



# Heuristic Evaluation

## Team Shrimp | Duolingo

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# Executive Summary:

This report describes the heuristic evaluation process, findings and recommended solutions on the usability issues discovered on the web platform of Duolingo, a free language learning software. We used Jacob Nielsen's evaluation framework, which consists of 10 heuristics that serve as a litmus test of Duolingo website's usabilities. Each of the five evaluators tested Duolingo against Nielsen's 10 heuristics while attempting to complete three tasks: signing up for an account, going through language lesson and a third task that is appropriate to the individual researcher's persona.

The research team brought together twenty-five most notable usability breakdowns and clustered them into six problem categories:

1. On-boarding
2. Dark pattern
3. Lack of feedback
4. Common Error Recognition
5. Hidden information
6. Customization

Based on these general categories, we then identified specific problems that are easy-to-fix and will bring the highest improvements to Duolingo itself. These are the issues we would recommend Duolingo to act on immediately:

## **Frozen loading screen**

Description: The loading icon is outside of the visual area of users. Users often mistake screen loading as that the website is frozen. They often proceed to reload the website or quit the application.  
Solution: Put the loading icon in a more visible area or enlarging the screen loading icon.

# Executive Summary:

## Error mid-lessons

Description: Browser plugins such as adblock often prevent Duolingo functioning correctly. However, it is not clearly documented that these softwares should be disabled before proceeding on Duolingo.

Solution: Add a message in Duolingo at the landing page that explicitly tells users to disable their ad-block in order to enjoy their undisrupted Duolingo experience.

## the Confusing icons

Description: The visual of the lesson completion icon does not match the consistent completion icon design. The progress bar is shaped as a half circle instead of the typical full circle.

Solution: Change the design to a circular progress bar.

## False advertising

Description: Classes that don't yet have content in them, such as the Korean class, have the same visual icons as other classes. Users would feel mislead and cheated by the system, losing trust in Duolingo.

Solution: changing the visual of classes that are not yet ready to allow for differentiation.

## Not able to access advanced lessons before passing the first level

Description: This option is very frustrating because many users go on the site to learn a specific part of the language instead of all of the language.

Solution: Enabling users to choose where they want to start in a language course.

## How did I do overall?

Description: After the user failed the test, it returns automatically back to the language home page.

There is no feedback on how the user did. As a result, users' motivation to learn is reduced.

Solution: Providing a summary report for the users would effectively resolve the issue.

The rest of the usability problems are not stated here because they either do not bring enough visible improvements for Duolingo or they take a long time to fix. However, you could find the the usability aspect reports not mentioned above in Appendix A.

# What is Duolingo?

Duolingo has three main goals:

1. Personalized Education
  2. Making learning fun
  3. Universally accessible
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## What?

Duolingo is a free language learning platform with both a website and app version of the product. It allows its 150 million users to create their personal Duolingo accounts, learn one or multiple languages they are interested in, and connect them with other avid language learners around the world. Duolingo is also building a tool to help language teachers to teach and monitor the progress of their students outside of the class. *The uniqueness of Duolingo lies in its gamification of learner encouragement.* Duolingo rewards its users with Lingots (Duolingo currency) as well as experience points for achieving their personal language learning goals.

## Target Audience:

Duolingo targets a wide range of audiences who differ in age and backgrounds. However, the website is particularly catered towards beginners.

# HeuristicEvaluationTechnique

## Methodology:

Heuristic evaluation is the process of identifying usability problems within a product through experts' interpretation of user interactions with the product. The evaluators of the product are a group of expert researchers who understand the principles of usabilities and the product's users. They use a predefined set of heuristics on usabilities to search for problems within a system. It is a low cost and fast way to improve an existing product. However, the findings from Heuristic Evaluations are flawed by researchers' bias. Therefore, Heuristic Evaluations should not be the only source to rely on when one tries to define usability problems.

## Specific Project Goals:

The goal of this project is to identify usability breakdowns within Duolingo through using Nielsen's heuristics. Five evaluators independently created respective user personas appropriate to Duolingo's target demographics. Each persona is different in age, background and their goal of using Duolingo. The complete persona list is in Appendix B.

Following the persona creation, the researchers came up with a set of use cases for each persona. Two of the use cases are common for all of the personas. The first use case is user registration, and the second one is taking a language lesson. The third one is a use case that is appropriate for each persona. We designed the use cases in this way not only because Duolingo does support a variety of demographics with different goals in using the website, but also a rather diverse use cases will help uncover usability issues. The evaluators each chose five of the most important usability problems and wrote Usability Aspect Reports for each issue. The group then came back together and conducted a thematic analysis of the 25 Usability Aspect Reports together (Appendix A). As a group, we clustered all the UARs into larger usability issues and rated each based on how easy it is to fix and how much impact the fix could bring. In the end, we prioritized our findings by focusing on analyzing the UARs in the easy-to-fix and high impact quadrant.

# Heuristics Used

## Jacob Nielsen's Heuristics :

We decided to use Nielsen's Heuristics because we felt it was a good base for us to become familiar with testing user problems on a commercial tool.

1. Visibility of system status
2. Match between system and the real world
3. User control and freedom
4. Consistency and Standards
5. Error prevention
6. Recognition rather than recall
7. Flexibility and efficiency of use
8. Aesthetic and minimalist design
9. Help users recognize, diagnose and recover from problems
10. Help and Documentation



Team Shrimp deciding which heuristic would benefit them the most.

# Overarching Themes

## 1. On-Boarding

1. The on-boarding process is confusing for the user and does not present all of the options equivalently. Users can not sign up as educators or complete their profile in one fluid step, disrupting their workflow.

## 2. Dark Pattern

2. The website presents multiple dark patterns, such as advertisements for languages that are not available to learn, which can cause users to be misguided into setting up an account that ultimately dissatisfies them.

## 3. Lack of Feedback

3. There is a consistent lack of effective feedback throughout the website, leaving the user confused as to both the system's status and their progress in their lessons.

## 4. Common Error Recognition

4. During lessons, many users seem to experience the same errors, such as problems with pop-ups, of which the site is aware, so they should present aid. However, there is a lack of recognition and navigation through these errors, forcing users to either deal with the error or dig through documentation for solutions.

## 5. Hidden Information

5. A significant amount of Duolingo's content is hidden from the user at first glance, including educator sign up and several settings. This makes it quite difficult for users to quickly and easily access relevant content, sometimes giving off the impression that those features simply do not exist.

# Overarching Themes

Overall, these problems represent a larger ***lack of communication with the user***. Many of these problems stem from the fact that Duolingo assumes user familiarity, but does not allow for a substantial learning period. Moreover, this places the burden on the user to learn and understand the website, making the user experience unnecessarily difficult. This issue could greatly be alleviated with simple fixes that better communicate feedback and system status to the user, such as a larger loading icon or a review after lesson completion. As it stands, Duolingo assumes that the user already knows what to do, how to do it, and what is going on, which is simply not true for novice users and could potentially alienate a large demographic.



Team Shrimp evaluating what the overarching themes of their heuristics presented.

# Highlighted UARs + Possible Solutions

This section includes selected UARs that the research team identified as both high impact and easy to fix, as well as possible solutions for each one. The following UARs and solutions are organized approximately in order of priority, with the highest impact and easiest to fix problems first.

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## Ambiguous Loading Screen

The loading screen on Duolingo is ambiguous and does not clearly communicate that the website is loading the next page. The placement of the loading icon in the logo at the top-left of the screen is hard to notice, as is the pale gray three-dot loading icon that only sometimes appears in the middle of the screen. The research team considers this usability breakdown to be high-impact, given that the user can expect to see the loading screen often, and be confused and frustrated when they do.

### *Possible Solutions:*

Change the loading icon to something more obvious (larger, brightly colored, etc.) that can be easily seen by the user. (Place in area where eyes are currently placed.)



The loading is in the "o" of Duolingo - it is difficult to first realize, and it's not noticeable to the user.

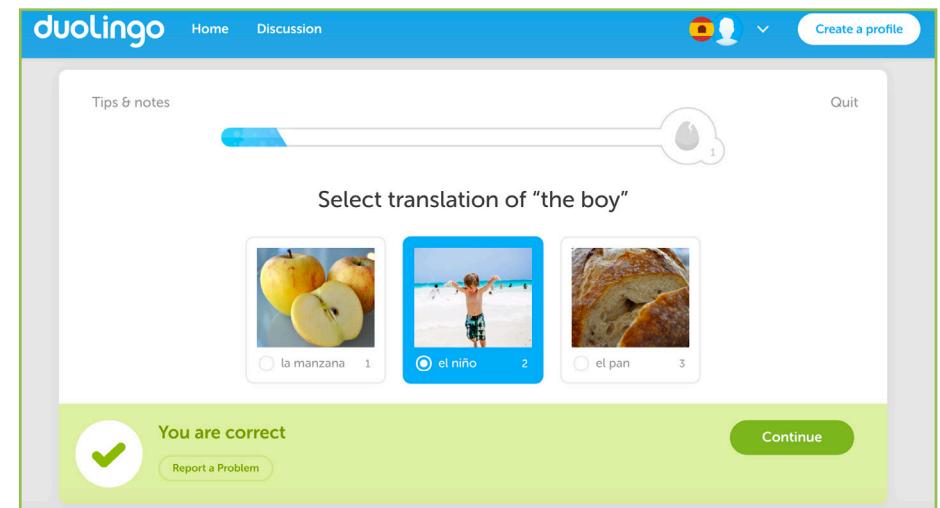
# Highlighted UARs + Possible Solutions

## Common Errors Mid-lesson

Several researchers encountered errors mid-lesson, such as being unable to follow the “Discuss sentence” link or play recordings of words. Solutions to these errors could only be found by exiting the lesson to search the documentation or refreshing the page, thus causing the user to lose their progress in the lesson. The research team considers this problem to be high-impact, given that errors like these are common across multiple users, can happen multiple times per lesson, and cause considerable frustration to the user.

### Possible Solutions:

- Provide brief FAQs/Troubleshooting information on the lesson page, so that the user can find solutions to common problems without exiting the lesson
- Save the user’s progress in a lesson so they can safely exit and return
- Recognize when an error happens and provide a diagnosis and solution in a pop-up



There is no FAQ/help readily available when the user is mid-lesson.

