StudySnap

All of your study material in one document

Individual capstone project in UX Design course on Springboard.com

The brief: execute an idea for an app or website using the user experience design toolkit.

TABLE OF CONTENTS

Project concept

INSPIRATION

When I was in college studying for cognitive neuroscience, I became frustrated with the sheer amount of stuff in front of me: textbook, notebook, and laptop with several tabs open. Switching from one mode to another tended to break my focus, but I needed the variety of tools so I could both memorize principles and understand complex systems. I thought about how not all material is best reviewed in the same way, and I wished I could somehow condense my study routine. After talking to a few friends about my dilemma, it turned out I was not alone.

A year later when I began the UX design course post-graduation, I thought this project would be the perfect opportunity to explore a solution to the problem. So I sought to answer the question, **how can you bundle the most common study methods into a single tool** in order to **reduce the number of separate study materials** and **increase student focus?**

DESIGN

Target audience: college students

According to scientific literature on the psychology of learning, information is better remembered when the learner generates it from their own mind rather than simply reading it. In the context of studying, such generation translates into **taking the content you've learned and organizing it in your own way.** Additionally, the notion that **taking notes by hand rather than by typing more effectively drills information into one's memory** is common knowledge in psychology (and, of course, also backed by scientific literature).

Taking the above into account, I determined that students should be able to take notes by hand and then use the study tool I create to organize their notes in ways that best support their study strategies. However, the tool would also support typed notes for those who value the speed of typing over the effectiveness of hand-writing.

I also determined that the tool would allow students to create study guides that incorporate several styles of material – for example, flowcharts, sets of terms and definitions, links to helpful videos, etc. Students would also be able to review what they created.

RESEARCH

Since I still lived in my college town at the time of this project, I had access to a broad student population and decided to reach out to people in various organizations to obtain research participants.

Although the inspiration for this project came from my own experience as a student, I knew how important it would be to **minimize personal bias as much as possible in the research I did and the design implementations I determined from that research.**

User research

GOAL

Gain detailed insight into how college students study, challenges they face in doing so, prior experience with digital study tools, and study methods or resources specific to different academic fields

METHOD

Since I wanted information from many people to start with, I created and distributed a screener survey using Google Forms. I reached out to participants via email and GroupMe through various channels for student organizations.

In the survey I included a question asking if the participant would be willing to participate in a more detailed interview. That way I could dig deeper with a few individuals and then center the design on their needs.

SURVEY QUESTIONS

How do you study? Mark all that apply.
- [ ] Take/read handwritten notes
- [ ] Take/read typed notes
- [ ] Re-read textbook or other class materials
- [ ] Use physical flashcards
- [ ] Use online flashcards
- [ ] Find and watch online videos on my own (not provided in class) that reinforce the material
- [ ] Read articles on my own (not provided in class) that reinforce the material
- [ ] Quiz myself on my own
- [ ] Have someone else quiz me
- [ ] Form a study group
- [ ] Other:

Which of the above methods are most essential to your study routine? Please choose up to 3 and include why for each method.

What are some typical challenges that you encounter while studying? Mark all that apply.
- [ ] I struggle to take good notes.
- [ ] I have trouble sticking to a study schedule.
- [ ] I find it hard to motivate myself to study.
- [ ] I find myself needing to search the web for helpful content outside the classroom.
- [ ] I have trouble reminding myself to study.
- [ ] I am a visual learner, and it's hard for me to study well if I can't have images in front of me.
- [ ] I study a lot of terms that are part of systems, and it's hard to keep track of how everything works together.
- [ ] I find it hard to remember names and relationships of characters in literature I am studying.
- [ ] I'm a busy person, and fitting study sessions into my schedule is tricky.
- [ ] I am so stressed with all of the content I have to study, that I don't know where to start.
- [ ] Other:

Which of the above challenges are the most detrimental to your study routine? Please choose up to 3 and include why for each challenge.

What is your major, double-major, and/or minor? If undecided, what area of study interests you the most?

What's something particularly important to know when studying for your major? If undecided, comment on the area of study that interests you the most.
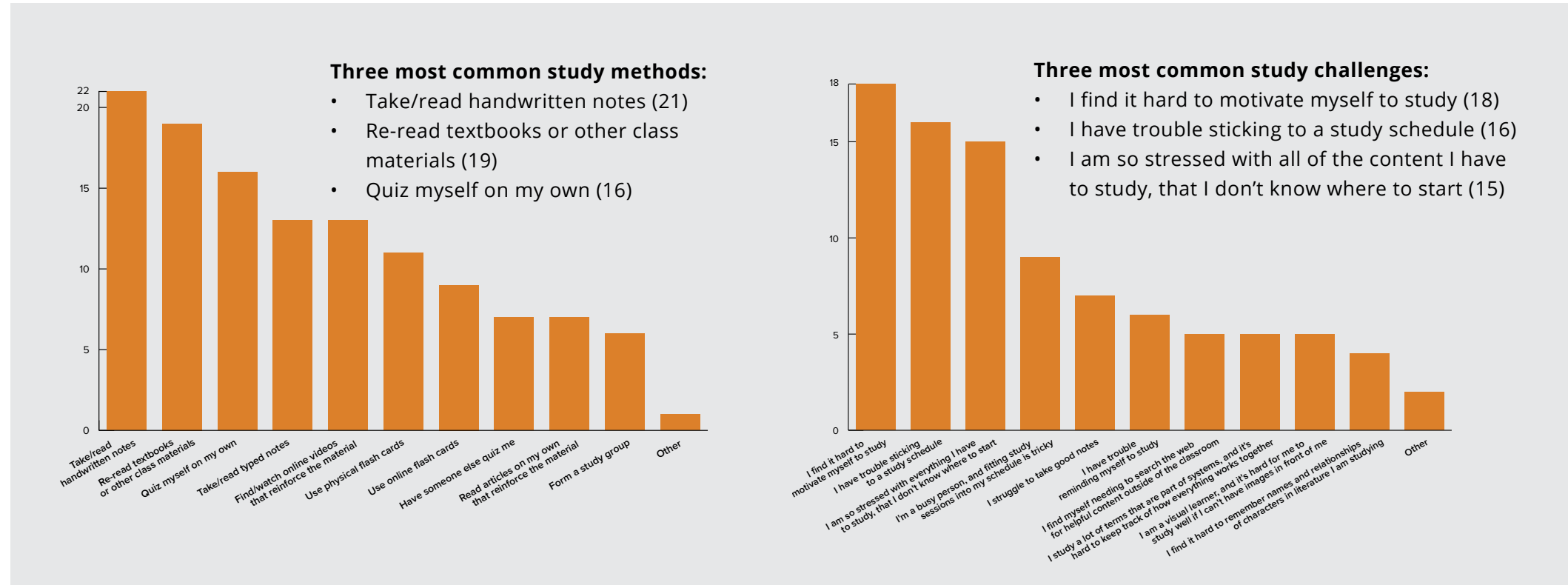
What web or mobile study technology have you used during your time in college? List all sites and apps that you can remember. If you have not used web or mobile study technology in college, enter "N/A."

If you are willing to participate in a short interview as a follow-up to this form, please enter your email below so we can contact you. Your email will not be used for purposes outside the study.

User research (2 of 8)

SUMMARY OF RESULTS

Total participants: 22

Three most common study methods:
- Take/read handwritten notes (21)
- Re-read textbooks or other class materials (19)
- Quiz myself on my own (16)

Three most common study challenges:
- I find it hard to motivate myself to study (18)
- I have trouble sticking to a study schedule (16)
- I am so stressed with all of the content I have to study, that I don't know where to start (15)

Three most common digital study aids:
- Quizlet (13)
- YouTube (5)
- Khan Academy (4)

*There was a large number of different study aids that were reported only once or twice.

The participants showed a wide variety of different majors and fields of interest in STEM, humanities, fine arts, and education. They also reported a wide variety of field-specific priorities for studying.

User research (3 of 8)

INTERVIEWS

Three participants from the screener survey said they were willing to participate in an interview. I emailed them to schedule the interviews and allowed them to choose between a video chat and a phone call. While video chat would allow me to get the most out of each participant's personality, I did not want anyone who might be uncomfortable with a video chat to be out of their comfort zone.

QUESTIONS FOR ALL PARTICIPANTS

What computer and/or mobile devices do you use regularly?

Walk me through your study process. This can be how you typically study for certain courses or subjects, or how you study in general.

What puts you in a good mood for studying?

In the questionnaire, I use the words "study technology" a lot. This means any web or mobile service designed to help with any part of the study process. Given this definition, what is your opinion of study technology in general?
Why do you feel that way about X?

What task or tasks take you the longest amount of time when you're studying?
Why?

QUESTIONS FOR INDIVIDUAL PARTICIPANTS

Participant A:

How do you study for music?

In the questionnaire, you indicated that your toughest study challenge is motivation. Tell me more about your experience with that challenge.
Once you have finally gotten yourself to begin studying, do you find it hard to keep studying?

Tell me about your experience using Quizlet.
What do you find most helpful about Quizlet?
Is there anything you wish you could change about Quizlet?

Tell me about your experience using Evernote.
What do you find most helpful about Evernote?
Is there anything you wish you could change about Evernote?

Tell me about your experience using Microsoft OneNote.
What do you find most helpful about Microsoft OneNote?
Is there anything you wish you could change about Microsoft OneNote?

Participant B:

Tell me more about how you study for math.
Do any of your classes use online textbooks or learning tools, such as Webassign? If so, what's your experience using it/them?

In the questionnaire, you indicated that your toughest study challenge is not knowing where to start. Tell me more about your experience with that challenge.
Do you have a method of organizing material before you study it?

You indicated in the questionnaire that you don't use study technology. Is there something specific about it that makes you not want to use it?

Are you open to trying new study technology? If so, are there any features that you need to be included in order for you to use such technology?

User research (4 of 8)

Participant C:

How do you study for environmental science?

In the questionnaire, you indicated that your toughest study challenges are motivation and sticking to a study schedule. Tell me more about your experience with those challenges.

Tell me about your experience using Quizlet.
What do you find most helpful about Quizlet?
Is there anything you wish you could change about Quizlet?

Tell me about your experience using YouTube for studying.
What do you find most helpful about YouTube for studying?
Is there anything you wish you could change about your study experience on YouTube?

Study Technology Questionnaire

Although there are some pretty useful digital study tools out there today, we think they could be better. To design a web and/or mobile study tool that truly meets the needs of students like you, we want to hear about your experience. If you're a recent graduate, feel free to comment on your experience in college and/or post-grad education.

* Required

How do you typically study? Mark all that apply. *

☐ Take/read handwritten notes

☐ Take/read typed notes

☐ Re-read textbooks or other class materials

☐ Use physical flash cards

☐ Use online flash cards

☐ Find and watch online videos on my own (not provided in class) that reinforce the material

User research (5 of 8)

SUMMARY OF RESULTS

All three interviewees reported using laptop and mobile devices the most frequently. Individual thoughts, feelings, actions, and problems are summarized in the following tables.

	Thoughts	Feelings	Actions	Problems
Participant A	Being able to talk about study material with others is important to me. Even explaining concepts to someone not in my class can help me better understand them. Being in the right environment is important. I can't be very productive sitting alone at home. Instead I need to be at a public library, coffee shop, or other place where other people are also working. Study technology makes studying much easier for me because I can do many of the things I'd otherwise do offline faster. Being able to collaborate with other students on study materials is one of my favorite features of study technology. It allows you to divide and conquer so you have more time to actually review.	I feel happy when I see progress from answering questions correctly when quizzing myself or being quizzed by others. I feel better when I get closer to being done. Other than that, studying in general is pretty boring. I don't like when Quizlet tries to autocorrect or translate my typing – I want complete control over my online flashcards, as I would have with physical ones. I wish there were a way for me to have all of my study material in the same place.	I like to find other students who can quiz me and talk about the content with me so I can reinforce it. Before getting with a group, I go over my notes and organize them. When I procrastinate, I usually talk myself into doing something else productive, like homework for another class, because at least I'm getting something done. I make "cheat sheets" to condense the information I need to study, so that I can glance at them before exams. I sometimes listen to audio files when studying for music classes.	It's easy for me to procrastinate. Once I can get myself started I'm usually fine continuing throughout the week, but motivating myself to start is a challenge. It's the element of studying that takes me the longest. My work is scattered across many different study methods.

User research (6 of 8)

	Thoughts	Feelings	Actions	Problems
Participant B	It's critical that the material I study be intuitive to me before I go memorizing it.

MIT OpenCourseWare is helpful, because it allows you to watch video lectures that give you a different take on the material you're studying for your class.

Being able to quiz myself is a useful feature of study technology, especially when I get instant feedback on my performance.

I would use study technology if it suited my needs for more advanced material.

When calculating math problems line by line, it's easier just to hand-write them. But if something could transcribe a picture of my math notes so that I could easily work with them online, that would be cool. | Drinking coffee, sitting at a desk, and having soft simple beats in the background put me in a good mood for studying. They make me feel more comfortable and alone with the material.

I like that some study technology is becoming more professional, like how Crash Course and Khan Academy have actual teachers explaining concepts in their videos.

I get frustrated when it seems like there's too much material for me to study for the amount of time I have.

When large amounts of material are broken down into smaller chunks, studying becomes a bit less depressing. | I sit down with my notes, book, and computer when I first go through study material, quizzing myself as I go.

If I still don't understand the material, I go online to find videos that will help me understand it.

I learn proofs in my math classes and write summaries of them that help build more advanced concepts on top of the easier ones. | As I move into more advanced math classes, existing study technology becomes less relevant to me. It's become harder to find videos that explain math concepts past multivariable calculus and linear algebra, for example.

I like typing, but it's too inconvenient for my math classes, since there are a lot of symbols not found in a traditional keyboard.

I tend to procrastinate when the study material is overwhelmingly large and not broken down into chunks for me. |

User research (7 of 8)

	Thoughts	Feelings	Actions	Problems
Participant C	Hand-writing your notes is better for understanding them. I only type if the information is thrown too quickly at me in lecture to write, or if I get lazy and want to switch to an easier mode of note-taking. I'm satisfied with hand-writing as a study medium. It's easier for me to hand-write/draw mathematical symbols and diagrams than to try to type them. I find the various quiz options on Quizlet extremely helpful. The teacher's approach and how organized and concise they teach has a strong influence on the study methods I choose. I'm a visual learner, so viewing images helps me understand the material. I create my best work under pressure when it's an essay or a paper, but that doesn't work for other assignments or study materials. Quizlet's providing its own definitions and pictures to match my terms is a great feature. The YouTube videos I find help give me a visual representation of processes I need to understand.	Caffeine and a large workspace (room size and desk space to spread out laptop, book, notes) put me in a good mood for studying. Listening to instrumental music also helps.	I go back and look through all my notes, annotating them and highlighting and underlining important points. I write summary notes on a separate sheet of paper, condensing the information from the previous notes into something I can easily review. I have used Microsoft OneNote occasionally for when I'd forget my notebook in class. I also used it to make a quick study guide for a summer class. I go back to lecture slides and review them. I make a study plan that is front-heavy to account for my procrastination that will happen later on.	Reading my notes over and over again takes me a very long time. Annotating my notes takes a long time if the professor is not straightforward with delivering information. I'm a chronic procrastinator. If I can put it off, I almost always will. It has been a challenge convincing myself to get stuff done earlier, but I'm getting better at it.

User research (8 of 8)

OPPORTUNITIES FOR DESIGN

The information collected from the survey and the interviews really shed light on students' study experiences as I had hoped. From those findings I found many opportunities for design, which are listed below in the form of affordances (not getting into specific features just yet).

Make study guides (Participants A and C)

Collaborate on study material with others (Participant A)

Type notes (Participants A and B)

Organize notes (all participants)

Quiz oneself (all participants)

Heuristic analysis of competitors

INTRODUCTION

While each competitor site includes a variety of features, each has a different primary selling point: smart note taking (Evernote), variety of learning tools (GoConqr), and easy online flashcards (Quizlet).

I analyzed these sites using three of the Nielson Norman Group's heuristic principles: match between system and the real world, aesthetic and minimalist design, and flexibility and efficiency of use.

Of the three sites, Evernote seemed to provide the best match between system and real world, as well as the best aesthetic and minimalist design. GoConqr and Quizlet both exhibited a strong flexibility and efficiency of use. While there was not a significant number of negative attributes given the success and popularity of these sites, GoConqr's measure of aesthetic and minimalist design showed a lot of room for improvement.

Heuristic analysis of competitors (2 of 4)

Evernote

Match between system and the real world

Uses student and classroom terminology. For example, "notebooks" are collections of notes, in the same way that file folders are collections of files

Uses conventional action words like "share" and "duplicate"

Uses a relevant user goal as the description for each subscription plan. For example, description for Evernote Business is "Bring your team together"

Uses the words "We've made some changes to make your experience better" rather than something like "We've updated our interface"

Does not let users drag items into trash within left panel. Including this standard affordance would have more closely emulated the act of throwing something away

Aesthetic and minimalist design

Allows for note taking to occupy the majority of visual space, with options neatly presented as icons or in panels off to the side

Avoids superfluous language in showing the differences between subscription plans, by presenting a concise chart. All possible affordances are listed under each plan, next to an empty circle (not available), a half-filled circle (some features), or a full circle (all features)

Shows "Sign up or log in" in both footer and sticky header. This is redundant since header is visible throughout scroll

Flexibility and efficiency of use

Includes full screen mode for note taking

Includes ability to create shortcuts for individual notes

Includes "remember me for 30 days" at login

Does not let users drag items into trash within left panel. Including this standard affordance would have allowed users to delete several items in close succession on the same page

Heuristic analysis of competitors (3 of 4)

GoConqr

Match between system and the real world

Uses academic terminology, such as "Subjects" and "Courses," to label the left menu options

Includes message relatable to target audience: "Studying alone is no fun. Invite other users to be your friends and start sharing content" (when friend list is empty)

Uses the words "Marketplace Shop" in left menu to label feature that allows premium members to sell the courses they create. The function of this feature is unknown until user clicks on it and reads description on the next page. Label could be changed to something more relevant to and understandable for the user

Aesthetic and minimalist design

Uses simple, easy-to-understand graphics paired with concise language to present what GoConqr has to offer in pre-login page

Uses icons next to text, rather than in place of it, in left menu. This is redundant, since the words are easy to understand without images. If using icons is preferable to using text, the existing icons should be simplified in color and detail, and easy to understand without text

Includes "Can't find anything you need? Click an icon below to create your own content" above a row of icons. Users should not be told to click on something; the icons should speak for themselves or be replaced with words

Flexibility and efficiency of use

Provides a variety of templates for "slide set" creation, including "Text only," "Media with text," and "Resources with text"

Includes wide selection of options for customizing both sides of flashcards

Includes "Library," which allows users to browse and review public, user-made study resources

Overcrowds most pages with text and images, making it take longer for the user to find what they need and complete tasks

Does not provide an immediate solution when user has joined no groups. Instead, upon seeing that no groups are in list, user must visually search for "Discover groups" elsewhere on the page, in order to create them. This process takes up extra time

Heuristic analysis of competitors (4 of 4)

Quizlet

Match between system and the real world

Includes animation that flips flashcards when user is ready, which emulates flipping of real, physical flashcards

Tells the user which cards they often miss, after user completes some review sessions of a set. This reflects what students do when they track what material they tend to struggle with in order to improve

Uses conventional icons for actions: a pencil for "edit," and a star for bookmarking cards of importance

Uses a default card design that is flat. Adding even a small amount of dimension, such as shadow or texture, could make cards appear closer to real, physical flashcards

Aesthetic and minimalist design

Lists simple, concise options under user profile in top right corner, with faint lines separating different types of options

Places "Quizlet news" feature in left panel below menu. Since most features in panel are more goal-focused, news would be better placed elsewhere, such as the top menu or farther down in the main body of the homepage. This would clean up the left panel

Flexibility and efficiency of use

Allows user to click or press the spacebar to flip a card

Provides several options for studying sets, including traditional flashcards, filling in the blanks, and a typing game

Provides card shuffle option, ability to see term or definition first, and other options that customize the flashcard experience

Provides a list of keyboard shortcuts

Includes so many customizable options, that the scale of the interface might seem overwhelming to some users

Personas and empathy maps

> *"I need a large workspace so I can focus and spread out my work."*

Proactive Paige

Paige is a college senior and Environmental Science major. She prefers to hand-write most of her notes, and she goes to great lengths to organize them.

