

Mobile UX/UI Design Report

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Introduction to the report

During my exchange semester in Germany I was attending Mobile UX/UI Design course run by Professor Dr. Kathryn MacCallum from New Zealand. In my opinion it was very interesting and I hope I will be able to participate in something as useful as that in the future.

During that classes we were discussing things, that would be helpful for the assignment. Students were presenting different ideas and concepts about mobile designing (although they could have been more active). The lecturer was commenting on this and extending the concepts.

There were also interactive panels with live work using Google Docs. The lecturer gave us link to some prepared documents and we had to fill it up with content we were then discussing.

After the lecturer had returned to New Zealand she has run some online classes. Due to my tight schedule I haven't been able to attend all of them. Nevertheless to stay up-to-date I was checking slides afterwards.

I started to work on the assignment in the middle of November (near the start of online classes).

Section 1. Overview of Concept

Overview of proposed system

“Language learning app - word of the day” - an app for iOS that helps to learn languages. Every day there is a word selected and given to the user (in every available language a different word). The translation is not provided, instead a short text or an article is displayed where the word is present. The meaning of the WOTD (word of the day) can be implied on the base of the article. After reading, user can guess the meaning of the WOTD - if he is wrong he gets some hints. The difficulty (rarity) of the WOTD and the article itself depends on how good in a particular language the user is. After first launch of the app a short test is presented to the user to measure how good he knows a language.

The app will support social capabilities. As a motivation user can compare his progress with friends. For fulfilling some requirements user will get achievements he can share using popular social networks. Stats will show progress and act as an additional incentive.

Additional feature is that user can personalise the app for his needs. For example by adjusting font size in the app and by setting notifications on/off.

System requirements

Functional:

- multiple language support (as well learning language as also language that is being learned),
- searching for a word in the system (old articles/words don't vanish, it is possible to get to them),
- leaderboards and competition with friends (Game Center support on iOS),
- notification support - if user forgets to learn a new word, the app will remind him,
- supporting every day learning - prizes for longer streaks,
- recordings with text read out by a lector.

Non-functional:

- familiar design that refers to other apps of that kind,
- necessary improvements that enhance user friendliness,
- simple graphics to guarantee that even old iPhones can run the app smoothly,
- making use of bigger screen in bigger iPhones,
- support of bigger font for people with ocular defect,
- offline mode support,
- In case of server problems app doesn't download the newest article - but the access to already loaded ones is guaranteed.

Users and their tasks

Tasks that will be undertaken by the system:

Types of users	Main tasks
Young and talented	<ul style="list-style-type: none">- Switching between languages- Sharing and challenging friends - important for young people- Browsing achievements - additional goals
User without much time	<ul style="list-style-type: none">- Mark as favourite - in case he wants to check a previous word he has to have a quick access to it- Search for words - possibility to learn more than one word per day (the app should suit him, not the other way around)
Aged user	<ul style="list-style-type: none">- Change font size - to see the letters better- Reminders - old people have bad memory- Browse calendar - to catch up on missed words

Three personas have been created, they represent three different user types:

Young and diligent Sara

Age: 22

Occupation: full time student

Education: degree in politics science

Location: Vienna, Austria

Disability: ocular defect

Quote: “Sorry, can’t go to the party, I have to study!”

About Sara:

She is very diligent, she uses a schedule and knows exactly what she is going to do in 3 weeks on Tuesday morning. She is a power user. She speaks German, English, Spanish and now would like to improve her Polish and Russian. She thinks that the language courses at the university are not enough.



Key goals:

- big font because of the ocular defect,
- it can't consume too much time because she has a tight schedule,
- she wants to get motivated every day.

We must:

- deliver every day a new rather short article,
- show her progress of her friends to motivate her.

Harry in a hurry

Age: 34

Occupation: businessman

Education: degree in business

Location: Gdańsk, Poland

Disability: none

Quote: “Arghhh, two different socks, again!”

About Harry:

Hard working businessman who has to provide for his family. There is a new business opportunity with foreign investor. Although he speaks English he would like to improve his level because he uses very basic vocabulary. He has no time for a regular language course so he hopes his smartphone can help him. He has some knowledge about how to use modern technology.



Key goals:

- with so many activities he forgets about half of them, we need to make sure he trains English every day,
- when he finally finds few minutes to use the app it must work, no space for shortcoming,
- he travels a lot and in some situations he has no internet connection so the app must work in off-line mode.

We must:

- remind him at evening when he didn't learn that day,
- polish the app up,
- let user download the content in advance (or even better make it done automatically).

Very old Sam

Age: 72

Occupation: pensioner

Education: degree in mathematics

Location: Texas, US

Disability: ocular defect, shaking hands

Quote: "I love working out and browsing the web!"



About Sam:

His body is old but his mind is not. He likes sport and new technology. After his wife had passed away he travelled a lot and found in Thailand a young lady he married later on. Although she speaks English he would like to learn the language of his new wife.

Key goals:

- he doesn't care that much about learning writing as he does about learning how to speak Thai,
- he would like to be able to dictate the word he is searching for,
- because of his disability the UI should be clean and easy to operate (e. g. no small buttons).