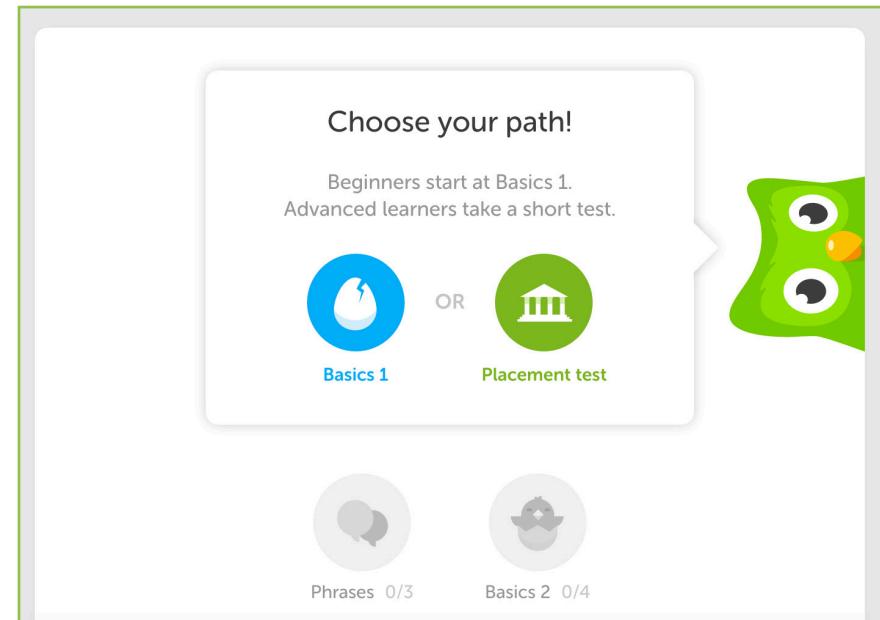
# Highlighted UARs + Possible Solutions

## How did I do?

After a user fails a test, they are returned to their home page with no feedback as to what they did wrong or how they can improve. This frustrates the user and prevents them from completing the primary goal of the website--learning a new language--since they don't know what they need to study to improve. Because of this, and because this problem can occur very frequently, the research team considers this problem high-impact.

### Possible Solutions:

- After a lesson, have a page showing the user what questions they got wrong.
- Save the questions the user got wrong so they can review them later, after exiting the lesson.



After a user fails/in completes a test or lesson - it directs the user immediately back to the home lesson page. It gives no information on how the user did overall.

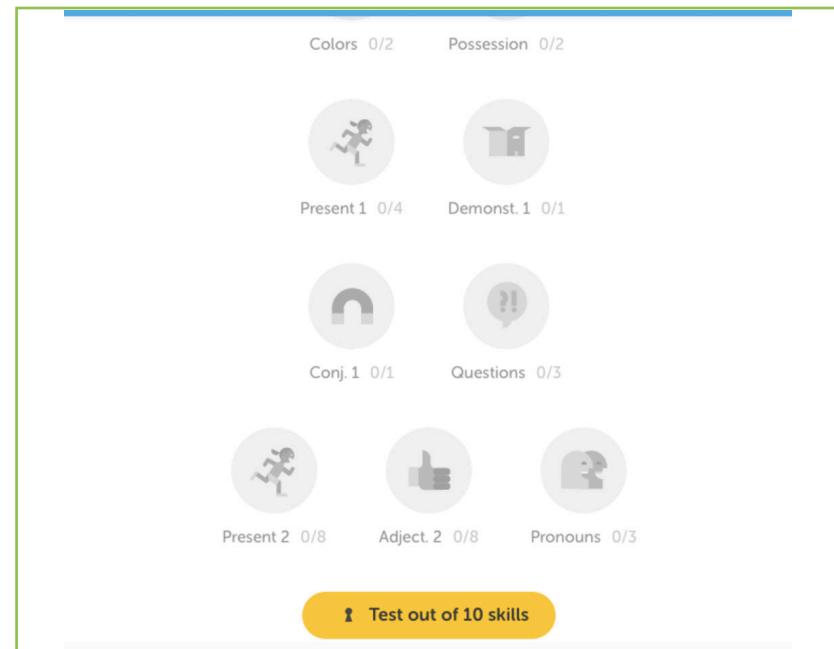
# Highlighted UARs + Possible Solutions

## Accessing Advanced Lessons

Users who already have experience in a language cannot simply start with advanced lessons such as verb forms, but must complete or test out of all previous lessons before unlocking advanced lessons. This is frustrating for advanced users who may want to practice specific skills, but instead have to go through the tedious and time-consuming process of completing easier lessons. The research team considers this problem to be high-impact because it is always present and could prevent an advanced learner from using Duolingo.

### Possible Solutions:

- Make all lessons available to all users all the time, allowing the user to choose lessons as they see fit
- Provide a recommended, but not enforced, pathway for novice learners



The user is unable to work on advanced lessons if the previous are not completed.

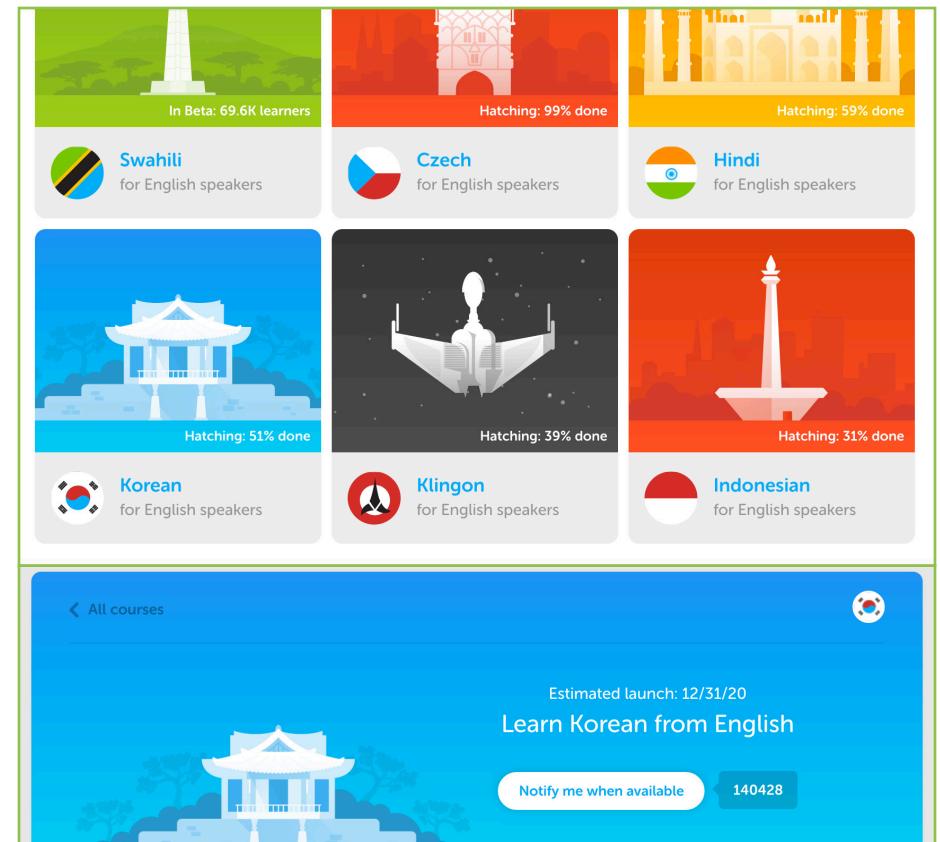
# Highlighted UARs + Possible Solutions

## False Advertising

When the user goes to the “Courses” page to add a new course, they are presented with some languages, such as Korean and Klingon, that appear as available as the other courses. However, when the user attempts to add them, they are informed that the course is still being developed. This can be disappointing to a user who thought they could learn a new language, but instead is left feeling deceived by Duolingo and thus loses trust in the service. While there is text on the course icon that says “Hatching,” it is not noticed by the user.

### Possible Solutions:

- Make incubating languages unavailable to click on
- Create a separate section on the courses page for incubating courses, to clearly differentiate these courses from available ones
- Make the “hatching” status for the course more visible, such as presenting a progress bar at the bottom of the icon or making the text larger. Or change the word “hatching” to “in progress.”



Korean is available amongst the languages that are complete. However, once the user clicks Korean - they realize the lesson is not ready to be used.

# Highlighted UARs + Possible Solutions

## Confusing Unit Progress

When a user is working on a unit such as “Basics,” the icon for that unit on the user’s home page shows a progress meter. However, when the user completes the unit, the completely-filled progress meter only goes halfway around the unit icon, causing the user to think that the unit is only half-completed. The research team considers this usability problem to be high-impact because it confuses and frustrates the user, and is always present on the home page.

### Possible Solutions:

- Change the progress meter to go all the way around the icon when it’s filled
- Change the progress meter to be linear
- Provide a numerical indicator of progress in addition to the meter (for example, “100%”)



The progress meter on the side of the icons only goes half way through the circle - mis communicating that the unit is completed.

# Appendix

# Appendix | A. UARs

## SJ-01: Customer segmentation

### Assumptions:

1. A 29-year-old High School French teacher seeking an online tool that supports students outside of classroom learning.
2. Sign up as an educator

### What Happened?

As an educator, I want to sign up to be able to teach. However, Duolingo assumes I intend to learn and asks me to choose a language to learn in the on-boarding process.

### Severity 2

1. Educators would feel confused by the regular sign up process since they wanted to register as educator.
2. The educators could navigate to the Duolingo School section after creating his/her account. However, Duolingo School is hidden in the footer and is rather hard to find.

### Frequency

It occurs every time in the on-boarding process

### Heuristics Violated

NH7 - User Flexibility and efficiency of use

### Possible Remedies

Easiest fix: an extra signup screen asking whether the users want to register as users or educators should be implemented



As an educator, I want to sign up to be able to teach. However, Duolingo assumes I intend to learn and asks me to choose a language to learn in the on-boarding process.

# Appendix | A. UARs

## SJ-02: Hidden school teacher sign up

### Assumptions:

1. A 29-year-old High School French teacher seeking an online tool that supports students outside of classroom learning.
2. Sign up as an educator

### What Happened?

It took me a while to find the Duolingo School and understand that this is an integrated product to help educators.

### Severity 3

1. Educators would be frustrated because the product is not readily visible.
2. Educators could access the Duolingo School on the main page. They could also search for Duolingo School on search engine and be re-directed to the page they wanted to go. However, this extra step is unnecessary and tiring.