Paige works best when she can find a spacious room and spread out her work on a large desk that will accommodate her laptop, books, notebooks, and writing utensils. Since she is a visual learner, she likes to find YouTube videos that reinforce the material by explaining a system or process visually, and she likes when Quizlet suggests pictures for her flash cards.

Organized

Proactive

Creative

Flexible
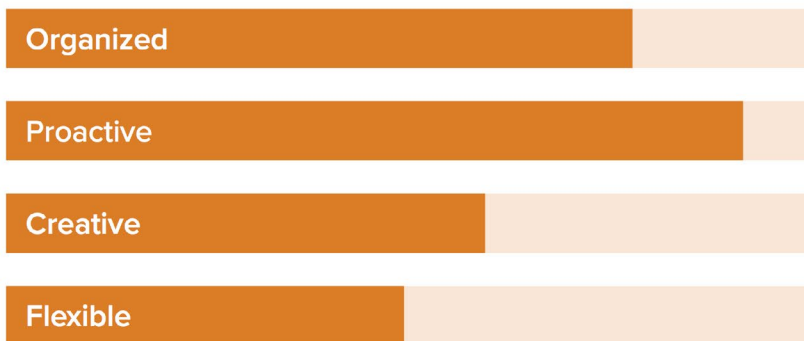
NEEDS

• Caffeine

• A large workspace

• Visual learning tools

BEHAVIORS

• Highlighting and annotating notes

• Condensing notes into summary sheets

• Re-reading material

GOALS

• Structure the study material

• Create a study plan that accounts for inevitable procrastination

FRUSTRATIONS

• Unstructured lectures often force her to organize the material herself

• Since most of her notes are hand-written, annotating and reviewing them takes a long time

Personas and empathy maps (2 of 6)

THINK AND FEEL

• Hand writing my notes will help me understand the material better than typing

• I'm glad I was able to find a large desk with a free seat at the library

• Wait... is that decaf?

• There are so many different steps involved in protein synthesis. I have to memorize all of these and their order to do well on next week's exam

SEE

• My professor's slides are garbage. How will I make sense of these later?

• A variety of color in my notebook for different types of information

• My professor is starting to draw diagrams. I'll just jot them down. What are the people with only their laptops doing?
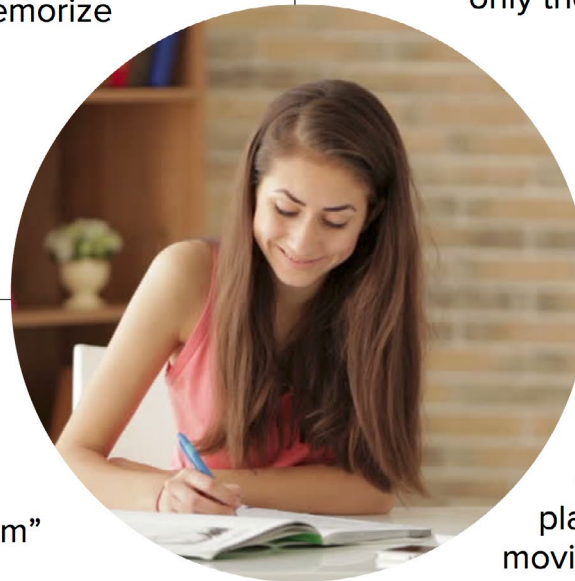
HEAR

• "The mitochondria is the powerhouse of the cell"

• "Yes, these WILL be on the exam"

• "You'll have to memorize these formulas by Monday"

• "She said it's due on the 24th. But last week she said it was due on the 27th"

• "Can I borrow that highlighter for a second?"

SAY AND DO

• I'm a chronic procrastinator

• I'm in the mood for a Spotify playlist with an instrumental movie score

• I've been reviewing the same section of notes for about an hour, to memorize as much as possible

• I was actually able to get a good amount of studying done this weekend. I can probably relax more this week

"Working with other people is important to me."

Collaborative Khalil

Khalil is a college junior and Music major. He works well in groups, and one of his favorite aspects of study tech is the ability to divide and conquer the material by working on the same study documents with others.

Khalil's knack for collaboration stems from his desire save time in the study process. Just having the ability to type greatly benefits his study routine. That being said, his work is spread across many different channels, and he wishes he could accomplish more tasks in the same space.

Organized

Proactive

Creative

Flexible
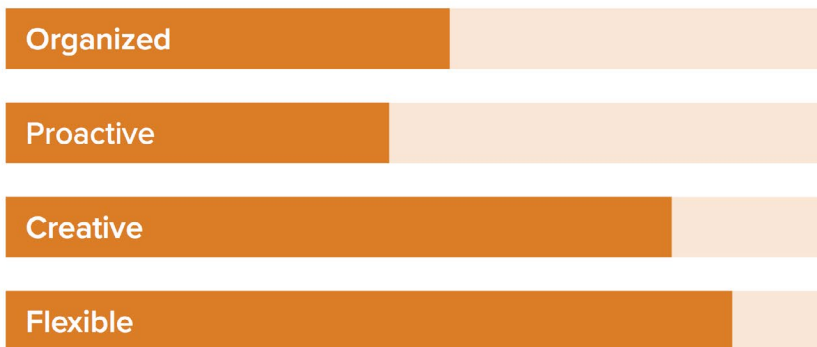
NEEDS

• Study groups

• A way to listen to audio files for exams in music classes

• Caffeine

BEHAVIORS

• Condensing notes into cheat sheets to glance at right before the exam

• Reviewing and organizing notes before joining a study group

GOAL

• Reduce the number of channels used to study

FRUSTRATIONS

• Khalil struggles to motivate himself to get started

• It takes longer to study when Khalil needs to open his notes, his book, and several tabs on his browser

Personas and empathy maps (4 of 6)

THINK AND FEEL

- I need to spend some time with my notes before I go over them with Andrew
- I wish I felt like studying today, but it's not gonna happen
- None of my friends are free yet, so I'm gonna prioritize cleaning my room
- Finding a time that works for Amy is becoming frustrating

SEE

- Alyssa already finished her section of the Google Doc, but it looks like Peter has barely started
- This table should have enough seats for all of us
- Look at all these correct answers on Quizlet. Finally!

HEAR

- "We need to go over this part, starting on measure 34"
- "Do you have enough time to finish the arrangement by Friday?"
- "You have so much open on your laptop. Do you need all these?"
- "I promise I'll get this part done by the end of the day"

SAY AND DO

- The wifi is slower than my thoughts right now
- This seems important, so I'm adding it to the cheat sheet
- Rehearsal lasted three hours today. I'll get a large coffee this time so I can be more productive
- I'm going to explain this concept to Isabel. Even though she's not in my class, it'll help me understand the material

"I need to understand the material before I go memorizing it."

Methodical Martin

Martin is a college sophomore and Math major. To begin studying, he goes through his notes to make sure he understands all the material and its structure, quizzing himself as he goes. Since Martin uses symbols in his mathematical proofs, he finds it easier just to hand write. However, he would appreciate a way to work online, if it were just as easy.

While most study tech isn't compatible with Martin's advanced work in multi-variable calculus, he can sometimes find helpful lecture videos on MIT OpenCourseWare.

Organized

Proactive

Creative

Flexible

NEEDS

• A way to solidify his understanding of the material

• Control over the format of his work

• Soft instrumental music to stay focused

• Caffeine

BEHAVIORS

• Quizzing himself as he reviews his notes

• Hand writing mathematical proofs and equations

• Searching for helpful videos on MIT OpenCourseWare and Kahn Academy

GOAL

• Finding a streamlined way to take his work online for quick editing abilities

FRUSTRATION

• Martin procrastinates when the amount of material is overwhelmingly large and not organized into chunks

Personas and empathy maps (6 of 6)

THINK AND FEEL

• My professor didn't explain this very well. I hope Kahn Academy has a video for this

• I don't like when Quizlet tries to auto-correct or translate my typing — I want complete control over my online flashcards, as I would with physical ones

• Sometimes I wish I could just edit instead of erase

SEE

• These graphs are pretty complex, but I think I've made a similar one before

• "Mellow beats" looks like a good playlist for today

• This OpenCourseWare video is kind of long, but I already understand the material better

• I'm running out of room on the paper and don't want to use another just to write one line
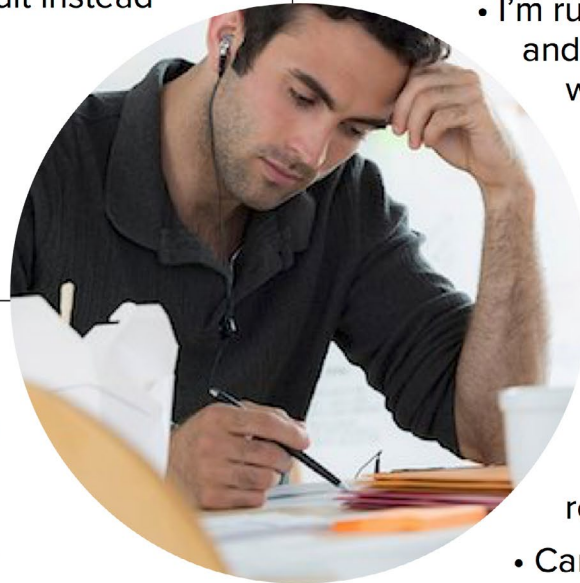
HEAR

• "Did he say e to the fifth or e to the sixth?"

• "You could probably just use Theorem 28 before you do that"

• "You're allowed to use Wolfram Alpha on the homework for this week"

• "This class is typically for fourth-years only, but I'll see if there's room for you to join us"

SAY AND DO

• Okay, I'm done with this section. I'll see what I can remember without looking

• Can't we just condense that into two sentences?

• I've been writing for a while. Maybe I'll switch to something I can type

User stories

KEY FEATURES FOR MINIMUM VIABLE PRODUCT

Take notes   Collaborate   Review material
Create study guides Take a quiz   Take short quizzes
Use a template

Feature	User story	Implementation
Take notes	**"As a user, I want to type my notes so I can keep up with the faster lectures."**	A panel for note-taking
Create study guides	**"As a user, I want to create study guides so I can structure and condense the material into something that is easy to read and digestible to review."**	A document where users can drag and drop chunks of study material to form a condensed study guide. The chunks should be arranged into a card-based UI for easy-to-read functionality
Use a template	**"As a user, I want to condense my study routine so I can save time and minimize distractions."**	A selection of different templates for structuring information
Collaborate	**"As a user, I want to collaborate on study material with others so I can save time."**	A document sharing system
Take a quiz	**"As a user, I want to quiz myself so I can check my understanding of the material."**	A quiz feature that generates fill-in-the-blank and multiple-choice questions from chunks of study material
Review material	**"As a user, I want to review my study guide so I can remember the material."**	A presentation-style review feature in which users can flip through information using the arrow keys or swipe
Take short quizzes	**"As a user, I want to study in short bursts so I can tackle the material without being overwhelmed."**	An optional feature that sends single quiz questions to one's mobile and/or desktop as notifications with selections of buttons containing the right answer

Card sort and site map

METHOD

I conducted a handwritten card sort with three of my friends from college. Prior to the official tests, I did a trial run with one participant, through which I realized that the tasks on each of my cards needed to be re-written.

Trial run
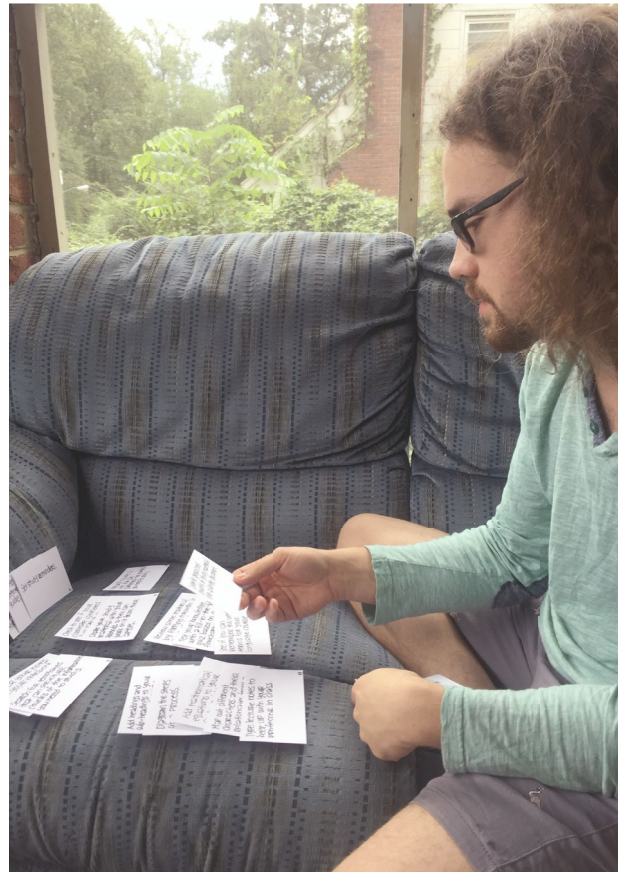
FINAL CARD SET

Test your knowledge with a fill-in-the-blank quiz.

Decide whether and how frequently you'd like to receive quiz questions in notification form.

Change the color scheme.

Type lecture notes to keep up with your professor in class.

Quiz yourself on this week's terms for your language course.

Set study reminders.

Watch a tutorial on how to use the website.

Set goals for completing or reviewing sections of study material.

Annotate your study material.

Create a set of terms and definitions.

Read about the benefit of making your own study guide.

Transfer notes from your notebook to your laptop.

Check to see if your classmate completed their part of a collaborative document.

Add headings and sub-headings.

Diagram the steps of a process.

Enter a link to add a video to your study material.

Share your study material with your friends so they can work on it from their laptops.

Add mathematical equations to your study material.

Review material by flipping through it like a slideshow.

Map out different characters and their relationships from a book you are reading.

Card sort and site map (2 of 3)

RESULTS

All participants grouped and named the cards in very different ways. This could mean that the card content was ambiguous, or that it was flexible enough to be grouped successfully in many different ways. For the most part, the participants' difficulties weren't related to the cards themselves, but how to group them.

None of the participants used a consistent system to group the cards, and the names they provided were fairly wordy. If I were to conduct the sort again, I would provide more specific rules for grouping: to base the groupings on a common criterion, and to try to come up with names that one could imagine as actual names of features on a website. That way I could find out if the cards themselves required another iteration.

Knowing that study tech often includes a large number of features with both lateral and hierarchical connections, I expected the card sort and analysis to be somewhat difficult. I used the participants' input to point me in the right direction the best that I could.

Sort with final set of cards

Matrix of card pairs. I prioritized agreement of 2/3 and 3/3 for grouping

1. Transfer notes from your notebook to your laptop.
0 | 2. Check to see if your classmate completed their part of a collaborative document.
1 | 0 | 3. Add headings and sub-headings.
0 | 1 | 0 | 4. Diagram the steps of a process.
1 | 0 | 2 | 0 | 5. Enter a link to add a video to your study material.
0 | 3 | 0 | 1 | 0 | 6. Share your study material with your friends so they can work on it from their laptops.
0 | 0 | 2 | 1 | 1 | 0 | 7. Add mathematical equations to your study material.
1 | 1 | 1 | 1 | 1 | 1 | 0 | 8. Review material by flipping through it like a slideshow.
1 | 1 | 1 | 2 | 1 | 1 | 0 | 2 | 9. Map out different characters and their relationships from a book you are reading.
1 | 1 | 1 | 1 | 1 | 1 | 0 | 3 | 2 | 10. Test your knowledge with a fill-in-the-blank quiz.
0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 11. Decide whether and how frequently you'd like to receive quiz questions in notification form.
0 | 0 | 2 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 12. Change the color scheme.
3 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 13. Type lecture notes to keep up with your professor in class.
0 | 1 | 0 | 2 | 0 | 1 | 1 | 2 | 1 | 2 | 1 | 0 | 0 | 14. Quiz yourself on this week's terms for your language course.
0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 1 | 0 | 1 | 15. Set study reminders.
1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 16. Watch a tutorial on how to use the website.
0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 3 | 1 | 0 | 1 | 3 | 1 | 17. Set goals for completing or reviewing sections of study material.
0 | 1 | 1 | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 0 | 18. Annotate your study material.
0 | 0 | 2 | 1 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 2 | 19. Create a set of terms and definitions.
2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 20. Read about the benefit of making your own study guide.

