

Medium-Fi Redesign #3 & Rationale

Summary

Our main design changes include the navigation from the top toolbar, the graphs on the homepage, the breadcrumbs and naming conventions, checkboxes and navigation arrows for the lesson materials analyzer, and a section for past progress reports.

Severity 3 and 4 Design Changes and Rationale

1. **Make Students tab link to the roster of all students, SEV 4, H1 Violation (#1)**
 - a. **Re-Design:** We made the Students tab link to the roster of all students instead of the roster for one specific period.
 - b. **Rationale:** Users were confused that the Students tab in the navigation bar linked straight to a specific period's roster instead of a general list of students, so we decided to change this.
2. **Use bar graphs with discrete data, SEV 3, H2 Violation (#3)**
 - a. **Re-Design:** On the homepage on the graphs for class progress, we changed the linear, continuous plot into a bar chart with discrete data from each week.
 - b. **Rationale:** We made this fix because users did not understand why the class progress and stats were plotted as a line graph and thought that a bar chart with discrete data would make more sense.
3. **Make breadcrumbs functional throughout, SEV 3, H3 Violation (#4)**
 - a. **Re-Design:** On all the pages that have the breadcrumb navigation on the top left, we linked the breadcrumbs to the correct pages and made the breadcrumb navigation functionality.
 - b. **Rationale:** We made this fix because users were frustrated that when they clicked on certain parts of the breadcrumb navigation, it did not navigate them to where they wanted to go.
4. **Update homepage graphs, SEV 3, H4 Violation (#8)**
 - a. **Re-Design:** We changed the charts on the homepage to be bar graphs instead of line graphs.
 - b. **Rationale:** We made this fix because the graphs throughout the website were inconsistent; namely, the homepage had line graphs, while the individual student page had horizontal bar graphs. Thus, by making this redesign, we made the charts consistent and easy to compare and contrast data.
5. **Renamed content analyzer and associated breadcrumbs, SEV 3, H4 Violation (#9)**
 - a. **Re-Design:** We renamed the Content Analyzer page to be called Lessons to match the toolbar tab navigation and updated the breadcrumb navigation of that page accordingly.
 - b. **Rationale:** We made this fix because users were confused that the Lesson Materials tab in the toolbar navigates to a page titled Content Analyzer.
6. **Made linking of the Student tab consistent, SEV 3, H4 Violation (#10)**

- a. **Re-Design:** We made the linking of the Student tab consistent by always linking it back to the roster of all students.
 - b. **Rationale:** We made this fix because originally, the Students tab in the top navigation bar created an inconsistent experience. When in the Lesson Materials page, clicking the Students tab takes the user to the Class Profile page. However, when on the Home Page or an individual student's profile page (e.g. Matthew Tan's page), clicking the Students tab takes the user to the roster of students for period 1.
- 7. **Added breadcrumbs to the lesson materials flow, SEV 3, H4 Violation (#11)**
 - a. **Re-Design:** For the lesson analyzer, we added breadcrumbs to navigate from a specific file's analysis back to the main lesson plan analyzer page.
 - b. **Rationale:** We made this fix because the users were confused that there was no way to go back to the main lesson plan analysis page once they clicked on a file to analyze, while other parts of the website had breadcrumbs to navigate back to earlier pages.
- 8. **View entire custom message in progress report preview (Task 3), SEV 3, H4 Violation (#14)**
 - a. **Re-Design:** For Task 3, we display a preview of the progress report after the user has filled out a progress report. Previously, we had a box outline surrounding the custom feedback section. We removed this box.
 - b. **Rationale:** Users seemed to think that feedback was being cut-off with the box. We removed the box to clarify that all feedback is shown.
- 9. **Enable checkbox functionality to Lesson Materials annotations (Task 2), SEV 4, H4 Violation (#16)**
 - a. **Re-Design:** We allow users to select multiple types of AI-suggestions (vocabulary and cultural connections). Previously, we had round "multiple-choice" icons. We changed this to checkboxes.
 - b. **Rationale:** We changed our design to checkboxes to clarify that users were able to select multiple options.
- 10. **Separate data by the week, SEV 3, H6 Violation (#17)**
 - a. **Re-Design:** We changed the type of the chart from line graph to bar graph and separated the data by week (Week 1, Week 2, Week 3, etc.) to help explain the data, help teachers figure out how their classes are doing each week, and overall give a better indication of when and why performance is what it is.
 - b. **Rationale:** We made this fix because users wanted an indication of why and when performance was higher/lower. The graph was not good at conveying that information, so that is why we did the redesign.
- 11. **Label the plots on the homepage, SEV 3, H6 Violation (#18)**
 - a. **Re-Design:** On the homepage, we labeled the plots' x-axis and y-axis and added a legend to distinguish between the two aspects that were graphed. Previously, the graphs on the homepage did not have any labels or indication of what the graph was about.

