eduCulture

Team Coterm

Team

Kayla Magid

MSCS '21

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Problem & Solution

Non-ESL secondary school teachers are ill-equipped to support the learning needs of ESL students

AI-powered teacher platform that provides insight on student progress and suggestions for incorporating culture and language into class content

Mission & Value

Mission

To empower non-ESL secondary school teachers with academic and cultural resources to support ESL students

Value

Understand ESL students' needs beyond academics with culture and language

Overview

Redesign #1 → **Usability Study** → **Study Results** → **Redesign #2**

Overview

Redesign #1 → **Usability Study** → **Study Results** → **Redesign #2**

1. Changed Feedback Form Structure

Before

eduCulture

Analyze | Students | CT

MT

Matthew Tan

Grade 7

About

Grades/Progress

Contacts

+ Add custom student feeback

Strengths

Understands the term tectonic plates
Description: used this term correctly

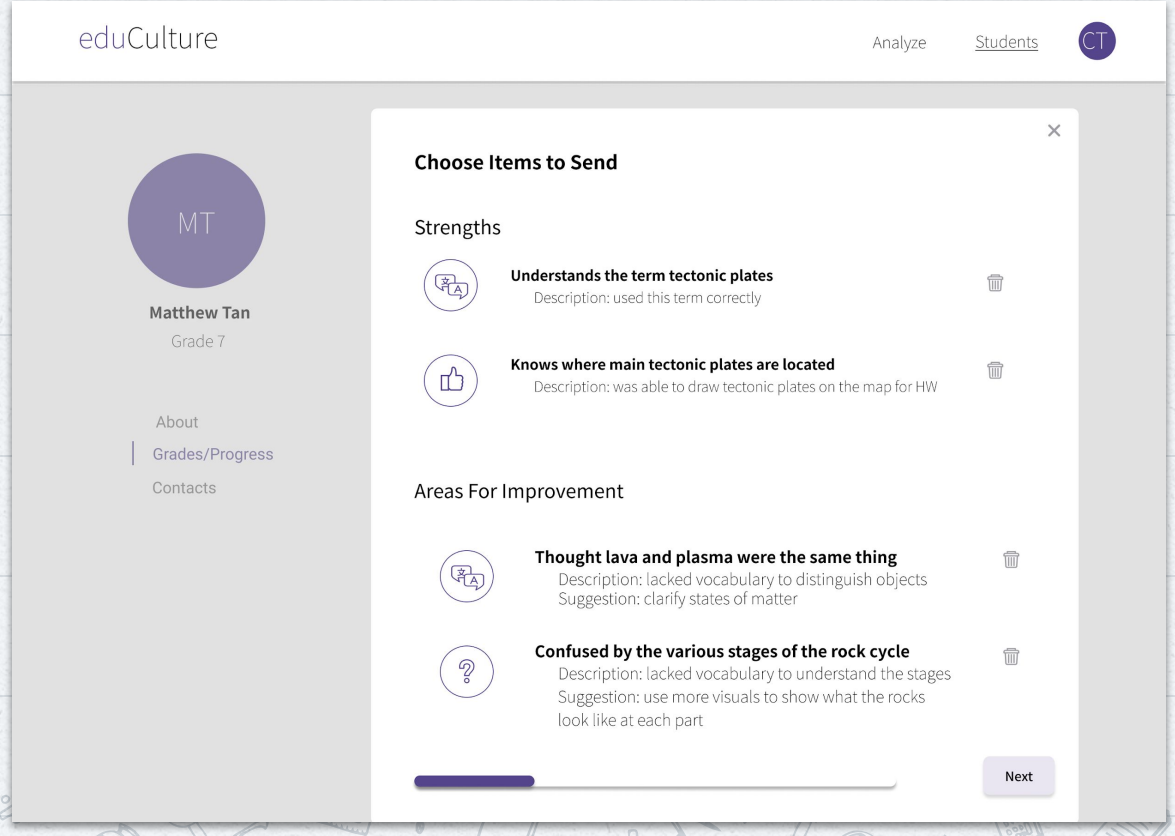
Knows where main tectonic plates are located
Description: was able to draw tectonic plates on the map for HW

Areas For Improvement

Thought lava and plasma were the same thing
Description: lacked vocabulary to distinguish objects
Suggestion: clarify states of matter

Confused by the various stages of the rock cycle
Description: lacked vocabulary to understand the stages
Suggestion: use more visuals to show what the rocks look like at each part

After


eduCulture
Analyze
Students
CT
MT
Matthew Tan
Grade 7
About
Grades/Progress
Contacts
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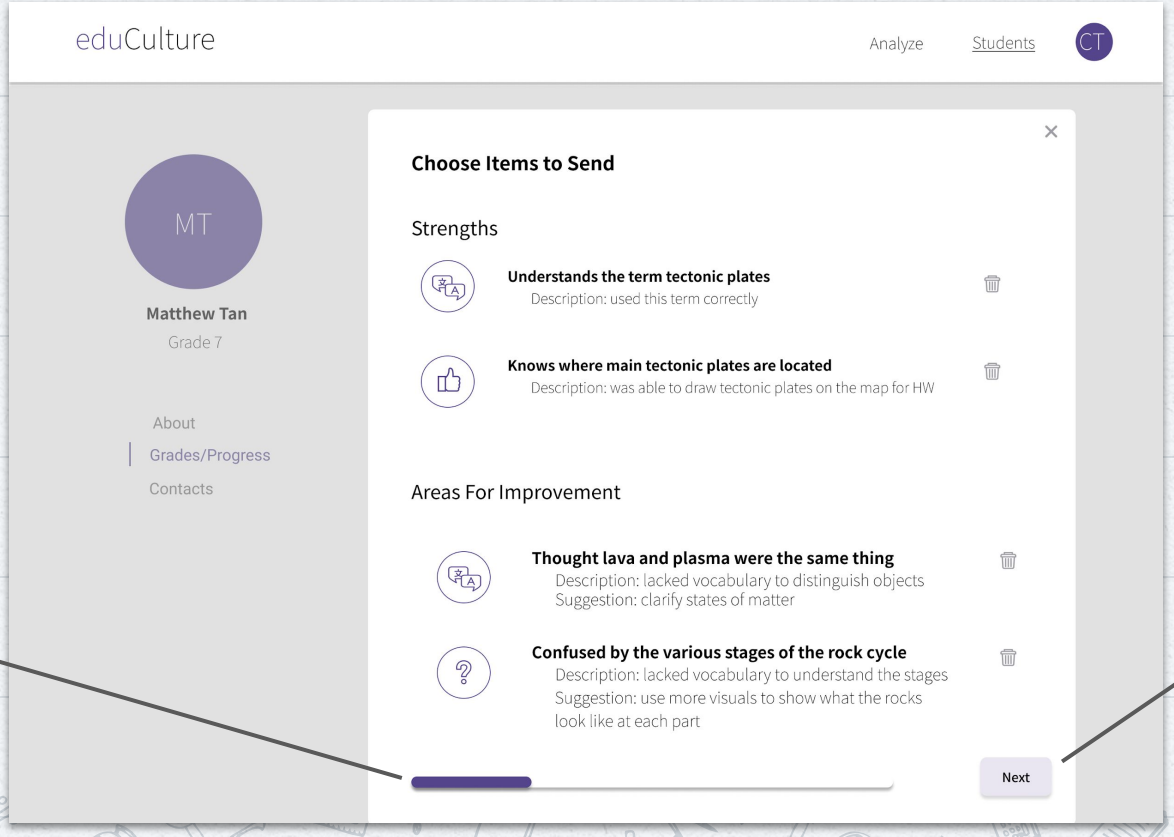
Next

