WHITERISK E-LEARNING APP

David Wollschlegel – Mobile User Interface 2021 – ZHdK Interaction Design – HS 2021
Mentored by Jürgen Späth and Marcial Koch

About the project

This project resulted in a cooperation with the Swiss research institute SLF. SLF operates a web platform called «WhiteRisk», which enables people to plan their mountain tour, get the latest information about different snow situations and learn the dangers and risks of avalanches and how to prevent them. They also offer a mobile app, but it lacks the whole learning part. Our task was to create this part during the module «Mobile User Interface» at Zurich University of the Arts.

Table of Contents

Design Brief

WhiteRisk

White Risk supports you for the safest possible tours in the winter mountains. In the preparation, on the road and in the training.

Goals

WhiteRisk gave us the job to create an abstract learning app, that is adaptable for multiple learn formats. We should design something that respects the unpredictable – it should also work in the future.

Furthermore the learning should never be complete and it should work on mobile as well as on the desktop.

The exercises should be extendable, renewable and combinable in different ways.

Stakeholders

– Colin Lüönd (UI / UX Designer)
– Stephan Harvey (Lawinen und Prävention Verantwortlicher White Risk)

On our way to Davos

Explore

In the first one and a half week we explored the topic of learning, touring and snow. We conducted interviews, did internet research and visited the SLF research institution in Davos.

Interview

Alain, my interview partner, who was assigned to me by WhiteRisk, uses the service mainly for tour planning. He found the hobby through work colleagues. He uses the tool mainly for accessing various data and situation analysis. However, he supplements this with information from "Meteo Blue", "Kachelmann Wetter" or "Admin Wetter".

He has never particularly appreciated or used the e-learning section. He has attended a summer course and a "mini winter course" for it. There, one learns "practically" on site, which gives him more security and confidence in what he has learned. Nevertheless, he always consults theory offers. For example, there are good leaflets from "Berg und Tal" with the "reduction method" or the "3x3". Furthermore, he visits YouTube with search terms like "Touren Technik" or similar search terms.

Specific avalanche knowledge interests him only to a limited extent. He wants learning content that is more practically oriented. For example, with an interactive video: You see the skier "skiing" into a certain situation and you can decide afterwards where to go through. He sees the interesting theory facts more as "nice-to-have".

In general, I observe a great basic motivation. After all, it's about one's own well-being if one knows and learns a lot about the subject. The learning content should be modular and according to him he would learn it only when needed. That is, when it is just before the season and he is on the road with someone who is not a "professional".

Summary

High basic motivation exists - it's about one's own "life". The tourers want to be safe on the road. Especially if you compare the motivation with language learning.

Micro-learning tends not to be necessary? Interview partner was willing to learn 30-60min at a time.

Practice very important. An app that shows you things practically would certainly be useful.

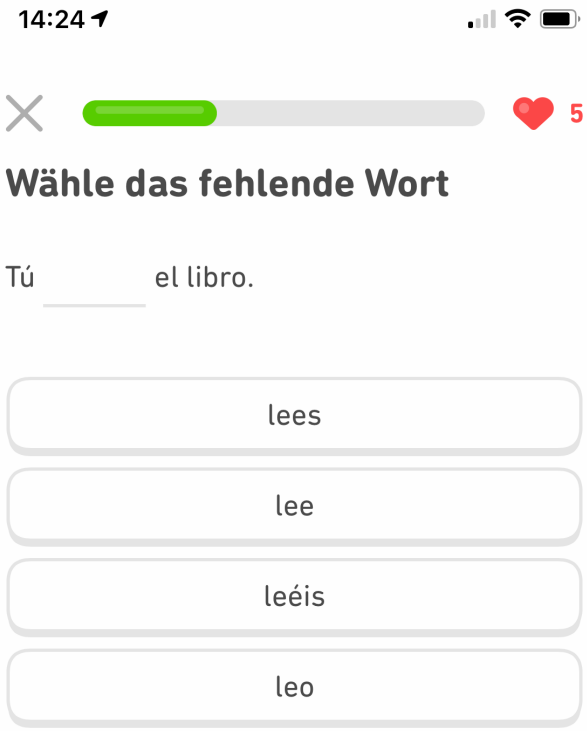
He is satisfied with and appreciates the tour tool, the offline maps and the weather and risk part.

He would like to see specific modules on "reduction method", "tour planning", "analysing weather", "figuring out exposure", "wind (snow accumulation)". So the modules should all be linked to a practical use.

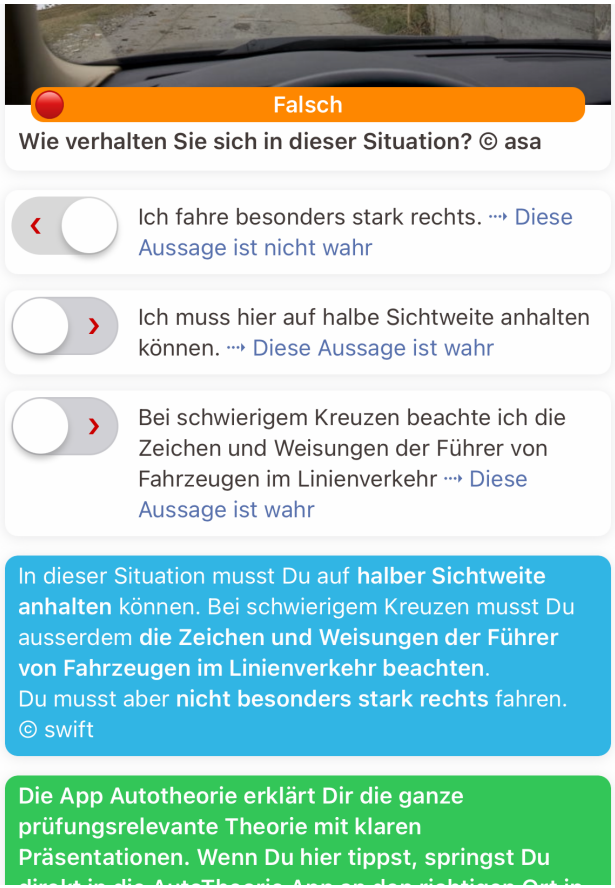
Additional Interviews

Besides the longer interview with Alain, I also conducted two further ones with two colleagues of mine.

The interesting fact was, that both of them visited a course. It seems to be the number one entry to the topic.



Duolingo – Progressbar



iTheory – instant feedback on answer

Existing Apps

In the Explore phase, of course, existing learning apps were compared with the one from WhiteRisk.

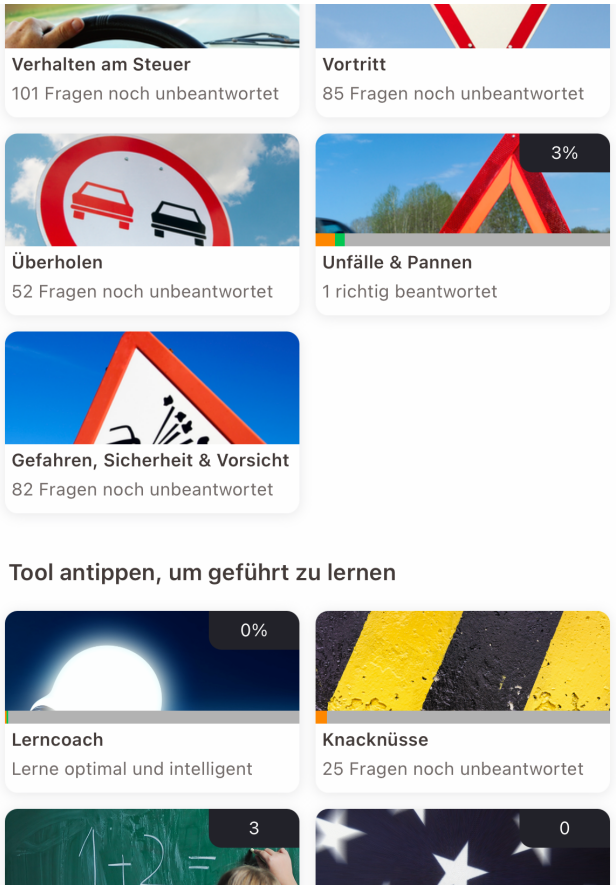
Duolingo

Duolingo is an app for learning languages. What is particularly appealing is the simple visual presentation. The elements do not distract from the learning content. The progress bar is also very pleasant. You can see exactly how long the lesson you have started will take.

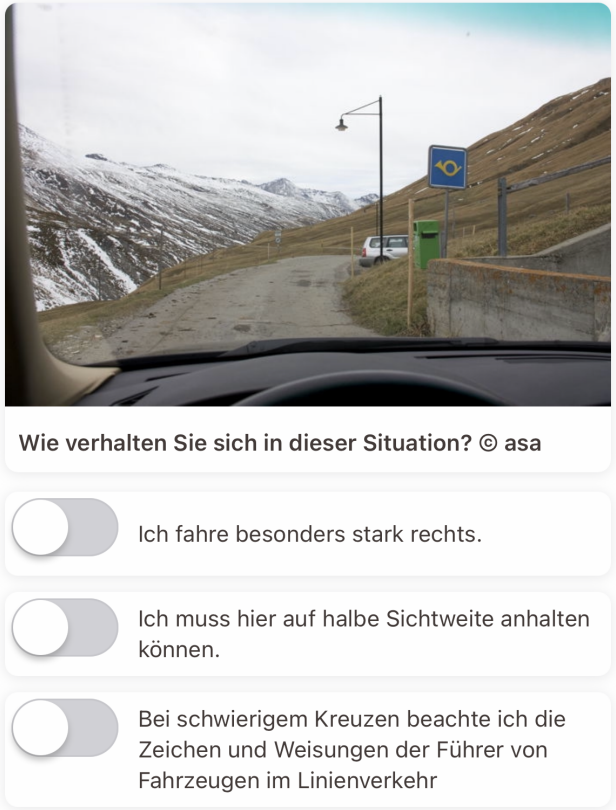
iTheory

The iTheory app is used in Switzerland to learn for the theoretical driving test. The app presents the learning content, which is about as complex as avalanche theory, in a clear way. I especially appreciate the possibility to try to answer questions directly and in the solution the theory is conveyed. No matter if you are right or wrong. Thus, there is no theory-test relationship, but it happens hand in hand.

