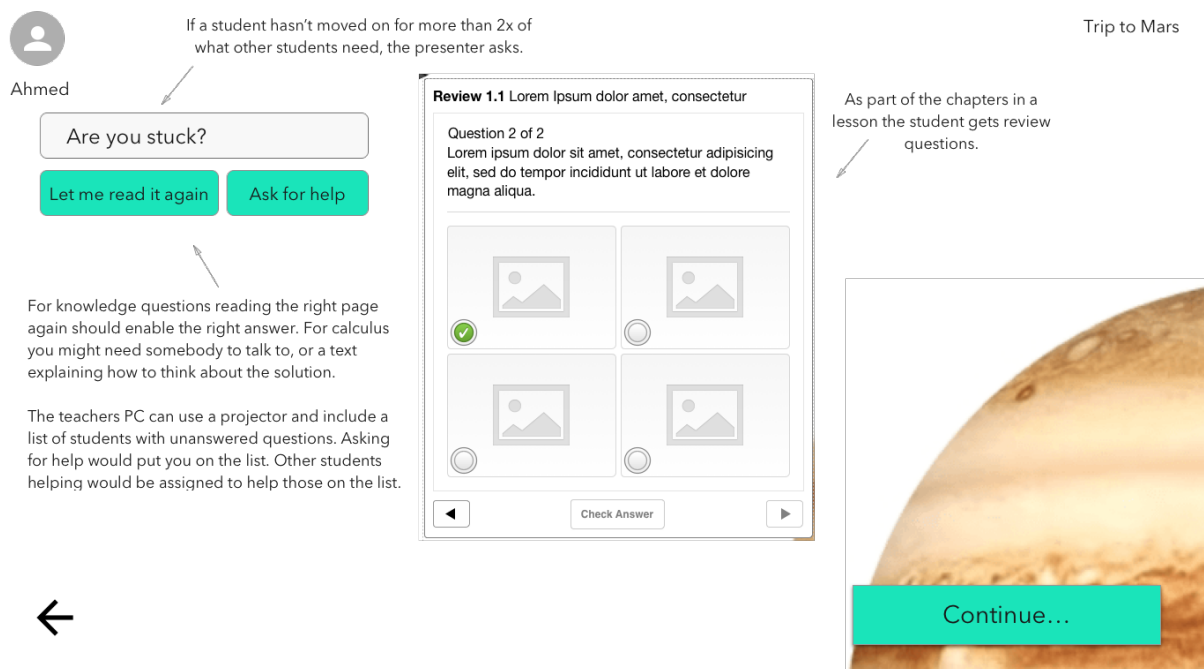


Alef Design Work by Caterine Apruzzese

I'll show screens for the design and discuss the design process and concept afterwards.
The wireframes and hi-fidelity screens cover,

- Lesson Presenter (like TV News Anchor)
- Detect being stuck
- Lessons divided in Chapters
- Review Questions
- Getting hearts for helping others
- Listen to spoken words
- Having a room for play

Ideation low fidelity





Ahmed
Local Leader in
Sattelites and Rockets

Trip to Mars

Well done Caro, you completed Trip to Mars.



Lessons are
broken into
chapters like a
book.

A star is given for each chapter
completed in the lesson.

Others are not as far as you, would you like to
help them?

Help a Friend

Visit Science Room

Next Chapter...



Ahmed
Local Leader in
Sattelites and Rockets

Trip to Mars

Oscar needs help with "How big is Mars?", will
you give him a hint without telling the right
answer?

A heart is given for each time
you help a friend.

