

Individual Assignment #3 Experimental analysis and design

Deadline: This assignment is individual. You should submit a PDF document on CANVAS before March 18, 2022 at 23h59.

Content: The PDF should contain:









- Name and ERNA ID
- Part A: a short report (maximum 2 pages, penalty if too long)
- Part B: one working link to your video recording (maximum 2 minutes, penalty if too long)
- Appendices such as R code (see appendix 1 of this document), references or other. No page limit for the appendices. No specific formatting requirements for this section.
- Format: Single-spaced, regular margins, Times New Roman or Arial, Font 11 or 12.

Instructions Part A: short report (50% of the assignment grade)

In this experiment, researchers replicate the design from a recent experiment¹. The researchers tested whether an “ugly” label (vs. no label) increased the likelihood that consumers purchase unattractive produce.

The researchers used a 2 (“ugly” label vs. no label) vs. 2 (steep discount vs. moderate discount) between-subject experiment, with N = 400 participants. The stimuli are presented below.

Independent variables (manipulated)

	Absence of ugly label (“ugly” = 0)		Presence of ugly label (“ugly” = 1)	
Moderate discount (“steep”=0)	<div>Box A Fruits & vegetables  \$20</div>	<div>Box B Fruits & vegetables  \$16 20% OFF</div>	<div>Box A Fruits & vegetables  \$20</div>	<div>Box B Ugly Fruits & vegetables  \$16 20% OFF</div>
Steep discount (“steep”=1)	<div>Box A Fruits & vegetables  \$20</div>	<div>Box B Fruits & vegetables  \$10 50% OFF</div>	<div>Box A Fruits & vegetables  \$20</div>	<div>Box B Ugly Fruits & vegetables  \$10 50% OFF</div>

Independent variables (measured)

- “sex”: 1 = female, 0 = male
- “age”: in years
- “veggie_freq”: Vegetable consumption frequency, measured on an 11-point scale from -5 = “never” to 5 = “every day”

¹ Mookerjee, Siddhanth, Yann Cornil, and JoAndrea Hoegg. "From Waste to Taste: How “Ugly” Labels Can Increase Purchase of Unattractive Produce." Journal of Marketing 85.3 (2021): 62-77.

Dependent variable (measured)

“likelihood”: Likelihood to purchase unattractive produce measured on a 5-point scale ranging from 1 = “Definitely Box A” to 5 = “Definitely Box B”, with 3 = “Indifferent”

Hypotheses

H1: “Ugly” labeling (vs. no specific label) increases the likelihood that consumers purchase unattractive produce

H2: The positive effect of “ugly” labeling on purchase is moderated by the depth of price discount, such that “ugly” labeling is most effective when associated with a moderate (vs. steep) discount

H3: The positive effect of “ugly” labeling on purchase is moderated by vegetable consumption frequency, such that “ugly” labeling is most effective when vegetable consumption frequency is high (vs. low)

Questions to include in your report

Q1. Test whether age and gender differ between the “ugly” labeling and no labeling conditions

Q2. Test H1 and report the results consistent with the result section in the corresponding lecture

Q3. Test H2 and report the results consistent with the result section in the corresponding lecture

Q4. Test H3 and report the results consistent with the result section in the corresponding lecture

Opening the data with R

The beginning of your R code should look like this. The parts in highlighted in yellow must be removed and replaced by new information specific to your case.

```
# Load packages (if these packages are not installed, please
install them, see session 1)

library(readxl)
library(emmeans)

# Set working directory (see video on CANVAS)

setwd("INSERT YOUR PATH HERE")

# Load the general database

database <- read_excel("Assignment3_data.xlsx")

# Change the yellow section to match the day of your birthday. For
example, Romain was born on the 21 of March so he can paste
"birthday21" below. If you are born on the 8 of January, please
insert "birthday8", etc.

mydata <- database[which(database$birthday21=='1'),]
```

Additional notes

- You should use “mydata” for further analyses, and not “database”.
- Note that the general “database” has 400 observations while “mydata” should have less

observations and will be different from other students datasets.

- The report should be 2 pages max, excluding appendix/references or anything that is not part of the main report
- No need to include graphs or table in the report, you can mention all relevant statistics into the text.
- Paste your R code into a specific appendix (see example in Appendix 1 of this document)
- No need to repeat the hypotheses, no need to repeat the questions, you can only include the answers to questions 1 to 4.