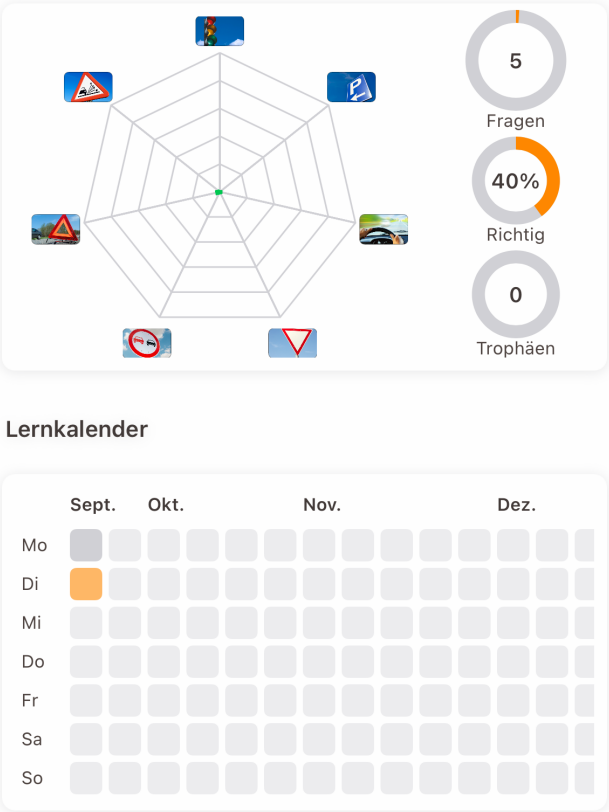
What there is also, is the "success view". There is shown in which areas you do not know enough and where you can still improve.



iTheory – The different modules and the “intelligent” modules, that collect for example the incorrectly answered questions



iTheory – easy to understand “answering” interface



iTheory – Overview in which the users sees where improvement is possible

Input Charlotte Axelsson (E-Learning ZHdK)

Charlotte Axelsson gave us an input about learning. She explained us the difference between didactics and pedagogy. Furthermore we learned how they plan the E-Learning Tools at ZHdK.

The thing that sticked to me, was that learning should always have a goal, an activation and someone who supervises the learner. It is also important to create a soft learning atmosphere, that „encourages“ to do mistakes – experience based learning.

Input Max Hemmo (LerNetz AG)

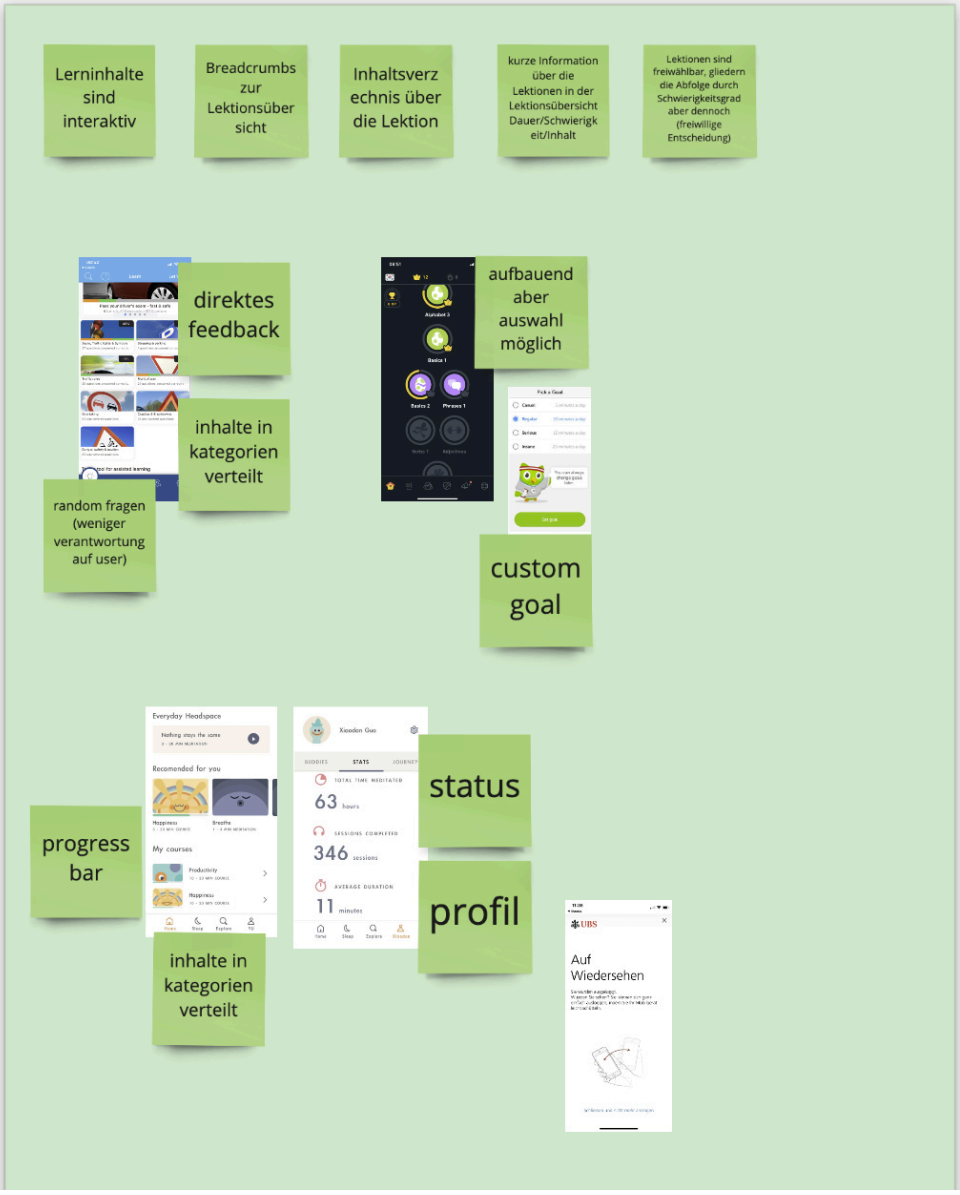
An other input about learning we had, was from Max Hemmo. He works at LerNetz, a company that creates learning tools for companies. For example compliance learning tools.

One thing that I found interesting and also confirmed my personal experience was, that there should not be a theory and test part. They also encourage the „guessing learn“ approach like the iTheory app mentioned earlier.

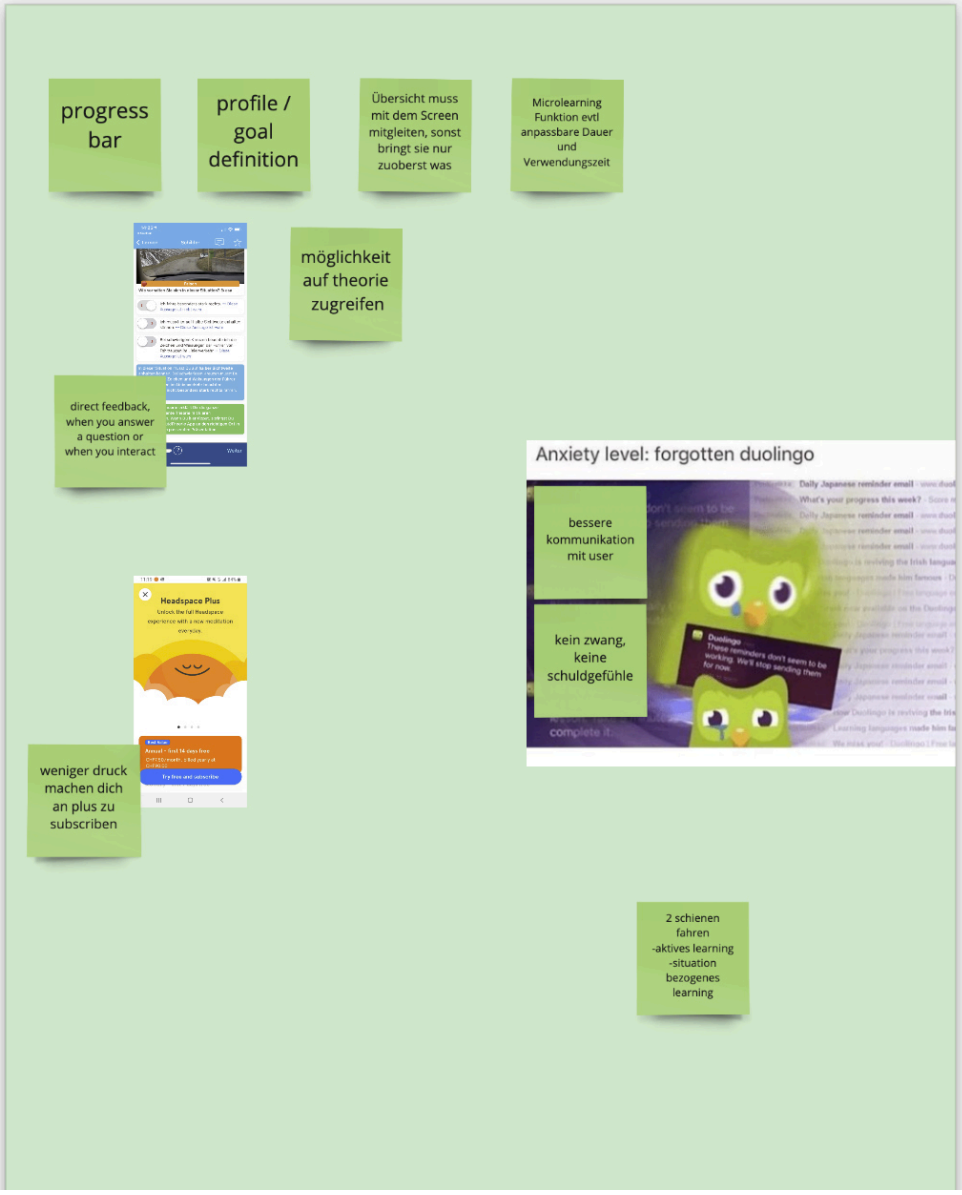
Peer Groups

We worked in peer groups. Meaning, that we always came together to exchange knowledge and our progress. This worked especially well in the explore phase of the project. We were able to collect the good parts of different learning apps, interview questions and ideas for our prototypes. Later everything became a bit more jumble and the exchange was not restricted between the peer group members anymore.