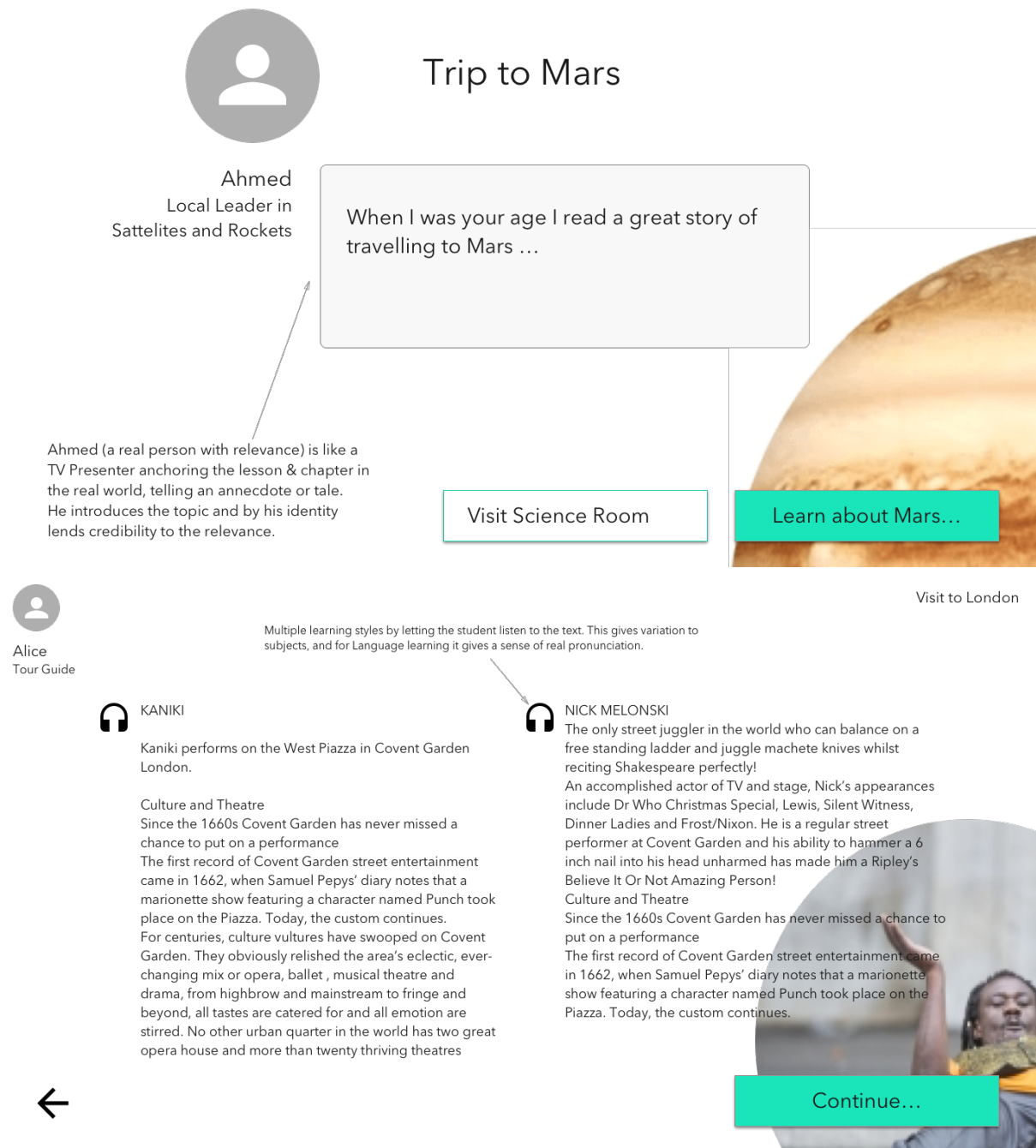
Well done Caro, you helped Oscar completing
the lesson.



Help a Friend

Visit Science Room

Next Chapter...

