materialism Scale
* Well-Being	Emotional Psychological Social

Results

High levels of materialistic values predicted search for meaning across both samples:
CA: $r(380) = .10^*$ UAE: $r(180) = .22^*$

Regression analyses revealed that, in both the CA and UAE samples, both meaning and vitality contributed significantly to eudaimonic well-being, although vitality accounted for a greater proportion of the variance in well-being.
CA: $F(2,358) = 177.70^{**}$, β(meaning) = 0.28**, β(vitality) = 0.51**
UAE: $F(2,167 = 60.12^{**}$, β(meaning) = 0.33**, β(vitality) = 0.41**

In the prediction of hedonic well-being, only vitality was a significant predictor; meaning in life became non-significant.
CA: $F(2,366) = 144.81^{**}$, β(meaning) = 0.09, ns., β(vitality) = 0.61**
UAE: $F(2,175) = 40.96^{**}$, β(meaning) = 0.10, ns., β(vitality) = 0.51**

Mediation analyses revealed that meaning in life influenced well-being through its indirect on vitality, in addition to its direct effect.

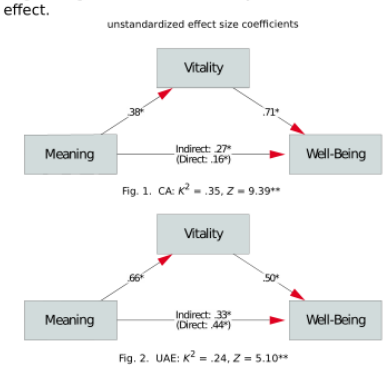


Fig. 1. CA: K^2 = .35, Z = 9.39**

Fig. 2. UAE: K^2 = .24, Z = 5.10**

Discussion

This research provides new insights into the importance of vitality as a marker of well-being, and provides a starting point for a possible new dimension in meaning in life research.

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LAB_10-11 Example 4:
Research Presentation Poster

Implicit Theories of Well-Being

Andrew J. Howell[1], Holli-Anne Passmore[2], & Mark D. Holder[2]
[1]MacEwan University [2]University of British Columbia

Abstract

Researchers differ in the extent to which they view well-being as amenable to change. Similarly, laypeople likely differ on the degree to which they perceive that they can influence their level of well-being. The current research investigated whether individual differences in the extent to which well-being is perceived as malleable or fixed are predictive of important psychological outcomes. Specifically, we hypothesized that holding a view of well-being as malleable (i.e., an incremental view) would be associated with higher hedonic and eudaimonic well-being than holding a view of well-being as fixed (i.e., an entity view). Moreover, we examined whether the association between incremental views of well-being and well-being outcomes was mediated by personal growth strivings. Young adults (N = 270) completed measures of implicit theories of well-being, personal growth initiative, and well-being. As hypothesized, those who held incremental views reported higher well-being than those with entity views, and this relationship was mediated by greater personal growth initiative. Moreover, this pattern upheld both for hedonic and eudaimonic well-being criteria, and it persisted even after controlling for socially desirable responding and for the influence of implicit theories of intelligence. One implication of the current research is that those with incremental views of well-being may be more amenable to well-being interventions.

Introduction

Over almost three decades, Carol Dweck and colleagues have examined individual differences in the extent to which personal attributes, such as ability, are viewed as fixed or malleable. Endorsement of an entity theory means that attributes are perceived as relatively stable and unchangeable. Endorsement of an incremental theory means that attributes are viewed as malleable and open to influence. Theory and evidence suggests that, in numerous domains of functioning, adoption of an incremental view is associated with the most adaptive cognitive and behavioural consequences. The current research sought to examine the influence of implicit theories of well-being. As applied to well-being, incremental theorists endorse a conceptualization of well-being as malleable and alterable, whereas entity theorists endorse a conceptualization of well-being as fixed and immutable. While implicit theories of well-being have yet to receive empirical scrutiny, some research has examined implicit theories of emotion. Tamir, John, Srivastava, and Gross (2007), in a longitudinal study, showed that people who view emotion as fixed engaged in poorer emotional self-regulation, experienced fewer positive and more negative emotions over a 10-week period, and had lower psychological well-being at the end of the year. De Castella, Goldin, Jazaieri, Ziv, Dweck, and Gross (2013) showed that adopting an entity theory of emotion was predictive of less reliance on cognitive reappraisal as an emotion-regulation mechanism, and with reduced self-esteem and life satisfaction.