### Frequency

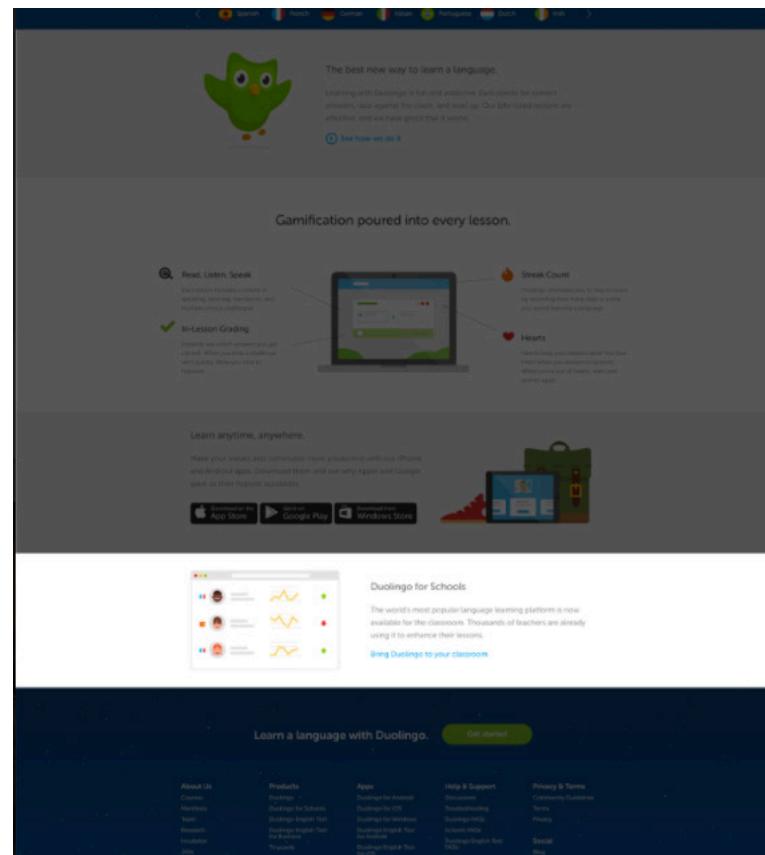
Frequent

### Heuristics Violated

NH4 - Consistency and standards

### Possible Remedies

Easiest fix: Give more visual priority for Duolingo School



Duolingo School is difficult to find. It has low hierarchy compared to everything else of the site.

# Appendix | A. UARs

## SJ-03: Confusing classroom setup process

### Assumptions:

1. A 29-year-old High School French teacher seeking for an online tool that supports students outside of class learning.
2. On-boarding Duolingo classroom

### What Happened?

There are two progress bars present at the same time. I am not sure where exactly I am in the process of setting up my Duolingo Classroom.

### Severity 1

1. Users would feel confused by the double system progress bars. It is not quite clear how that translates to where the user is at right now in the system.
2. The workaround is that users could continue the sign up process and finally understand the process once they are done.

### Frequency

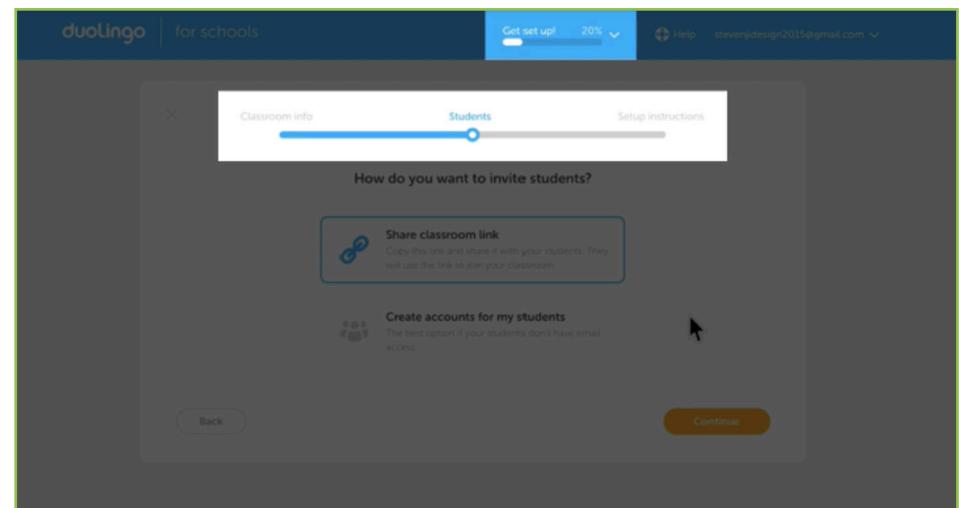
Frequent

### Heuristics Violated

NH1 - visibility of system status

### Possible Remedies

Show only one status bar at a time



Confusing 2 progress bars seem unrelated.

# Appendix | A. UARs

## SJ-04: Confusing classroom setup process

### Assumptions:

1. A 29-year-old High School French teacher seeking an online tool that supports students outside of classroom learning.
2. Seeking to evaluate if the Duolingo School fits my criteria as a teacher

### What Happened?

My Duolingo Classroom appears to be done. However, the progress bar still shows that I am only 40 percent done. However, there is no clear direction on what I need to do to complete my Classroom setup process. When I click on the Classroom setup progress bar, I saw that my next step in the setup process is to browse curriculum resources, which I am excited about. However, when I click on the curriculum resource. I was directed to the beginning of the setup process, which both confuse and frustrate me. It took me a while to notice that there is a menu bar on the left that leads me to the curriculum resources that I want to get to.

### Severity 3

1. Users would feel so frustrated that they completely gave up on the process.
2. They would recover by actively seeking for help from Duolingo.

### Frequency

All the time

### Heuristics Violated

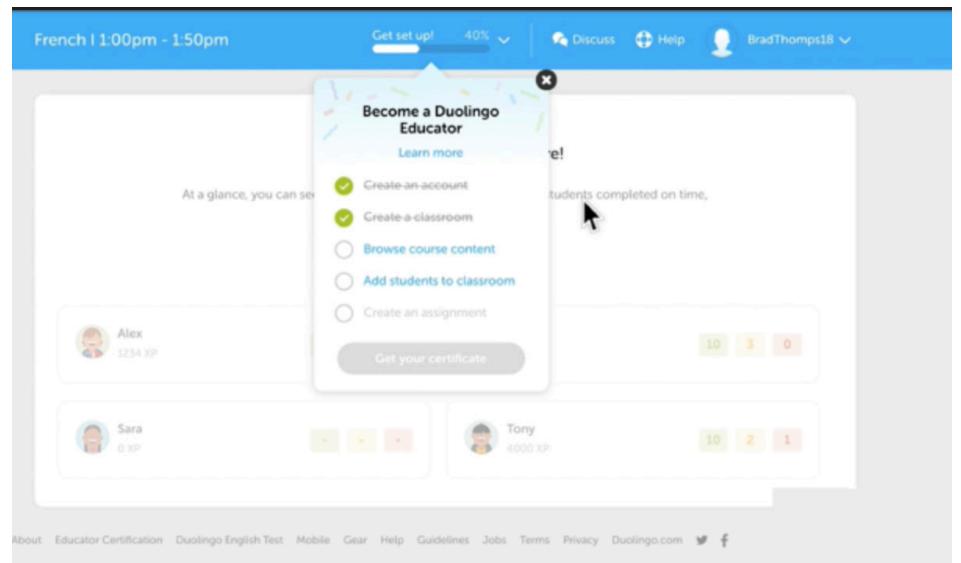
NH9 - Help users recognize, diagnose, and recover from errors

NH3 - User control and freedom

NH7 - Flexibility and efficiency of use

### Possible Remedies

1. Easiest fix: Add instructions on what it means to click on the status bar - it doesn't mean browsing the curriculum resource. Rather, it means that the user will be redirected to the setup process that they left off from last time.
2. Best fix: The content of the status bar should link to the correct pages. Clicking on the curriculum resources should direct users to the page instead of back to setting up a new Classroom.



Difficulty maneuvering to curriculum resources.

# Appendix | A. UARs

## SJ-05: No notifications to students on homework

### Assumptions:

- 1.A 29-year-old High School French teacher seeking an online tool that supports students outside of classroom learning.
- 2.Seeking to evaluate if the Duolingo School fits my criteria as a teacher

### What Happened?

When I assigned the homework to my student, she doesn't get notifications of whether homework was assigned or where could she find her homework. The incident sadly proved that Duolingo was a lackluster tool for educators.

### Severity 3

- 1.The user would lose trust in Duolingo as a reliable tool to help educators. The problem would hinder the conversion rate for educators tremendously.
2. The user could recover by asking help from Duolingo or fellow educators who are experienced in using Duolingo School.

### Frequency

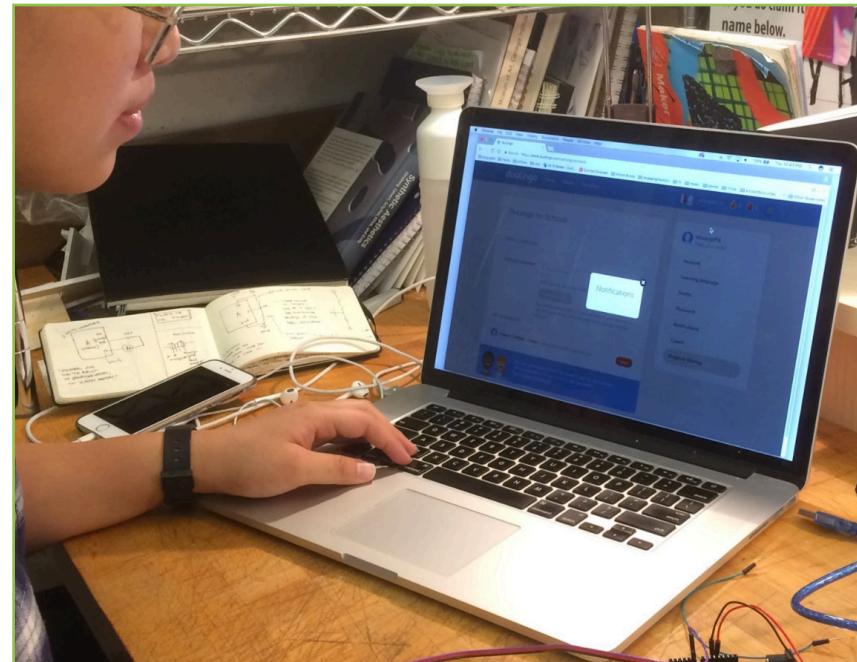
All the time

### Heuristics Violated

- NH1 - Visibility of system status  
NH3 - User control and freedom  
NH10 - Help and documentation

### Possible Remedies

- 1.Provide step-by-step instruction on how to issue assignment and provide instructions for students to find out where the assignment is posted and how they could receive comments.
- 2.Appoint Educator ambassadors/trainers for Duolingo. The trained faculty on using Duolingo could help the lesser skilled achieve their goal. However, this is not optimal for achieving high conversion rates.



Student is not notified when a homework was assigned.

# Appendix | A. UARs

## NB-06: Confusing icons

### Assumptions:

1. A college student trying to practice French
2. Trying to find a lesson to do

### What Happened?

I completed the lesson but it appears as though I still have something left to finish, since the circle is only half complete.

### Severity 2

This user would be confused as to whether or not they actually have passed those lessons.

### Frequency

All the time

### Heuristics Violated

NH2 - Match between system and the real world

### Possible Remedies

Change the icon so that the circles are filled all the way when each lesson is completed or change the progress bar to something linear.



The progress meter on the side of the icons only goes half way through the circle - mis communicating that the unit is completed.

# Appendix | A. UARs

## NB-07: Page loading ambiguous

### Assumptions:

1. A college student trying to practice French
2. Completing a lesson

### What Happened?

I completed one item and wanted to move on to the next, but I was presented with a blank screen. The loading icon is in the top-left Duolingo icon, but I only noticed this after a few times being confused.

