



IMMERSION PRO

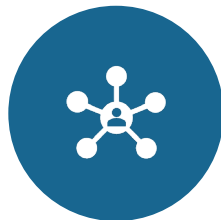
IDS 401

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The Problem



Even within the same language, different regions and life experiences present communication problems.



Regional dialects can create friction in language learning. Something as slight as how a person pronounces a word can create a missing link in communication.



Vocabulary, such as for college or work, needs to consider regional texts, different accents, and colloquialisms.



Current language apps don't tailor learning to an individual's specific context.

The Purpose

- We will design a product that uses machine learning to gather data on how real humans speak, every day, and provide convenient access to language learning and communication support.
- A personalized learning experience will provide opportunities for people to confidently enter any new situation and communicate with ease.





Ideation Process

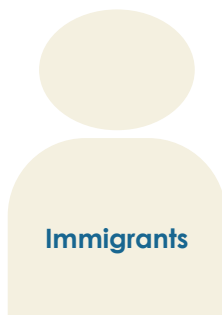
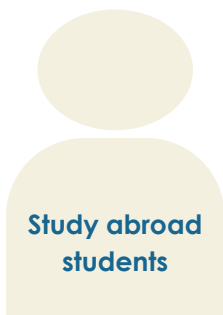
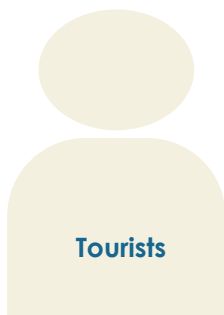
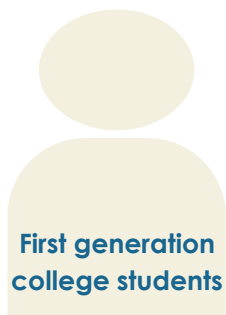
Ideation

We held a **brainstorming session** to come up with ideas about how machine learning could be utilized to help the language learning process.

We also discussed **different scenarios and hypotheses** that lead to our research questions.

In order to gain more information about useful features, we sought to conduct market and user research to identify pain points and gaps in current products.

The People



We will target individuals who are **encountering a new context of a non-native language**. For example, if you've been learning conversational English as a second language throughout your life but are entering a new context, such as a professional work environment.

Personas

User Persona #1: Business Traveler



ABOUT

Camille is a dedicated Client Success Manager for a software company. She visits clients all over the globe to work on product launches and troubleshooting. While she speaks English and French fluently thanks to being a native of Montreal, she struggles to understand regional phrases and fast talkers. She loves learning key phrases and software-specific vocabulary in any language before visiting a client site so that she can provide her clients with the tools they need to succeed.

GOALS

- Providing high-quality, personalized service to her clients
- Increase knowledge of regional French and English phrases
- Learning conversational phrases to connect with her clients

CHALLENGES

- Communicating effectively with her clients when a language barrier exists
- Finding time in her busy schedule to research and study her clients' languages
- Learning vocabulary in multiple languages for highly technical subjects

PERSONALITY

- Charismatic Organized Resilient
Ambitious Dedicated Caring
Diligent Friendly Intelligent



Coming into a client visit prepared with training tools in their language is extremely important to me.



Camille

Age: 47

Status: Divorced

Job Title: Client Success Manager Location: Montreal, Québec

PHASES

1: Pre-awareness

- Wants to learn more about where she'll be traveling to visit her clients.
- Needs to provide context to her clients that will make sense in their language.

ACTIONS

- "I'm going to be spending a lot of time at these client sites, so I want to make a strong connection with them."
- "I need to provide my clients with the appropriate vocabulary for these solutions."

THOUGHTS

- Determined
- Confused

FEELINGS

2: Discovery

- Learns about the app from a networking contact she met at a conference.
- Reads up on app features.
- Researches through reviews in the app store.

- "I need to learn phrases and vocabulary in other languages quickly and efficiently."
- "If this is useful, I'm sure my company will buy a subscription for me and my team."

- Curious
- Inquisitive

3: Onboarding

- Downloads a free trial of the app to try it out before making a case to her company's purchasing department.
- Fills out a profile on where she'll be and her native languages.

- "I hope this app is easy to use. I don't have a lot of time to mess around with the app."
- "I can't wait to learn something new and try it out with my clients."

- Hopeful
- Eager

4: Daily use

- Starts using the app to research the country or region she's going to visit.
- Prepares a list of software features to translate into her clients' language.
- Uses the app's speech recognition feature to practice while she's preparing for her trip.

- "Learning so many new phrases is a challenge, but it's really fun!"
- "The speech recognition feature is helping me feel ready for my next visit."

- Prepared
- Intellectually stimulated

5: Integration w/ Overall Experience

- Relies on the app for a quick reference while creating presentations.
- Practices with the app while doing repetitive tasks, like filing papers or filling laundry.
- Becomes a super user and rolls out the app to the rest of her team.

- "I don't know how I got by without this app. It helps me make sense of how to communicate with all kinds of different people and a constant influx of new software features."
- "I am more confident in my experience now that I can communicate it so clearly."

- Engaged
- Proud



Personas

User Persona #2: College Student



ABOUT

Sarah is a college student studying international relations. She is passionate about learning languages and understanding different cultures. Sarah is currently studying abroad and faces challenges in communicating with locals due to language barriers. However, she is motivated to become proficient in the local language to fully immerse herself in the cultural experience and make meaningful connections.

GOALS

- Cultural Immersion:** Motivated to learn languages to immerse herself in different cultures and build connections with people from around the world.
- Confidence:** Seeks to gain confidence in her language abilities, allowing her to communicate effectively in various social and professional situations.
- Personal growth:** Languages learning is seen as a means of personal growth and self-improvement, expanding her horizons and cognitive abilities.

