Duolingo

Usability Analysis

Prepared By Luke Gilbert

November 2023

Abertay University

Table of Contents

Introduction

Duolingo is a popular language-learning app which aims to make language learning accessible to everyone using a personalised and enjoyable learning experience.

This analysis will explore the design problems in development, effective design decisions to solve these and recommendations for improvements.

Design Problem Analysis

Before looking at the useability features of the app it is important to understand the useability problems that faced the designers.

Personalisation

Personalisation is crucial to tackle when designing an app that users want to return to. It forms a key part of tailoring the user's learning experience to them and ensures that users stay motivated. A personalised experience also allows the learning to target areas of weakness in a user's knowledge to improve it.

Fun Learning

Making the learning experience fun is a difficult challenge as learning requires focus and motivation. Research shows that human's ability to retain knowledge drastically declines if not revisited (Ebbinghaus, 1885). This is why it is key to get users to learn consistently. This can be effectively achieved by making learning fun for users and motivating them to return.

Design Choices

Personalisation

Personalisation in Duolingo is introduced to the user from the start. The user is prompted to input their name, age, and other key information as they begin the onboarding process.

Personalised Notifications

The user will receive personal notifications and feedback using their name and the languages they are learning. This design choice is very effective as it gives the notifications a personalised feel and is more effective as they are targeted at the user rather than just being generic.

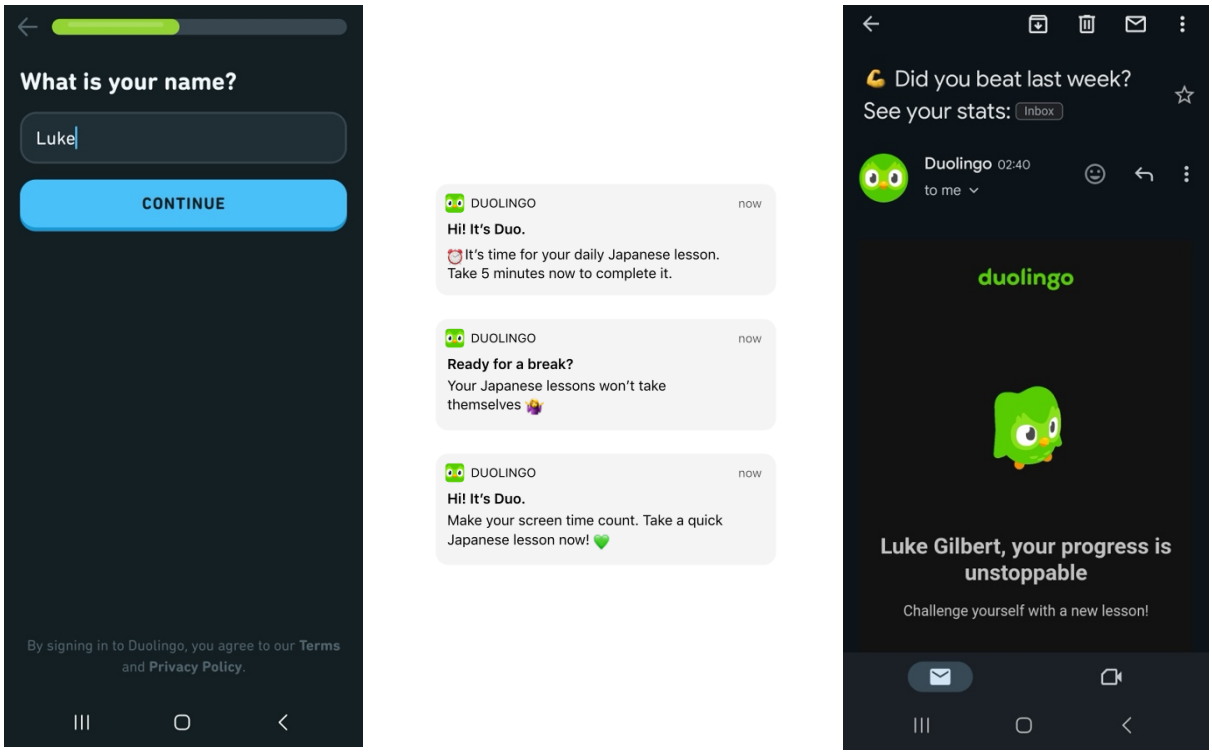

Figure 1 - Personalised Notifications from App

Tailored Learning Experience

Once the user has entered their details, they are then greeted with several screens aimed at gaining information about the language they want to learn and their current ability level.

