Acuity

Helping educators better understand and support student's learning needs

Project Type •
Undergraduate thesis project

Duration •
Sep 2022 - Apr 2023

Roles •
User Research, UX/UI Design, Usability Testing

Overview

Many students struggle to learn effectively within the educational system and often educators don't know how to help.
In fact, only 30% of general educators feel strongly that they can successfully teach kids with learning disabilities. All students learn differently and creating individualized learning plans for each student can be a challenge. For my undergraduate thesis project I looked at helping educators better understand the needs of their students and the challenges that they face so that they can better support students who are struggling.

- **Problem** Many students have difficulty learning effectively within the traditional educational system. Educators often have difficulty identifying the reason certain students are struggling and finding effective ways to support students with diverse needs.

- **Solution** A classroom management tool that allows educators to keep a record of student observations and habits and provides them with personalized recommendations for teaching methods and strategies that target those behaviours. This allows educators to add methods and activities to their lesson plans later to the needs of students who are struggling, ultimately increasing their learning effectiveness.

Design Process

Discover → Define → Ideate → Develop → Refine

Analysis | Design

Phase 1

Understanding the Users

Semester 1: Initial Research

When choosing the topic that I wanted to look at it was clear to me that there was many gaps within the education system for helping individuals with learning difficulties. I spent the first semester understanding these gaps and what challenges exist for students with learning difficulties in the educational system.

- **Research Questions**
  What societal barriers exist for individuals with learning difficulties?
  How do their difficulties affect how successful they are in the education system?
  What support currently exists for people with these difficulties? How available and how effective is that support?

- **Assumptions & Bias** I dedicated some time during this phase to address some of the assumptions that I had as well as common assumptions made by others about learning difficulties. Identifying these assumptions allowed me to test them throughout my research process. These are some of the assumptions that I identified and tested during my research.
  - Learning difficulties and learning disabilities are the same.
  - Learning difficulties are easy to diagnose.
  - You need a diagnosis to receive support for learning difficulties.
  - It's really difficult to cater to different learning difficulties.
  - Only students with learning difficulties can benefit from learning modifications and accommodations.

- **Methods** My research methods include conducting **interviews** with students with learning difficulties to better understand their thoughts, feelings, and experiences. I also **observed** one-on-one tutoring sessions and did a **literature review** of several pieces of literature including the UDL Guidelines. I used the triangulation method to find themes across the different results.

Findings

For the initial research I synthesized my research to identify several reoccurring issues that cause challenges for students with learning difficulties in the educational system. I also recieved more insight into the experiences of students with learning difficulties and was able to identify some specific challenges that they face.

- **Key Findings**

Support
Those who have received support for their learning difficulties had a better understanding of their difficulties and a better overall relationship with school.

Curriculum
Curriculum often does not consider the learning needs or cover helping students to develop executive functioning skills necessary for effective self-regulation.

Neglect
Many students feel that they are neglected in their life understand the need to address their learning difficulties and feel uncomfortable asking for support as a result.

Semester 2: Shifting Focus

After better understanding the experiences of students with learning difficulties, I realized that educators have significant impact on their educational experience. Because of this, they have immense potential to support people with learning difficulties. This understanding led me to shift my focus from student's with learning difficulties to educators as my user group.

Educators
↓
Curriculum & Support
↓
Neglect & Cognitive Barriers
↓
Perception

- **Research Questions**
  What role do educators currently play in providing support for individuals with learning difficulties?
  What strategies exist within the school system to help students with learning difficulties?
  How prepared do educators feel to help students that are struggling?

- **Methods** In this phase I conducted more **interviews**, however this time they were with educators. I specifically focused on talking to educators within the elementary age group. I also did several **observation sessions** in public school classrooms to learn more about classroom dynamics and the lesson planning and execution process.

Findings

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- **Key Findings**

Support
Their frustrations aren't necessarily not knowing that students are struggling, but rather that they are not sure how to help once they have noticed they are struggling.

Strategies
It is important for educators to understand the way they teach to better support their students. Strategies can sometimes be difficult and many do not know effective strategies to do so.

Inadequacy
Many teachers feel like they are not well equipped to help students who are struggling and are sometimes searching for help because they are supposed to know what they're doing.

- **Strategy** There are many different approaches and curriculum adaptions that educators can make to better support the way all students learn differently. According to the Universal Design for Learning Framework, in order to accommodate different learning needs, teaching material must account for:
  - Multiple means of engagement
  - Multiple means of representation
  - Multiple means of action and expression

User Definition

- **User Persona**

Mrs. Holmes
Elementary School Teacher

Background
Mrs. Holmes is a fourth grade teacher at an elementary school who has just started teaching at a new school. After teaching the class for a few weeks she realized that there are many students are having difficulty listening and comprehending the content.