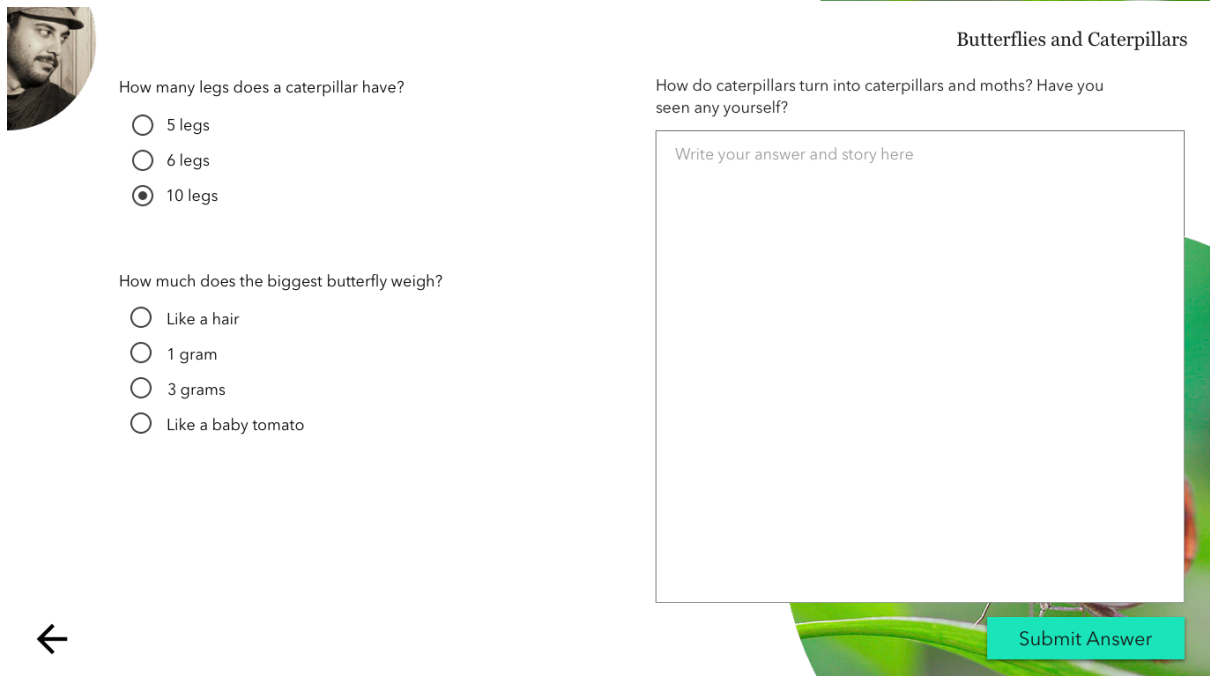
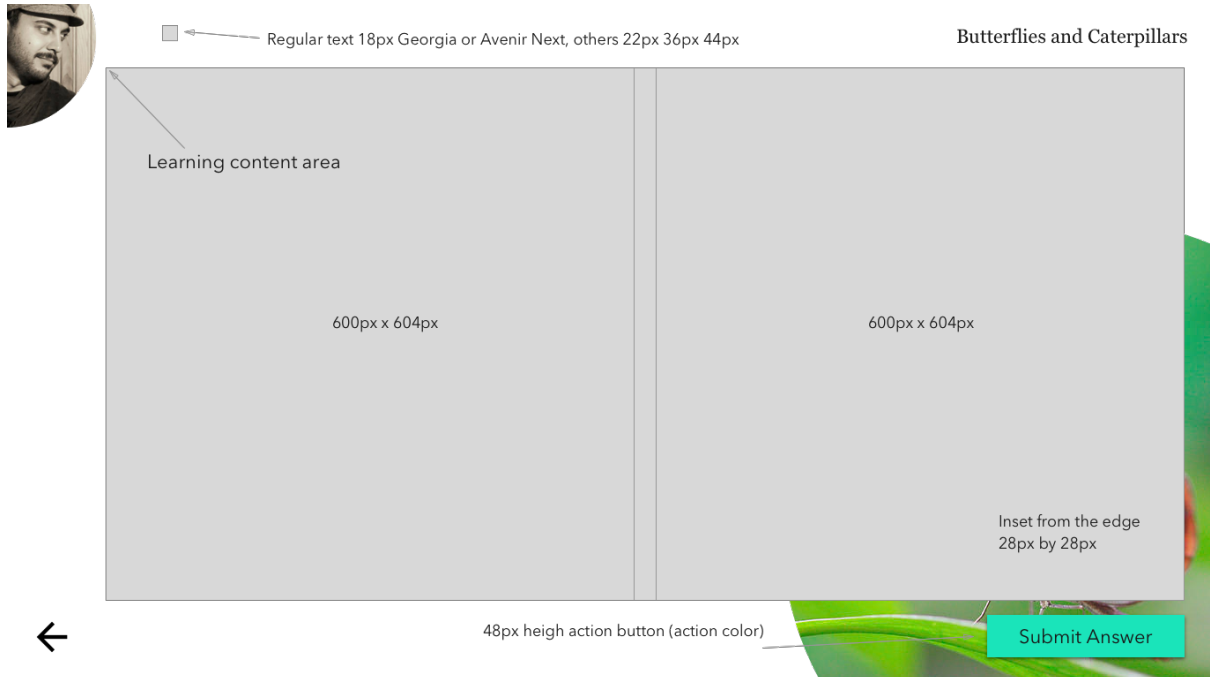


