AAUN

Report on the Usability Evaluation
Conducted on 1 February 2018

Compiled by:

Helene Gelderblom

INFORMATICS DESIGN LABS

University of Pretoria

Date of publication: 15 February 2018

Contact: helene.gelderblom@up.ac.za

Contents

Informatics Design Labs

1. INTRODUCTION

This is a report on an evaluation of the user interface of the AAUN application currently under development. Prof Helene Gelderblom of the Informatics Design Labs at the University of Pretoria, conducted the evaluation through observation of participants while they performed given tasks using the prototype app.

The tests were carried out at the University of Pretoria's experimental farm, with six employees of the farm. We chose to do this in a context that is familiar to the participants since the lab environment might have affected their behaviour.

2. PARTICIPANTS

We recruited six farm workers whose ages ranged from 25 to 50. Three were female and three male. Since the app has very focused functionality and the number of screens visited during the test was limited, we believed that we could identify most of the usability problems with only six participants. It has been demonstrated that an in-depth qualitative usability study with five users will reveal the majority of the usability problems in an application.

Five of the six participants own a smart, touch screen mobile phone. One uses an old fashioned Nokia, but he does own a Samsung tablet. All of them were thus comfortable to use the LG Android phone that we used for testing.

3. SETUP

We used a small boardroom with the participant and the facilitator sitting at a corner so that the facilitator could easily follow what the participant was doing. Behind the participant, a video camera was positioned high up on a tri-pod. Only the mobile phone and the participants' hands were visible in the shot. We used a sheet of paper to demarcate the area where the participant could move the phone around. They had to keep the phone flat on the table (see Figure 1).
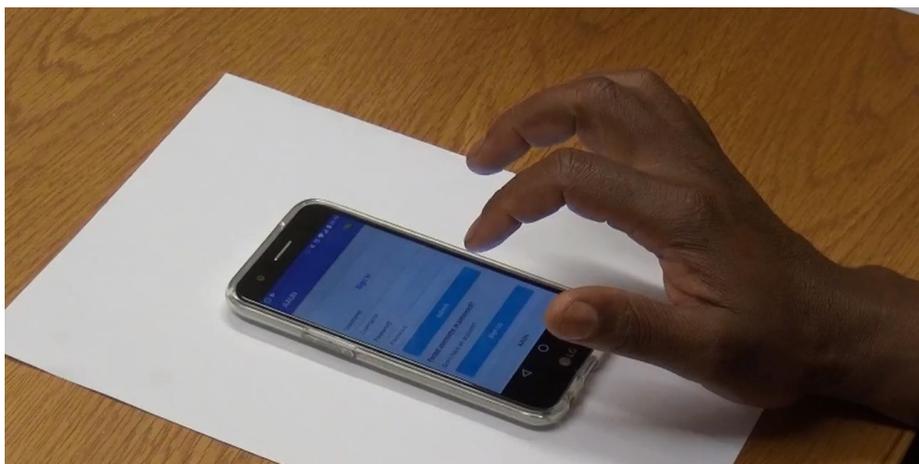

Figure 1 View from the camera's perspective

Two assistants (postgraduate students) provided support. One operated the camera and the other received the next participant outside the testing room.

4. PROCEDURE

Each session lasted 50 minutes maximum and proceeded as follows:

- Welcome and introductions
- Explain purpose of the session
- Explain facilitators' roles
- Explain purpose of the app
- Ask what phone they use
- Show them the test device and let them play around with it to become comfortable
- Ensure them that they cannot do anything wrong or break anything. Everything they struggle with is something that needs to be investigated for usability.
- Explain why we are using cameras and that their faces will not appear on the video.
- Ask them if they agree to continue and give them the consent form to sign.
- Ask them to talk about what they are experiencing while they do the tasks. (If they see any words or pictures that they do not understand they should tell me.)
- Take them through the tasks and ask the questions listed in section 5 below.
- Thank them and wish them well.

