



UMSI Capstone Package

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Executive Summary

Opportunity Statement

Identify target user group needs and habits to increase engagement, comprehension, and usability of “Fooya!” With this information, FriendsLearn could more effectively instill healthy habits in kids and thereby help address the diabetes epidemic.

Project Goals

- 1). Identify the factors that drive user engagement.
- 2). Explore game mechanics that contribute to or detract from usability.
- 3). Align navigation and control with user mental models to remedy existing control errors.

Impact and Next Steps

The team created design assets in Adobe Illustrator of the re-designed screens, so that the sprites can be easily mapped into Unity.

Median action search time was reduced by 15%, and overall comprehension of the game increased by almost 100%.

Key Findings

Control

User freedom and control are main factors in maintaining engagement over time. Perceived control can be increased by reducing recognition over recall and providing navigation options in multiple menus. Control is also influenced by a player's sense of long-term progress. This can be further improved with deeper integration of character upgrades, in addition to consistent updates of how immediate gains affect long term progress.

Consistency

In order for users to fully immerse themselves in the game, it is imperative that styling is consistent. This allows for easier navigation and lower cognitive processing times. There are multiple areas in Fooya! with varying styles that need to be addressed.

All team redesigns are consistently styled within themselves. Furthermore, a style guide has been provided to detail these changes. It is recommended that this style guide be updated and modified as needed for future development.

Research

Methods

The following qualitative and quantitative methods were used to understand the target user population's needs, pain points, habits, and expectations:

- Heuristic Analysis
- Competitive Analysis
- User Interviews
- Persona & Scenarios

Heuristic Analysis

Before completing user interviews, applying Nielsen's Ten Usability Heuristics and Korhonen's Mobile Game Heuristics revealed issues with user freedom and control, consistency and standards, and recognition over recall.

User Interviews

Six user interviews were completed at the Ann Arbor District Library, where kids were asked to play Fooya! and complete tasks in the game for a couple of minutes and then answer follow-up questions about the game. The interview data was used to identify patterns through a set of qualitative codes, including:

- Confusion
- Enjoyment
- Pain point
- Question

Research

Design

Validation

Future



Research

Persona

Patterns identified in the interviews were used to create a holistic persona; a person with a story who would use this game. Creating this face helped the team truly understand and empathize with the user.

UX Requirements

- 1). Create robust mobility and navigation to increase support for tech-savvy players to engage with Fooya! progressively over time.
- 2). Decrease system inconsistencies and lay a framework for future Fooya! UX style and navigation system to ensure sustainability of project work and shorten design production time for FriendsLearn in the future.
- 3). Improve gameplay mechanics and item integration to increase engagement with experienced gamers. Reduce confusion and learning curve for new players.

Research

Design

Validation

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Design Overview

Target Areas

The following areas were identified as best candidates for redesign due to the UX Requirements determined by the research phase:

- System-wide style
- Map
- Gameplay
- Gameplay menus (pause and stage complete)
- Power-Ups, Achievements, and Leader-board

Style Guide

All recommended changes have been documented at a system level in a style guide for Fooya!. It is the team's hope that this document will be updated over time. Proper maintenance and adherence to a style guide will reduce design and development time, in addition to increasing effective branding.

Illustrator Assets

Redesigns have been provided in the form of Adobe Illustrator (.ai) files. Meetings with the FriendsLearn, Inc. Lead Designer determined this would be the most effective way to integrate into current workflow.

Research

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Redesign - Map

All progression screens are grouped in a character module.



Redesign

Prominence of call to action button increased

Current



Research

Design

Validation

Future



Redesign - Gameplay

Progress bar clearly displays time left and pause button at all times.



Redesign

Controls function remains unchanged; buttons added to increase recognition.



