CS6460: Intermediate Milestone 1

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1 OVERVIEW

This milestone documents my progress in my research since week 8, including the Research Methodology design, the Recruitment Procedure walkthrough and some of the work completed so far.

On the one hand, I would like to demonstrate the progress I have made so far, and on the other hand, I want to get suggestions and feedback from mentors and peer students on these contents - which will be helpful for me to advance my research further.

You may check the video version of the report by clicking here. The presentation PDF is also uploaded for your reference.

2 RECRUITMENT PROCEDURE

I recruited participants for this research in two main ways:

- Leverage Ed Discussion to Recruiting CS6460 students to participate. CS6460 students were the most accessible potential participants to me, and I think that earning participation points for engaging in research or surveys is an effective mechanism for incentivizing participation. Here are the posts I published for this purpose:
    - Research Track - Learn a new language using Duolingo with me!
    - Participant Recruiting! Come learn a new language with me!
    - Participation points for my participants?
- Virtually or physically invite friends of mine to participate. This was originally my backup plan, and when I realized that I needed more feedback as expected from Ed Discussion, I immediately initiated this step to recruit participants simultaneously.

3 RESEARCH METHODOLOGY

As previously mentioned, the data collected from participants' weekly feedback will play a pivotal role in assessing student engagement. At the same time, their final Duolingo levels and badges will serve as primary indicators of learning outcomes. To comprehensively analyze this data, I will employ both quantitative and qualitative approaches:

3.1 Quantitative Analysis

- *Engagement Assessment* - I will quantitatively evaluate the engagement levels of the experimental and control groups by examining the participants' weekly feedback, encompassing tracking how many participants in each group reduced the frequency of their learning or discontinued learning in any given week.
- *Learning Outcome Evaluation* - I will quantitatively assess the participants' final Duolingo levels to gauge the extent of their learning outcomes.

I will visualize the analysis results in selected forms of charts so my audience can have an intuitive overview of the findings.

3.2 Qualitative Analysis

- *Understanding Learning States* - I will delve into understanding the participants' evolving learning states by collecting weekly feedback from participants. This qualitative aspect will focus on identifying the obstacles and challenges encountered by participants during their learning journey.
- *Reflection and Discussion* - towards the culmination of the study in week 15, I will invite participants to reflect on their overall learning experience and encourage them to raise any noteworthy points they believe are worth discussing in the future. This qualitative input will enable me to gain deeper insights into their perspectives, potentially shedding light on the future direction of Educational Technology.

By combining quantitative and qualitative approaches, I aim to comprehensively analyze the data, offering a multifaceted understanding of student engagement, learning outcomes, and participants' learning experiences in remote learning.

4 WORK I HAVE DONE SO FAR

4.1 Participant Engagement

As planned, I would send participants daily learning reminders for the first two weeks and weekly feedback reminders to reflect on the previous week. This is to help participants get on board and get used to the rhythm of learning a new language in the early stages. *Figure 1* is a preview of the email reminders I sent so far.

Figure 1—Preview of the email reminders

4.2 Data Collecting

As of this writing, I have created Excel spreadsheets for confirmed participants (18 total) to track their status and contact information and have been collecting weekly feedback for two weeks.

Since the list of participants could not be finalized at the beginning of the data gathering (some dropped out, and some wanted to participate after the participant recruitment), the final analysis may only utilize the data starting from week 9, even though I have already collected two weeks' worth of data.

First Language	Suggested Language	Onboarded?	Weekly Feedback	Weekly Feedback
English?	Japanese	✓		
Telugu		✓		
English	Japanese	✓		
English	Japanese	✓	✓	✓
English	Japanese	✓	✓	✓
Russian	Japanese	✓	✓	
English?	Japanese	✓	✓	✓
Kannada	Japanese	✓		
English	Japanese	✓	✓	✓
English	Japanese	✓		
English		✓		
Hindi	Japanese	✓		✓
English? Mandarin?	Japanese	✓	✓	
Chinese	Russian	✓		
Chinese	Russian	✓		
Cantonese?	Arabic	✓	✓	✓
Chinese	Russian	✓	✓	✓
Chinese	Arabic	✓		

Figure 2 - Preview of the email reminders

4.3 Final Paper Outlining

Figure 3 – Final Paper Outline.

Since the data collecting started a week later than expected, I got the task of outlining done ahead of schedule. The outline shown in *Figure 2* will be gradually refined while my research dives more profoundly, and for now, it only represents my current understanding of the project.

5 CHALLENGES

Despite being only two weeks into my research, I could only receive Weekly Feedback from roughly half of the participants. While I probably knew that this phenomenon seemed very much in line with the reality of remote learning, I was likewise more concerned that I didn't have enough data to conduct the final analysis. After all, I had a relatively small number of participants per se.

- I am still determining if I should go for an intervention for more data, but the intervention will bring biases to my study.

- Or let the participants go with the flow and draw conclusions based on the small amount of data.

Suggestions are needed.