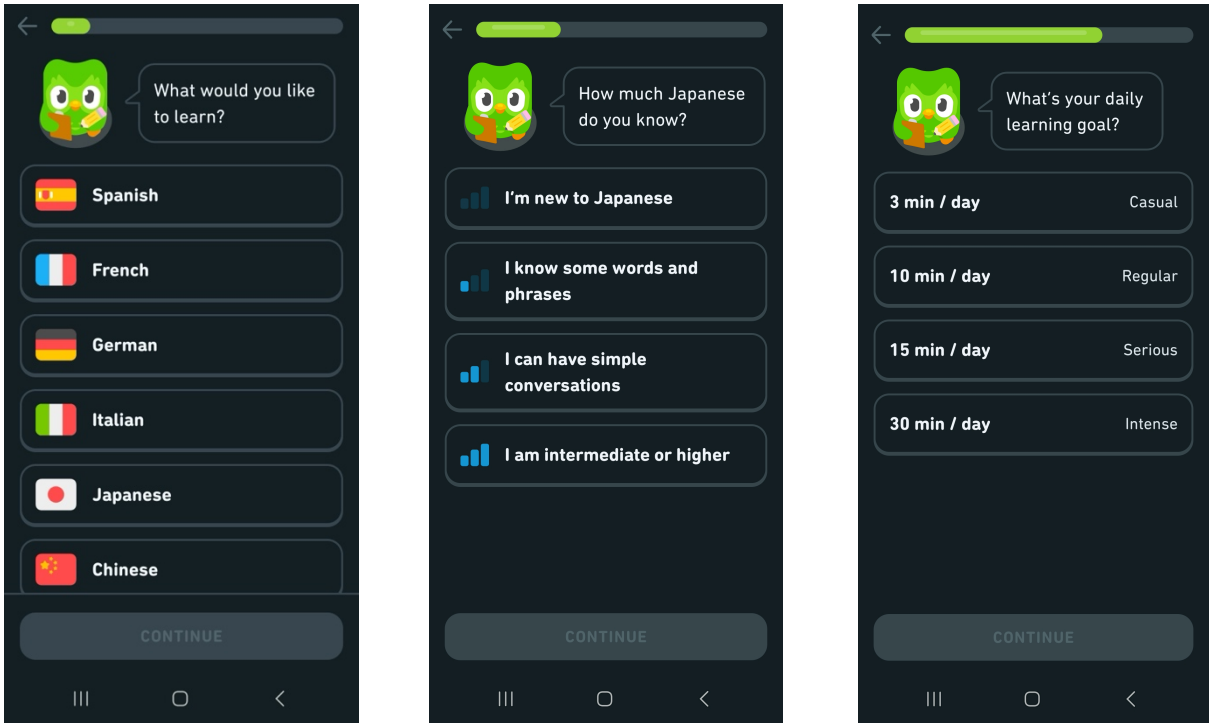

Figure 2 - Information Gathering for Personalised Learning

This information is then used to personalise the learning experience for the user. This design choice is good as it tailors the learning experience to each user, which helps aid in making lessons at the correct level and targets user-specific weaknesses. Determining the user's learning goals is an effective design choice which feeds into the app's "Spaced Repetition Model" which has been proven to be effective for learning (Settles and Meeder, 2016). In addition, users complete a short assessment with language exercises in their chosen learning language to further assess their ability and further tailor the learning experience.

Fun Learning

Duolingo achieves the purpose of making the learning experience fun in several ways.

Colour Scheme, Typography and Character Design

Duolingo uses a variety of bright and vibrant colours which lend it's enjoyable aesthetic. The most prominent colour is "Feather Green". Green helps convey an appealing learning environment through the connotations of success and growth, this can aid in making the user feel more positive towards the learning experience. This is used effectively for visually indicating when an answer is correct, conversely if the answer is incorrect use of reds is implemented to give users clear visual feedback.