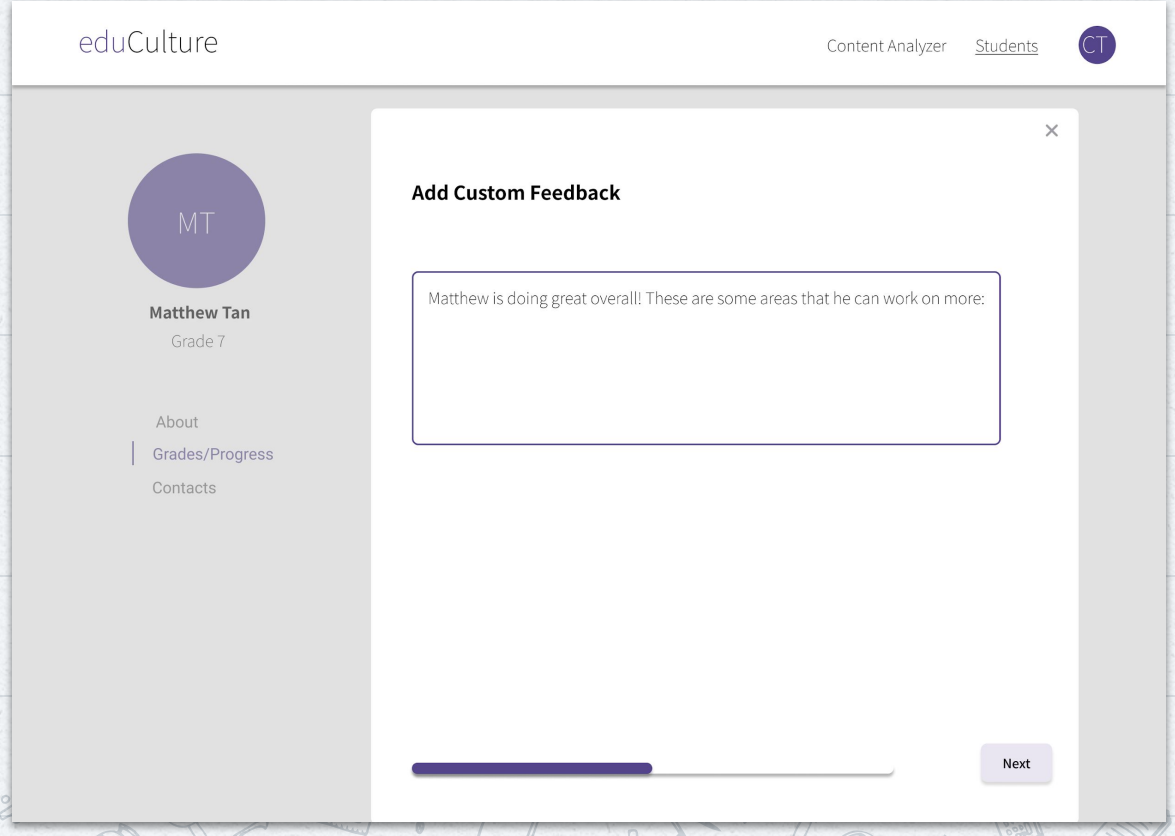
After



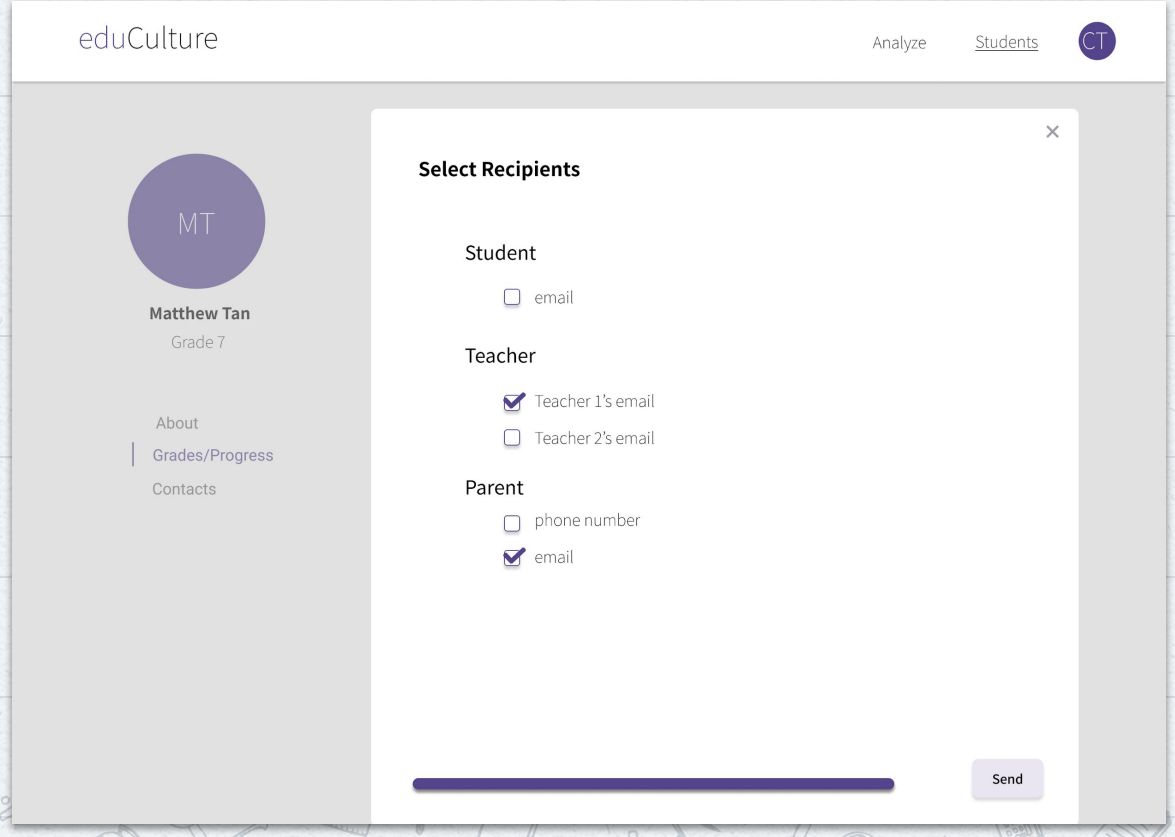
Added progress bar

Move to the next page

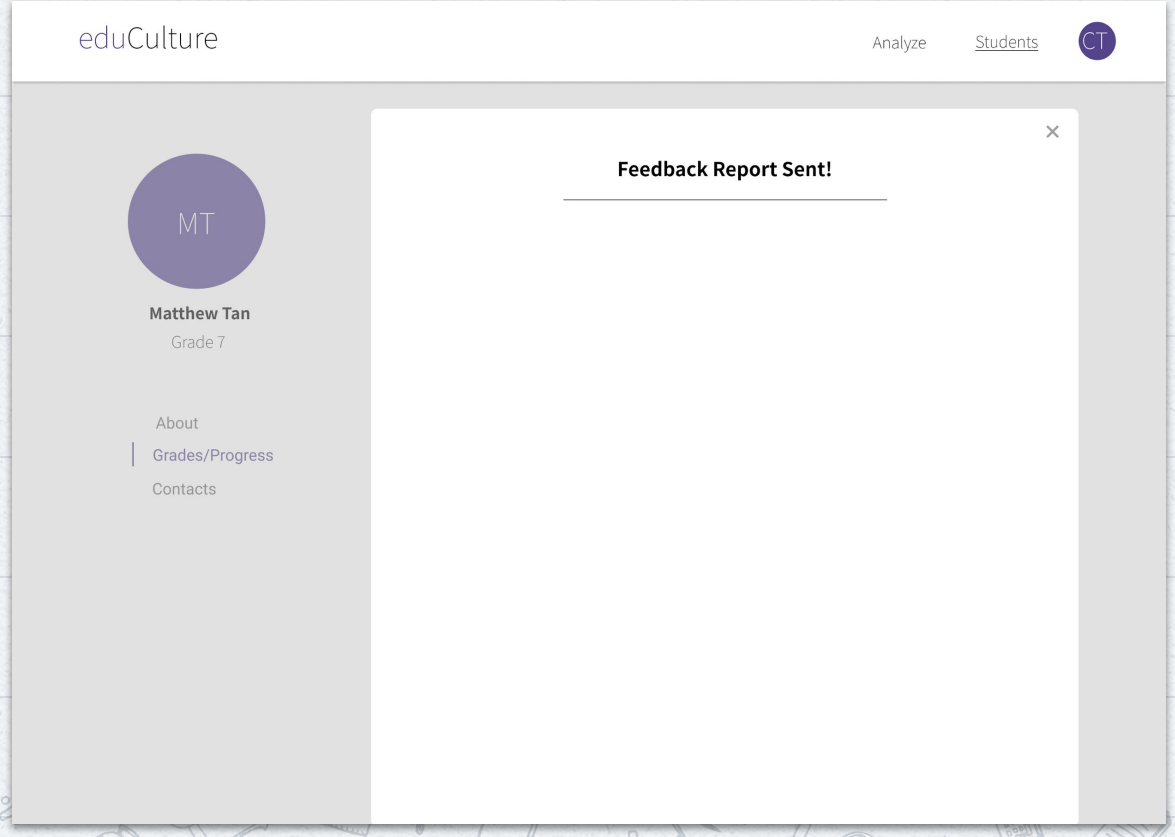
After


eduCulture
Content Analyzer
Students
CT
MT
Matthew Tan
Grade 7
About
Grades/Progress
Contacts
Add Custom Feedback
Matthew is doing great overall! These are some areas that he can work on more:
Next