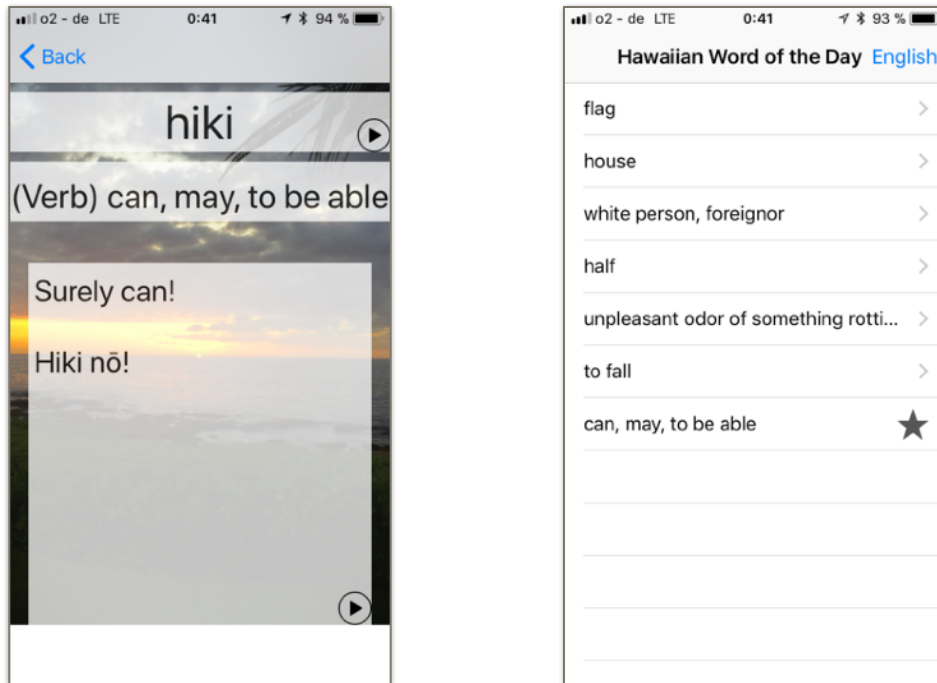
We must:

- implement reading text out by a lector,
- accept voice input,
- avoid small buttons and disturbing elements.

Evaluation of similar systems

I examined three similar systems and UI Design patterns.

Hawaiian WOTD



An interesting concept is here the picture from Hawaii as a background. In this app the picture is always the same, but in mine it could change every day. The content of the pictures could be places in countries, where the learned language is spoken. It's worth considering.

The play button, although misplaced, is a feature that helps to learn the pronunciation. It could also be bigger, because people with big fingers will have difficulties to press it.

Last but not least the list of previous words. It's good if you miss one and want to catch up or to learn more if one word per day is not enough for you.

WOTD!

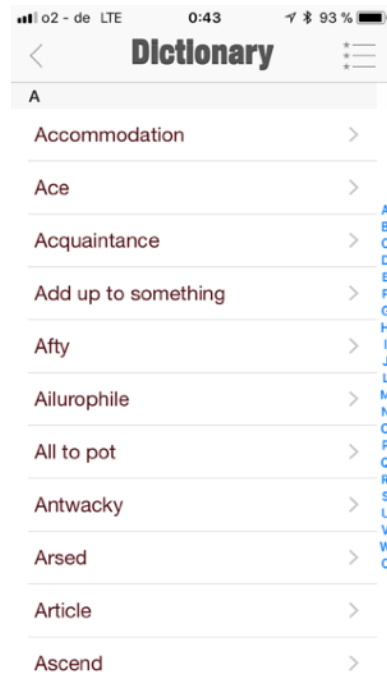


In this app the developers put too many ads. It distracts and takes too much place. I am going to avoid it during designing.

Status bar is not displaying correct information (as you can see on the right screenshot). It is important to let the user know where he/she is. Therefore I am going to display the location on the status bar all the time.

The font size of the description below every word (left screenshot) is not consistent. In the case of the word "Arbotante" the font size is smaller. I am going to avoid such imperfections.

Words



I like how you can flick the page (not shown on the screenshots). It is similar to a regular book. I would like to implement that feature in my app as well. It enhances the experience drastically. Sharing button in the top right corner is a nice feature, especially for the youth. It features sharing a word using the most popular social networks and SMS.

In the right screenshot we can see blue letters on the right. It is an useful feature that helps finding fast what you need. I'd like to implement it in my app.

These were general problems I encountered with the apps, as well as some good ideas they gave me. Using heuristic evaluators I got more precise view of good and bad sides of tested designs. I collected all of them into a single table:

	Hawaiian WOTD	WOTD!	Words	Improvement I could make
Flexibility and efficiency of use	No search functionality, navigation is simple.	Very poor navigation and search functionalities.	Navigation quick and efficient (once you know the meaning of all buttons).	Implement search functionality and clear navigation.
Error prevention	Play button is very small and hard to press.	“i” button is very small.	Size of buttons is reasonable.	Make buttons in reasonable size.
Aesthetic and minimalistic design	Design is very minimalistic (and poor) but not aesthetic. Play buttons seem misplaced.	Too much advertisement - very annoying.	Design minimalistic but seems very cheap and unfinished.	Clear design, no or only few ads and polish product.
Help and documentation	No help, documentation whatsoever.	No help nor documentation.	No documentation or any help of any kind.	Implement some kind of help.
Consistency	In the landscape mode one strip is shorter than the other. One label differs drastically in horizontal/vertical mode.	The app is consistent.	The app is consistent.	Make the app consistent.
Visability of system status	When using Back button there is a delay between switching the screens (views).	There is an indicator that shows where you are, but doesn't work properly (the value is false).	There is an information about location. Response time is good.	Implement working status bar. No heavy stuff that slows the app (like a tone of ads).

