Self-Analysis Experiment: what are the correlations between our daily habits?

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ABSTRACT

Have you ever wondered why you are in such a terrible mood? This is what we tried to figure out during the past semester by analysing our personal daily data. We created a google form composed of different sections (such as sleep, food, social interactions etc.) which could impact our mood without being aware. After having collected our daily data for 3 months, we plotted several graphics thanks to RStudio. We observed that the sport, the social interactions and our sleep quality actually impacted our mood at specific scales. Moreover, a correlation between the mood and social media or even hunger can be spotted.

INTRODUCTION

As part of the SCORE (Student COllaborative REsearch) project in the CRI Fellows Program, we (Clémence Potel, Ilona Bussod and Alexane Iwochewitsch) worked with Bastian Greshake Tzovaras.

The main idea we had was to analyse data, and especially our own data on a daily basis. We started to brainstorm about it, and figured, with the help of Bastian, we could use a Google Form to collect our daily data.

We knew we wanted to work on the correlation between the use of our phones and our mood. After a lot of talking, we figured out the time we spend on our phones is not the only factor to influence our mood during the day. We then decided to add several other parameters to our study, and therefore to add them to a Google Form we created, which we would share not only between the four of us, but to our whole classroom and also people of the CRI (Center for Research and Interdisciplinarity) of Paris.

We started to think about these other factors, and we came to the idea that sleep, food, music, hormones and our social life could also interact with our mood.

Our Google Form began to look more like a real form to collect personal data, and it was exactly what we wanted. One of our concerns was that several people in our classroom would want the form to be anonymous, to protect their personal lives. We added a question to enter a username, to help us better seek out the data of each person, but to still keep their privacy.

On one hand, we decided that the data collecting part would last for three months for all four of us. On the other hand, we decided that the data collecting part for the people in our classroom would have to last at
least one week, and then they could keep filling it if they felt like it. The main priority in our form is that it has to be filled every single evening considering the questions.

We thought a lot about this study, and how it could bring us something a bit different then just analysing our data. We then decided to change a parameter for every one of us. For example, Ilona would stop listening to music in the morning for one whole week, Clémence would stop doing sports for a whole week too, and Alexane would stop watching Netflix for a whole week.

**HOW DID WE DO?**

**CREATION OF OUR GOOGLE FORM**

In order to collect our data, we decided to create a Google form, a tool that allows us to collect some information from users via a personalized survey.

We created eleven sections, allocated into themes: “Username”, “Mood”, “Phone”, “Social life”, “Sleep”, “Food”, “Music”, “Sport”, “Period” …

We made eleven sections:

1. Our first section was an introductive one where we asked people to answer as many questions as they can on a daily basis during some days or some weeks or even months. We also asked them to do it in a serious way to have a maximum of data that we could trust.

2. Our second section was asking for a **username** because we wanted our form to be anonymous and so we needed people to pick a username that they will reuse each time they were answering our form during this experiment.

3. Our third section tackled people’s **mood** more particularly how did they feel the day concerned by choosing adjectives: “amazing”, “happy”, “excited”, “normal”, “bored”, “stressed”, “sad”, “angry” and also rating their mood from 1 ("blues") to 10 ("amazing").

4. Then, in our fourth section, we asked people to fill the time they spend on their **phone** in hours on a daily basis and the time they spend on social media.

5. The fifth section was about **social life**. For the question “How much did you interact with people today?”, we needed them to choose between three answers “More than usual”, “As usual,” “Less than usual. Then, we asked them if they have any sexual intercourses just by choosing “yes” or “no”.


6. Our sixth section tackled sleep data. We asked people to fill the time they slept, to rate from 1 (“very bad”) to 10 (“very well”) how good they slept, if they felt tired during the day and finally if they used any kind of screen before going to bed the day before they filled the form by choosing “yes” or “no” to both questions.

7. In our seventh section, we collected data about food and more particularly by asking people if they felt hungry during the day and how much they ate during the same day by picking out between three proposals “More than usual”, “As usual,” “Less than usual.”

8. Then our eighth part tackled music data. We wanted to know if people listened to music in the morning (before arriving to work) and also what kind of rhythm it was choosing between “slow”, “energetic”, “sad”, “aggressive”, “dancing”.

9. We were also interested in sport activities by asking people in our ninth part if they did sport by answering “yes” or “no” and also, if “yes” to rate from 1 (“not exhausting”) to 10 (“exhausting”) how intense it was.

10. This tenth part tackled period cycles and asked people if they were on their period by answering “yes” or “no”.

11. Finally, we made in our eleventh section an extra question “Did something bad happened recently which could have impacted your data?”, we wanted to know if the data filled was usable so we could take out data that should modify our analyses.

IMPROVEMENTS OF OUR GOOGLE FORM

Few days after the elaboration of our form, we posted our ideas on a forum called “Quantified Self” to have feedback by some others knowledgeable people. Thanks to their recommendation, we changed three major elements:

- We made some mandatory questions in order to have some responses
- At the end of each section, we left people choose if they wanted to continue the form or not
- We specified time fragmentation; “Round minute values up to the next full 15 minutes and enter as a fraction of the hour (e.g. 1 hour and 15 minutes would be 1.25, 1 and 45 minutes would be 1.75)”

FILLING THE FORM

The first couple of weeks:
We stared to complete the form every evening in order to see if some modifications were supposed to be made (add new topics, withdraw others, add some information about completing the form). For example, all the information about the sleep (how good did we sleep, if we used a screen before going to bed) had to be the ones from the previous night. Only in this case, we can draw “accurate” relations between our sleep and our today mood for instance. Otherwise, everything would have been inexact. During those weeks, we didn’t change any of our habits. The purpose was to get familiar with the form and to improve it.

