

Project Documentation

Purdue UXD Spring '21 | [Helmet Tracker](#)

Meet The Team



Ria Sali | Team Lead

Ria Sali is a junior in the User Experience Design program at Purdue University. She is currently working towards securing a bachelor's degree, along with a minor in Psychology and is set to graduate in May 2022. Her main interest is engaging in user research, but she has also undertaken UI design during her internships at CredPal, HiDelta and Hands On. Ria strives to be an engaged and inquisitive worker when it comes to projects, and is a team player that thrives collaboratively in order to get the best input to push a solution forward. She aims to be able to create designs that are creative, intuitive, and above all, a positive addition to users' lives. You can reach Ria at rsali@purdue.edu and view her work at <https://rianitinsali.wixsite.com/uxdp>



Evan Voss | Team Lead

Evan Voss is a User-Experience Design student at Purdue University who is also pursuing a psychology minor. His love for technology and people makes him a hardworking and driven student who uses his empathy to drive his work. Evan has over a year of working in the UX field and in that time has become more robust in his skills. With his time in his major his public speaking and problem-solving skills have improved exponentially. He works extremely well with others and has no problem taking a leadership role on projects. In the future, Evan hopes to get an internship within the automotive or gaming industries as a UI designer. Feel free to reach out to Evan at voss23@purdue.edu



Raghav Mandadi

Raghav Mandadi is a current sophomore at Purdue University pursuing a BS degree in User Experience Design, with a minor in Psychology and Organizational Leadership. Coming from Seattle, Washington, Raghav loves the outdoors, regularly participating in activities such as hiking, kayaking, etc. In his free time, he also loves to play a multitude of instruments, travel the world with his family, and explore visual design. Raghav is motivated to learn more about human computer interaction, leadership, entrepreneurship, and business in his time as a student and beyond, and can be contacted at rmandadi@purdue.edu.



Katherine Barrientos Moreno

Katherine Barrientos Moreno is a second year student at Purdue University, pursuing a degree in User Experience Design, a minor in psychology. In addition, she is obtaining a certificate in Collaborative Leadership. She is familiar with Adobe Suite programs and has learned basic HTML, CSS, and Javascript and hopes to build her coding skills. She believes that design is a tool that can be used to provide meaningful solutions and help communities everywhere. She aspires to work in the UX field, with a focus on UI design and visual design. She can be contacted at barrienk@purdue.edu.



Garrett Fitzgerald

Garrett Fitzgerald is a freshman in the User Experience Design program at Purdue University. Given his enthusiasm for design, technology, and psychology he was immediately drawn to the field and knew there would be no better major to suit his passions. He will pursue a minor in Psychology due to great interest in human behavior, social science, and cognitive science. Garrett also plans on acquiring the Advanced Global Technology minor or the Entrepreneurship certificate. You can reach him at fitzgerg@purdue.edu.



Daniel Chin

Daniel Chin is a first-year at Purdue University pursuing a major in UX Design with minors in Psychology and Communications as well as a certificate in Entrepreneurship. He has interests in music and art which serve as a basis for his interest in UX where creativity, technology, and psychology intertwine. Daniel has interests in creating accessible design for minorities and underrepresented communities as well as streamlining safety and interaction in the automotive industry. He has experience working in the Adobe suite and has received a nomination for his leadership and design process skills in a design competition by his professor. For professional purposes he may be reached at dschin@purdue.edu.



Ali Zegar

Ali Zegar is currently a Junior at Purdue University pursuing a degree in User Experience Design. He loves that User Experience Design allows him to express his ideas into his work every day. Although it is his first year in the UX program, Ali hopes that his design skills and experience from when he was studying Industrial Design will help shape him into becoming a better UX designer. While not working at his degree, Ali loves to spend his free time by playing trumpet in the Purdue Bands & Orchestras program and also playing video games with his friends, which he would want to merge both of these hobbies into an eventual career choice. He can be reached at zegara@purdue.edu.

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Introduction

Helmet Tracker is a sports equipment technology and logistics company that offers a comprehensive set of software application services and technology solutions for the sports equipment industry. They specialize in tracking, inventory, and equipment management softwares for youth leagues all the way to the NFL.

Project Space

In the current equipment management profession, equipment managers put in long hours identifying and dealing with different types of equipment – our focus this semester is specifically on football helmets and their accompanying face masks. We have identified the following issues in the space that we are dealing with:



Numerous Helmet Combinations

There are a variety of different helmet combinations, as well as different types of face masks which makes one piece of equipment of this kind unique. When dealing with a large inventory and hence multiple models, it is hard to quickly identify and take note of what kind of helmet it is, especially for less experienced managers.



Different Lifespans of Helmets

Each helmet has different requirements on how it needs to be taken care of and when it needs to be replaced. It is important for equipment managers to identify when a particular helmet needs to be reconditioned.



Cost Factor

Identifying and tracking the helmets is costly, and equipment managers need the additional help of novices. This requires a lot of responsibility to be placed on those involved to make sure that there is no problem or malfunction that arises during the process due to consequences of mismanagement.

Our Users



Student Equipment Manager

- Full time student
- Low amount of helmet and managerial knowledge
- Strive for autonomy and becoming a senior equipment manager

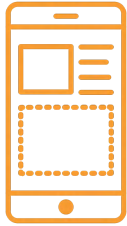


Senior Equipment Manager

- Full time equipment manager
- High amount of helmet and managerial knowledge
- Drive to share knowledge and mentor more novice managers

Deliverables

At the end of the semester, our team provided the following final deliverables to our sponsor:



Wireframe Designs

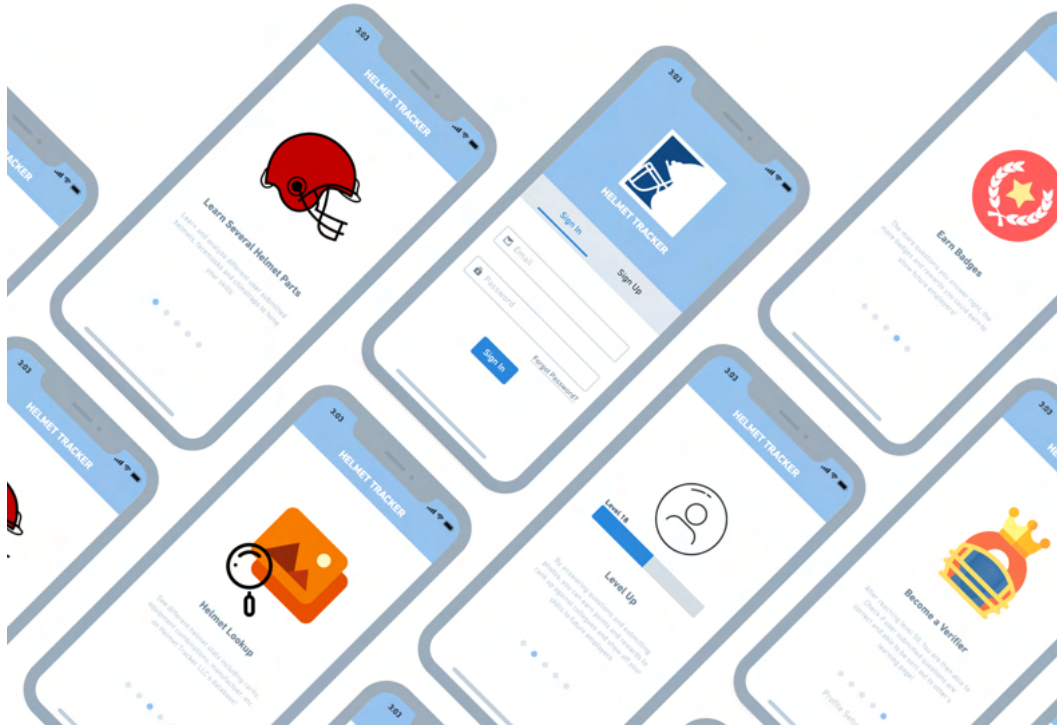
We created wireframes of the proposed screens of our application design.



Application Guide

We also created a guide that **instructs** users such as the student equipment managers on how to **utilize** the main features of the app, such as the identification, gamification and educational credit.

Final Concept & William's Story



The final concept our team proposed to Helmet Tracker was a mobile application that would cater to our user group of student and senior equipment managers, providing them with a method to actively learn and identify football helmets with their associated parts. We proposed this concept in a set of medium-fidelity wireframes, showcasing all of the core functionality as well as basic UI elements.

To understand the context that the application is used in, we created an example user, named William Proctor. He is a student Equipment Manager at large University. As a student who looks forward to gaining professional certification someday, William does whatever he can in his day to keep updated with helmet culture.

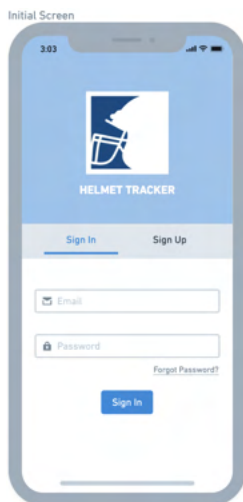
William has a set of active learning goals and a set of passive learning goals. Active learning happens when he is engaged with the app for specific learning purposes, and passive learning happens when he interacts with the app to find certain information.



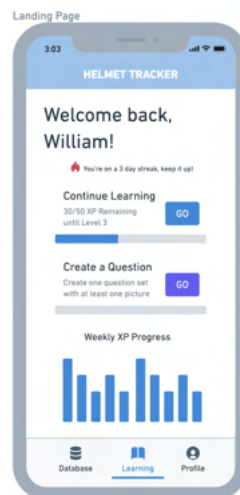
Active: As a student equipment manager, William wants to be able to continuously learn about unique helmets and parts being used around the country

Passive: William needs to be able to reference a reputable source on information for helmet parts and accessories during training, practice, and games

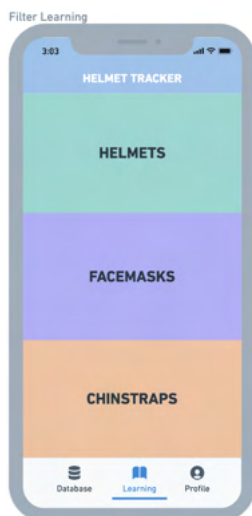
This story highlights how William would use the application and its functions on a given day. The bold text relates to how it meets his active or passive goals.



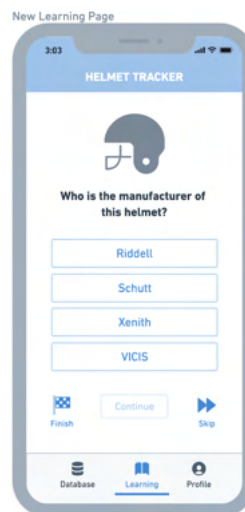
As a returning user, William is able to log-in here, and sees the home page.



He begins his practice by clicking on the blue button, taking him to the **learning, or quiz style Q&A** portion of the app.

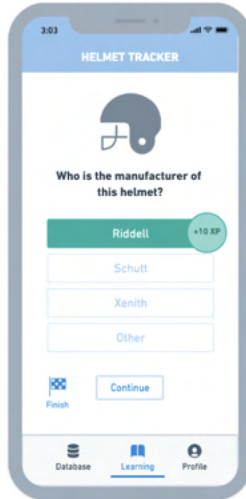


Before being given questions, William can **choose to filter his learning by part type**. Today, he wants to do helmets.

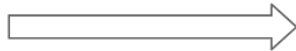


As William receives questions, he sees the **photo of the helmet, the question, and the answer choices** listed out.

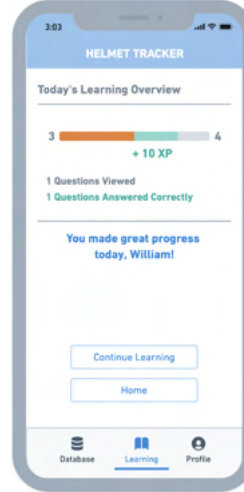
Correct Answer



As he answers questions, he can **see the points he's gaining based on the accuracy of his answers**. He can choose to finish the session at any time.



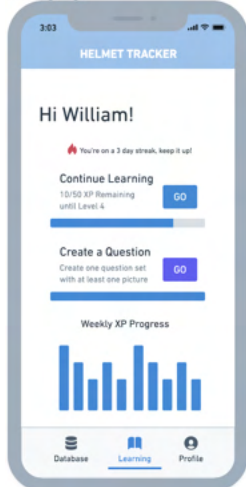
Finish Screen



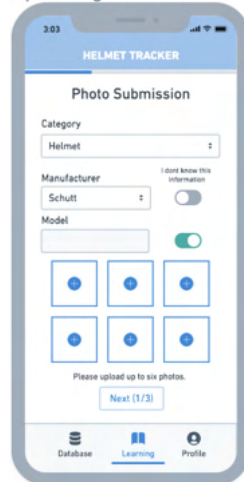
He sees an overview, where the progress between levels is listed. **He wants to complete questions and level up**. He then returns back to the home.



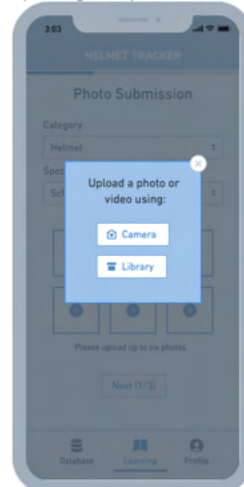
Landing Page



Uploading 1 (Initial)

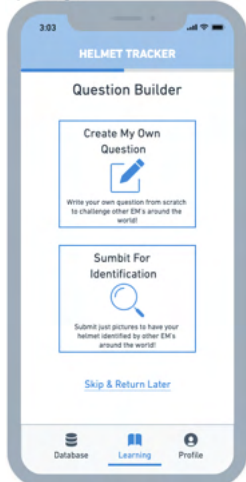


Uploading 1.1 (Upload Content)



William finds himself at a football game where a player is wearing a helmet he cannot identify. He navigates to the create a question section on the home page, where he can then **upload a picture for identification**.

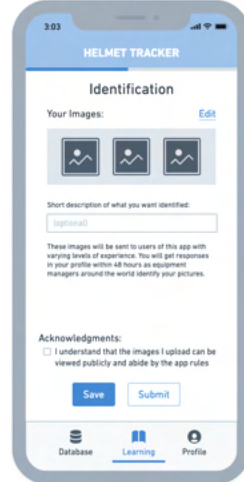
Uploading 2



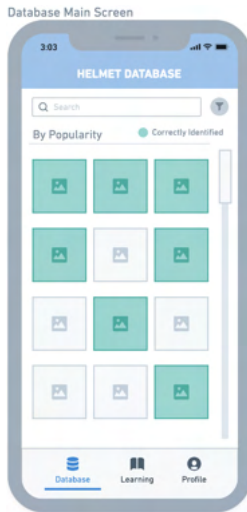
After uploading the photos of the unknown helmet, the app will let him choose to create his own question, or **submit the photos for identification**.



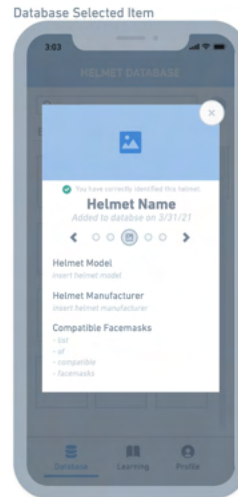
Submit for Identification



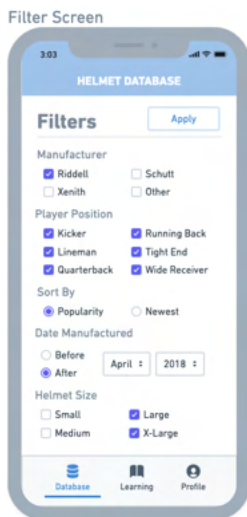
William can review his request, and **specify what it is he wants identified**. Once submitted, the question will be sent to many other users to give William an answer within 48 hours.



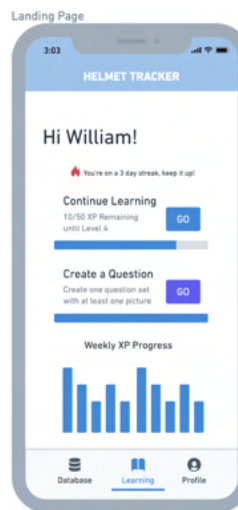
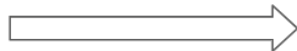
While waiting for a response, he sees if he can **find the helmet in the database**. The helmets he's seen in the learning side show green overlays.



As he clicks on specific helmets, a window pops up containing the specific part photo at the top, in this case the **helmet photos, and important specifics pertaining to that part** at the bottom.



William also has the ability to **filter and find helmets by very specific criteria** to assist his work whenever needed.