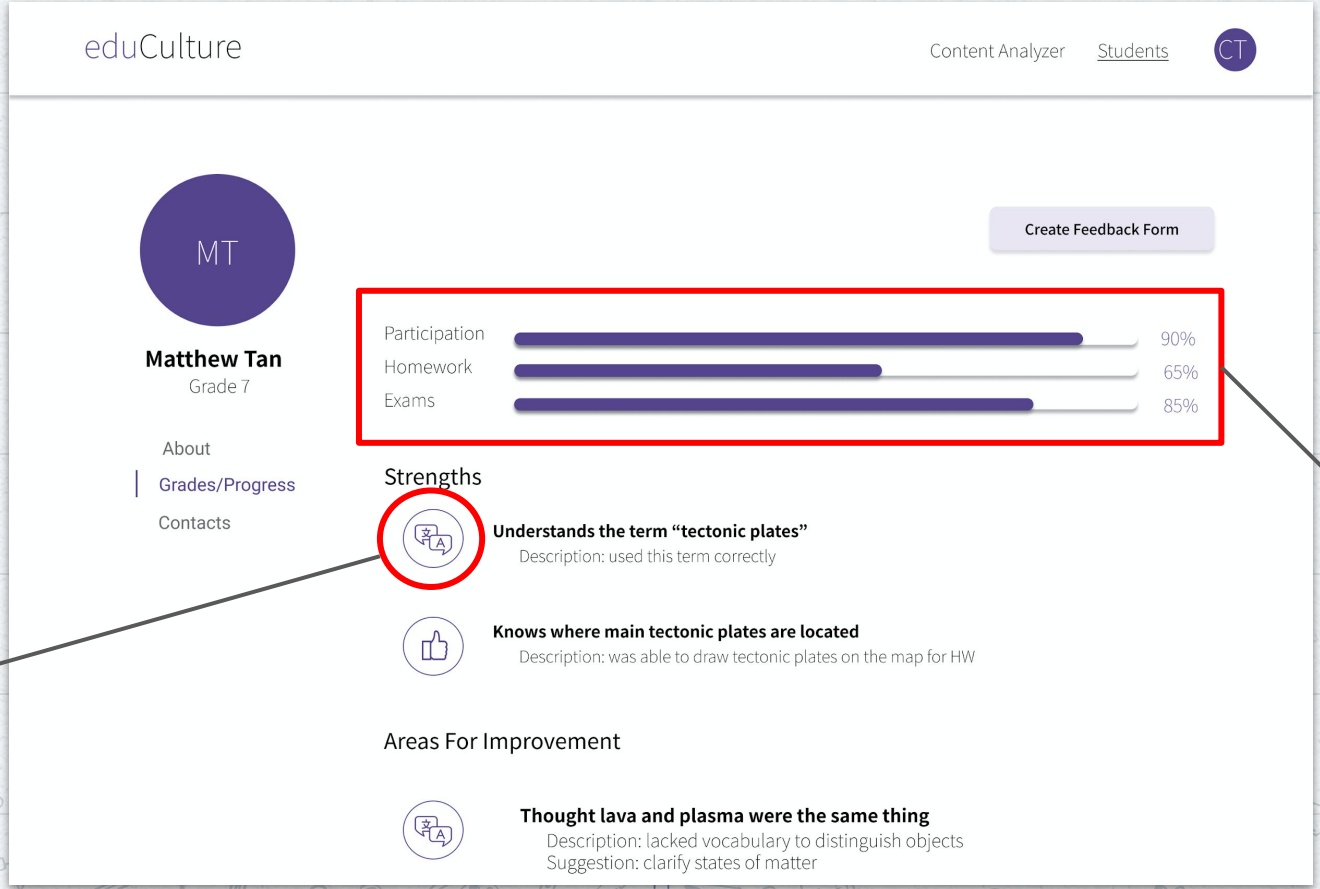
After


eduCulture
Analyze
Students
CT
MT
Matthew Tan
Grade 7
About
Grades/Progress
Contacts
Select Recipients
Student
email
Teacher
Teacher 1's email
Teacher 2's email
Parent
phone number
email
Send

After


eduCulture
Analyze
Students
CT
MT
Matthew Tan
Grade 7
About
Grades/Progress
Contacts
Feedback Report Sent!