### Severity 2

This user would be confused about what was going on and if the system had received their response.

### Frequency

Frequent (whenever the page loads)

### Heuristics Violated

NH1 - Visibility of system status

### Possible Remedies

Change the loading icon to something more obvious on the center of the screen



The loading is in the "o" of Duolingo - it is difficult to first realize, and its not noticeable to the user.

# Appendix | A. UARs

## NB-08: Confusing menus in settings

### Assumptions:

1. A college student trying to practice French
2. Looking to update my profile

### What Happened?

I wanted to update my name and was presented with a confusing list of menus to choose from. Why are there 7 different small sub menus instead of 1 comprehensive menu?

### Severity 3

This user will be confused about how to access specific settings and navigate to particular information. They may have to resort to clicking through every menu, as the names are ambiguous as well.

### Frequency

Sometimes

### Heuristics Violated

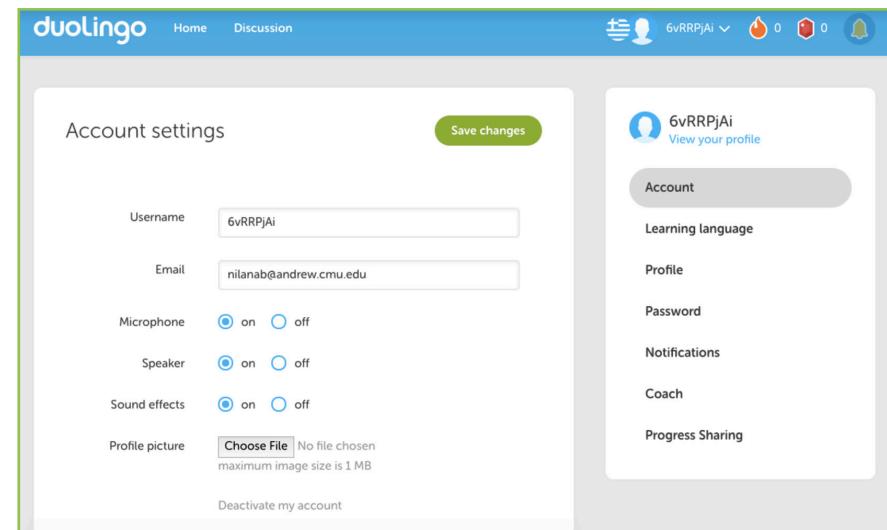
NH4 - Consistency and standards

NH6 - Recognition rather than recall

NH7 - Flexibility and efficiency of use

### Possible Remedies

Make the settings menu one long menu that is easily searchable.



# Appendix | A. UARs

## NB-09: Not able to access advanced lessons

### Assumptions:

1. A college student trying to practice French
2. Trying to practice my past tense

### What Happened?

I want to practice the passé composé as I have trouble with tenses, but am unable to do the corresponding lesson unless I complete all of the previous lessons.

### Severity 3

The user is unable to do the lessons they are interested in and must follow the path set out by Duolingo. This is a problem especially for experienced speakers as they may want to practice specific skills, but are unable to do so.

### Frequency

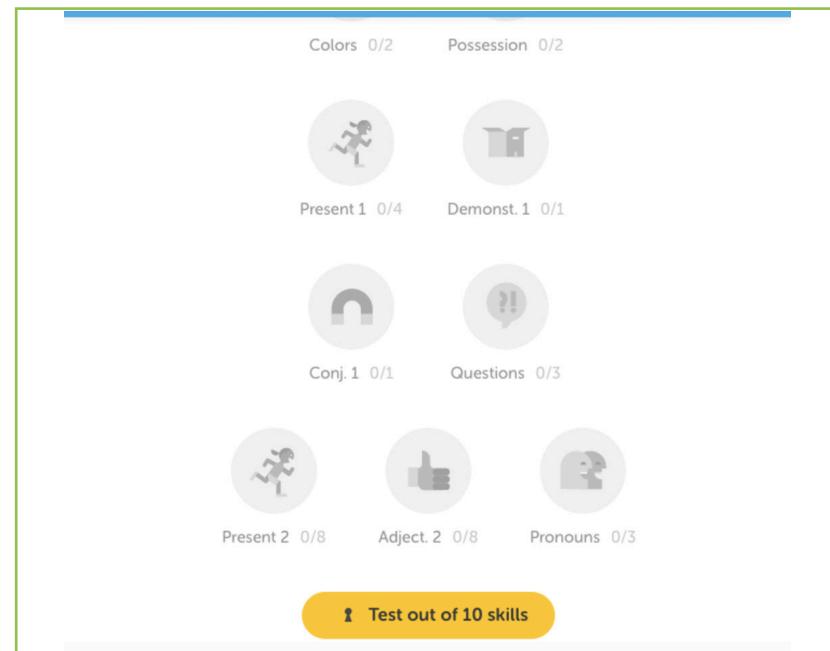
Always

### Heuristics Violated

NH2 - Match between system and the real world  
NH3 - User control and freedom

### Possible Remedies

Allow users to jump between lessons as they see fit, while providing a recommended pathway for novice users.



The user is unable to work on advanced lessons if the previous are not completed.

# Appendix | A. UARs

## NB-10: Where can I learn past tense?!

### Assumptions:

1. A college student trying to practice French
2. Trying to practice my past tense

### What Happened?

There is no clear way to find information on specific language concepts. Discussions also seem to be unhelpful about general topics and are geared more towards understanding if a particular sentence is crafted correctly. Furthermore, there is no clear way to return to the search results, as clicking back takes the user back to the main Discussions page.

### Severity 3

This is a highly severe issue as the user is not able to find the information they are seeking. There is no clear way to access specific information about the desired information and the navigation through Discussions is also poorly executed, as the user has to search the same term every time they want to view results.

### Frequency

Frequent

### Heuristics Violated

NH5 - Error prevention

NH7 - Flexibility and efficiency of use

### Possible Remedies

1. Create a back button to return to search results.
2. Allow lessons to be searchable.
3. Demonstrate what the discussion is about before the user clicks on it.

The screenshot shows the Duolingo website's 'Discussion' page. At the top, there is a blue header bar with the 'duolingo' logo, a search bar containing 'passe c x', and tabs for 'Home', 'Words', and 'Discussion'. Below the header is a white 'Discussion stream' area. On the left side of this area, there are three filter buttons: 'Popular' (which is underlined), 'New', and 'Followed'. To the right of these filters is a search bar with the placeholder 'Search' and a green 'New Discussion' button. The main content area displays a list of search results. The first result is a link titled 'Basics: passe compose' with the subtitle '...passe compose...'. The second result is a link titled 'French: "Demain nous sommes dimanche.' with the subtitle '...Passe compose or imparfait?...'. The third result is a link titled 'French: "Qu'avez-vous pensé de la série ?"' with the subtitle '...Habeis pensado passe compose...'. The fourth result is a link titled 'French: Être / Avoir' with the subtitle '...What is the passe compose?...'. The entire screenshot is framed by a thick green border.

The user is unable to find specific lesson.

# Appendix | A. UARs

## DM-11: Confusing profile creation process

### Assumptions:

1. A 13-year-old middle school Spanish student looking for resources to supplement coursework
2. On-boarding to start learning Spanish

### What Happened?

On the home page, "Get started" seems to be the equivalent of signing up for a Duolingo account. However, halfway through the "Get started" process there is a prompt "Create a profile" which is what I was under the impression I was doing to begin with.

### Severity 2

This issue may not prevent the user from creating an account with Duolingo but it does raise the question of whether or not they should continue the process they're pursuing or navigate to whatever "Create a profile" may entail. It is also confusing as "Get started" usually signifies creating a profile so seeing that as a different option along the way is disorienting

### Frequency

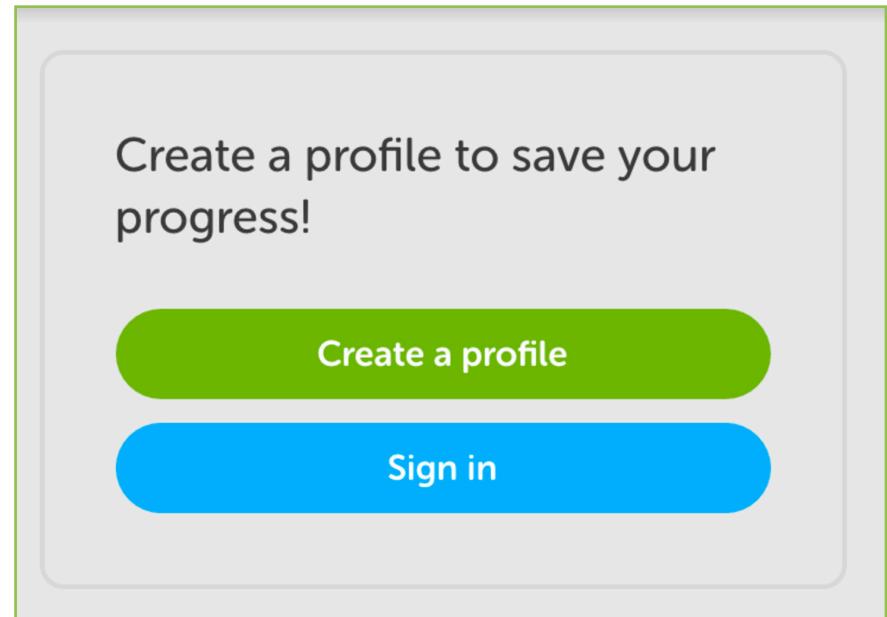
Frequent - It occurs every time in the on-boarding process

### Heuristics Violated

- NH1 - Visibility of system status
- NH4 - Consistency and standards

### Possible Remedies

Explicitly name the processes as what they are as opposed to referring to them generically as "Getting started." For example, introduce "Get started" as an initial assessment or way to explore options, meanwhile "Create a profile" should be signing up for a Duolingo account with the necessary credentials.



Confusing on-boarding

# Appendix | A. UARs

## DM-12: Options are presented that are not actionable

### Assumptions:

1. A 13-year-old middle school Spanish student looking for resources to supplement coursework
2. On-boarding to start learning Spanish

### What Happened?

Part of the on-boarding process can involve an assessment that gauges the user's current skill level. As a student who already has some understanding of Spanish I took this assessment. With each answer, there is an option to "Discuss sentence" which is both ambiguously worded (I'm not sure where this would lead) and consistently a broken link.