Card sort and site map (3 of 3)

Site map
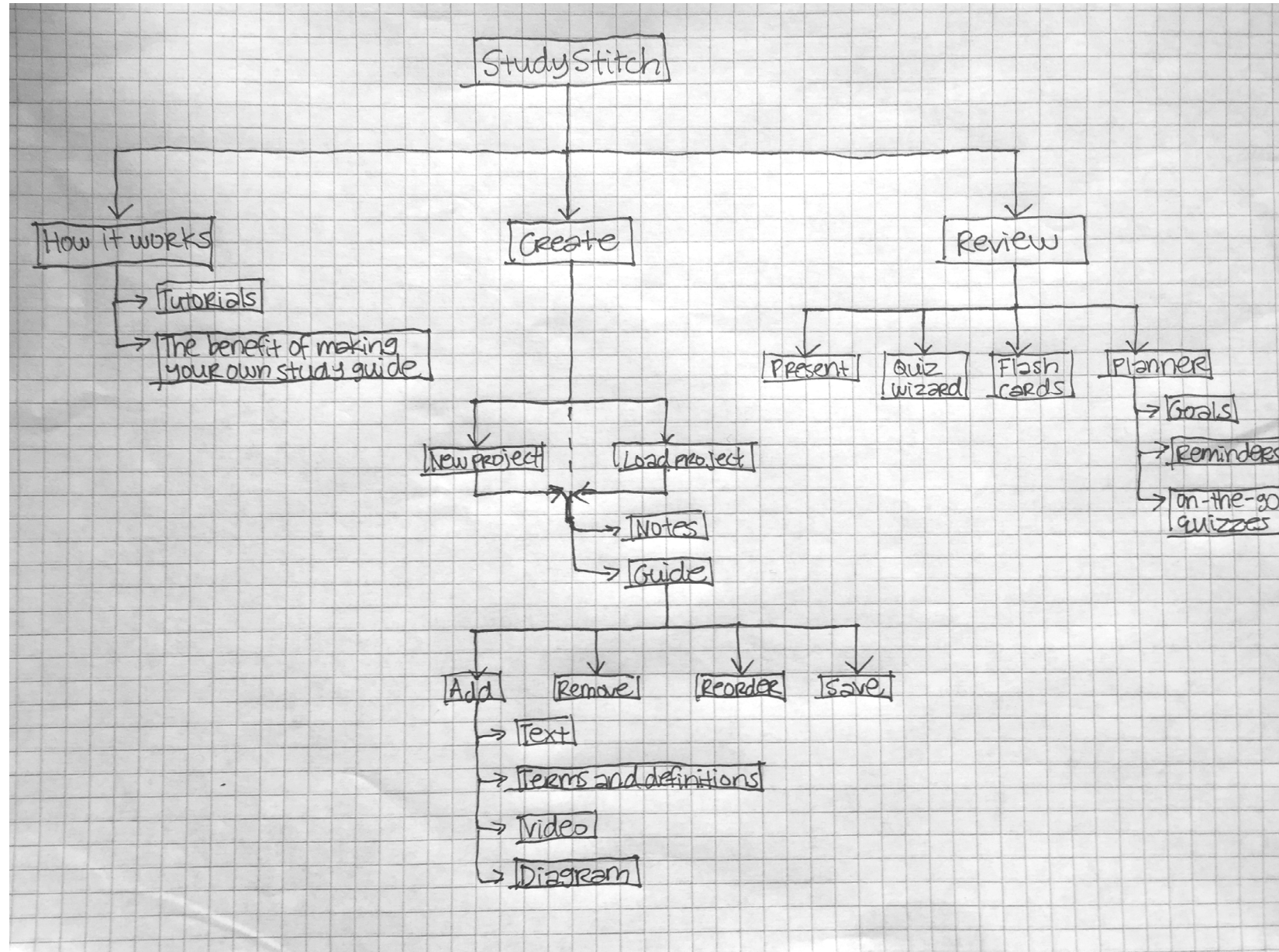
User flows

Proactive Paige
Wants to set a reminder to plan her studying

HOME (not logged in) → LOG IN → [SOCIAL MEDIA or EMAIL PASSWORD] → ◆ → LOGIN SUCCESSFUL

◆ → INVALID LOGIN

LOGIN SUCCESSFUL → HOME (logged in)

HOME (logged in) → REVIEW → PLANNER → REMINDERS → ADD → [TASK OR EVENT NOTIFY ME → DATE TIME] → REMINDER ADDED
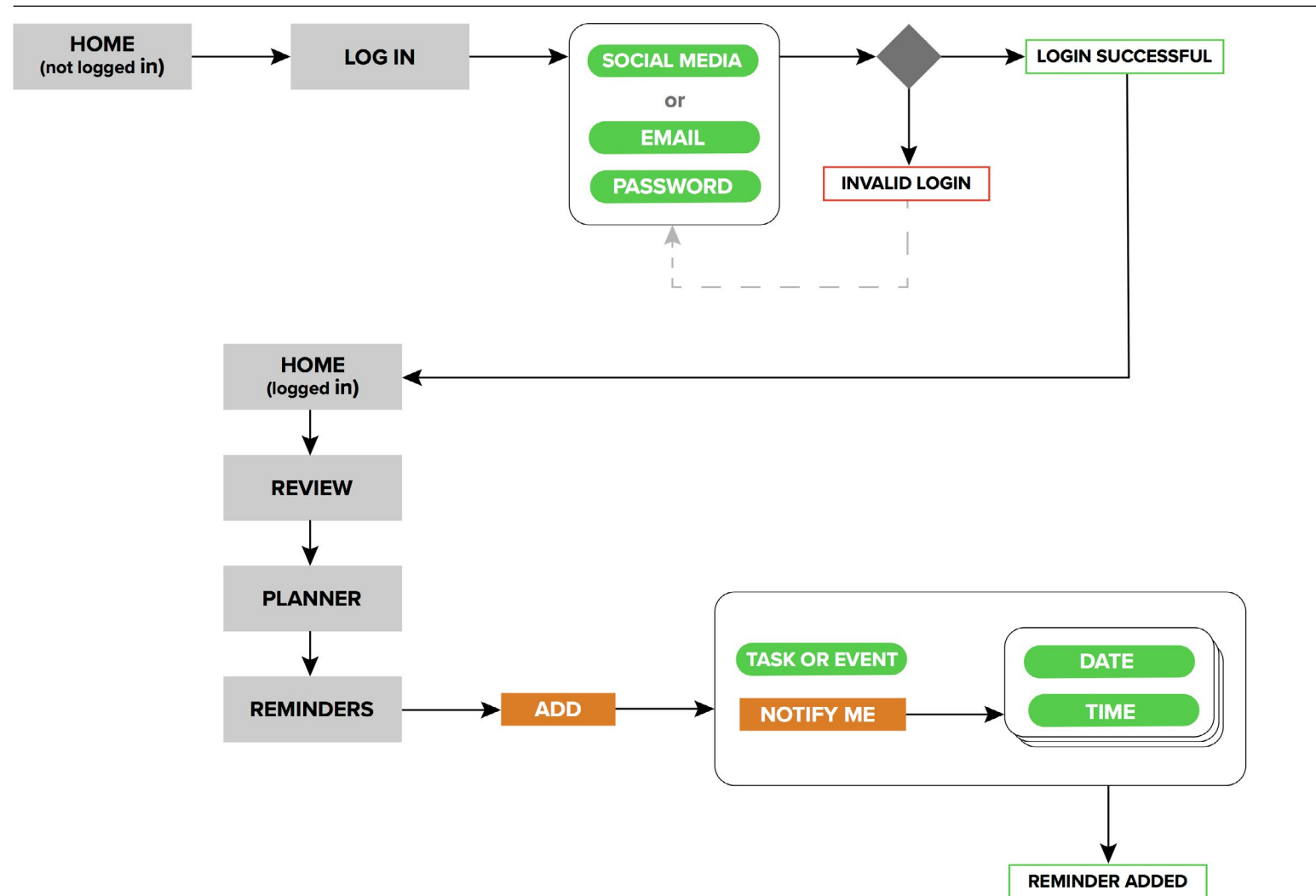
User flows (2 of 3)

Collaborative Khalil
Wants to share his work with a friend

HOME (not logged in) → LOG IN → SOCIAL MEDIA or EMAIL PASSWORD → ◆ → LOGIN SUCCESSFUL

◆ → INVALID LOGIN

HOME (logged in)

◆ If user has existing guide(s)

CREATE (blank)

CREATE (list) — Share button next to each list item

NEW GUIDE → SHARE → EMAIL

SHARE SUCCESSFUL ← ◆ → INVALID EMAIL(S)
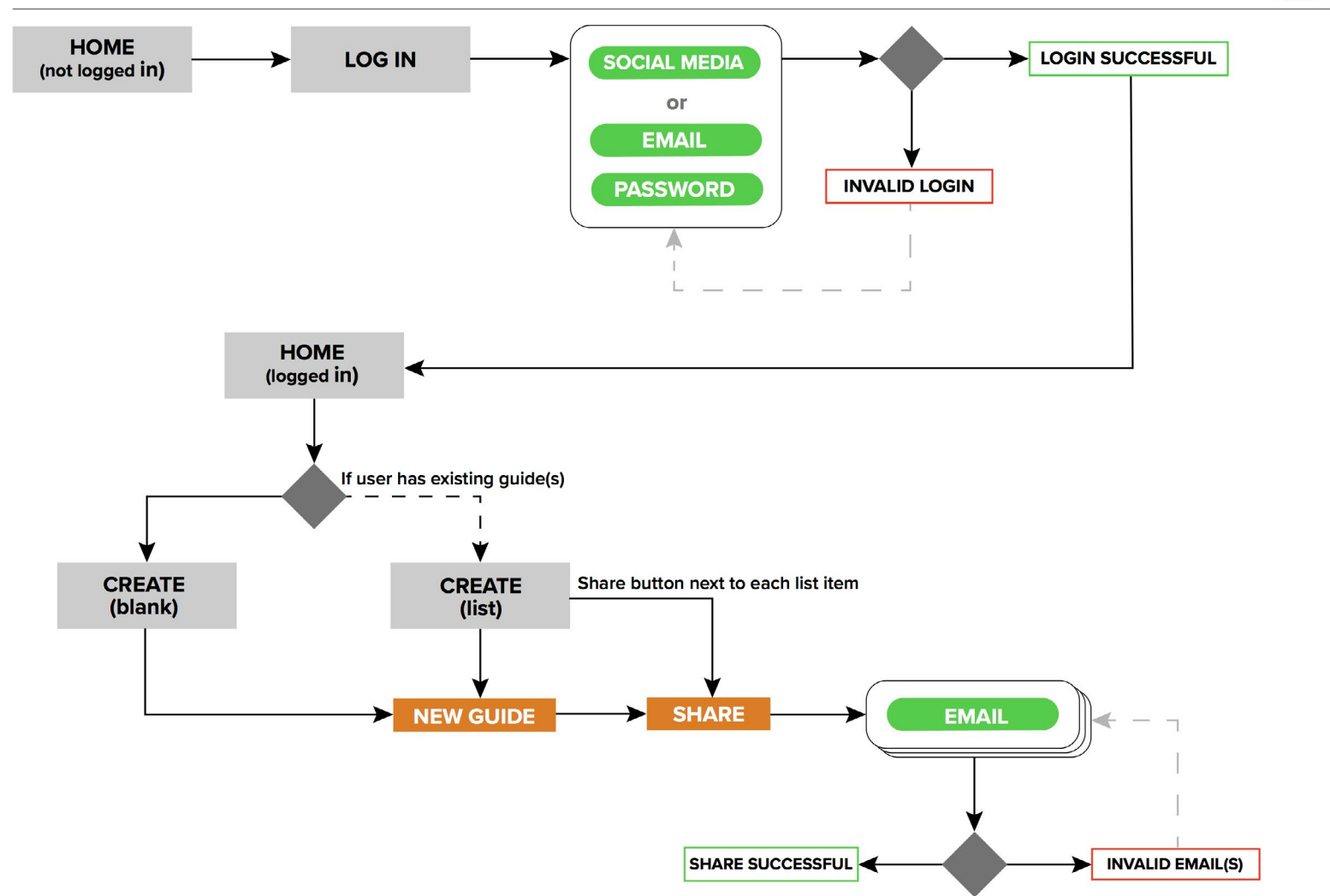
User flows (3 of 3)

Methodical Martin
Wants to find out if the website is a good fit for him
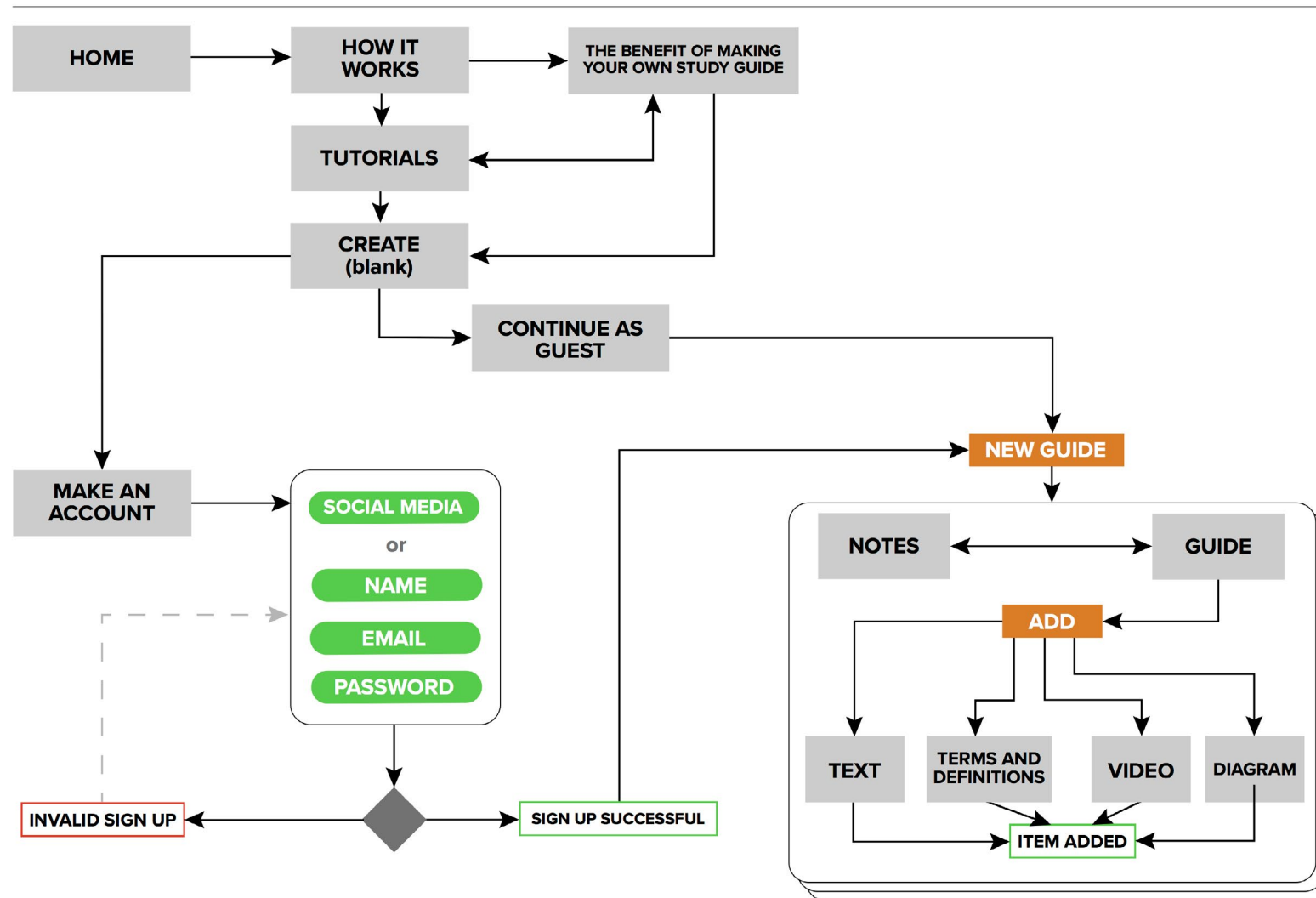
Wireframing

METHOD

Because StudySnap involves heavy use of user-generated content, there are many different features for creating and editing. Therefore, I used the wireframing process to determine not only how each interaction would occur, but also which interactions would be the most important to prototype. During this stage, I also found that some content might be better suited on a different page than originally planned. In determining what to move where, I kept together at least the smallest units of grouping that card sort participants had made.