Hi-fidelity Prototypes

There is room for more UI Design. In short I went for

- 18px base font size, for a sense of reading accomplishment.
- Large buttons for friendly prominence and call to action.
- Limited frame around content area, for maximum screen content space

- Single action colour
- Room background real photo(Realism) bottom right for visual balance
- Typography, Georgia for reading text, Avenir Next for sense of precision
- Negative space to give a sense of freedom, grouping, etc.





Alaaeddin Jaaber
Nature Photographer

In Science you have

♥ 35 ★ 138



Butterflies and Caterpillars

You are finished for Today, well done Ali!

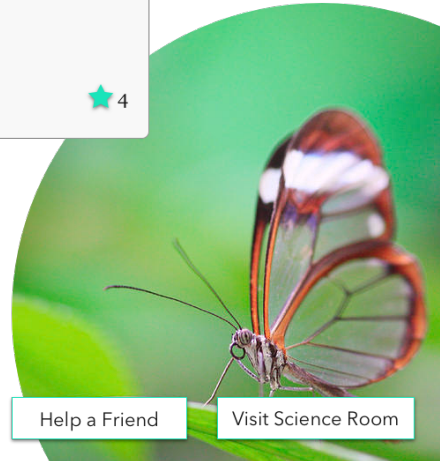
Stage 1: The Egg
Stage 2: The Caterpillar
Stage 3: The Pupa
Stage 4: The Butterfly



Good work helping



Still 8 minutes left. Want to help out, or
visit the Science Room ?



Help a Friend

Visit Science Room

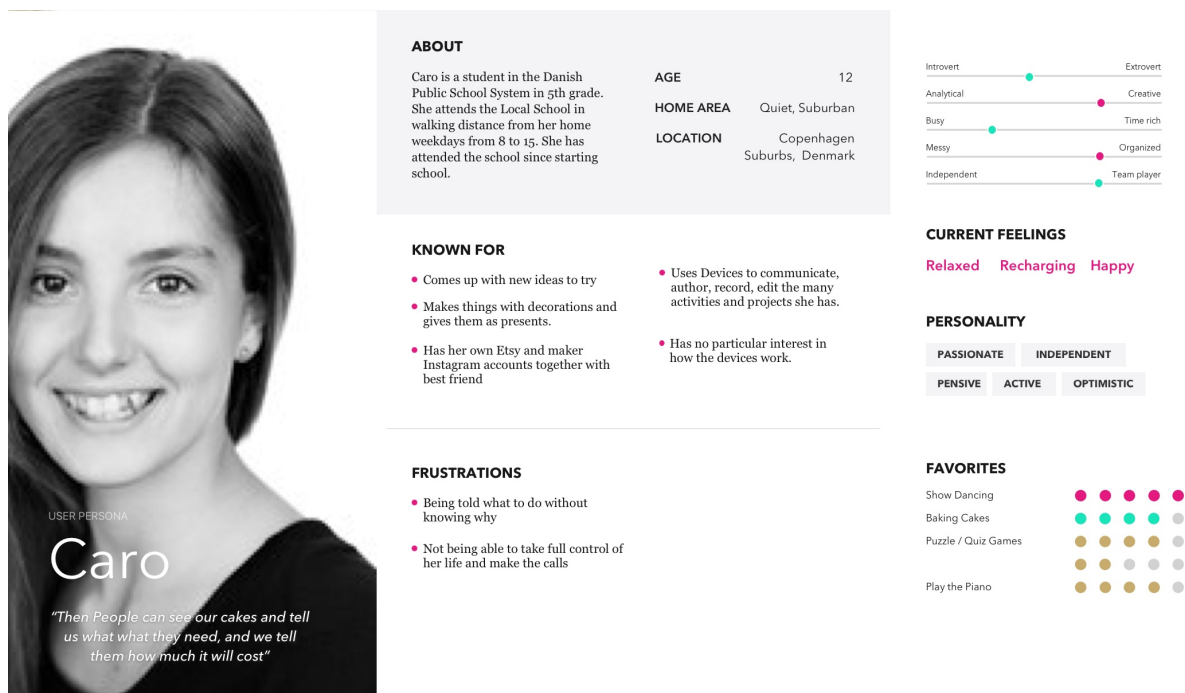
Designing a Concept

As a process I did the following,

- What/who of the User describing a Persona to gain Empathy
- Explore problems that would be worth solving to Define and Ideate
- Settle on a Learning & Interaction Concept
- Define Learning Scenarios, stories to have something to test the concept against
- Sketch/wireframe the ideas to Prototype
- I didn't test the prototypes on users sadly