He returns home, viewing all the progress that he has made today.

Uncovering User Needs

Preliminary Secondary Research

When we first began our design process, our team only had surface-level knowledge of football. So, we started our research process by looking more into football and the behind-the-scenes operations that go into making the sport as successful as it is. We reviewed articles, blogs, and threads that were specific to the experiences of equipment managers and that related to the four main areas we needed to investigate further. Link to [document](#) of secondary research findings and sources.

Goals

1. Learn more about **equipment managers and what role they play**, as they are our target user group.
2. Understand more about **gamification** and potential ways it could be **incorporated** into our application.
3. Learn about what kind of wear/damage occurs to helmets and what the **reconditioning process** is like for them.
4. Learn the **different components** of a helmet and what sets them apart from the others.

Findings and Insights

Our secondary research findings can be summarized into 4 main categories:

Equipment managers and their workflow



- [Equipment managers](#) are the people in charge of equipment used by a business or organization; purchasing, maintenance, repair, inventory, transportation, storage, cleaning, and liquidation of equipment.
- Work between 70 to 80 hours a week managing and organizing inventory; their work [affects every aspect](#) of the company's operations.
- Requires excellent time management and organization skills

Potential gamification opportunities



- Gamification is the [application of game elements](#) (such as point scoring, rewards, badges, leaderboards) to other areas of activity to [encourage engagement](#) with a product or

service.

- [8 universal core drives](#): meaning, accomplishment, empowerment, ownership, social influence, scarcity, unpredictability, avoidance.

Reconditioning process



- [Reconditioning](#) is the process of [restoring](#) a used helmet to like-new standards, but it is not [the same](#) as recertifying.
- [NOCSAE](#) set the standards for regulation of helmets.
- Recertification is the [testing of previously certified helmets](#) to see if they still hold up to the original safety requirements set by the NOCSAE.

Helmets and their components



- Popular manufacturers include Schutt, Riddell, and Xenith.
- Components can vary depending on the position of the player but can be simplified to [four pieces](#): shell, padding, facemask, and the chin strap.
- Helmets can last up to [10 years](#) before having to be completely replaced but it depends on [wear and tear](#).

Action Items from our Secondary Research

Our preliminary round of research helped us gain a much better understanding of our overall problem space, our user group, and the different elements of their work. This was also useful for us to gauge what we still did not fully understand about equipment managers, and what we still needed to investigate:

- What are the pain points of existing processes of equipment management and keeping track of inventory?
- How do equipment managers learn and retain the vast amount of information related to equipment pieces?

This preliminary research allowed us to think about what we wanted to learn first-hand from those in the industry, and helped us formulate a protocol for our interviews.

Stakeholder Interviews

In order to better understand the equipment management space, and the workflow and expectations of managers at different levels, our team began conducting semi-structured interviews with stakeholders – such a structure allowed us to establish a direction in terms of asking questions while also giving freedom to participants to expand on their thoughts. We split our interviews into two categories – the **experienced** interviews and the **novice** interviewees.

This difference was defined based on their experience in the industry, connections, and roles they play that were relevant to our space.

Experienced Interviews

Who We Interviewed With

We began our interviews by contacting six experienced professionals in a range of jobs that intertwined with the equipment tracking industry to understand all the facets of this field. The contacts for these interviewees were given to us by our sponsor, Rich.

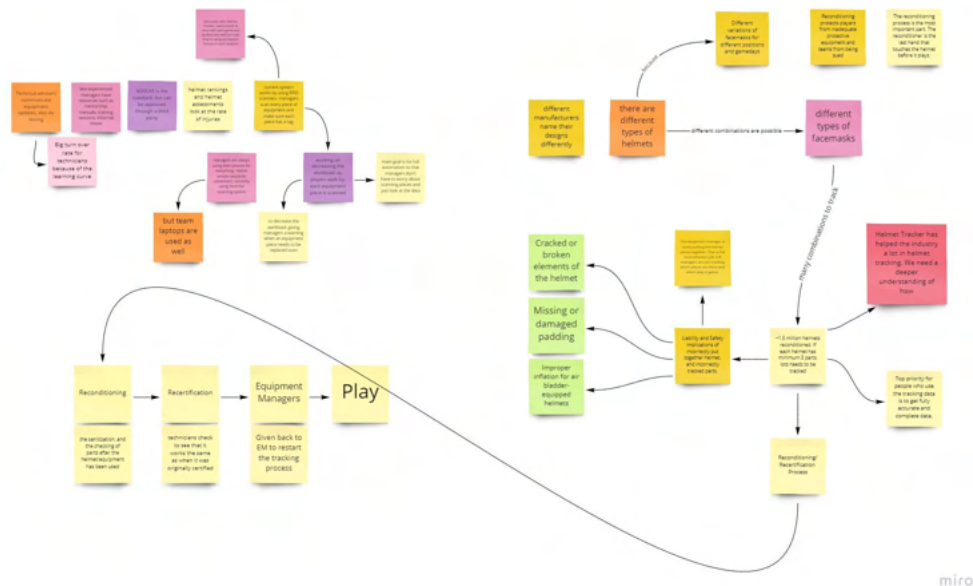
Goals

- Understand the current day to day operations, job roles, and workflows of an equipment manager
- Understand how professionals build their knowledge regarding the many nuances to equipment tracking
- Piece together a high level understanding of the pain points in the industry and how Helmet Tracker's software plays a role in the operations

We conducted five interviews with professionals in the equipment tracking industry to tackle the goals mentioned above. The interviews were conducted over Zoom and usually lasted for about an hour a piece. We used the experienced interview protocol in these interviews which can be found in the appendix.

Analysis of Interview Findings

After discussing our preliminary interview insights, we utilized Miro Board to visualize our insights and make new connections about our user group:



Our main takeaways from our interviews were:

- There's a **need for reduced workload** for equipment managers, as identifying and tracking equipment can be a tedious process
- The broad reasoning for the need for easier identification and managing of helmets is the **vast catalogue** of helmets and unique helmet pieces; these can be very difficult to memorize and learn to identify.
- The main devices equipment managers use in their day to day work includes both phones and student laptops, but phones are more **readily accessible**.

[Link to the Miro Board.](#)

Novice Student Manager Interviews

While conducting interviews with experienced professionals, we sought after the contacts of **less experienced managers**, either new or student equipment managers. We wanted to use these interviews to get insights from those who would be **directly interacting with our application**. These interviews were going to be used to directly influence how we move into our **early ideation**.

Goals

1. Learn more about modern equipment managers and what they know about helmets
2. Understand where these equipment managers learn how to do their job
3. Figure out how we can take what we gain from the interviews and apply that to our ideation
4. Learn the necessary features equipment managers would like to see from our application

Analysis of Interview Findings

We conducted (# of interviews) with novice equipment managers to tackle the goals mentioned above. The interviews were conducted over Zoom and usually lasted for about an hour a piece. We used the novice interview protocol in these interviews which can be found in the appendix. We summarized our findings:

- Student managers handle around **8-10 different variations** of equipment pieces, making it difficult to learn.
- Student managers currently learn mostly from **older equipment managers** who guide them through their everyday work.
- Motivation to work in a busy field come from the communities they form and **friendly competition**; there are several competitions and contests held throughout the year such as Helmet Tracker's Helmet Bowl.

These findings helped us create guiding questions for our ideation:

- How can we streamline the equipment learning process?
- How can we create mentorship opportunities for older equipment managers that want to help the student managers?
- How can we incorporate a sense of competition in our application?

Final Problem Statement and User Groups

Our findings from our stakeholder interviews and secondary research helped our team identify two key user groups to focus on for our ideation:



Student equipment managers who need help learning identifying equipment



Experienced equipment managers who want to help and mentor these student managers.

These two user groups were discovered through our stakeholder interviews. One of the biggest takeaways was that there is a significant lack of resources for student equipment managers to learn how to identify equipment pieces and combinations. Student managers rely on mentorship and guidance from more experienced managers, who are more than willing to share their knowledge.

This further helped us develop our final problem statement: “We will help design an application that is user friendly and provides an accessible way for student equipment managers to learn through a peer-to-peer education system and connect with equipment managers at different levels of expertise.”

Ideation

Early Sketching Rounds

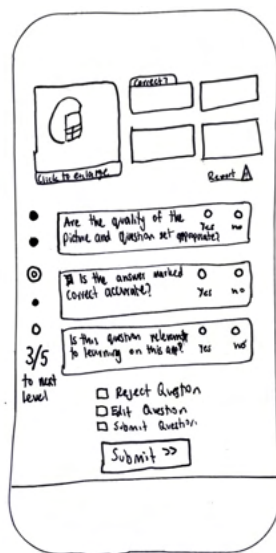
Our primary and secondary research provided several valuable insights that inspired many different ideas. In order to explore these ideas, we began sketching right away. The main goal for our early ideation rounds was to **identify the main sections and features** that would:

- Streamline the equipment identification process.
- Build a sense of community between student managers and inspire friendly competition.
- Provide opportunities for more experienced managers to help student managers.

Application Sections

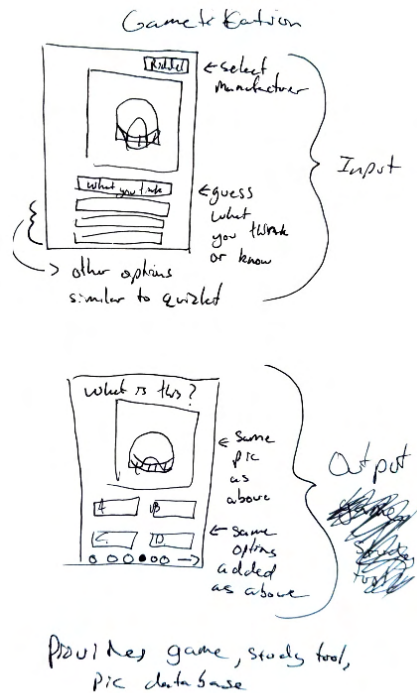
Learning

The learning section is where student managers engage in peer to peer learning by creating identification questions and answering each other's questions in their feed.



Create questions

Student managers can create questions/submit photos to help other managers learn.



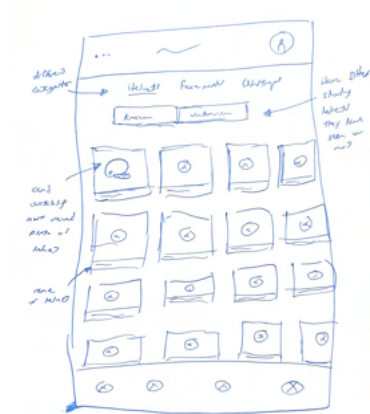
Testing Knowledge

Student equipment managers can also answer questions that others have submitted to test and build their knowledge. They earn points for correct answers.

The sketches for the learning section were largely inspired by **Duolingo and Quizlet**, as they have **gamification elements** that we wanted to make sure to incorporate into the learning aspect. The question sets are **level based**: once they get a certain amount of XP (based on the number of questions correct), they will be able to move up to the next level.

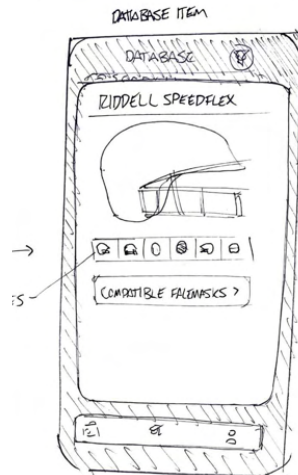
Database

The database allows student managers to review helmets and their information once they have mastered it, which helps retain knowledge and build experience.



Database Display

The helmets are displayed in a card format. Student equipment managers can review the helmets they have mastered, and filter through the database as well.

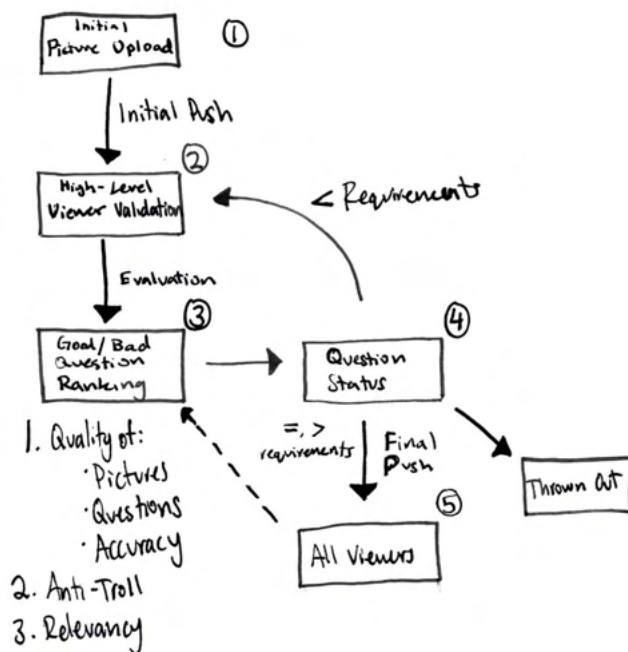


Information on each helmet

Ideation on what specific information could be included for each helmet in the database. Options included having the model, manufacturer, combinations with facemasks, model, year made

Development of the Verification System

The learning section encourages peer to peer learning as student equipment managers create questions to challenge each other. However, as student managers, there may be **gaps in their knowledge** and may include **incorrect information** in their questions. As a way to **minimize this risk**, we developed the verification system. To ensure these are valid questions, experienced managers would verify them before student managers see them in their feed, which is shown in the diagram below.



How it works

Experienced managers review and verify questions and photos that are submitted before others can see it

Secondary sections

These 3 previous sections we developed are the intended main sections of our applications. Within these larger sections, we also developed smaller sections that would be necessary. These included sections such as **photo uploading**, and a **user profile** that includes leaderboard positions, challenges and badges. These were particularly important to incorporate into our application because these provided the **gamification features** that were desired.

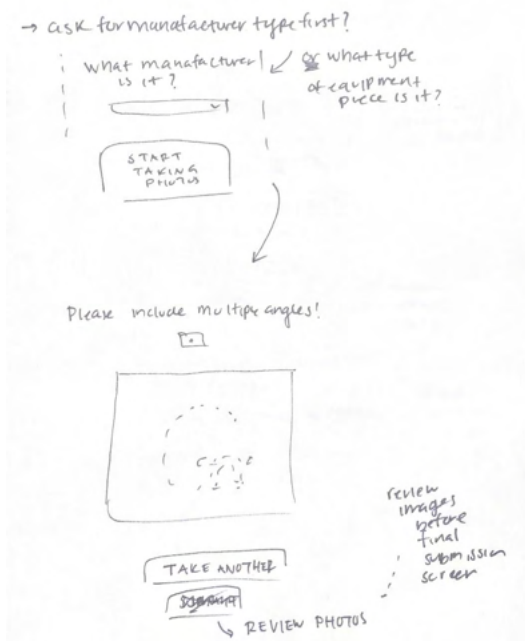
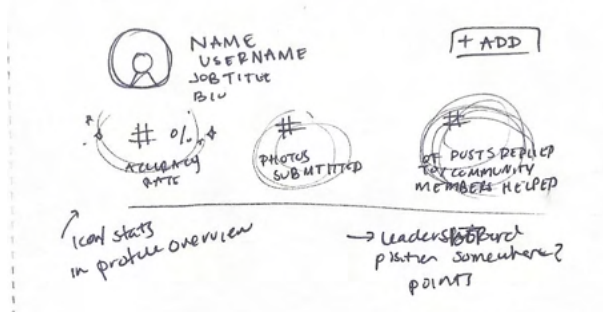


Photo uploading

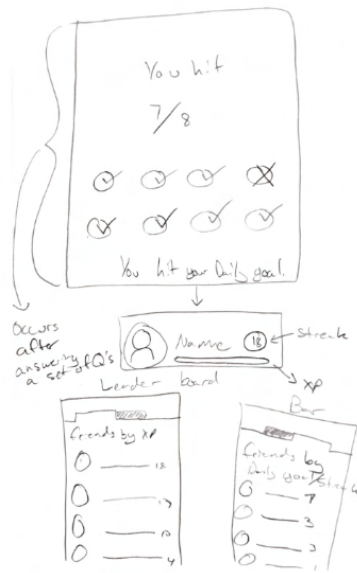
Student managers who need help identifying a helmet can get help by submitting photos of it. These should include multiple angles.

→ Profile



User profile

The profile will mention the equipment manager's place of work, experience, and stats like number of XP points, levels completed,



Leaderboard and challenges

To inspire friendly competition, student equipment managers will be able to see their spots on the leaderboard.

Leaderboard positions are based on XP points earned that week, and number of completed challenges.

