

PROJECT DIARY

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Smart Interfaces - Block B 2022

In this project we designed an application called ANM (*aap - noot - mies*) that helps Dutch people with low literacy skills learn the Dutch language in a more easy and personalised way. Through the introduction of smart functions working with context, personalisation, actionable suggestions, real life solutions, view and voice, users will be able to improve their language skills in a way more relevant to them. To have achieved these results, we divided into dissimilar roles. I took part into creating our application overall concept and functions, I did research into the target group and design patterns, I have tested multiple versions, but most of all my main role was being the lead in the design process.

Anouk Vreeburg	6 An app aimed at adults
Milad Adineh	6 with low literate skills to
Sophie van Dael	6 become more proficient

The problem

In the Netherlands there are around 2.5 million people that have difficulty with reading, writing and or other arithmetics ([Stichting van de Arbeid, 2021](#)). From our total population of 17.4 million, 2.5 is a percentage of 14%. A big percentage that a lot of people seem to be not as much aware of, as was stated by low literacy interviewed. The majority of these 2.5 million people fall into the age group of 16-65, which thereby became our target group ([Stichting van de Arbeid, 2021](#)).

Aside from having difficulty with reading, writing and or other arithmetics, low literacy also increases the risk in physical and mental problems ([ArbeidsmarktInZicht, 2020](#)). These risks only grow by the stress they experience by not being able to participate in an evolving society. The world, and thereby also the work field, is becoming more and more digital, which overall results in around 43% unemployed rates among this group ([Stichting Lezen en Schrijven, 2018](#)). A lot of digital jobs require reading and working behind a computer, which this group has trouble with doing. This is why we are focusing on the writing and reading part of low literacy skills. Apart from being general needed in the real world, it is also one of the dominant problems among the low literacy group ([Buisman & Houtkoop, 2014](#)).

Two surprising facts that blew the whole team away, and what made us really want to try and help this group, is that the Netherlands is one of the only countries where low literacy has increased in the last years ([Stichting Lezen, 2021](#)). In 2007 the low literacy population was around 10.6%, which is a stark difference from the 14% we have now. Beside that, 80% of those 2.5 million people fall under the second-lowest level of reading comprehension ([Stichting Lezen, 2021](#)).

Scope research

There are multiple barriers that can prevent this group from learning: intrinsic (example: little self confidence), extrinsic (example: lack of time), institutional (example: no access) and cultural and social (example: responsibility within family) ([Stichting Lezen en Schrijven, 2018](#)). This was

important when figuring out the scope of our project, as it showed us that we are going to be working with a sensitive group, so we should adjust our design and testing with that. In the end we made it *the goal* to help this group feel more at ease when furthering their Dutch language skills, so that they can become more secure in themselves and in their environments. We strived to reach to a deliverable that was an understanding, working and smart application. To reach this goal as a team, I divided my time with these tasks:

Week	What I did	Together with?
1	<ul style="list-style-type: none"> • making of the team • starting with the figma assignment 	• Sophie
2	<ul style="list-style-type: none"> • finishing up figma assignment • starting with ideas for project and slowly defining them 	• Sophie • Sophie
3	<ul style="list-style-type: none"> • further working out the low literacy idea • starting with research, first literature and searching and emailing for interviews 	• All • All
4	<ul style="list-style-type: none"> • making of mine part literature studies and making conclusions out of them • making questions for interview • interviews with target audience <ul style="list-style-type: none"> • started with sketching 	• All • Sophie • Sophie
5	<ul style="list-style-type: none"> • more defined sketches • started making low-fi's in figma 	• Sophie • Sophie
6	<ul style="list-style-type: none"> • small updates to the low-fi design • feedback sessions with experts <ul style="list-style-type: none"> • testing 	• Sophie • All • Sophie
7	<ul style="list-style-type: none"> • christmas and new year 	
8	<ul style="list-style-type: none"> • updating the design to the next version (2) • testing 	• Sophie
9	<ul style="list-style-type: none"> • updating the design to the next version (3) 	
10	<ul style="list-style-type: none"> • finishing up • writing project diary • Video 	• Sophie • Sophie

Overview of insights - Literature Studies

We divided the subjects we wanted to study under multiple categories. I ended up with Target audience and Design. A large part about the research of the target group is already offered up above, but Design can still be talked about. Before researching Design, I had no comprehension of how a ‘normal’ design application could be so challenging for others, which was naive of me.