Persona

We would need to understand the users. To stand out clearly, a 11/12 year old student (perhaps 2 at each end of a personality scale) and a teacher. Having no research yet on real people I'll make a sketch persona based on a person we both know.



This might be a high achiever persona for designing a Danish classroom experience, but while all kids tend to be the same throughout the world, being in a much different context, there are bound to be differences.

If I take on a project like this, I would want to build some real personas to influence the design. In that case here are some of the questions for understanding the student users;

- How is the day, how much is School Day, other activities,
- How do you see the teacher; Respectfully, colaboratively, confidentially, helpful. Real person or abstract authority
- How are you with other kids in the classroom, helpful, competitive, are cliques fixed or changing daily. Are there cultural divisions in the classroom
- What do your parents think about this new way of learning.
- Do your parents help you study in the evening
- Do you study at home, or only at the school
- When you see [Visual Example of Skeumorph, Kids Graphic, Web 2.0, TV Interface,]
- What does it make you think of Old, New, Fun, Tiresome.
- What is your favorite Visual Style in Books, TV, Public Signs, Cars, Smartphones, Tablets.
- What do you use often among Microsoft Windows, macOS, Android, iOS, WhatsApp, Line, WeChat, Facebook Messenger, Apple Messages, or other Chat Apps.

How Might We...

Every problem is an opportunity for design. By framing challenges as open "How Might We" questions, we try to open our minds creatively, and allow for more exploration before criticising.

Based on previous experience with such systems I've come up with opportunities in the design, written as questions to ponder.

- How might we use rewards systems/incentives to motivate students?
- How might we boost self-esteem and encourage students to achieve another successful task?
- How might we maximise intrinsic motivation/drive?
- How might we reward students without creating addiction or sense of predictability?
- How might we introduce topics in a meaningful way, showing **why** what they are learning is important and **how** real people have used this knowledge in the real world?
- How might we adjust the level of the exercise, and pace of learning for each learner, so all learners have the time to demonstrate mastery?
- How might we provide feedback on the screen when student gets stuck?
- How might we create friendly and engaging experiences that minimises social/performance fear/anxiety?
- How might we promote self-learning and peer collaboration at the same time?
- How might we get teacher's attention when student gets stuck?
- How might we make a digital learning experience more human and emotional/friendly?
- How might we support non-reading learner types as well?

Learning & Interaction Concept

The objectives behind Alef Education seem to fit with the loud talk about Inverted Classrooms and Lifelong Learning.

Traditional Education has underlying implications that go against the skills needed in the current and future workplace

Tests are based on there being a right answer. The more you pass tests and get rewarded the more you build an instinct for only communicating in right answers. In any creation or innovation work, you often play with wrong, silly or strange answers to explore what a better answer might look or feel like. People obsessed with the right answer are terrible at such work.

In the classroom the teacher asks the question and the students answer, you imply that the teacher knows the answer, and the questions worth asking. Good questions are the foundation of discovery, asking the same questions, we as a society will not learn anything new.

The knowledgeable teacher also implies that people with more education have the answers to your questions. But we are in the end all human, and cannot know everything. Education needs time to formalize knowledge, so it will always be behind. To have success tomorrow's adults, our students today, will need to create knowledge of their own.

Teacher as the Guide

Having a teacher in the class is important to ensure that the students are focused on the topic. Even the most motivated student will get distracted and have other pressing things on their mind. The teacher adds a structure to begin and end the class in an orderly manner. Even if the students study fully by themselves the teacher would still lead the class into the topic and round off at the end. The difference is that the teacher isn't the centre of attention throughout the class. The teacher works as a guide/facilitator to the class and focuses on helping students falling behind. Students in the lead can be used as a resource helping trailing students. This is the first step to promoting independent learning, and enabling collaboration.