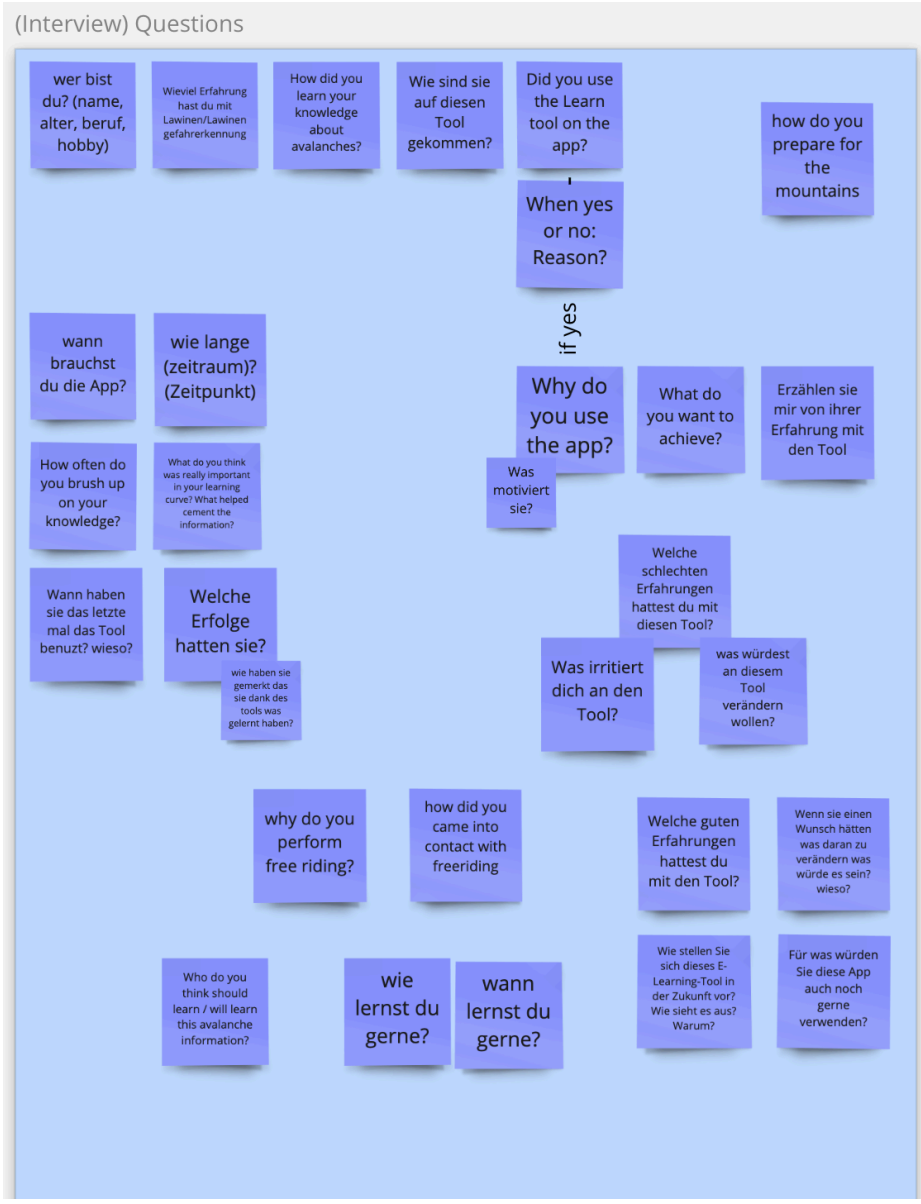
Gute Elemente Existierende Apps



Improvements on existing App



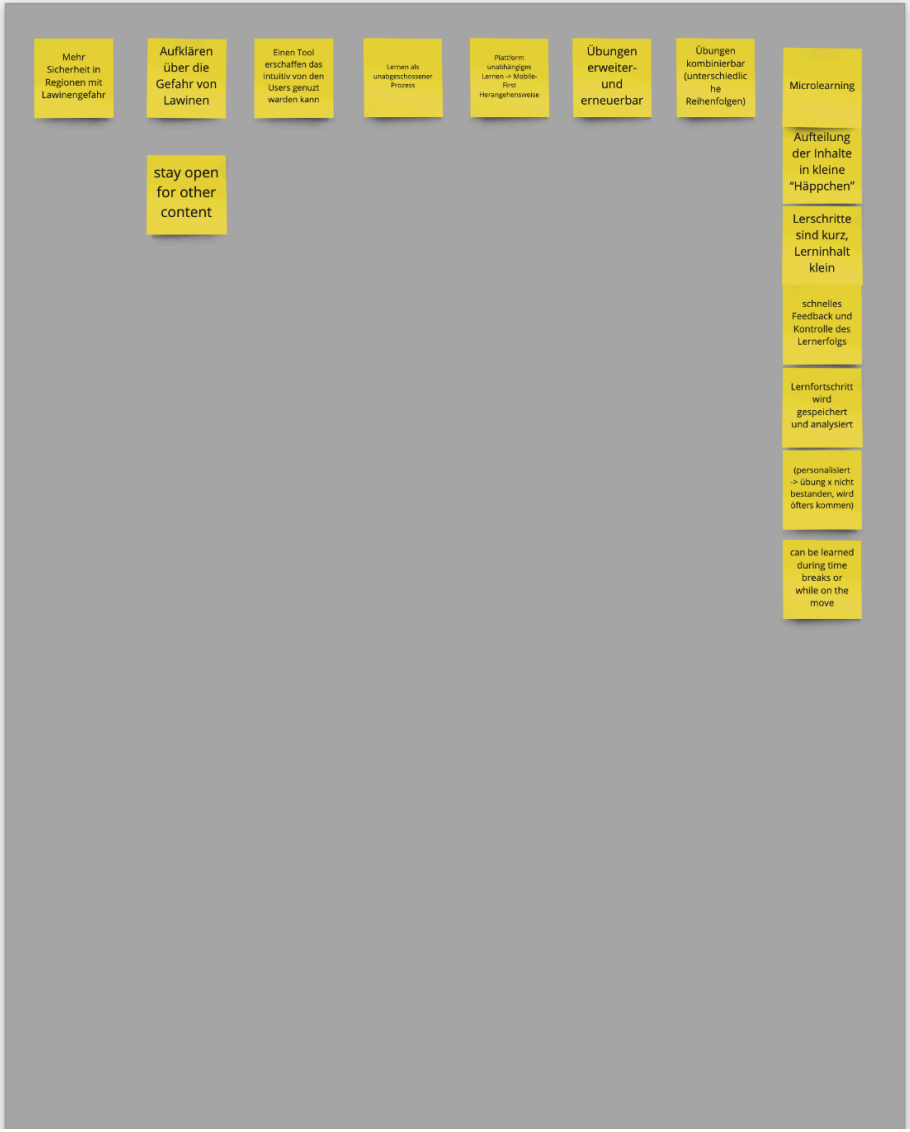
Peer group results of good elements of other existing apps and improvements on the existing WhiteRisk learning app