The following weeks:
We sent our form to two classrooms (L1s and L2s student) in order to get more data because the more we have; the more results could be relevant. All the indications about how to fill the form were clearly explain in a google docs.

The only rule we imposed for the ones who wanted to participate in our project, was to do it seriously for at least one week. They didn’t have to change any of their habits.

Unlike them, we (the SCORE group) decided to change one habit per week in order to have a wider variability in our data.
The first week, we stopped listening to music in the morning, the second week we stopped or reduced using the social media and the third week we (tried to) stopped using a screen before going to bed (at least 1h). But, because of the homework due during the week, it hasn’t been done properly…

ANALYSIS OF THE DATA & RESULTS

The goal was to analyse the data thanks to the google sheet automatically generated from the Google Form and also to plot some graphs with R-studio from that spreadsheet.

We collected exactly 293 data (by stopping the filling of the form on December 3rd). Several data were totally unlikely (for instance when the time spent on the phone > 24h) probably due to mistakes. We firstly had to sorted them out to have the most accurate results. Secondly, for each person who responded “yes” to “did something bad happened today?” (section 11), we couldn’t take their data into account, so we excluded those.

We didn’t know if our number of data (293) was a sufficient sample size to make some conclusions out of them. So, we decided to plot some obvious relations in order to observe if we had the expected results. As we can see in Fig.1, the less you sleep, the more tired you will be. Thus, our workforce seems sufficient enough to have accurate results.
The majority of the graphs represent the mood depending on another factor. This enables us to observe (or not) a relation between them. The main graphs representations we used are boxes or curves.

**Figure 1:** Duration of sleep in hours in function of the tiredness during the day ("yes" or "no"). Looking up the mean, people seems to be not (or less) tired when they slept around 7.5 hours rather than sleeping around 7 hours. Moreover, we can clearly observe that for the “yes” graph, we don’t have values above 9.5 hours whereas for the “no” graph we have many more data around & above 10 hours. Same analysis for data under 5 hours of sleep duration.

**Figure 2:** Mood rating from 1 to 10 in function of the tiredness during the day. The averages show us that people’s mood on a given day is clearly higher (7) if they did not feel tired during the day than if they felt tired (6). In addition, we don't have data for the “No” graph under a rate of 4 for the mood whereas for the “Yes” graph we have some.

**Figure 3:** Mood rating from 1 to 10 in function of having sexual intercourses during the day. When people did not have sexual intercourses during the day, their mood average is around 6 whereas for people who had sexual intercourses, their mood average is about 7.5. Moreover, for the “No” graph, there’s no data above a rate of 9 for their day mood.
**Figure 4:** Mood rating from 1 to 10 in function of the interaction with people during the day. The average of the mood rate is clearly higher (7) when people interacted more than usual with people, is less high (6) when people interacted as usual and is low (5.5) when people interacted less than usual. The more people are interacting between us, the more their mood is high.

**Figure 5:** Mood rating from 1 to 10 according to how much did people eat today. The mean value of the mood is higher and equal when people ate less or more than usual (7) than when people ate as usual (6).

**Figure 6:** Mood rating from 1 to 10 according to the hungriness during the day. People mean rate of mood is higher when they felt hungry as usual (7) and is lower when they felt less or more than usual hungry during the day (around 6 out of 10).
Figure 7: Mood rating from 1 to 10 according to the tiredness during the day. People mean rate of mood is higher (7) when people did not feel tired during the day and is lower (6). Moreover, for the “No” graph, we don’t have values under 2 for the mood rate.

Figure 8: Sleeping quality rated from 1 to 10 versus mood rating from 1 to 10. We have a trendline and we can deduce that more the quality of sleep is high, more the mood rate is.

Figure 9: Mood rating from 1 to 10 according to the practice of sport during the day. If people practiced a sport, their average mood rate is higher (7) compared to the ones who did not (6).

Figure 10: The fraction of time spent on social media in function of the mood rate. The extreme moods have a smaller fraction compared to the medium moods. People spend more time on social media during regular days than during specific days (with an extreme mood rate).
CONCLUSION:

Finally, we can conclude that some of our habits can impact our mood, such as the quality and quantity of sleep, sexual intercourses, social interaction or even sport practices.

DISCUSSION:

However, our results can be questioned. We identified several uncertainties about our protocol, the veracity of the data we collected and so the veracity of our results. For instance, the sample size is not the same for each response which leads to an unproportioned accuracy between them. The smallest samples tend to be less accurate than the bigger ones. Moreover, some questions from the form weren’t clear enough which probably led to multiple mistakes from the participants. Indeed, the sleep section was supposed to be about the previous day and not about the present evening.

To further continue the project, we should clarify some information about how to properly fill the form. We could also add more sections which will complete the self-analysis form, so we could be more aware about our daily habits (for example the weight gained or lost). Finally, we could stop few specific habits for at least a month each and compare the results from a regular month. This would allow us to make some personal conclusions on our mood influencers and maybe change our way of life for a healthier one.