5. TASKS AND POST-TEST INTERVIEW QUESTIONS

Participants had to complete the following tasks:

1. Start the app and register as a user.
2. Change location information on the Household Profile.
3. Food survey: Complete the survey for the last 24 hours.
4. Food survey done: Explain what your understand from the summary.
5. Recommended crops: Ask them to go there, browse through the crops and choose one for which they want more information.
6. Household diet: Ask them to explain what they see in the summary.

During-test and Post-test questions:

1. What do you think the pen icon does (on the Household profile screen)?
2. Is the phrase "Household profile" understandable?
3. Are there any words in the interface that you did not understand? (Can mention specific ones, e.g. consume, cantaloupe, honeydew).
4. What does the bar at the bottom do? (Show them the progress bar.)
5. Is there anything about the app that bothered you or that you would like the developers to add?

6. RESULTS

We organise the results broadly according to the five parts of the app. Our recommendations based on these results appear where applicable.

Informatics Design Labs

REGISTRATION/LOGIN

The participants struggled with the registration and took a long time to complete it. For example, Participant 1 took 5 minutes to complete the Sign Up part and then another 1 minute and 50 seconds to log in.
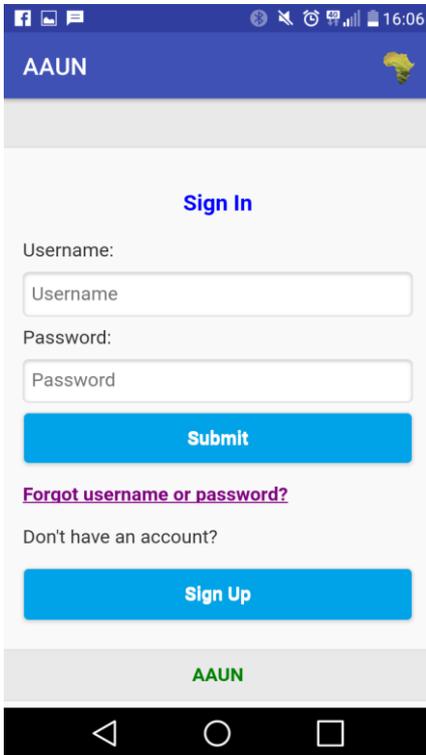
Five of the six users started filling in the Username and Password fields under "Sign In" although they had not registered previously. They did not realise that they had to click on the Sign Up button first.

This can be solved by renaming the buttons. For example, "Log in" and "Register as new user", and the "Don't have an account?" can be dropped.

After users had registered and they were back at this screen, they were not sufficiently aware of the difference between their Name and the Username.
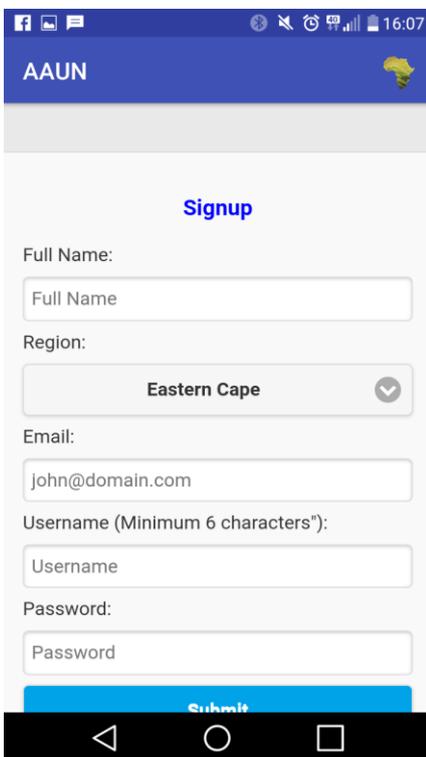

On the previous page we have Sign In and Sign Up as two words respectively, while here Signup is one word. Spelling should be consistent.

The only way to go back is by clicking Submit after filling in all the fields. If the user wrongly chose to sign up and wants to return to the sign in screen they will have to press the phone's back button and restart the app.