Presented by...

Each lesson, and potentially chapter in it, is introduced by a Presenter, as done in TV News Programs, who to the student appears a real person with a picture, name and identity. The presenter anchors the lesson in the real world, helps asking for help, gives feedback on tests and checks on how you feel about the topic and lesson.

The presenter adds several qualities,

- Anchors in a personal experience that feels real
- If the student identifies with the presenter, the topic becomes more important by extension, increasing recall
- Allows adding anecdotes that are not necessarily factual, but adds a perspective to the topic
- Allows hinting to the student that some parts may seem dull, but hang on, and it will soon be interesting
- Taps into our natural craving for storytelling
- Helps the student navigate through the learning with hints, clues and suggestions
- Works as a visual place to put contextual navigation
- Increases the interactions in the lesson, giving additional data points that can be captured to personalise the learning journey or enhance the material

Distraction-Free Learning Focus

Many online courses come with a lot of distractions. Sometimes it is because they are funded by advertising, but mostly it is just badly designed. They often take up a lot of visual real-estate with navigation arrows and menus, even though there is a natural flow through the lesson, and most students would never want to jump around in a normal situation.

Lessons run as full screen with no option to log out or do things apart from the lesson. The application will probably be a Chromebook App, so it will run in the web browser. With F4 users can go full screen, or the App can take itself full screen, so the design should take advantage of that. It is a focused/distraction-free interface.

The content and topic must be the front and centre while learning with a minimal sprinkle of additional navigation or information elements. You would want calls-to-action to all be about progressing in the lesson.

The simpler the better.

The topic title starts out prominent and then moves to the top right of the page. It should probably be part of the lesson content so it can be styled with the content.

I've picked the simplest possible navigation concept. A back button in the bottom left and a forward button in the bottom right. Both are visually part of the content, and since the forward button text is specific to the page, it should be added as part of the page.

The student might get stuck and want to go back to re-read or re-watch, but shouldn't be needing to move to a previous chapter in the lesson. When the student tries the back button, the chapter (the lesson is split into chapters/sections) starts at the beginning, rather than merely going to the previous screen. It could go all the way back to the beginning of the lesson, but that would seem punitive. With that in mind the student will read carefully so he will not have to start over again. If the navigation was free to browse, it might not feel so important to read carefully.

The interface is then as follows

- A presenter with conversation in the top left corner
- An optional back button in the bottom left
- Page content underneath those
- A background based on the room (see below)

A room to Play and Experiment In

Play is an important way to deeply root new knowledge, and it is an important tool in creative work. Many forms of traditional teaching topics involve a physical room with equipment for making experiments. Students that don't much care for the theory in Chemistry and Physics often enjoy the experimental side. The physicality of colour changing and violent reactions makes it exciting and a bit dangerous. It also allows for student interaction and control. Some of these qualities can be re-created virtually whether in a 2 or 3 dimensional room. It could be arranged with different isles of equipment or as a universe you travel in. Each subject would have its own room.

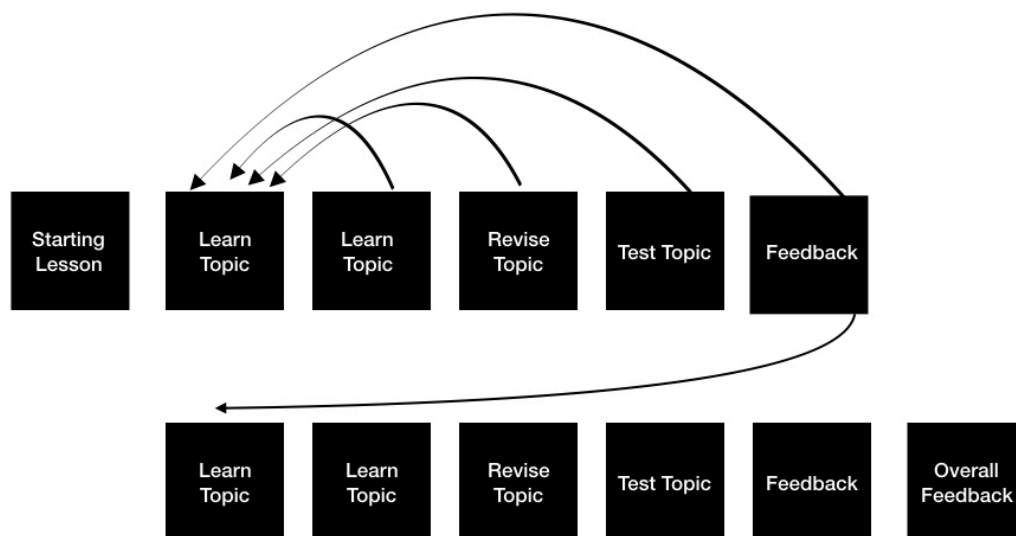
If the room is created to a quality that makes it inherently exciting, gaining access would be a reward. All students should be allowed a bit of time in the room, but more time could be given to students for accomplishments. By finishing the lesson early and passing all the review questions, a student should be rewarded extra time. By helping other students