To explore the scope of the interactions and the screen space, I started by taking up whole sheets of paper and delineating content boxes using grayscale pens. I marked in red any changes I wanted to make regarding content and sizing.
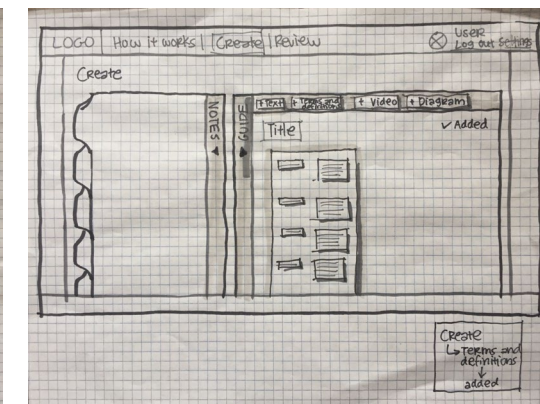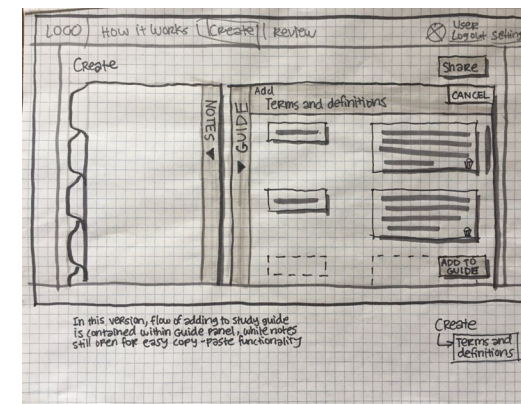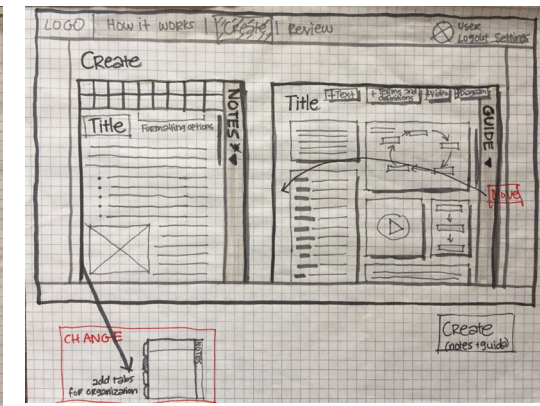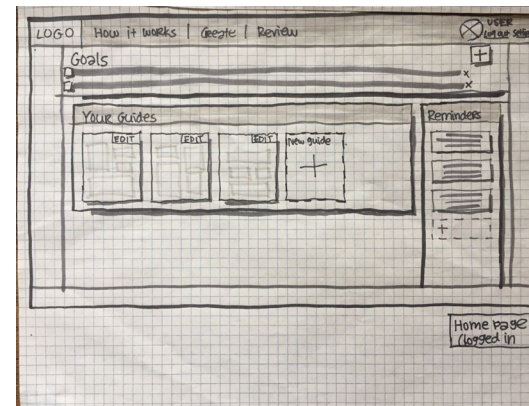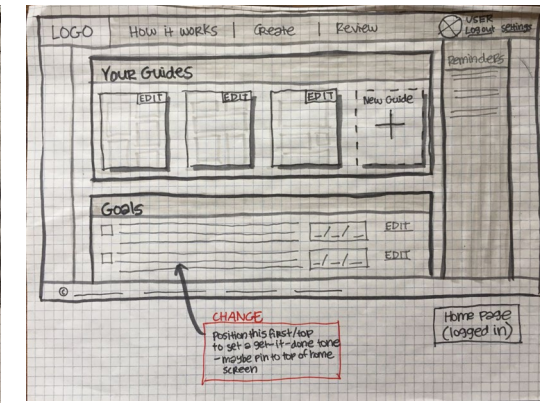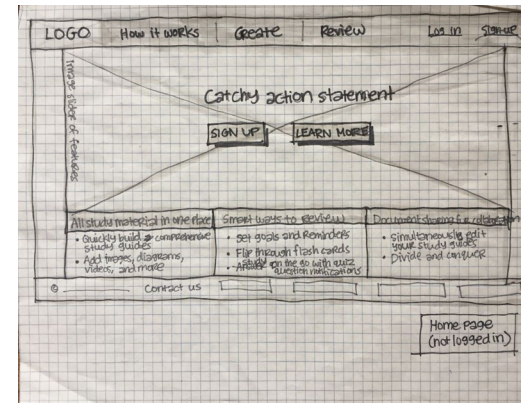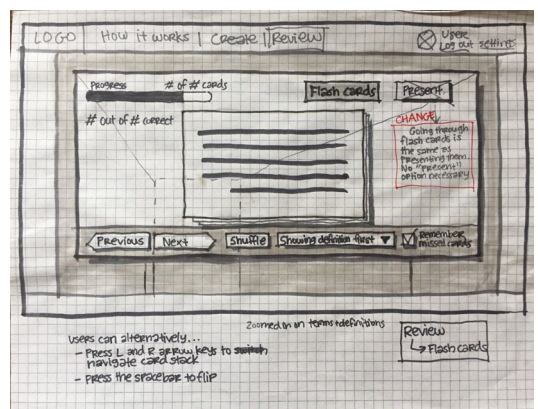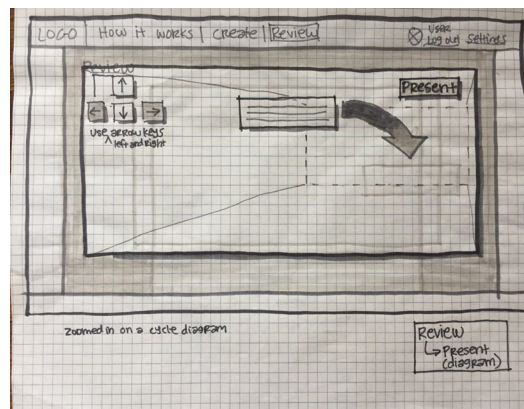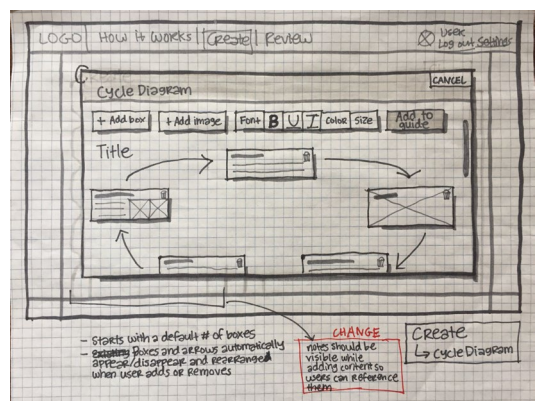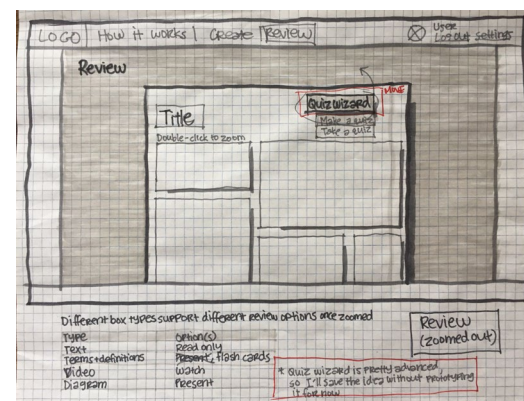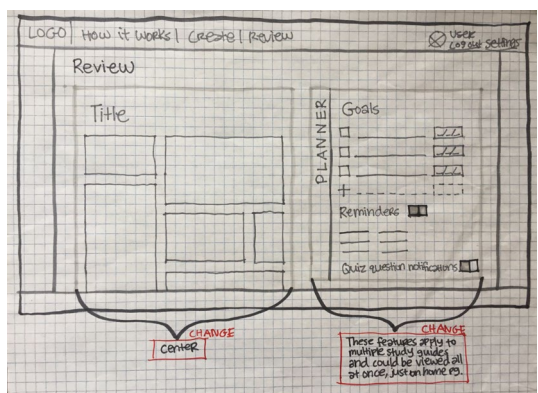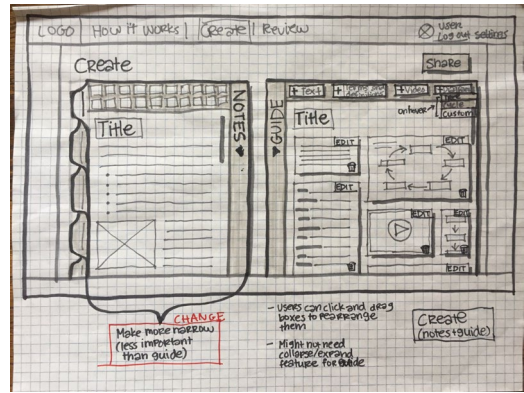
Wireframing (2 of 18)

In the quick sketches below, I experimented with layout and began to map out smaller interactions.
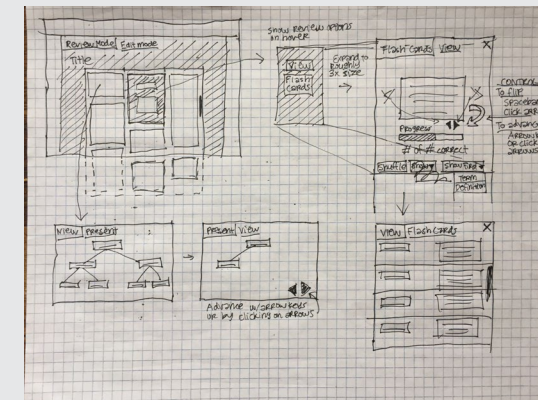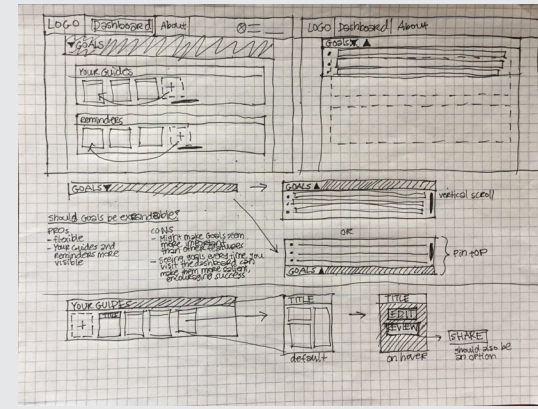
Wireframing (3 of 18)

To map out full interactions and maintain a user-centric focus, I then sketched wireframes based on the user flow of each persona. Through visualizing the user flows, I was able to update them so that each user could more quickly get from point A to point B.
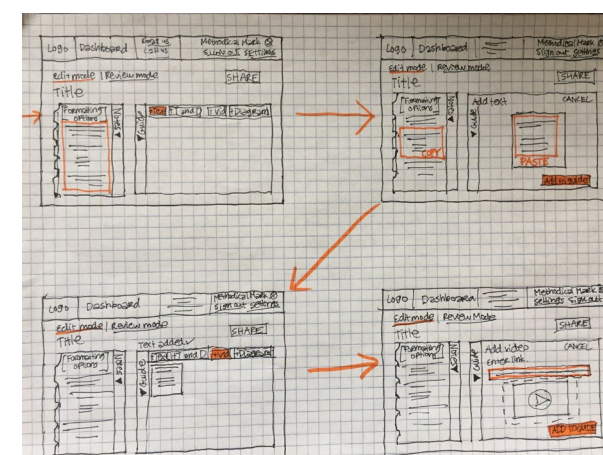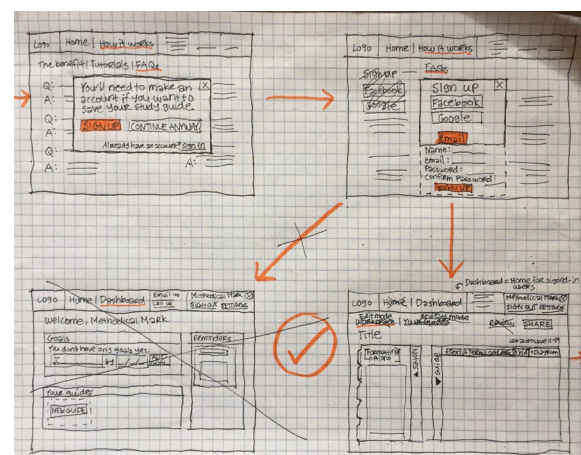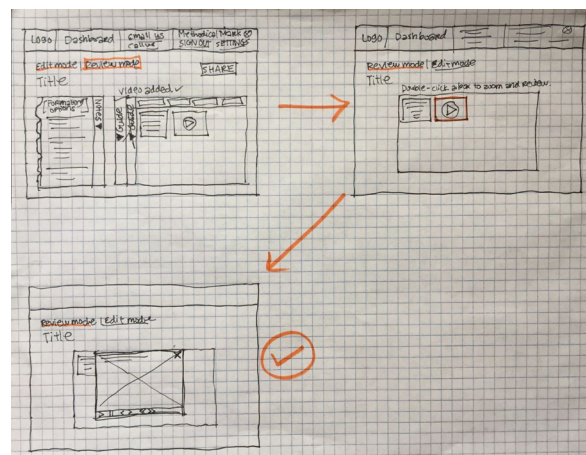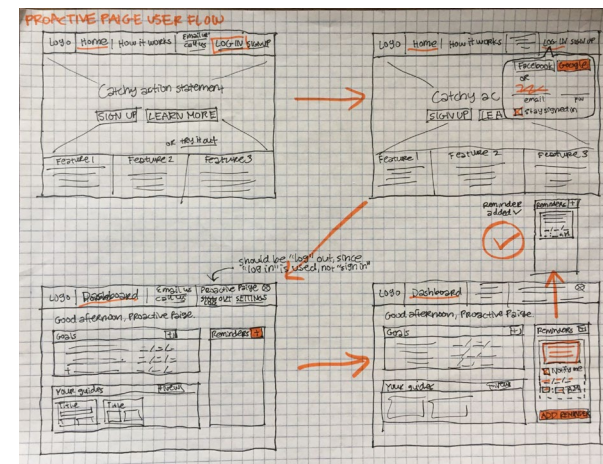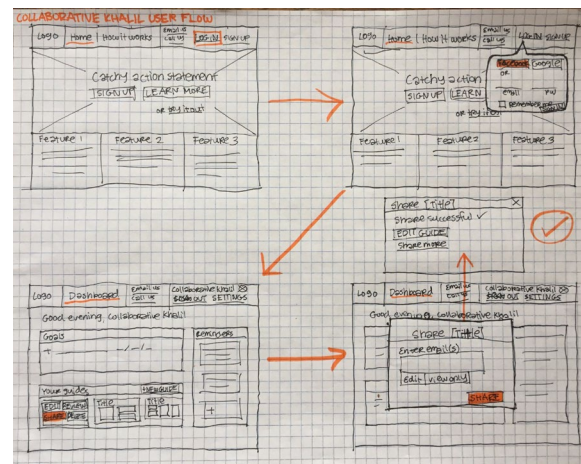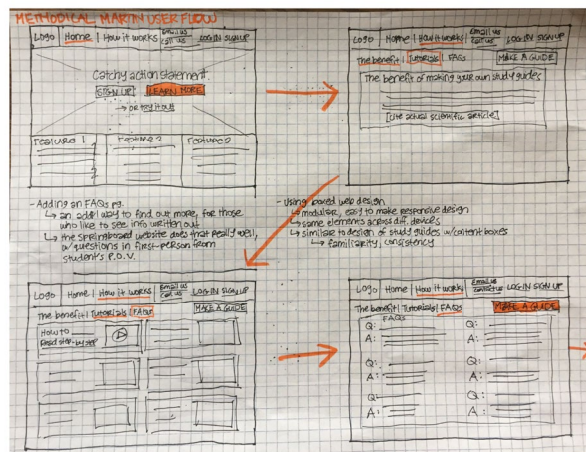
Wireframing (4 of 18)

HIGH-FIDELITY WIREFRAMES
New user - sign-up process
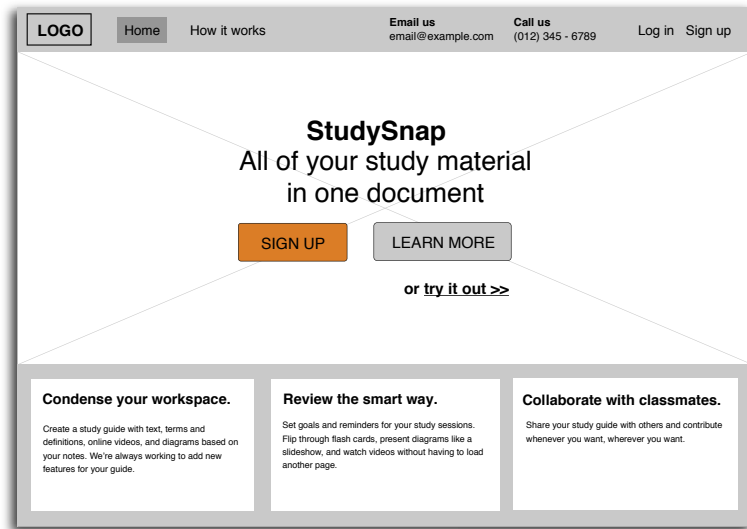
Clicking "Sign up" in header generates the same result.
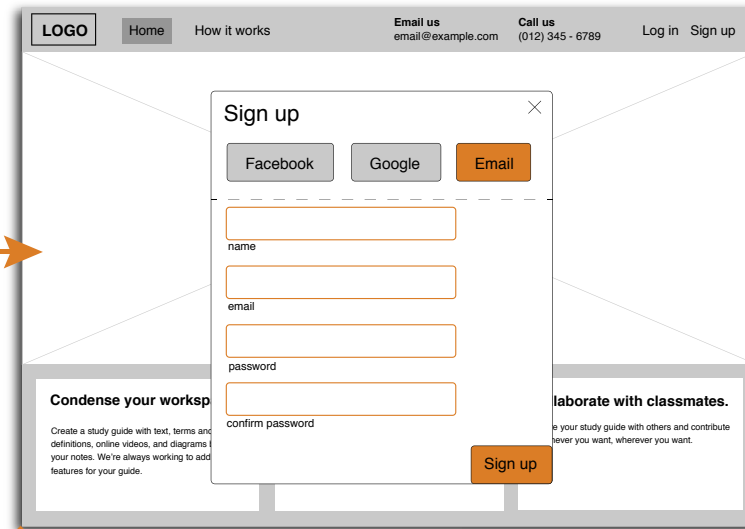
Fields below dotted line appear only if "Email" is clicked.
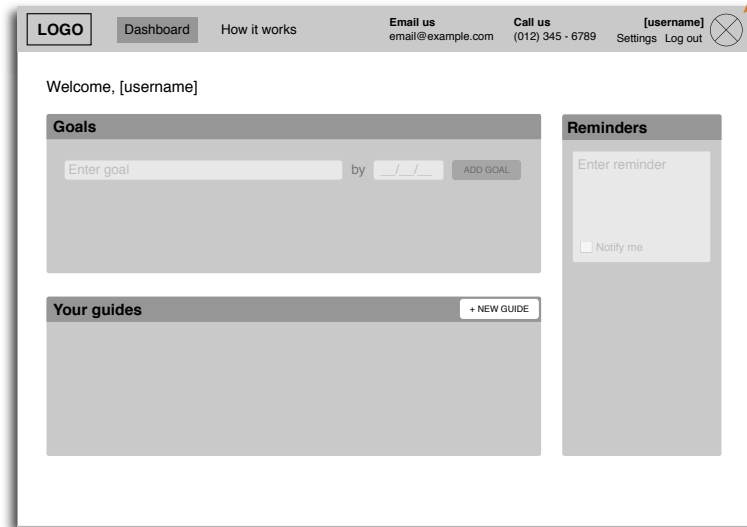
Wireframing (5 of 18)