PERSONALITY

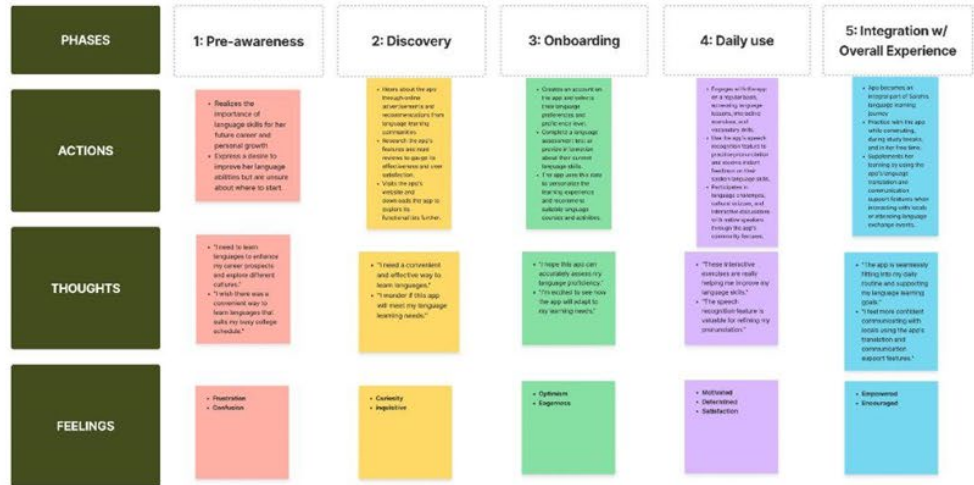
- Motivated
- Curious
- Adventurous
- Determined
- Empathetic
- Goal-oriented
- Resilient
- Social
- Passionate

CHALLENGES

- Struggle to communicate effectively with locals while studying abroad due to language barriers
- Feeling anxious about making mistakes or being misunderstood, which can hinder her willingness to engage in conversations
- Has a limited vocabulary, making it challenging to express herself fully or understand complex conversations

“

"I feel like I could do a better job when communicating with others"



Personas

User Persona #3: Traveler



ABOUT

Daniel loves a good adventure and spends his summer break traveling the world. Since he is a teacher, he loves learning and understands the importance of expanding his knowledge through experiences. He typically visits tourist attractions, but would love to have a more authentic experience. He wants to learn the language of the region so he can interact more easily with the locals.

GOALS

- To have a comfortable experiences while traveling in a different country.
- To be able to expand his travel experiences beyond basic tourist locations.
- To be able to have conversations with locals in another language.

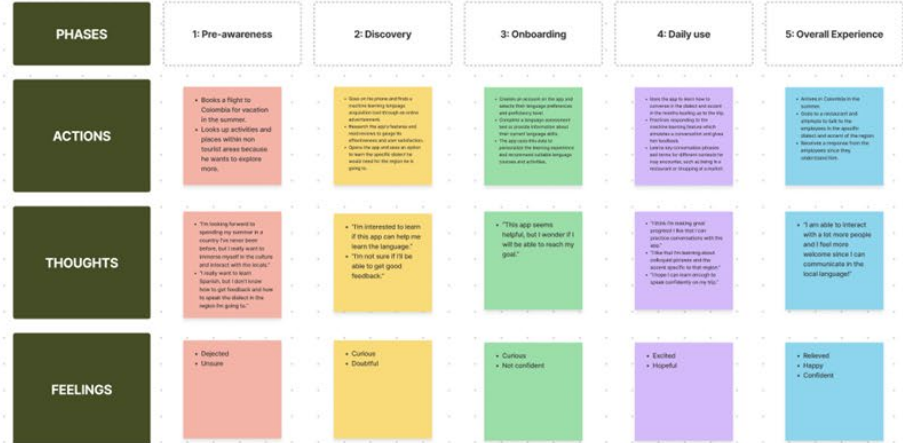
CHALLENGES

- He has difficulty understanding locals.
- He is unsure if he is using the correct pronunciation.
- He doesn't know which language learning resource to use.

PERSONALITY

- Adventurous Curious Open-Minded
- Risk Taker Determined Smart
- Helpful Passionate Spontaneous

“I would love to learn more about the culture and country from the locals.”





Collaborative Development Process and Plan

The Plan

1

Identify potential users and their key needs, focusing on user interviews, competitor analysis, and surveys

2

Identify, based on user research, **a digital medium** (chatbot, app, or website) that enables:

- a) Connection
- b) Customization to different contexts (including background, country of origin, languages spoken, language level)
- c) Accessibility
- d) Feedback and learning (enabled through machine-learning capabilities)

3

Identify our key consumer and their main **priorities**.

4

Prototype and ideate the product, leveraging:

- a) Conceptual models
- b) Key affordances
- c) Signifiers and constraints
- d) Mapping that eases accessibility

5

Receive **feedback** on design.

6

Iterate final proposal.

Collaboration Strategy

Communication Methods

- Weekly Meeting via Google Meet
- Slack Channel (real-time messaging)

Roles and Responsibilities:

- Rotate the “lead” person role each week.
- Task assignment will be based on individual strengths to ensure optimal utilization of skills and expertise.
- All team members are expected to participate in brainstorming and the final review of deliverables.

Document Governance

- All documents were stored in a shared Google Drive folder.
- Folder served as a centralized repository where we stored, organized, and collaborated on our project-related files.
- This approach enabled seamless collaboration and allowed team members to access and contribute to the work from anywhere.