Takeaways from Sketching

Our team had many good ideas. As our problem space became more specific our ideas also began taking a more solid shape. We knew we needed to further develop peer to peer learning and its gamification elements, figure out specific features needed for other sections:

Learning section and gamification opportunities

- Having rewards/prizes for XP points, leaderboard positions, and challenges could be a good incentive for more competitive equipment managers
- Offering resources and explanations behind the correct answers could enhance the learning process.

Database and information display

- Users should be able to view all the helmets they have correctly identified in their database in order to review the information later on if they need it.

Verification system

- The peer to peer review process would have to be limited to more experienced equipment managers since they would have the most knowledge on the questions.
- We will have to explore how people build up to this experience level and how they can eventually become a verifier.

Carousel Sketching

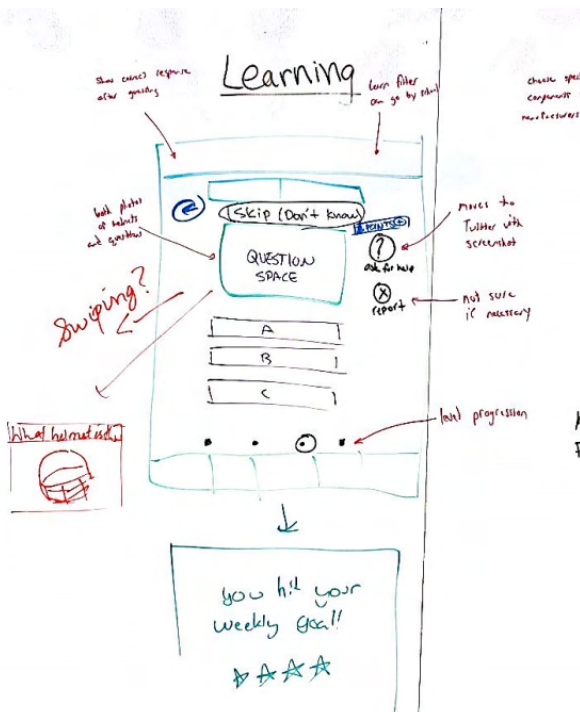
Goals

As a team, we did a round of carousel sketching. Because our previous sketching rounds demonstrated several different ideas, our goal was to outline **main features of the application** so that we had one cohesive application. We also needed to gain an understanding of how the application would flow together:

- What features should go to what sections?
- What are other ways we can make the equipment learning process easier?

Developed Application Sections

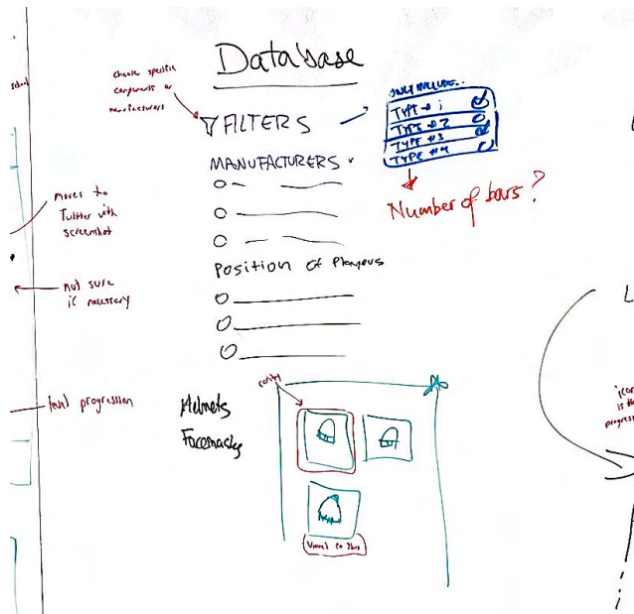
Learning



Guided Learning

Option to use external resources and ask for help. For example, a question can be posted to Twitter, which is a platform the equipment managers use to form their communities.

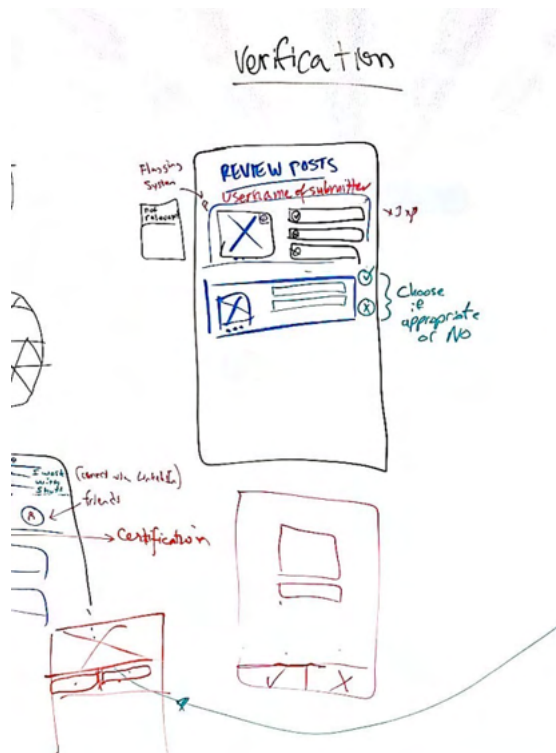
Database



Database Display

More filtering options allow student managers to only review the helmets they need to. Ideated on what specific information that needs to be included in each helmet card.

Verification



Flagging Questions

The verifiers mark questions with incorrect answer choices through the flagging system. Also, the user's username is included in order to be able to trace back any recurring "bad" questions.

Experience Map

Goal

It was important to track the experience of a student equipment manager when using our application based on a preliminary concept that we had in mind in order to identify more specific opportunities to supplement parts of the journey and add to the overall experience.

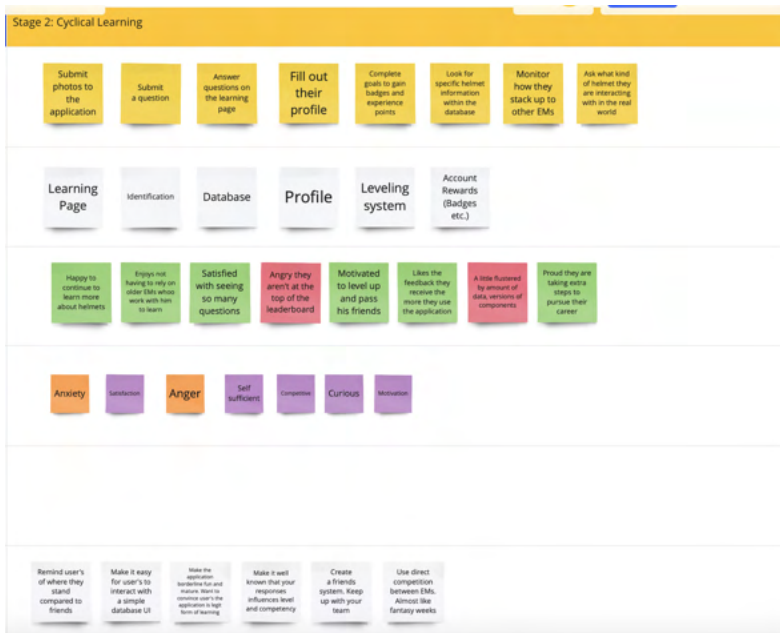
For this, we established different stages in the experience, and noted down user actions, touchpoints, thoughts and feelings to give rise to opportunity spaces.

Stages of the User Story

For the purpose of this experience, we had three stages:

1. **Initial introduction and Incentive:** This stage dealt with the basic duties and responsibilities of a student manager, and the needs leading up to downloading the application.
2. **Cyclical Learning:** This stage primarily related to interaction with the app, where we decided to design for a system of submitting questions, answering them, and having the user learn through that interactive cycle.
3. **Post-Learning:** We aimed to map out the aftermath of using the app, and how its usage could impact the student manager's work experience.

All of these stages presented several design opportunities for us to turn into potential features, the most important of which are mentioned in the next section.





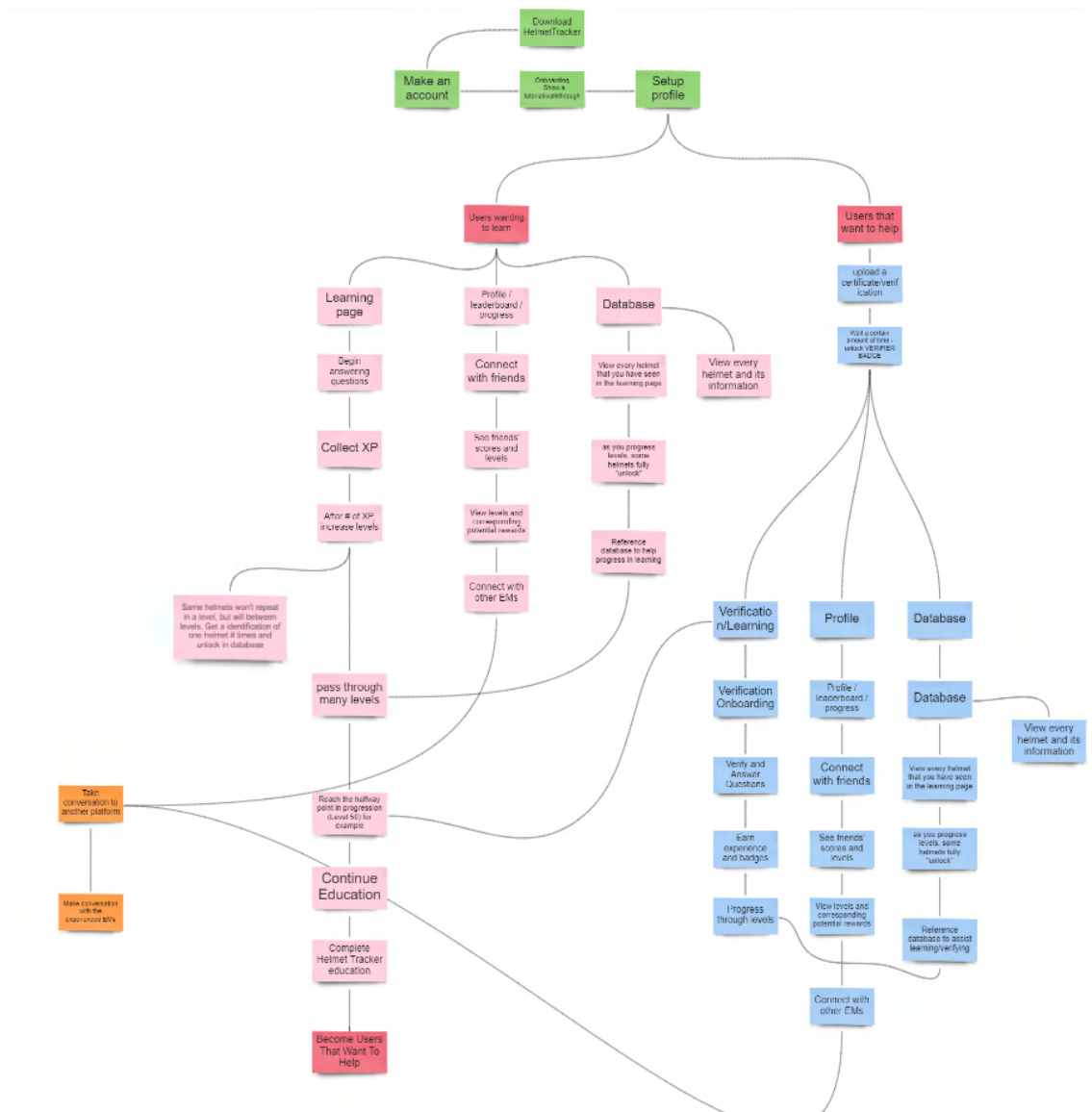
Opportunities for Guided Ideation

- Finding a way to help them learn the different pieces of equipment
- A way to gauge expertise with respect to other equipment managers and personal progress
- Networking opportunities to connect with others for mentorship
- Providing a pathway for official AEMA certification (certification confirming that an equipment manager is proficient in their duties)
- Opportunities for more experienced managers to mentor less experienced ones

Site Map

Goals

We were looking to get a better understanding of how users would interact with our application, as well as find out how novice equipment managers would have a different experience in the application compared to more experienced equipment managers.



Sections

We were able to divide our users into two essential groups: the Learners and the Helpers. The Learners are the users who will be using the app to gain more experience with equipment management and identification, while the Helpers will be able to verify any user submissions.

Learners: Student Equipment Managers

- Learning
- Profile/Leaderboard/Progress
- Helmet Database

Helpers: Experienced Equipment Managers

- Verification/Learning
- Profile
- Helmet Database

Takeaways

Learners: Student Equipment Managers

As mentioned before, the **Learners** would be using **every feature** of our application **aside from the verification** since they are **not experienced/qualified enough** to do so yet. These users would be the **most involved with the XP** and leveling part of the application as well, as they will be learning the most and gaining the most XP to reach level 50, where they will gain access to the verification feature.

Helpers: Experienced Equipment Managers

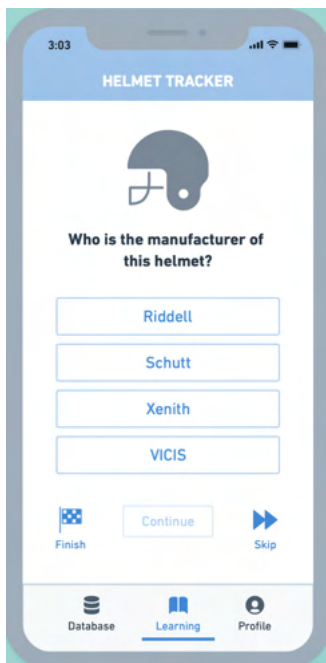
Helpers will have access to the same features as the Learners, **plus the verification feature**. Helpers will still have the **motivation to use the learning part** of the app to stay **up-to-date** with new helmet identification, as well as to maintain any **certification standards** they may need.

Mid-Fidelity Prototypes

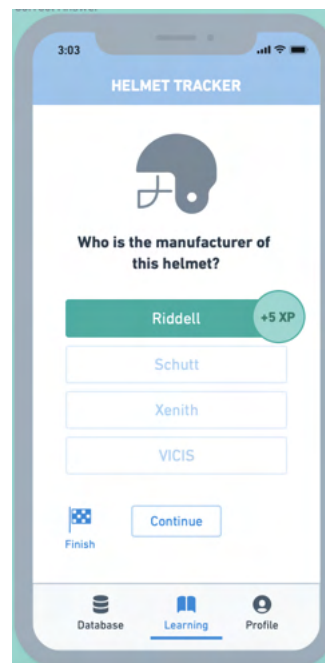
Application Sections

Learning

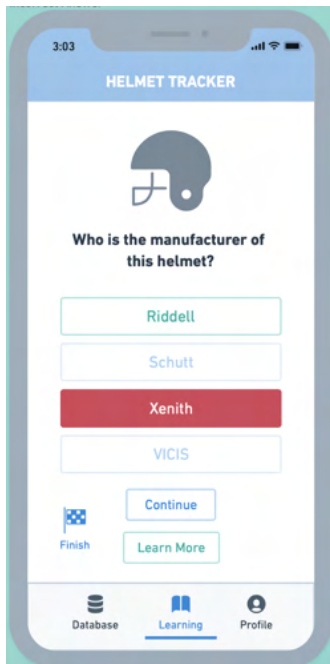
This is the learning section of our application. Here the user can **learn about different helmets, facemasks, and chin-straps** at their own pace. The screens below demonstrate the process of **answering a question, outcomes if correct or wrong**, and their **learning overview**. To find out more about these screens, they are described in more detail in the **Feature Guide**.



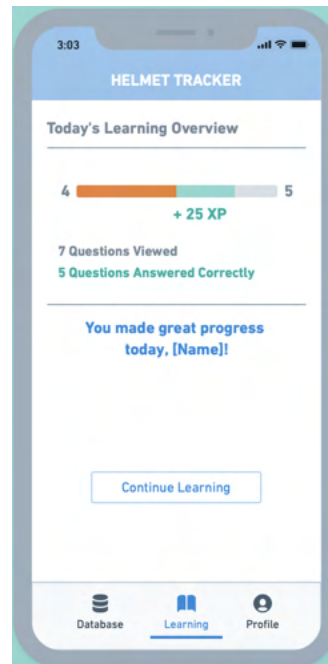
This screen shows an example of a **question** a user might receive on their **learning feed**.