get through being stuck, there should also be time rewarded.

Lessons and Chapters

Lessons are divided into chapters like a book. You can start over on the chapter if you're stuck. At the end of a chapter you review what you learned with puzzles and questions. After the review the student is given a brief feedback by the presenter, and then moves on to the next chapter. This is also a place where the presenter could ask the student what she liked the best, or suggest helping other students progress.

If a student doesn't move forward at a pace that is within normal for the student and/or other students, the application asks if she needs help getting unstuck. (See ideation) The application should keep track of the actual pace, and adjust expectations.



Different Learning Styles

Some students learn better from certain styles than others. By having more than one form, those that don't cater to the first, get a second chance. Repetition is also important for retention, so by having more than one presentation of the same ideas in different forms the learning potentially increases.

Foster Collaboration

"Inclusivity: there is no such thing as an 'average' child, and collaborative learning plays to this. It can give outlier students unique ways forward. They bring their own strength and skills, which are recognised and valued by other students. Effective collaboration recognises the merit of everyone in the group, allowing each child to work to their strengths and gain support from others when needed." (From Promethean World)

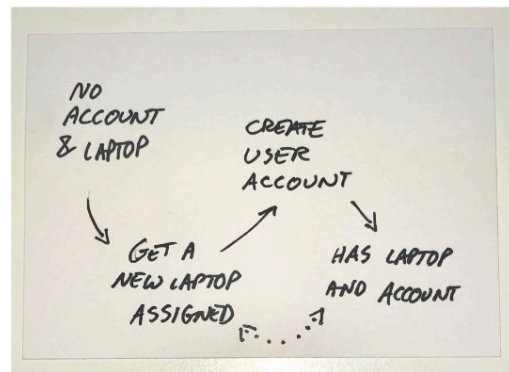
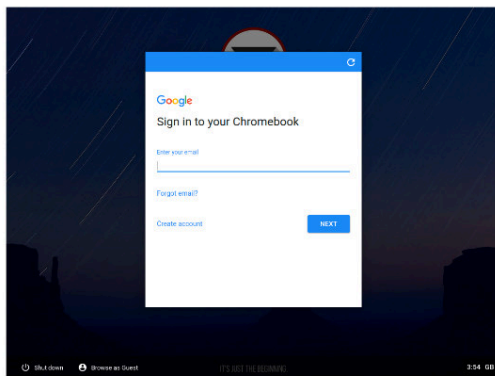
At the end of a lesson the student is awarded stars for completing each of the chapters. If the student took time to help others progress they were awarded hearts. The teacher

might also have an option to award hearts to students that excel in the way they collaborate. The collaboration part is clearly important to get students used to, so the teaching principles used with this software will hopefully delve more into that.

Scenario: Taking Ownership of Laptop

The common setup for School laptops is that each child has their own laptop. So they log in and continue from where they left off as a routine part of using the laptop. An alternative is to assign a laptop to each kid when they arrive at school each morning.

In both cases the scenario is that they get assigned a laptop to which they must Sign Up or Sign In.