Contemporary well-being researchers conceive of well-being as comprised of both functioning well and feeling good. While implicit theories of emotion tap aspects of the feeling good component of well-being, they do not tap the functioning well components of well-being. The current research, therefore, provides an initial foray into implicit theories of well-being and their ability to predict outcomes related to feeling good and functioning well. We hypothesized that incremental beliefs regarding well-being would predict higher levels of both functioning well and feeling good than entity beliefs regarding well-being. We also hypothesized that the positive relationships between incremental beliefs regarding well-being and functioning well and feeling good would be mediated by an increase in personal growth initiative, such that incremental beliefs of well-being, compared to entity beliefs, would lead to an increase in personal growth initiative which, in turn, would lead to higher levels of functioning well and feeling good.

Method:

Measures:

- Implicit Theories of Well-Being (ITWB) *(newly developed, based upon a measure by de Castella & Byrne, 2014)*
- Personal Growth Initiative Scale (PGI) *(Robitschek, 1998)*
- Flourishing Scale *(Diener et al., 2010)*
- Scale of Positive and Negative Experience - Positive Feelings *(Diener et al., 2010)*

Control Measures:

- Implicit Theories of Intelligence *(de Castella & Byrne, 2014)*
- Socially Desirable Responding *(Reynolds and Gerbasi, 1982)*

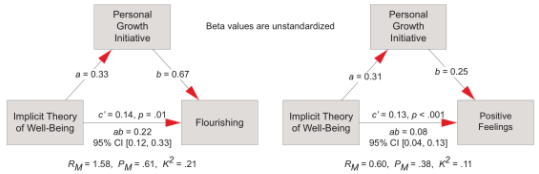
N = 270 undergraduates

Results:

As participants were more likely to endorse an incremental theory of well-being (and, therefore, less likely to endorse an entity theory), they reported greater well-being.

These relationships remained significant after controlling for implicit theories of intelligence and socially desirable responding.

Mediation analyses using ordinary least squares path analysis suggested that participants' implicit theory of well-being indirectly influenced their level of functioning well (flourishing) and feeling good (i.e., positive feelings).



61% of the effects of participants' implicit theory of well-being on flourishing occurred indirectly through increased personal growth initiative.

38% of the effects of participants' implicit theory of well-being on positive feelings occurred indirectly through increased personal growth initiative.

Discussion

In further research along these lines, incremental and entity mindsets concerning well-being could be measured or manipulated in order to examine whether those with an incremental theory of well-being may be more responsive to well-being interventions than those with an entity theory of well-being. It would be advantageous to know whether implicit theories moderate people's openness to engage in intentional activities aimed at improving their functioning.

In addition, it may be fruitful to devise a positive psychology intervention aimed at the cultivation of an incremental mindset toward well-being. Such a growth-oriented mindset could be assessed for its enduring impact on measures of positive feeling and positive functioning.

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MacEwan UNIVERSITY

UBC

CPA
76th Annual Convention
Ottawa, Ontario
June 4-6, 2015

LAB_10-11 Example 5:
Research Presentation Poster

Benefits of Reflecting on the Positive and Negative

Lauren R. Hotchkiss, Holli-Anne Passmore, Duncan McCurrach, and Mark D. Holder

Abstract

Research has demonstrated that reflecting on the positives in life is beneficial to well-being. Recent studies have identified that benefits can be gained from the full-range of human emotions and experiences. We conducted a two-week study that compared the effects of two forms of self-reflection. Undergraduates (*N* = 86) were randomly assigned to reflect solely on the positives in their day for which they were grateful, or to reflect on both the positive and negative events of their day. Following two weeks of reflection, participants who had reflected on both positive and negative daily experiences showed a significantly greater upwards shift in gratitude than did participants who had focused only on positive daily experiences (*d* = 0.47). Furthermore, analysis of the qualitative responses revealed that themes of increased self-confidence, understanding of self, and self-awareness emerged only from the responses of those who had reflected on both positive and negative experiences.