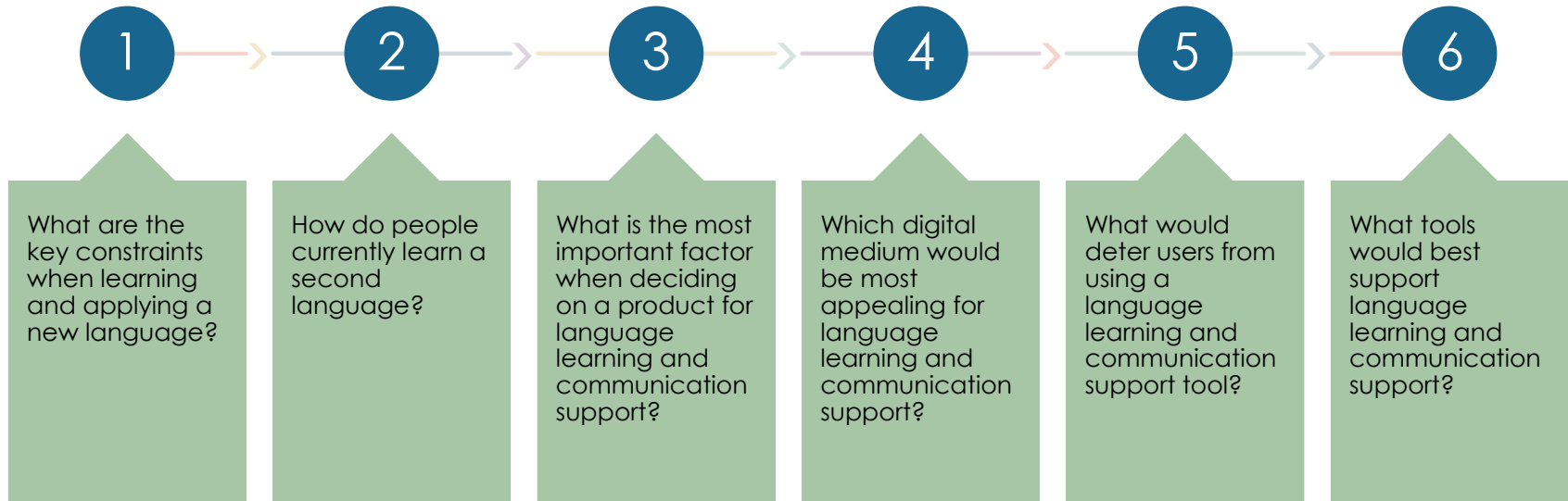
| Task | Timeframe |
|---|--|
| Plan User Research: Create User Research Plan | July 3–9: Create User Research plan, survey questions, and interview questions |
| Conduct Research Method #1: Survey | July 10–23: Conduct Surveys July 24–28: Analyze Data from Surveys |
| Conduct Research Method #2: Interviews | July 10–19: Conduct User Interviews July 20-23: Analyze Data from User Interviews |
| Conduct Research Method #3: Competitor Analysis | July 10-16: Conduct Competitor Research |

Research Timeline



Research Plan and Findings

Research Objectives and Questions



Research Participants

- For the purpose of our research, we worked with our targeted audience (identified in slide 6) or anyone who might potentially use, purchase, or find the application interesting.
- Team reached out to the participants either in person or using the internet.
 - A total of 4.8 billion people around the world, equivalent to ~60 percent of the world population, were social media users at the start of Q2 2023 (Petrosyan, 2023).
- All participants were over the age of 18 since the U.S. Department of Health and Human Services (HHS) provides additional protections for children participating in human subject research and have various requirements that must be followed (HHS, 2023).

Survey Methodology



The team created a survey to help gather insights about the language learning experience and technology.



The idea was to learn about the experiences of many people and receive quantitative data.



Survey was shared via Google Forms on social media and with friends, family circles, and fellow students within the IDS community.



The goal was to receive at least 30-50 survey responses from individuals who fit our target demographic.



The team conducted a quantitative analysis to find correlations and important insights that will help us further understand our potential users.

Survey Results

Age Group and Professions of Participants: The survey had a diverse age group of participants. The majority (72.2%) fell into the age range of 25–34, followed by the 18–24 (11.1%) and 35–44 (16.7%) age groups. The major age group of participants falling into the 25–34 range suggests that language learning is more popular among young adults. This finding implies that language learning tends to be easier for younger individuals. Students and tourists as the top two professions in language learning indicate that language learning is relevant and important for individuals who need to interact constantly with others.

Multilingualism and Methods of Learning Languages: Most of the surveyed individuals were multilingual. The high percentage of multilingual participants (100%) showed the prevalence of language diversity and the importance of multilingual skills in the modern world. All survey participants utilized different methods for learning new languages. The most common methods were language courses and conversations. These methods focused on communication and immersion, which seemed to be more effective language learning methods.

Perceived Difficulty in Language Learning: Participants had different challenges about the difficulty of learning a new language. It means that language learning experiences vary widely among individuals. It also means that a balanced and tailored method of language teaching may be a better approach. Participants' experiences with learning vocabulary were mainly positive. The difficulties reported in learning grammar and pronunciation revealed two areas that learners often struggle with. As these are important aspects of language proficiency, special attention to addressing these challenges and providing targeted support is preferred.

Survey Results

Use of Language Learning Technology: A majority (66.7%) of the participants reported using language learning technology. This indicates a strong reliance on technology for language learning. The high popularity of language learning technology reflects the influence of digital products in the language learning environment. Language learning apps have gained popularity due to their convenience and accessibility.

Perceived Difficulty and the Effectiveness of Language Learning Technology: Among those who use technology for language learning, half (50%) found it somewhat difficult, while only 11.1% found it somewhat easy and 5.6% found it very easy. The feedback received when using technology for language learning seemed to be satisfactory, with 22.2% being somewhat satisfied and 5.6% being very satisfied. However, 33.3% found it neither difficult nor easy. Regarding the effectiveness of language learning using technology, 33.3% were somewhat satisfied, while 27.8% found it somewhat difficult. This might suggest a mixed opinion about the effectiveness of language learning technology. The mixed opinions about the effectiveness and satisfaction of language learning technology indicate that while technology offers benefits, there is still room for improvement.