Current

Research

Design

Validation

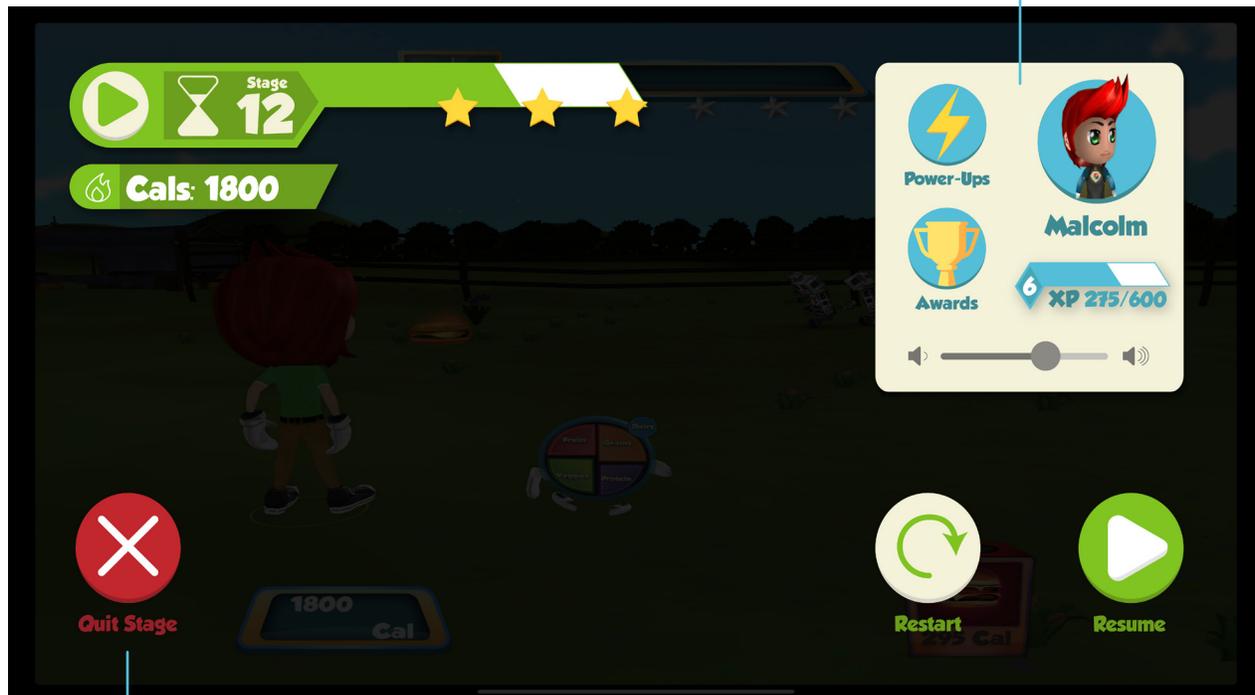
Future



Redesign - Pause

Character changes are ideally reflected live and don't reset progress

Redesign



Player can quit to the map from pause screen



Current



Research

Design

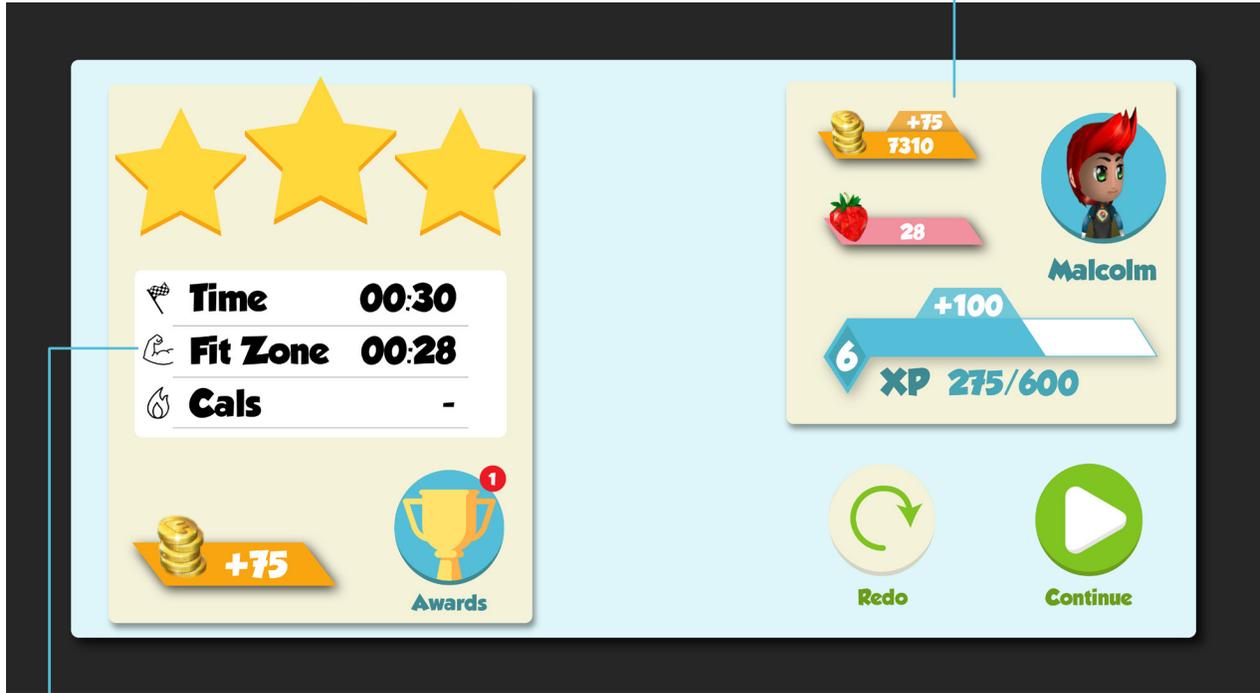
Validation

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Redesign - Stage Done

Level success clearly relates to long-term progress