Section 2. Iteration 1 - Initial Design and Application of Design Principles

Hierarchical Task Analysis

1. Get a word.
 - 1.1. Choose the today's WOTD.
 - 1.2. Go to favourites.
 - 1.2.1. Browse through the list normally.
 - 1.2.2. Use search function.
 - 1.3. Go to history.
 - 1.3.1. Choose the day.
 - 1.4. Search for a word.
2. Mark a word as favourite.
 - 2.1. Select which one.
 - 2.1.1. Mark as favourite.
3. Guess a word.
 - 3.1. Select an article.
 - 3.1.1. Propose a meaning.
4. Personalise the app.
 - 4.1. Choose font size.
 - 4.2. Change language of the app.
 - 4.3. Change language you learn.
 - 4.4. Set up notifications.
 - 4.5. Reset all your stats.
5. Share the progress.
 - 5.1. Choose what you want to share.
 - 5.1.1. Choose how you want to share and with who.
6. Progress of your friends.
 - 6.1. Choose a friend.
 - 6.1.1. Find a friend and choose.

6.1.2. Search for him.

7. Achievements.

7.1. Check which you have already earned.

Design scenarios

Scenario 1: Sara writing an essay

Sara has to write an essay for the next Friday, but she is very diligent and is going to do it today. She goes to the library, her favourite place, where she can study in peace. The essay is about a Russian poem from the 19th century. It's very important for her to understand it well and be accurate in her essay. She spots a word she doesn't know. The context doesn't help her as well. For better understanding of this unknown word she would like to find it in another article and understand the meaning. She grabs her smartphone, starts the WOTD app and uses search function to check if the word is present in the app. It is. She tries to guess the word and succeeds in the first try.

She would go through these steps whilst using the app: 1, 1.4, 3, 3.1, 3.1.1.

Scenario 2: Sara stalking a friend

Sara is smart and diligent but she can't cook. What she can and likes to do is eating. She had decided to invite her friend for tomorrow and to cook together. She had messaged her friend via WhatsApp, but hadn't get any answer. After waking up the next day she still didn't get an answer. By a coincidence she meets her friend at the university the same day. She asks: Why haven't you read my message? The friend's answer: I had no time, in fact, I haven't even used my smartphone today. She didn't believe that because her friend is a smartphone junkie. She managed to check the WOTD app and look for the activity panel of her friend - she knows he uses it because she recommended it to him. No surprise there - the friend has indeed used his smartphone today and lied to Sara. Bad for him!

She would go through these steps whilst using the app: 6, 6.1, 6.1.1.

Scenario 3: Sara and the annoying grandpa

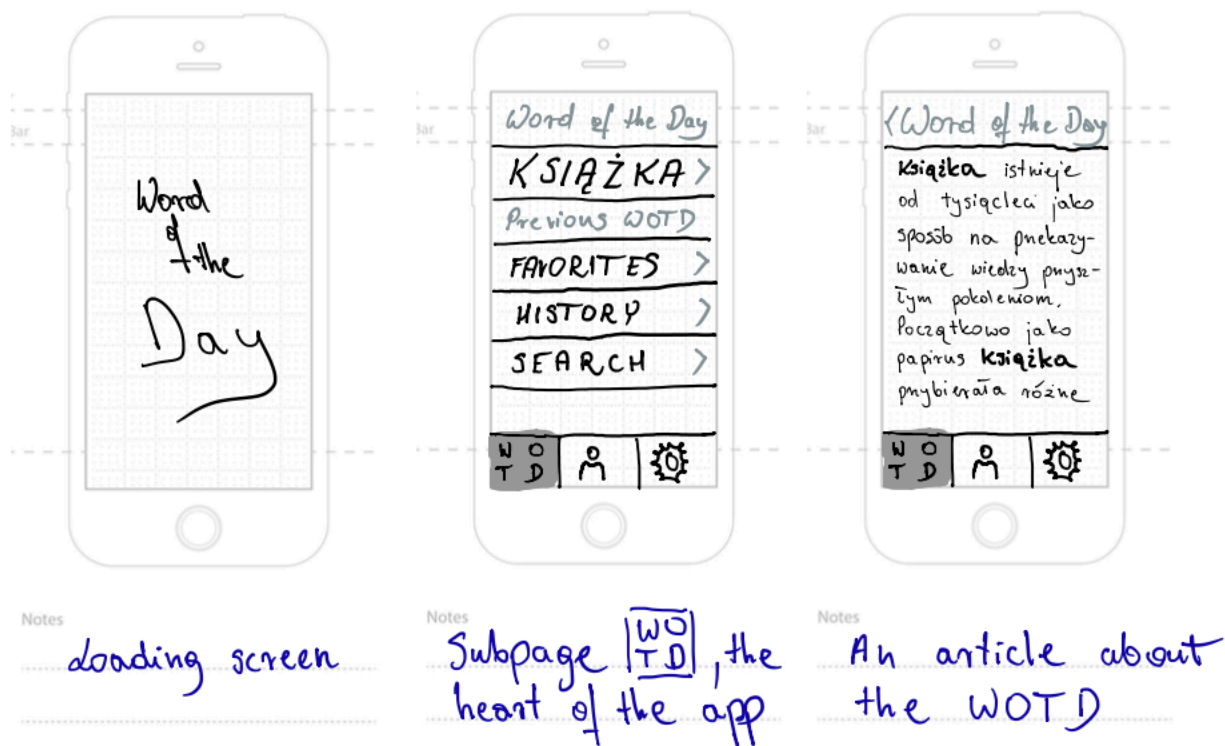
It's Christmas time and she spends this time with her family. Her grandpa is also there. He tells her how cute she was as she was 5 years old and what games they did play together. Sara laughs but doesn't really care. She walks away and checks WOTD on her smartphone. The grandpa sees it and tells her to not use her smartphone that often, its bad for her eyes. She answers: Easy grandpa, I can make the letters bigger so it doesn't hurt my eyes that much. She changes the size of the font and shows it to the grandpa. Ooo! So cool, grandpa said and they both lived happily that day.

