

A User-Centred Design Approach to Data Visualizations

Participant Workbook

Phase I: Research

User interview questions

1. Tell me a little about you (e.g. occupation, education, family, hobbies, etc.).
2. What aspect(s) of a healthy lifestyle would you like to monitor in 2021?
3. Why is this important to you?
4. When would you use this information?
5. Where would you use this information?
6. Do you monitor this information currently (digitally or non-digitally)? If so, how do you monitor this information? What do you like and dislike about it? Do you encounter any challenges?

User interview notes

I'm a retired Chef and I'm 65 years of old. I started working as a Chef after I finished my high school. Currently I'm living with my son's family and my hobby is looking after my grandchildren and watching television.

I'm having cholesterol and diabetic. According to my healthier lifestyle my food intake and daily workout schedule are supposed to be tracked. And also, my doctor has advised me to report my daily sugar level, and nutrition intake level because of my body needs more Calcium and Vitamin C&D.

This is important to me because I have to manage a healthier lifestyle without bothering much with various diseases and deficiencies. If I can track my health, my son's family has to worry less about myself and this could leave a healthy as well as peaceful life.

I would use the information generated from this dashboard to view my health report and see where I have to be more focused on. As such I can be more focused on core health management and less worry about the pressure that I will be having of losing track of my health.

I will use this information weekly and also; I can use this dashboard during my medical appointments where my doctor will get to know about my progress and see where should they give me medication on.

Currently, I only have my daughter In-law who take care of my medication and give me my medicines on a daily basis. I have less knowledge of what prescriptions are given to me as sometime I don't give my health enough priority than any other. My daughter in-law will daily pack my medicines and mostly evenings I take my grand children for a walk which is the only workout I do now. Sometimes I used to skip the walk for various reasons and I don't have any track of my calories burn.

User interview synthesis

1. Who is the user?

Shanmugarajah Rasiah

2. Where should our product fit in their work or life?

He can use this product to track his health condition as well as it might remind him to follow his daily routine and food intake according to his doctor's advice.

3. What problems should our product solve?

Track the daily and weekly sugar level, sleeping time, workout duration and nutrition intake.

In addition to this, user can check his heartbeat rate and blood pressure level.

4. When and how should our product be used?

Basically, the output of this product will be based on the user entered input data and his apple watch's data (heart beat and blood pressure).

So, this product wants the user's input two times per day (night before going to bed and, in the morning, when he getup). Because some of the user's data has to feed in order to produce the output.

The user can check the dashboard on his iPad/iPhone.

5. What features are important to our user?

- Daily workout detail
- Heart rate
- Sugar level
- Daily nutrition intake
- Sleeping time

6. How should our product look and behave?

Our product will give at a glance the performance measures of the user's health. It will show variety of visualization on factors such as calories burn report, heart rate, sugar level etc.

It will give the user the convenient of keeping track of information with regards to their health and if it in one line it will be just "giving the health back to the user".

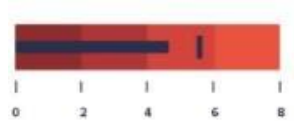
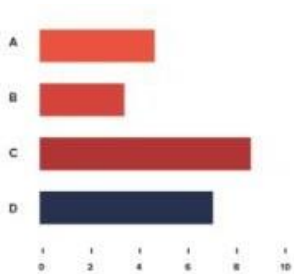
Phase II: Wireframe

Types of charts by function

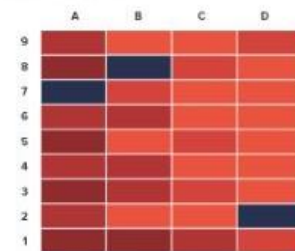
<https://datavizproject.com/>

Make comparisons

Horizontal/vertical bar Bullet

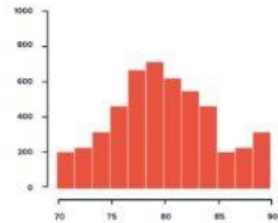
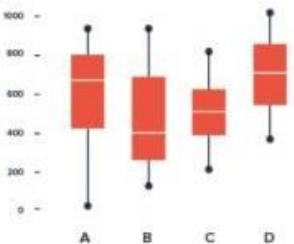


Heatmap



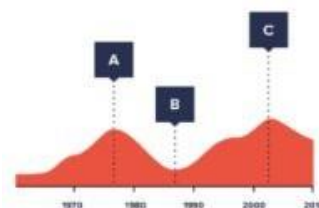
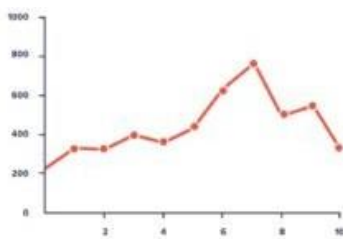
See distributions