Redesign

Level stats are indicated with short text labels



Current



Research

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Redesign - Awards

Available awards are fully opaque and displayed as buttons.



Unavailable awards indicate progress towards completion.

Redesign



Current

Research

Design

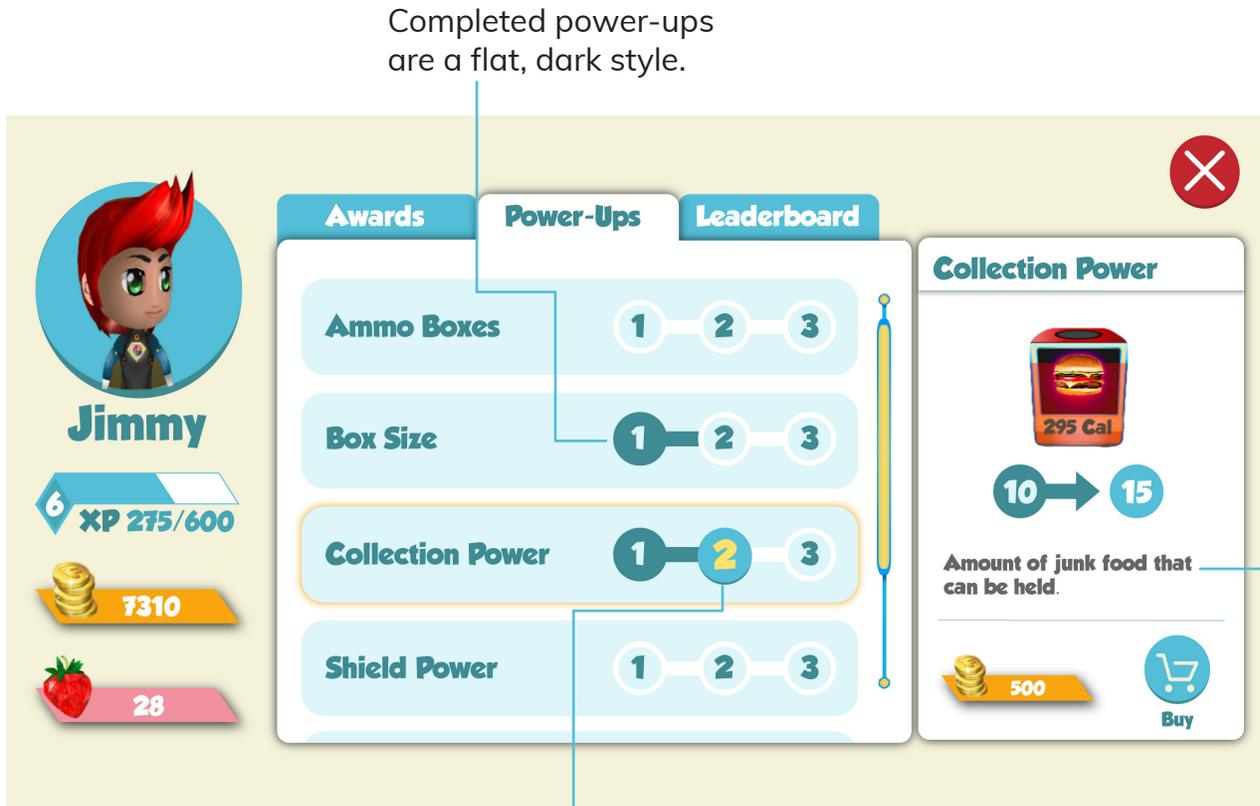
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Redesign - Power-Ups