### Severity 3

The severity of this issue comes from the fact that it is of high frequency. It is both aggravating to have an option that serves no purpose and is also frustrating in that the user is inclined to keep trying it in the event of an instance where the option works

### Frequency

Frequent - It occurs every time the user takes an assessment of some sort in which their input is graded

### Heuristics Violated

- NH5 - Error prevention
- NH9 - Help users recognize, diagnose, and recover from errors
- NH10 - Help and documentation

### Possible Remedies

1. Fix the broken link
2. Explanations for inactivity of certain options
3. Include tool tips for where this link may lead/what it is intended for to at least let the user know whether or not this information would be pertinent to them if it worked



Discuss sentence link broken

# Appendix | A. UARs

## DM-13: Inconsistency in user “level” definitions

### Assumptions:

1. A 13-year-old middle school Spanish student looking for resources to supplement coursework
2. On-boarding to start learning Spanish

### What Happened?

One of the questions in assessing the user's experience is to indicate whether they would be a "Basic, Casual, Regular, Serious, or Insane" user, each one corresponding to a number of minutes per day spent learning their language of choice. However, later in the process when viewing their profile, they see the same categories but corresponding to different experience levels.

### Severity 3

The option in the profile is intended to allow the user to change their level of activity at any point, but does not use the scale that the user was first introduced to and is familiar with (and one that is intuitive and easy to understand unlike "XP"). It requires the user to remember the minutes that the levels correspond to and choose accordingly as opposed to having the information in front of them.

### Frequency

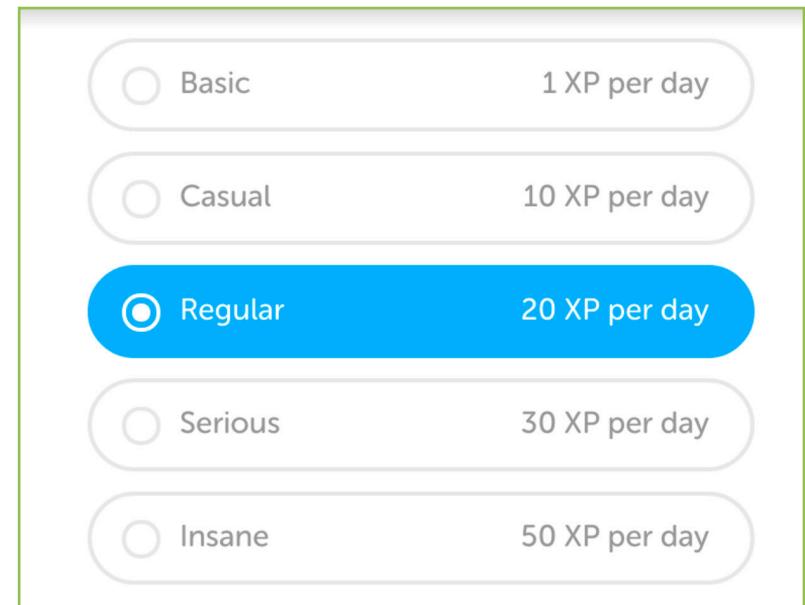
Frequent - It occurs at any time the user would want to alter their goals which would change often as the user becomes more accustomed to the site and the time they can and need to dedicate to learning

### Heuristics Violated

- NH2 - Match between system and the real world
- NH4 - Consistency and standards
- NH6 - Recognition rather than recall

### Possible Remedies

1. Standardize all mentions of this level to be in terms of minutes learning
2. Include explanations why experience points are pertinent in other circumstances



No scale to what these levels actually mean

# Appendix | A. UARs

## DM-14: Progress bar does not function as expected

### Assumptions:

1. A 13-year-old middle school Spanish student looking for resources to supplement coursework
2. Trying to find the appropriate lesson based on current knowledge of Spanish



Uninformative progress bar

### What Happened?

The user has the option to test out of skills to skip to an appropriate level. There is a progress bar at the top that seems as though it would indicate the extent to which the assessment is complete but is instead some sort of indicator of "correctness" that stops the assessment if a certain degree of "incorrectness" is surpassed. Because of this, the user is directed out of the assessment when it seems the progress bar is only partially loaded.

### Severity 3

There are numerous assessments that allow the user to skip the corresponding skills so this issue occurs frequently and is equally confusing every time. Not only does it deviate from the standard of progress bars indicating completion, but provides no information about how much better/worse they can perform before they are automatically exited from the exam.

### Frequency

Frequent - Every set of skills comes with an assessment that would allow them to skip it which means this progress bar is seen a large number of times.

### Heuristics Violated

- NH1 - Visibility of system status
- NH2 - Match between system and the real world
- NH3 - User control and freedom
- NH4 - Consistency and standards

### Possible Remedies

1. Have this be a conventionally operating progress bar that takes care of the correct vs. incorrect answers on the back end and show completion as a function of that
2. Explicitly state the number of correct or incorrect answers the user is allowed or has left instead of showing this as one confusing metric

# Appendix | A. UARs

## DM-15: Un-actionable, ambiguous option

### Assumptions:

- 1.A 13-year-old middle school Spanish student looking for resources to supplement coursework
2. Trying to find the appropriate lesson based on current knowledge of Spanish

### What Happened?

In the top right corner of the assessments mentioned in HE-14, there is an option entitled "Quit" followed by three hearts, none of which do anything or make conceptual sense (especially following an option to quit).

### Severity 2

This option is not a setback for the user but is rather a confusing use of space for something that has no real use or apparent value

### Frequency

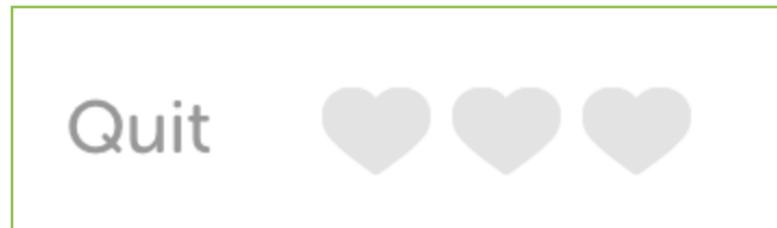
Frequent - Every set of skills comes with an assessment that would allow them to skip it which means this progress bar is seen a large number of times.

### Heuristics Violated

- NH2 - Match between system and the real world
- NH3 - User control and freedom
- NH10 - Help and documentation

### Possible Remedies

1. Explain the purpose of the hearts
2. Make the option functional
3. Remove it entirely as it does not seem to provide any critical function



Quit does not fit in this context

# Appendix | A. UARs

## LK-16: False advertising

### Assumptions:

1. Newly wed trying to learn Korean so he can communicate with his in-laws
2. On boarding

### What Happened?

I clicked on Korean excitedly, ready to start my first lesson, but was disappointed to find out that the language is not available currently. It will be ready in December

### Severity 3

The option to click on the language is deceiving

### Frequency

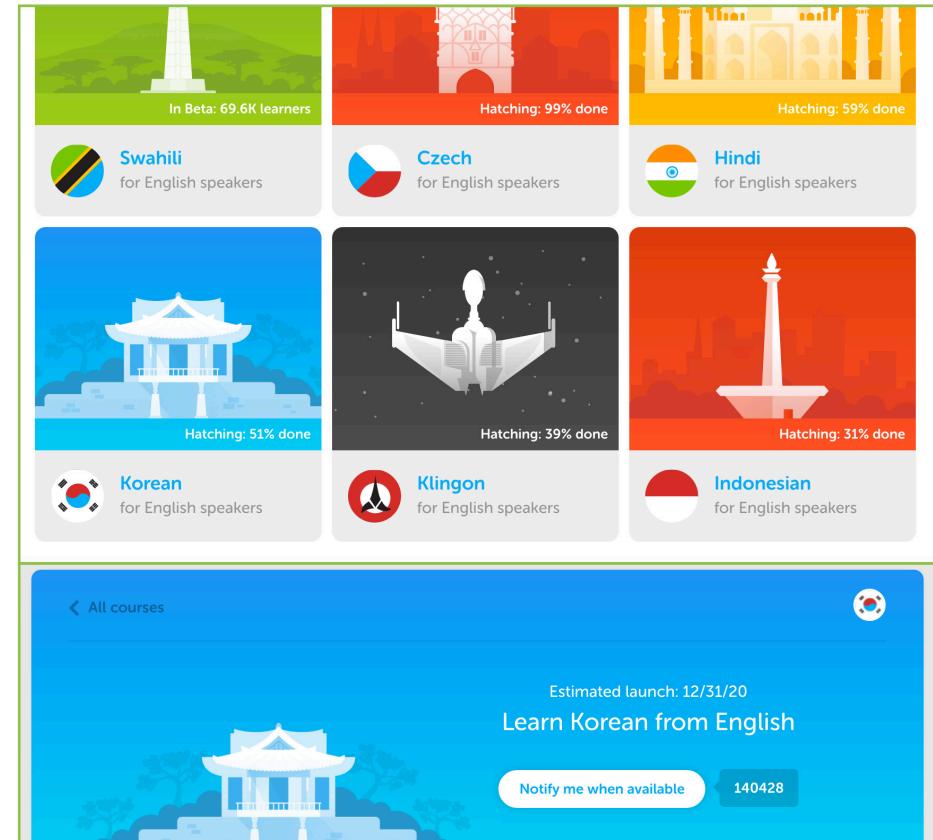
Sometimes, if users come to learn a new language

### Heuristics Violated

- NH1 - Visibility of system status  
NH3 - User control and freedom

### Possible Remedies

- . Do not make unavailable languages a choice to click on, should be a separate section “coming soon”



Korean is available amongst the languages that are complete. However, once the user clicks Korean - they realize the lesson is not ready to be used.

# Appendix | A. UARs

## LK-17: How is this course being made?

### Assumptions:

1. Newly wed trying to learn Korean so he can communicate with his in-laws
2. On boarding

### What Happened?

There is no information on how the course is being created and little context to the situation.

### Severity 3

With no background information on how a course is being completed, it can cause a user to lose faith. Also it took the user a second to realize that "hatching" was referring to a bird.

### Frequency

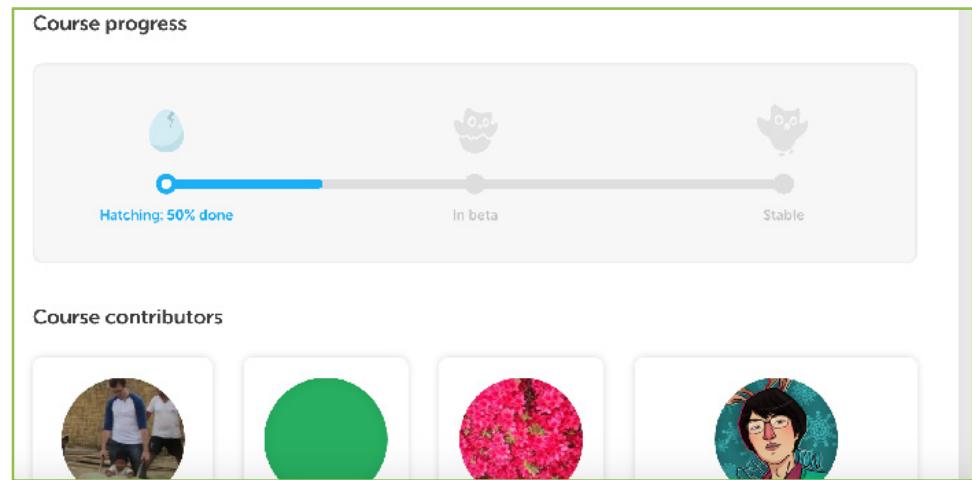
Sometimes,

### Heuristics Violated

- NH1 - Visibility of system status
- NH3 - User control and freedom

### Possible Remedies

Have an explanation on how the course is being created



Only progress and contributors are shown. No other information on how the course is being created is provided.