Preferred Technology for Language Learning: The most preferred technology for language learning was mobile applications, selected by a majority of 83.3% of participants. Websites and computer software were also mentioned, but with lower percentages (22.2% and 27.8%, respectively). Only 5.6% preferred online conversation platforms. The major preference for mobile applications means that participants value the flexibility and portability of learning on their smartphones.

Takeaways from Survey Results: Although technology was widely utilized, the opinions of research participants on the usefulness and complexity of language learning technology and applications were mostly divided. The favored technology for language learning was primarily mobile applications. Overall, these observations seem to imply that language learning providers, instructors, and technology developers should customize the teaching techniques and strategies in order to promote more efficient and user-friendly language learning experiences.

Interview Methodology



Interviews offer the opportunity to get an in-depth understanding of individuals' experiences and mental models through conversation.



The team conducted five interviews with participants who fit our target demographic; each participant had a different experience and background



The conversations addressed the participants' language learning experiences, struggles faced when going to a region that speaks a different language, and use of technology.



Interviews were conducted via Zoom or in person, and they were recorded.



Insights were shared and sorted using an affinity diagram to identify common themes.

Interview Results

Contextual Translation: Participants often struggle with language translations (idioms and comedy punchlines) that don't take into account the context of the conversation. Language learning providers could benefit from providing translations that consider the specific context and regional variations of the language being learned.

Variation in Pronunciation and Speed: Participants faced various accents, dialects, and speaking speeds in real-life conversations. To better prepare participants for real-world interactions, language technology should include various pronunciations and speaking speeds to mimic natural conversations.

Voice Feedback: Including voice feedback in language learning technology would allow learners to practice speaking and receive feedback on their pronunciation and fluency. This can help learners improve their speaking skills and build confidence in speaking the language.

Cultural and Colloquial Expressions: Integrating cultural and colloquial expressions and idioms can help learners understand the language and the culture of the region where it is spoken.

Interview Results

Learning for Different Levels: Participants have different objectives, ranging from a basic conversational level to professional proficiency. Apps should adapt to different learning levels and offer precise courses for beginners, intermediate learners, and advanced speakers.

Localized Content: Provide regional variations. Language learning providers should offer localized content that adapts to the specific language variation of different countries or regions.

Conversation Practice with AI: Implementing conversational simulation with AI can provide learners with realistic practice opportunities, allowing them to practice conversations and gain confidence in speaking the language.

Progress Measurement: Language learning apps should have different methods to accurately measure progress, which include assessments, quizzes, or interactive activities that measure a learner's language level and progress over a period of time and identify areas for improvement.

Takeaways from Interview Results: Taking into account the potential differences in preferences and needs among different age groups, providers will now have to create interesting and unique educational options for language courses and conversations to solve learners' linguistic deficiencies. Focusing on the challenges that learners of grammar and pronunciation will face can help them become more fluent in the language. Thus, creating language-learning software that includes a user experience feedback loop and evaluates how well it satisfies learners' needs will undeniably have advantages.

As language learning becomes increasingly popular among different age groups, it's convincing to assume that the utilization of language learning technology will eventually surge drastically, resulting in an environment of fierce competition among the language learning providers. However, the research shows that language learners have different demands in terms of their learning preferences and requirements. For all the language learning providers, room for expansion still exists, as none of the providers are dominating the language learning environment. It is up to the providers to launch customizable and adaptable products and services that can attract and retain learners.

Competitor Research Methodology

1

Goal: Gain a better understanding of the positive and negative aspects of currently established language learning platforms.

2

The team researched current machine learning platforms and observed important components.

3

Findings were entered in an Excel spreadsheet and the research was divided into specific categories to be able to compare similar aspects between different platforms.

4

Obtain a better understanding of what a language learning platform contains and how we could have tailored our product to incorporate the machine learning model.

5

In addition to the initial research, the team periodically engaged with potential users throughout the design process of the project and conducted usability testing after creating a low-fidelity prototype.

Competitor Research Results

KEY OPPORTUNITIES:

1. **Context-based Learning and Market Expansion:** Expanding into new regions and languages presents a significant opportunity for all platforms to tap into diverse user bases and increase their reach. As well as, including context based language learning that caters to consumer's specific needs.
2. **Advanced Learning Features:** Introducing advanced features like live tutoring, cultural immersion experiences, and AI-driven personalized learning can attract users seeking a more comprehensive and interactive language learning experience.
3. **Mobile App Development:** Leveraging the popularity of mobile devices by developing dedicated apps can enhance accessibility, convenience, and engagement for learners on-the-go.

KEY STRENGTHS:

1. **Established Brand Recognition:** Many platforms, including Rosetta Stone, Duolingo, and Pimsleur, benefit from well-established brand recognition, which lends credibility and attracts a broad user base.
2. **Comprehensive Content:** Several platforms, such as Rosetta Stone, Lingvist, and Mondly, offer comprehensive language content that covers multiple aspects of language learning, including speaking, reading, writing, and listening skills.
3. **Gamified Learning:** Duolingo's gamified approach and Mondly's use of gamification techniques engage users effectively, making language learning enjoyable and motivating continuous progress.