Results showed that smart functions are very beneficial for low literacy skilled people. They enjoy applications that can easily work for them, like a text-free interface, or can easily help and feedback them when needed, like a detailed instruction or hint with voice ([Chaudry, Connelly, Siek & Welch, 2012](#)). As could be expected, continuous texts are to be very much avoided. In terms of the application hierarchy and information structures, a visible linear navigation is very much recommended, as navigating a multi-levelled system can be very challenging and could result in users losing situational awareness ([Chaudry, Connelly, Siek & Welch, 2012](#)).

Furthermore, visually abstracted graphics with big round noticeable widgets are a plus, as they help the user with understanding, with providing a bigger target and with assisting into making associations ([Hill & Simha, 2016](#)). The use of home buttons and visual navigation bars are also advised ([Kodagoda, Wong, Rooney & Khan, 2012](#)). In addition we have to be careful to not make the application too chaotic, as they can become overwhelmed when showed too much information ([Hill & Simha, 2016](#)).

Overview of insights - Interviews

The interviews I mostly gave to my team members, but I did interview some people with low literacy skills together with Sophie.

Results showed that they prefer an application that is easy to use but also unchallenging to look at. They looked for an application that was not a dead give-away to being a learning application, as they compared to the bright visuals of Duolingo, which is easily recognisable. She did point out that she enjoyed the framework of Duolingo, but was mostly put off with its messiness and child like images. She understood that visuals would be necessary, but make them ‘grown-up-ish’. Another big aspect they highlighted is that they want to learn real life things. For example, when getting a letter about their kids schools or the receipt from a restaurant or hotel, they want to be able to read those with a full understanding. Hence, we have to make sure to put those aspects into our themes packages and design as well.

Overview of insights - Testing

We have had multiple testing rounds with different kinds of people. I myself have done some feedback sessions with experts and other people in school. I quickly learned how beneficial these feedback moments were, as they gave valuable insights that our team sometimes overlooked. Showing us that we didn't display enough feedback to the user, a lack of focus, the need to give

users more choice, the handiness of our camera function and the role it can play if we further developed it, all up to advising us to look into colour theory, which I did. Colour theory showed me powerful colour combinations that are still neutral for the target group but also focus giving. So we picked out comforting (blue) and motivational (orange) colours for our final designs.

“The more clean the interface, the better. The simpler, the better”

Secondly, me and Sophie also had two A/B testings in one, with a designer from my old study Communication and Multimedia Design. We tested and compared different styles, even in the slightest of changes. We did the same to our features, for example comparing camera only to camera and microphone. The advice in the little details helped me with making a clean end result.

Testplan (A/B test)

With this test plan we are going to test our new added microphone function, the personalisation of colours, the smart functions when adding a theme and the overall new design

General questions, observations

- Does the user understand the product?
- Does the user know where to press?
- What is the flow that the user experiences?
- Can the user run everything without any additional explanation?
- Does the user seem stuck on some pages?
- What is the behaviour of the user when using the app? Facial expressions? Negative or positive?
- How does the user react to the app overall?

Planning

- Go meet the tester, off or on
- Tell the tester in a few sentences what the app is about, no spoilers how it ‘works’
- Let the tester go through the screens version 1 (new design (colour images), no microphone only camera option, same colours for everyone)
- Let the tester go through the screens version 2 (new design (black-white images), with microphone so two options, personalisation also possible with colours (picking your own style for the app))
- Make notes
- When the tester is done ask the questions from below

Questions to choose from

- What is your impression of the app?
- Are there things in the application that you find confusing or annoying?
- Do you think the application needs to give you more feedback, more overall help?
- How can you add new personal themes?
- Does picking your own colours make a difference for you?
- How do you feel about the main colours of the app? The amount of bright orange?
- Is the microphone a feature that you would use? Do you think it has added value?
- Which feature would you prefer when adding a theme? Camera, microphone or looking it up yourself?
- Do you understand all the icons displayed in the application?
- Does the app portray some childish feels? So yes, where?
- Which A/B do you prefer and why?
- End question: Would you use this app?
- ... other questions that arise when testing