Some participants were confused by the default, example email address in the Email field. Maybe just put "For example, john@domain.com". One of our participants does not use email and does not have an email account.
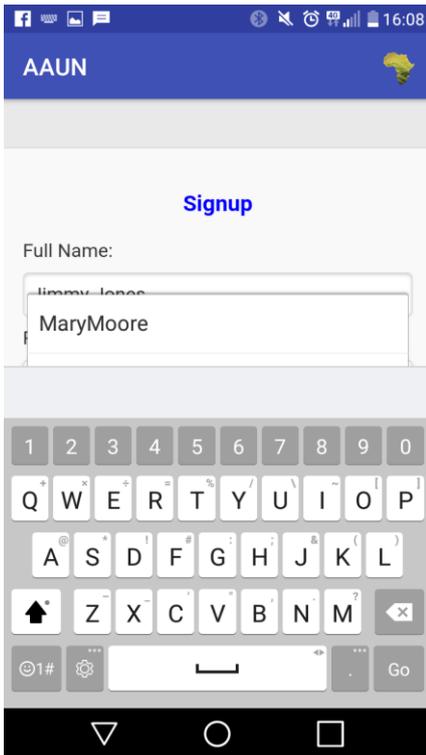
This is what the LG K10's screen looks like when the user taps the first entry field. The assistive text that appears, covers the input field. The participants were confused by this and were hesitant to start typing. Maybe the assistive text should only appear once they have already started typing, so that it works more like a phone's autocomplete functionality. In other words, if the name that is typed does not match any previous name, no assistive text will appear.
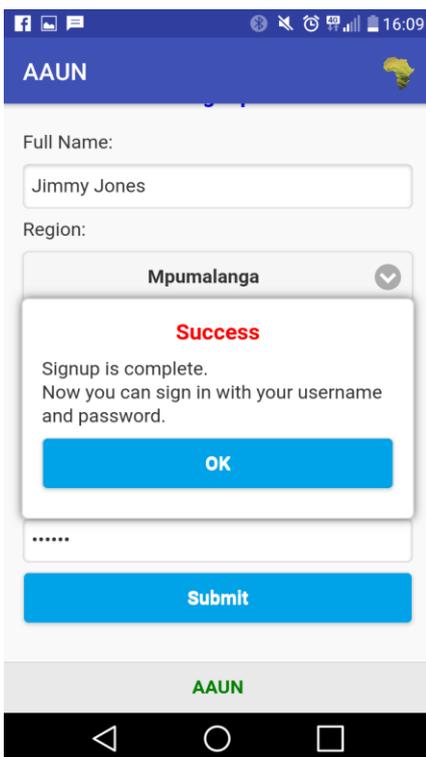
When the registration has been completed, the Success window tells users that they can now sign in. The participants in our study all expected the signing in to happen when they click OK. Instead, OK took them back to the Sign In screen where they have to type their user name and password again.

Change the navigation here so that clicking OK takes them directly to the Main Menu.

Informatics Design Labs
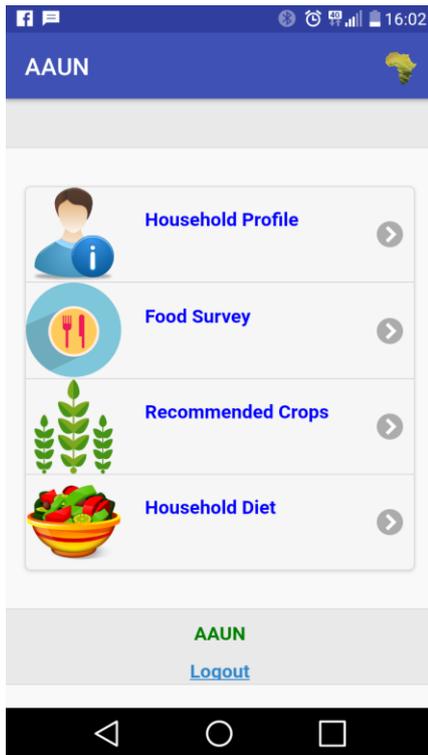
HOUSEHOLD PROFILE

After completing the registration process and signing in the main menu appears.