# Appendix | A. UARs

## LK-18: Wait, I made a mistake

### Assumptions:

1. Newly wed trying to learn Korean so he can communicate with his in-laws
2. Go through one language

### What Happened?

Since the I was unable to complete the Korean course, I decided to brush up on my Spanish skills that I learned from high school. I have some background, so I decided to complete the placement test. I misheard a listening portion and wrote something wrong - but had I heard it correctly I would have gotten it right. There is no "back" option.

### Severity 2

If users make a mistake, it can be frustrating to not get the credit

### Frequency

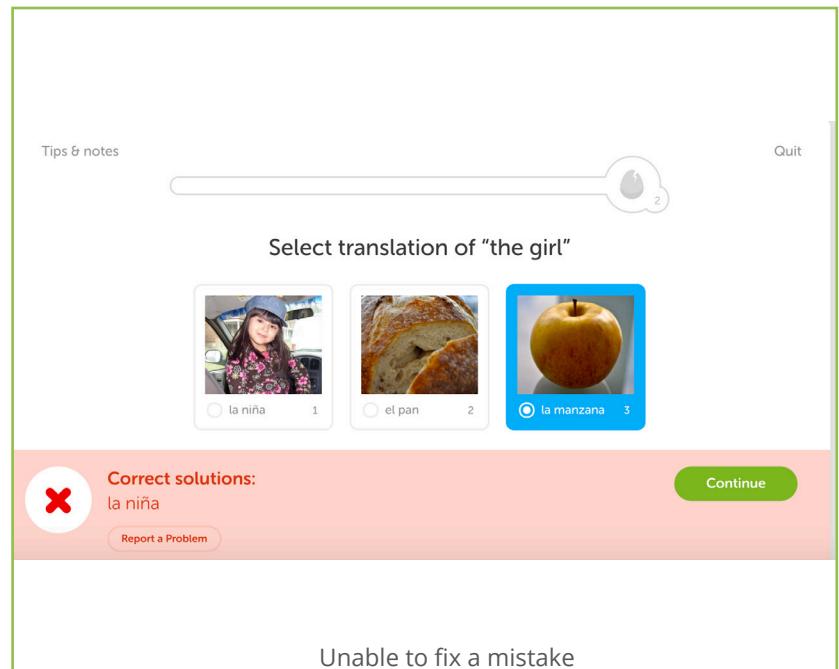
Frequent

### Heuristics Violated

NH3 - User control and freedom  
NH5 - Error prevention

### Possible Remedies

Provide a back button, but this would have to be done with another test to qualify that the "back" option should be granted



# Appendix | A. UARs

## LK-19: How did I do overall? What could I improve on?

### Assumptions:

1. Newly wed trying to learn Korean so he can communicate with his in-laws
2. Go through one language

### What Happened?

After I failed the test, it returns automatically back to the language home page. There is no feedback on how I did.

### Severity 3

It can be beneficial to users to go over what they did wrong at the end of the test

### Frequency

Frequent

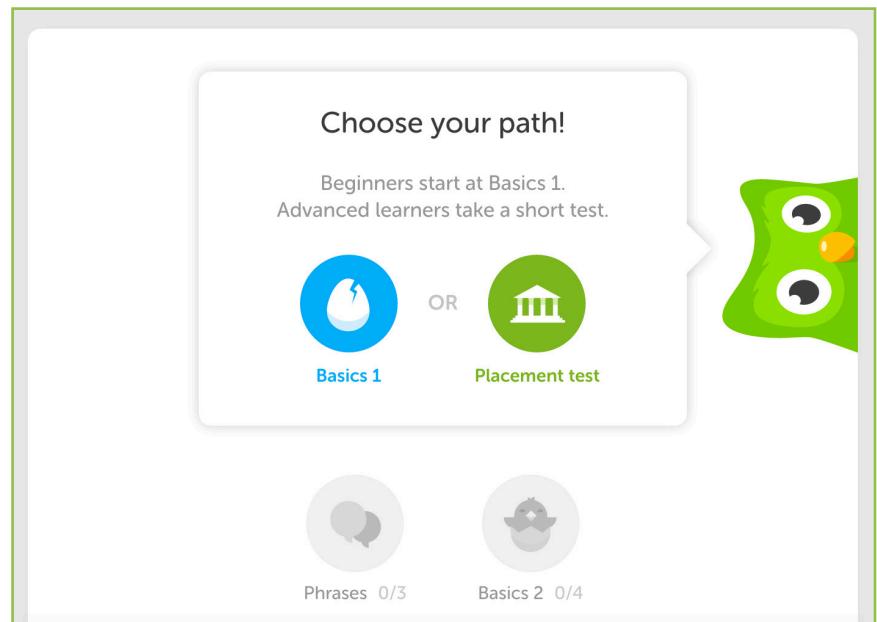
### Heuristics Violated

NH9 - Help users recognize, diagnose, and recover from errors

NH10 - Help and documentation

### Possible Remedies

Have a page at the end that shows what the user did incorrect, so they can improve the next test.



After a user fails/in completes a test or lesson - it directs the user immediately back to the home lesson page. It gives no information on how the user did overall.

# Appendix | A. UARs

## LK-20: How can I add to the lesson?

### Assumptions:

1. Newly wed trying to learn Korean so he can communicate with his in-laws
2. Go through one language

### What Happened?

I know someone who could possibly add to the lesson - how can they help?

### Severity 2

Not a major issue, but can be beneficial to the site

### Frequency

Sometimes/ Not often

### Heuristics Violated

NH10 - Help and documentation  
NH3 - User control and freedom

### Possible Remedies

Have an area dedicated to "want to help/add?" on the page

Contributor	Contribution (%)	Description
niskigwun	46%	native: English proficient: Mandarin, Korean, Polish contributor: ko-en KR/EN Course Contributor, 한영 과정 기여자 KRAKOW, POLAND
Seodori	28%	From Pohang, Korea time has come to change the world STEELYARD
Croesus1983B	8%	KR/EN Course Contributor, 한영 과정 기여자 THE PERSIAN GULF
Ash-Fred	3%	A devout atheist. I like left-handed people, short girls, and Oxford commas. The cereal should be poured first. I am very handsome. EN~KO PYONGYANG, DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

Shows course contributors, but doesn't allow you to sign up to be one.

# Appendix | A. UARs

## BS-21: Frozen loading screen

### Assumptions:

1. Elderly retiree learning language for fun
2. Unfamiliar with using websites

### What Happened?

When going from one page to another, the screen simply froze, making me wonder whether I had clicked on the right thing or if I had done something wrong or if the site crashed. I only realized the page was loading when I looked at the icon in my browser window--I didn't notice a loading icon on the website itself.

### Severity 2

Makes user wonder if the site crashed or something went wrong--but next page loaded quickly enough that I didn't get around to trying to click on something or close the browser

### Frequency

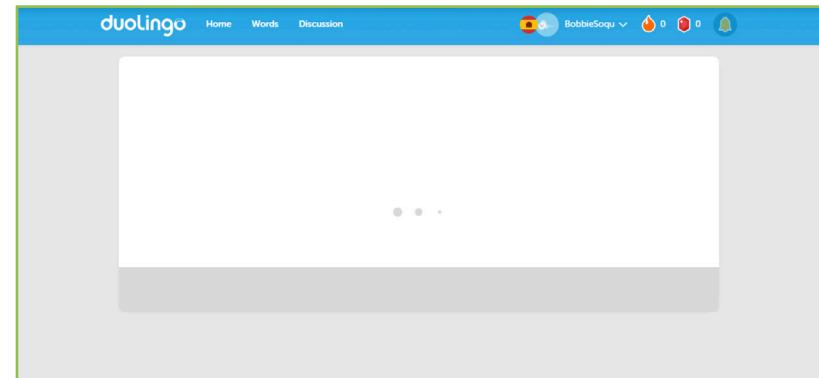
Frequent, every time user goes to a different page

### Heuristics Violated

NH1 - Visibility of system status

### Possible Remedies

1. Make loading icon more prominent. On one screen I saw a large three-dot "waiting" icon (like you see in chats) right in the middle of the screen where the lesson goes, and I immediately recognized that as an indicator that the lesson was loading.



The loading is in the "o" of Duolingo - it is difficult to first realize, and its not noticeable to the user.

# Appendix | A. UARs

## BS-22: Error mid-lesson

### Assumptions:

1. Elderly retiree learning language for fun
2. Multiple channels of learning: visual and audio

### What Happened?

Encountered a part of the lesson where the recording of someone saying the word didn't play, even when I clicked on the speaker button. There was no button to report an error or a problem in that page and I didn't want to exit the lesson to get help, and I had no idea what was wrong.

### Severity 3

Can impair language learning and leave user frustrated and confused

### Frequency

Sometimes

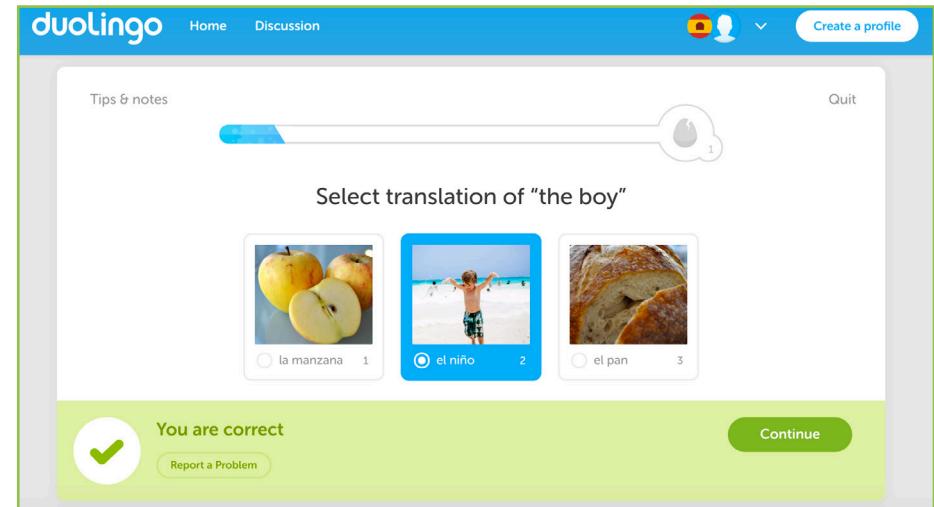
### Heuristics Violated

NH3 - User control and freedom

NH9 - Error recognition and reporting

### Possible Remedies

1. Create a FAQ/help pop-up for lesson pages so that users don't have to leave the lesson for minor problems
2. Allow reporting bugs or errors before submitting the answer to a question
3. Save progress in lesson if user quits and clearly communicate this



There is no FAQ/help readily available when the user is mid-lesson.