Potential assignments for the tester

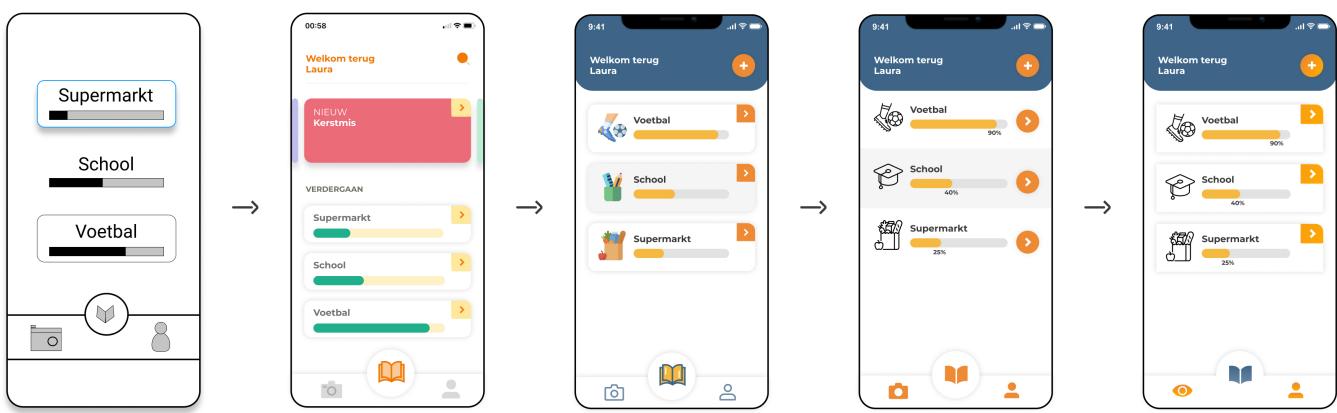
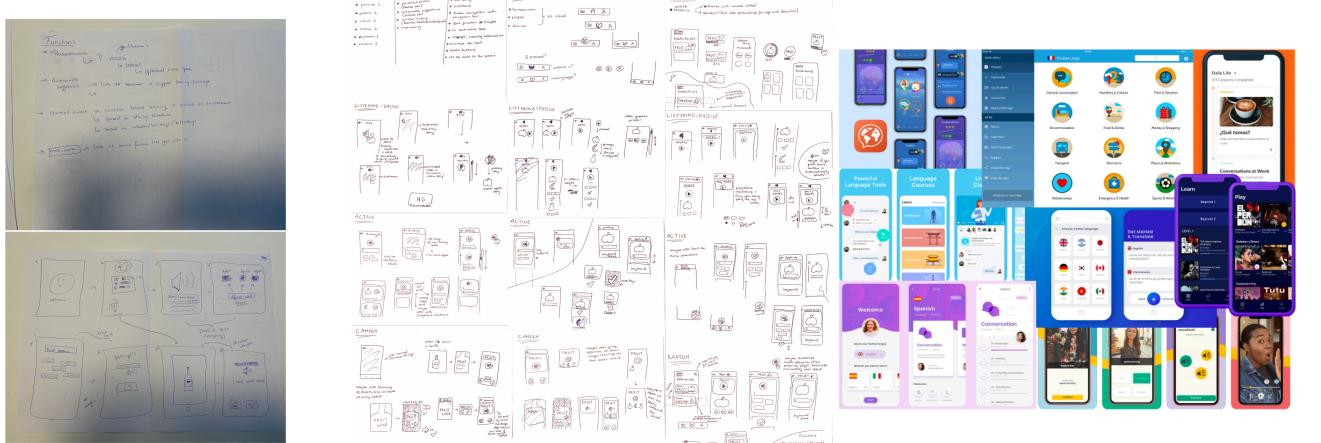
- Add a theme
- Go through a lesson

