TA^2I

TIMELY, ACCURATE, INSIGHTFUL

25 Oct, 2024

THE TEAM

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VALUE PROPOSITION

Value Proposition

- Reduced cognitive load for teachers
- Consistency and fairness in Evaluation

Solution Overview

- Helps teachers generate grading, feedback for students according to their input.

AGENDA OVERVIEW

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SKETCHING EXPLORATIONS

02

SELECTED INTERFACE & RATIONALE

03

LO-FI PROTOTYPE: CONSTRUCTION

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LO-FI PROTOTYPE: 3 TASK FLOWS

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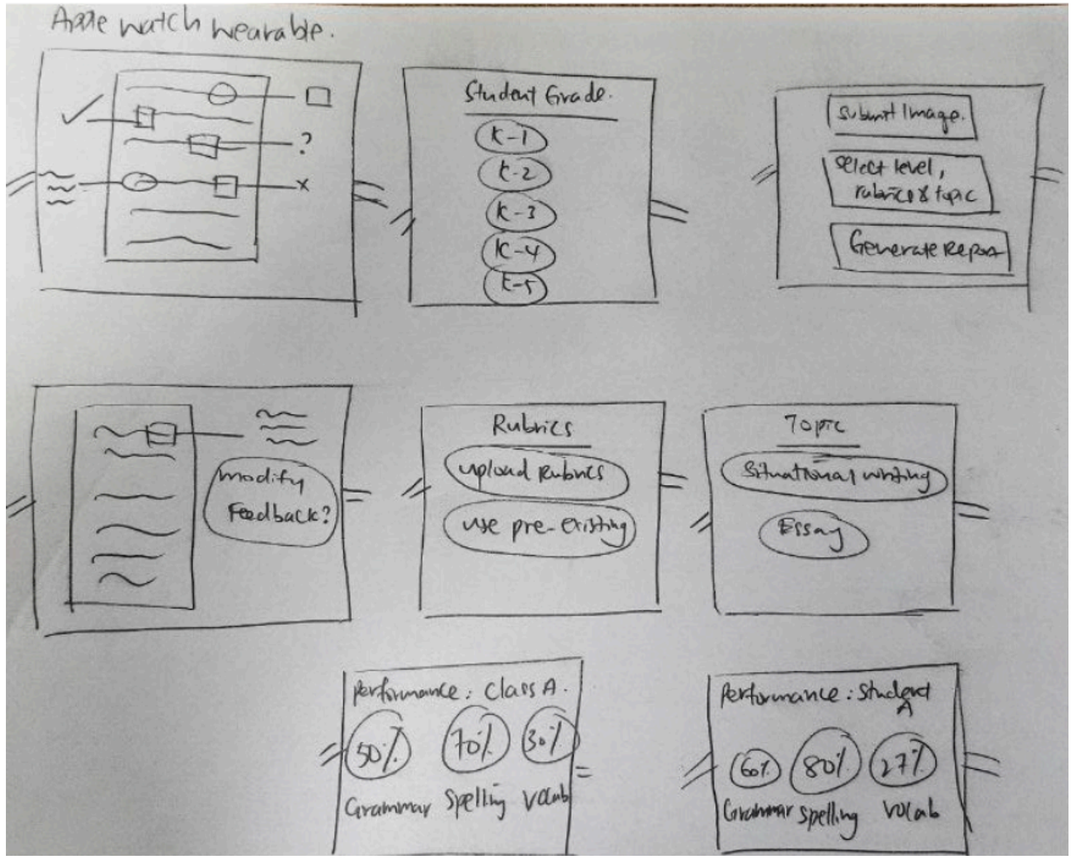
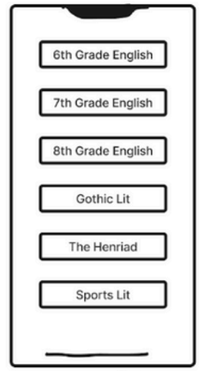
DISCUSSION/APENDIX