Scenario: Visiting without a Class

When Ali (one of our students) opens his laptop, he sees the Alef icon on his dashboard that takes him to the Alef homepage. Let's say it's alef.com

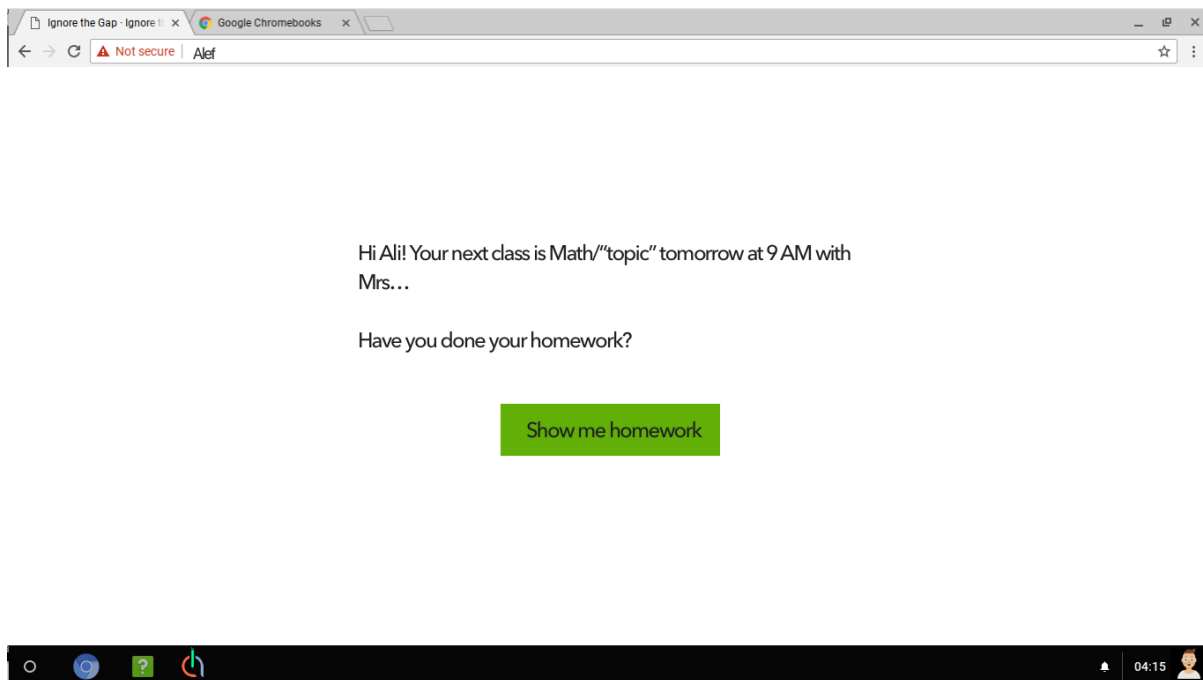
The attendance is based on using a Chromebook and being logged in with a Google account.

The Alef website can check for this and only show the Classroom Application in that case.

Other visitors would just see the regular Alef homepage.

When Ali clicks the Alef icon, the only thing he wants to know outside attending the class is

- When the next class is starting
- The topic (so I know what to expect)
- Link to homework (in case there's one)



Scenario: Joining a Lesson

When Caro (our student persona) enters the classroom and takes a sit, the first thing she does is opening the laptop. As she already has the browser open on the Alef page, the beginning of the lesson is displayed on the webpage.

As Caro sits down the teacher brings the class to order and instructs them to start the lesson on their laptop.

How to introduce the lesson/topic?

Is the topic of the lesson introduced by the teacher or by the interface? How do we set the tone and students expectations for what they are about to learn?

By making the introduction of the lesson more like a friendly conversation, Caro can just focus on the topic at hand, and find out what she already knows about the content.

Scenario: Doing an Exercise

When Caro learns in the Digital Classroom, she does so by doing exercises. One after another until the class is completed. She interacts with some of the content to give her own answers and solutions, and sometimes manipulates virtual mechanisms to learn by trying/experimentation as you might do in the real world. This is why she uses software on a Personal Laptop.

As she finishes an exercise she would like to know how well she did, and might be curious how the other students are doing as well. In order to foster collaboration, and challenging of the self rather than competition and egocentrism, scores are kept private and no ranking is done. She also doesn't get a score for the class overall.

The teacher can see the progress through exercises of the class on the Alef website, easily knowing which students are ahead, and which need help.

Other Scenarios

I have identified further Scenarios to test against,

- Finishing top of Class
- Finishing the Lesson before the others
- Student is Ill at Home