Required resources and time

- Figma prototype
- No time limits
- A tester

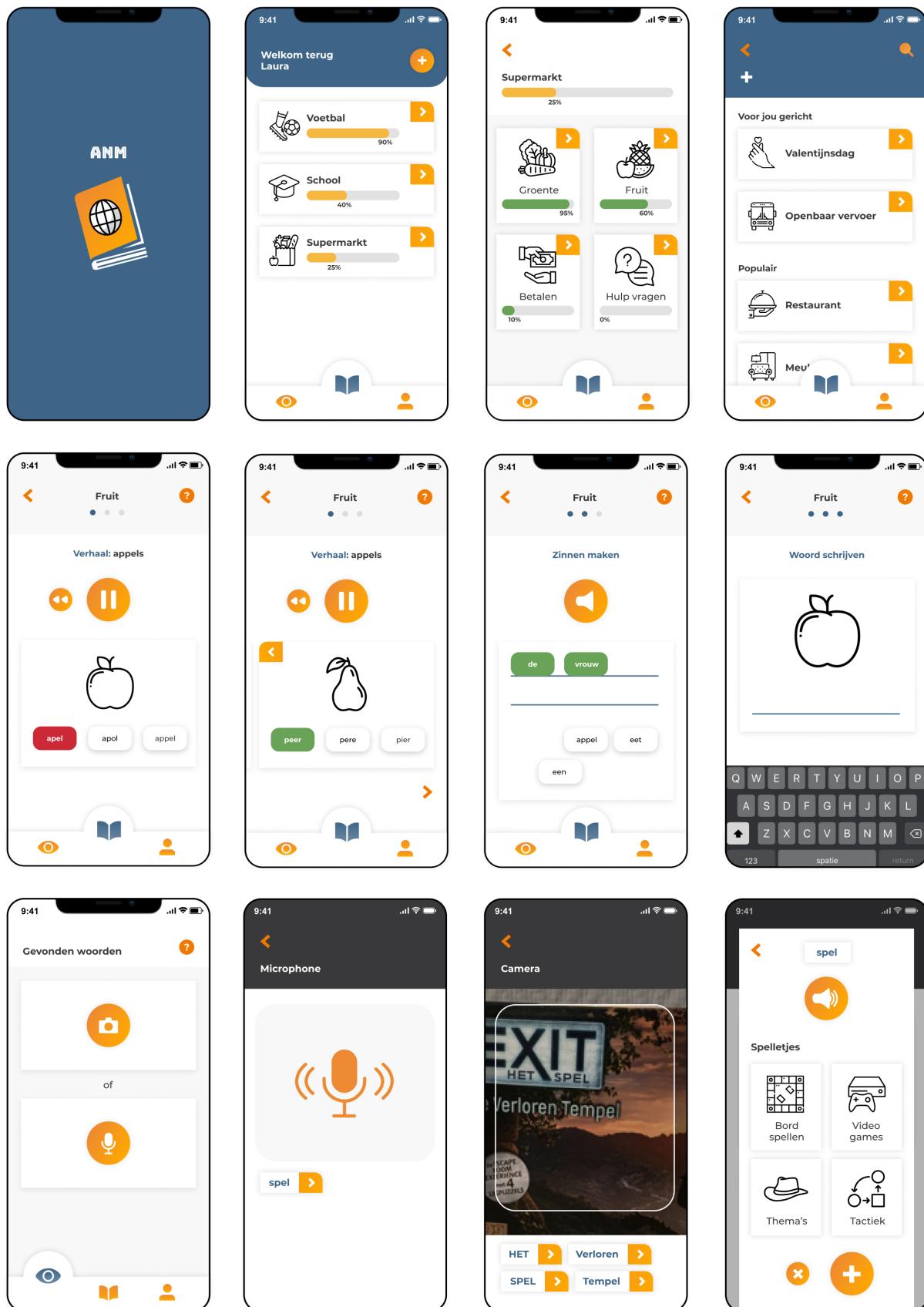
The Design

As already stated before I took the lead in the design process. Me and Sophie started early with sketching the functions and the overall architecture of the app, from small sketches first to then big and extensive. We fairly early discussed that we wanted to give the user help on each page if needed, so that was an aspect we took with us. After that inspiration was made from self-made Moodboards and from similar language and low literacy applications that we found online. After that we both worked on version 1 in Figma. It was still a low-fi version, but at least it became digital, gained some colours and could altogether be used for our first testings. After these, we had learned more about how to improve the structure, the researching of colours and the overall feel. With this in mind I improved the design to a more high-fi version. This version again went under rounds of testing and we gained feedback about none child-look images, the improving of the simplicity, how to visually and audible show better feedback and how to ‘soft-pillow’ welcome users to the smart functions. All of this rounded out to me making our last high-fi version.