# Appendix | A. UARs

## BS-23: Wall of text in tips and notes

### Assumptions:

1. Elderly retiree learning language for fun
2. Difficulty reading small or lots of text

### What Happened?

At start of unit there are “tips and notes” that are presented in a very wall-of-text format that I have a hard time reading. I ended up just skipping reading it and hoping that what it explained was explained to me in the actual lessons.

### Severity 1

User can express frustration and move on

### Frequency

Sometimes, when starting new unit

### Heuristics Violated

NH7 - Minimalist design

### Possible Remedies

1. Break up text from wall into more easily readable sections or lines (multiple pages?)
2. Give “tips and notes” its own page instead of at bottom of unit

a b c d e f g h i l m n o p r s t u

The vowels can take an added accent, the *fada* (pronounced ‘foddah’):

á é í ó ú

The *fada* lengthens and alters the sound on the vowel.

The rest of the English alphabet, j k q v w x y z, especially v, is gradually being naturalised into Irish due to the many loanwords we take in.

Learn how to type accented letters here: <https://www.duolingo.com/comment/4278237>

### Word Order

Most English sentences use the “Subject-Verb-Object” word order. For example, in the sentence *He eats food*, *he* is the subject, *eats* is the verb, and *food* is the object.

In Irish, a slightly different word order is used: “V-S-O”. Here is the same sentence in Irish: *Itheann sé bia*. The verb in this sentence is *itheann* (a form of the verb *to eat*), the subject is *sé* (*he*), and the object is *bia* (*food*).

Wall of text

# Appendix | A. UARs

## BS-24: “Get started” vs. “Create profile”

### Assumptions:

1. Elderly retiree with little experience with websites
2. Account creation for this website will be like it is for others (like email)

### What Happened?

I expected clicking “Get started” would take me to account creation and not to a lesson, and was surprised when the “Create profile” window popped up at the end of the lesson

### Severity 2

Confuses user, who might not go through entire lesson to get to create profile window

### Frequency

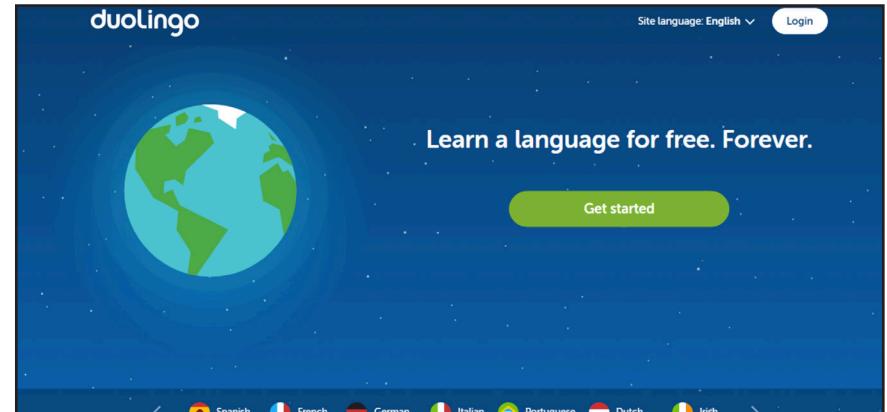
Sometimes, when starting new unit

### Heuristics Violated

NH7 - Minimalist design

### Possible Remedies

1. Break up text from wall into more easily readable sections or lines (multiple pages?)
2. Give “tips and notes” its own page instead of at bottom of unit



Confusing on-boarding

# Appendix | A. UARs

## BS-24: “Get started” vs. “Create profile”

### Assumptions:

1. Elderly retiree with little experience with websites
2. Account creation for this website will be like it is for others (like email)

### What Happened?

I expected clicking “Get started” would take me to account creation and not to a lesson, and was surprised when the “Create profile” window popped up at the end of the lesson

### Severity 2

Confuses user, who might not go through entire lesson to get to create profile window

### Frequency

Frequent, every time user tries to create account

### Heuristics Violated

NH4 - Consistency and standards

### Possible Remedies

1. Put “create profile” at start of on-boarding process
2. Explain what “get started” means on front page (“Try a lesson and then make an account”)



# Appendix | A. UARs

## BS-25: Can't post at level 1

### Assumptions:

1. Elderly retiree with little experience with websites
2. Can post my question on discussion board

### What Happened?

I went to a discussion but was told that I can't make a post until I'm level 2. But I wanted to ask my own questions now, while I'm still figuring out if I want to use Duolingo.

### Severity 3

Frustrates user--what if their question isn't already answered in existing discussion/FAQ/troubleshooting page? Then it can't get answered

### Frequency

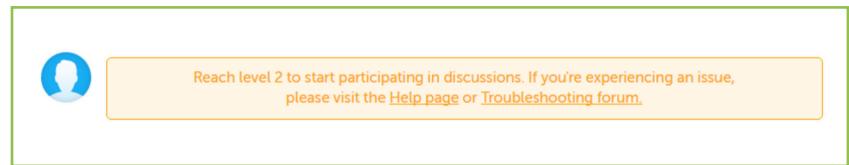
Sometimes, when user wants to make a post at level 1

### Heuristics Violated

NH3 - User control and freedom

### Possible Remedies

1. Let anyone with an account post
2. Let level 1 users post, but have a moderator review the post first
3. Create a "newbie thread" for level 1 users to post questions and more experienced users to respond, so that they don't post in other discussions



# Appendix | B. Personas



## Brad Thompson

High School French Teacher

Age 28

*"I want my students to appreciate and love French. I am seeking for a tool that could support students learn outside of the classroom"*

### Perception of Duolingo

Heard from colleagues that Duolingo is a great tool to help observe students' performance outside of the school.

### Personality

Passionate about learning. Friendly, out-reaching and adventurous. Believe in bringing the most out of other people.

### Pain Point

Much time spent on grading, course planning and class logistics.

### Motivation

Aspires to become an educator whose students commit to shaping the world by being able to understand and communicate themselves to people of different nationalities from all over the world.

### Short Term Goal

Finding a tool that supports my teaching efforts as well as students learning outside of the classroom.

### Long Term Goal

1. Improve my professional skills as an educator.
2. Guide my students to become successful and well respected people.

**Impersonated by**  
Steven

#### Use cases

- 1.Register for an account
- 2.Go through one lesson
- 3.Create a Duolingo Classroom and issue assignments to students

# Appendix | B. Personas



## Nina Wu

Middle School Spanish Student

Age 13

*"I want a resource that provides context for what I'm learning in class and supplements my understanding"*

### Perception of Duolingo

Believes Duolingo will help learn Spanish from a more conversational perspective as opposed to the technical aspects learned in the classroom.

### Pain Point

The school curriculum's emphasis on assessment is not conducive to learning Spanish in a usable way.

### Short Term Goal

1. To gain a "big picture" sense of the language that will aid the learning of lower-level intricacies.
2. To improve performance on coursework.

### Long Term Goal

To develop a more in-depth and long-lasting understanding of Spanish that extends beyond the school's cursory curriculum.

### Personality

High achieving, motivated, interested specifically in learning languages and wants to pursue a Spanish education for several years to come.

### Motivation

Aspires to be a doctor and knows that being bilingual is often a necessity and a competitive advantage.

Impersonated by  
Divya

#### Use cases

- 1.Register for an account
- 2.Go through one lesson
- 3.Review previous lessons taken

# Appendix | B. Personas



**Impersonated by**  
Nila

**Use cases**

1. Register for an account
2. Go through one lesson
3. Searched up tips on the past tense in the discussion forum and in lessons

## Jasmine Amari

College Student

Age 19

*"I want to be able to communicate with locals and really understand Swiss culture"*

**Perception of Duolingo**

Thinks Duolingo will brush up her knowledge of French and help with conversational idiosyncrasies.

**Pain Point**

Hasn't really spoken French since high school courses.

**Short Term Goal**

To be able to communicate effectively with Swiss residents.

**Long Term Goal**

1. Use language to better connect with foreign cultures.
2. Be fluent in conversational French.

**Personality**

Driven, adventurous, studious, unique, popular, caring.

**Motivation**

Wants to travel the world and deeply connect with people and cultures, hopes to be a business analyst and work with people from diverse backgrounds.

# Appendix | B. Personas



**Impersonated by**  
Bobbie

**Use cases**

1. Register for an account
2. Go through one lesson
3. Look for help on sound problem and on learning more than one language in the discussion board

## Gloria Jackson

Retired Elder

Age 71

*"I want to use the time I have now to broaden my horizons by learning a new language"*

### **Perception of Duolingo**

Children and grandchildren tell her that Duolingo is great for learning new languages, so she is willing to give it a try.

### **Pain Point**

1. Age means some difficulties in hearing, clicking, and reading small text especially on a screen.
2. Unfamiliar with using websites.

### **Short Term Goal**

1. Explore different languages and choose one that's interesting.
2. Have fun learning a new language.

### **Long Term Goal**

1. Become fluent in chosen language
2. Use fluency to explore other retirement options (i.e. moving to a different country).

### **Personality**

Kind, motivated, impatient, organized. Expects to learn things quickly and for people and systems to conform to her expectations.

### **Motivation**

Wants to use time in retirement to achieve what she couldn't when she was younger and have new experiences that enrich her life.

# Appendix | B. Personas



## Landon

Recently Married

Age 28

*"I'm so excited to start this new chapter in my life. I want to learn Korean so I can communicate with her parents. Family matters so much to me"*

### Perception of Duolingo

Has no experience with Duolingo, or any web-based language program. Is excited to try it out.

### Personality

Math and science were always his stronger skills (he works in finance)

### Pain Point

Grew up only speaking English, so another language is very foreign to Landon.

### Motivation

Family is really important to Landon. He wants to show his in-laws how much he respects them.

### Short Term Goal

Be able to have basic conversation with his in-laws at the next dinner/family event.

### Long Term Goal

Be able to teach his future children Korean alongside with his wife.

**Impersonated by**  
Lois

#### Use cases

- 1.Register for an account
- 2.Go through one lesson
- 3.Try to add Family members to contribute to the Korean Lessons.