Before participants chose "Household Profile", we asked them what they expect to find when they click on that. Here are there respective responses:

P1 -"It's the garden" and later "I see myself as a house and this everything of me" (sees the profile as his own personal profile.). Would rather call it Household information.
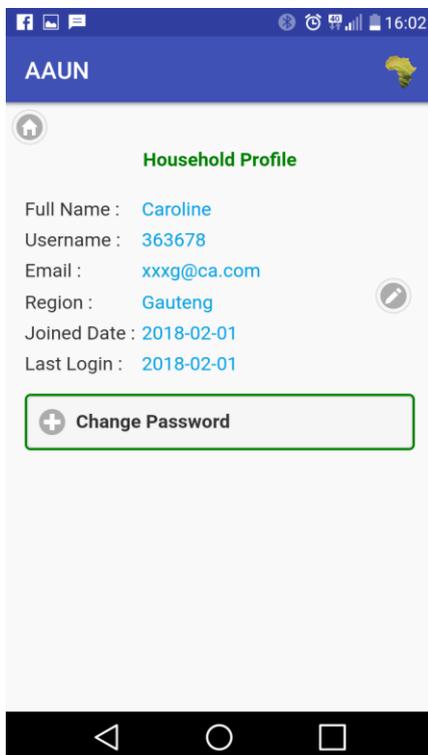
P3 – "Things that are in the house …. The stove…"

P4 - "How big my yard is. Do I have a vegetable garden?"

P5 – "What's inside the house."

P6 – "Something that happens inside the house. More about the people."

This reveals that they do not understand the term Household Profile as it was intended. We recommend that this be changes to "Your household information" or "Your information".


After they entered the Household Profile screen, we asked them to change the region.

All but one clicked on the word "Region" or on the name of the region in the hopes that that would allow them to choose a new region. When this did not work they were either lost and had be guided or the clicked on Change Password.

P6 found the Edit icon herself. All five the others had to be told to click on that icon. Moving the Edit icon to the right of the region closer to the region name, will map it more clearly to the function of editing the region.

Comments/Questions:
- The plus icon next to Change Password does not make sense. Why a plus?
- Why can only the Region be edited? What if someone made a mistake in the other fields and wants to correct it?

Informatics Design Labs
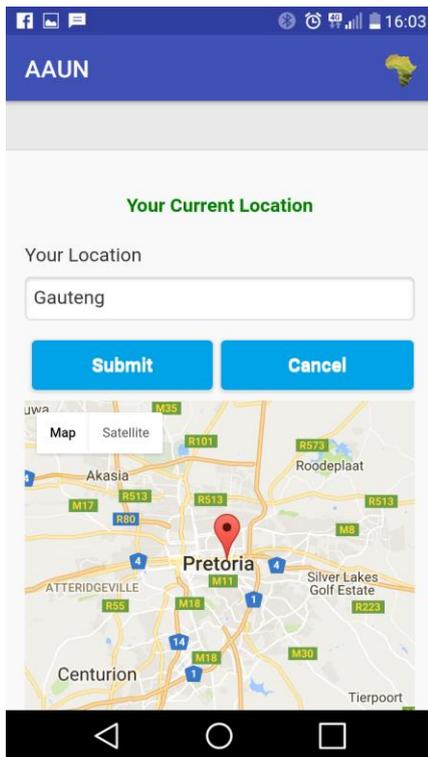
After clicking on the Edit icon, a screen appears where the region can be changed. Because users previously selected their region from a drop-down list, they expected the "Your Location" edit box to provide them with a list again. None of the users intuitively used the map to change their location, they rather typed into the text box.

When they type a region and make a spelling mistake in the new region that they provide, no indication is given that there is a problem. It just goes back to the Profile screen with the region unchanged. Also, while typing the region name, the keyboard partially covers the Submit button.

Those who did interact with the map, moved it around but soon got lost.

Suggestion: Based on the country where the user resides, show a map of the country with the different regions demarcated in different colours. They can then tap on a region to select it. However, they should still have the option to pick the region from a drop-down list.

All the details visible on the Google map that is currently included, are not necessary for this task.

When the participant had completed the task, we asked them to return to the Home screen or Main menu. All of them used the phone's back button, whether the Home icon was visible on their screens or not. The phone's back button took them out of the app.
When I asked P2 to go to the Home screen she clicked on the Africa icon.