Box and whisker Histogram



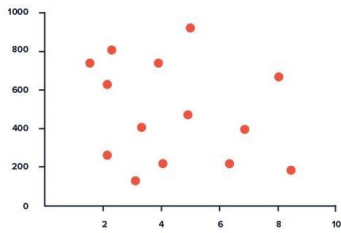
Spot trends over time

Line Area

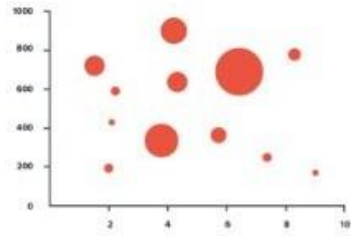


Understand relationships

Scatterplot



Bubble



Use the space below to draw your wireframe, or use other sheets of paper provided.

User feedback

(+) Likes <ul style="list-style-type: none">• The visualization overall provides the track of various information.• The Heartbeat and blood pressure is visually presenting• Most the required information is put together in one view	(-) Dislikes <ul style="list-style-type: none">• Manually updating the records will be too frustrating unless product traces to the information itself.
(?) Questions <ul style="list-style-type: none">• How will the product read the nutrition intake?• How will the product trace the sleeping hours?• Will the information derived from this dashboard be accurate? Can this be used for medical purposes?• Will the information be reliable?	(!) Suggestions <ul style="list-style-type: none">• Nutritional intake information requires a better chart• The dashboard provides only weekly report, inclusion of monthly report as well could be more on point

Phase III: Prototype

Usability Test Template

Describe the task(s) you wish to test:

Reflect on your user's goals and key activities. For example, a goal of the user may be to do more bench presses every week. Can they use your dashboard to:

1. See if they are improving each week;
2. See how much they are improving each week;
3. See how close they are to achieving their goal.

Read this introductory script to your test participant:

Hello Shanmugarajah, thank you for coming. My name is Sujeevan and I'm the designer of this health and wellness dashboard. I'm going to walk you through the session today.

Before we'll start, I have some information for you.

We're currently testing this product to learn as much as we can about the way people use it. Every product is intended to work in a certain way by its creators, but as you know – the reality might be quite different. The goal of this research is to get us as close to the reality as possible.

The session will take about an hour.

Please remember, during the next hour, that we're testing this product, and not you. Don't worry at all about mistakes. If they happen, it's the fault of the product. Finding about it is absolutely fantastic and gets us closer to creating a great product.

During the whole test, please try to think out loud. Share anything that's in your head. Tell me what you are looking at on the screen, what your thoughts are, what you like and what don't you like, et cetera. We want to learn about your honest reactions to this health and wellness dashboard.

Do you have any questions before we begin?

Source: <https://www.uxpin.com/usability-test-kit>

Phase III: Prototype

Usability test questions:

Walk me through how you would use this dashboard to [describe task].

Note: If you have more than one task you wish to test, test one task at a time.

Probes:

- Why did you look there?
- What design element gave you that answer?
- How did you decide to do that?

Notes:

I would use this information to trace my overall health progress. I would not be needing to wait until someone else come and check on my healthier lifecycle tracking. I can monitor it myself with this product.

The heart rate and sugar level shown in this product is more attracting as it gives the graph of my BPM. And the weekly workout status is an interesting option to out there. It will provide me with the update of food intake and workout timings and I could able to see where I lose the track to my health standard.

Phase III: Prototype

Usability Test Analysis

Critical issues:

Issues that prevented users from completing the task, and caused significant levels of frustration.

Inputting the nutritional intake by myself will take time and I'm sure I won't be able to complete that repetitively. Instead, if this product could trace back to my nutrition intake itself or if not such feature is not really needful in here.

Major issues:

Issues that prevented users from completing the task properly/accurately, and caused moderate levels of frustration.

Sugar level should also be manually fed into the product; however, I could have this as a reminder every morning when I check my sugar level, I could feed into the product myself. Anyway, if manual interaction is necessary, then what is the purpose of the product in case of the sugar level feature.

Minor issues:

Users were able to complete the task properly, but with some frustration and confusion.

What alert will the product give me if the blood pressure gets worse? Will the product give any notification on what has to be done? Merely notifying user with bpm is of what use?

Your design recommendations:

According to the user, he needs to track his Calcium and Vitamin C&D. Also, he can't take Carbohydrate containing foods. So, this product is designed to get the input from the user about his each and every food intake. In the dashboard, the system will be visualizing the total amount of his intakes of each nutrition by checking average nutrition level of each food.