## Appendix | C. Approaches

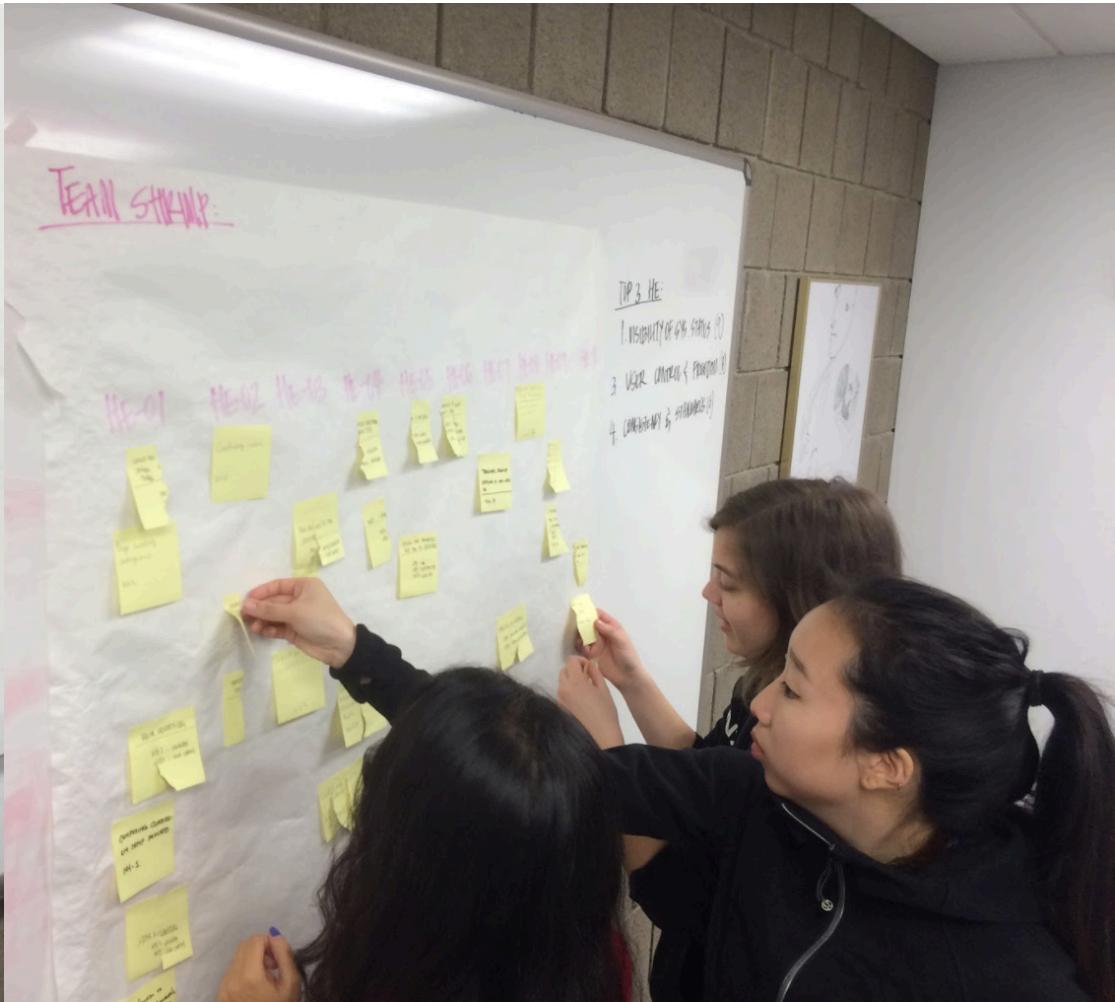


Team Shrimp hard at work

# Appendix | C. Approaches

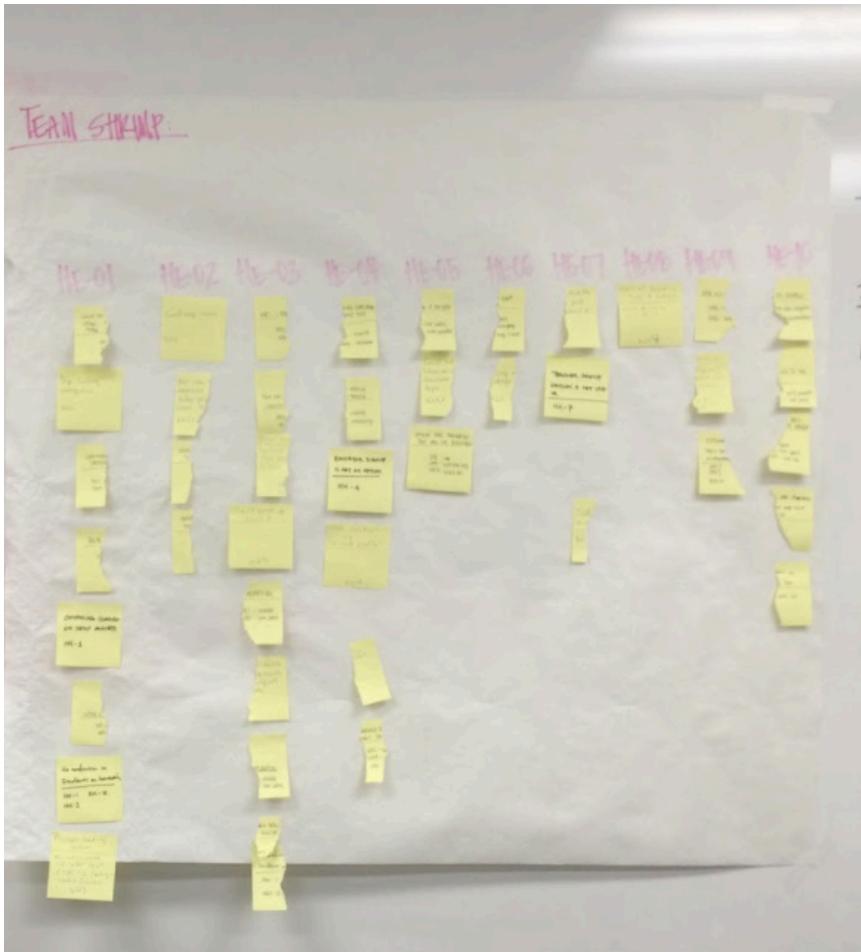


Initial layout of our UARs

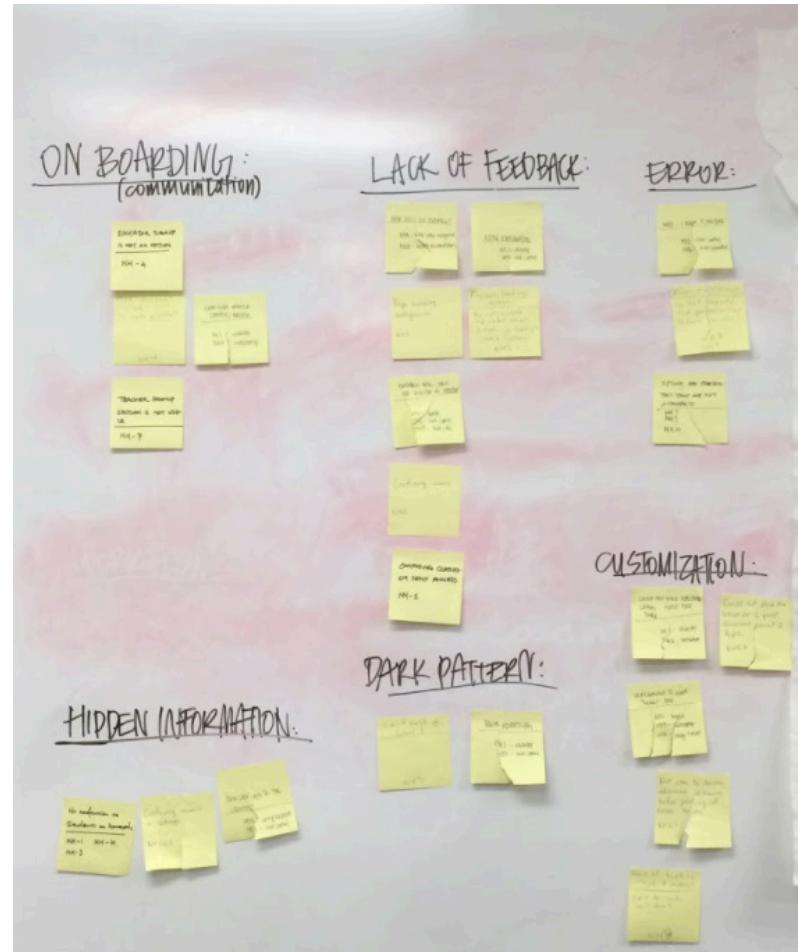


Reorganization of UARs

# Appendix | C. Approaches



## Reorganization of UAR's according to heuristics



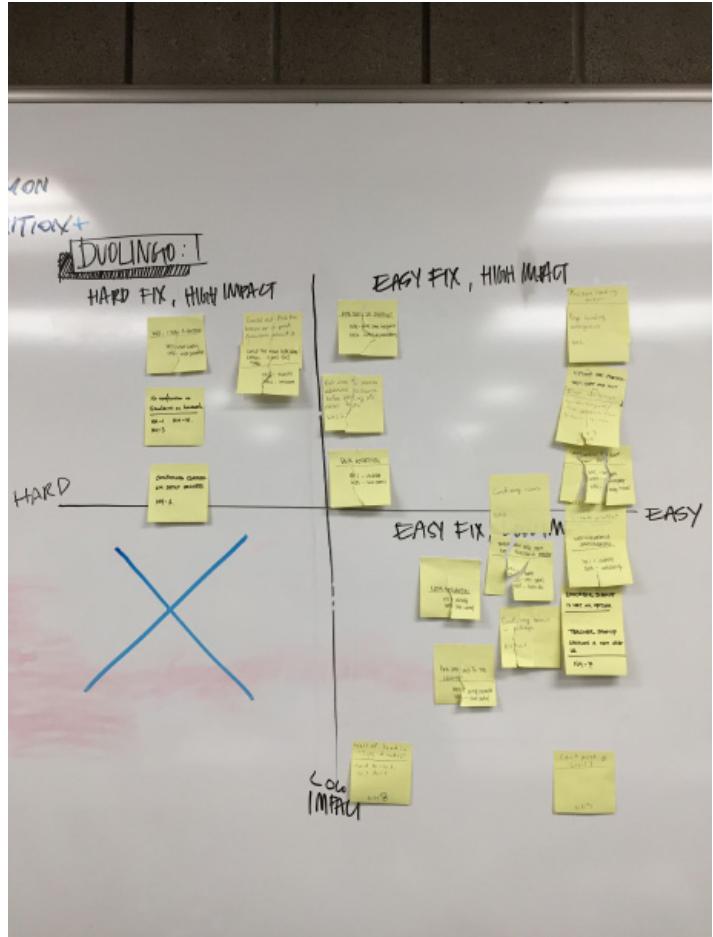
## Reorganization of UAR's according to overarching themes

## Appendix | C. Approaches



Creation of 2x2 matrix

# Appendix | C. Approaches



2x2 final matrix

		How did I do?	Frozen loading screen Page loading ambiguous
	Wait I made a mistake!		Options presented are not clear
	Wheres this lesson?		Error in lesson
	No HW notification	Not able to access advanced lessons	Inconsistency in user level
	Wheres past tense?		False advertising
	Confusing classroom setup		Confusing icons
		Little explanation Confusing progress bar	Get started vs create profile Confusing profile creation Educator sign up not available
			Teacher section is not usable Confusing settings