New user - exploration
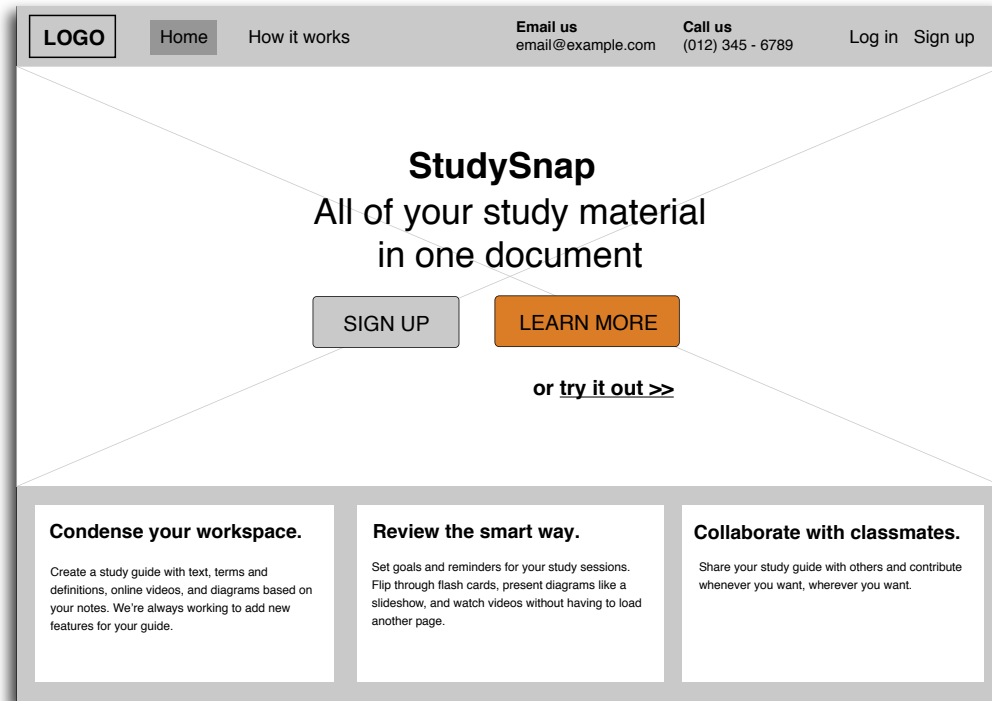
Clicking "How it works" in header generates the same result. On mouseover, header link includes sub-menu options for "The benefit [...]," "Tutorials," and "FAQs."
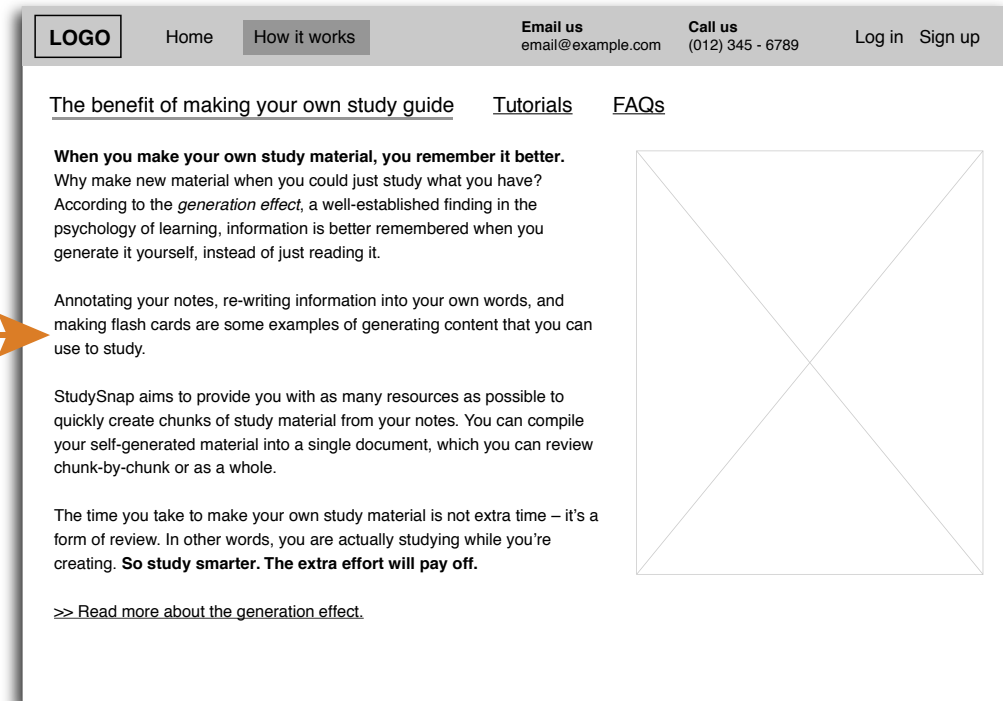
I want to the main focus of the usability testing sessions to be study guide creation. For this reason, I chose to include the links to "Tutorials" and "FAQs" merely as placeholders.

Wireframing (6 of 18)

New user - study guide creation
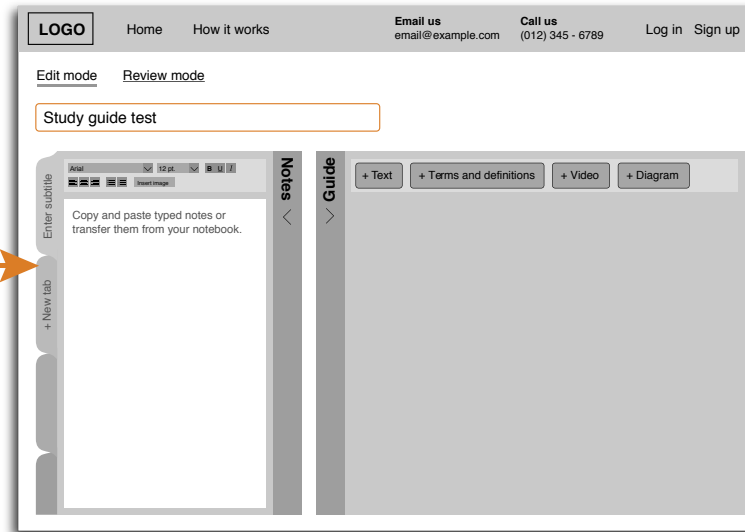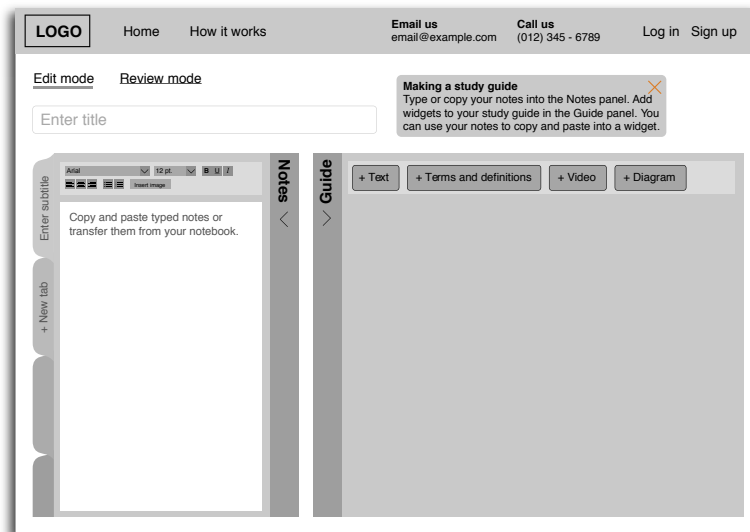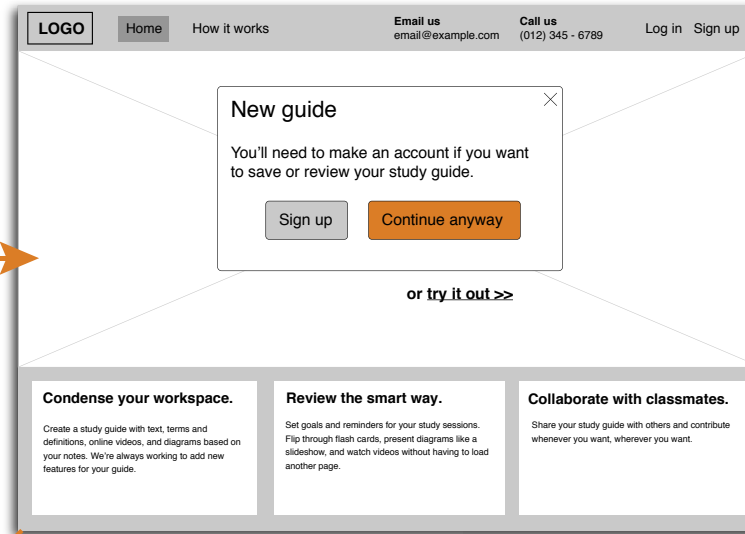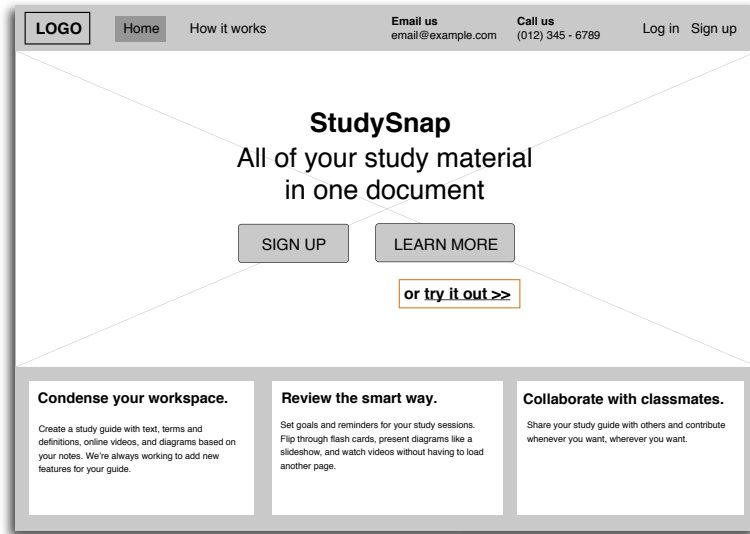
Wireframing (7 of 18)

New user - study guide creation (cont'd)
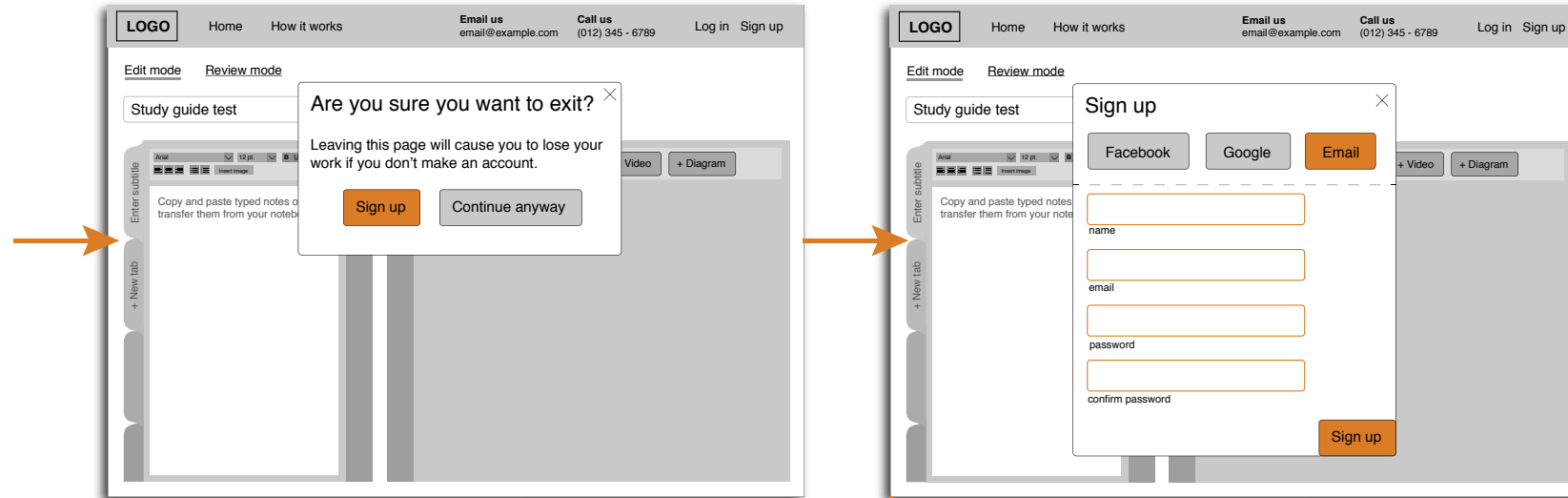
Dialog appears if new user tries to navigate away from "Edit mode."
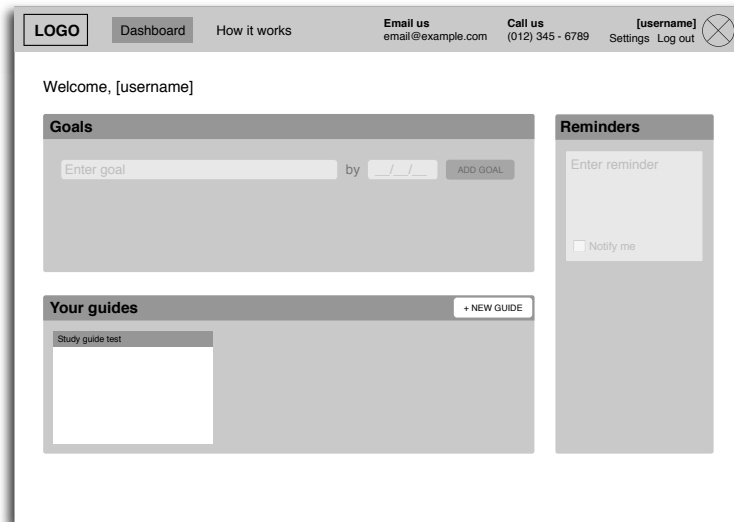
In-progress guide saved and included in "Your guides"

Wireframing (8 of 18)

Existing user - login
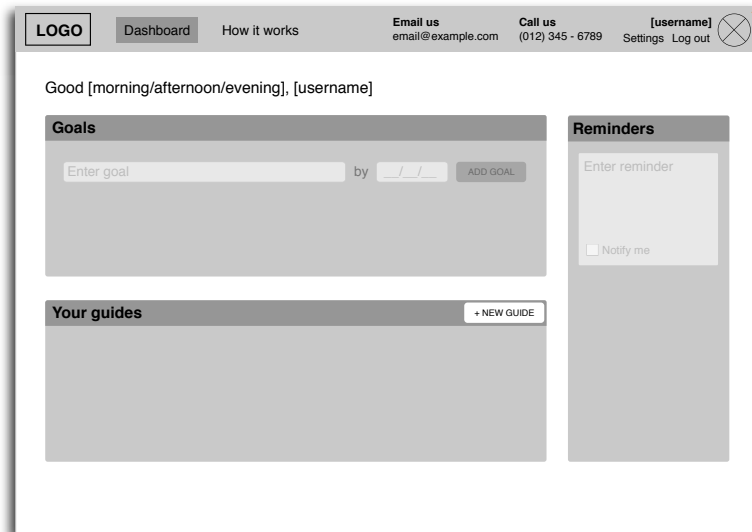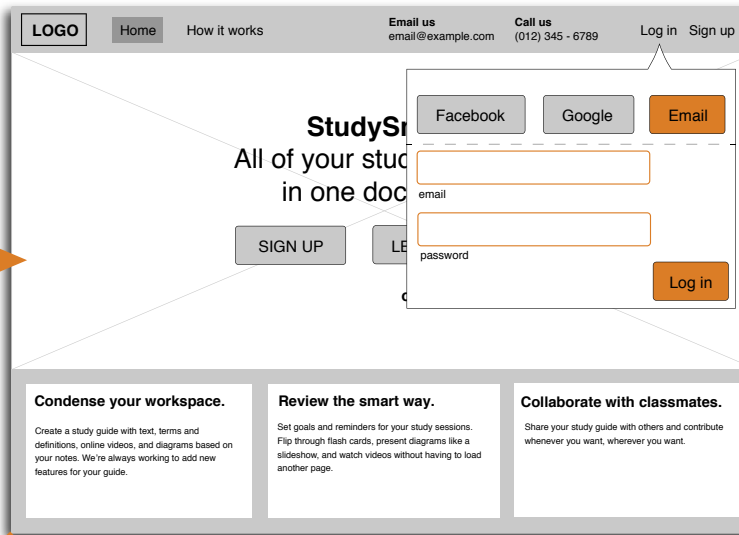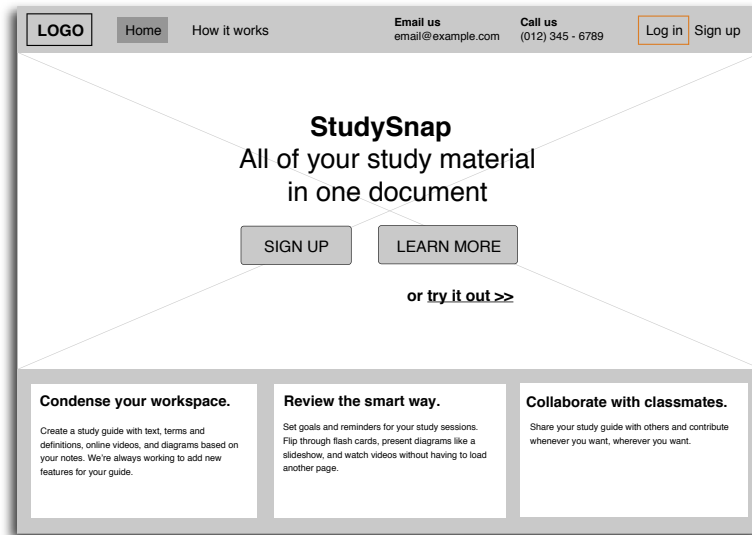
Wireframing (9 of 18)