- b. **Rationale:** We made this fix because users were confused about the information presented because the graphs on the homepage did not have any labels on the plots.
- 12. **Reorganize ordering of file in today's plan section, SEV 3, H7 Violation (#22)**
 - a. **Re-Design:** On the homepage, we reorganized the files in the lesson materials part of today's plan to be in order of more recently uploaded to least recently uploaded. Previously, the ordering was oldest to newest files.
 - b. **Rationale:** We made this fix because as users upload more files, it may become inefficient to navigate through the number of files to find your most recently uploaded files, which is probably the ones you want to use as well.
- 13. **Add arrows to navigate across annotations for Lesson Materials (Task 2), SEV 4, H7 (#24)**
 - a. **Description:** We added arrows so that the user could navigate across annotations for lecture materials. Previously, to see the AI suggestions related to content in the lesson materials, the user had to click on the highlighted content.
 - b. **Rationale:** We made this fix because users did not like that they could not navigate through the annotations without manually finding them and clicking on each of them.
- 14. **Show past progress reports, SEV 4, H10 Violation (#34)**
 - a. **Re-Design:** After a user has sent a progress report, we give a confirmation message and show past progress reports sent.
 - b. **Rationale:** This is not catastrophic, but relates to clarifying user understanding. By showing past progress reports that the user has sent, users can clarify if the progress report was sent and view reports over time.

Non-Change and Rationale for Severity 3/4 Violations

- 1. **Add edit feature for lesson materials (Task 2), SEV 4, H3 Violation (#6)**
 - a. **Description:** For Task 2, users are able to view AI-related suggestions and annotations from submitted Lesson Materials. Feedback requested adding an Edit button, so that users can also annotate the document.
 - b. **Rationale:** This is not a major issue, but an additional use case that may improve user experience. It does not relate to our main task goal and could add many other complexities. As such, we decided not to implement it.
- 2. **Add "Create feedback form" to all tabs on the Student Profile (Task 1/3), SEV 3, H7 Violation (#26)**
 - a. **Description:** Currently, users can access Task 3 through Grades/Progress on the Student profile page. Feedback requested adding the "Create feedback form" button on all pages of the profile.
 - b. **Rationale:** We did not implement this change, because it does not fix any major task issue or functionality. This change relates to ease-of-use; however, it can cause confusion on entry into Task 3. We chose to have one "Create feedback form" button so there is a clear entrypoint into Task 3.

Selected Other Severity Design Changes and Rationale

1. **Distinguish suggestion type on Lesson Materials based on color (Task 2), SEV 2, H3 Violation (#12)**
 - a. **Re-Design:** For Lesson Materials, we provide two types of suggestions: vocabulary and cultural connections. To distinguish these two suggestion types, we gave them different highlight colors. To clarify this choice to users, we provided an explicit color key to indicate suggestion type.
 - b. **Rationale:** Feedback implied that users were able to infer suggestion type on color. However, they expressed preference for a discrete key for clarity.
2. **Fix consistency of files on prototype, SEV 1, H1 Violation (#13)**
 - a. **Re-Design:** Some of the file names varied across the prototype. We fixed the file names so that they are all consistent.
 - b. **Rationale:** Having consistent file names would alleviate user confusion as they navigate the prototype.
3. **Allow filtering for students on the homepages/class pages, SEV 1, H6 Violation (#19)**
 - a. **Re-Design:** On the homepages/class pages, users can now filter their students to see all students or students in a specific class (E.g. Period 1).
 - b. **Rationale:** It improves user understanding and navigation to relevant tasks.