If the user answers the question **correctly**, they will receive XP and a **green box** surrounding the answer they chose



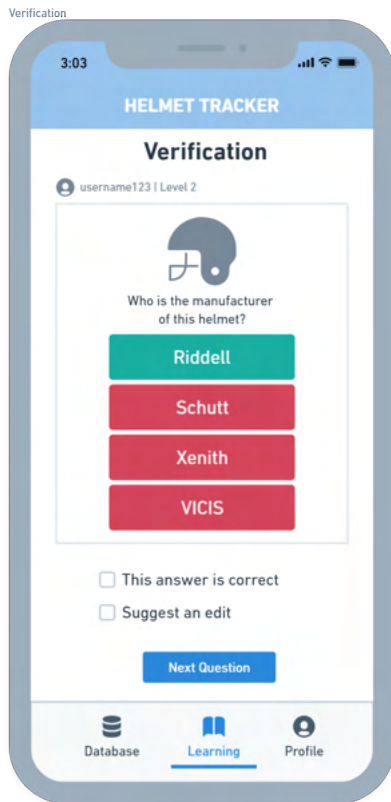
If the user is **incorrect**, they **will not gain XP** and a **red box** will be shown around the answer they selected



When the user is **done learning**, they are taken to the **Learning Overview** screen where they can see the overall progress they have made

Verification

The verification section of the application is where a more **skilled user**, such as a **senior equipment manager** or **manufacturer**, would go to **validate user submitted photos and questions**. To find out more about these screens, they are described in more detail in the **Feature Guide**.



Users who are of **verification status** will receive verification questions on their **learning page**. They receive this view of an image and question submitted by another user, and **verify if the information is correct**

Verification

3:03

HELMET TRACKER

Verification

username123 | Level 2

Who is the manufacturer of this helmet?

What needs to be edited?

Answer is incorrect

Specify below:

Send Suggestion

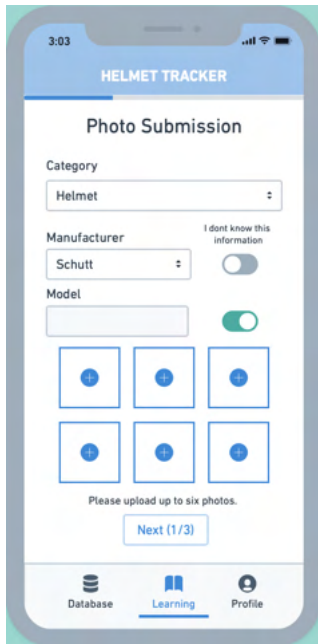
Database Learning Profile

If the verified user **sees a mistake or error** that needs fixing, they are taken to this screen where they can **suggest feedback** to the user who submitted it. *the image on the bottom indicates screen dropdown options*

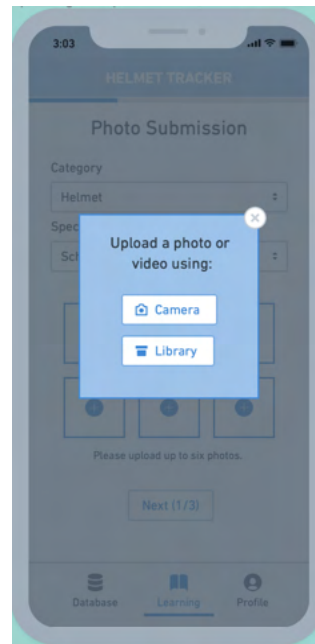
Answer is incorrect	⌵
Helmet pictures are hard to see	
Question wording is confusing	
Other	

Uploading

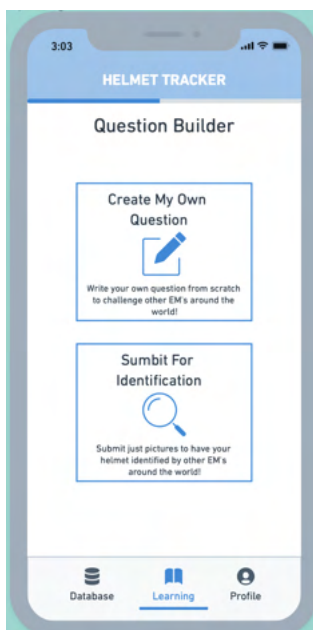
This is the uploading section of the application. Here **users can upload images** of helmets they would like to identify. They have the option to **create a question** or **submit a photo for identification**. These submissions will then be **verified** to go out to all users on their **learning feed**. To find out more about these screens, they are described in more detail in the **Feature Guide**.



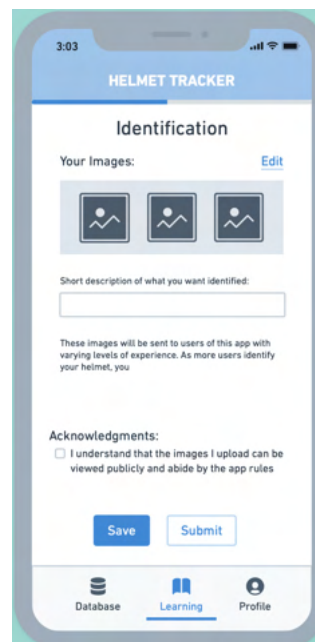
When opening the **Question Builder**, you are prompted to select if you are submitting a **question** or for **identification**



When **attaching images** to your submission, you can choose to upload an **existing photo** or **take a new one**



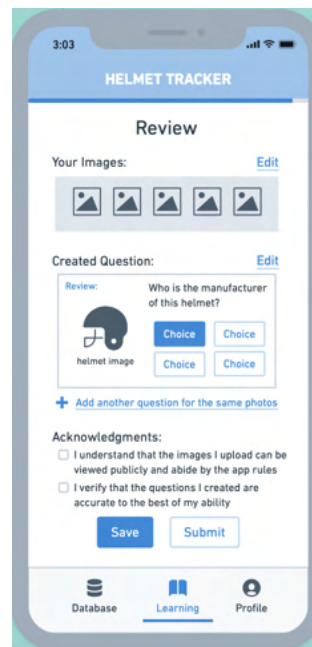
Here the user is being promoted to tell the app which **type of submission** they are attempting to make: **Question** or **Identification**



If the user selects **“Submit For Identification”**, they are taken to this screen which allows them to **specify the aspects of their photos** they would like **identified**



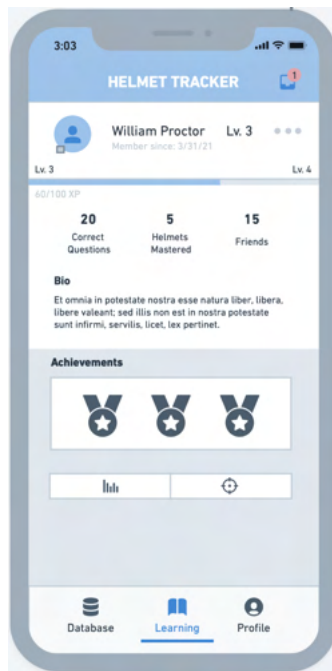
If the user selects **“Create My Own Question”**, they are taken to the **question builder screen** where they can submit the **kahoot style answer options** for their photos



After the user is **satisfied** with their submission, they can **review the information** they provided and **send it off when ready**

Profile

The profile section of the application allows users to see their own inputted information. They can see **leaderboards, achievements, and other statistics based on the user's performance** in the app. To find out more about these screens, they are described in more detail in the **Feature Guide**.

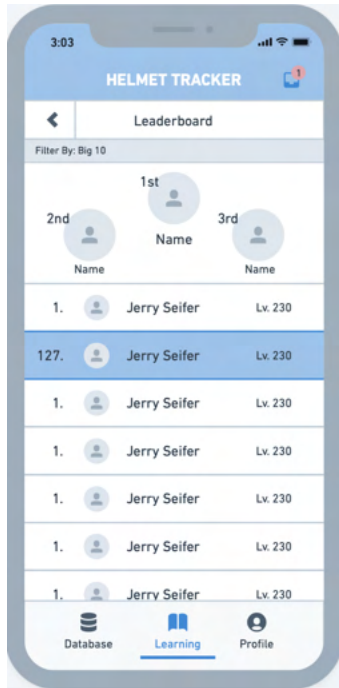


This is the **main profile page** displayed when the user selects the profile button on the menu at the bottom of the screen.

Users can see the **amount of correctly answered questions** they have as well as **number of helmets identified, badges** they have earned, and their **friends list**



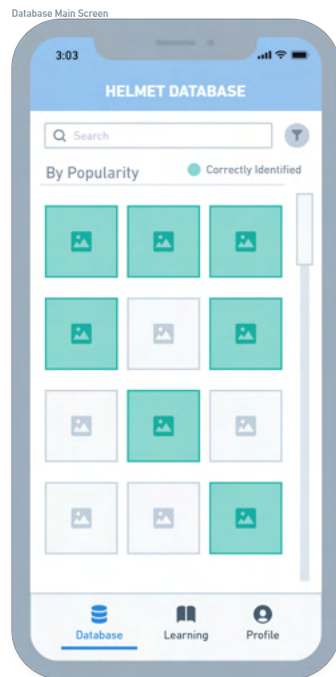
If the user wants to see what **challenges they can complete** or see the **progress they have made** on one, they can find the **challenges section** of the profile by **clicking on the target icon** on the main profile page



If the user wants to see their **status** on **different leaderboards**, they can click the icon left of the challenges icon. They can see how they **stack up to equipment managers around the world** or filter the leaderboard to **only show certain people**

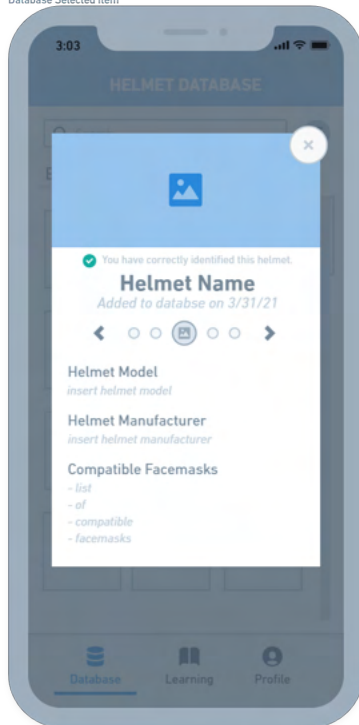
Database

If the user desires to **learn about all different types of helmets** stored on Helmet Tracker LLC's software, they can go to the **database** section of the app. Here they can filter out specific things they do or do not want to see. To find out more about these screens, they are described in more detail in the **Feature Guide**.



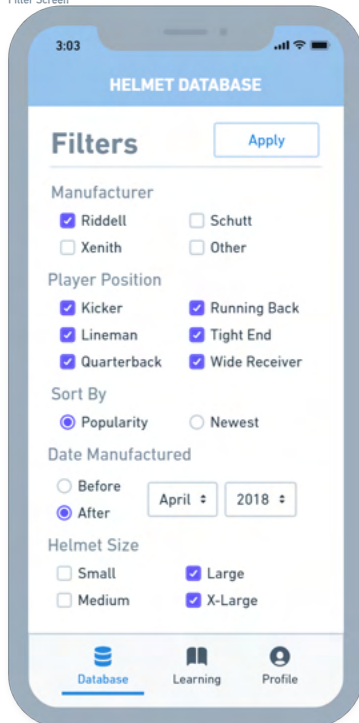
Here is the main database screen; displayed by clicking the **database button** on the bottom screen menu. The user can **scroll** through images of helmets and see the ones they have **correctly identified**

Database Selected Item



If the user desires to **learn more about a helmet**, they can **tap on an image** which will then pull up **information that is associated with that particular model**. There are also user submitted images of this model that the user can look through

Filter Screen



If the user is struggling to find the helmet they are looking for, they can **perform a search** or **filter** the equipment they want to see. This allows them to **block out unnecessary helmets** from their view to **narrow their search results**

Wireframe Evaluation: Usability Testing

Who We Tested With

For our testing, we struggled initially with getting a hold of our student manager user group so we had to change who we wanted to test with and what our goal for testing was.

In the end, we ended up testing the following:

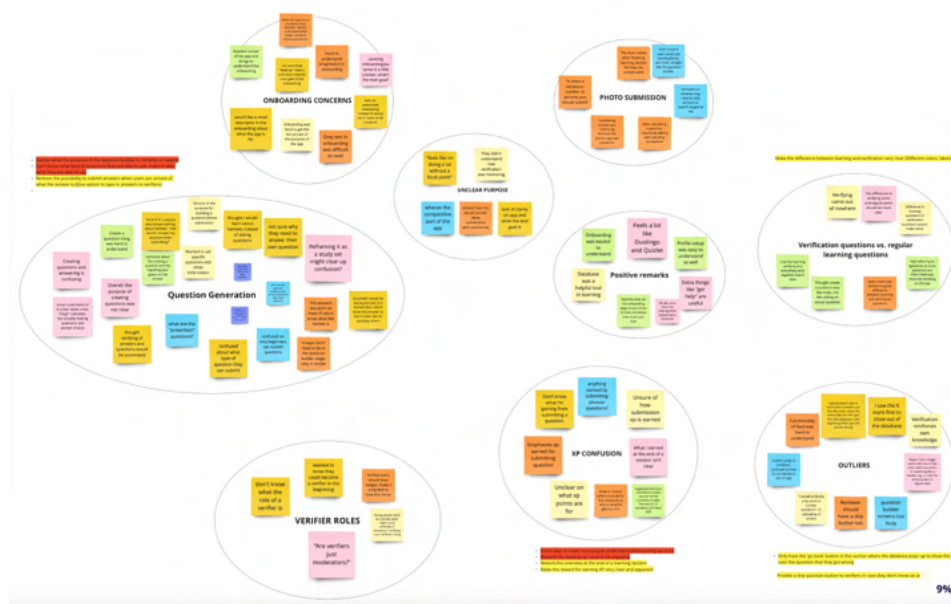
- 7 Purdue UX Students
- 3 Student Equipment Managers

Goals

Mentioned before, our goals for our testing **had to change** because of the user group we were able to test with. Before having our scheduling issues, our team wanted to **test on a conceptual level with student managers**. We were aiming to see if the full experience of the HelmetTracker application was understandable. After our struggles though, we then changed our goals to be **more usability focused**. We took our testers through a thorough walkthrough of the application to try and find ways we can **make the application more accessible and user friendly**.

Analysis of Usability Testing Findings

To better organize all of our data from our testing, we used Miro to conduct affinity diagramming as a team. We broke down what we found into sections.



Sections:

- Onboarding Concerns
- Photo Submission
- Unclear Purpose
- Question Generation
- Positive Remarks
- Verification Questions vs Regular Learning Questions
- Verifier Roles
- XP Confusion
- Outliers

(For more specific data reference the feature guide)

Action Items

We found several insights from our testing and affinity diagramming that helped us make necessary changes to our wireframes. **These are some of the big ones we ended up considering in later iterations.**

- Inform the user of the ability to unlock verification stage. Make sure they are curious about it in onboarding
- Rework the overview at the end of a learning session
- Only have the 'go back' button in the section where the database pops up to show the user the question that they got wrong
- Make the difference between learning and verification very clear (Different colors, labels)
- Remove the possibility to submit answers when users are unsure of what the answer is (Give option to type in answers to verifiers)
- Add descriptors to the slider to help people better understand it

With these insights our team knew what changes we needed to make to our design to improve usability. **This led to our next set of iterations.**

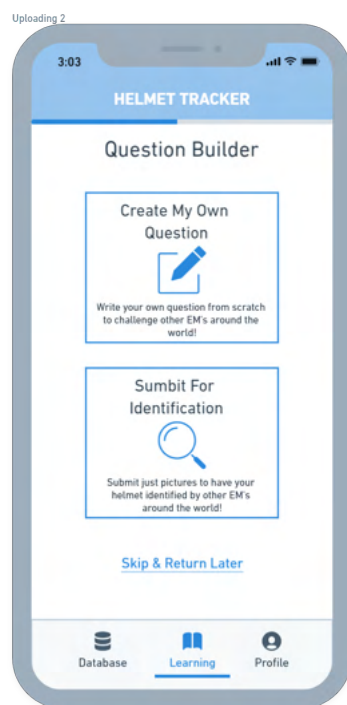
Iterations from Action Items

Our action items from usability tests helped us **evaluate gaps** in our design and **answer questions** on how we could make the purpose behind each section more clear. The majority of the participant's confusion arose from the learning and verifying sections. There were several areas of opportunities, but here are some of the particularly important ones:

Learning

Submitting photos for identification vs. creating questions

When prompted to submit photos for identification, users were **unsure** of why they had to put in answer choices, as if they were guessing the answer. Their initial idea of how this would work was that they would submit photos and other managers would answer them. This gap in our design made it necessary to **create a distinction** between identification and the question builder.



Two options for question creation

Instead of taking the user right away to the question building pages, they have two different options: "Create my own question" or "submit for identification", where they can submit pictures of helmets solely for the purpose of identifying a helmet.