SKETCHING EXPLORATIONS

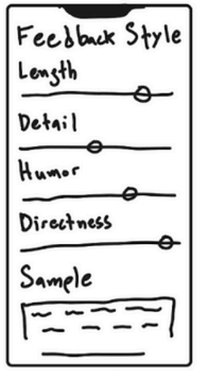
Apple Watch App



Mobile App

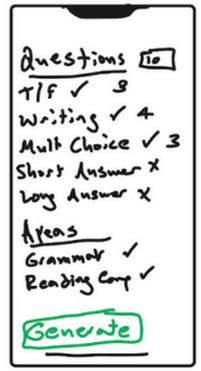


Class selection



Customizing Feedback

Viewing student progress

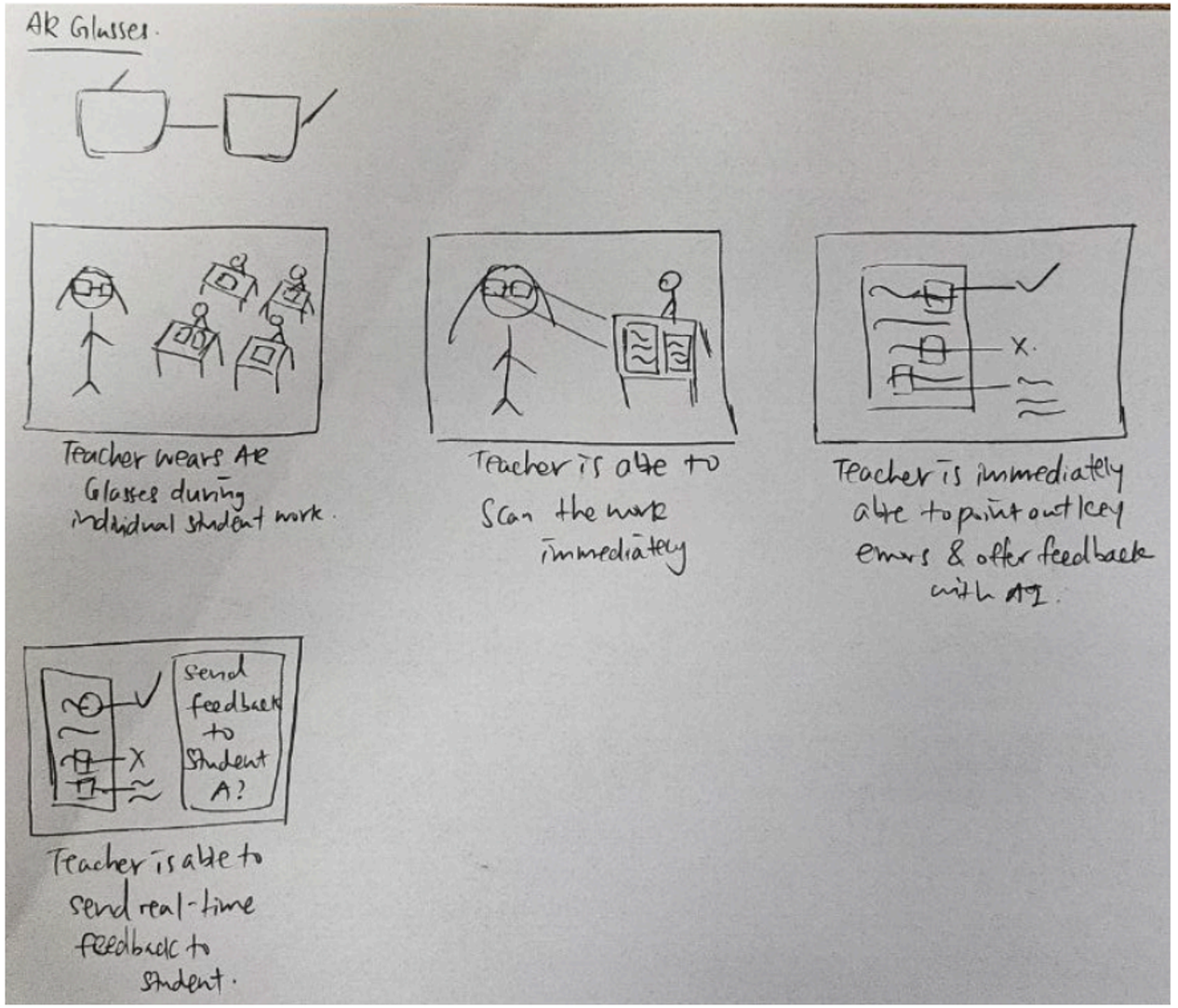


Creating Diagnostics

Approving Feedback

SKETCHING EXPLORATIONS

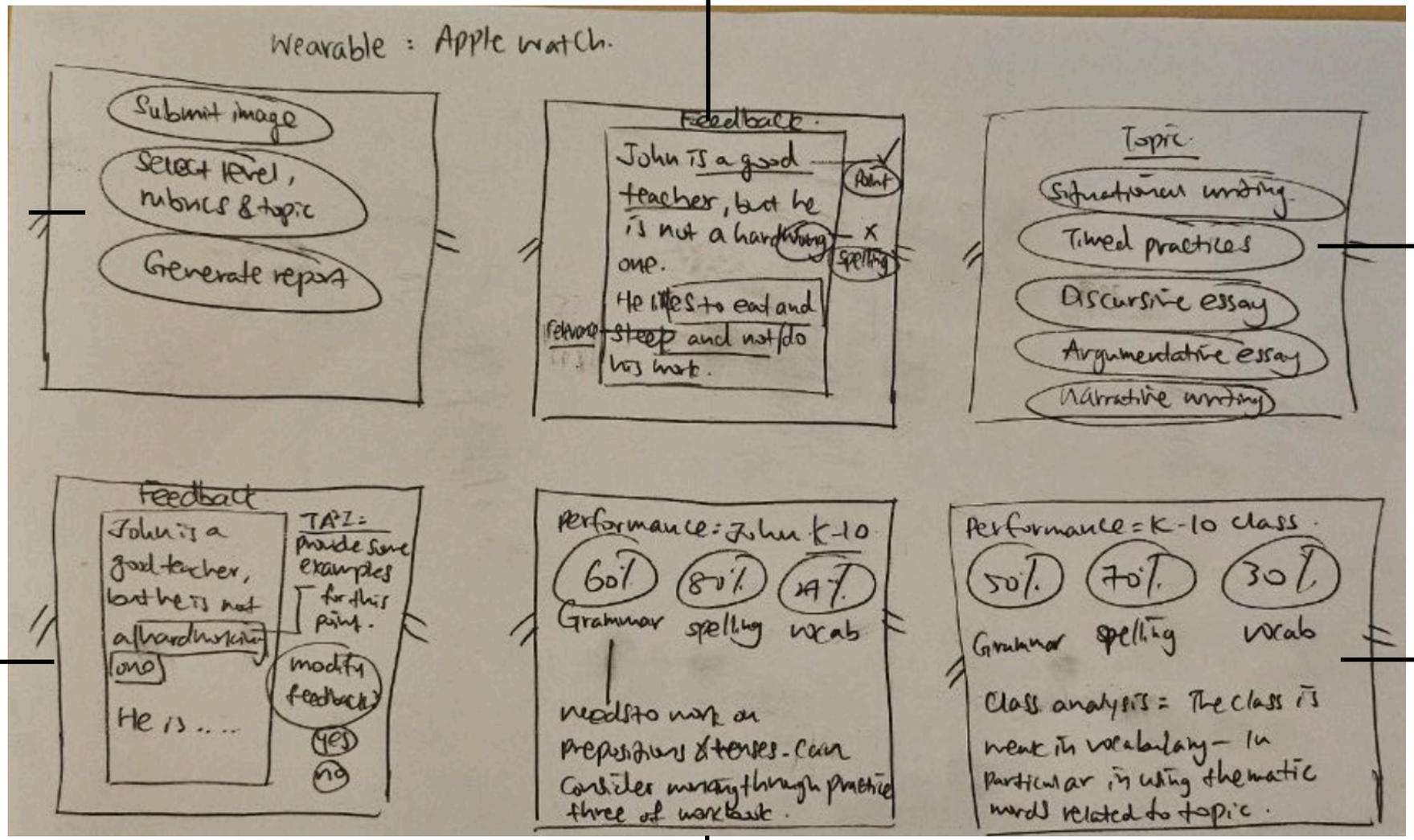
AR Glasses



FLESHED OUT: WEARABLE

Different feedback is identified by the application based on rubrics

Icons to select the different actions & functions



Different topics to choose from that the application is able to process

Teacher allowed to modify feedback that is generated

Able to see the performance analysis of the whole class

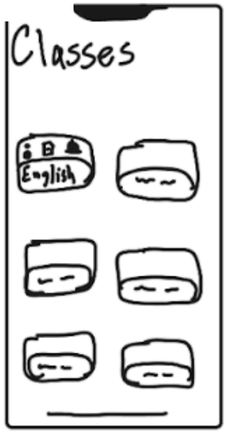
Able to see performance analysis of individual student & recommendations

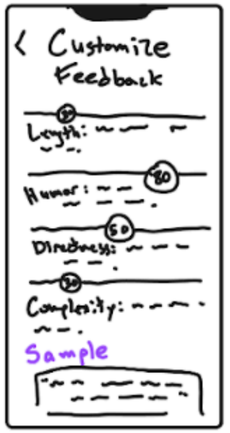
FLESHED OUT: MOBILE

Teachers can view all of the different classes they teach, and quickly see information about students, notifications, and current assignments. The design is meant to be reminiscent of Canvas.

Teachers can customize the background image and main color for each of their classes for organization.

When tapped, class info will slide up from bottom.