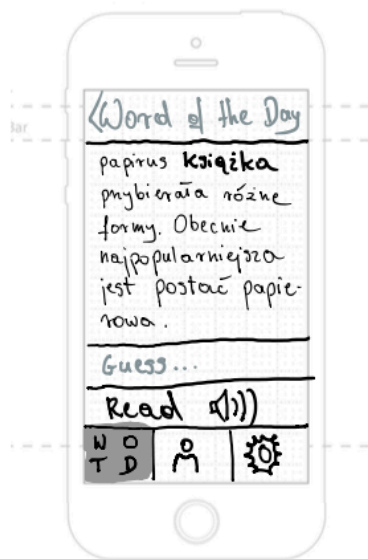
She would go through these steps whilst using the app: 4, 4.1.

Design Sketches

Interactive version of these sketches made using POP app. It shows also the overall structure of my app:

<https://marvelapp.com/79c50ie>





Notes

The end of the article & guess field



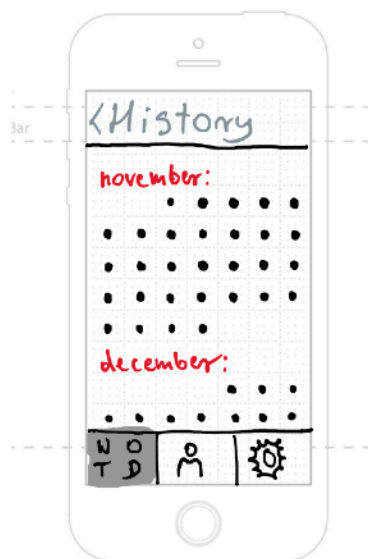
Notes

Good answer, possibility to mark as favorite



Notes

List of favorite WOTD



Notes

History in form of a calendar



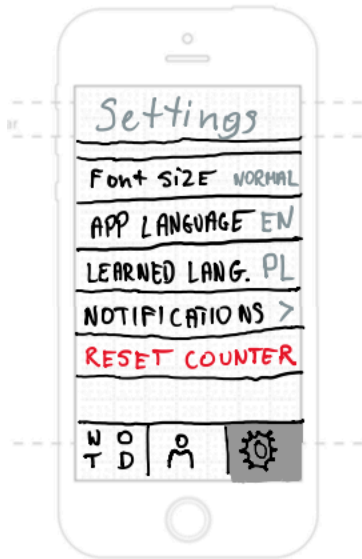
Notes

Search list



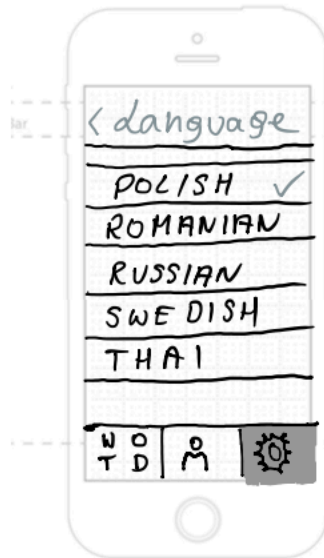
Notes

Social and statistics



Notes

Settings subpage



Notes

language selection screen



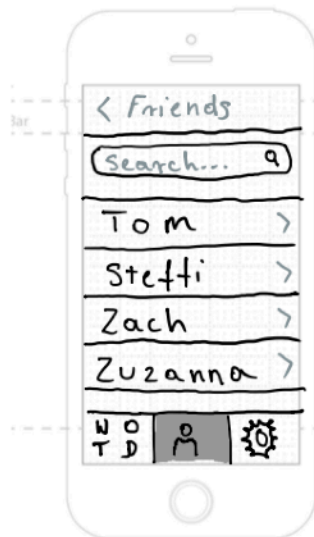
Notes

Notifications frequency selection screen



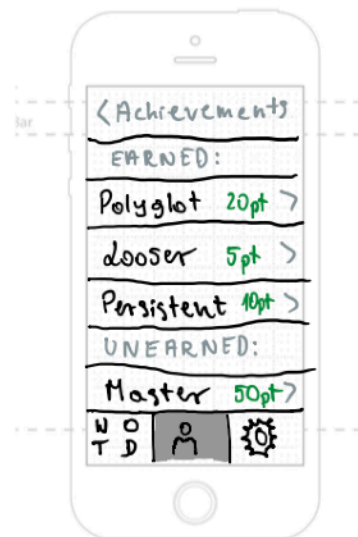
ies

Russian selected



Notes

Friends list with search option



Notes

list of achievements and how many points you get for them (Game center compatible)