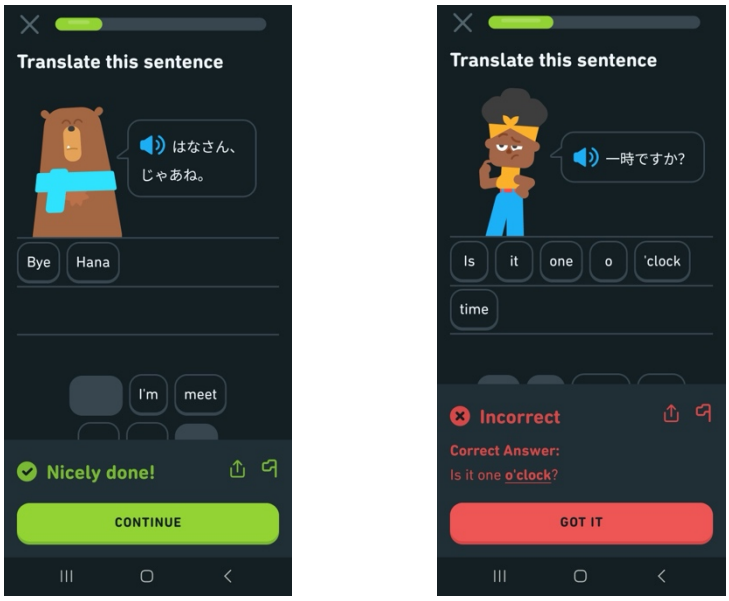

Figure 3 - Use of Colour in Lessons

To convey a fun aesthetic the design of the app also uses rounded corners across multiple aspects from the fonts, character designs and UI buttons. The softening of corners promotes a more fun/positive aesthetic which might aid in blunting the stress some might associate with learning.

Figure 4 - Use of Softening Corners. a. Character Design, b. Font and c. UI Elements (Duolingo, 2021)

Gamification of Learning

Duolingo gamifies the users' learning through leagues and streaks.

With each completed lesson the user gains experience which allows them to progress in the leagues. This extra sense of accomplishment helps to keep users motivated to continue learning.