She needs a way to understand what aspects the students are having difficulty with so she can modify/adapt the content and present it in a way that is more engaging for the students.

Goals
- Use more effective teaching methods
- Make her lessons more engaging
- Create a safe space for her students to learn
- Better classroom management and organization
- More confidence in her ability to help students who are struggling

Barriers
- Unsure how to support students who are struggling
- Doesn't know where to start
- Unsure what strategies work best for her students as she has to "educate"
- Doesn't have the time to create individualized learning plans

Bridging the Gap

How might we help educators better understand and support students who are struggling within the education system?

Phase 2

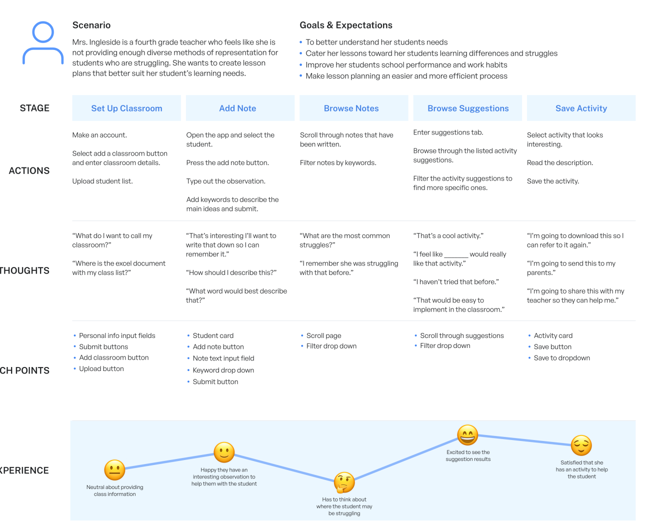
Prototyping the Solution

Ideation

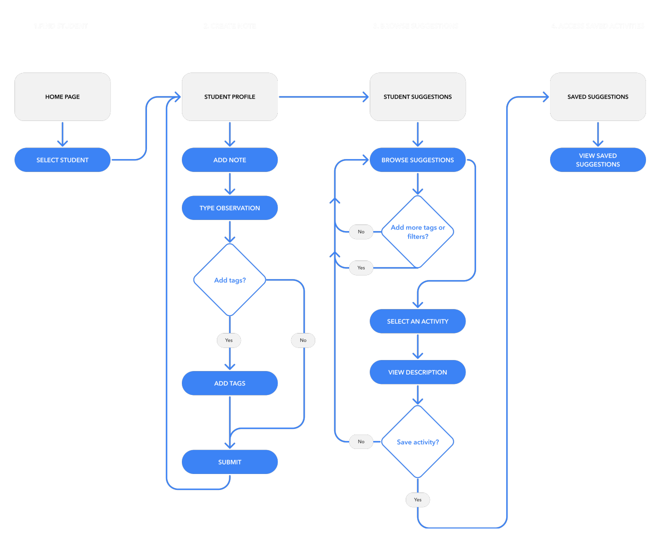
I wanted to help educators teach students more effectively by monitoring student behaviour and understanding student needs so that they can cater content towards the individualized needs of their students. To achieve this goal I want to provide them with an application that allows them to

1. Easily keep a record of observations about their students
2. Extract insights about their learning habits based on those observations
3. Receive suggestions for learning activities to incorporate into their lesson plans which target the learning needs of their students