Testing & Planned Design Changes

Findings Summary

While we were happy to note that most users found our website to be intuitive (facilitating each of our three tasks) and robust (able to support even complicated task flows), they would have appreciated more context on the power of the site overall prior to use. We also have some work to do to make sure terms on our site aligns with industry standards in order to ensure the platform is directly deployable in a classroom setting. Please see the section below titled “Planned Design Changes” for an in-depth explanation of our future considerations.

Testing Plan

Target Participants

We tested with four participants from our target user group. As mentioned in previous assignments, our target users are secondary education teachers who teach “mainstream” classes (e.g. science, history, English, and more) or tutors in similar areas. These individual teachers do not have specialized training in ESL but have previously had/have ESL students in their classroom. Overall, this group consists of individuals with teaching backgrounds for non-ESL subjects in secondary education. Participants were recruited from through our personal network and contacts. Our test participants come from this background:

- Dr. Renna Wolfe, high school science educator
 - Has taught AP Biology as well as neuroscience and other science courses
 - Has experience with both middle and high school
 - Got a PhD in neuroscience and is passionate about scientific communications
 - Blog post spotlighting Dr. Wolfe: <https://www.ljcds.org/news-detail-?pk=1343627>
- Chris, High school science educator
 - Started teaching in 2012 after working as a marine biologist in collaboration with conservation groups
 - Taught chemistry and biology
 - Blog post spotlighting Chris: <https://www.ljcds.org/news-detail-?pk=1043931>
- Barbara, elementary educator
 - Chosen to represent the population of older instructors
- Aisha, former high school ESL tutor
 - Currently a sophomore in college
 - Taught a variety of subjects, including science, math, and social studies, to ESL students while she was in high school

Testing Methodology

Similar to our previous methodology, we conducted the testing over Zoom and in-person, and our medium-fi prototype was made in Figma. We sent the link to our Figma prototype to our participants or, in the case of in-person testing, handed them a laptop with the prototype pre-loaded in Chrome. Participants shared their screen and went through the prompts to test our tasks. We followed a general discussion and testing guide, where we asked questions and

participants responded. We also had participants talk aloud as they went through the process and took note of their reactions.

Testing Results

- Participant was confused about which elements were buttons and which elements (with the same title as buttons) were just text
- Participant was generally disoriented because of the lack of background knowledge about the function of our product
 - For example, we have a document called “volcano extra vocab,” and the participant didn’t realize we had to generate new vocab and kept trying to click that document
- Participant was confused by “Today’s Plan: Lesson Materials” section on the home page
 - Participant suggested we use better or clearer document names for clarity
- Participant thought that clicking “Class Profile” button was the way to get to student information
- Participant thought that some of the more redundant flows (such as uploading a file for analysis, which can happen on the homepage as a shortcut or through the “Lesson Materials” tab) could confuse if not explained ahead of time
- Participant didn’t realize at the outset that the file manager had alternate sorting/ flagging mechanism

Planned Design Changes

1. The site might be intuitive and robust, but our tasks are not self-explanatory; so we should include tutorial page that provides context about the tool as a whole
2. We still need to fix alignment issues on multiple screens so it doesn’t look like the whole prototype “shifts” with one click
3. We need to make buttons more obvious; sometimes, users are confused about whether something is just a text field or is a clickable button. Buttons should be distinguished by location and their ability to stand out (this change applies even more so to confusing flows such as the file manager)
4. Change nomenclature (such as that of “Class Profile”) to align with educational standards (what teachers are already familiar with)

Team Coterm

Questions, Concerns, and Worries

- How might we provide the user with appropriate context on using our tool without overwhelming with instructions?
- How might we ensure the nomenclature of our buttons is consistent with education standards (such as “Class Profile”)?
- How might we further simplify our interface without losing robustness (i.e. the ability to perform complex or intricate tasks)?
- Does the flow and navigation through the website make sense? Are the hierarchies of information logical?
- Are the graphs/charts throughout the website readable and comprehensible?
- Is it okay if we have one set flow for the feedback form (meaning specific things have to be chosen)?
- Implementation of AI would be very difficult in terms of collecting training data from students, developing models, and implementing use cases along with policies holding data of student minors. If this was a high-fi prototype, what AI elements would be needed?
- What are the names of Landay’s dogs? Can we see them?
- How is the teaching staff doing this quarter? Hope that you’re all well!