Instructions to Part B: short video presentation (50% of the assignment grade)

Following the part A in the context of vegetable waste, in part B: you are asked to design an experiment in the domain of energy use, consistent with the topics from assignments 1 and 2.

Part B of the assignment consists in including a link of a video presentation into the PDF document to be submitted on CANVAS. Please see below for additional details on the video content and how to include the link.

The aim of this assignment is to propose an intervention to increase sustainable energy behaviors. There are no restrictions on the parameters of this assignment, notably:

- Any type of interventions (e.g., but not limited to, visual, oral, olfactory, advertising leaflet, letter, change in product features, etc.)
- Any type of sustainable energy behaviors (e.g., but not limited to, recycling, waste, energy consumption, etc.)
- The topic is not limited to a specific type of context or product category (e.g., cars, home, travel). If you think that it would make sense to focus on one particular type of context or product category or type of energy, you are free to do so.

The choice is up to you, you simply need to make the context explicit in your presentation. No data collection is needed for the part B.

Part B: Content requirements

Several elements need to be covered in your assignment:

Title Slide (1 slide)

With the title, your name, ERNA ID.

Part A: Design (1 or 2 slides)

Experimental design and data collection plan

- Defining the objective and the experimental outcome or DV (e.g., but not limited to, clicks, willingness to pay, purchase frequency, compliance rate, etc.). Note that the outcome needs to be an interval or ratio variable. It cannot be a nominal outcome (e.g., recycle vs. not recycle).
- Experimental design (between-subject experiment). The experiment can take place in any type of settings such as (but not limited to) an online experiment, a laboratory experiment, a field experiment, etc. Please provide enough information to make it clear how the data would be collected. Imagine that you have no financial constraint to run the experiment so you can be creative with this part.

- Experimental manipulations or IV. You need exactly two experimental conditions (e.g. intervention condition vs. control condition).
- One moderating variable M (e.g., either manipulated or measured). This variable can be binary (like “steep” in part A) or quantitative (like “veggie_freq” in part A). Its manipulation or measure must be clearly detailed (note that in case you choose to manipulate the moderator, you need to add extra experimental conditions (e.g., steep discount (“steep”=1) experimental conditions in part A)).

Part B: Hypotheses (1 or 2 slides)

Theoretical hypotheses + graph of hypothesis moderating effect

- Detailed written hypothesis of the main effect of the IV on DV, labeled “H1”
- Detailed written hypothesis of the moderating role of moderating variable M on the relationship between the IV and the DV, labeled “H2”
- Stylized/fictitious graph with the hypothesized moderation effect (made on PPT or excel). The graph should be either a bar chart or a line chart, depending on your design. Please find editable graphs on PowerPoint, posted alongside the assignment 3 instructions on CANVAS.

Additional notes about part B

- You should not collect data for this experiment
- Text and oral presentation can be in Dutch (BK2103) or English (BK2103/BT2103).
- 1 title slide (title, name, ERNA ID), max 4 slides for the presentation. References must be included at a bottom of a slide with a small font. See the sample slides posted alongside the assignment 3 instructions on CANVAS.
- You can adapt an intervention / experiment from existing research (see part A + examples in lectures + the appendix in this document with additional examples), but you have to clearly cite the academic reference. Please cite the reference as in the slide 3 in the sample assignment.
- Do not include references to the statistical null/alternative hypotheses
- Do not include statistical formula

Video recording and sharing

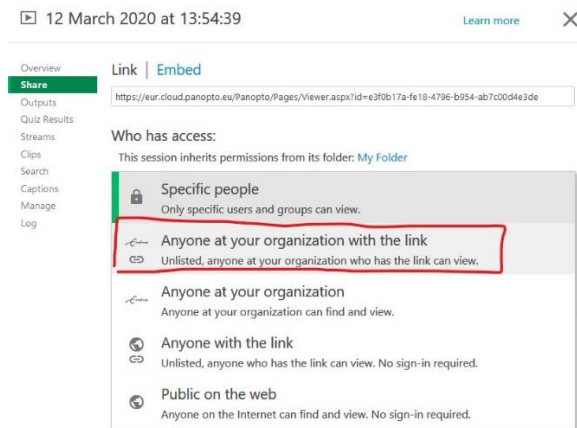
You should submit a video recording in which you make an oral presentation of your slides. The video should be 2 minutes maximum (be careful, we will include a penalty if the video takes more than 2 minutes, so please make sure to cut the video if it is too long),

Step 1 – recording: Open Zoom with your EUR account. Start a meeting on Zoom, share your screen with the slides, then hit “record on your computer”. Next, upload the video recording from your files to your Panopto account, then share the file.