Submit for Identification

3:03

HELMET TRACKER

Identification

Your Images: [Edit](#)

Short description of what you want identified:

(optional)

These images will be sent to users of this app with varying levels of experience. You will get responses in your profile within 48 hours as equipment managers around the world identify your pictures.

Acknowledgments:

☐ I understand that the images I upload can be viewed publicly and abide by the app rules

[Save](#) [Submit](#)

Database Learning Profile

Identification screen

In this screen, the user has to submit pictures of the helmet and write an optional description of the pictures. This identification feature is solely for the **purpose of getting help** from other equipment managers on identifying equipment. This **simplifies the process** of needed external help for identification.

Create my own question

3:03

HELMET TRACKER

Question Builder

Question:

Question Text Here - click the button on the right for a list of pre-written questions

Answers:

Use the buttons to select which answer choice correctly answers the question you selected.

☒ answer choice

☐ answer choice

☐ answer choice

☐ +

[Next \(2/3\)](#)

Database Learning Profile

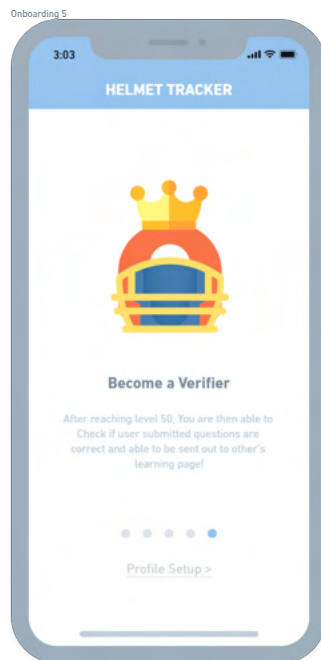
Question builder

This question builder screen remained mostly the same from our initial iteration on it. However, now it can only be accessed if the user actively clicks on the "create my own question" screen to **prevent confusion** on the purpose of the question builder.

Verification

Explaining verification in onboarding

The potential to become a verifier isn't addressed in the initial onboarding. This is only done once the equipment manager reaches level 50; however, providing some information on this pathway could **provide a lot more context on the purpose** behind climbing levels.

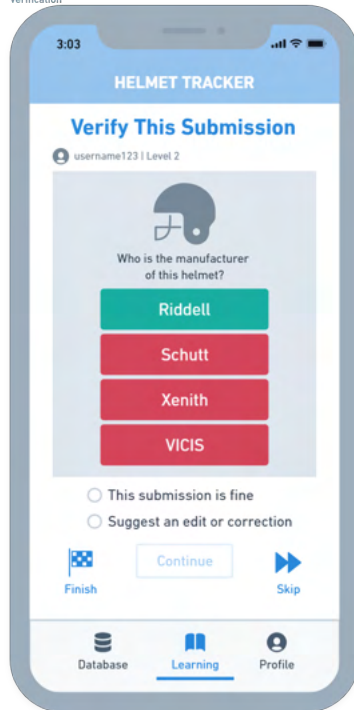


Added a fifth, final slide on the onboarding that **explains** the **purpose** of verifying, and the **pathway** to become one.

Differences between verification questions and learning questions

One of the most recurring findings from our testing was that the participants were confused on the sudden jump from the verifying questions and the learning questions; it was unclear if it was intentional and if they were supposed to be part of the same feed.

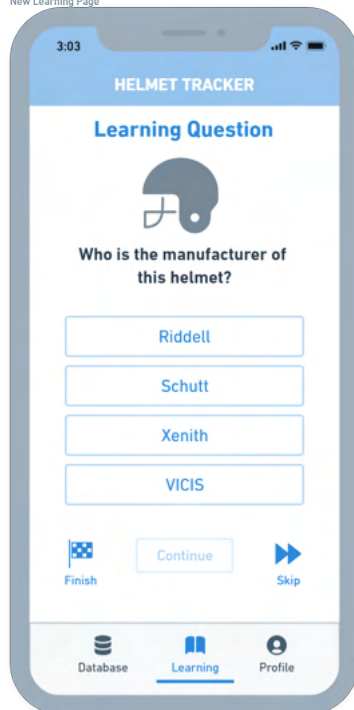
Verification



We added **headers** that clarify the type of question is being presented. Another clearer visual cue is **adding a background** to the verification question posts.

A **skip button** was recommended to be added since verifiers themselves may be unsure of certain questions. Other buttons that exist on the learning questions, like 'finish', were added to keep consistent formatting as the learning questions.

New Learning Page



Added the **"learning question" header** to emphasize the type of question on the verifier's feed.

Appendix

Secondary Research Links

- <https://books.google.com/books?hl=en&lr=&id=Ko6FqLvluywC&oi=fnd&pg=PR9&dq=nfl+equipment+management&ots=mqqHzaGSiB&sig=iVzbRnuy4Fzmgxvl-jPmaKtXxC0#v=onepage&q=nfl%20equipment%20management&f=false>
- <https://gocodes.com/best-way-to-tackle-sports-equipment-management-using-an-app/>
- <https://elearningindustry.com/secrets-gamification-success-corporate-elearning>
- <https://elearningindustry.com/gamification-training-software-launching-avoid-mistakes>
- <https://www.gamify.com/gamification-blog/7-best-gamification-examples-2021>
- <https://onlinelibrary.wiley.com/doi/full/10.1111/ijtd.12124>
- <https://www.greengridiron.com/pages/facemasks/?bucket>
- <https://lastwordonsports.com/nfl/2020/02/23/american-footballs-best-helmets/#:~:text=The%203%20most%20famous%20helmet,widely%20used%20in%20the%20NFL>
- <https://www.sporttechie.com/a-look-at-xeniths-shock-absorbing-football-helmet>
- <https://cdn.ymaws.com/www.wasbo.org/resource/resmgr/imported/75%20RISK%20Dick%20Langum%20Football%20Helmet%20Purchasing.pdf>
- <http://career.iresearchnet.com/career-information/sports-equipment-manager-career/>
- <https://www.fleetio.com/blog/equipment-inventory-management>
- <https://helmettracker.com/hiring-student-equipment-managers/>
- <https://blogs.usafootball.com/blog/6319/how-equipment-managers-help-build-successful-football-programs>

- https://www.cdc.gov/headsup/pdfs/helmets/headsup_helmetfactsheet_football_508.pdf
- <https://nocsae.org/>
- <https://helmettracker.com/difference-reconditioning-recertification/>
- <https://www.sportscollectorsdaily.com/know-your-game-worn-football-helmets/>
- https://www.cdc.gov/headsup/pdfs/helmets/headsup_helmetfactsheet_football_508.pdf

Secondary Research Findings

[Link to Doc](#)

Equipment managers, (Who they are, struggles, etc.)

- What is an equipment manager:
 - the person in charge of equipment used by a business or organization
 - purchasing, maintenance, repair, inventory, transportation, storage, cleaning, and liquidation of equipment
- "Equipment management is a complex and difficult task that affects almost every aspect of a company's operations," he writes. "The skills required vary from those of the master mechanic to finance, accounting and organizational behavior." – Mike Vorster, Equipment management consultant
- Processes of Equipment managers:
 - Acquisition and disposal
 - Compliance and risk management
 - Production interface and logistics
 - Field maintenance operations
 - Shop and yard operations
 - Fleet and asset management
- Key struggles:
 - Time management: scheduling, workflows, organization, software all need to be above average and consistent as to not waste time. Many parts of the business rely on the different jobs of equipment managers.
- Late 20s to 40s for head equipment managers and younger generations for people we are dealing with

How is the inventory usually stored

Inventory is usually stored, at least in a high school context, by the coaches in the locker rooms or a dedicated shed. Concerning because without tech, it's hard to keep track of the condition of the equipment

Equipment management involves decision-making on what work is to be done, when the work should be done, how long it should take, what materials, labour skills and tools are needed and are available.

Athletic Equipment Managers Association: Deploys training to equipment managers. Before 1974 there was no way to really learn outside of experience.

When you use QR codes on these pieces of gear, it's easy to see which pieces of gear have been assigned to which player.

Usually, inventory is taken at the end of the year. Some teams use QR codes to keep track of their inventory.

They also use gps to keep track of their location.

Scan helmet into sort of inventory, tell person level of wear and what kind of helmet it is etc. Manually put in condition

Potential gamification opportunities

Gamification: The application of typical elements of game playing (e.g. point scoring, competition with others, rules of play) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service.

Classic elements, points, leaderboard, and badges

Games created to motivate us to do thing

8 Universal Core Drives

1. *Meaning* – the desire to feel that our actions have purpose
2. *Accomplishment* – The drive to achieve and overcome challenges
3. *Empowerment* – The desire to choose one's own direction and try a variety of solutions to a problem
4. *Ownership* – The desire to own things and have possession
5. *Social Influence* – The drive to interact with, help, learn from, and compete with others
6. *Scarcity* – The drive of wanting things you can't have
7. *Unpredictability* – The drive of wanting to know what will happen next, and...
8. *Avoidance* – The drive to avoid pain or negative consequences.

Examples of this, Samsung Nation, U.S. Military, Nike fitness app, apple watch, starbucks rewards, quizlet, kahoot, duolingo

What makes successful gamification: align strategy with measurable goals, give motivated employees a head start, determine worth of employee accomplishments, aesthetic rewards, use intrinsic motivators, competition, some kind of story, don't overcomplicate mechanics (simple)

Things to avoid: gamifying everything, few learning objectives, poor game mechanic integration, making things too easy or too hard, emphasizing competition instead of collaboration, forgetting social learning element,

MORE about gamification

- “Garris *et al.* (2002) described the scientific case for linking elements of fantasy and challenge to positive learning outcomes. By challenging trainees to learn, they may exert effort during their learning. By engaging trainees with fantasy, they may become more interested in the content, in turn increasing their effort.”
- “In short, if trainees do not care about points, adding points to training will change nothing. Two, points and badges are intended to address motivational problems, yet low motivation may not be the core problem with the program. Low training motivation is frequently assumed to be the cause of training effectiveness problems, yet there are many other potential causes, such as low supervisor support for learning or a hostile climate for training transfer (Blume *et al.*, 2010). These are problems that gamification likely cannot solve and more traditional solutions should be attempted instead.”
 - How much do we need to worry about motivation problems for these full on equipment inventory people? If the machine learning software already enhances their job then would gamification even be necessary as they were already coming up with enough motivation in the first place
- “Content was previously presented to trainees as bullet lists on a web-based slideshow presentation. Although the content was informative, trainers in the organization were concerned that learners found it dull. To fix this problem, the program was gamified by converting each bullet into a story beat within a larger cohesive fictional story”
 - Maybe we could implement a digital adventure board game by making each successful identification or identification goal a tile on this winding and interesting path to being finished
 - This would allow them to visualize their closeness to completion in a gamified context as well as implement the ‘fictional story’



- Step by Step for Gamifying Training
 - conduct a needs assessment
 - use theory to develop an initial training design
 - implement the training and conduct a training evaluation
 - redesigning and reevaluating as necessary

The different components of the helmet, what sets them apart from others

Parts of a Football Helmet

Shell – Hard outer part of the helmet. Made of plastic.

Padding – Soft foam placed around on the inside of the helmet.

Facemask – Front of the helmet, birdcage-style mask, designs vary on position played.

- Offensive positions (such as backs and receivers) use face masks with fewer bars, making it easier to see.
- Defensive positions (such as linemen) use larger face masks with more bars for more protection.

Chin Strap – pretty self-explanatory.

Popular Manufacturers of Helmets

Schutt

- Uses TPU (thermoplastic polyurethane) to better absorb impacts and to keep the helmet light.
- TPU liner on the inside of the helmet can be pumped for a perfect fit.

Riddell

- Uses foam blocks placed strategically inside of the helmet for protection.
- Use PSIP (Patented Side Impact Protection) to reduce lateral impact force.
- “Custom Fit Liner” that inflates for a better fit.

Xenith

- Uses Shock Absorbers with foam coverings that are independent of the helmet’s shell and are placed around the user’s head (see link for images) to reduce rotational force.
- Only need to adjust the chin strap to get the right fit.

Find the physical charts to help identify helmets

Not an exact chart but could be helpful:

Difficulties that arise when searching helmet or equipment inventory

Equipment manager requirements

- Work between 70 to 80 hours a week managing and organizing inventory
- "Equipment managers who work for professional teams usually travel with those teams and **coordinate shipping of their team's gear** to each game site."

General problems with managing inventory

- "Manually tracking equipment inventory and assignments limits asset visibility and hinders communication."
 - Difficult to keep track of what is being returned, what is damaged
- Having an equipment tracking software usually prevents many issues such as losing equipment, not finding out about damaged equipment as soon as possible, and lack of communication

Equipment manager stuff

- "...maintain scores of football helmets, shoulder pads, track equipment, and coaches. To say nothing of laundry, communications equipment, and tracking truckloads of apparel."
- "Equipment managers are in charge of reconditioning helmets and re-certifying them. We also have an important job in storing helmets and pads."
- Top priority is safety, making sure equipment fits, still functional, properly store them at the end of the season

What kind of wear/damage occurs to helmets

- Cracked or damaged parts of the helmet, or some parts of the helmet become loose over time
- Padding may also need to be removed or replaced but cannot be done without the supervision of a trained equipment manager

- Proper inflation of air bladder equipped helmets
Timeline to replacement
- Max of 10 years to replace a helmet but most should be replaced way sooner
- Should be reconditioned every 2 years

Will older people really latch onto the gamification

What is a reconditioner?

National Operating Committee on the Standards for Athletic Equipment (NOCSAE)

- Research began in the 1960's and the organization was formed in 1970 to disrupt the amount of injury in sports.
- In 1980, NOCSAE standards for regulation of helmets became a requirement for high school teams.
- NOCSAE does not certify or approve equipment only set the standards to do so.

Reconditioning is the process of restoring a used helmet to like-new standards.

Helmets undergo a process of inspection, cleaning, sanitizing, repair and/or restoration of athletic equipment to the original performance standard. This is **NOT** the same as **recertification**.

Recertification is the testing of previously certified helmets to see if they still hold up to the original safety requirements set by the NOCSAE. REcertification process always incorporates a recondition prior to the certification process. Randomly selected helmets from different batches of reconditioned helmets are brought to a testing lab where impact and drop testing occurs to guarantee they meet the safety standards.

Helmets last usually 10 years before they HAVE to be replaced. May happen sooner based on wear and tear

Look into the collector type of gamification, Pokemon

What kind of wear/damage occurs to helmets (+Timeline to replacement)

- Not cracked or broken
- Not missing any padding or parts
- Proper inflation in air bladder-equipped helmets
- No missing or loose parts before seasons AND during season

Damage can occur

- From someone sitting or leaning on helmet (especially lineman)
- From being stored in a place too cold or hot
- Being stored in direct sunlight for a long amount of time

Experienced Equipment Managers Interview Protocol

Purpose: The purpose of our interviews is to understand the workflow of equipment managers at the highest level. We also want to see how these professionals have built their knowledge regarding the many different kinds of helmet combinations and what it has taken them to get to their current level.

We hope that with this information we will have a better idea of what information we need to portray to teach younger more inexperienced equipment managers more about what it takes to rise in this profession.

Hi, [name]. We are the students from Purdue University who are working on a project with Helmet Tracker this semester. Firstly we'd like to thank you for your time in agreeing to speak with us today. We thought it would be beneficial for us to speak with you because we are conducting research for our project and believe that your experience will give us better insights into our problem space.

We will be taking notes for the duration of this interview, but we also wanted to ask if you had any objections to this call being recorded.

Before we start, are there any questions that you would like to ask us?

Introduction

Name:

Current Position:

Company:

Understanding the participant and their experiences

1. Can you tell me about your current role?
2. What made you get into this profession?
3. What was the career path that led you to where you are now?
4. What motivated you to push yourself and get better at your job?
5. How did you come to get well versed in such a complicated field?

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?
2. What are some of the things you enjoy the most about your role?
3. Is there anything that you don't particularly enjoy or have trouble with?

4. How much equipment is in your current inventory and how are you keeping track of it now?
5. What are the repercussions if you incorrectly identify a helmet?

Understanding what separates the various equipment manager experience levels and what resources are available to climb up the professional ladder.

1. What are the different roles involved with equipment managers? (Reconditioners?)
2. What separates the different roles? What knowledge is expected from each level?
3. Are there any current resources people use to learn about what it takes to be an equipment manager?
4. How do you help those that are less experienced in this field?

Further Advancement as an equipment manager.

1. As of now, is there anything in particular that you're striving for to advance your career as an equipment manager?
2. How high can the equipment manager role take you?
3. What skills can you use from this role and apply it to other fields?
4. How does the equipment manager certification play a role in becoming an equipment manager?
5. How did you achieve your Equipment manager certification?