Peer group results of interview questions and learning theory research

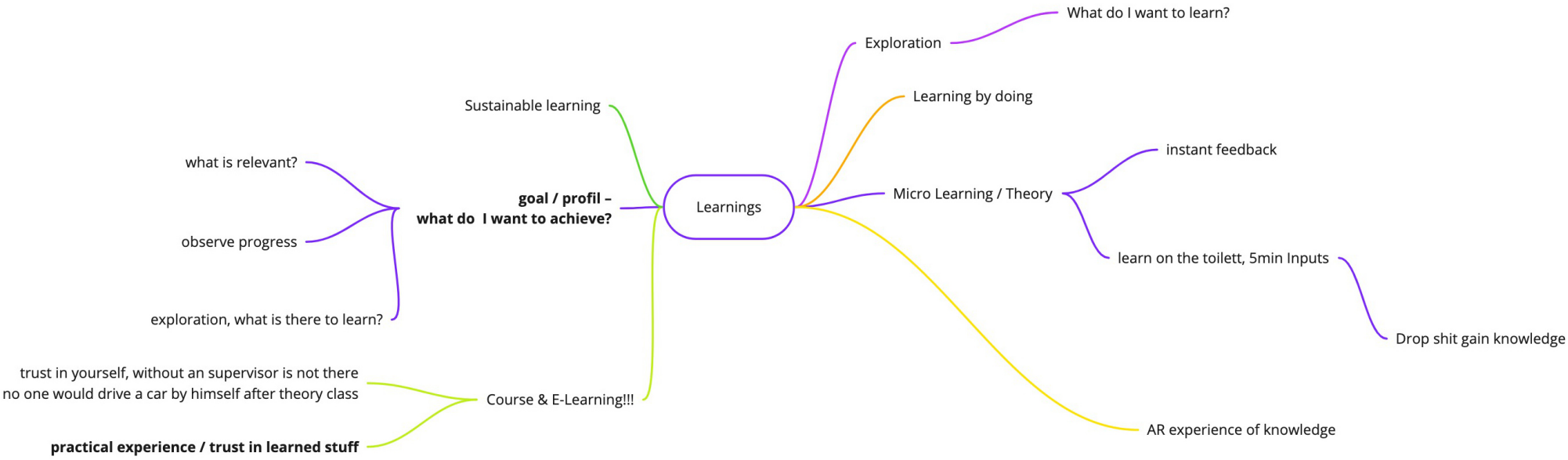
Motivation researched

Goals

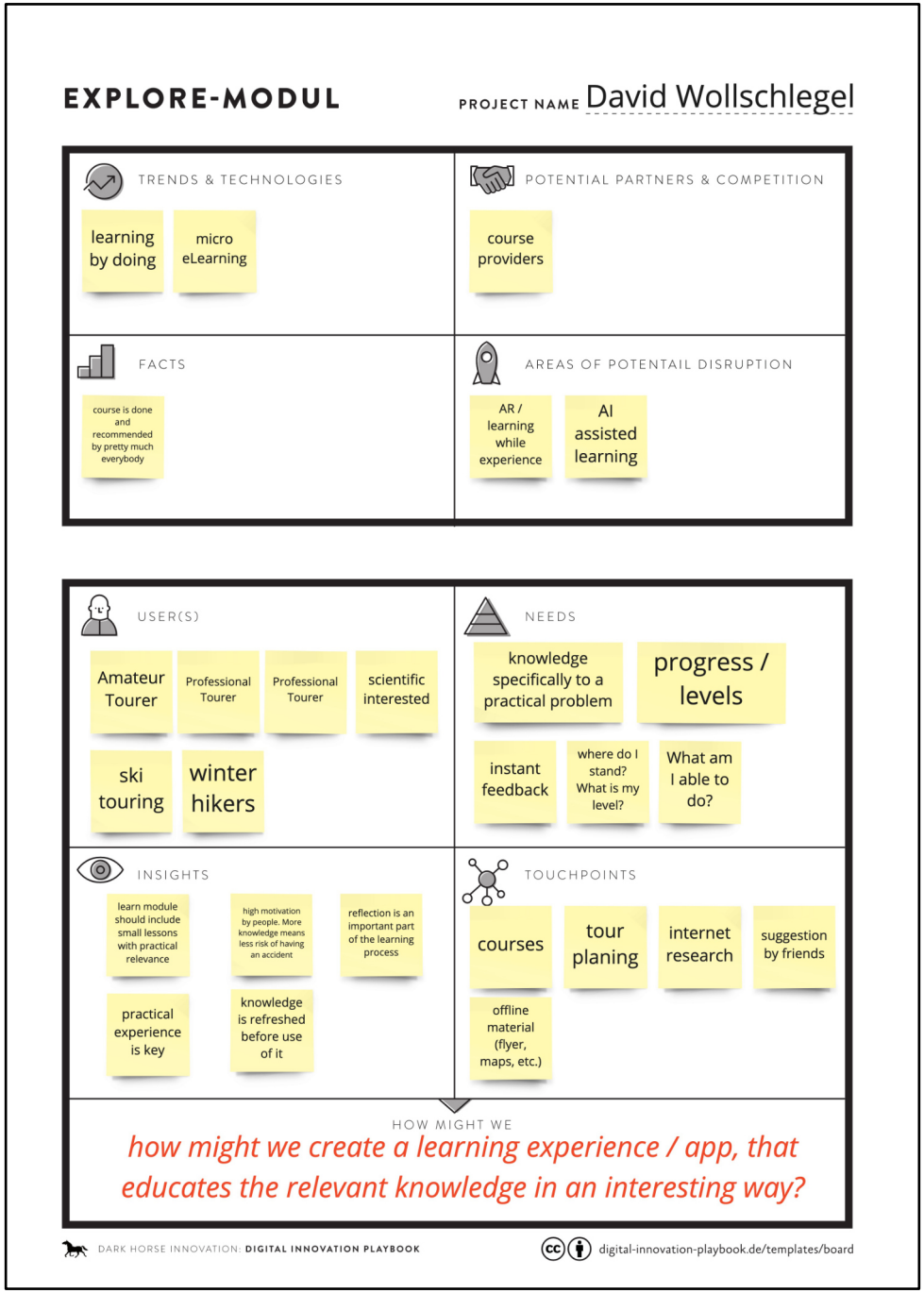


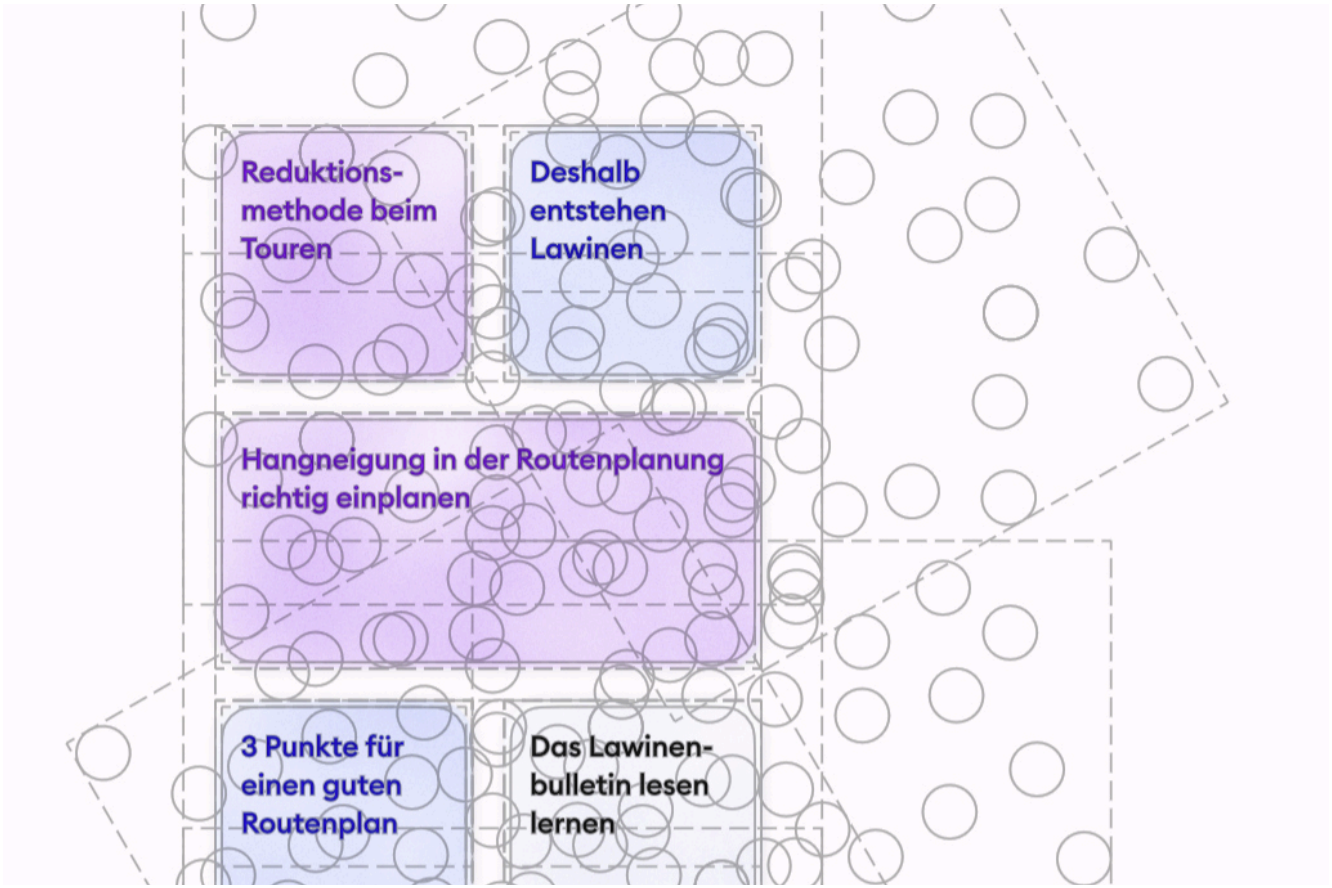
Motivation personal opinions

Peer group results of motivation research and goals



Mind-map with learnings during the explore phase


EXPLORE-MODUL
PROJECT NAME David Wollschlegel
TRENDS & TECHNOLOGIES
learning by doing
micro eLearning
POTENTIAL PARTNERS & COMPETITION
course providers
FACTS
course is done and recommended by pretty much everybody
AREAS OF POTENTAIL DISRUPTION
AR / learning while experience
AI assisted learning
USER(S)
Amateur Tourer
Professional Tourer
Professional Tourer
scientific interested
ski touring
winter hikers
NEEDS
knowledge specifically to a practical problem
progress / levels
instant feedback
where do I stand? What is my level?
What am I able to do?
INSIGHTS
learn module should include small lessons with practical relevance
high motivation by people. More knowledge means less risk of having an accident
reflection is an important part of the learning process
practical experience is key
knowledge is refreshed before use of it
TOUCHPOINTS
courses
tour planing
internet research
suggestion by friends
offline material (flyer, maps, etc.)
HOW MIGHT WE
how might we create a learning experience / app, that educates the relevant knowledge in an interesting way?
DARK HORSE INNOVATION: DIGITAL INNOVATION PLAYBOOK
digital-innovation-playbook.de/templates/board

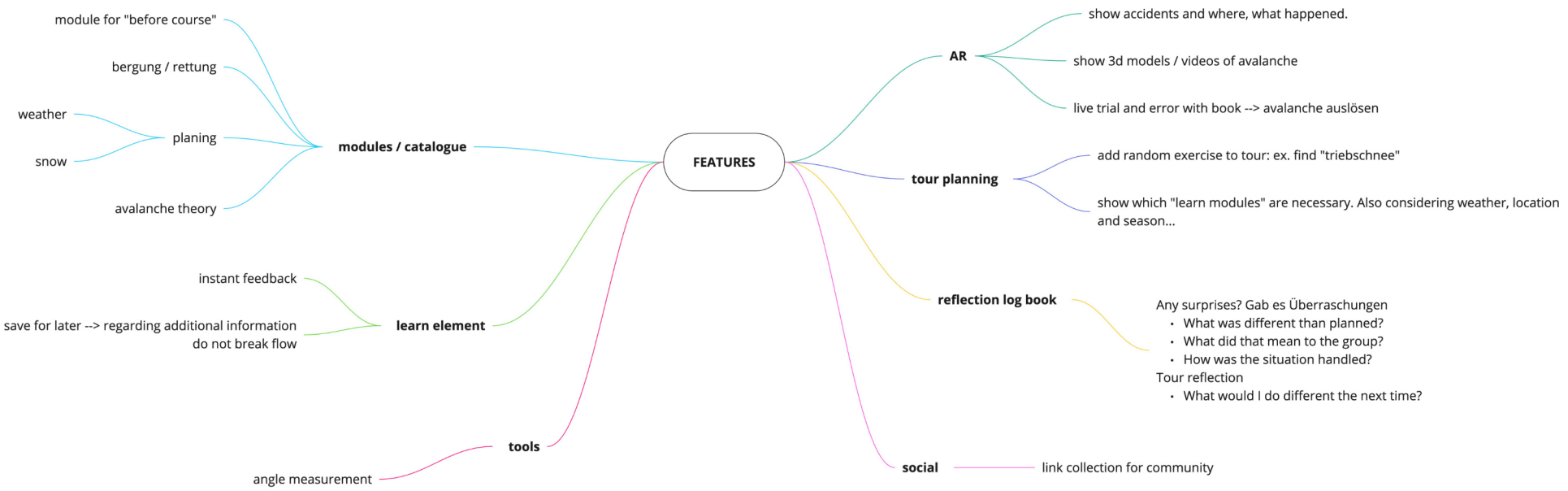


Create Phase

In the create phase we started prototyping our ideas and testing them. This includes wireframes and the final prototype.

At the end of the project, we had to deliver three main ideas. I dropped most of them again in the later process. I think skill-trees are better fitting for learn environments where a clear learning structure is present. For a more self-exploring approach I believe it is rather frightening to see what there is to «accomplish».

I considered bringing AR into the app. In the end a simple (multiple) choice question cataloge seemed to be more understandable to the user and also more adaptable to future learn modules.



Mind-map with possible useful features

DIGITAL INNOVATION BOARD:
CREATE

PROJEKTNAME **cross linking / guiding**

suggestion of content

IDEEN-BESCHREIBUNG

skill progress bar

The guiding through the content should be more clear and connected

ADRESSIERTE NUTZER

skill focused

pro users extending specific knowledge or filling missing parts

ADRESSIERTE BEDÜRFNISSE

see the progress

see the level of knowledge & skill

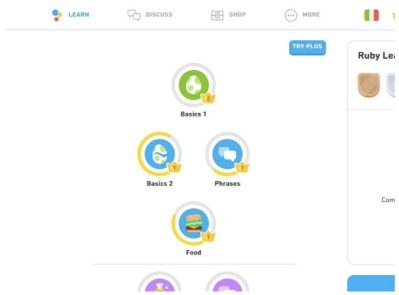
see what I am capable of now?

PROBLEME

trust in self-learned knowledge

accompaniment in learning process?