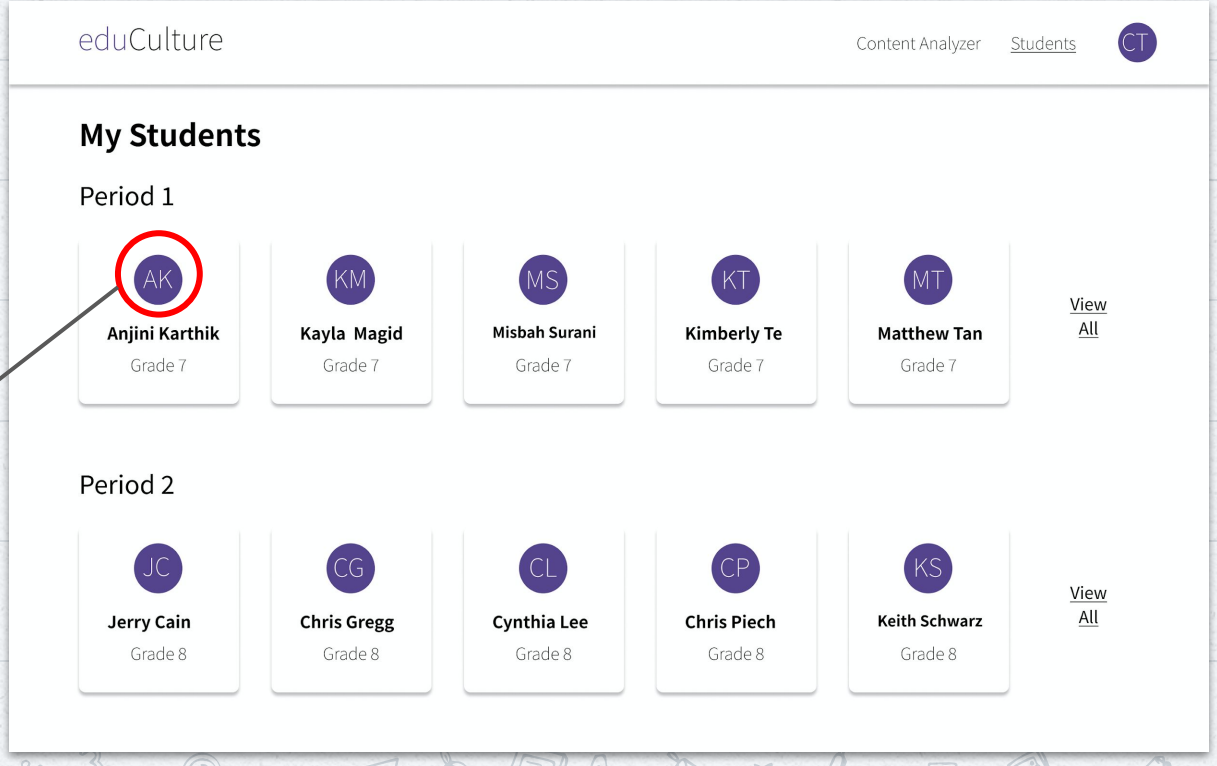
2. Grades/Progress UI



Improved icon UI

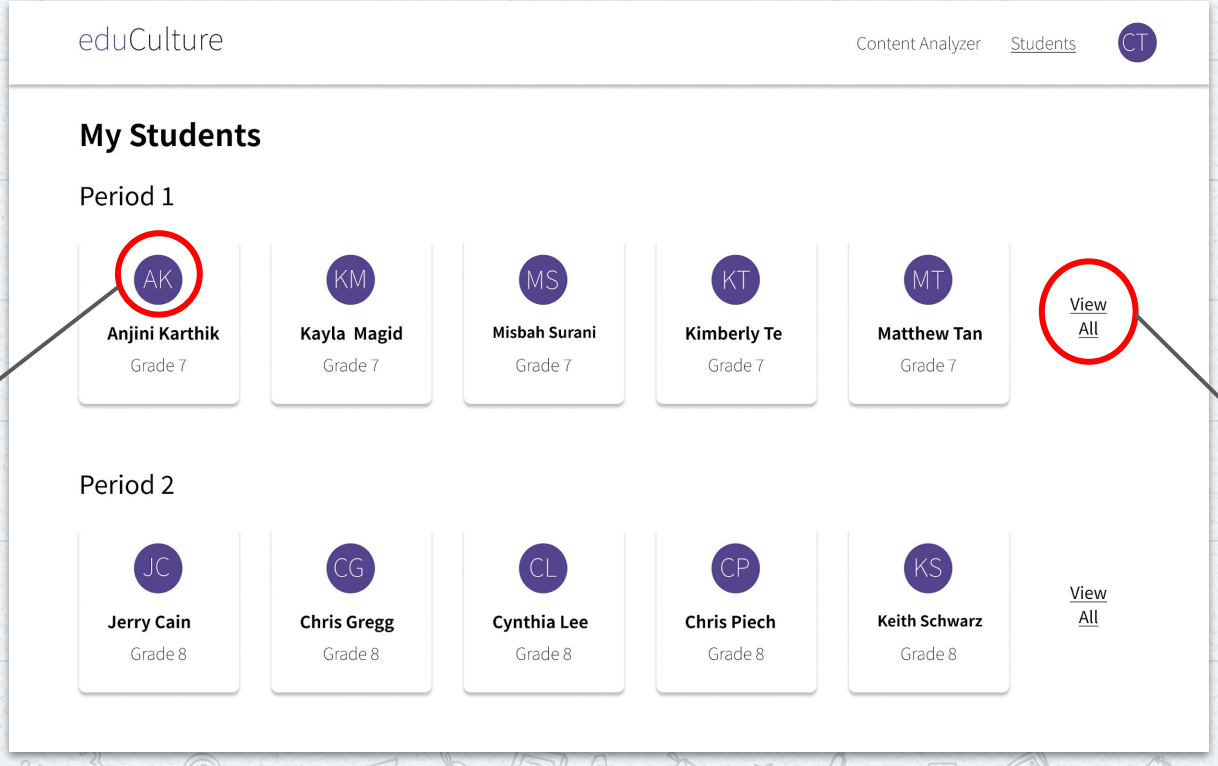
Removed gradient

3. Students Page UI



Improved UI

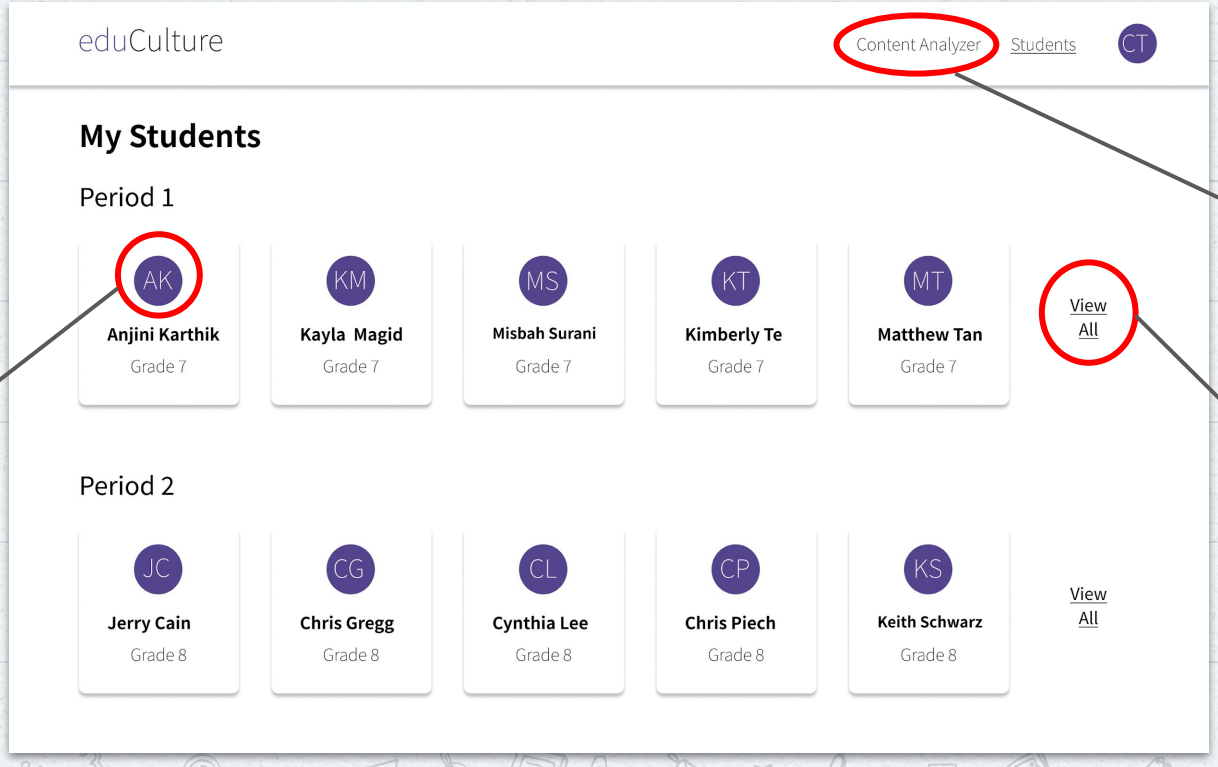
3. Students Page UI



Improved UI

Used text instead of arrow

3. Students Page UI



Renamed for clarity

Improved UI

Used text instead of arrow

Overview

Redesign #1 → **Usability Study** → Study Results → Redesign #2

Study Goals

- Test if the overall website is easy to use
- Improve navigation through the feedback form
- Make the UI of the content analyzer more intuitive

Methodology

Conducted over Zoom

Medium-fi prototype built in Figma

Participants controlled the prototype

Participants

- Target Participants: Secondary school subject teachers (not ESL trained)
- Recruited using connections of our contacts