Understanding the participant's expectations & what they expect users to know.

1. If you had a tool that would have made identifying helmets and their components easier what would that look like? Helmets, chinstraps, facemasks
2. Were there any study techniques that allowed you to advance as an equipment manager?
3. How do you measure success within the equipment management career?

Finally, are there any contacts (student managers or any coworkers who are also managers) or resources of your own that you could direct us towards that you think would be beneficial for us to look into?

Notes of Experienced Equipment Manager Interviews

Name: Tucker Petre

Current Position: Sales and Marketing

Company: Schutt Sports

Understanding the participant and their experiences

1. Can you tell me about your current role?

- Equipment manager in HS and college (Middle Tennessee)
- NFL shoe contracts (cleats).
- Contacted Schutt to work with NCAA and NFL.
- A lot of experience with equipment managers across the country.
- Handles NCAA and NFL teams in the Southeast.

2. What made you get into this profession?

- Loved football in HS but couldn't play -> became manager for the team.
- Scholarship for equipment management at Middle Tennessee (head equipment manager there).
- Contacted by Jaguars and took a position there.

3. What motivated you to push yourself and get better at your job?

- Wanted to help equipment managers, wanted to serve as an extension of their equipment room and respond to any needs they had.
- Wanted to help the industry gain more recognition.
- NFL players and video teams get all the recognition.
- Significance of equipment management (injury prevention and tracking).
- Sometimes gets to help design helmets.

4. How did you come to get well versed in such a complicated field?

- Not a lot of resources back when he started, had to learn the hard way.
 - No computer access at Middle Tennessee.
- Glad to see certification processes exist now, didn't exist when he started.
- Younger equipment managers should reach out to older ones, and the older ones must be receptive and willing to help.

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?

- Very structured, know exactly what to do every day.
 - Built off of what the team's schedule is like
 - Have to plan ahead for situations such as inclement weather.
 - Different equipment works better in the rain.
 - preparing for future games, cleaning from previous games.
 - ordering and fitting new equipment.
- Helmets make use of air pockets for fitting, check those about weekly.
- Helmet maintenance weekly, replace older parts.
 - Personally tried to keep all equipment as fresh as possible to avoid any chance of failure.
- Have to watch for things such as the player's hairstyles (could change helmet sizes).
- Watch players during practice to see if everything fits.
- Work very closely with players (like a pit crew or even their parents).
- Stay up-to-date with the latest equipment technology.
- Make sure players are comfortable and ready so they can focus only on playing.

2. What are some of the things you enjoy the most about your role?

- Gamedays, you get ready all week for that one day
- Watching the players you helped succeed in-game.
- Seeing the players comfortable in their equipment and how good they look.
 - How clean their helmets and equipment look.

3. Is there anything that you don't particularly enjoy or have trouble with?

- Washing clothes

4. How much equipment is in your current inventory and how are you keeping track of it now?

- 20 years ago w/ jaguars, started to see more technology/software come out.
- Depends per player.
 - Some players will want something new every day.

5. What are the repercussions if you incorrectly identify a helmet?

Understanding what separates the various equipment manager experience levels and what resources are available to climb up the professional ladder.

**1. What are the different roles involved with equipment managers?
(Reconditioners?)**

- Send helmets off every year to get recertified and reconditioned.
- Members of NAERA.
- Strip down helmets and repaint and condition back to perfect.
- Recommended to do this every 2 years but many teams do it every year.
- Popular to send helmets back to their manufacturers for reconditioning.
 - Also smaller reconditioning companies that can do the same.
- Head equipment managers assign roles.
 - Some people aren't fit for reconditioning, will be assigned to simpler tasks like laundry.

2. What separates the different roles? What knowledge is expected from each level?

- Nothing separates the two roles, require the same skills and have the same knowledge.
- NFL teams have more people working in these positions compared to college teams.
- Not many people at the HS level have the knowledge to be an equipment manager.
 - Coaches oftentimes take up that role
 - would like to educate more at that level.

3. Are there any current resources people use to learn about what it takes to be an equipment manager?

- Online resources exist to learn and get certifications.
- AEMA does certification testing yearly.
- Receive CEU's to maintain the certification(??)
- Have to know equipment management knowledge from other sports to receive that certification.

4. How do you help those that are less experienced in this field?

- Tries to do as much as he can, spends a lot of time with newer equipment managers and helps them with tasks and questions they have.

- Doesn't try to take over their roles for them, letting them do tasks if they seem confident enough.

Further Advancement as an equipment manager.

1. As of now, is there anything in particular that you're striving for to advance your career as an equipment manager?
 -
2. How high can the equipment manager role take you?
 - some people only go for the minimum
 - receive the minimum amount of CEU's to maintain certification.
 - To further advance you want to go above and beyond with the CEU's
3. What skills can you use from this role and apply it to other fields?
 - Work ethic is important
 - No lazy equipment managers, very busy position.
 - Oftentimes work very long shifts
 - Organization is important
 - Inventory management
 - Ordering new equipment
 - Maintaining budget
 - Skills can translate to most other fields.
 - Have to be thick skinned
 - Dont make the same mistakes the next day, "dont get yelled at"
 - Never got his certification, recommends that those who have one should maintain it.

Understanding the participant's expectations & what they expect users to know.

1. If you had a tool that would have made identifying helmets and their components easier what would that look like?

Helmets, chinstraps, facemasks

- Would love to have the technology we are striving for in the Helmet Tracker app.
 - Wonders how it would track the inside parts, as a lot of the time the outside always looks the same.
- How to read material differences?

- A way to take pictures and store information of the inside of the helmets.
- A tool that would say if certain components should go together (i.e. should this faceguard go on this helmet?)
- Lots of different names for parts that are hard to keep track of
 - People come up for different names for parts.
 - RJOP (reinforced jaw and oral protection)
 - DW (double wire)
- Some companies use different naming conventions.
- Incorporate a learning tool to teach people why these naming conventions exist and what they mean.

2. How do you measure success within the equipment management career?

- How much experience managers have in the field determines how successful they are.
 - How well they can adapt to a team/coach's schedule.
- Nothing specific you can look at to determine whether an equipment manager is successful aside from experience.

Finally, are there any contacts (student managers or any coworkers who are also managers) or resources of your own that you could direct us towards that you think would be beneficial for us to look into?

- Charlie: Head equipment manager at D1 school 5 years ago
 - Can provide more up-to-date insight on their role
- Identification Chart

Name: Tony Beam

Current Position: Executive Director

Company: NAERA/NOCSAE Board

Understanding the participant and their experiences

1. Can you tell me about your current role?

- All members are responsible for reconditioning and recertifying equipment pieces at NAERA
- Works closely with NOCSAE (??)
- Need to oversee everything, follow standards and codes that are set up by the NOCSAE Board
- Reconditioner is the last person to touch the helmet before going out in the field

2. What made you get into this profession?

- Been in the football industry for 30 years
- Started as a coach and was a sports director
- Did not seek out the position, just happened by chance but enjoys job and day to day tasks

3. What was the career path that led you to where you are now?

- Feel like this was already answered ^^

4. What motivated you to push yourself and get better at your job?

- Wants to protect the student athletes
 - Safety is a top priority
- Good work ethic
- Good mentors
- Passionate about education and leadership

5. How did you come to get well versed in such a complicated field?

- Talking with technical advisors, who keep people up to date with equipment
- Networking with people in the industry as well
- Associations and other groups

- Doing lots of reading, researching and looking on social media to find out about what's going on in the industry

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?

- Visiting other boards
- Scholarships
- Traveling
- Speaking and engagement events
- Speaking to parents, coaches, state organizations
 - Complications with certifications since football schedules are different this year

2. What are some of the things you enjoy the most about your role?

- All of it
- Likes to solve problems
- Teaching

3. Is there anything that you don't particularly enjoy or have trouble with?

- Paperwork, organization is needed for this industry
- Issues between members, usually between manufacturers and independent reconditioners

4. How much equipment is in your current inventory and how are you keeping track of it now?

- Most reconditioners have a tracking system whether it's digital or manual
- Recertified 1.5 million helmets, and lots of other parts to keep track of
- Producing new helmets, keep track of individual helmets
- 3 million people using these equipment pieces
- Each helmet is identified within each company, Numbers, RFID, HelmetTracker, Spreadsheet

5. What are the repercussions if you incorrectly identify a helmet?

- Putting in the wrong piece may fit, but voids warranty and certification
- Whoever does the mistake, the manufacturer gets kicked out

- Entrusted with equipment
- Liability implications, safety implications
- Helmets are designed to work as one piece- big chance of injury

Understanding what separates the various equipment manager experience levels and what resources are available to climb up the professional ladder.

1. What are the different roles involved with equipment managers?

(Reconditioners?)

- Reconditioning goes in 2 phases
 - Reconditioning
 - Recertification
 - Works exactly the way it should be
 - Has to be the same exact configuration when it was initially made
 - Need both for the process
 - Needs to go through every step

2. What separates the different roles? What knowledge is expected from each level?

- Technicians do testing
 - Have to stay updated
 - They are provided technical support if they can't solve issues related to equipment managers
 - Big turnover for these beginners, large learning curve
 - Helmets are a lot more complicated, more working parts to them so people have to keep learning about these things

3. Are there any current resources people use to learn about what it takes to be an equipment manager?

- Manuals from manufacturers have a lot of information
- Talk to reps of individual companies and manufacturers
- Learn through videos, self research
- Look through social media
- Learning from each other
- Newsletter from AEMA
- Technical bulletins

- Big meetings often share training sessions
- Shows (formal, informal)

4. How do you help those that are less experienced in this field?

- Mentoring less experienced managers/reconditioners
- Non-formal position so people can feel comfortable and ask questions
- Get to go visit family business
- Forming connections with those less experienced
- Learning from them too

Further Advancement as an equipment manager.

1. As of now, is there anything in particular that you're striving for to advance your career as an equipment manager?

- Always trying to learn from everyone
- NOCSAE board
- Experience
- Informal conversations (listening is very important)

2. How high can the equipment manager role take you?

3. What skills can you use from this role and apply it to other fields?

- Listening
- Informal conversations to really learn

1. How does the equipment manager certification play a role in becoming an equipment manager?

- Reconditioners need to be licensed by NOCSAE
- NAERA rules and recertification and authentication labels
- AEMA test for equipment managers (possible education program)

2. Could you tell us a little bit about certification and the process of certification in this industry?

- NOCSAE is the standard
 - High school sports all over the country follow + endorse standards
 - Equipment has to meet their standards
 - Can be proven through a third party, ACI (???)
 - Once standards are certified, equipment gets a NOCSAE sticker to demonstrate meeting standards

Understanding the participant's expectations & what they expect users to know.

- 1. If you had a tool that would have made identifying helmets and their components easier what would that look like?**
- 2. Were there any study techniques that allowed you to advance as an equipment manager?**
- 3. How do you measure success within the equipment management career?**
 - Can be 2 fold
 - Metrics
 - Sales
 - How are your peers talking about you, do people come to you for advice
 - Are people looking up to you
 - Helping others

Finally, are there any contacts or resources of your own that you could direct us towards that you think would be beneficial for us to look into?

- R&D people at manufacturers
- Southern Impact testing

Name: Joe Cormier

Current Position: Senior Research Scientist

Company: BIOCORE

Understanding the participant and their experiences

1. Can you tell me about your current role?

- Injury mechanics, how injuries happen
- Engineering branch for the NFL, conducting research for the NFL for many aspects
 - Data analysis
- Worked on a project with Helmet Tracker to set up a system to track helmets that are used in a game
 - Working directly with equipment managers

2. What made you get into this profession?

- Wanted to put more focus into biomechanics.

3. What was the career path that led you to where you are now?

- Knew owners of the company, gave opportunity to do more research
 - Initially doing litigation work (??)
 - Always have worked in respect to injuries but not specifically football related

4. What motivated you to push yourself and get better at your job?

5. How did you come to get well versed in such a complicated field?

- A lot of experience with research in the field of biomechanics, the primary focus of BIOCORE
- Data analysis and data processing from the NFL, modeling the data
- When season is over, equipment managing roles kick in
 - Responsible for keeping track of equipment, ensuring that the right things are being recorded
 - Helmets are ranked on how they perform on different tests
 - A lot of helmets now are custom fit, made using scans
- Provide feedback to managers about the quality of helmets, give them an idea about what equipment is better

- Also provide feedback on how well they are tracking equipment as they are responsible for producing (???) scans

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?

2. What are some of the things you enjoy the most about your role?

- Challenging
- Varies day to day
- Opportunity to work with other managers (not lower level equipment managers though)
- Get a better understanding of the problem and trying to remedy against that
- Biomechanical engineering background inspires to help with injury related things in the NFL

3. Is there anything that you don't particularly enjoy or have trouble with?

- Cleaning data, understanding limitations of data.
- 32 different NFL teams -> 32 different ways of wanting to doing things

4. How much equipment is in your current inventory and how are you keeping track of it now? ** reword to how much data are they dealing with, equipment related to the NFL?*

- Can figure out by looking at roster sizes in the different seasons (regular seasons, current seasons)
- Every game is tracking every player and every piece of equipment
 - Each helmet can have 5 different parts
- Rough estimate of 60-70 players for each game

5. What are the repercussions if you incorrectly identify a helmet?

Maybe ask more about his injury related work?? Like...how equipment failing ties into that type of work

- Looking at that single piece of equipment and looking at injuries
 - Rates of injuries based on whatever metric
- Helmet ranking, helmet assessments
- That is linked to each player

Understanding what separates the various equipment manager experience levels and what resources are available to climb up the professional ladder.

- 1. What are the different roles involved with equipment managers?**
(Reconditioners?) (he said he doesn't work with lower level managers, maybe ask about the responsibilities with the equipment managers he DOES work with and what type of work they do?)
 - Main responsibilities are for the players
 - All equipment, uniform
 - Super busy
 - Packing for away games
- 2. What separates the different roles? What knowledge is expected from each level? Already kinda asked this in the last question, we can skip this maybe**
- 3. ~~Are there any current resources people use to learn about what it takes to be an equipment manager?~~ (What resources did he use to learn about equipment management since that wasn't his original field)**
 - BIOCORE has been working with the NFL for a large time
 - Recently focused more on concussions and tracking helmets for that in mind
4. How do you help those that are less experienced in this field?

Further Advancement as an equipment manager. These are all equipment manager related questions. Don't know how useful this would be

- ~~1. As of now, is there anything in particular that you're striving for to advance your career as an equipment manager?~~
2. How high can the equipment manager role take you?
3. What skills can you use from this role and apply it to other fields?
4. How does the equipment manager certification play a role in becoming an equipment manager?
5. How did you achieve your Equipment manager certification?

Understanding the participant's expectations & what they expect users to know.

1. If you had a tool that would have made identifying helmets and their components easier what would that look like? Helmets, chinstraps, facemasks

We can keep this question i think, since he is familiar with the data, maybe mention that

- What they're doing now requires more work for equipment managers
 - Need a scanner and need to go around and scan every piece of equipment
 - Currently they are using RFID tags...scans...whatever
 - As the players are walking by the scanners, they automatically pick up on the different equipment pieces
 - Equipment managers don't have to do anything themselves, but they do have to make sure that each piece has a tag
 - Has to have a tag number that is used to scan
 - Matches up in a software; everything is being automated
 - Working on decreasing the workload
 - Very NEW method
 - Did a pilot with Helmet Tracker: used a trunk to carry with each game and worked very well but now they're using permanent fixtures in each stadium
 - Managers always have their phones and they're currently using them with the scanning system
 - Mobile app is not a bad idea
 - Team laptops are used
 - Ideally, we work on mobile AND desktop
2. Were there any study techniques that allowed you to advance as an equipment manager? Skip
- 3. How do you measure success within the equipment management career?**

Skip too... or reword as what are successful equipment tracking techniques

Its fine if it ends soon, he only has an hour anyways

- "Success for us means we know that for every game we know what each player is working."
- Data is working correctly, and that scan is happening before the game
- Goal of passive scanner: it won't be up to the managers to do anything, it will just be done passively and data is taken in easily
 - Automate the whole process so that they don't have to do more work and just look at the data.

Additional information/questions

- "I don't know if this thing..would it actually depict it correctly. Is it creating some sort of model and getting the dimensions of face masks?"
 - Face masks deform overtime, and they're usually replaced after each game because they're bent
 - Can the software correctly identify these masks and see if they're out of shape and give the manager a warning that it may need to be replaced soon
 - Warning idea :0 ???
 - Face mask changes the shape of the helmet

Finally, are there any contacts (student managers or any coworkers who are also managers) or resources of your own that you could direct us towards that you think would be beneficial for us to look into?