From the main 'Feedback' tab, teachers can select 'Customize Feedback'. By setting the sliders, the feedback generated by the app will adjust to their specific style. Sliders contain numbers, which if tapped, can be set manually using the keypad.

The preview here at the bottom will adjust automatically (regenerate) each time the teacher changes parameters, so they can see in real-time what generated feedback will look like.

Each section has a drop-down arrow so it can be collapsed or expanded -- it will 'slide out' below the header.

Student info can easily be seen at the top for contextualization.

From the main 'Students' tab, teachers can select any individual student and view their progress in skill areas over time. Each time a student's work is scanned or submitted into TAI, when it analyzes their work to give feedback, it also generates a score in various skill areas (reading, writing, grammar, etc). The scores are kept over time and graphs are generated so teachers can easily view a student's progress and determine where they need to spend more time.

For a Diagnostic, teachers can easily set the sections (each section has a certain type of question) and the number of questions using dropdowns and type fields.

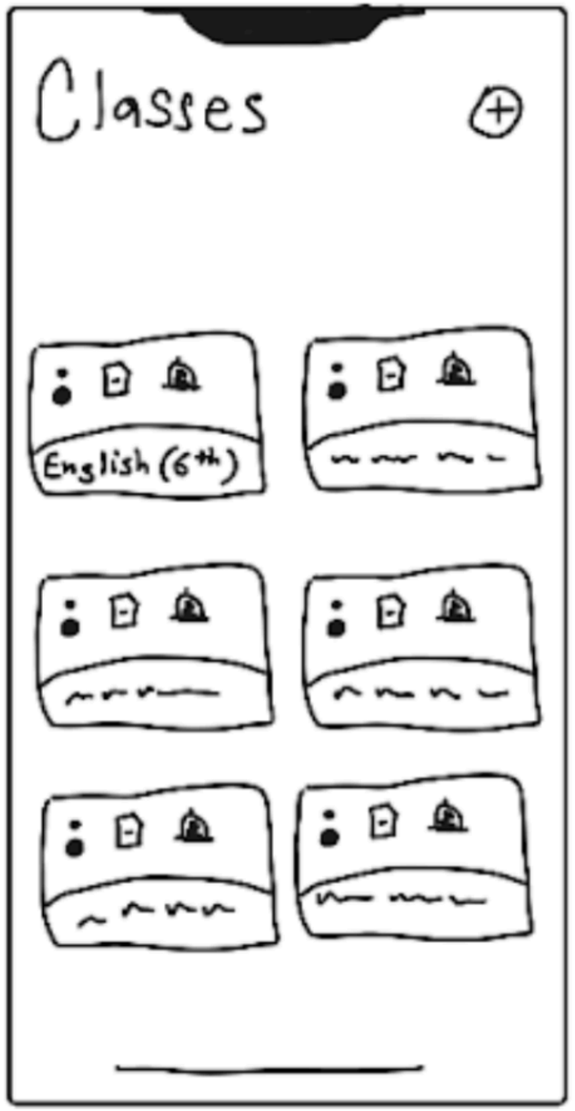
Similarly, they can choose which skill areas the problems should belong to.