Initial feedback/improvements provided by user evaluation

The design was evaluated by three persons. My sister and two dorm mates. All three scenarios were undertaken. Besides that, they were playing with the prototype around exploring all possibilities and features.

Overall members did like the sketches and how intuitive it was. Unfortunately not everything was perfect and some improvements can be made. Here are all of them that were mentioned:

Overall:

- although placement of components is good and intuitive, the design itself is not exact (only white background) and it still requires a lot of work.

Calendar:

- missed days could be displayed with different colour so you can tell them apart,
- the buttons that represent days are small and hard to tap.

Article:

- no date is shown in the article itself,
- no phonetic notation is given,
- a translation of the whole article could be display after having guessed,
- possibility to read out only the word itself, not the whole article,
- marking/unmarking as favourite is possible only after having guessed the meaning,
- status bar doesn't change inside of an article - it remains the same.

Search lists:

- slider on the right side with letters that you can navigate efficiently through the list would be helpful,
- inconsistency in search bars - in searching through articles it looks different than in friends list.

Notifications:

- only predefined options, no picker.

Final design recommendations

The evaluation showed how much I had't noticed when I had been designing my app. I am going to cover all of the problems mentioned by people who have been participating in the first and initial evaluation.

I am going to give the app its final design - with colours and nice polished. Now it's just simply drawings - some lines, dots and circles. It was fine for the first iteration, but won't be for the second one.

Changes in calendar will be significant - no more little dots, instead of that big buttons coloured accordingly. If a day was missed it will be black, if not - green.

Article itself will get new capabilities, all mentioned by the testers. I'll add a star at the status bar, that will be used for marking as Favourite. Additionally to that, information about the date and phonetic notation will be given. Status bar itself will display the word, that the article is about.

Comments made on search lists (in my app there are at least two) are pretty straight forward and self-explainable.

Finally the notifications settings screen - it will be better for the user to let him do what he wants, not to restrict him. I'll put a picker instead of a list with only few options.

Section 3. Iteration 2 - Prototype and Evaluation of Design

Prototype of initial concept

After evaluating the initial design I developed my final user interface wireframe using Pixelmator. It is a graphic editor developed for macOS. It does offer many functionalities, such as layers and shaders that helped me during designing process.

The wireframe covers most of the sketches presented in the first iterations. I have decided to skip few of them and concentrate on ones that are most significant. To every one of them I have written a lengthy description, so that there is no doubt what is going on on the screenshots.

In addition to that, using POP app, I have made an interactive sketch. It is accessible here:

<https://marvelapp.com/7cicb1b>

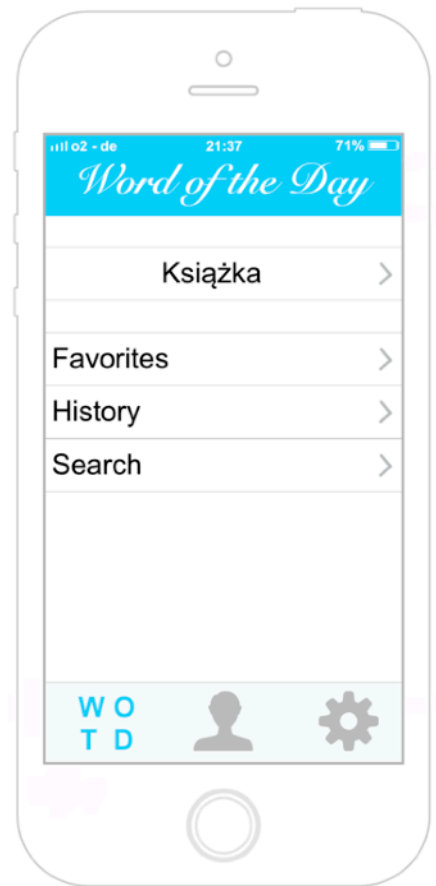
Home screen:

This is a screen, users see after the app is loaded. It's very clean looking, no disturbing stuff, just what's important.

At the very top we can see the status bar, it always tells where you are. In this case we are at the home page so it's logical to display the name of the app. It does leave some place for system infos, like battery, time and more.

For the user it is possible to go directly to the today's WOTD (here: Książka) or search for an old one. There are three possibilities to pick some old word. Through Favourites, History and Search. No matter which one the user decides to use it will bring him to another screen. The "buttons" are standard iOS ones.

On the very bottom we can see a field, that is used to switch between tabs (by tapping). Currently we're in the WOTD tab, which is indicated by cyan colour.