- Will reach out to people he works with
- How the process would fall back on the equipment managers

Novice Equipment Managers Interview Protocol

Purpose: The purpose of our interviews is to understand the workflow of equipment managers at a more hands on level. Something we also want to understand is how these people interact with the team when it comes to managing the team's equipment. We also want to see how comfortable these participants are in their current role and if they have any further aspirations within the equipment management field.

Goals

1. Understand workflow of equipment managers
2. Understand how equipment managers interact with the team
3. Understand equipment managers' comfort level
4. Understand future aspirations of equipment managers

We hope that with this information we will have a better idea of what information we need to portray to teach younger more inexperienced equipment managers more about what it takes to rise in this profession.

Introduction

Name:

Current Position:

Company:

Understanding the participant and their experiences

1. Tell us a little about yourself?
2. Can you tell me about your current role?
3. How long have you been working as an equipment manager?
4. What made you get into this profession?
5. How would you judge your current experience level within the equipment management industry?

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?
2. How do you currently go about identifying helmets?
3. What are some of the things you enjoy the most about your role?

4. Is there anything that you don't particularly enjoy or have trouble with?
5. What are the repercussions if you incorrectly identify a helmet/equipment?
6. What kind of information do you need to know that determines your level of understanding within the field?

Understanding how these users prefer to learn?

1. If there was a way that getting used to your job responsibilities would have been made easier, what would that resource look like?
2. What are some resources you have been using to acquire more knowledge that is needed for the position you have?
3. What portion of your job skill sets can only be attained through hands-on experience?

What are their future aspirations and how do they expect to get there?

1. Is there a dream occupation you see equipment management taking you?
 - a. What's the ultimate goal?
2. How do you plan to accomplish that?
3. What are some goals in the near future that you wish to accomplish?

Understanding What Equipment Managers Want From An Application Like This

For our project we are going to be designing an application that helps equipment managers identify helmet components (facemasks, helmets, chinstraps) and learn about their different combinations. This application will use machine learning to create a database from user submitted photos allowing equipment managers to study the different combinations of helmets and get better at their profession.

1. How do you feel that you would use an application like this in your day to day workflow?
2. Based on your current work, do you see yourself using this application more on your phone or your computer? Why?
3. If you had to submit photos to this application to build the database, what would give you incentive to do this?
4. How have you explored interacting with the different levels of equipment managers?
 - a. What kind of support have you received? (Mentors)
 - b. If so, what is some of the knowledge they have passed down to you?

If there was one thing you wanted to see from an application like this, what would that be?

Notes of Novice Equipment Manager Interviews

Name: Zach, William

Current Position: Zach is in his 4th year of his equipment management role, William is in his second year

Company: Iowa State

Understanding the participant and their experiences

1. Tell us a little about yourself?// answered
2. Can you tell me about your current role?//answered
3. How long have you been working as an equipment manager?
4. What made you get into this profession?
 - It's pretty demanding with the workload on top of school work but he's a big sports fan so it's a way to get into the sports industry and seeing the action is what motivates him'
 - Didn't want to leave football but didn't want to play football so this was a way to get involved
 - Would help him get a coaching career
5. How would you judge your current experience level within the equipment management industry?
 - Don't get to really work with helmets and fitting them but mostly face masks

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?
 - spotting offensive and defensive plays
 - Getting stuff ready for game days throughout the week, making equipment look nice
 - doing laundry
 - Get assigned a coach when they come in
 - Zach gets put into safety and has to focus on that
 - William works on tight ends
 - At away games things have to be packed

- Lots of preparation and transportation of equipment
 - When not in groups, working with the team
2. How do you currently go about identifying helmets? * first ask if identification is a key part of their role, they deal with a lot of equipment stuff but maybe not necessarily helmets*
 - As student managers they deal with 8-10 variations
 - And then there's 4-6 for Schutts
 - Depends on the manufacturing company; deal with Xenith (4 variations)
 - It's not anything they really have down since they don't directly deal with it but they can recognize and remember the different facemasks
 - Didn't know what face mask a player needed but just asked using identifiers (style codes= kicker mask, full cage, eye bar face mask)
 3. What are some of the things you enjoy the most about your role?
 4. Is there anything that you don't particularly enjoy or have trouble with?
 5. What are the repercussions if you incorrectly identify a helmet/equipment?
 6. What kind of information do you need to know that determines your level of understanding within the field?

Understanding how these users prefer to learn?

1. If there was a way that getting used to your job responsibilities would have been made easier, what would that resource look like?
 - It depends on what type of learning a person is
 - Seeing the helmets makes it easier to learn but for others a style code would be more helpful
 - So many different types of face masks that need to be remembered
 - Use of mental shortcuts, and using visual identifiers
 - Everything is kind of on the fly but charts as a resource could be useful
 -

2. What are some resources you have been using to acquire more knowledge that is needed for the position you have?

- Mentorship??
 - At Iowa State the kids that are graduating train the newer equipment managers; fall is an intense season so they're working more and during the spring it's more laid back so they take the time to train them during this time
- Whenever they're free they come in and talk to the more experienced managers
- Bosses are in charge of their twitters

~~3. What portion of your job skill sets can only be attained through hands-on experience?~~

What are their future aspirations and how do they expect to get there?

1. Is there a dream occupation you see equipment management taking you?
- a. What's the ultimate goal?

[zach]

- Good first step into the industry because of the intense workload and hours
- There's not enough equipment managers spots open and the pay is really low so being an equipment manager is not a dream goal/aspiration

[william]

- Being able to work as the head equipment managers at the NFL would be a good opportunity, NFL is the dream
- Aspire to work into training camps during the summers (Zach worked at the Colts training camp in Indianapolis for one summer) to gain more experience

2. How do you plan to accomplish that?

- Have to work your way up through colleges and go into the NFL
- A lot of has to do with networking

3. What are some goals in the near future that you wish to accomplish?

Understanding What Equipment Managers Want From An Application Like This

For our project we are going to be designing an application that helps equipment managers identify helmet components (facemasks, helmets, chinstraps) and learn about their different combinations. This application will use machine learning to create a database from user submitted photos allowing equipment managers to study the different combinations of helmets and get better at their profession.

1. How do you feel that you would use an application like this in your day to day workflow?

- Depends on the amount of time they have; ahead of the season or off season would be most useful
- During training would be the best time

2. Based on your current work, do you see yourself using this application more on your phone or your computer? Why?

- Phone; there's only 2 computers
- Some people have student laptops but phones are easier to carry around and it's more convenient

3. If you had to submit photos to this application to build the database, what would give you incentive to do this?

- It would be kind of hard to figure out when to find the time
- Vary from school to school but competitiveness would motivate them
 - Leaderboards, points

4. How have you explored interacting with the different levels of equipment managers?

- a. What kind of support have you received? (Mentors)
- b. If so, what is some of the knowledge they have passed down to you?

5. If there was one thing you wanted to see from an application like this, what would that be?

- Make it interactive so that people are paying attention to it

Name: Trevor Golder

Current Position: Student Equipment Manager

Company: University of Nebraska - Kearney, Interned for the Jets

Understanding the participant and their experiences

1. Tell us a little about yourself?
2. Can you tell me about your current role?
 - Responsible for day to day stuff like laundry and managing footballs.
3. How long have you been working as an equipment manager?
 - Two years
4. What made you get into this profession?
 - Applied for it when he got to college, always had an interest in it and the behind-the-scenes of football.
5. How would you judge your current experience level within the equipment management industry?
 - Still new, learning.
 - Compared to co-workers he seems to be more experienced than them.

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?
 - Make sure everything is taken care of from previous week.
 - Get uniforms out, take care of practices.
 - Do laundry after, make sure everything is ready for next day.
 - Right before games, go through every helmet to make sure they are safe and clean.
 - Offseason
 - Help boss with stuff he is too busy for (his mic was cutting off??)
2. How do you currently go about identifying helmets?
 - Make sure the hardware isn't loose and fits.
 - Check all the components.
 - Shell isn't too hard to identify, pretty different.
 - Only have about 4 kinds of shells
 - Facemasks are harder to identify
 - nicknames and codes for them are difficult to understand
 - Look very similar
3. What are some of the things you enjoy the most about your role?
 - Interaction w/ athletes

- Fun too see the behind-the-scenes work go into the success of the team on game day
- 4. Is there anything that you don't particularly enjoy or have trouble with?
 - Can be a grind sometimes
 - Hours of straight grind
 - Nothing too bad
- 5. What are the repercussions if you incorrectly identify a helmet/equipment?
 - A lot of parts aren't compatible with each other, can cause problems
 - Usually a quick fix if anything goes wrong, not a big deal
 - Losing track of helmets can be a problem because some might not be safe (mic cutting out??)
 - Fitting issues can occur
- 6. What kind of information do you need to know that determines your level of understanding within the field?

Understanding how these users prefer to learn?

1. If there was a way that getting used to your job responsibilities would have been made easier, what would that resource look like?
2. What are some resources you have been using to acquire more knowledge that is needed for the position you have?
 - Uses AEMA website
 - Going for certification after graduating
 - Talks to his boss to learn too
 - Boss is certified
 - Try to keep up with the latest info
3. What portion of your job skill sets can only be attained through hands-on experience?
 - 75-80% attained thru hands-on experience
 - Learning to take helmets apart is far easier by hand than by reading about it
 - Readings aren't useful enough, hasn't come across another resource he found useful.

What are their future aspirations and how do they expect to get there?

1. Is there a dream occupation you see equipment management taking you?
 - Wants to be an equipment manager for a university or pro team, wants to stick with football or hockey.
2. How do you plan to accomplish that?
 - Networking and internships
3. What are some goals in the near future that you wish to accomplish?
 - Want to just do the best job he can at all times, not much beyond that.

Understanding What Equipment Managers Want From An Application Like This

For our project we are going to be designing an application that helps equipment managers identify helmet components (facemasks, helmets, chinstraps) and learn about their different combinations. This application will use machine learning to create a database from user submitted photos allowing equipment managers to study the different combinations of helmets and get better at their profession.

1. How do you feel that you would use an application like this in your day to day workflow?
 - Would be really helpful, especially for people new in the field
 - Incredibly helpful for parts that are hard to identify like facemasks
2. Based on your current work, do you see yourself using this application more on your phone or your computer? Why?
3. If you had to submit photos to this application to build the database, what would give you incentive to do this?
 - Don't need an incentive, wants to use knowledge from others as well as give his knowledge to others
4. How have you explored interacting with the different levels of equipment managers?

Couldn't understand what he said :/ mic issues (I think he only uses his equipment director as a resource)

- a. What kind of support have you received? (Mentors)

Uses his equipment director to learn. Sees him every day and is always asking questions.

- b. If so, what is some of the knowledge they have passed down to you?
- 5. If there was one thing you wanted to see from an application like this, what would that be?
 - Would love to see the community aspect so he could gain knowledge from experts with a lot of experience.

Name: Samuel Scobie

Current Position: Student Equipment Intern (Sophomore, Sports Management)

Company:

Understanding the participant and their experiences

1. Tell us a little about yourself?
Doing it for credit hours
2. Can you tell me about your current role?
Laundry, takes down and sets up practice, fix helmet, change face mask, setup locker room
3. How long have you been working as an equipment manager?
Since august 2019
4. What made you get into this profession?
Like sports but not good enough to perform at a high level. Wants to be involved with sports despite not playing.
5. How would you judge your current experience level within the equipment management industry?
Not very high experience, doesn't feel he could do it by himself. Not knowledgeable on ordering equipment, interacting with higher ups, coaches, staff meetings.

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?
6 days a week, 6-8 hours daily

2. How do you currently go about identifying helmets?
Don't do much with face masks, only knows how to change out face mask.
Can identify different types of helmets. Quick identification from 10 feet away is useful, Identification is "essential information". Schutt helmet, riddell speed, riddell speed flex are three different types. 250 helmets.
3. What are some of the things you enjoy the most about your role?
Get to be active and outside. Interact with a lot of people everyday.
4. Is there anything that you don't particularly enjoy or have trouble with?
laundry
5. What are the repercussions if you incorrectly identify a helmet/equipment?
Mistake would be identified pretty quickly. Wrong part or whatever would simply not attach properly and you would get correct part. 1 minute error. Not a safety problem because the helmet part would simply not conjoin.
6. What kind of information do you need to know that determines your level of understanding within the field?
More dependence, do things himself. Learn to decal helmets, familiarize with inventory and bordering, communicate with different vendors/suppliers. Be head equipment manager

Understanding how these users prefer to learn?

1. If there was a way that getting used to your job responsibilities would have been made easier, what would that resource look like?
Learn by doing, some yt videos. Observational and kinesthetic learning done in the real environment. Youtube and twitter are useful, follows EM pages. Difficult to see difference in face mask in pictures, easier in person/in hand
2. What are some resources you have been using to acquire more knowledge that is needed for the position you have?
3. What portion of your job skill sets can only be attained through hands-on experience?

What are their future aspirations and how do they expect to get there?

1. Is there a dream occupation you see equipment management taking you?
 - a. What's the ultimate goal?

Being an equipment manager and getting paid for it.
2. How do you plan to accomplish that?
3. What are some goals in the near future that you wish to accomplish?

Understanding What Equipment Managers Want From An Application Like This

For our project we are going to be designing an application that helps equipment managers identify helmet components (facemasks, helmets, chinstraps) and learn about their different combinations. This application will use machine learning to create a database from user submitted photos allowing equipment managers to study the different combinations of helmets and get better at their profession.

1. How do you feel that you would use an application like this in your day to day workflow?

App would be "very appealing". Useful in inventory situation but not in game situation
2. If you had to submit photos to this application to build the database, what would give you incentive to do this?

Would use the app to use the app. If you sign up you get entered in a raffle. Feels comfortable himself just to learn for the sake of it.
3. How have you explored interacting with the different levels of equipment managers?
 - a. What kind of support have you received? (Mentors)

Mentor is the best support. Twitter and social media is how he interacts with other equipment managers, a little bit of text and phone calls.

Favorable to forum idea, does not think virtual 1 on 1 mentorship is that extraordinarily useful (at least compared to in person mentorship)
 - b. If so, what is some of the knowledge they have passed down to you?
4. If there was one thing you wanted to see from an application like this, what would that be?

Introducing something to organize different face masks. Having something where you could see what particular face mask would be worn by a particular player position.

Name: Brian Roy

Current Position:

Company:

Understanding the participant and their experiences

1. Tell us a little about yourself?
2. Can you tell me about your current role?
3. How long have you been working as an equipment manager?
4. What made you get into this profession?
5. How would you judge your current experience level within the equipment management industry?

Understanding their workflow and requirements

1. What is the day to day workflow of an equipment manager at your experience level?
 - Run drills and get equipment during
 - Do laundry for lifting days
2. How do you currently go about identifying helmets?
 - Theres a number on each helmet associated with a locker
 - Does not handle specifications
 - Builds helmets, Shells: size and style, Facemasks:Picks out facemask
 - 90 players 180 helmets total
 - Riddell - speedflex/x7
3. What are some of the things you enjoy the most about your role?
 - Being hands on
 - Backbone of the team
 - Enjoys the relationships
4. Is there anything that you don't particularly enjoy or have trouble with?
 - Learning on the fly is stressful

- Low patients from coaches and things
- 5. What are the repercussions if you incorrectly identify a helmet/equipment?
- 6. What kind of information do you need to know that determines your level of understanding within the field?
- Takes a season to get a feel for the day-to-day operations

Understanding how these users prefer to learn?

1. If there was a way that getting used to your job responsibilities would have been made easier, what would that resource look like?
2. What are some resources you have been using to acquire more knowledge that is needed for the position you have?
 - More experienced people are a great resource
 - Person to person relations
3. What portion of your job skill sets can only be attained through hands-on experience?
 - 85-90% is all hands on
 - Uses math

What are their future aspirations and how do they expect to get there?

1. Is there a dream occupation you see equipment management taking you?
 - Wants to become a certified manager
 - a. What's the ultimate goal?
 - Get the AMEA cert and run an operation at a school
2. How do you plan to accomplish that?
3. What are some goals in the near future that you wish to accomplish?
 - Developing leadership skills and becoming a better leader

Understanding What Equipment Managers Want From An Application Like This

For our project we are going to be designing an application that helps equipment managers identify helmet components (facemasks, helmets, chinstraps) and learn about their different combinations. This application will use machine learning to create a database from user submitted photos allowing equipment managers to study the different combinations of helmets and get better at their profession.