Class Feedback

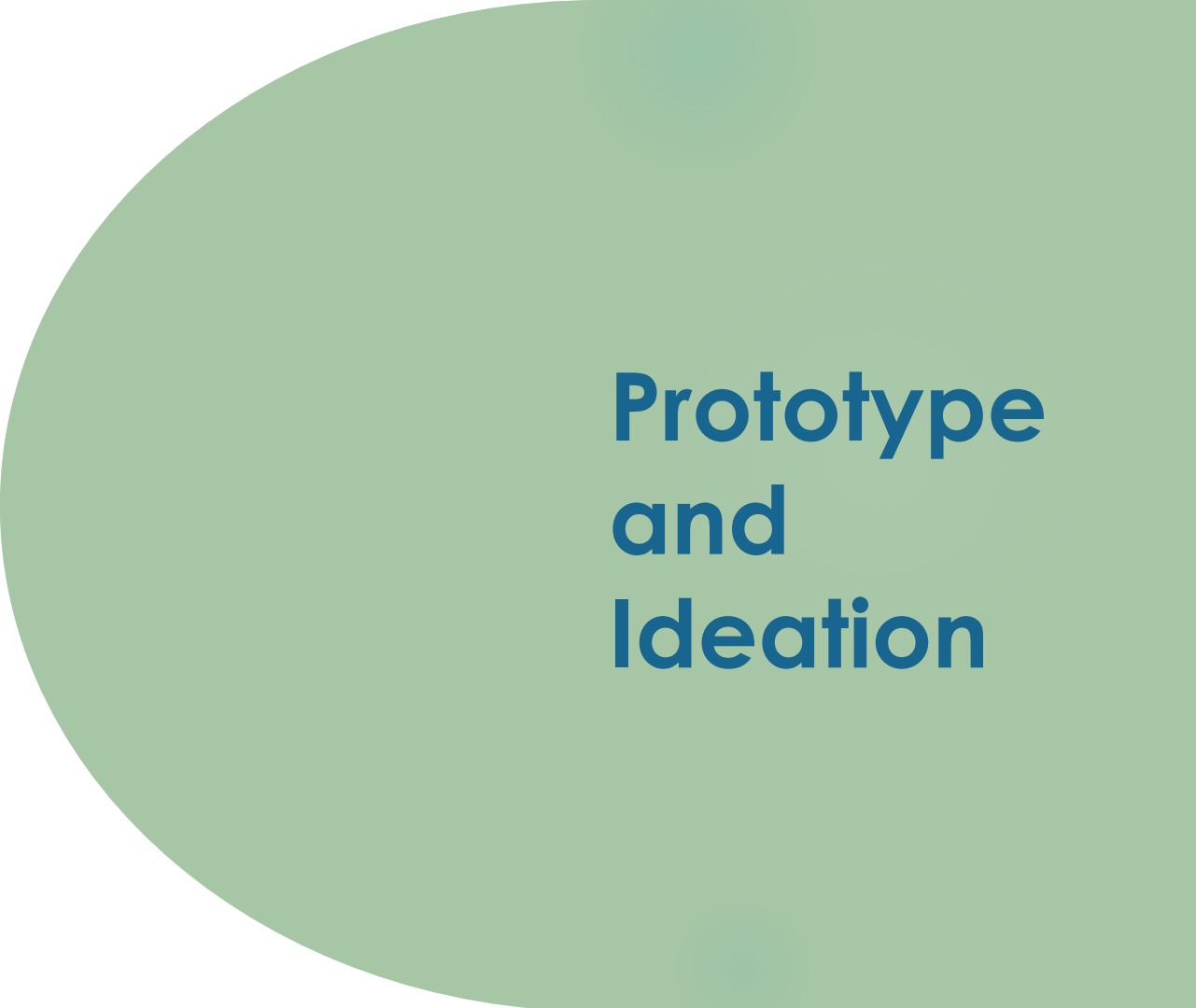
We presented key findings to the Northwestern University User-Centered Design class, where we received valuable feedback.

OPPORTUNITIES:

1. **Include Context-based Recommendations:** For example, adding Netflix series, podcasts, or playlists as you immerse yourself in the language.
2. **Expand Chat to Include Pop Culture References:** As part of the immersion, we will have a chat feature and this can be enhanced by immersion into pop culture of the language and context and incorporate discussion on the recommendations above.

STRENGTHS:

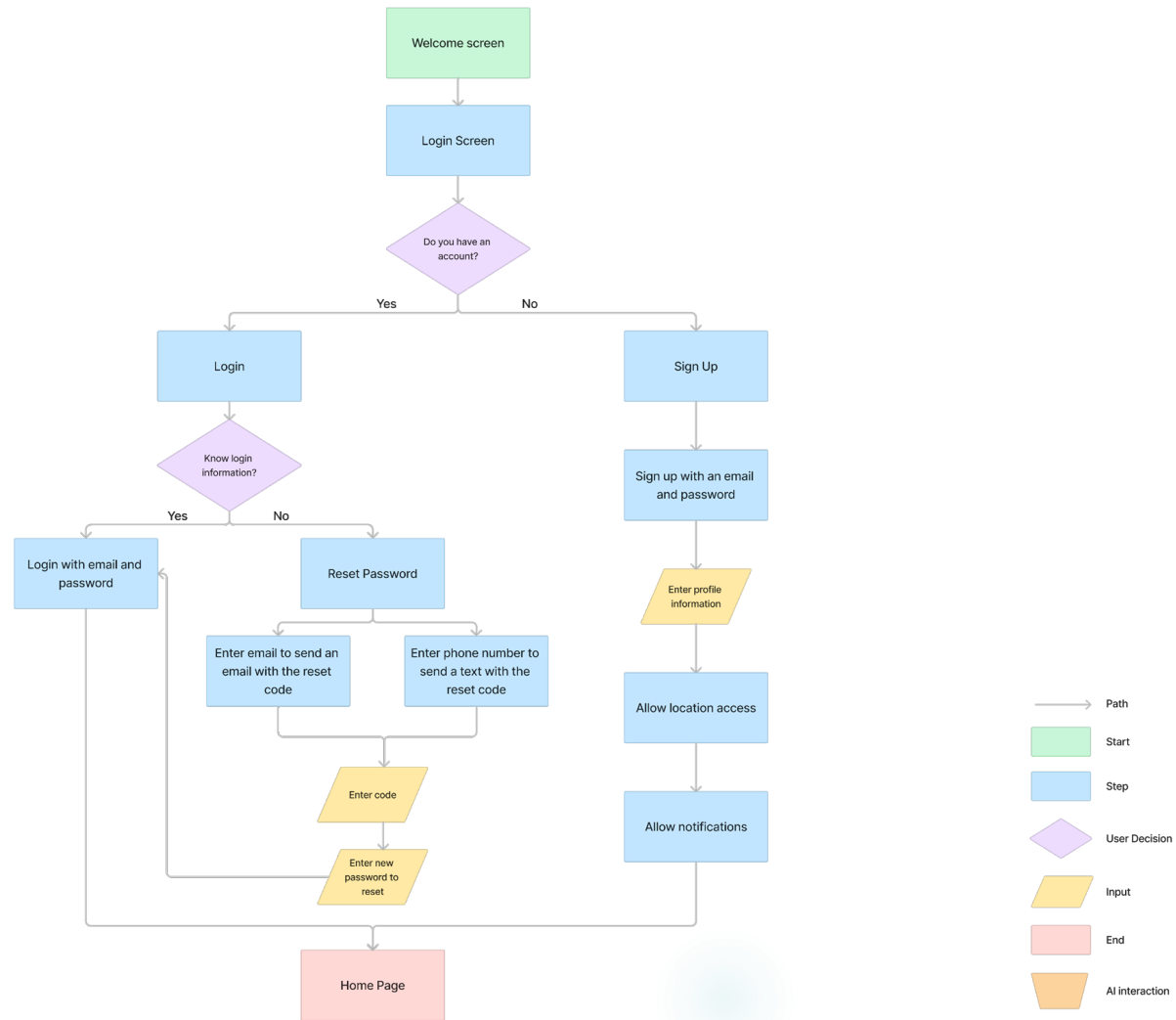
1. **Branding and Name:** Received positive feedback on the name as it correlates well with the emotional side of learning a language and desire of being immersed in it.
2. **Chat Feature:** Received positive feedback on the incorporation of a more conversational learning alternative.
3. **Context-based Learning:** As experienced in the survey and interviews, there is a clear need for a context-based learning app that appeals to the current demographic.