"save for later"



IDEEN-POTENZIAL

User Value

Scalability

Feasibility

DAS WOW

the learner gets a feeling about the learned knowledge and skills

the learner trusts the gained knowledge

HIGH-LEVEL-CONCEPT

user sees how much accomplished

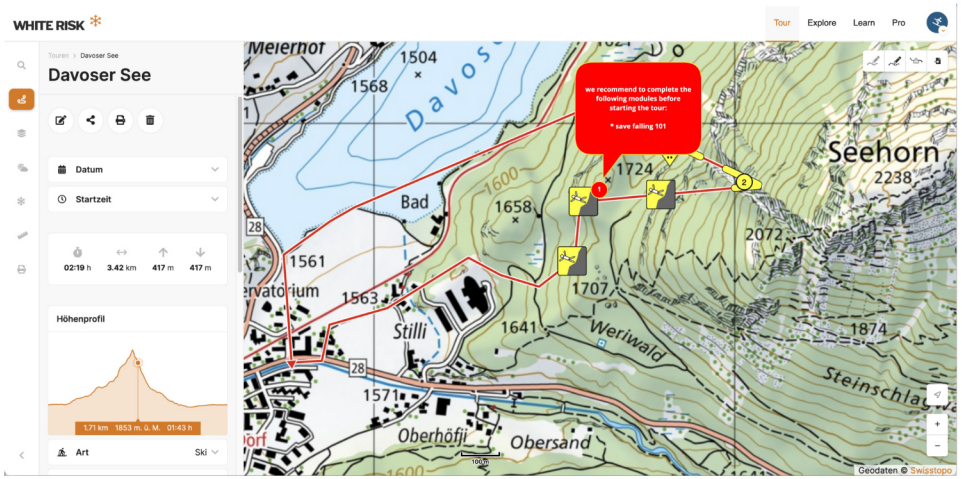
user sees what accomplished

user sees what skills were learned

VALUE PROPOSITION

positive experience

No feeling of being lost

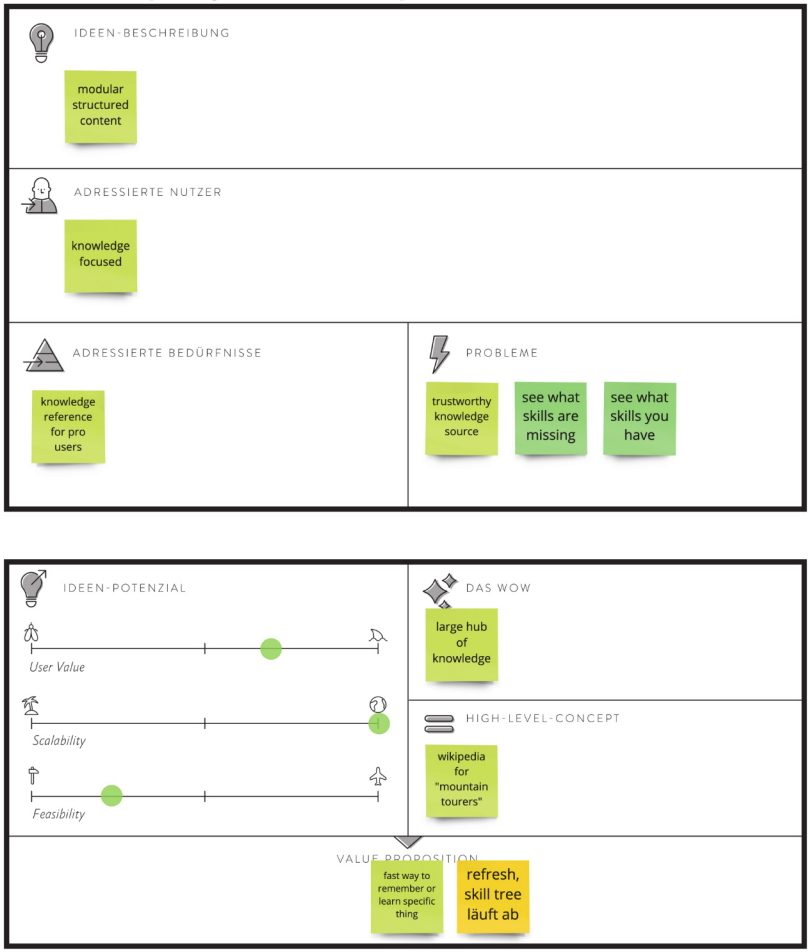


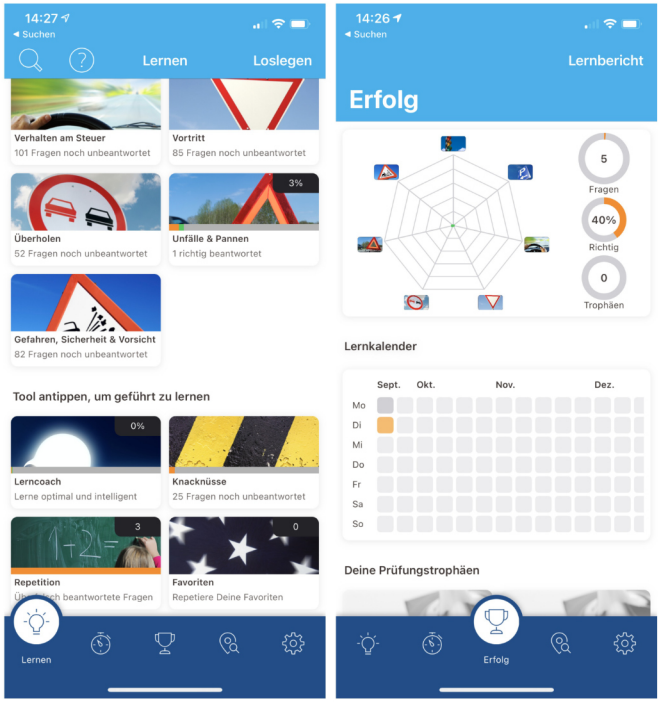
Template 7.3.3: digital-innovation-playbook.de/templates/basic

DIGITAL INNOVATION BOARD:
CREATE

PROJEKTNAME **"explore" structure**

self exploration of content





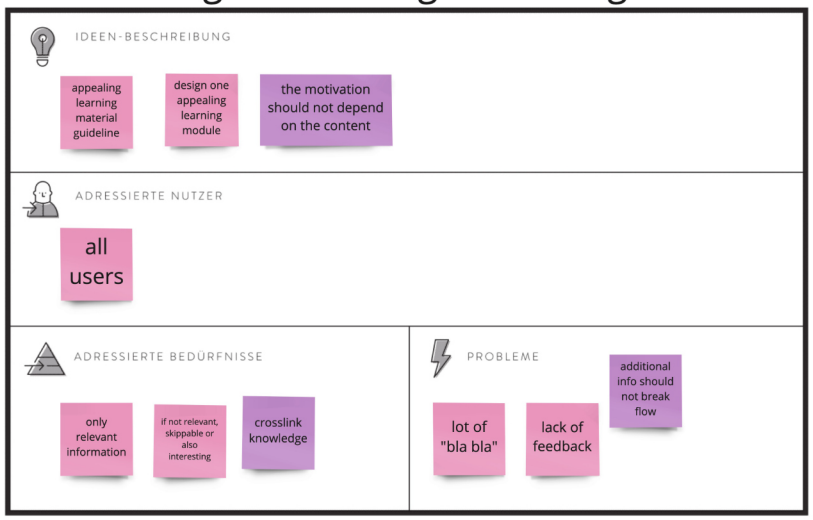
Template 7.3.3: digital-innovation-playbook.de/templates/basic

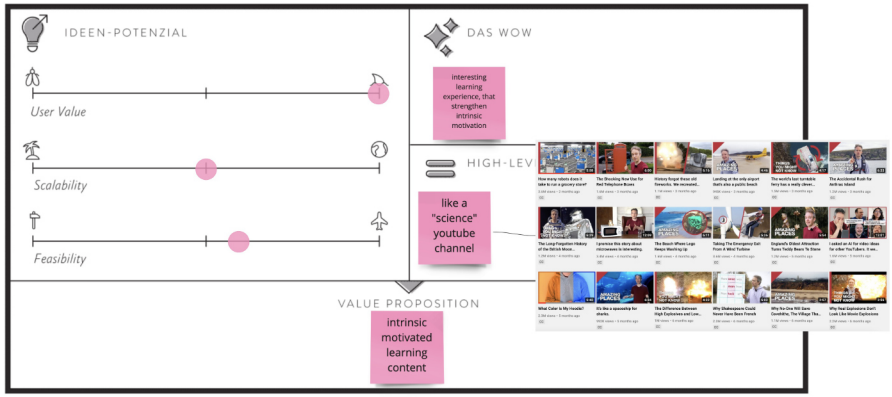
BASIS \ EXPLORE \ CREATE \ EVALUATE \ FRAME