The total number is just the calculated sum of the teacher-entered section numbers.

In the Feedback view, teachers can view a student's work on a particular assignment, and view the feedback generated by TAI. By tapping on a piece of feedback, it will get select, and teachers can choose to regenerate it (arrows) or delete it entirely if they feel it isn't helpful or necessary. Additionally, by double tapping in feedback, teachers can directly edit it, so they always have final say over what feedback goes out to students.

All 'AI Generation' throughout TAI is marked by a purple glow, so teachers know exactly when AI is involved.

SELECTED INTERFACE & RATIONALE



Pros

- Low barrier of entry (many teachers have phones)
- Camera access (picture upload of handwritten work)
- Portable (easy to carry around)
- Tactile (allows for intuitive ‘tap-based’ workflows)

Cons

- Potential redundancy in workflows
- Unclear icons due to less screen size/more cramped design

Relevant Data, Constraints & Findings

- Small screen size forced us to prioritize key features
- Testers seemed to find mobile more intuitive than a wearable due to prior experience

Superior Design

- Offers a seamless teacher experience with flexibility due to a phone’s accessibility, minimizes grading time by using the phone’s features (particularly camera), while maintaining teacher oversight.

■

LOW-FI PROTOTYPE CONSTRUCTION

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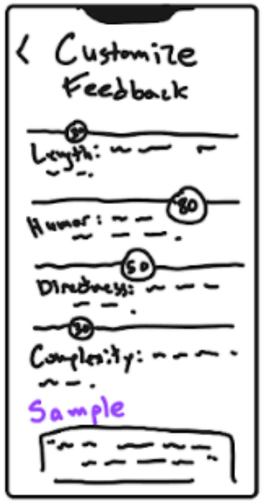

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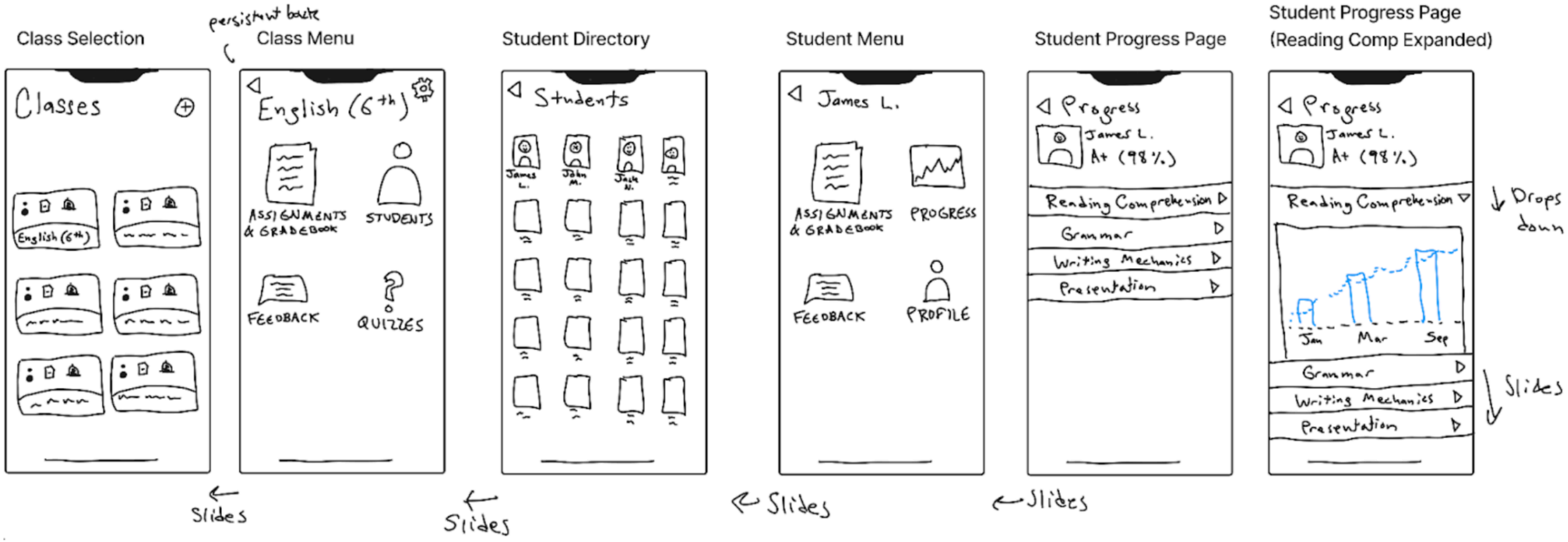
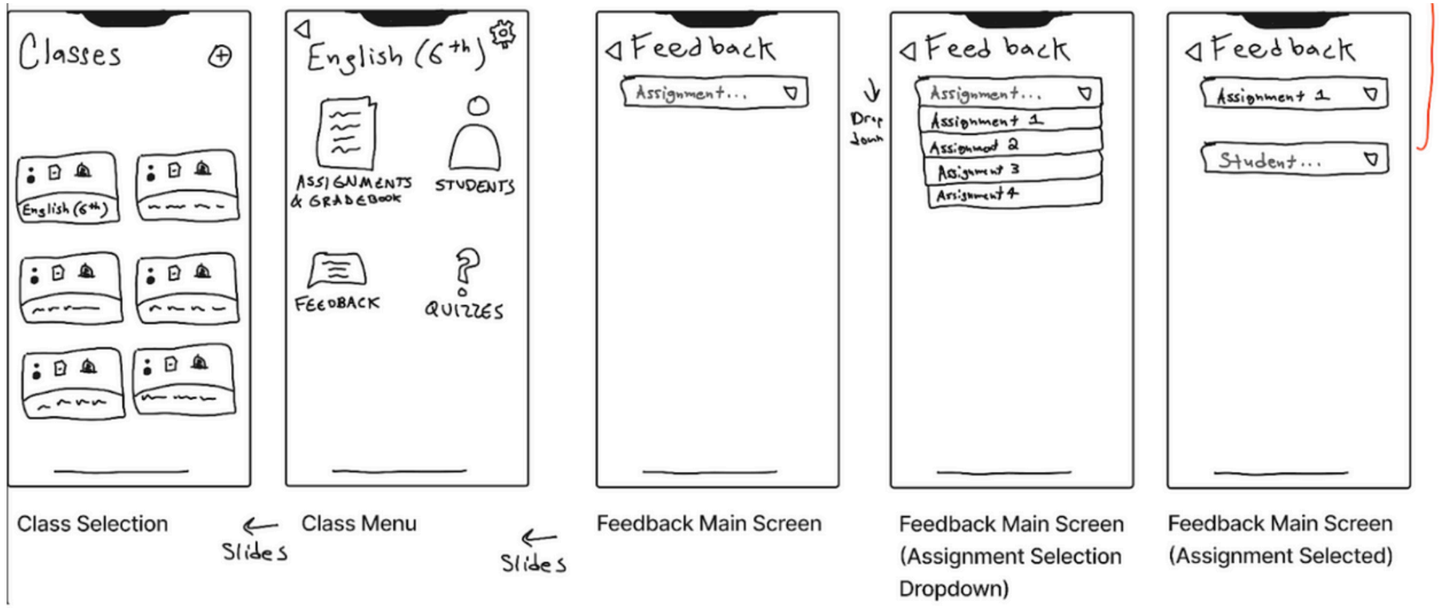
TASK 1 (SIMPLE)