Prototype and Ideation

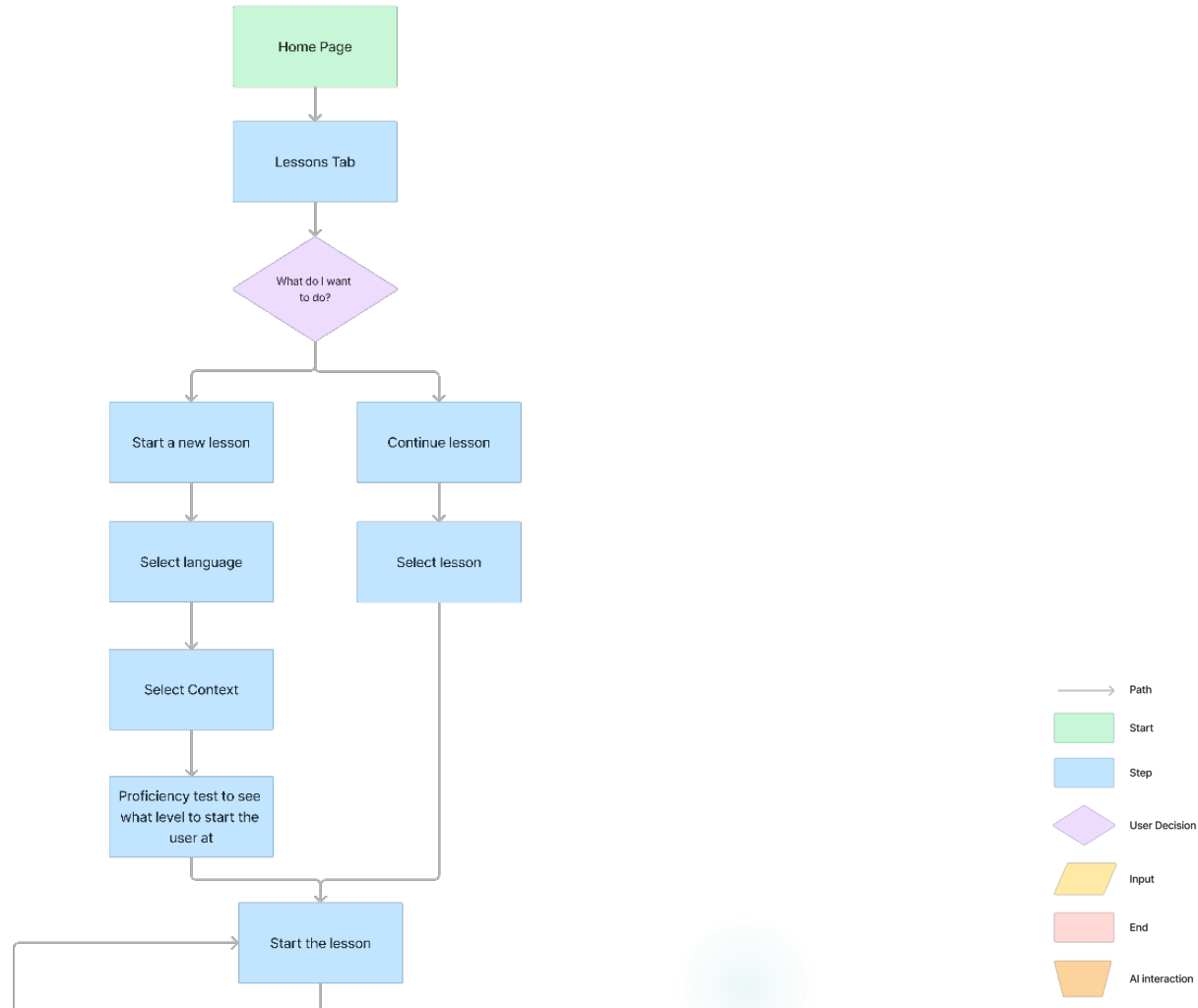
User Flow

Sign Up/Log In



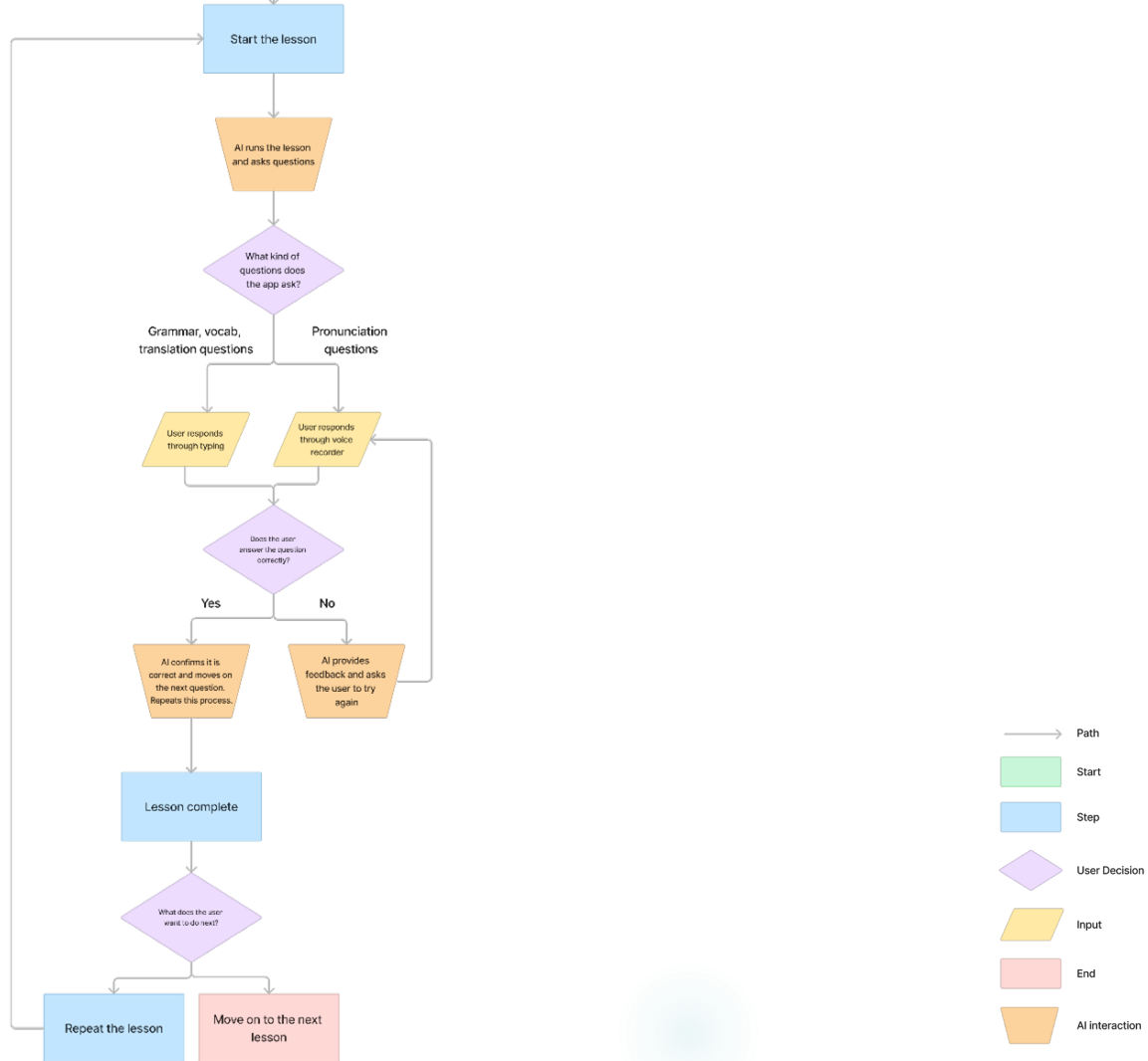
User Flow

Lesson 1 / 2



User Flow

Lesson 2/2



Paper Prototypes



Prototype - Testing Script 1/5

[Introduction]

Hello, thank you for joining us for this session. My name is **[moderator]** and I'll be guiding you through each step today.

I'm going to have another associate here taking notes, and we will be recording this session. Do you give your consent to be recorded? I'll go ahead and get the recording going.

I'm looking forward to getting your feedback on Immersion Pro. Your observations today will help us as we continue through the design process. This isn't a final version, so please share anything that comes to mind because we still have time to make adjustments.

There are no right or wrong answers, and please don't worry about being too critical. Also, don't worry about your abilities or whether you're tech-savvy enough. We're here to test the product, not your abilities. As you go through the steps, try to think out loud. We want to know what influences your decision making.

Do you have any questions before we get started?

We'll keep this session to **[duration]**.

Before we dig into the product, tell us a little bit about yourself. We want to know what you do for work, whether you have any hobbies, things like that. Where are you from originally, and where do you live now?