User Journey



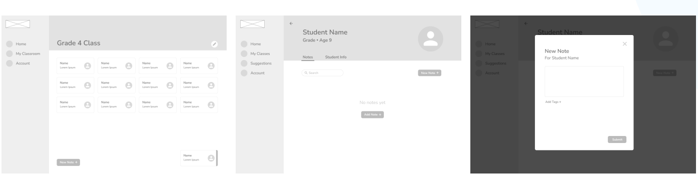
User Flow



Low Fidelity Prototypes

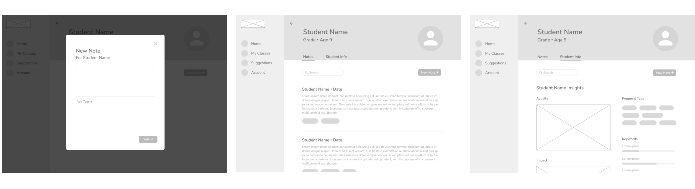
Key Concept 1

Recording Student Observations



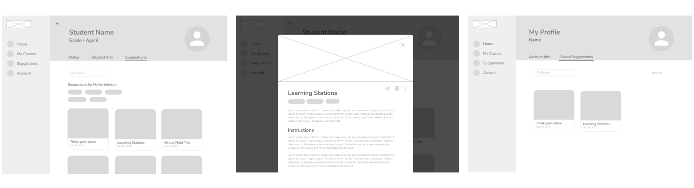
Key Concept 2

Form Insights about Student Learning Habits



Key Concept 3

Receive Suggestions for Learning Activities



Initial User Testing

I did some initial user testing on my rough prototypes by having users try out the mid-fidelity prototypes created in Figma. With these insights I was able to identify some improvements that I could make before moving on to the higher fidelity versions. These are some of the insights that I gathered:

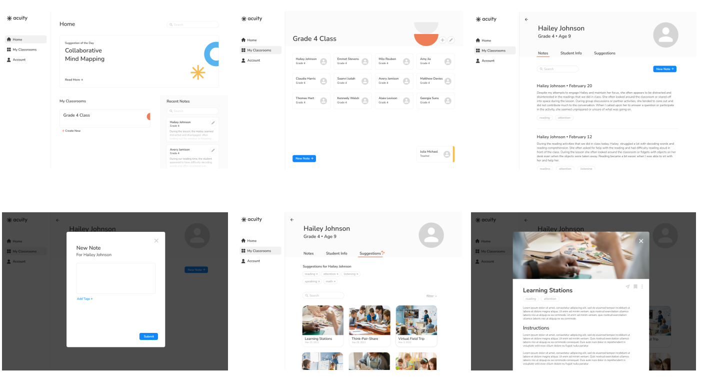
- Users slowed down after they had created a student
- Wanted to be able to do more like being able to keep track of grades or attendance
- Wasn't sure what the app was for upon entering the application

Phase 3

Refining the Solution

High Fidelity Prototypes

Building off my initial low to mid fidelity prototypes I implemented visual styling and refinements to create high fidelity prototypes. These prototypes were informed by my user testing results, tone studies, user journey maps, style tiles, and content audits.



Further User Testing

After I had implemented the improvements based on my first round of user testing and added visual styling, I conducted desirability testing to test the visual appeal of the product. Desirability testing revealed that the prototype was most often described by users as:

- Organized
- Clean
- Easy to use
- Professional
- Intuitive

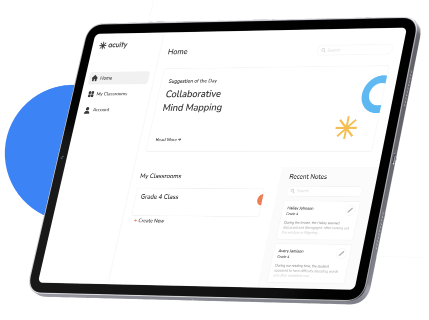
Final Solution

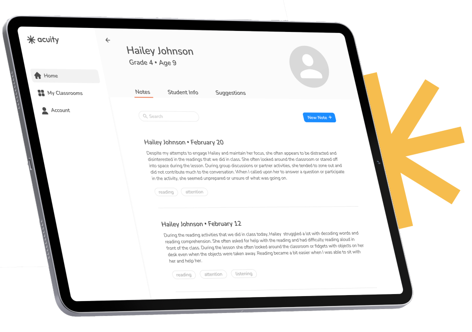
Acuity

My solution is a classroom management tool that allows educators to keep a record of student observations and habits and provides them with personalized recommendations for teaching methods and strategies that target those behaviours. This approach can transform the impact of learning content by removing barriers for students in the learning process and giving all students an equal opportunity to succeed.

Manage Your Classroom

Create a digital record of your students and organize them into classes.



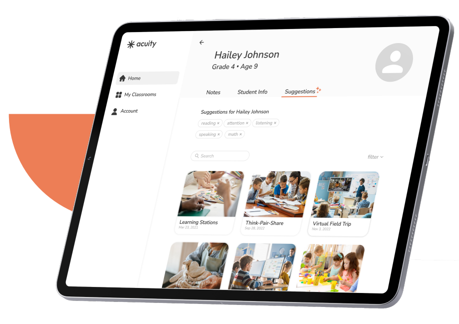


Understanding Student Habits

Keep a record of your observations of students to better understand their reoccurring habits and challenges.

Personalize Learning Content

Receive suggestions for learning activities to incorporate into your lesson plan that are personalised to your students needs.



View Prototype