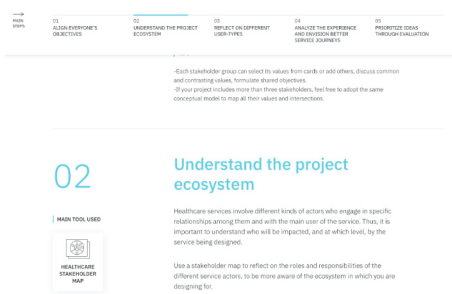
DIGITAL INNOVATION BOARD:
CREATE

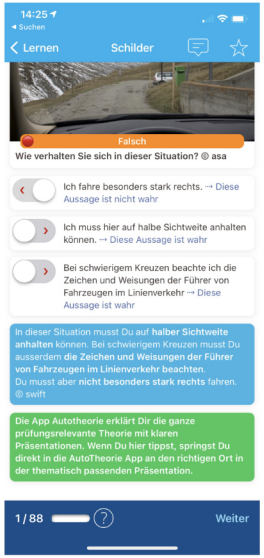
PROJEKTNAME **exercise composition**

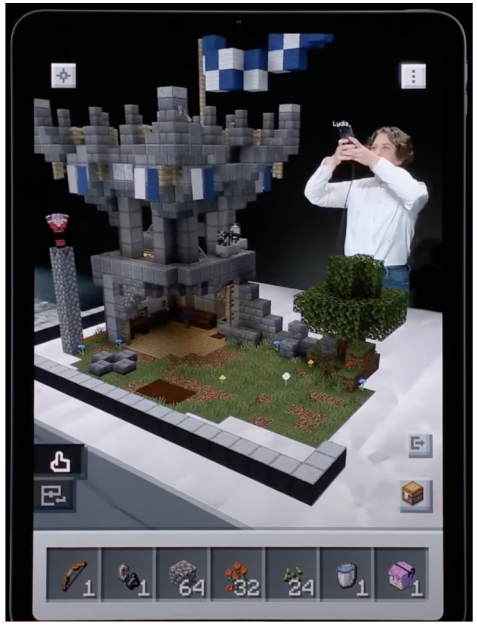
making the learning interesting

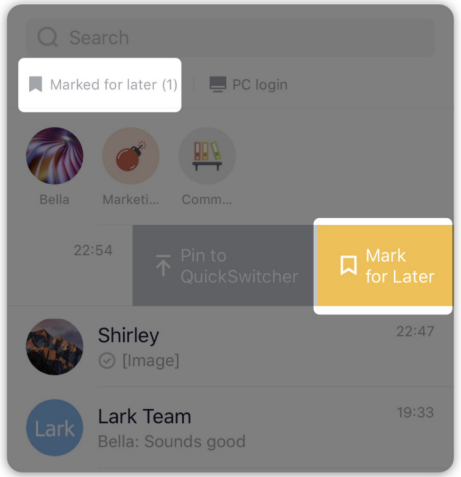




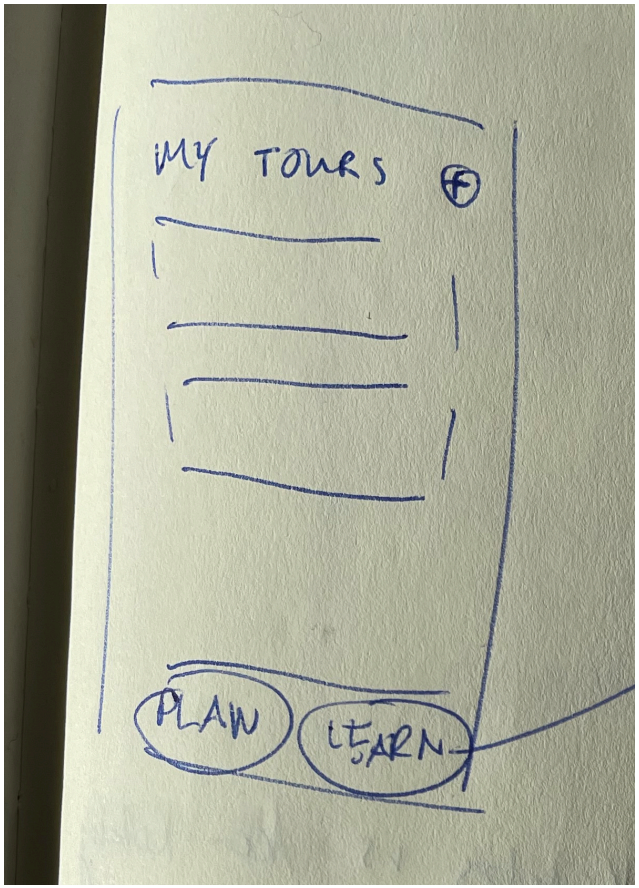




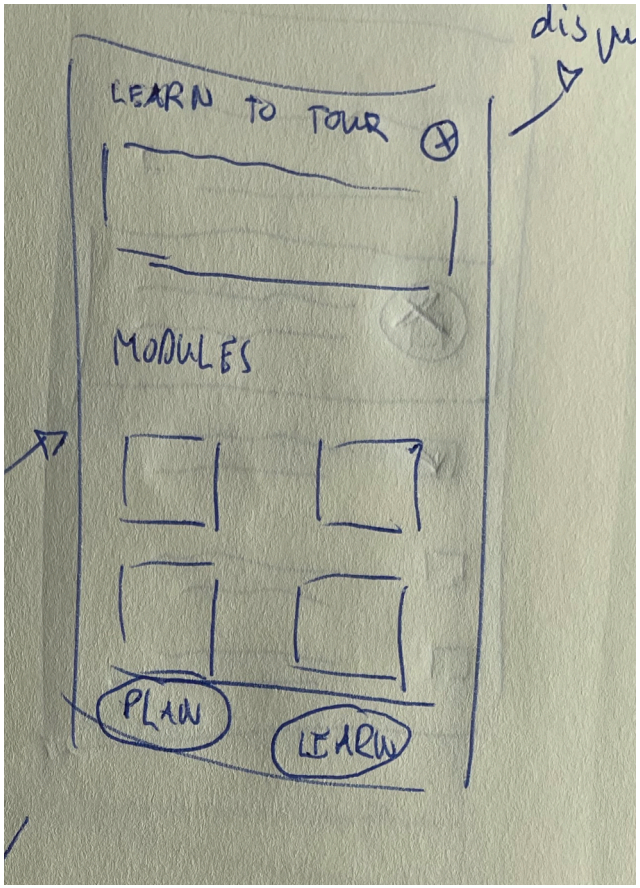




Template 7.3.3: digital-innovation-playbook.de/templates/basic



Learn tab in the navigation bar

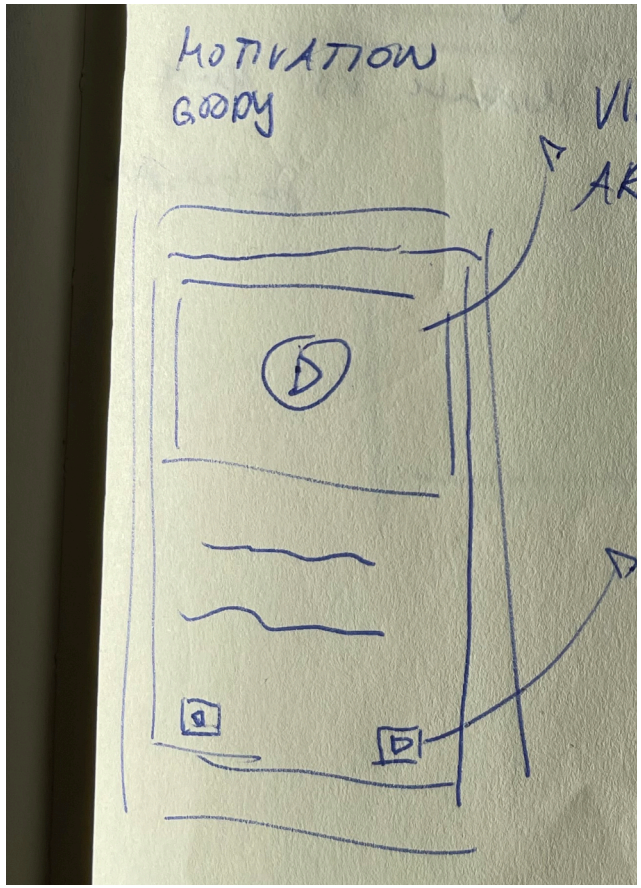


Learn overview

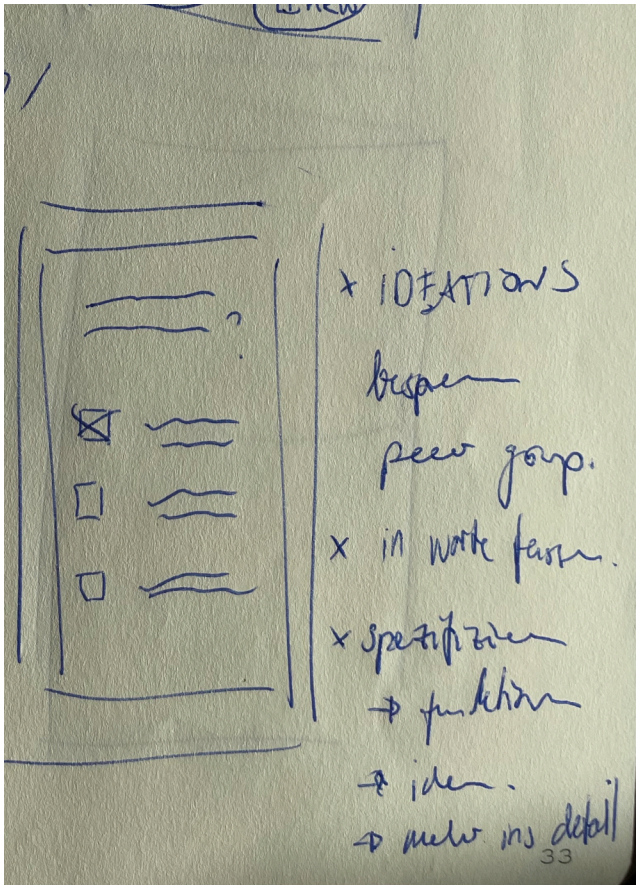
Sketches

Early on I have decided that the learning part should become a key feature of the app. Therefore it get's its own navigation link in the navigation bar.

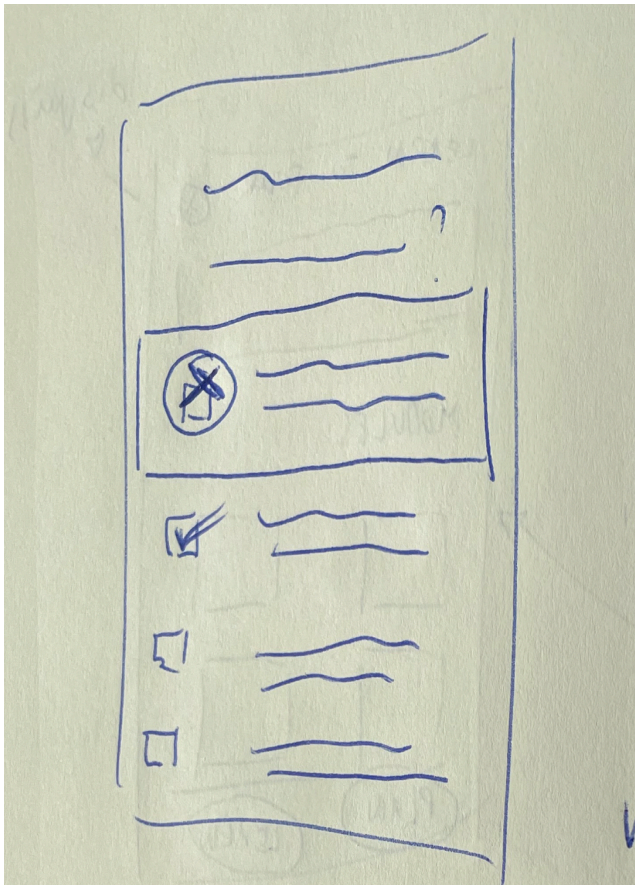
In the learn overview there should be a knowledge catalog or different learning modules. Like Alain my interview partner wished. If you are a total beginner, a specific element offers the possibility to get a guide through the different modules.



Learn element and its motivation goody. The first element of a learn module should always be easy and entertaining. For example a video or an playful AR experience



The other learn elements in a module should consist of (multiple) choice questions. This ensures an easy to understand learning experience.