Existing user - setting goals and reminders
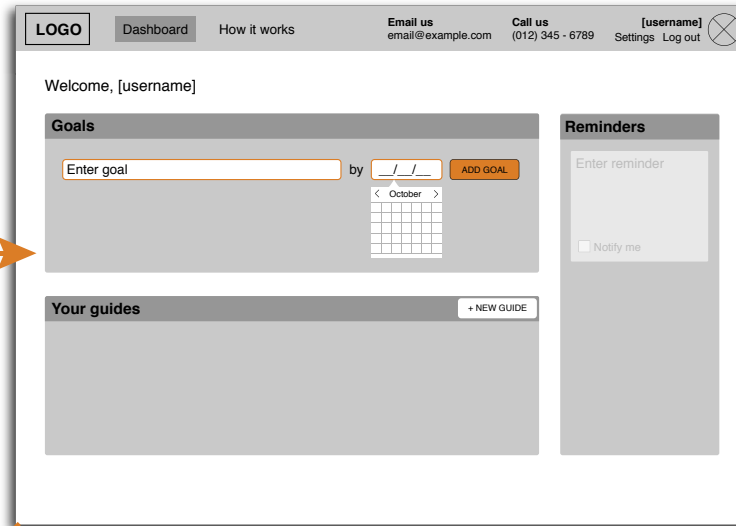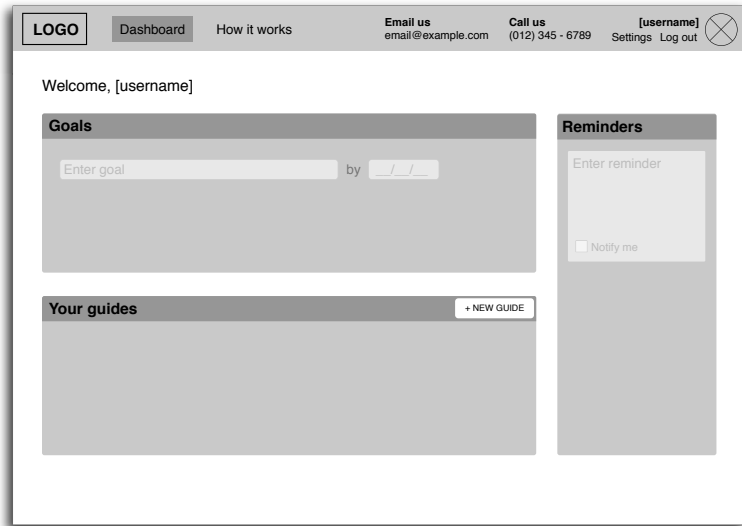
Row becomes opaque when user clicks into it.
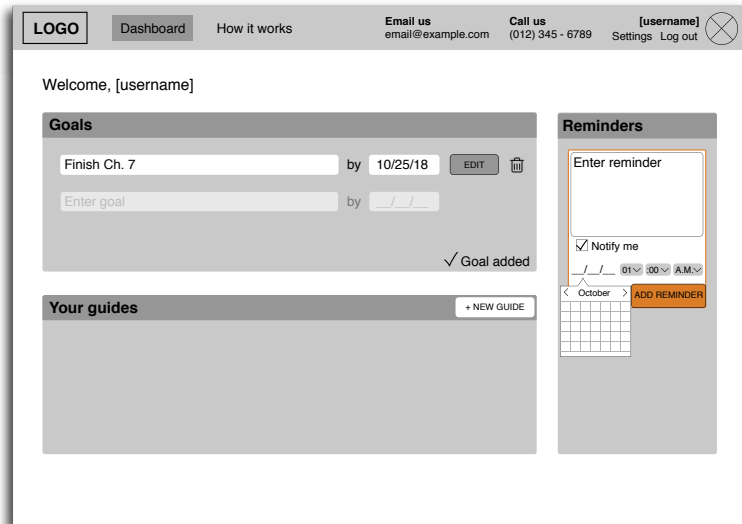
Box becomes opaque when user clicks into it.
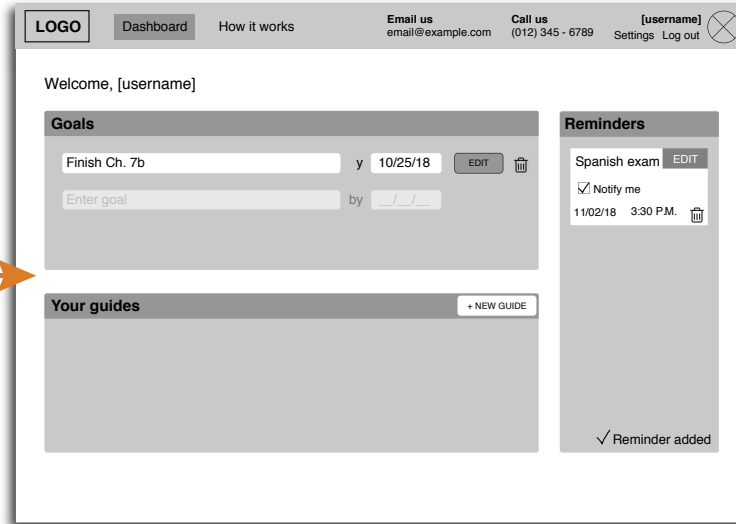
User will receive desktop notification.

Existing user - study guide editing
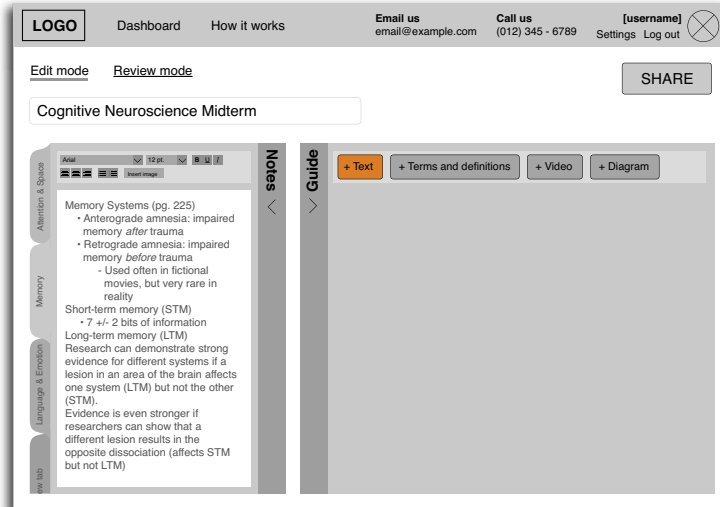
User has already entered notes, using the tabs to divide notes into sub-sections.
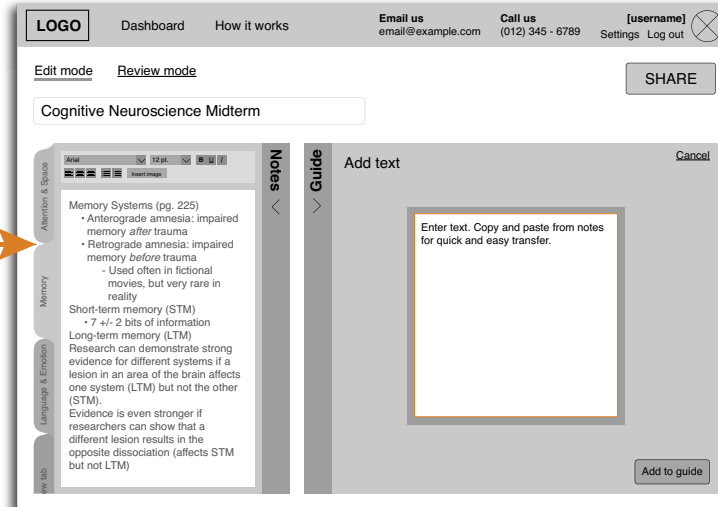
Box height will autofit to content.
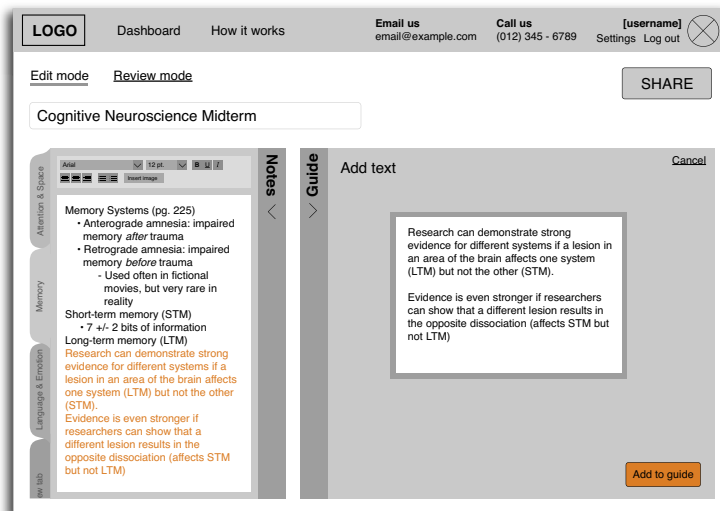
Copy text from Notes panel, paste into Guide panel.
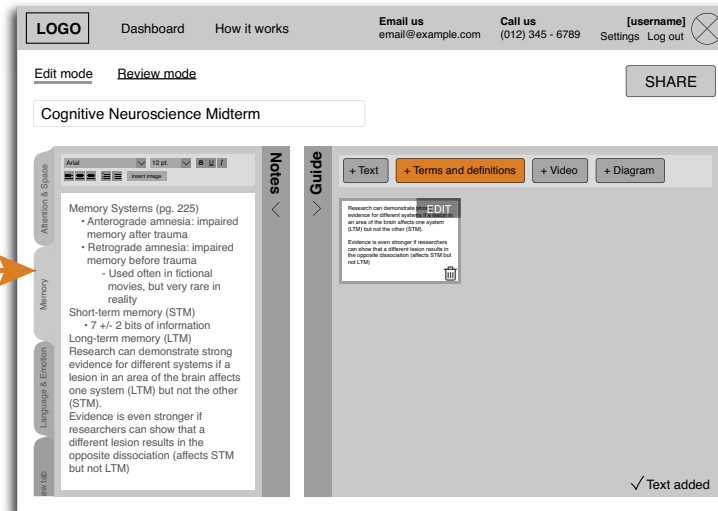
Wireframing (11 of 18)

Existing user - study guide editing (cont'd)
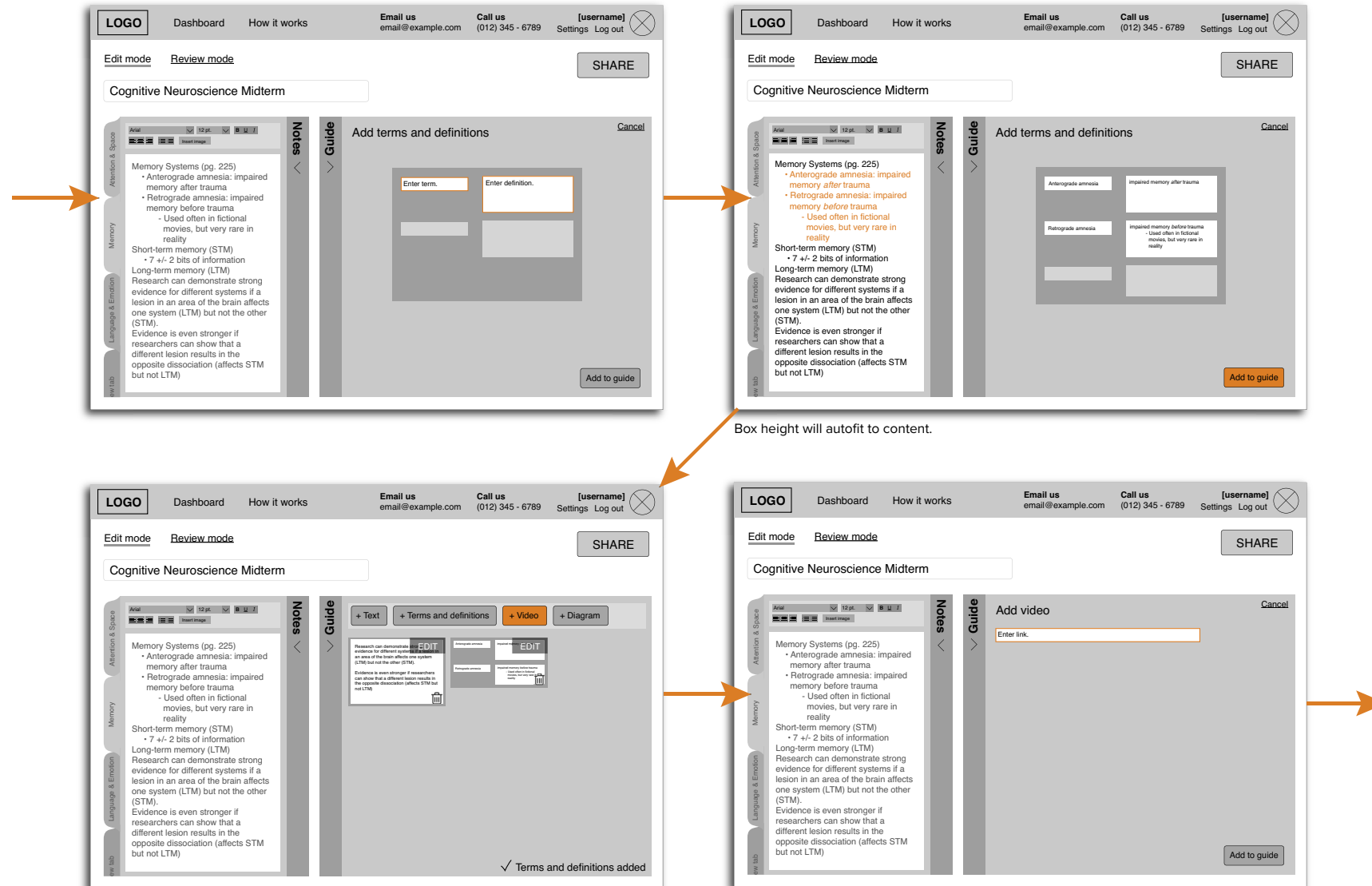
Box height will autofit to content.

Guide layout consists of three equal-width columns. Each widget has standard width and variable height. Widgets added in staggered rows from left to right.

Wireframing (12 of 18)

Existing user - study guide editing (cont'd)
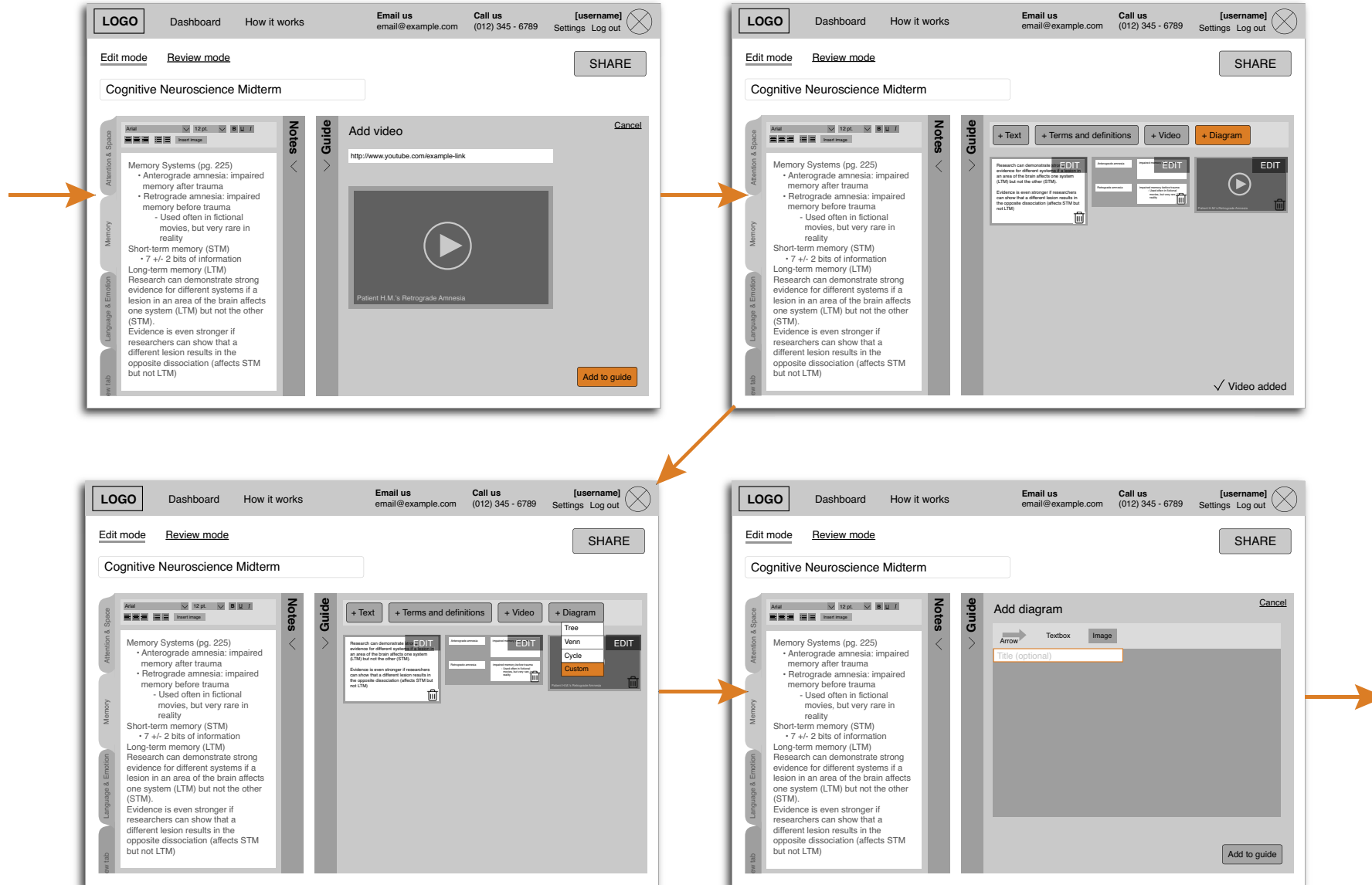
Wireframing (13 of 18)