Participants

Tim, a high school science teacher in Boston, MA

Andy, a high school science teacher in San Diego, CA

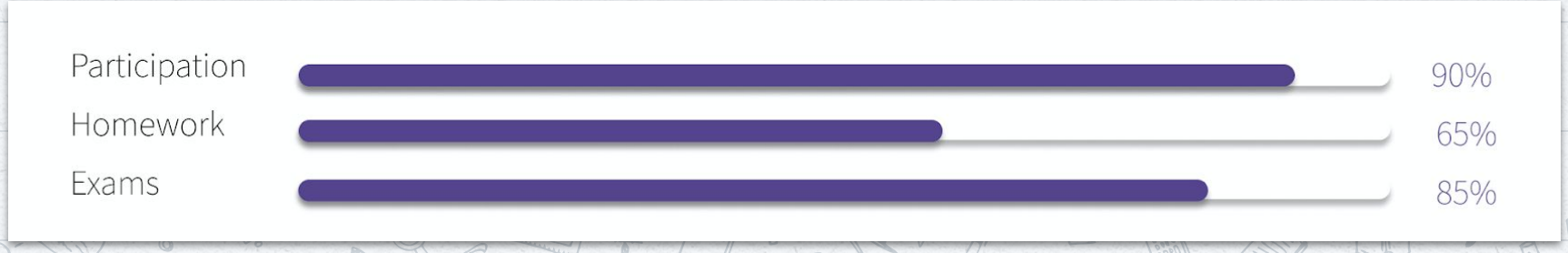
Ammar, a tutor for high school ESL students in San Jose, CA

Overview

Redesign #1 → **Usability Study** → **Study Results** → **Redesign #2**

Finding #1

- **Users are interested in overall class progress**
- “It would be cool to see overall class progress and improvement”
- 2 out of 3 testers



Finding #2

- **Users want teaching suggestions from the content analyzer**

- “I think pulling out the terms is useful, but I also want suggestions on how to teach these terms”

- 2 out of 3 testers

Translations of tricky words:

volcano	el volcán
ash	la ceniza

Finding #3

- **Users were dissatisfied by the feedback form's ordering and process**

- "I want to choose the people I'm sending this to first because that changes what I write and include"

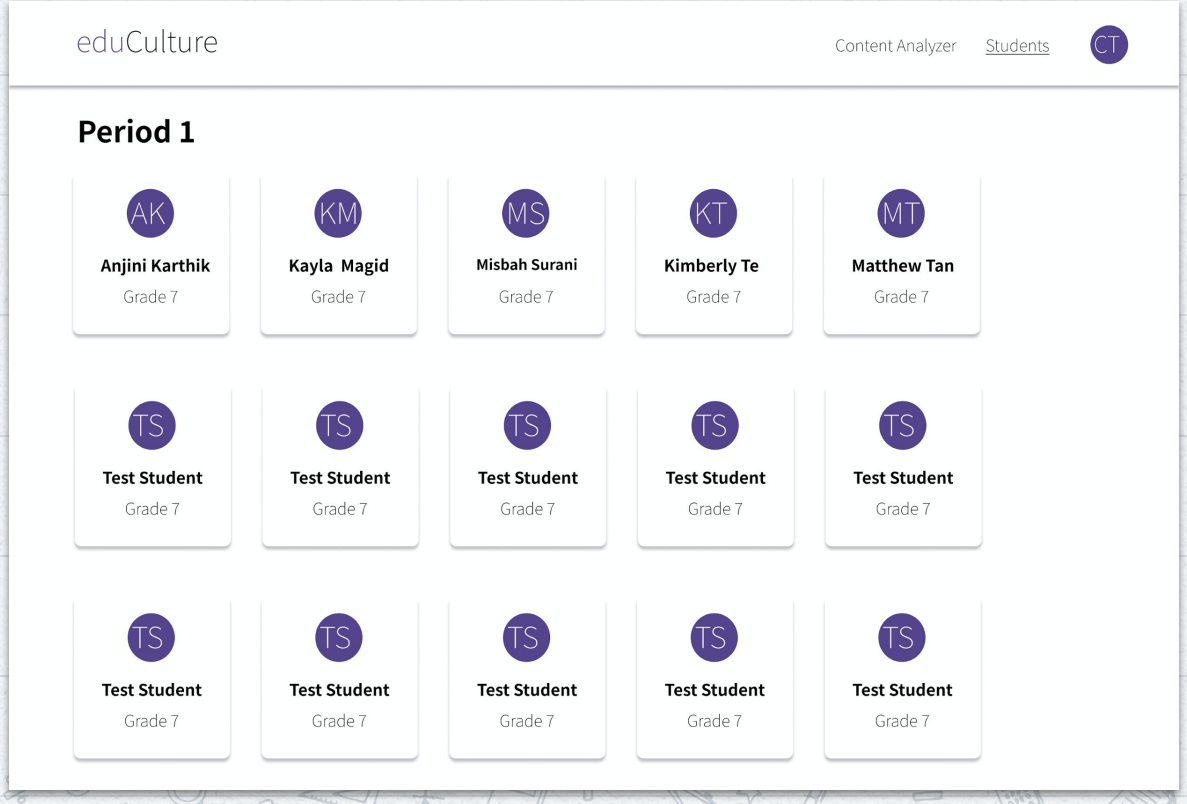
- 2 out of 3 testers were confused about how to select strengths and areas of improvements

Overview

Redesign #1 → **Usability Study** → **Study Results** → **Redesign #2**

1. Added Class Progress Statistics

Before


eduCulture
Content Analyzer
Students
CT
Period 1
AK
Anjini Karthik
Grade 7
KM
Kayla Magid
Grade 7
MS
Misbah Surani
Grade 7
KT
Kimberly Te
Grade 7
MT
Matthew Tan
Grade 7
TS
Test Student
Grade 7

After

eduCulture

Lesson Materials | Students | CT

Home > Period 1

Class Stats

Participation Average	90%
Homework Average	65%
Exam Average	85%

- Number of On-Time Submissions Improving
- Most recent exam scores 7% higher than previous exam
- Only 15% of students got Q6 correct on Homework 4

Roster

AK	Anjini A	Grade 7
AK	Anjini B	Grade 7
AK	Anjini C	Grade 7
AK	Anjini D	Grade 7
AK	Anjini E	Grade 7
AK	Anjini F	Grade 7
AK	Anjini G	Grade 7
AK	Anjini H	Grade 7
AK	Anjini I	Grade 7
AK	Anjini J	Grade 7

2. Added Content Analysis Panel

Before

eduCulture

Content Analyzer Students CT

Analyze Course Material

- [x] Culture
- [x] Vocab

Volcano Basics

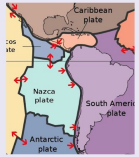
A volcano is a spot in Earth's crust where molten rock, volcanic ash and certain types of gases escape from an underground chamber. Magma is the name for that molten rock when it's below ground. Scientists call it lava once that liquid rock erupts from the ground — and may start flowing across Earth's surface. (It's still "lava" even after it's cooled and solidified.)