They did not notice the Home icon at the top left. Since we did not use eye tracking we cannot say where they were searching for a way to go back.

HOUSEHOLD SURVEY

The main problems experienced here was that participants did not understand the progress bar and they overlooked certain foods because it wasn't clear that they had to scroll up again after they had scrolled down. Overall, the usability of this section was good. More details follow.

Participants did not have a problem when starting the survey. They understood that they had to scroll down (this is because the names of the next hidden foods appear at the bottom as a hint that there are more options).

They easily moved from one food group to the next and understood that they had to press Next if they did not consume anything in a particular food group.

One user navigated from one group to the next by clicking on a random food rather than the Next button. She did not fully understand the implication of this.
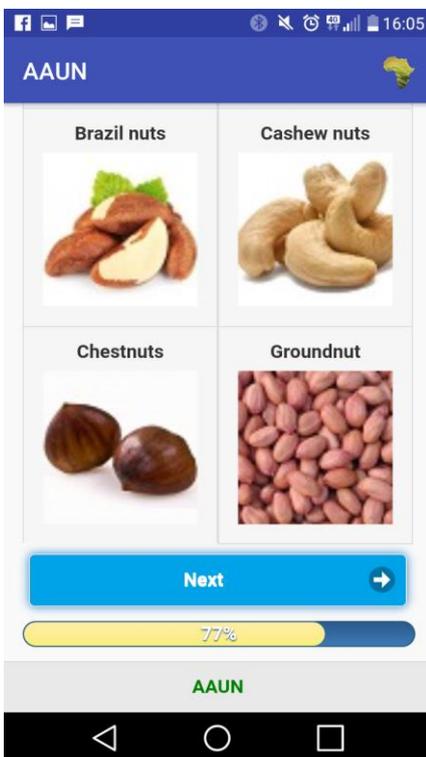
What we did notice was that once they have scrolled down, the next food groups screen may also be in the scrolled down position with the Next button visible (unless the next group contains many items which will push the Next button out of view again).

If the new screen appears as shown alongside, most participants did not scroll up to look for more food above what were visible. This is because there is no visual cue that there are hidden items higher up.

To solve this, we recommend that every time a new group of food appears, the top-most items must be visible.

We asked each participant to explain their understanding of the progress bar at the bottom: Here are the different responses:

P1 – It first sounded as if he understood but then he said that it depends on the food you choose – if you eat the right food it moves on. If you just click Next it will stay at 0.
P2 – She was not clear on the meaning, but she might have understood it. She changed her opinion looking for confirmation
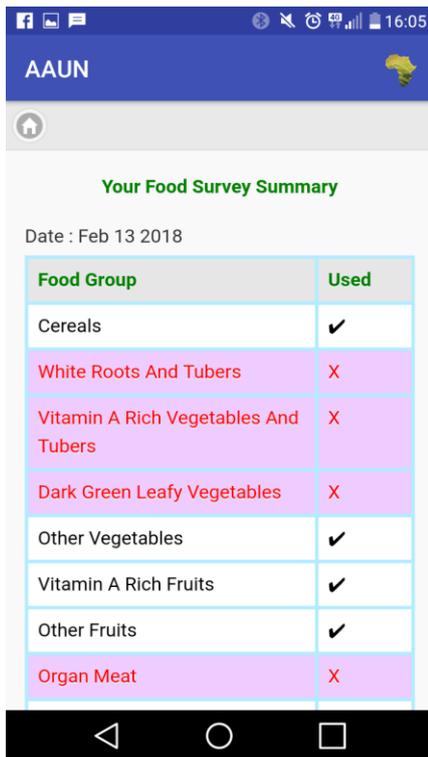
from the facilitator. At first she said it "checks the hours" and then later said that if you just click Next all the time the count will stay at 0%.

P3 – The percentage of what I ate in the last 24 hours.

P4 – The amount of food I have eaten in the last 24 hours.

P5 – The time of when you are busy here.

P6 – Maybe the food that I ate is not healthy. Will stay at 0% if I just click Next.