Existing user - study guide editing (cont'd)
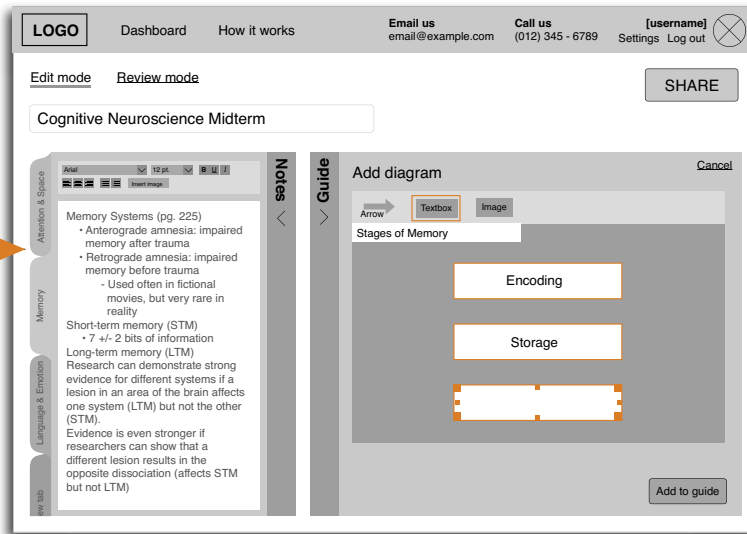
User adds and boxes and types into them. Click-and-drag resizing and repositioning available.
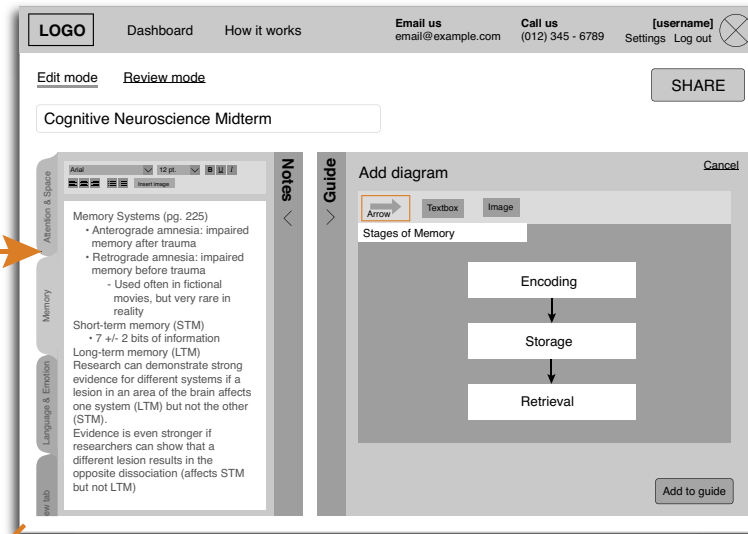
User adds arrows. Click-and-drag resizing, repositioning, and rotation available.
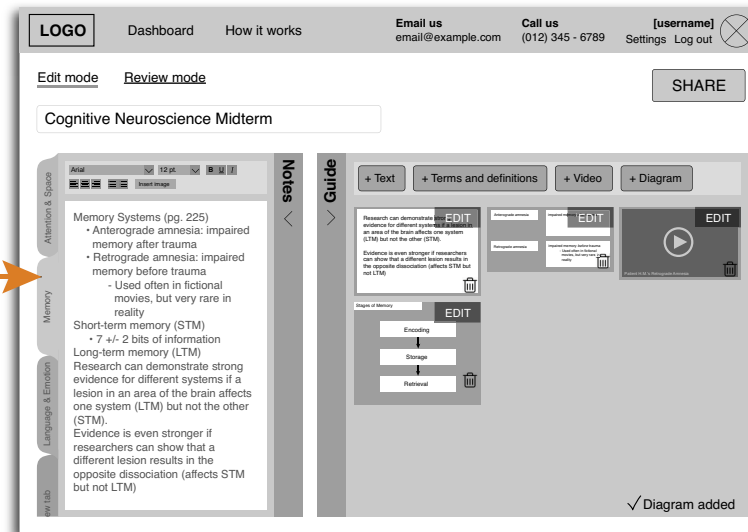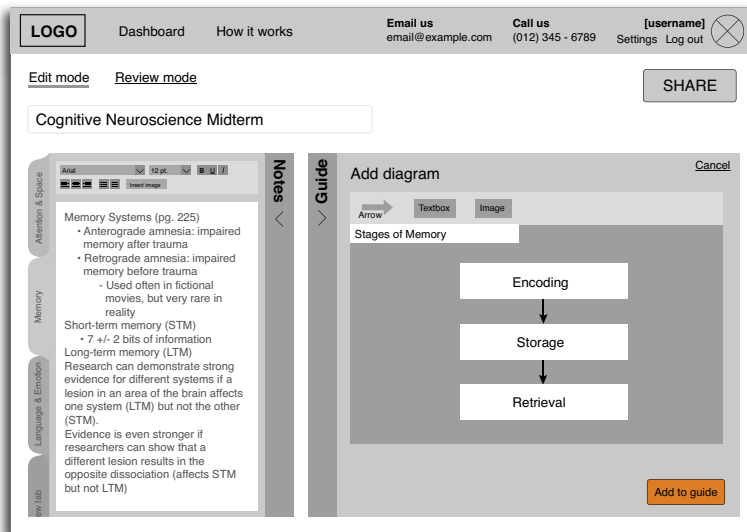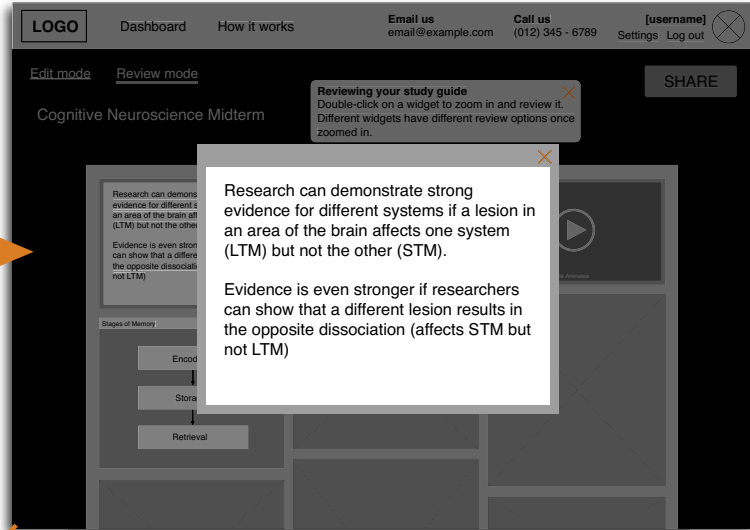
Existing user - study guide sharing
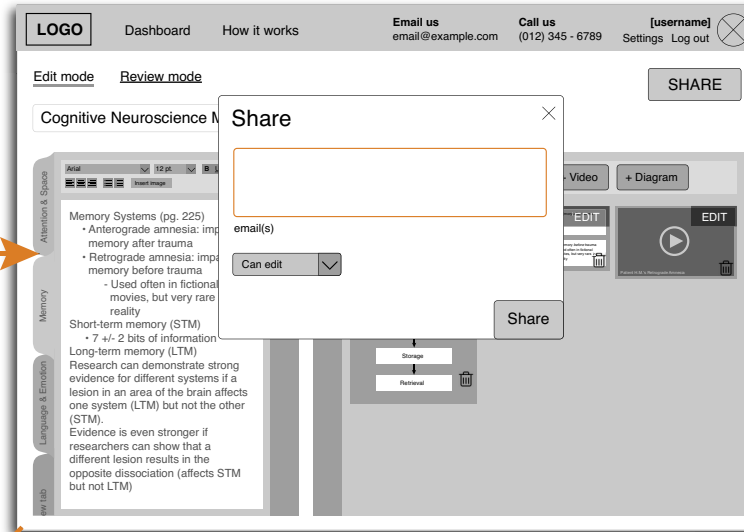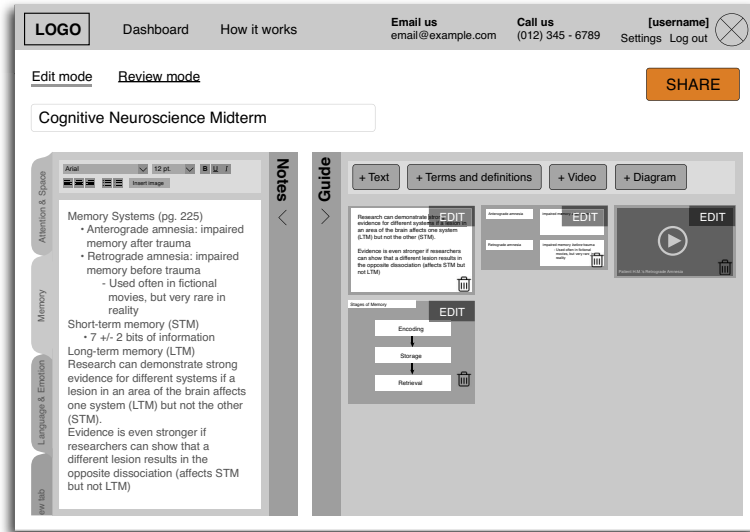
Same dialogue appears if share button is accessed from Dashboard page or Review mode.
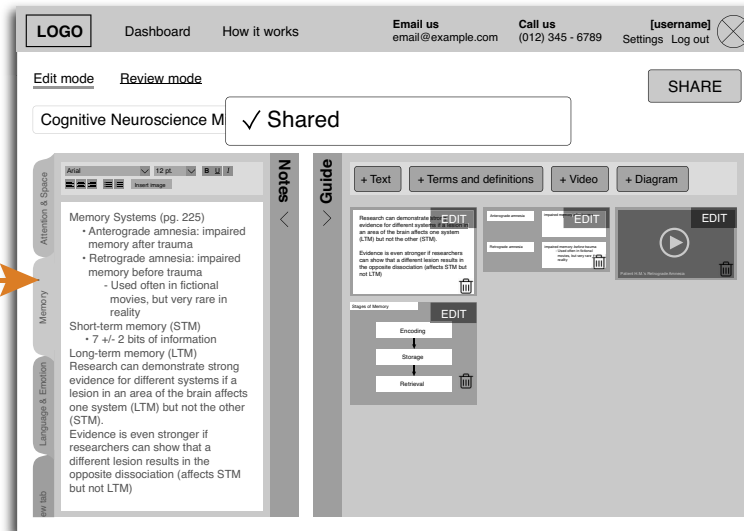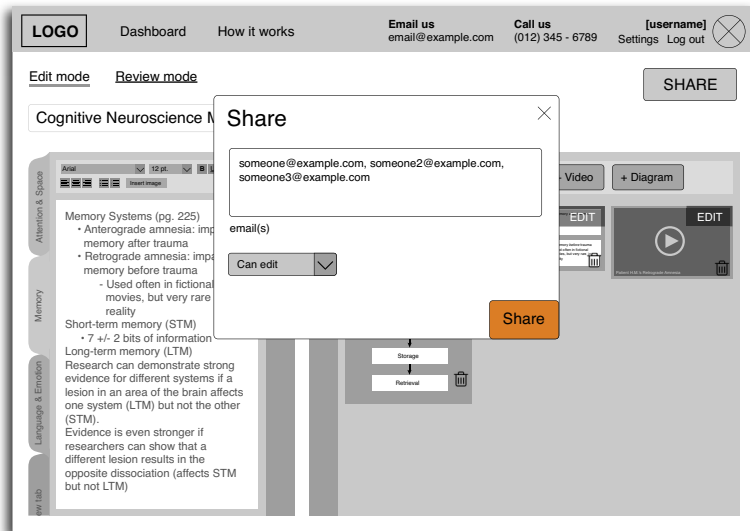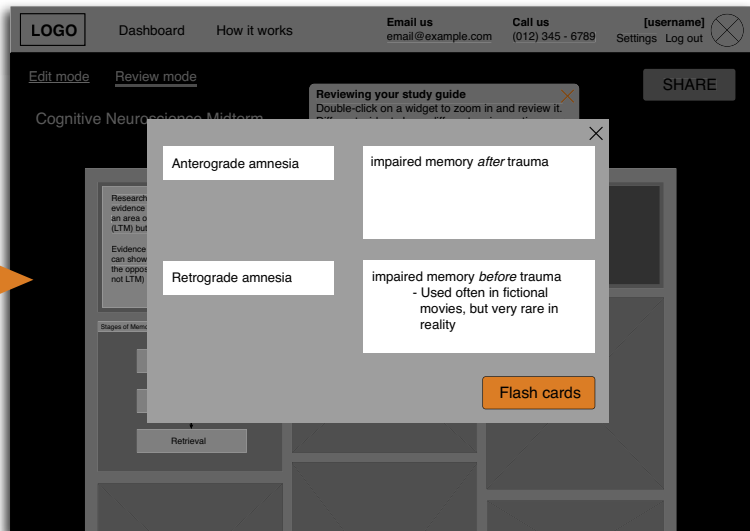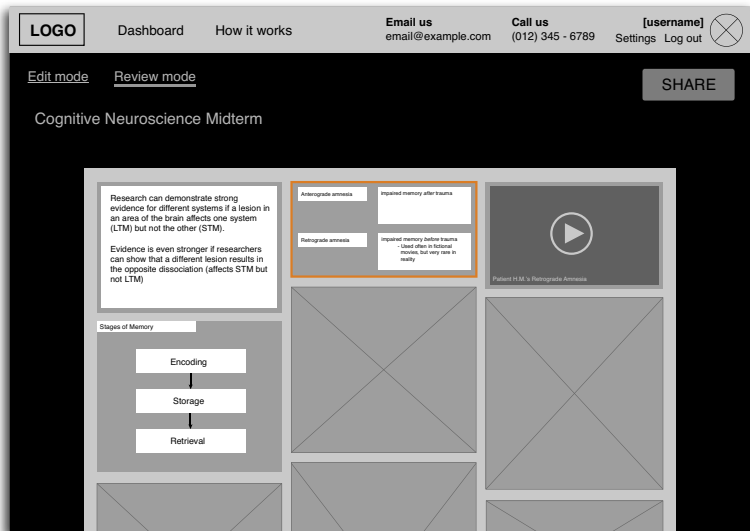
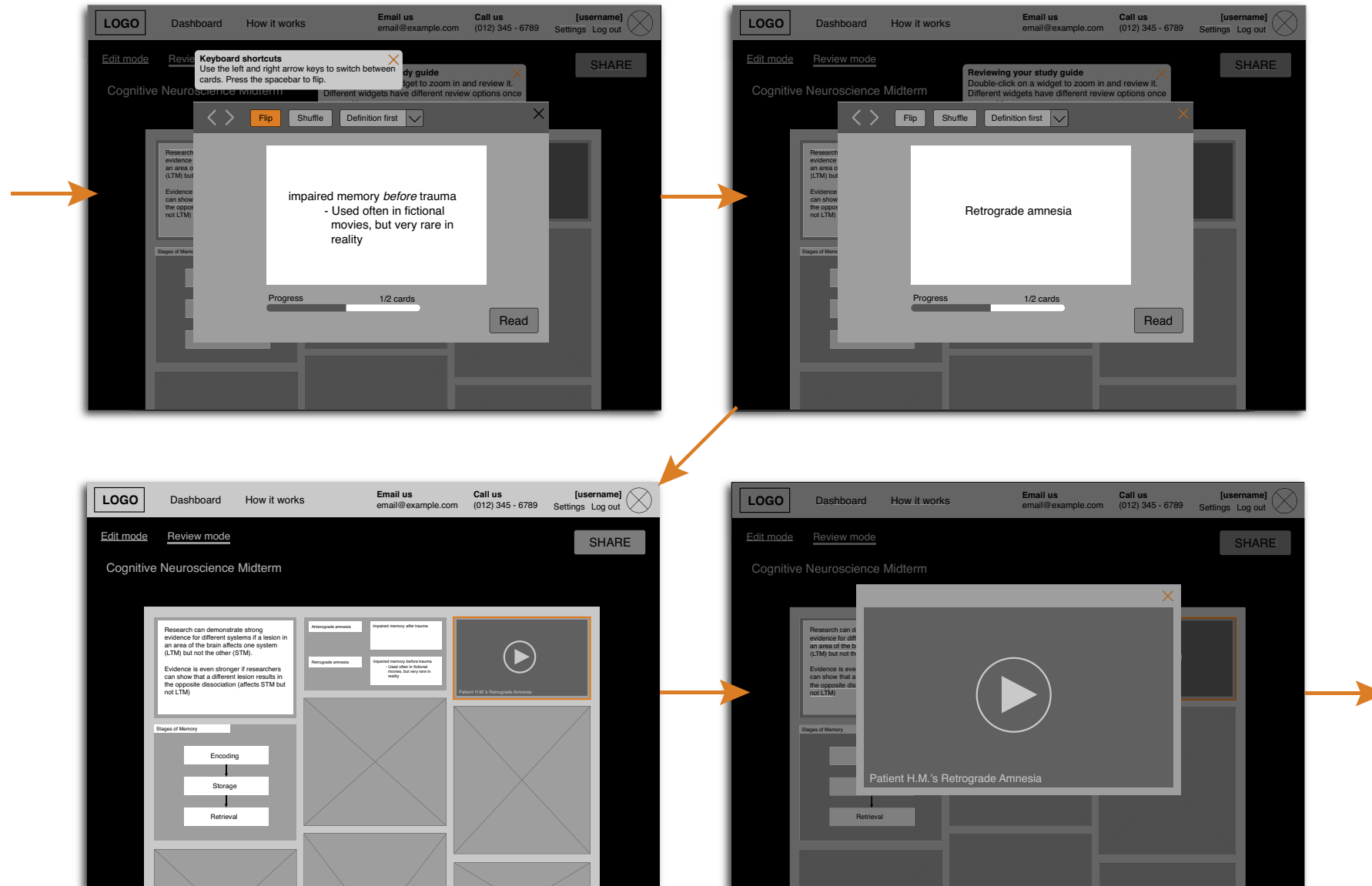# Wireframing (15 of 18)

Existing user - study guide review
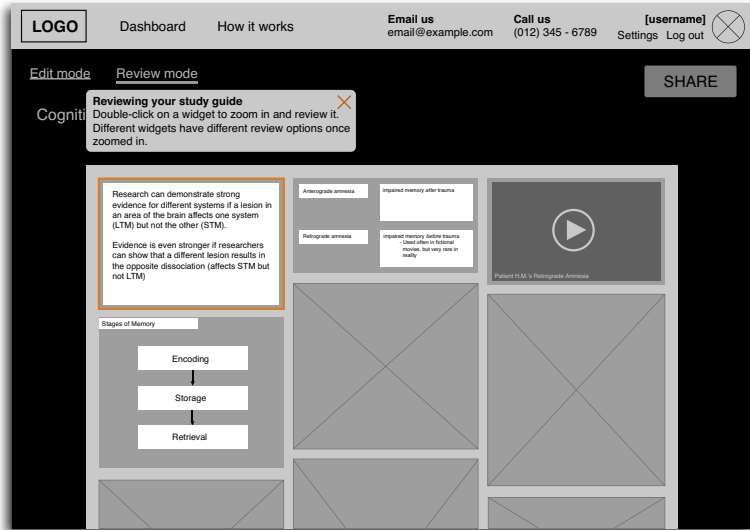
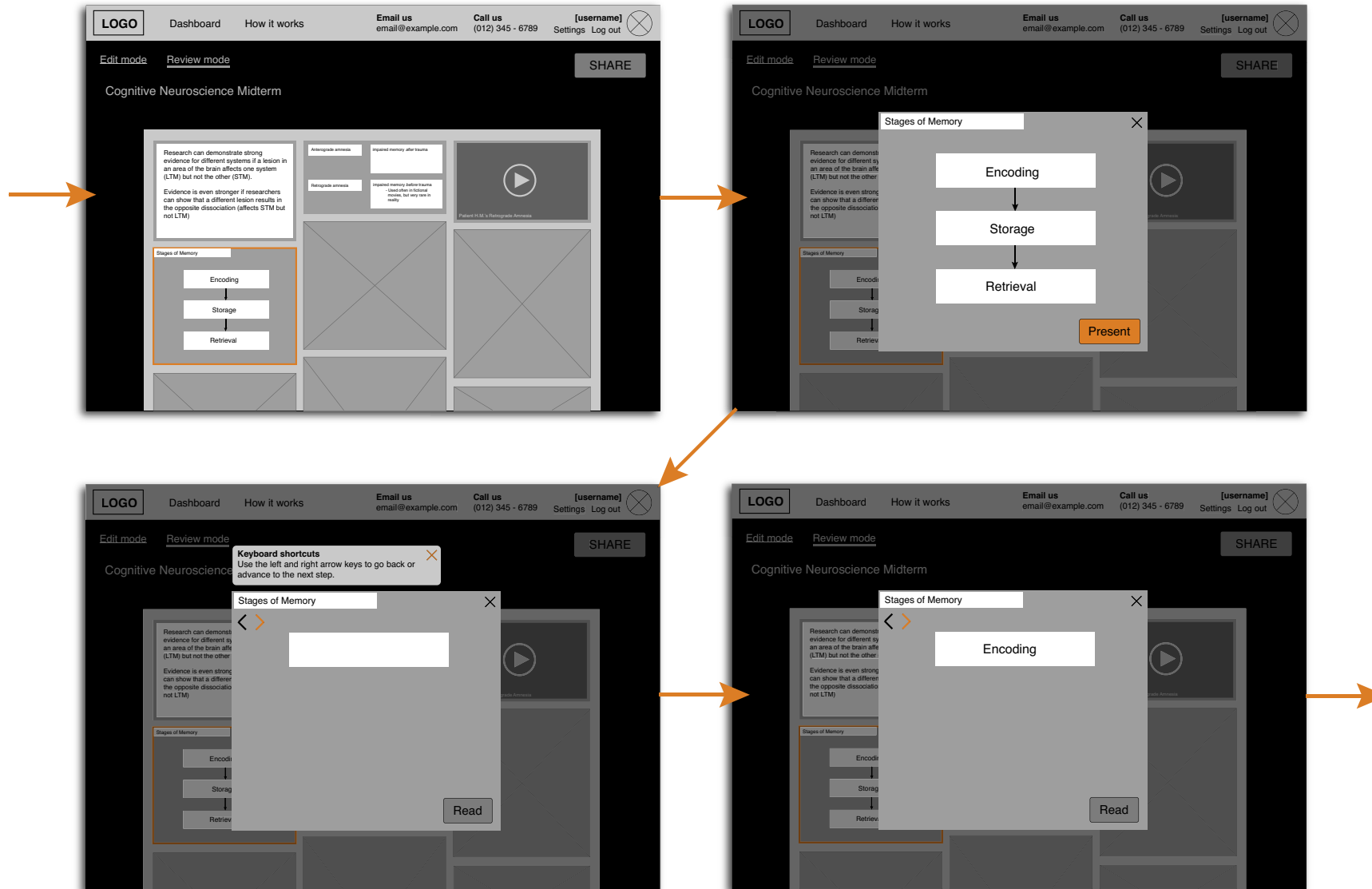Dark background lets the study guide be the main focus.