You must include the video of yourself, as well as the shared-screen video of your slides. If possible, try using a headset with microphone (rather than computer microphone) to increase sound recording quality.

Step 2 – including the cloud link of your recording into your report: You have to share the video recording with a link from Panopto <https://eur.cloud.panopto.eu> using your EUR email address to login.

Please make sure to edit the sharing settings of your cloud recording so that everyone with access to the link can open and see your video! In the image below, change the settings as circled in red before copy/pasting the link into your report.



You are responsible for your video to stay on Panopto until the end of the school year, please make sure that the link is working by asking friends or family to test whether the link works correctly. Please do not ask the RP team as we cannot test thousands of links before the grading starts.

Help on Zoom and Panopto

Zoom help: Create a zoom account with your EUR email address. When you register an account at www.zoom.us using your EUR email address you will automatically get added to the EUR license and receive a Pro account.

For additional help on zoom, you can refer to

- General EUR help and support contact: <https://msc.eur.nl/zoom/>
- Share your screen:
 - o <https://www.youtube.com/watch?v=YA6SGQIVmcA>
 - o <https://support.zoom.us/hc/en-us/articles/201362153-Sharing-your-screen-content-or-second-camera>
- How to record a zoom meeting
 - o https://www.youtube.com/watch?v=y0tYCwcbFRI&ab_channel=HolisticCommunications

Panopto: You can open an account and login to <https://eur.cloud.panopto.eu> with your EUR credentials.

- General EUR help and support contact: <https://msc.eur.nl/zoom/>
- How to share your panopto recording
 - o <https://howtovideos.hosted.panopto.com/Panopto/Pages/Viewer.aspx?id=4915a1c3-f400-499f-b61e-5d6f65518d3b>

Appendix 1. Paste your entire R code in a separate appendix such as below

```
# Load packages

library(readxl)
library(emmeans)

# Set working directory (see video on CANVAS)

setwd("INSERT YOUR PATH HERE")

# Load the general database

database <- read_excel("Assignment3_data.xlsx")

# Change this section to match the day of your birthday. For example, I
# am born on the 21 of March so I have pasted "birthday21" below. If you
# are born on the 8 of January, please insert "birthday8", etc.

mydata <- database[which(database$birthday21=='1'),]

# Question 1
Some code





# Question 2
Some code

# Question 3
Some code

# Question 4
Some code
```

Appendix 2. Examples of experiments

Below you will find examples of experimental design used in the domain of sustainable behaviors on worksites. Your potential interventions are not limited to these examples, which only serve as an illustration of how to develop an intervention closely mirrored by a control condition.

Main effect hypothesis	Control condition	Intervention condition	Context/setting	Dependent variable (DV)
People are more likely to recycle when product transformation is salient (vs. it is not)	 (no transformation)	 (product transformation)	Online experiment: employees are randomly allocated to one of the 2 ads in a between-subject design. The stimuli were taken from Winterich et al. (2019) ²	"How likely are you to recycle" from 1 = "not at all," and 7 = "very much".
Students are willing to pay more for a product with a "environmentally friendly" label (vs. absence of sticker)	 (no label)	 (green friendly label)	Students are given a bag of chips in the lab	Students are asked: "if you found that product in a store, how much would you be willing to pay for it"? (in euros)
People are more likely to select the sustainable option when it is presented as the default option (vs. when it is not)	Meat dish is the default option	Sustainable plant-based dish is the default option	Employees receive a menu by email in the morning before a lunch event with a short survey to make their selection	"How likely are you to select [the default option]"? from 1 = "not at all," and 7 = "very much".

Additional ideas at: <https://www.unenvironment.org/resources/publication/little-book-green-nudges>

² Winterich, K. P., Nenkov, G. Y., & Gonzales, G. E. (2019). Knowing what it makes: How product transformation salience increases recycling. *Journal of Marketing*, 83(4).