Redesign



Completed power-ups are a flat, dark style.

Available power-ups are denoted in button style.

Very short text description indicates utility.



Current



Research

Design

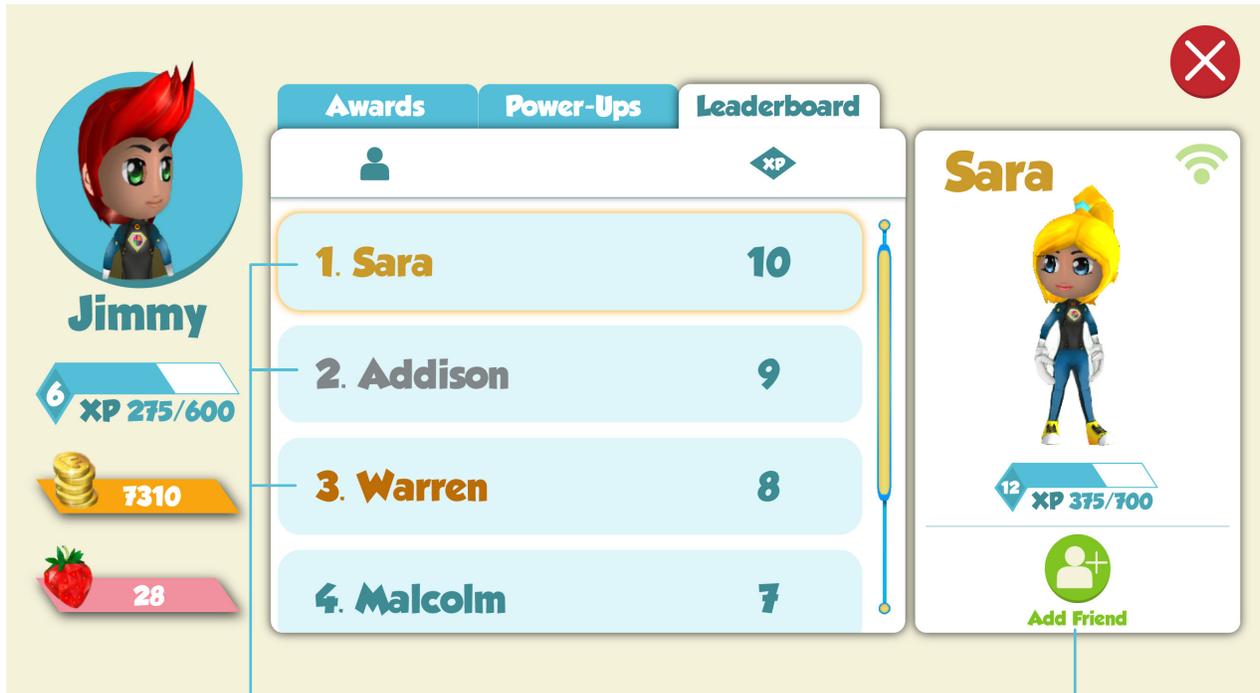
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Redesign - Leader-board

Redesign



Top players have special metal coloring.

Players can be added to friend network (with multiplayer implementation).



Current



Research

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Validation Overview

Methods

The team conducted between-subject A/B Test to validate designs. In test A, eight people were asked to complete tasks in the game using the currently existing screens. In test B, a different set of eight people were asked to complete the same tasks in the game using the redesigned version of game screens. These tasks were analyzed according to completion time, confidence level, and comprehension level.