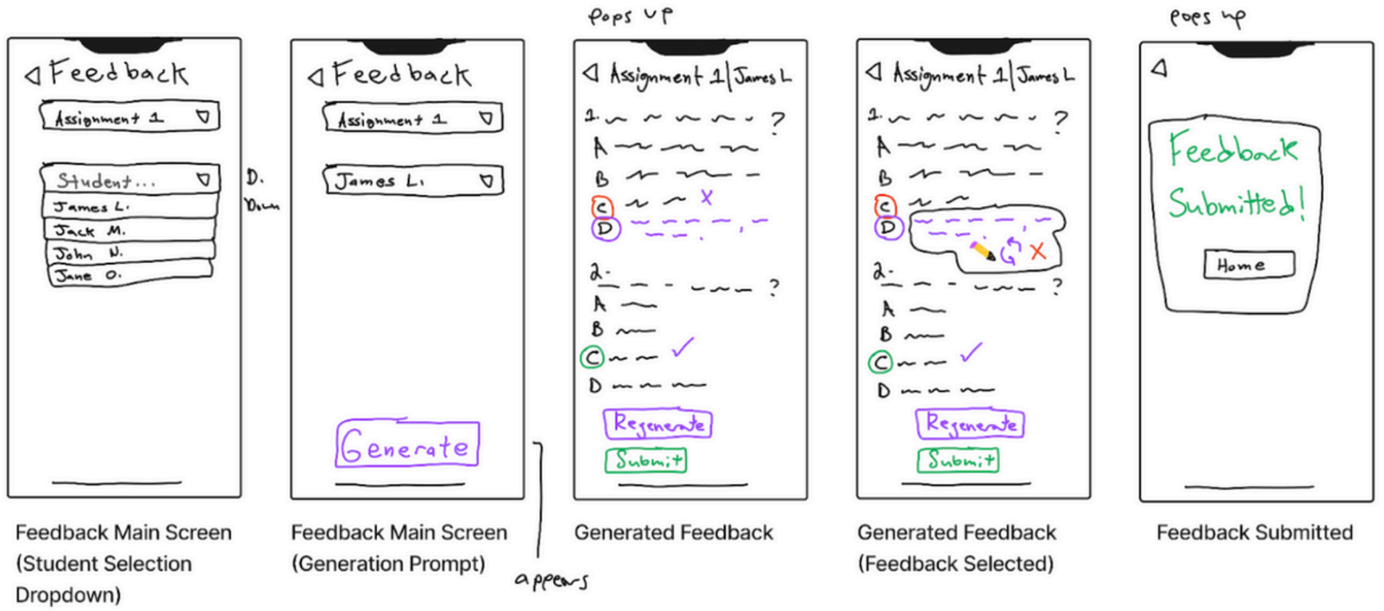
“Please view the progress of a 6th grade English student, James L., in Reading Comprehension over time.”