Article, part I:

After choosing an article to display we land on this screen.

It displays the word itself in the status bar. We can also add the article to the Favourites, as well as delete it from that list. It is indicated by a star at the right side. When it's not filled it means it's not added. If it is filled it means the opposite. The filled star can be seen on the next page. Little arrow on the left is used to go to the previous screen.

At the very top of the middle section we can see a date, when the word was initially published. Right next to it pronunciation using International Phonetic Alphabet is given. Both in grey to not interrupt the user.

Underneath we can see the article itself and scroll through it (more about it on the next page). WOTD is always bolded.



Article, part II:

After scrolling to the bottom of the article new UI elements can be seen.

“Guess...”-button is a text field that is used to guess the meaning of the WOTD. Underneath two buttons with speakers are placed. After pressing the left one, WOTD is read out, after pressing the right one, the whole article is read out.

At the top of the screen we can see filled star that indicates, that the article is added to Favourites.



Good answer screen:

This is what we see after correct guessing the translation of a word.

Big green OK sign is very satisfying - it motivates the user to continue learning new words. Underneath we can see the correct answer user has gave us (or not, because sometimes there is not only one translation, but more). Clicking the green sign moves us to the home screen.

There is also a possibility to see a translation of the whole article. It requires to click the bar “Translation of the article”.

Status bar remains the same, although it could be different, for example “Well done” or “Good”, but I decided to make it as it is, because in some way we still interact with the article.

Tab buttons at the bottom stay the same, we haven't left WOTD section yet.

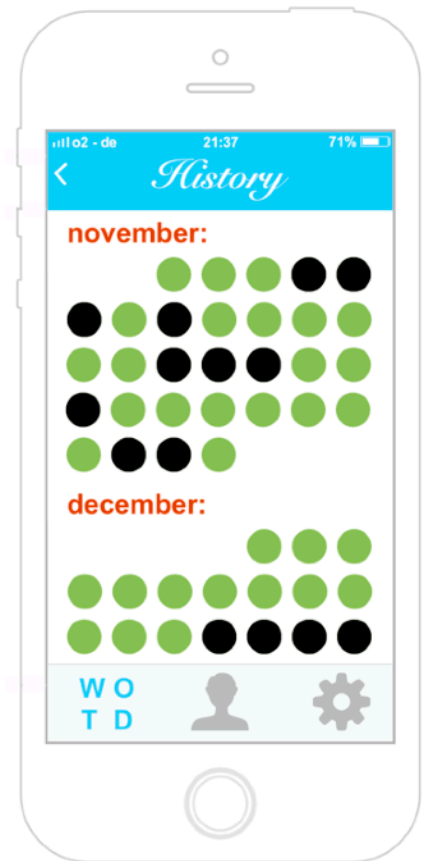


History:

After tapping “History” button we are taken to this screen. It shows us calendar view with accomplished days marked green, and missed days marked black. We can go to an article by tapping on a circle. It gives us an opportunity to catch up, and, in case we want to learn more, to get to the words from before we have started using the app.

To navigate through months we scroll - the calendar starts at the launch of the app and ends always today.

Names of the months are written in red to make some contrast. Of course after changing the language of the app these inscriptions change as well.



Social:

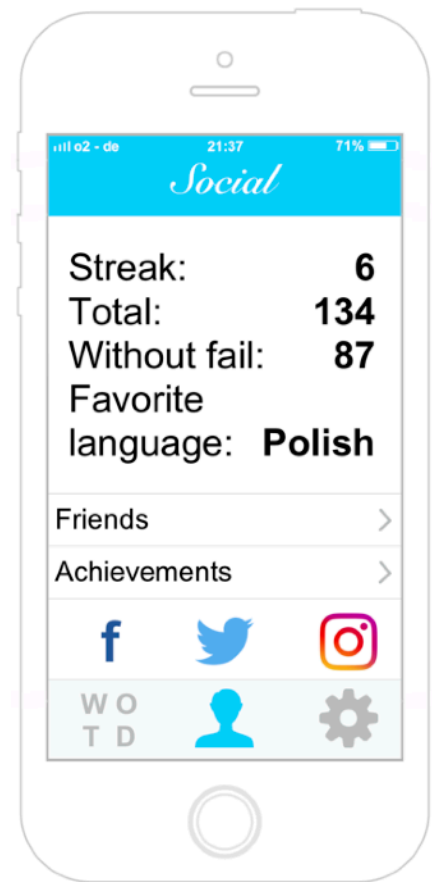
At the top only “Social” inscription. We can’t go back, since it’s the home screen of social section of the app, therefore no go-back arrow.

In the central section we can see statistics about our current progress. These, seen here, are not all, there are more after scrolling down. Scrollable area are the stats only, buttons underneath don’t move. Bolded values make it easier to read, we can distinguish values from keys.

“Friends” and “Achievements” buttons are exactly what the names stand for - it will move us to another screen with that exactly functionality.

Then we have an opportunity to share our progress using popular social media platforms, such as Facebook, Twitter and Instagram.

We’re now in another tab, so the WOTD icon is now grey, and person icon cyan.