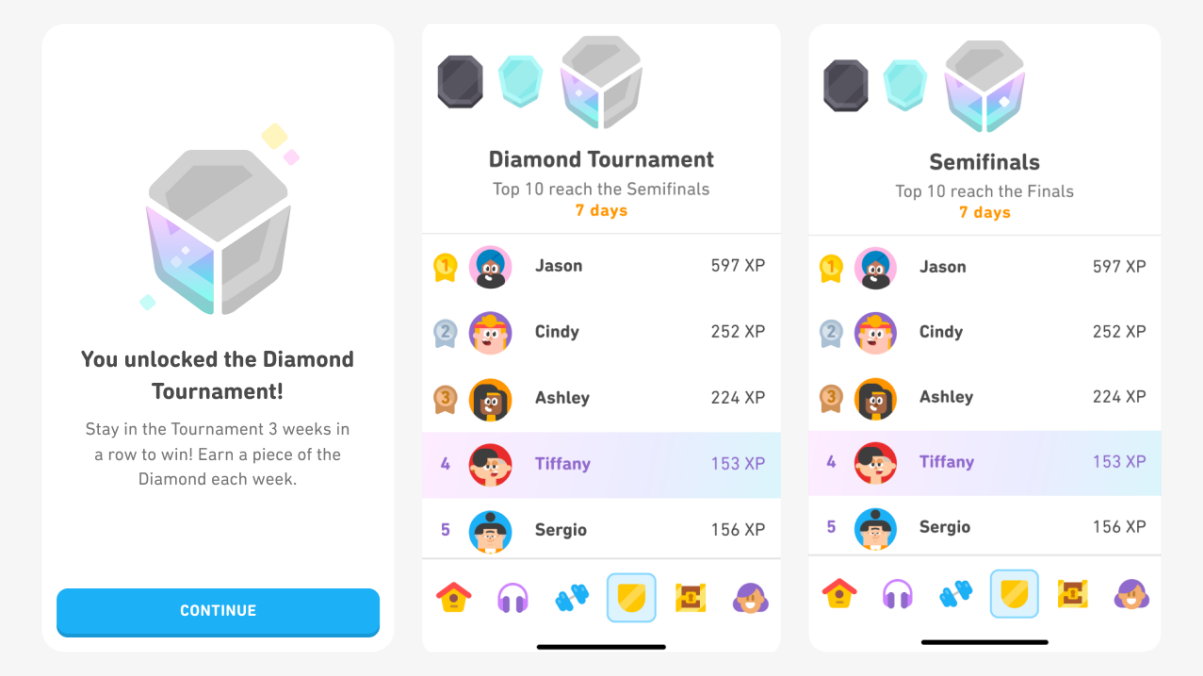

Figure 5 - Duolingo League System Screenshot (Duolingo, 2023)

Duolingo also uses streaks to gamify the experience and encourage users to return to the app. To maintain the streak the user must complete at least one lesson per day, giving them a tangible goal to strive for alongside their learning.

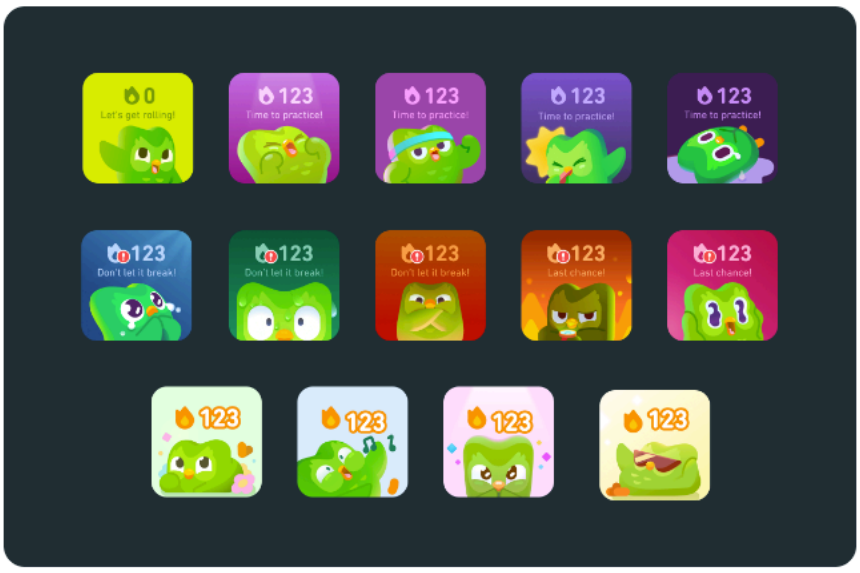

Figure 6 - Various Streak Widget Designs

Recommendations

Generally, the design choices for the Duolingo app are innovative and effective. However, there is some room for improvement.

Personalised notifications are a great feature but could be improved by using AI to send notifications at times of the day when a user has shown they prefer to practice (commuting on a train, mornings, evenings etc.). This could lead to increased motivation to learn if they are reminded at a suitable time. Notifications could also be tailored to target users' specific weaknesses with further refinement, this would lead to more effective learning.

Gamification of learning is an effective tool to keep learners motivated but could be improved further by rewarding the user with more tangible in-app rewards such as cosmetics for their avatar or profile to let them proudly display their accomplishments. It might also be a benefit to allow the XP earned by users to enhance the learning experience by allowing them to store more hearts (these are the number of mistakes allowed before being locked out until they regenerate) than the standard five.

References

Ebbinghaus, H. (1885). Memory: A Contribution to Experimental Psychology. *Annals of Neurosciences*, [online] 20(4). doi:https://doi.org/10.5214/ans.0972.7531.200408.

Settles, B. and Meeder, B. (2016). *A Trainable Spaced Repetition Model for Language Learning*. [online] Association for Computational Linguistics, pp.1848–1858. Available at: https://research.duolingo.com/papers/settles.acl16.pdf.

Duolingo Team (2021). *Brand Guidelines - Duolingo*. [online] Duolingo.com. Available at: https://design.duolingo.com/.

Duolingo Team (2023). *How do Duolingo Leaderboards work?* [online] Duolingo Blog. Available at: https://blog.duolingo.com/duolingo-leagues-leaderboards/.