TASK 2 (MODERATE)

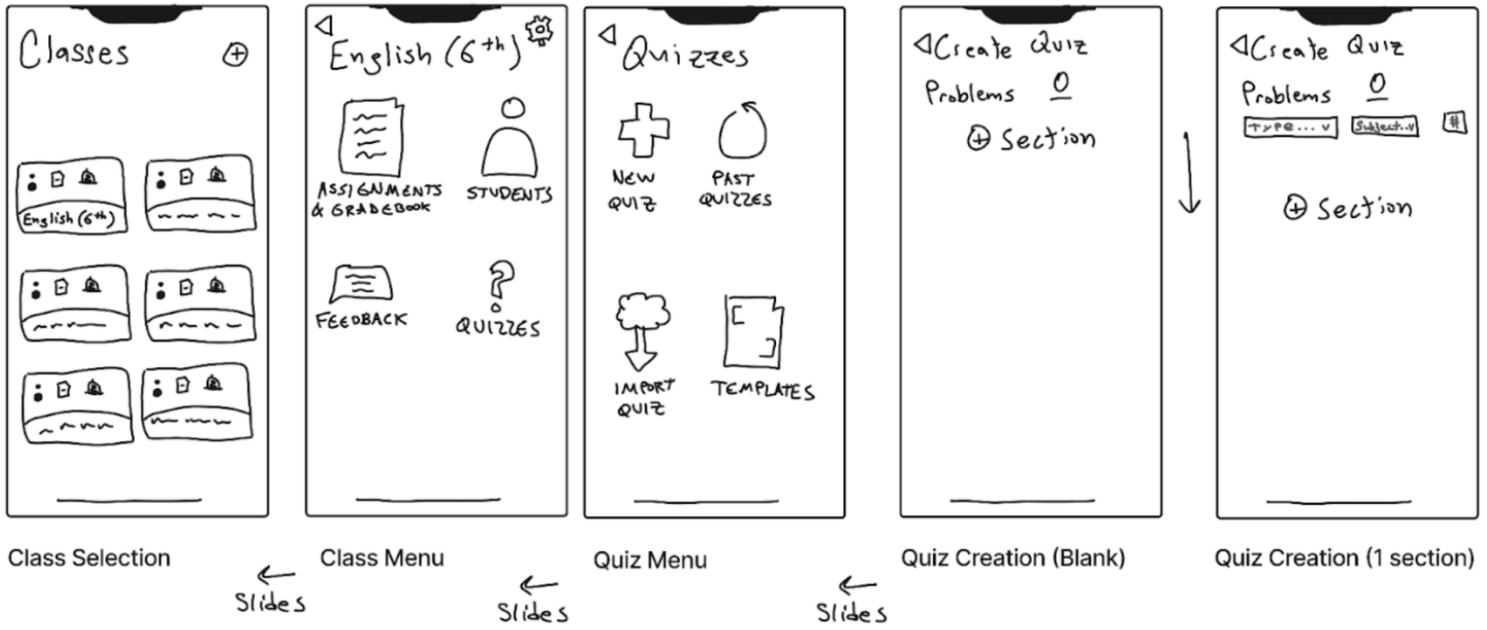
"Please create and submit feedback on James L.'s work on Assignment 1"

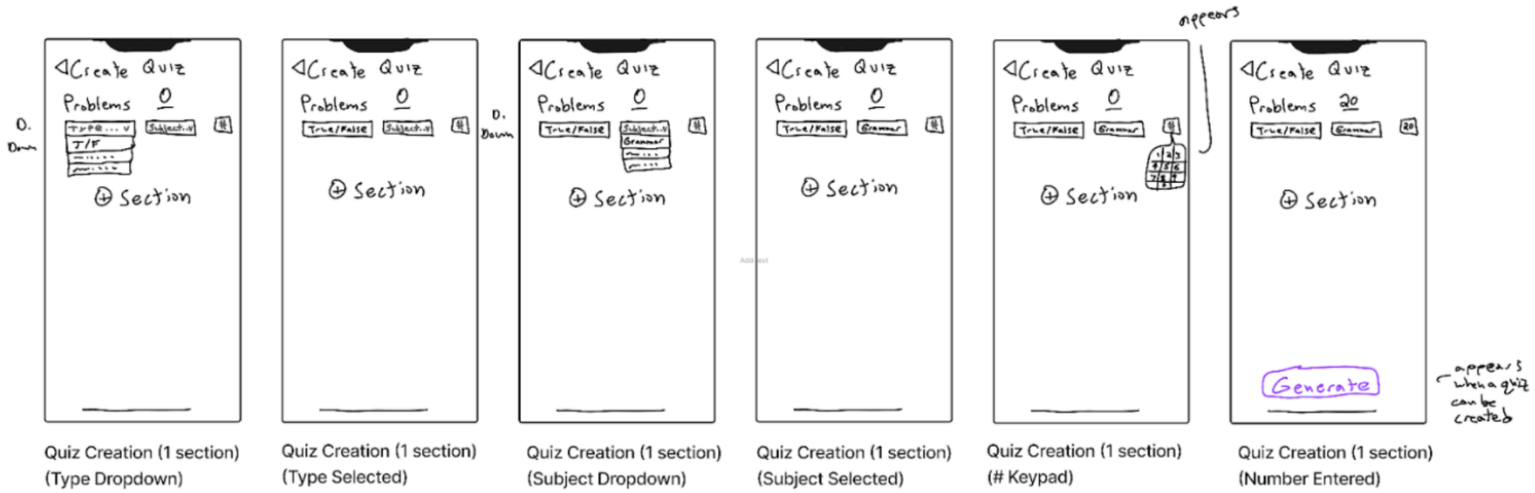




TASK 3 (COMPLEX)