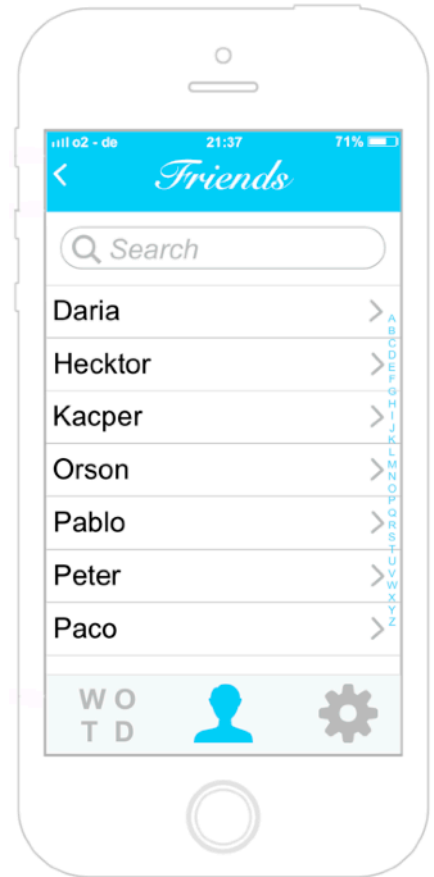


Friends:

Friends page shows you all added friends. To find a friend in the list faster, you can use the search bar at the top or swipe through the whole alphabet on the right (just as you do in “Contacts” iOS built-in app).

It is also possible to delete someone from that list. To do this, you just have to swipe a person to the left - he or she will disappear from the screen.

After selecting a person and tapping on him/her you will be brought to the statistics of that person - very similar as after opening “Social” tab. Your stats will be erased forever.



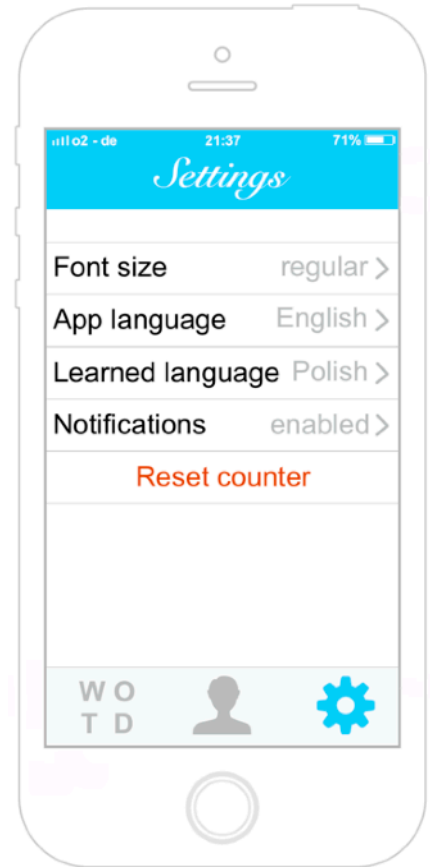
Settings:

Settings tab is the last tab we haven't seen yet. It covers things we can personalise about the app.

One of the things is size of the font. Now it's set to "regular", but after clicking it we can change it. Small indicators next to the button descriptions say us what is the current settings.

At the end of the list there is "Reset counter" button. It lets us to reset all progress made in the app. It's important, for example when we buy a new one, and give the old one to some family member. He doesn't have to delete the app, he can just start from the beginning.

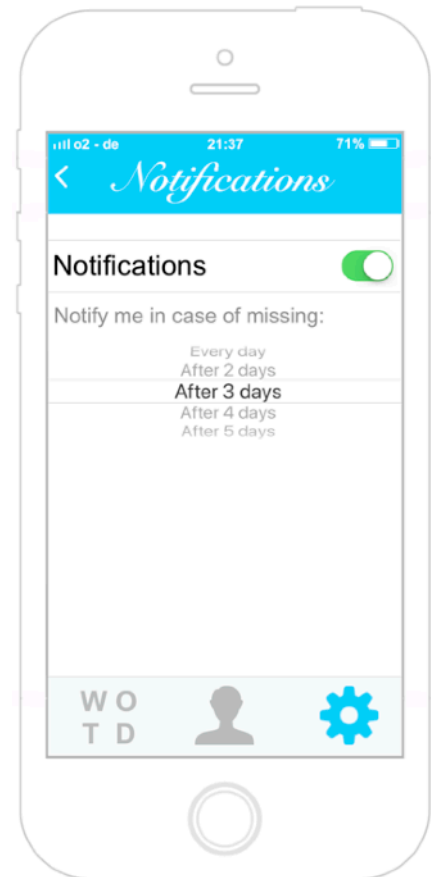
The cogwheel is selected because it stands for "Settings".



Notifications settings:

After selecting “Notifications” we see this screen. It lets us enable notifications in case of missing selected number of days. For example, if “After 2 days” is set, on Monday you did learn a new word, but on Tuesday not, then you will get notified on Wednesday.

Switch button as well as picker are taken directly from iOS Guidelines. The picker doesn’t stop at 5 days, it continues when you swipe through.