Wireframing (16 of 18)

Existing user - study guide review (cont'd)

Wireframing (17 of 18)

Existing user - study guide review (cont'd)

"Present" always leaves blank the first step, so the user can try to predict what it will be before advancing.

Wireframing (18 of 18)

## Existing user - study guide review (cont'd)

Prototyping

FIRST ATTEMPT: DIGITAL PROTOTYPING

When I started prototyping, I wanted to see if I could use a digital tool to simulate the highly interactive experience of StudySnap. It was difficult to find an application that supported input fields and advanced interactions, but I found tool called JustInMind, which seemed to cover enough of what I wanted.

JustInMind's interface is, ironically, not so user-friendly. However, I did enjoy figuring out how to use it. Building "events" (when user does X, do Y) gave me a better idea of what developers need to know when building from a prototype. Yet after spending a decent amount of time scanning the help forum and designing as much as I could, I felt that the technology was distracting me from the main motivation of StudySnap. And it turned out I wouldn't have been able to achieve everything I wanted without actually coding it.
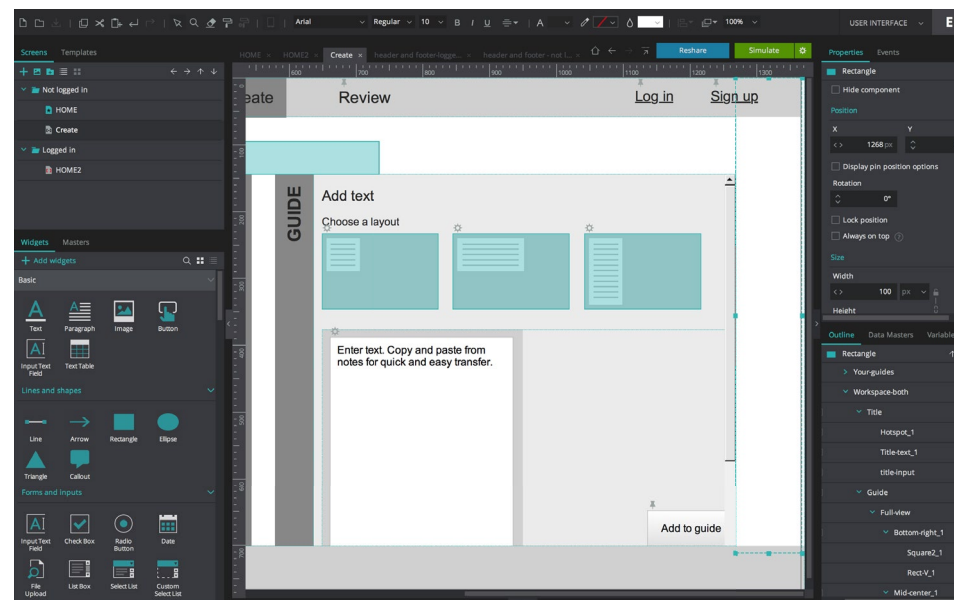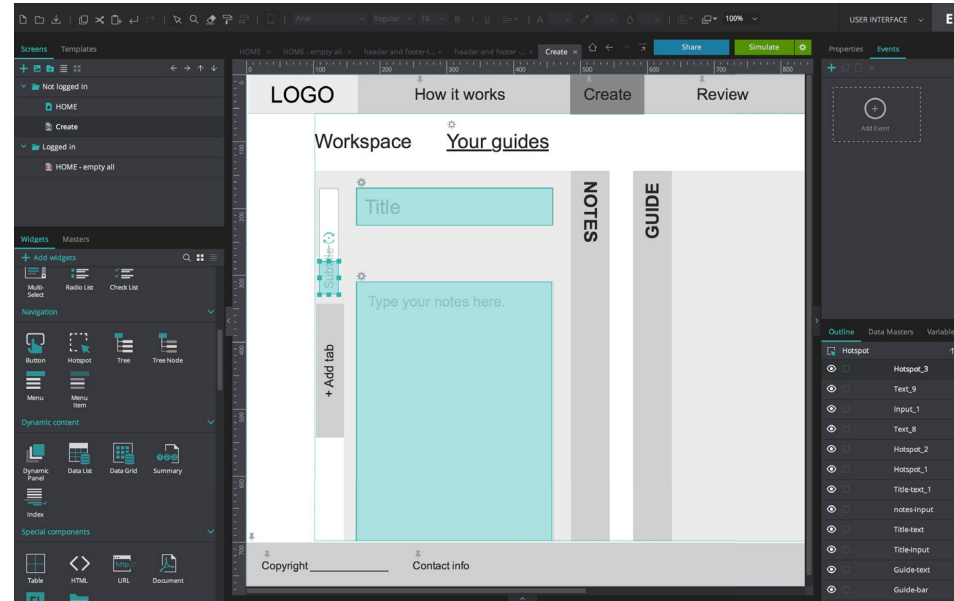
Prototyping (2 of 2)

THE REAL DEAL: PAPER PROTOTYPING

After deciding not to continue with JustInMind, I soon realized that paper prototyping was the better option. It would allow me to present usability testing participants with a wide variety of interactions, as well as quickly make new material on the spot if I ran into an unexpected scenario. I also had learned that usability participants tend to be less hesitant to deliver their true opinions when the product in front of them looks unfinished, rather than polished. So I decided to get crafty.

I used grayscale pens for the main structure and orange pen to highlight interactive content. I also used mini clothespins to keep the small pieces organized, and glue dots to stick features on top of the pages. I drew all of the page elements without using a straightedge, as part of my ongoing mission to become a human ruler.
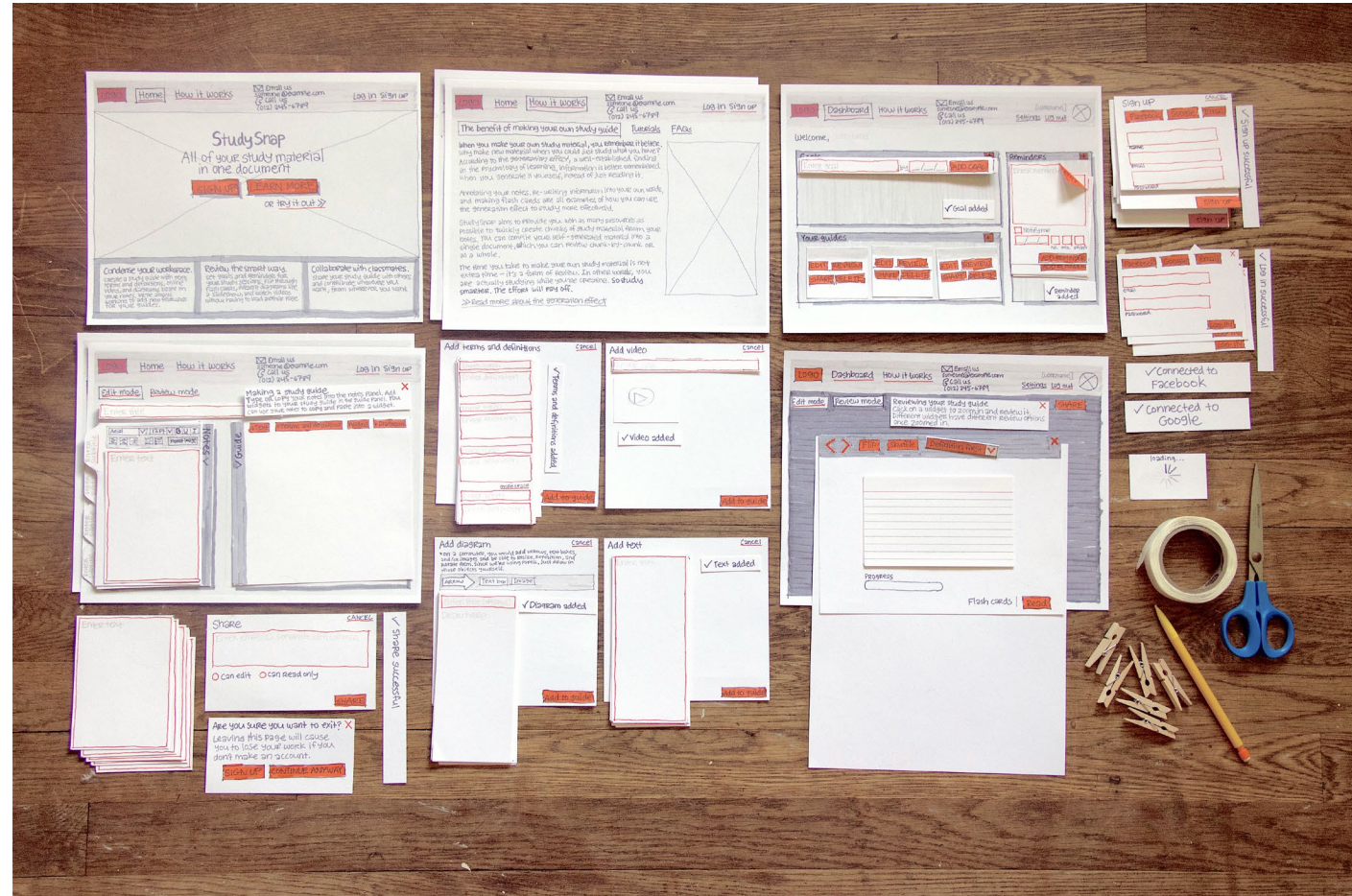
Visual design

Style Guide

Color Scheme

I want students to feel positive, yet focused. The golden yellow suggests joy and success, brightening the experience. Its lighter variation resembles paper and makes a nice page background with the yellow as a shadow color. White will be used as the background for notes and content containers to keep things simple and readable. The light and dark "tech" colors, which add balance to the color scheme, will be used for the header and for most of the text.

#EAB932   #FCEBCD

#374F55   #48676F   #FFFFFF
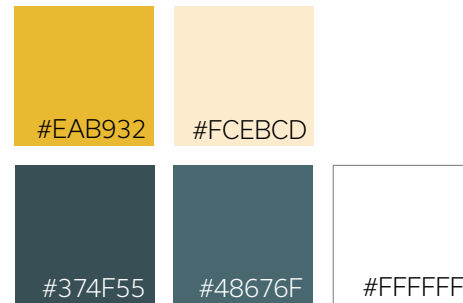
Font Styles

Usual is a sans-serif font that's easy to read as is or in all caps. It looks inviting and is clean enough not to be distracting, so that students can fully focus on their work. The modern serif style of *Adelle* appears intelligent and down-to-earth. It conveys a mature positivity without looking cutesy.

H1: Usual Medium 24pt
H2: Usual Regular 18pt
Body: Adelle Regular 14 pt
Body: Adelle Italic 14 pt
Body: Adelle Bold 14 pt

Buttons

The white-on-dark text pops out, while the yellow shadows make the buttons look super clickable by implying a lower surface on which a pressed button would lie.

PRIMARY   SECONDARY

Usability testing

OBJECTIVE

Find out whether...
A) making a study guide is useful and easy
B) reviewing a study guide is useful and easy

TASKS

1. Explore the site to find out what it's about
2. Create a study guide
3. Review your study guide

SUMMARY OF RESULTS

I ran usability tests with three people: a Computer Science/Cognitive Science double-major (Participant A), a Commerce major (Participant B), and an English major (Participant C). Each had a different overall reaction to the site. Participant A found the interface to be intuitive, was able to navigate easily, and said without my asking that he would use the site. Participant B said the site was not for her, since she already has a very methodical way of studying, but she provided a lot of valuable feedback. Participant C enjoyed the simplicity of the interface, yet found some issues, for which she had many ideas to find a solution.

Task 1: Participants A and C understood the function of the site, while Participant B needed more specific information about what users do on the site in order to understand it. One participant thought goals and reminders were unnecessary, and the others thought the two features were practically the same thing. Most of the participants naturally began Task 2 as part of their exploration.

Task 2: For the most part, the participants understood how to create a study guide. However, they didn't understand the relationship between the notes panel and the guide panel, particularly that adding content to the guide was the main activity, with the notes panel available merely for reference and copy-paste.

Task 3: The participants understood how to review, but were surprised that the notes panel wasn't part of Review Mode. This was a product of the main issue in Task 2.

Usability testing (2 of 2)

NEXT STEPS

The usability tests gave me a valuable
understanding of what needs to be resolved:

Make it clear from the home page and "How it Works" what the main function of StudySnap is

Make a home page for signed-in users instead of making Dashboard the equivalent

Move "The Benefit of Making Your Own Study Guide" content to the FAQs page

Either combine goals and reminders into one feature, or remove them entirely

For the Dashboard, implement a feature that tracks one's progress

Visually and textually clarify the relationship between the notes panel and the guide panel in Edit Mode

Don't require user to make an account in order to review a study guide while trying out the service

Add a function allowing users to order the steps in a diagram prior to using "present" in Review Mode

Explore whether editing and reviewing can occur on the same webpage

Final mock-ups

StudySnap
Snap

Home   How it works

✉ Email us
email@example.com

📞 Call us
(012) 345 - 6789

Log in   Sign up

Study*Snap*

All of your study material in one document

SIGN UP   LEARN MORE

Multimedia study guides

Add text, terms and definitions, images, online videos, and diagrams to your guide to gather your material into one place.

Smart review options

Review your guide by using flash cards, watching videos, and presenting diagrams like a slideshow, all without having to load another page.

Document sharing

Share your guide with others and contribute whenever you want, from wherever you are.
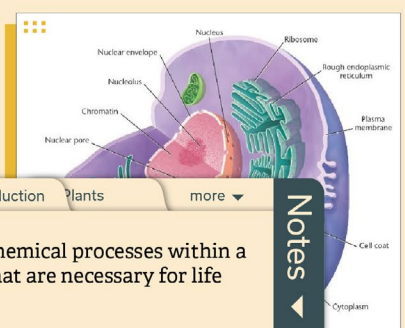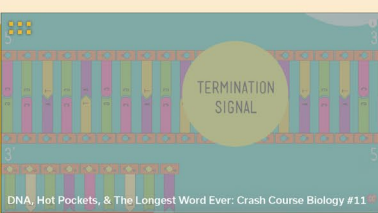
Final mock-ups (2 of 2)

Study Snap

Home   Dashboard   How it works

✉ Email us
email@example.com

☎ Call us
(012) 345 - 6789

Proactive Paige
Settings   Log out

Edit mode   Review mode

autosave 11:57   Share

Biology Midterm

+ text   + image   + video   + terms and definitions   + diagram

Cell respiration | eproduction | Plants | more ▾

Notes ◀

Metabolism: the chemical processes within a cell or organism that are necessary for life

Energy source
- Phototrophs: sun
  - CO_2 and H_2O --> carbohydrates, O_2
- Chemotrophs: organic compounds
  - (carbs, proteins, lipids)

Metabolic pathways
- Catabolic: breaking down ingested food
- Anabolic: synthesis of biomolecules

DNA, Hot Pockets, & The Longest Word Ever: Crash Course Biology #11

TERMINATION SIGNAL

Mitosis

Prophase
↓
Prometaphase
↓
Metaphase
↓
Anaphase
↓
Telophase

Diffusion
The passive movement of particles from an area of high concentration to low concentration

Osmosis
The passive movement of water molecules through a semi-permeable membrane

Active transport
An active movement in which an input of energy is required

Facilitated diffusion
The passive movement of particles from high to low concentration through a cell's protein channel

Endocytosis
Movement into a cell

Exocytosis
Movement out of a cell

Homeostasis
The state of steady internal conditions within an organism; the tendency towards equilibrium

Metabolism
The chemical processes within a cell or organism that are necessary for the maintenance of life

EXAM

November 23, 2pm in Gilmer Hall

- Pen only

- Come with student ID

- 30 multiple-choice questions

- 5 short-answer questions
  - Try to explain every part of the process
  - Partial credit if more than half corrent

- 2 bonus questions for extra credit