"Please create a quiz with three sections, which each test a different skill area, and totaling 20 questions"





TESTING METHODOLOGY

Participants: demographics, recruitment, compensation

- We recruited participants who were working for the GSE (RAs & TAs), especially those who have spent time around technology and technology design as they are able to not just tell us what might be wrong with our design but also how to fix it.
- We did not compensate participants

Environment and apparatus

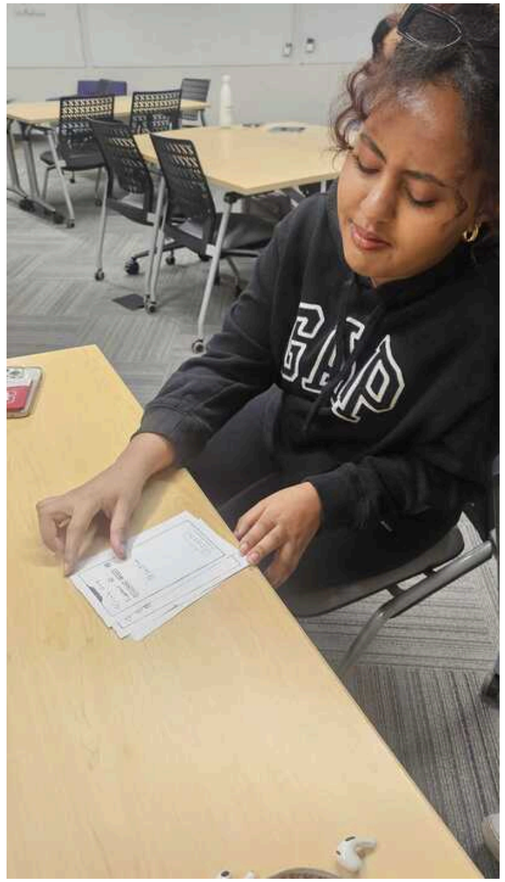
- We performed tests in classrooms or other open rooms near where we were

Procedure

- All team members helped either design the cards or help with testing
- We gave participants a goal and had them try to click through the prototype in whatever manner was intuitive to them with little prompting

Usability

- We largely wanted the prototype to be usable without prompting--this was our main goal
- Many of our qualitative measurements surrounded emotional/verbal confusion from testers



1 User progressed without hesitation

2 User hesitated or otherwise had to think about the next step

3 User had an issue progressing to the next step

4 User had to ask for help to progress

5 User could not progress

Task	Participant	Incident	Severity
Simple Task	1	Brief hesitation when encountering the icons in the quiz settings dial.	2
	2	Minor confusion about the "progress" label, but able to continue without significant delay.	2
	3	Slight misunderstanding of the purpose of symbols/icons, suggesting clearer labels.	1
	4	Needed minimal guidance to understand "progress" meaning but was able to progress easily.	1

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Task	Participant	Incident	Severity
Moderate Task	1	Multiple navigation paths for feedback caused confusion; redundant feedback feature placement.	3
	2	Did not realize the back button was at the top; suggested it should be at the bottom.	2
	3	Icons in the feedback panel were unclear, suggesting clearer labeling.	3
	4	Suggested placing feedback options under "assignments" for easier navigation.	2

1 User progressed without hesitation

2 User hesitated or otherwise had to think about the next step

3 User had an issue progressing to the next step

4 User had to ask for help to progress

5 User could not progress

Task	Participant	Incident	Severity
Complex Task	1	Headers in the quiz section lacked clarity, making it difficult to know what to click.	4
	2	Instructions were unclear on creating a quiz with one problem, leading to confusion.	3
	3	Quiz section layout was confusing; sections and purpose were hard to interpret.	3
	4	No clear way to indicate feedback builds on previous input, causing uncertainty in feedback flow.	4

TESTING RESULTS: PROCESS DATA

- Testers generally navigated the interface without major issues in simple tasks but experienced growing difficulty as tasks became more complex.
- The most common points of confusion involved navigation clarity, the redundancy of feedback features, and a lack of intuitive iconography.
- Overall, the prototype allowed users to complete tasks but highlighted areas for improvement, particularly in icon understanding, task flow clarity, and quiz creation.

TESTING RESULTS: BOTTOM LINE DATA

Simple Task:

- Confusion about what "progress" means
- Feedback section should explicitly say "give feedback"
- Uncertainty about the purpose of the symbols/icons

Moderate Task:

- Multiple navigation paths to actions caused confusion
- Redundant feedback feature; could be placed under "assignments" or "students"
- More feedback options needed
- Back button should be positioned at the end
- Icons were unclear in meaning
- Uncertainty about how to navigate back

Complex Task:

- Headers need to be clearer to guide users on what to click
- Instructions were unclear, especially around the purpose of sections (e.g., creating a quiz with 1 problem)
- Quiz section was confusing, unclear what the sections represented
- No clear way to indicate that feedback is building on previous input

Overall, users were generally able to reach their end goal without much prompting, which was one of our key usability goals