Furthermore after answering a direct feedback must be given to the user.

Mid presentation

For the mid presentation I defined three focus points.

Cross linking / guiding

The user should get a nudging to learn more in the often used tour planning features. Furthermore the user should get guidance through the different modules if he wishes. During the learning the user should see a progress status.

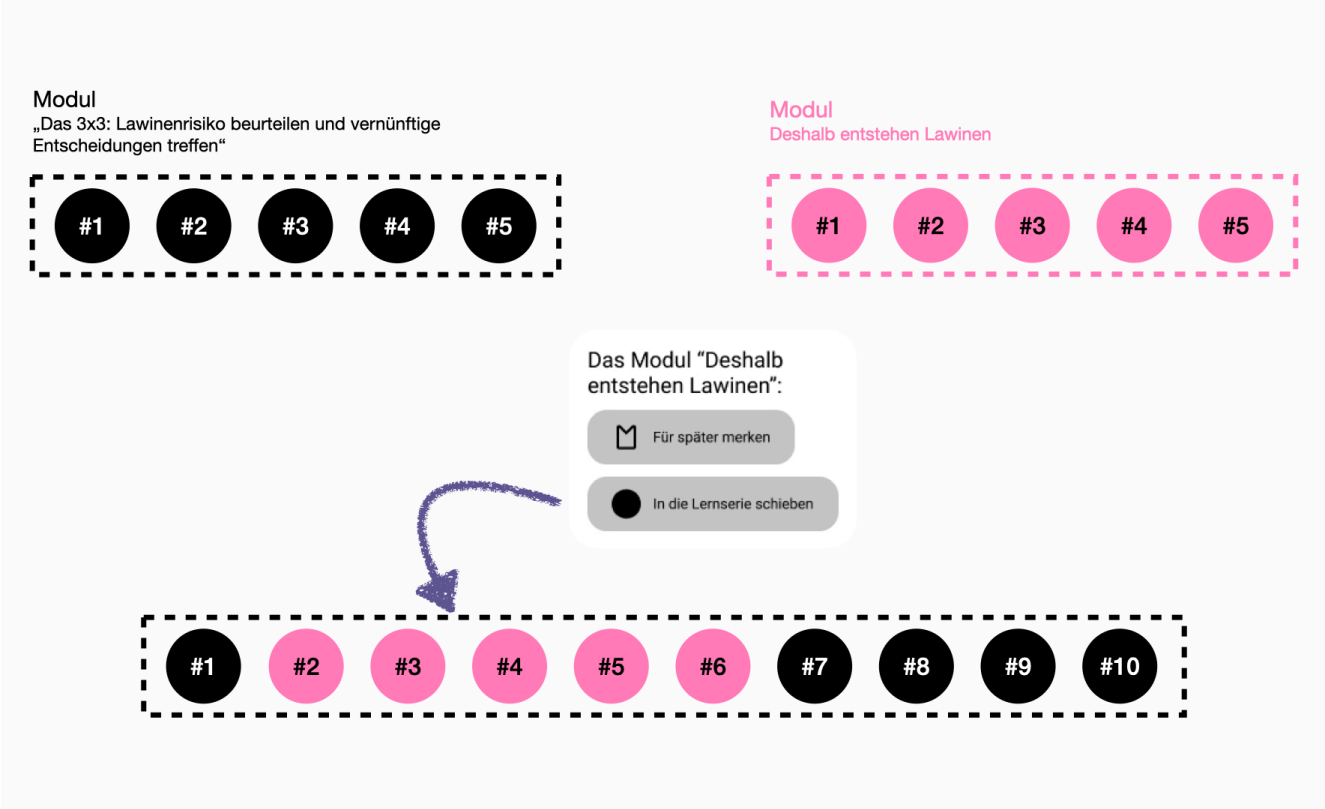
“Explore” structure

On the explore or overview the user must see short and specific modules. This is useful for more experienced users, because they can learn exactly what they want. The naming of the modules should be semantic. Meaning it should exactly tell, what skill you will have learned after completion.

Exercise composition

The exercise should have an appealing entry, be relevant, have no interruption and give instant feedback

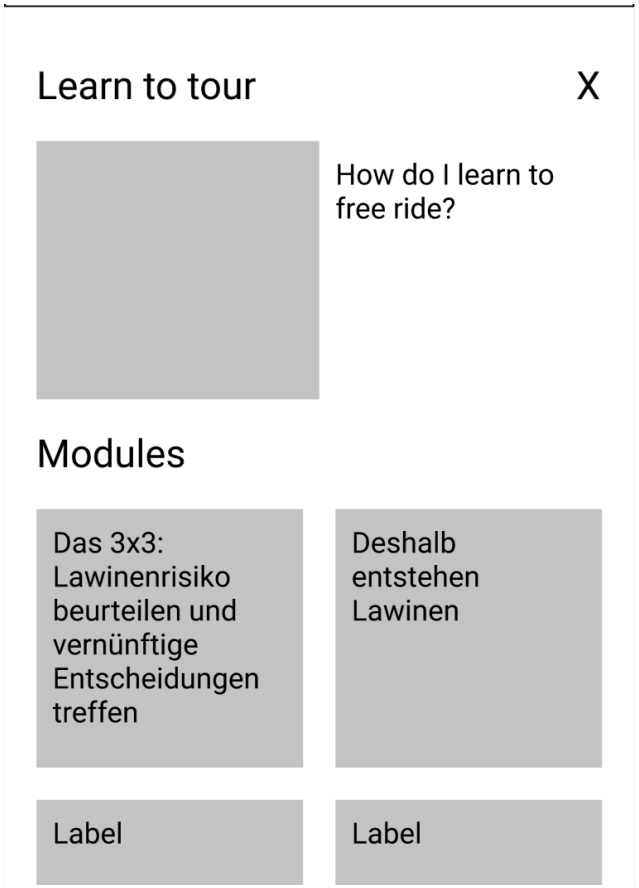
My three focus points by the mid presentation



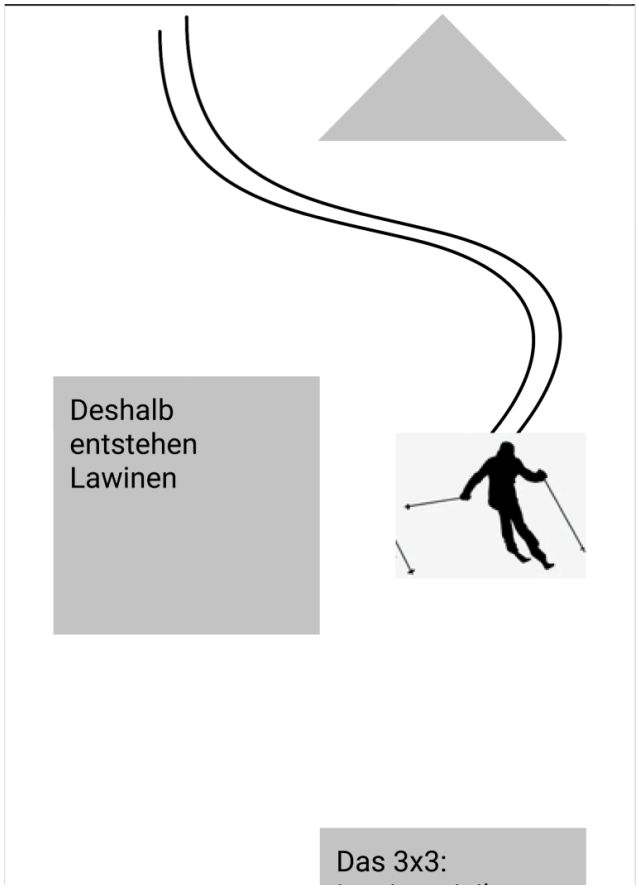
The idea of extending an active learn session

Mesh learning

One of the key features of my app is the mesh learning principal. During the learn module other modules can be manually inserted in the session by the user. So he can extend the module to his desire.