Translations of tricky words:

volcano	el volcán
ash	la ceniza

Roughly 1,500 potentially active volcanoes exist across our planet, according to scientists at the U.S. Geological Survey, or USGS. About 500 volcanoes have erupted since humans have been keeping records. Of all volcanoes that have erupted in the past 10,000 years, roughly 10 percent reside in the United States. Most of them exist in Alaska (particularly in the Aleutian Island chain), in Hawaii and in the Cascade Range of the Pacific Northwest.

Tectonic Plates near Peru:



The edge of one tectonic plate may begin sliding beneath a neighboring one. This process is known as subduction. The downward-moving plate carries rock back toward the mantle, where temperatures and pressures are very high. This disappearing, water-filled rock melts easily. Because the liquid rock is lighter than the surrounding material, it will try to float back up toward Earth's surface. When it finds a weak spot, it breaks through. This creates a new volcano.

After

eduCulture

Lesson Materials Students CT

Vocab Culture

Volcano Basics

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X

Analysis

Translations of tricky words:

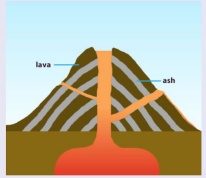
volcano	el volcán
ash	la ceniza

Teaching tips for Spanish speakers:

- Many of the English words related to volcanoes have Spanish cognates. We consider a pair of words to be cognates if they are spelled and sound similar and also have similar meanings. Encourage students to seek out cognates, like "el volcán" for "volcano."
- Some of the English words related to volcanoes are the same in Spanish, only pronounced differently! For example: magma. This is because both languages derive some words from Latin. Consider emphasizing the Latin roots of words in both languages!

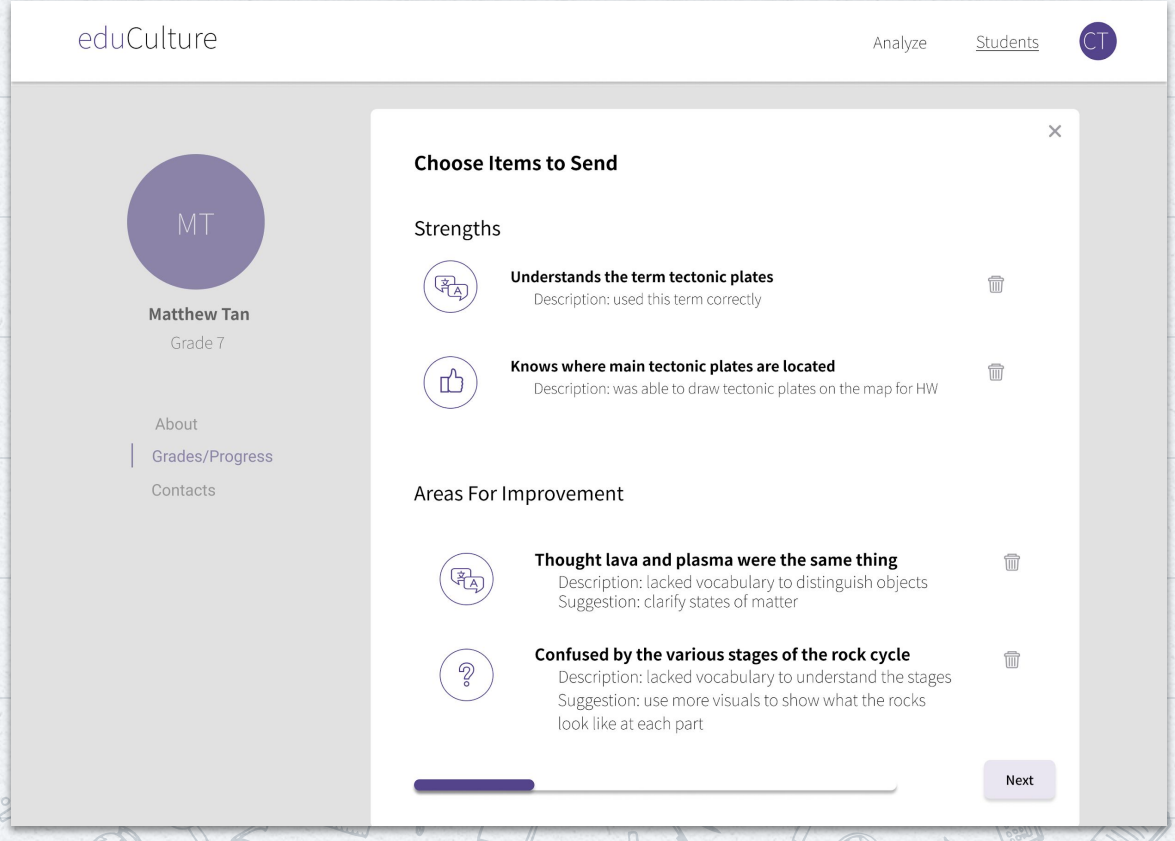
Teaching aids for tricky terms:

- "Volcano" used in a sentence: "When the volcano in Italy erupted, lava flowed down its slopes and buried homes in its path."
- Volcano diagram:



3. Updated Feedback Form Item Selection

Before


eduCulture
Analyze
Students
CT
MT
Matthew Tan
Grade 7
About
Grades/Progress
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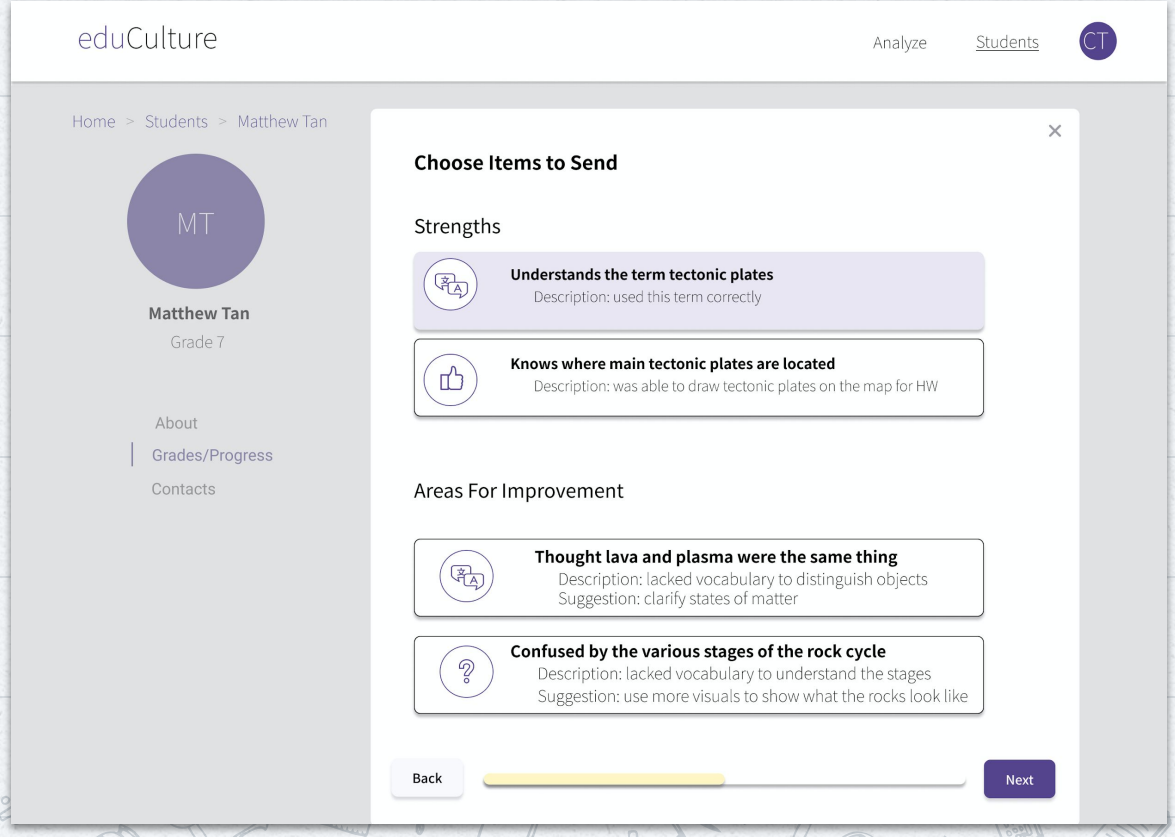
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Home > Students > Matthew Tan
MT
Matthew Tan
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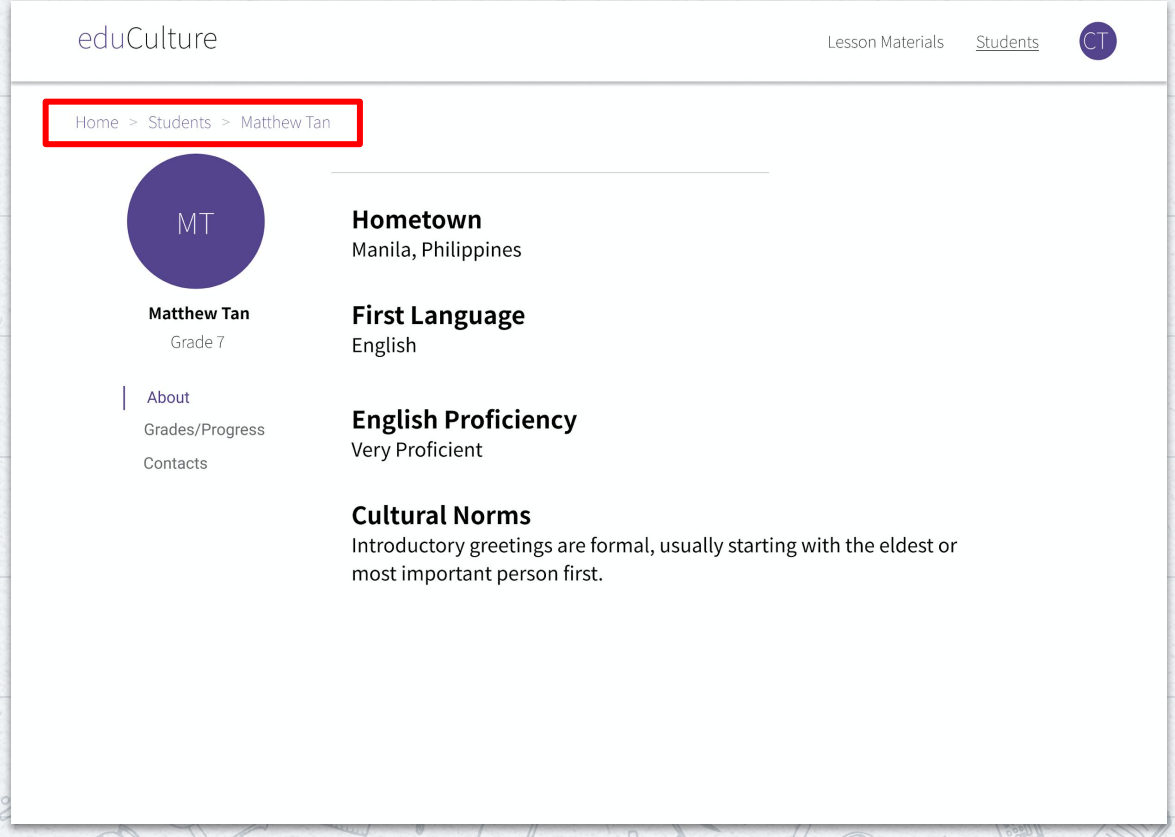
Back
Next

4. Improved Website Navigation



Smart AI

- Analyzes class content to find difficult terms and cultural connections
- Provides suggestions and tips to help teach the difficult terms
- Reports a student's and class's progress by analyzing their assignments and tests

Questions and Feedback

- How to inform users about the AI features?
- Feedback about the class progress
- Ways to improve the feedback form

Appendix

- Interface Redesign #1 Prototype: https://www.figma.com/proto/QX0JbYdO4cgo2TeWYHNgFh/CS-377E-Project-Team-Coterm?node-id=275%3A0&scaling=scale-down-width
- Interface Redesign #2 Prototype: https://www.figma.com/proto/QX0JbYdO4cgo2TeWYHNgFh/CS-377E-Project-Team-Coterm?node-id=558%3A3&scaling=scale-down-width