When the summary appeared at the end of the survey we asked them what they observed. All participants understood that the tick marks indicate foods that they had consumed while the crosses indicate foods that they did not consume.

Food Group	Used
Cereals	✔
White Roots And Tubers	X
Vitamin A Rich Vegetables And Tubers	X
Dark Green Leafy Vegetables	X
Other Vegetables	✔
Vitamin A Rich Fruits	✔
Other Fruits	✔
Organ Meat	X

RECOMMENDED CROPS
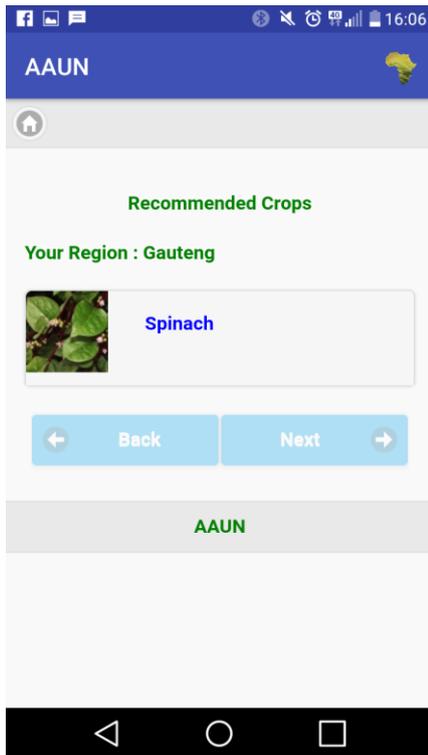
This section of the survey did not work for four of the six participants and could therefore not be tested properly. The two participants who could access the information had no problems navigating and found the information very helpful.

We did notice a possible error:
One participant for whom the Recommended Crops function did work, eats particularly badly. She chose none of the vegetables and in most of the food groups chose nothing. Yet, her list of recommended crops was very short.

HOUSEHOLD SUMMARY

We asked the participants what they understood from the Household Summary. They interpreted it to be the same as the summary that appeared at the end of the survey.

When asked what NA stands for, five of the six knew it meant "not applicable" and one said "not available".

When asked what information will appear in those two columns, they could not say. After some probing, it became clear that they did not read the column headings. As can be seen in the image alongside, the limited width of the columns makes it difficult to read the text in the headings. This can be solved by using vertical text.

7. GENERAL RECOMMENDATIONS MADE BY THE PARTICIPANTS

- Let people choose what language they want in the interface and make the app available in users' home language.
- Provide more information on how to plant the crops, e.g. what kind of fertiliser and pesticides to use.
- Add a section on healthy living that gives you information about exercising.
- Explain the nutritional value of different foods.
- Provide information on which crops grow easily.
- Add a section on how to prepare simple meals with healthy food.
- They could give advice on how to create a garden.
- Want to know what crops to grow in a certain region – just a list.

8. AD HOC ISSUES AND IDEAS

- If you scroll down on any screen with the Home icon, the icon becomes invisible. This might cause users to press the back button on the phone which takes one out of the app.
- If the user accidentally taps on a food type while scrolling, can they correct that? I.e. can they go back and fix the error? This may be important because they may select something from a food group accidentally and the survey results may therefore be incorrect.
- On the Household Profile screen there's a double quotation mark in the User name label.
- What if the user does not have an email address?
- Pastry says "Paste".
- Many names of the foods are not commonly used in SA, e.g. cantaloupe (spanspek or melon); Honeydew (sweet melon).
- When household survey has been completed and one goes in there again, a pop-up message appears with the heading "Error" in red. It will make people feel they have done something wrong. Rather say "Note" and an explanation that only one survey can be done in a 24 hour period.
- There could be a general information section with clever ideas on how to farm in a small space (e.g. planting potatoes in stacked tyres), how to save water and keep crops wet. Maybe "An idea of the week" section.
- Could add a space where farmers can post questions and anybody using the app can answer.
- Given the demographics of the African population, it may be preferable to have an African person in the Household profile icon.
- The designers can experiment with visual representations of the summaries, rather than tables.