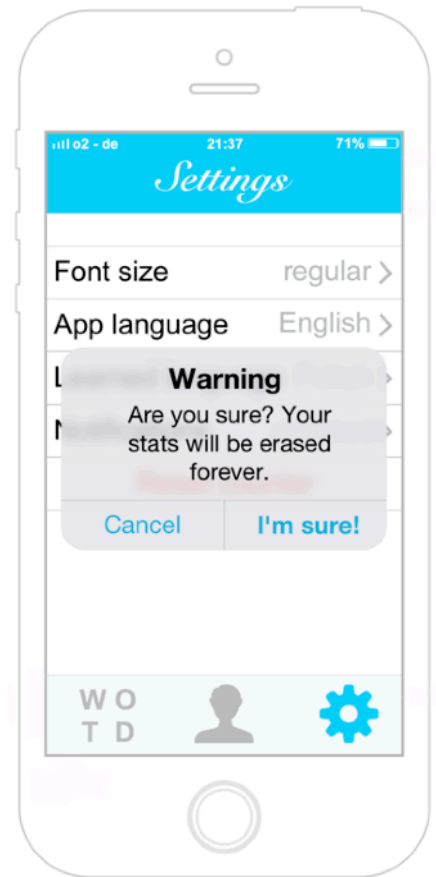


Warning/error popup:

When you want to reset your statistics, you have to go to settings, and tap on appropriate button. Although the button is rather big, it is possible to click on it by accident. Because it's very serious and user should be able to undo any errors and mistakes, a warning popup is displayed. Then you have to confirm, that you are aware of consequences.

Popup is just standard iOS UI element. It's a bit transparent, the background is blurred.

Popup is also used in case of errors, for example when there is no connection to the Internet and data cannot be loaded.



Evaluation overview and result of usability testing

WOTD is an app that helps you learning new languages by showing you one article per day with a specified word in it you have to translate on the base of the article. You can access old articles using different mechanisms. It is also possible to personalise the app and use some social capabilities.

Instructions:

There are three tasks to complete, you can complete them in any order. If you have any thoughts about the app, don't hesitate, say it loud. In case you have a question, just ask. It's important for me, that you try to remember things, you don't like as well as those you do like.

Task 1: Check how many days you've missed this month.

Task 2: Mark an article as Favourite.

Task 3: Reset the statistics.

After completing these tasks tell me what your impressions are.

User evaluation summary

The evaluation has been undergone by five persons. Three of them were the same ones, that participated in the first evaluation (first iteration, simple sketches only). They had a chance to see how the design evaluates and to see, that problems, they reported last time, are now fixed. Due to schedule problems it was impossible to carry out the evaluation on one try.

The testers were mostly young people, that know how to handle a smartphone. There was, however, one older tester, who doesn't use a smartphone on a daily basis.

The tests showed that users had almost no issues with finishing the tasks. The only issues they reported were pure aesthetic ones:

1. Font on the status bar is hard to read and too sophisticated.
2. Green colour used in “History” page doesn’t work together with other colours used in the app. Additionally it could be confusing for colour-blind people.

Despite this issues testers asked me when they can download and start using this app.

Change recommendations

Fortunately only small ones:

- change the font to one, that is more readable,
- change green colour to another, that suits the app and doesn’t confuse colour-blind people.

Conclusions to the report

I have learned a lot during this project. I am a programmer and have never cared about that part of creating an app. Now I know and will be more aware of things like user friendliness or practical design during development process of my apps.

I the next semester I am going to have a lecture where the goal is to write an app. I hope I will be able to use the design I created during this semester.

Appendix

Observations Sheets

Date: 02.12.2017, Tester: Julia

Task Description	Completed?	Time	Comments
Change notification settings.	Yes	11s	"Very intuitive, cogwheel icon is self-explanatory."
Pick a previous article using history feature.	Yes	6s	"Easy to find, it's on the home screen."
Share your progress using Twitter.	Yes	25s	At first tester started to browse through buttons on home screen. When this failed, he switched the tab and found Twitter button.
Check which achievements you haven't unlocked yet.	Yes	12s	"I knew it couldn't be in the default tab, so I tried I the next one, it was there."
Mark an article as favourite.	Yes	35s	"Very confusing, you have to guess the meaning before you can mark an article as Favourite."

Date: 04.12.2017, Tester: Max

Task Description	Completed?	Time	Comments
Change notification settings.	Yes	7s	"It's intuitive, but there are not many configuration options."
Pick a previous article using history feature.	Yes	10s	"Cool feature, but only one article to choose."
Share your progress using Twitter.	Yes	8s	"Social tab and you're good to go!"
Check which achievements you haven't unlocked yet.	Yes	15s	"Not sure where to look for it."
Mark an article as favourite.	Yes	18s	"In the article itself no such possibility."

Date: 04.12.2017, Tester: Tobias

Task Description	Completed?	Time	Comments
Change notification settings.	Yes	13s	"No problems."
Pick a previous article using history feature.	Yes	14s	"Very smart, looks like a normal calendar - familiar."
Share your progress using Twitter.	Yes	9s	"I don't use Twitter, but it's good you have also other choices. Placement is logical - in the social tab."
Check which achievements you haven't unlocked yet.	Yes	18s	"I'm not familiar with achievements, I didn't know where to search for it."
Mark an article as favourite.	Yes	18s	"I don't like it's not directly inside of an article."

Personas

Personas are included in "Users and their tasks" section (pages 6, 7, 8).