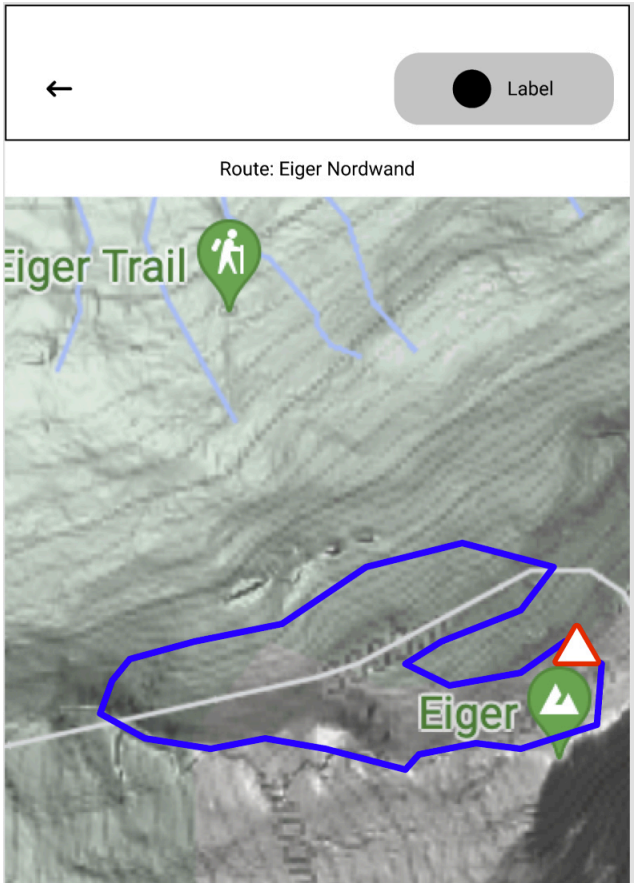


The module overview

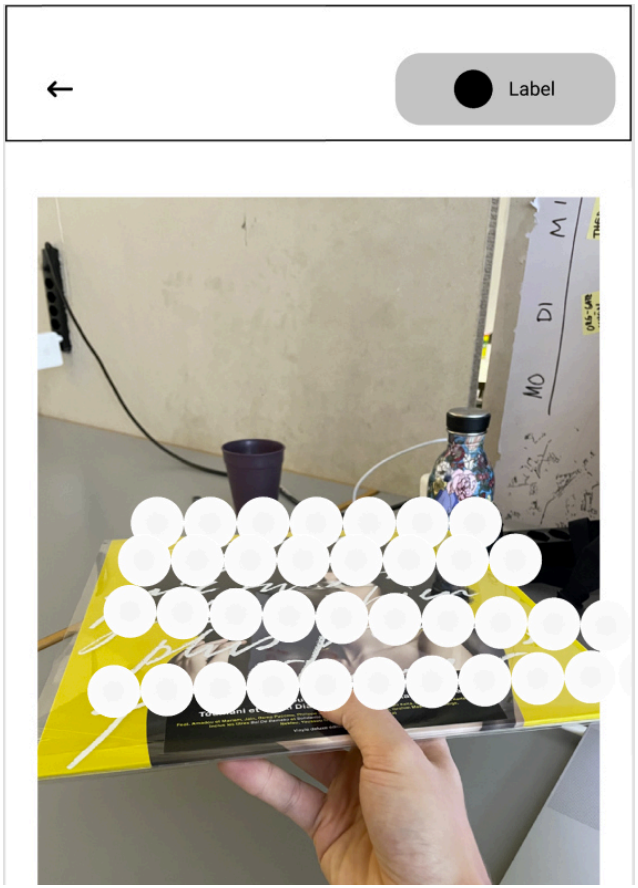


The guided part through the modules

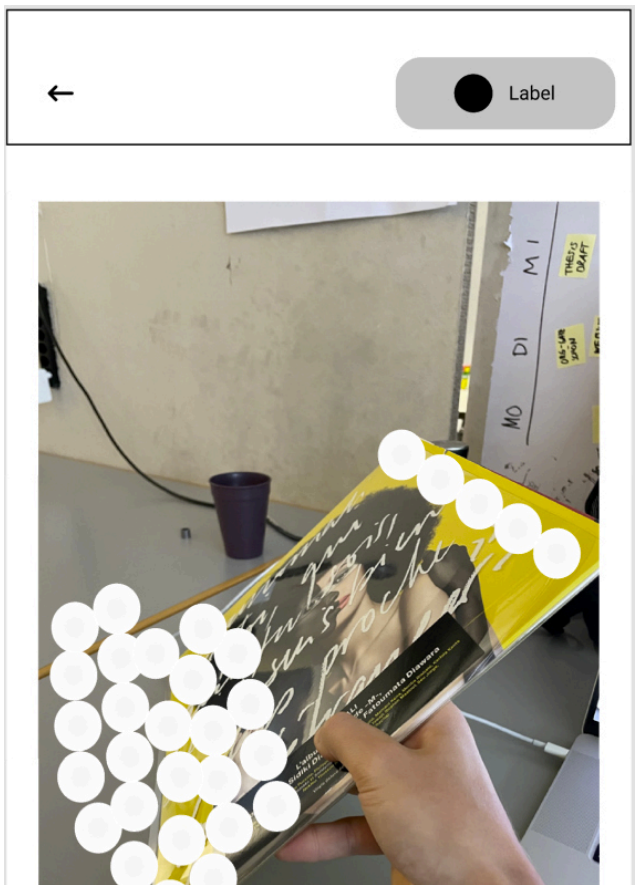
Wireframe



The touring part, where possible learn modules are indicated by a rectangle



AR mock up



AR mock up

The module overview

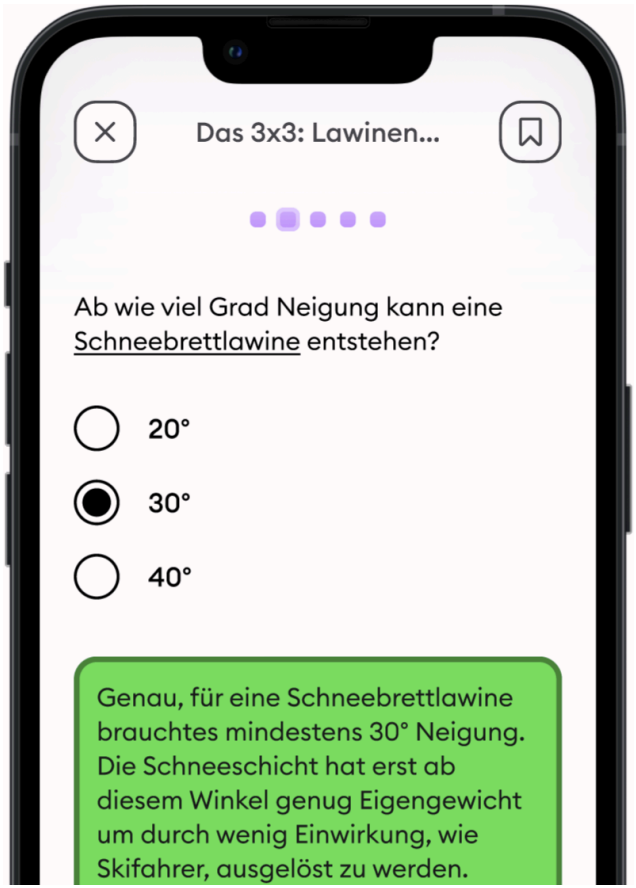
The guided part through the modules

Final Prototype

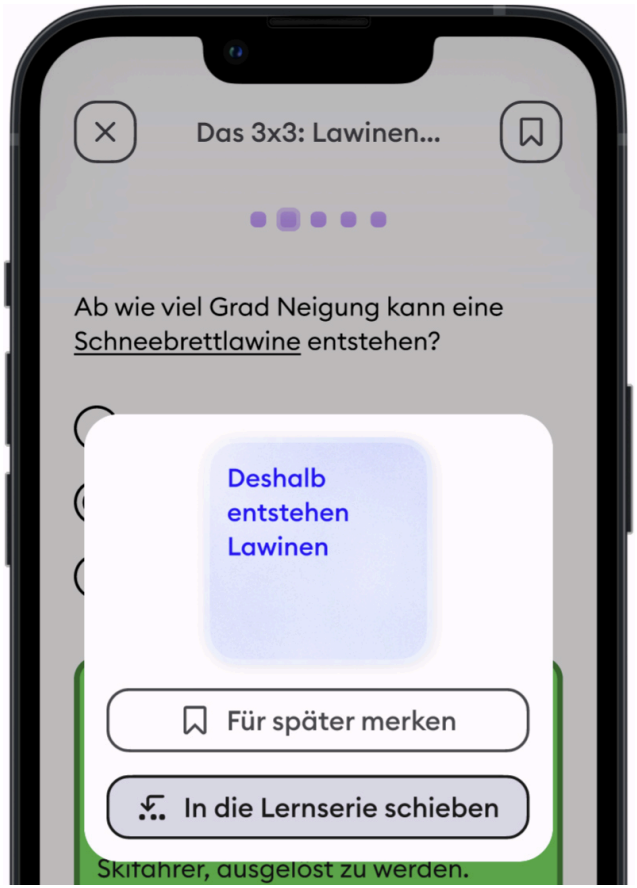
Search feature

Bookmark feature

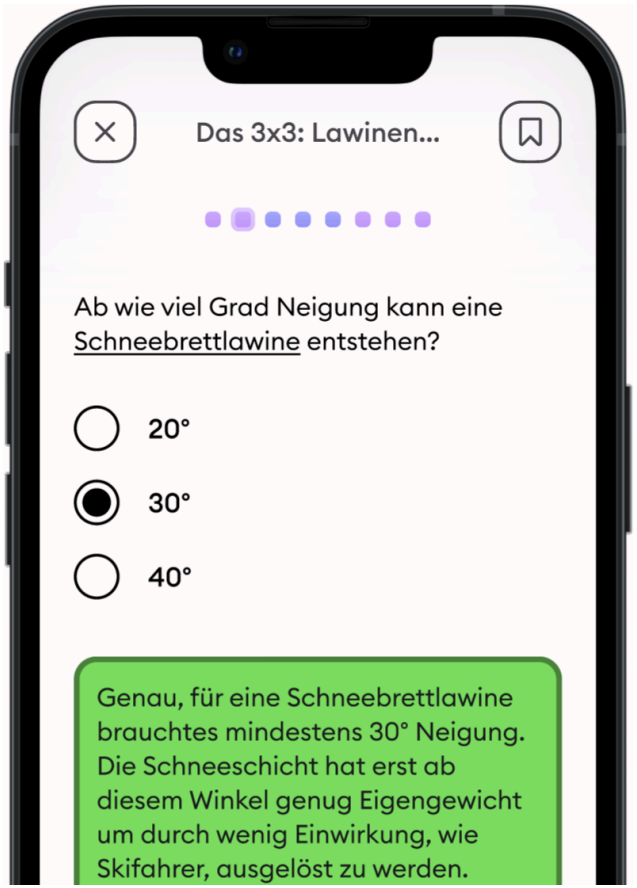
Filtering feature



Mesh learning principal: Keywords are highlighted and can be linked to a module.

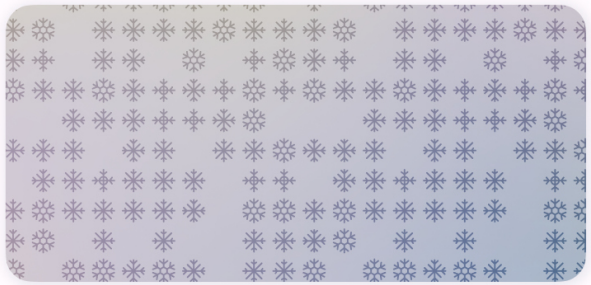


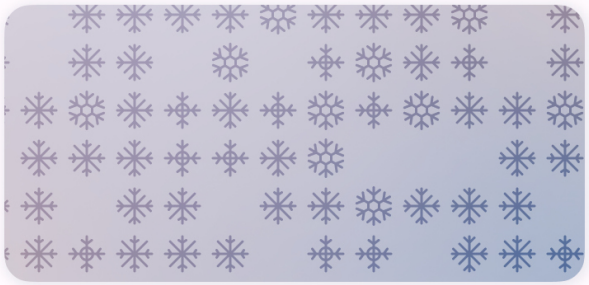
Clicking on this keyword opens a overlay, where the user can chose to put the module in the learn session or bookmark it for later.



If the user decides to put it in the current learn session, the progress bar indicates this decision.

After completing the learn modules the user sees which modules he completed





Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Label

Label

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Label

Label

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Das 3x3: Lawinenrisiko beurteilen und vernünftige Entscheidungen treffen

Reflection & lessons learned

In this module I worked alone for the first time since a while. This gave me a good refreshment of my strengths and weaknesses. I learned that, although my app is rather simple, it is still complex and not thought through entirely. This proves again that digital products should stay simple in the first iteration and build a solid base. Later the product can be extended with features. Also considering the needs of the users, that are using the app. I could improve by challenging my own ideas a bit more and not be satisfied with the first idea I have. Nevertheless, I am happy with my work and I would say I did a good job at presenting my work.

The most important part of my design research is, that the app should not enforce the user to learn. The service should be subtle and support the user, as soon as he starts learning, for as long as he whishes to.

Contact

David Wollschlegel
david@wollschlegel.com
www.woll.io