DISCUSSION

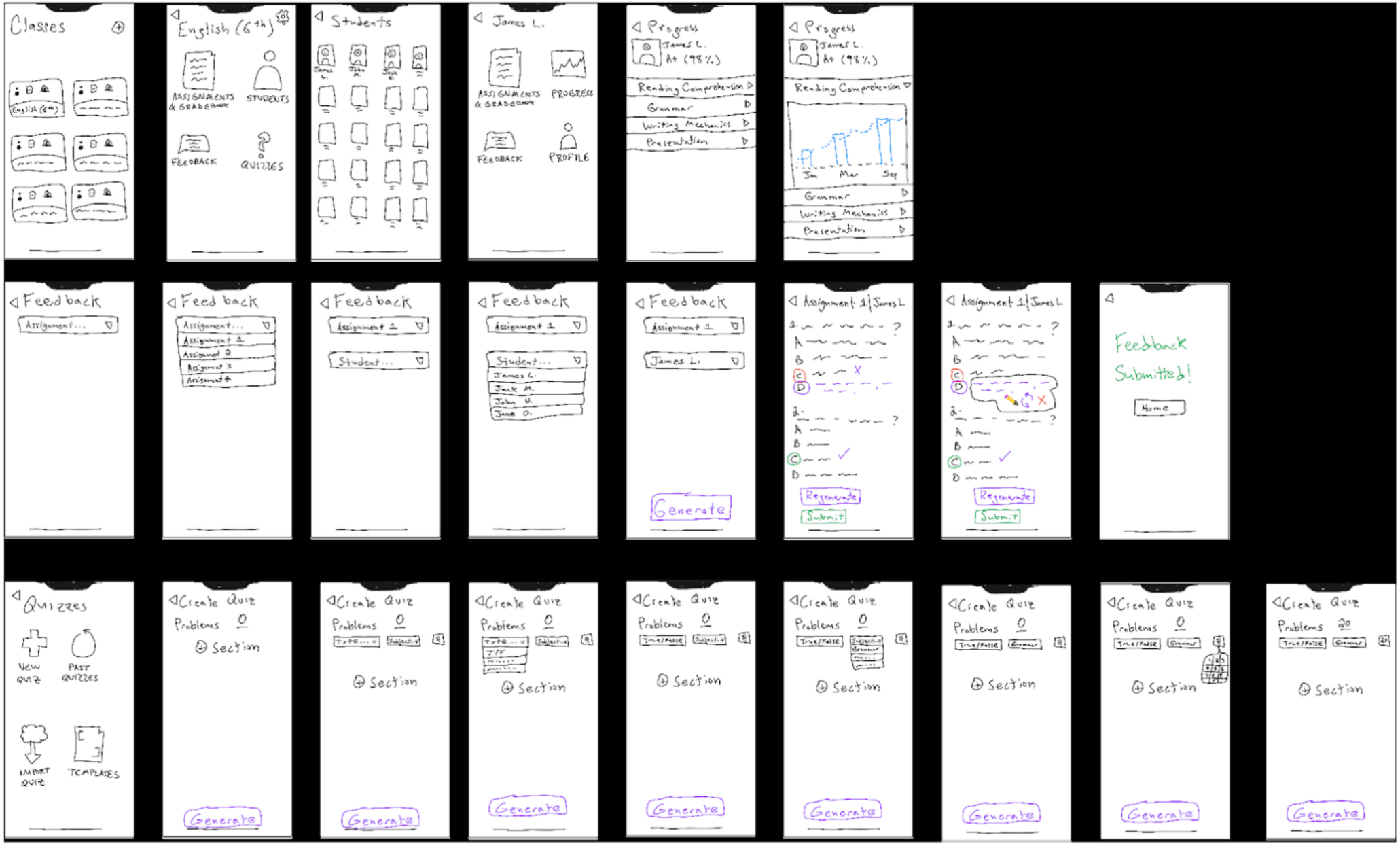
- Implications of findings:
  - Functions well for basic tasks but struggles with clarity in complex tasks.
  - Navigation and icon understanding need improvement to reduce user confusion.
  - Redundancies in feedback pathways should be minimized to streamline user experience.

- Design changes:
  - Simplify navigation paths to reduce confusion (e.g., feedback being redundant across different sections).
  - Improve iconography to make symbols more intuitive.
  - Refine task flow for complex operations like quiz creation, ensuring clearer instructions and sections.

- Was there anything that the testing couldn't reveal?**:
  - Did not fully explore how users would interact with additional features in real-world teaching scenarios.
  - Long-term usability in reducing teacher workload could not be evaluated in this short testing phase.
  - Questions about scalability across different teacher demographics and class sizes.

APPENDICES

Birds Eye/Comprehensive View



Testing Logs

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Interface Rationale Pros/Cons

PROS

- Portability: Easy access on the go.
- Familiar UI: Minimal learning curve.
- Real-time feedback: Immediate responses.
- Accessibility: Works for both teachers and students.
- Multitasking: Manage multiple tasks easily.
- Push notifications: Alerts for assignments and progress.
- High adoption: Common in educational settings.

CONS

- Limited screen space: Cumbersome for complex tasks.
- Distractions: Non-work notifications.
- Battery dependency: Risk of drain during long hours.
- Typing limitations: Tedious for long feedback.
- Reduced visibility: Hard to handle large datasets.
- Slower performance: Mobile devices may lag with complex tasks.
- Internet dependency: Connectivity issues may impact usability.

Link to A5 Report