Introduction

As our days become cluttered with school, work, activities and other obligations, we often neglect to pause and reflect on these events and how they impact us. However, a wealth of research has demonstrated that well-being can be enhanced by investing even just a small amount of time in a regular reflection exercise (e.g., writing in a gratitude journal), in which individuals reflect on the positive things in their lives for which they are grateful (Davis et al. 2015). Focusing on what went right on any given day can, though, be difficult at times, particularly on days characterized by frustration, struggles, and doubt. Yet, as Maslow (1962) noted, struggle, frustration, and tension are unavoidable consequences of being truly engaged in life, and are found in all healthy people. Thus, engaging in an intervention that encourages one to, in essence, simply ignore the negative parts of life is not realistic.

Positive psychology is now beginning to recognize the power of the so-called "negative" (Ivtzan, Lomas, Hefferon, & Worth, 2015; Kashdan & Biswas-Diener, 2014; Quoidbach, 2014). Second-wave positive psychology recognizes that optimal functioning comes from a dynamic interplay between positive and negative emotions and factors (Wong, Ivtzan, & Lomas, 2015). Our current study was informed by this broadened perspective.

We conducted a two-week study that compared the effects of two forms of self-reflection:

- reflecting on just the positives in one's day for which to be grateful, or
- reflecting on both the positive and negative events of one's day.

Method

Participants:
University students (N = 86)

Measures:
Gratitude Questionnaire Six-Item Form (McCullough, Emmons, & Tang, 2012)
Gratitude Adjective Checklist (McCullough et al., 2002)
Meaning in Life Questionnaire - Presence Subscale (Steger, Frazier, Oishi & Kaler, 2006)
Herth Hope Index (Herth, 1992)
Implicit Theories of Well-Being (Howell, Passmore, and Holder, 2015)

Procedure:

1. Participants were randomly assigned to one of two self-reflection exercises. One group was asked to reflect on only the **positive aspects** of their day and how those impacted them. The other group was asked to reflect on both the **positive and negative** and how those impacted them.
2. All participants completed pre-intervention measures of gratitude, hope, meaning in life, and implicit theories of well-being
3. Every second day for two weeks, participants completed their assigned self-reflection exercise.
4. At the end of the two-week study period, participants completed post-test measures of gratitude, hope, meaning in life, and gratitude.

Results

At the end of the two-week study period, participants who had reflected on both the positive and negative experiences of their daily lives showed a significantly greater shift in gratitude than did participants who had focused only on positive daily experiences (Figure 1). Analysis of the qualitative responses revealed that, while themes of appreciation emerged for both groups, themes of increased self-confidence, understanding of self, and self-awareness emerged only from the responses of the daily activities/positive-negative group (Figure 2). There were no significant shifts in meaning in life, hope, or implicit theories of well-being.

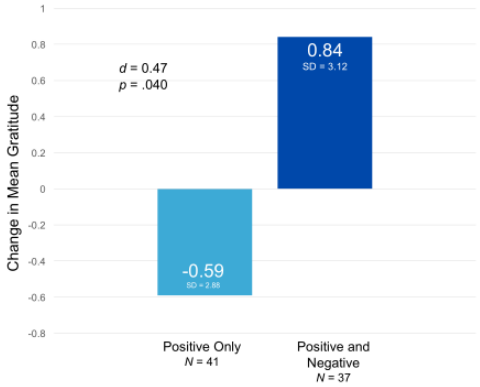

Figure 1. Difference scores from pre- to post-intervention in gratitude.

Figure 2. Themes present in the "positive and negative" group daily responses

Discussion

Whereas responses of participants in the gratitude/positive-only condition resembled merely a list of positive moments from their day, responses of participants in the positive-negative condition were presented in a narrative manner, weaving between positive and negative experiences. Although not our original intention, this suggests that by asking people to reflect on both the positive *and* negative events of their daily lives, we created a brief narrative identity intervention. Narrative identity is a way to develop a sense of self through accounts of meaningful episodes which include both high points and low points (McAdams, 2001). It appears that the organically-generated narrative structure of participants' responses from the positive-negative condition enabled them to gain greater insight. This is in line with previous research suggesting that self-reflection by itself does not necessarily lead to enhanced well-being, but rather it is the insights gained during the process which catalyze subsequent beneficial effects (Harrington & Loffredo, 2011).

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