Participants

The 16 participants ranged from ages nine through twenty three with a mean age of 21. Test participants are **not** representative of the target user population of users between the ages of 8 and 10, because the team was not able to schedule a significant number of test sessions with this cohort. However, this data still yields valuable insights and validates the redesigns under baseline UX principles.

Research

Design

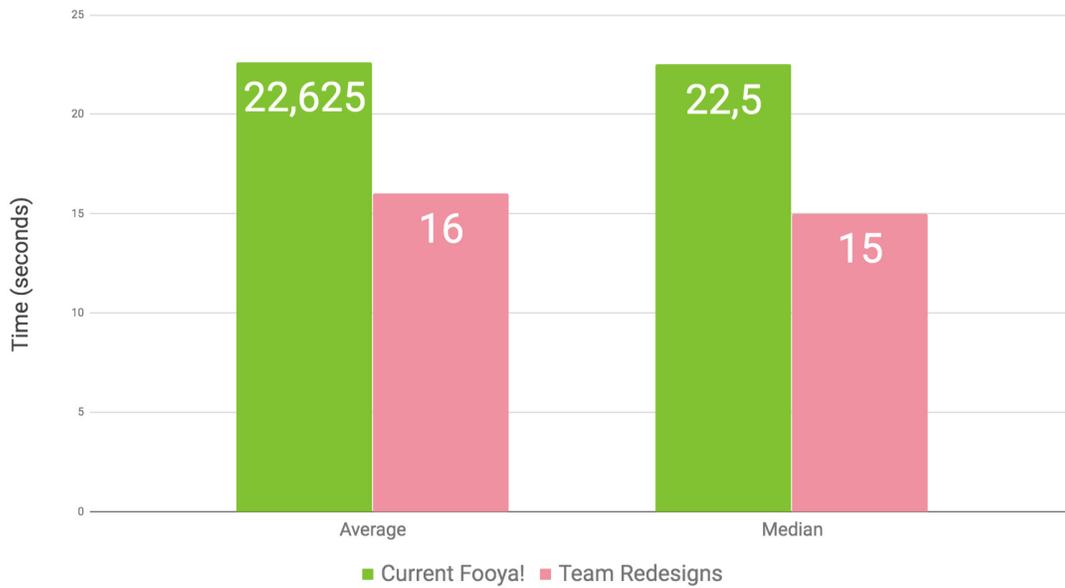
Validation

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Validation - Key Findings

Finding Map Buttons - Average and Median



1). Across all 16 tests, it took users less time to complete tasks when shown the newly designed screens. Task completion time **decreased** by a median of **15%**.

2). **Comprehension** levels also **increased** across tasks. This shows that users are more likely to understand Fooya! as it is portrayed, and can focus more on gameplay.

3). Comprehension levels measures correctness, while confidence level measures speed, enjoyment, and certainty. It is very important that **confidence levels drastically increased**, because this means many user doubts around this game have been decreased, and they are more likely to explore.

Research

Design

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Further Research

The team recommends conducting more validation studies with users in the target demographic population, since the team was not able to do this due to logistical constraints. The team will provide an example usability/validation script for guidance. This will further verify the validity of the designs.

FriendsLearn could also conduct user interviews on the multiplayer version of the game that contains the new parent-sign up. These game components were mentioned at the beginning of the project.

Design & Functionality

FriendsLearn can focus specifically on the **character upgrade scheme**, working to make style consistent with the newly provided style guide and correcting some HCI errors. These include:

- Scroll bar use and style
- Selection state style and implementation
- Eliminating the need to purchase different skin tones

It is also recommended that the application architecture be updated to allow for live updates of power-ups, character outfits, and collected awards within a stage. While this will likely be a large amount of development time, the team ultimately believes the future-proofing and more robust interactions gained will be more than worth it.

Research

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Implementation

The team has packaged all design entities so that they can be easily mapped to sprites/prefabs in Unity. The Lead Designer informed the team that this would be the best way to hand off materials for easy future implementation.

Impact

It is the team's hope that this project work can help Fooya! Grow increasingly effective as a mobile platform striving to eradicate the diabetes epidemic, one child at a time.

Research

Design

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