Prototype - Testing Script 2/5

[Product Overview]

I'm excited to tell you about what you're going to see today. Immersion Pro is an innovative technology that uses machine learning to help you develop language skills. You may already be familiar with other language learning services, but what's unique about Immersion Pro is that we're using machine learning to be a more interactive solution. As you continue with your lessons, Immersion Pro will learn more about what makes you unique and what you want to learn. You'll be able to practice your pronunciation and have conversations about any subject. Immersion Pro will prompt you with questions so that you can practice and learn essential vocabulary and phrases that may be a little outside of your mainstream language lesson. Immersion Pro will also make recommendations on media that you can consume to supplement your journey, like a music playlist in your chosen language.

[Getting Started]

We're sending you a link with an interactive prototype for the Immersion Pro app.

Prototype - Testing Script 3/5

[First Impressions]

Once you have the prototype of the app pulled up, I'd like to know what words or phrases come to mind before we move on to tasks.

[Tasks]

[Task 1: Sign Up for an Immersion Pro Account]

For your first task, we'd like you to sign up for an Immersion Pro account. I'll let you attempt to do this with no instruction, but please let me know if you get stuck.

[Offer these steps if the user doesn't know what to complete next. The UI should guide them through this flow naturally.]

1. *Enter your email and create a password.*
2. *Complete your profile.*
3. *Allow location access.*
4. *Allow notifications.]*

Location access and notifications aren't required, but they'll give us the most complete picture of the functionality for the purposes of this session.

Prototype - Testing Script 4/5

[Task 2: Start a New Lesson]

Next, go ahead and start a new lesson.

[Offer these steps if the user doesn't know what to complete next. The UI should guide them through this flow naturally.]

1. *Start a new lesson.*
2. *Select a language.*
3. *Complete the proficiency test.*
4. *Select your context information.]*

Prototype - Testing Script 5/5

[Task 3: Close and Reopen a Lesson]

We want to see how you would navigate back to a lesson once you've closed it. So, please show us how you'd go back to a lesson.

[Task 4: Question of the Day]

Return to the home page, and answer the question of the day. This should start a brief conversation with the app.

[Wrap Up and Q&A]

Do you have any additional questions?

You've given us a lot of great feedback today that will help shape the future of Immersion Pro. Please feel free to reach out to me at **[contact method]** after this session if you think of anything else you'd like to share. Thank you so much for your time!

Prototype - Testing Script Feedback

Feedback

Through the peer review process in our User-Centered Design sync session, we gained some additional insight into what users might want to see during a testing session.

- Added a task for question of the day.
- Added reference to utilizing popular media and playlists.

"I was not sure how the tool would be able to pose a question for me prior to me selecting a language or context. I wonder if those steps need to come first."

"I would have liked to see more about how the app gathers information in a way that drives a ML model. It seems like any other application that provides a quiz and, while it is an app, I feel like the content could be provided by any other instructional design product on the market."

Design System

Our design system serves as a guideline for our design. We aimed to create a design that was calming and professional. We tested the colors to ensure they met accessibility standards.

Immersion Pro Design System

Logo



COLORS



#196590



#A6C6A7



#F4F0E1



#FFFFFF



#092433

TYPOGRAPHY

Goudy Old Style - Heading

Inter - Body Text

BUTTONS



Primary Button



Disabled Primary Button



Secondary Button

ICONS

- ← Back
- Next
- 👤 Profile
- ▶ Send
- 🏠 Home
- 👍 Recommendations
- 📖 Lessons
- 💬 Chat
- ▼ Open Down Arrow
- 👁 View Password
- 🔊 Play Sound
- 🎤 Record Sound

FORM FIELDS

Text*

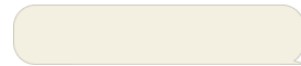
Text*

Text*

AI CHAT BUBBLE

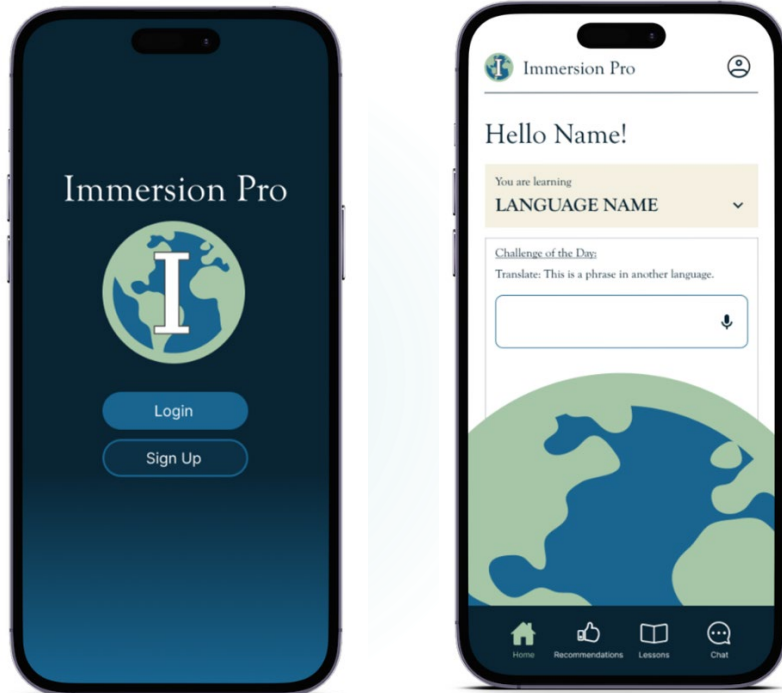


AI Chat Bubble



User Chat Bubble

Final Prototype



View our [final prototype](#).

Sources

- Norman, D. (2013). The design of everyday things. (Revised and expanded edition). Basic Books.