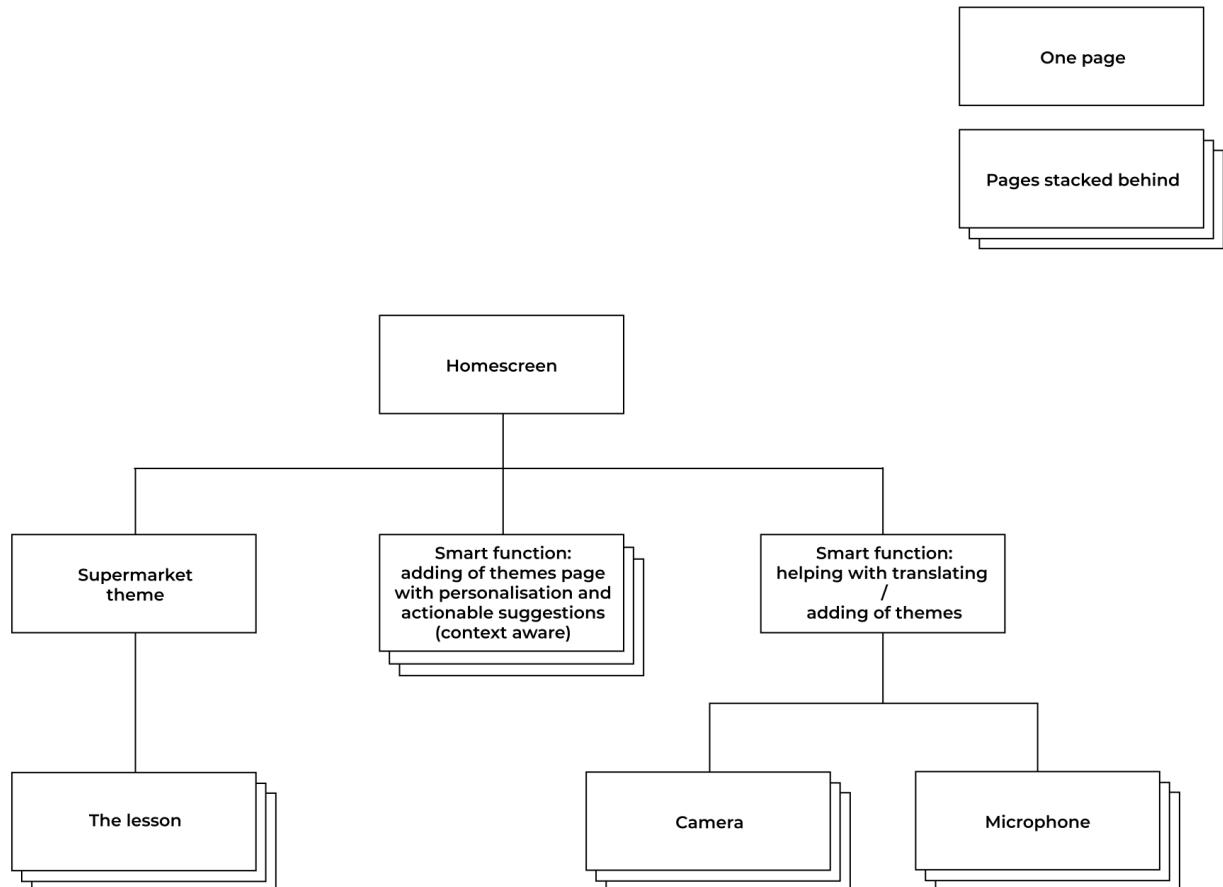
End version

Link to play with the prototype: <https://www.figma.com/proto/M98OZvqq3mWcCy9KLOA6aN/Design?page-id=0%3A1&node-id=259%3A2&viewport=241%2C48%2C0.19&scaling=contain&starting-point-node-id=259%3A2>



Future research

I think it is advantageous for the application if it was tested more with the target audience. Because of Covid times this was indeed more difficult to accomplish, but I believe it could give the greatest feedback yet. The context of the lessons would be my second step, because as of right now it is still fairly simple, with apples and pears to get the idea across. I also would like to make the lessons more lively, with animations that give feedback when processing. Lastly, I would like to improve the organisation structure seen below. Meaningful pages could be added, for example a profile, which could display your achievements and settings, an area where more personalisation could be attached in the form of white/dark mode. The improvements of our smart functions is also added to that. Making the application even more context aware that it could automatically turn to day/night mode. In the end, I believe it is definitely an application that could develop into something big.



Word count: 1497 (not counting front page and quote)

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