1. How do you feel that you would use an application like this in your day to day workflow?
 - Learning the information about other equipment before working with it would be very beneficial
2. Based on your current work, do you see yourself using this application more on your phone or your computer? Why?
3. If you had to submit photos to this application to build the database, what would give you incentive to do this?
 - Just to learn and get better at your job
 - Makes everything easier for everyone
4. How have you explored interacting with the different levels of equipment managers?
 - a. What kind of support have you received? (Mentors)
 - Receives a lot of day to day information
 - Availability of EM around the country would be super helpful as a resource
 - b. If so, what is some of the knowledge they have passed down to you?
5. If there was one thing you wanted to see from an application like this, what would that be?
 - Notes feature and keep what you've learned in one space

Wizard of Oz Testing Protocol

Goal: The overall goal of our Wizard Of Oz testing is to see if the overall flow of our application is understandable from a general perspective and if they can grasp the functionality of our solution.

Intro: Imagine yourself as a student equipment manager who is hoping to further your career by becoming well-versed in helmet identification and knowledge. You have been given the HelmetTracker application by your employer to improve your knowledge about helmet model names and their correct combinations. With a passion for sports and your role you open the application to start your journey along the Helmet Tracker learning System

Tasks to complete:

Complete Onboarding for learning portion of application

What is your current understanding of the functionality of the application?

Gray text was hard to read, knew to swipe through screens, use app to learn more about equipment in order to buy the right stuff. Points system description confusing, the experience slider is too vague

How do you feel going through the onboarding process?

*Drop them on the landing page

How would you go about submitting a photo of a helmet you have but don't know what it is?

*Go to create a question

Was the course of action here intuitive and easy to understand? Why or why not?

Submit photos of a helmet and create questions?

*Go through question builder

As a novice equipment manager, you have a question about a helmet that you would like answered. What would you do to carry this task out?

After submitting question, see "receipt", move back to landing page

What did you earn by submitting a photo?

How did you feel about this? Does it mean anything to you as an EM?

*Move into the learning phase of application

How do you expect to choose your answer, what happens when you answer a question correctly?

Now you've moved into trying to learn more about different helmets. Go through what the experience of doing so is like.

What are your thoughts about what you gained from this?

After spending a month with Helmet Tracker, you have made it to level 49, which is one level away from reaching the halfway point of the application. With only one question to answer before leveling up you return to the learning page

Tasks to complete:

- Answer the last question and level up to level 50
- Progress through onboarding
- What do you think the purpose of verifying photos is?
- How do you think we could make this process more understandable?
- Do you think it provides a sense of reinforcement or contributes to your learning and mentoring?
- Use feed to answer learning and verification questions
- Does having two different types of questions feel confusing or overwhelming?
- How would you differentiate between the two different types of questions?
- Flag a question for suggesting the incorrect answer
- What would you want to tell the person who submitted the question? How do you know the user is suggesting an incorrect answer?
- Is the purpose of submitting feedback clear?
- Reflection Questions:
- How would you describe the overall experience of this application?
- Were there any aspects of the application that you found to be most confusing or overwhelming?
- Were there any parts of Helmet Tracker you found to be most memorable and engaging?
- If you were a student equipment manager, how would you feel about using an application like this?
- How necessary would it be to incorporate it in your day to day work?
- Any changes you would suggest making?

Wizard Of Oz Testing – Michael McGee

Tasks to complete:

1. Complete Onboarding for learning portion of application
 - a. What is your current understanding of the functionality of the application?
Basically keep track of the different helmets that players are wearing. Is this supposed to be a social media?
 - b. How do you feel going through the onboarding process?
Likes the idea of app. Something that could be very helpful. Would this just be for equipment managers? (could this be for players choosing their face mask)
2. Drop them on the landing page
 - a. How would you go about submitting a photo of a helmet you have but don't know what it is?
 - b. Was the course of action here intuitive and easy to understand? Why or why not?
3. Submit photos of a helmet and create questions?
 - a. Go through question builder
 - b. As a novice equipment manager, you have a question about a helmet that you would like answered. What would you do to carry this task out?
4. After submitting question, see "receipt", move back to landing page
 - a. What did you earn by submitting a photo?
 - b. How did you feel about this? Does it mean anything to you as an EM?
5. Move into the learning phase of application?
 - a. How do you expect to choose your answer, what happens when you answer a question correctly?
 - b. Now you've moved into trying to learn more about different helmets. Go through what the experience of doing so is like.
 - i. What are your thoughts about what you gained from this?

After spending a month with Helmet Tracker, you have made it to level 49, which is one level away from reaching the halfway point of the application. With only one question to answer before leveling up you return to the learning page

Tasks to complete:

1. Answer the last question and level up to level 50
2. Progress through onboarding
 - a. What do you think the purpose of verifying photos is?
3. They can then work through their feed, first seeing verification questions
 - a. How do you think we could make this process more understandable? C
 - i. Do you think it provides a sense of reinforcement or contributes to your learning and mentoring?
4. Use feed to answer learning and verification questions
 - a. Does having two different types of questions feel confusing or overwhelming?
 - b. How would you differentiate between the two different types of questions?
5. Flag a question for suggesting the incorrect answer
 - a. What would you want to tell the person who submitted the question?
How do you know the user is suggesting an incorrect answer?
 - b. Is the purpose of submitting feedback clear?

Reflection Questions:

1. How would you describe the overall experience of this application?
2. Were there any aspects of the application that you found to be most confusing or overwhelming?
3. Were there any parts of Helmet Tracker you found to be most memorable and engaging?
 - a. If you were a student equipment manager, how would you feel about using an application like this?
 - b. How necessary would it be to incorporate it in your day to day work?
4. Any changes you would suggest making?

Notes on Wizard of Oz Testing on UX Design Students

Tasks to complete:

1. Complete Onboarding for learning portion of application
 - a. What is your current understanding of the functionality of the application?
 - Interactive app where you can learn more about helmets and compete against your coworkers to earn badges
 - "The more i learn about helmets, the more I gain badges"
 - "Thought it was a game but it seems like an educational app"
 - "Ntt sure what the level up is and what rewards i can gain"
 - b. How do you feel going through the onboarding process?
 - "I was a little unclear with one of the wireframes."
 - "It lacked clarity on what the app is and what the ultimate goal is"
 - "Seems like i'm doing a lot without a focal point"
 - Suggestions: Give small descriptor or a sentence on what the app is for.
 - Have a descriptor for helmet tracker
 - Rest of the onboarding is clear
 - Not sure how to add friends - email? Phone number?
 - Wish the tutorial started before asking me - show me the onboarding tutorial so that i know what's going on
2. Drop them on the landing page

Confused what type of question I can submit as I'm still a first time user.
Thought I'd be learning about helmets instead of asking questions

 - a. How would you go about submitting a photo of a helmet you have but don't know what it is?
 - Thought the only category was a helmet but it looks like there's more
 - Good that there's a manufacturer and model and option
 - b. Was the course of action here intuitive and easy to understand? Why or why not?
 - Very clear

3. Submit photos of a helmet and create questions?
 - a. Go through question builder
 - b. As a novice equipment manager, you have a question about a helmet that you would like answered. What would you do to carry this task out?
 - "I'm supposed to answer this as well? I thought this was for me to learn. I am an experienced person and I'm looking to quiz someone else. This seems like I know what my helmet is. I guess I already know what the answer is"
 - "Feels very quizlet-y like i'm making my own flashcards."
 - "I assumed i would be taking pictures of a helmet that i didn't know the answer to but it looks like im quizzing others"
 -
4. After submitting question, see "receipt", move back to landing page
 - a. What did you earn by submitting a photo?
 -
 - b. How did you feel about this? Does it mean anything to you as an EM?
 - Confused about what the app was for? Lost on my experience level. What if i had no experience would i not answer my own question? Maybe that us the educational part of the app? Makes me feel like im making flashcards based on what im learning or like i've learned something and im asking others what it is. Don't know what i'm gaining from submitting a question.
5. Move into the learning phase of application?
 - a. How do you expect to choose your answer, what happens when you answer a question correctly?
 -
 - b. Now you've moved into trying to learn more about different helmets. Go through what the experience of doing so is like.
 - "I saw the X mark first to close out of the database"
 - "I would say i for 3 right and 2 incorrect"
 - i. What are your thoughts about what you gained from this?
 -

After spending a month with Helmet Tracker, you have made it to level 49, which is one level away from reaching the halfway point of the application. With only one question to answer before leveling up you return to the learning page

Tasks to complete:

1. Answer the last question and level up to level 50
2. Progress through onboarding
 - a. What do you think the purpose of verifying photos is?
 - "I thought the app itself would know if i was wrong. I thought it was predetermined" "so someone else wrote a question
 - I think the "specify below" part is where i can describe more about the helmet like the info i got from the database in the beginning when i got the answer wrong.
 -
3. They can then work through their feed, first seeing verification questions
 - a. How do you think we could make this process more understandable?
 -
 - i. Do you think it provides a sense of reinforcement or contributes to your learning and mentoring?
 - Yes i feel like i achieved a position where i have a good amount of helmets bc when i look back i started off as someone who didn't know anything
4. Use feed to answer learning and verification questions
 - a. Does having two different types of questions feel confusing or overwhelming?
 - Not really questions, more like levels of achievement - i would like to know that i could have been a verifier in some time - should have told me in the beginning
 - b. How would you differentiate between the two different types of questions?
 -
5. Flag a question for suggesting the incorrect answer
 - a. What would you want to tell the person who submitted the question?
 - b. How do you know the user is suggesting an incorrect answer?

- c. Is the purpose of submitting feedback clear?

Reflection Questions:

1. How would you describe the overall experience of this application?
2. Were there any aspects of the application that you found to be most confusing or overwhelming?
 - Most confusing part is writing a question in the beginning and writing an answer because i don't know the answer. As a beginner i would know nothing.
 - I thought in the beginning that i could ask any type of question but seeing the answer options made me feel lost
3. Were there any parts of Helmet Tracker you found to be most memorable and engaging?
 - a. If you were a student equipment manager, how would you feel about using an application like this?
 - b. How necessary would it be to incorporate it in your day to day work?
4. Any changes you would suggest making?
 - Talk about the benefits of being a verifier in the beginning, also i didn't know the role of a verifier. I thought the answer would be checked by the app, didn't know what the point of the verifier is
 - If i was the one who made the question

Tasks to complete:

1. Complete Onboarding for learning portion of application
 - a. What is your current understanding of the functionality of the application?
 - An app to quiz yourself on apps, you expand your knowledge on many different helmets. Like a quizlet for helmets, also like Duolingo
 - b. How do you feel going through the onboarding process?
 - The Leveling onboarding screen kind of confused me, I know it was an example but I thought it was my own level or something.
2. Drop them on the landing page
 - a. How would you go about submitting a photo of a helmet you have but don't know what it is?
 - I would click "go" on create a question
 - b. Was the course of action here intuitive and easy to understand? Why or why not?
 - The text says "include one photo", and there's no other possible way to do it. Database doesn't sound like submitting photos would happen there, maybe that's stuff they have already learned?
3. Submit photos of a helmet and create questions?
 - a. Go through question builder
 - b. As a novice equipment manager, you have a question about a helmet that you would like answered. What would you do to carry this task out?
 - This is a bit confusing; I don't think I would be submitting photos and putting in possible answer choices if I don't know the helmet. If I did and I wanted to create a quizlet then the process makes sense but not the other way around.
4. After submitting question, see "receipt", move back to landing page
 - a. What did you earn by submitting a photo?
 - I'm not sure what I earned, I see I "leveled" a bit but it's not exactly clear as to what I earned.
 - b. How did you feel about this? Does it mean anything to you as an EM?
 - It means I'm interested in learning more.
5. Move into the learning phase of application?
 - a. How do you expect to choose your answer, what happens when you answer a question correctly?

- I'll select the answer and it'll highlight the correct answer and it'll make a noise.
 - b. Now you've moved into trying to learn more about different helmets. Go through what the experience of doing so is like.
 - i. What are your thoughts about what you gained from this?
- It reminds me of Duolingo, it's pretty straightforward. The extra things such as "learn more" are pretty helpful.

After spending a month with Helmet Tracker, you have made it to level 49, which is one level away from reaching the halfway point of the application. With only one question to answer before leveling up you return to the learning page.

Tasks to complete:

1. Answer the last question and level up to level 50
2. Progress through onboarding
 - a. What do you think the purpose of verifying photos is?
 - I was a little confused. I thought these were "expert answers", but it's more about moderating like a Reddit mod. But now I'm confused about uploading photos/questions and answering questions, they sound like they are different parts of the application but they aren't.
3. They can then work through their feed, first seeing verification questions
 - a. How do you think we could make this process more understandable? C
 - i. Do you think it provides a sense of reinforcement or contributes to your learning and mentoring?
4. Use feed to answer learning and verification questions
 - a. Does having two different types of questions feel confusing or overwhelming?
 - It should be more clear. A header somewhere, like what's on the Verifying question, would be helpful and tell someone what they're doing
 - b. How would you differentiate between the two different types of questions?
 - A heading of some sort, or an icon, or like on Instagram, you can switch between different profiles if you have multiple accounts. For this application, you could switch between a verifying mode or a learning mode.
5. Flag a question for suggesting the incorrect answer

- a. What would you want to tell the person who submitted the question?
How do you know the user is suggesting an incorrect answer?
- The answer they think is correct is in green.
- b. Is the purpose of submitting feedback clear?
- Yeah, it just let them know about the correct answer.

Reflection Questions:

1. How would you describe the overall experience of this application?
 - The onboarding process is pretty clear, but I'm confused about the submitting questions and then putting in your own answer choices. I thought it would be like the "what is this thing" subreddit, where people have no idea and other people tell them.
2. Were there any aspects of the application that you found to be most confusing or overwhelming?
 - Purpose of submitting questions isn't clear, who is it intended for?
3. Were there any parts of Helmet Tracker you found to be most memorable and engaging?
 - a. If you were a student equipment manager, how would you feel about using an application like this?
 - b. How necessary would it be to incorporate it in your day to day work?
 - I would use it because I'm in a field I'm interested in and I like helping other people. It is engaging.
4. Any changes you would suggest making?
 - Don't put answer choices for submitting questions? It's not straightforward what the purpose or intent is, somewhere it should explicitly say that. Reframe it as a study set?

Tasks to complete:

1. Complete Onboarding for learning portion of application
 - a. What is your current understanding of the functionality of the application?
"What is this app supposed to do?"
Dots help with knowing to slide
 - b. How do you feel going through the onboarding process?
Pretty seamlessly. Confused without context of equipment management. Interface is fine.
2. Drop them on the landing page
Confused on Create A Question thing
Confused on whether it is a experience bar
 - a. How would you go about submitting a photo of a helmet you have but don't know what it is?
Seems like you are making a trivia question
Should be more clear about making questions
 - b. Was the course of action here intuitive and easy to understand? Why or why not?
Finishing profile setup was easy and intuitive.
3. Submit photos of a helmet and create questions?
 - a. Go through question builder
 - b. As a novice equipment manager, you have a question about a helmet that you would like answered. What would you do to carry this task out?

Reflection Questions:

1. How would you describe the overall experience of this application?
Parts where interaction was confusing. Most direct was the onboarding, the dots were helpful. General understanding of how learning, verifying works together
2. Were there any aspects of the application that you found to be most confusing or overwhelming?
Create a question and other aspects past onboarding.

Tasks to complete:

1. Complete Onboarding for learning portion of application
 - a. What is your current understanding of the functionality of the application?
 - You answer questions that get points and you get rewards and badges to show to employers
 - Learn about different helmets stats to be tested on
 - b. How do you feel going through the onboarding process?
 - Easy to follow and understand written well
2. Drop them on the landing page
 - a. How would you go about submitting a photo of a helmet you have but don't know what it is?
 - Click go and upload a photo
 - b. Was the course of action here intuitive and easy to understand? Why or why not?
 - A little confused about a picture
 - Subtext was really small and hard to find about photo info
3. Submit photos of a helmet and create questions?
 - a. Go through question builder
 - b. As a novice equipment manager, you have a question about a helmet that you would like answered. What would you do to carry this task out?
 - Was confused about the submission of answers for questions
4. After submitting question, see "receipt", move back to landing page
 - a. What did you earn by submitting a photo?
 - Confused about what was earned
 - "Weekly xp"
 - Not sure if bar is points or bar fills and validated later.
 - b. How did you feel about this? Does it mean anything to you as an EM?
 - Would be nice to ask information and specific questions
5. Move into the learning phase of application?
 - a. How do you expect to choose your answer, what happens when you answer a question correctly?
 - Selection turns green
 - Says how many points was obtained

- b. Now you've moved into trying to learn more about different helmets. Go through what the experience of doing so is like.
 - Go to database
 - i. What are your thoughts about what you gained from this?
 - Nice that it helps you learn more
 - Finish learning when you want to
 - Database is helpful tool

After spending a month with Helmet Tracker, you have made it to level 49, which is one level away from reaching the halfway point of the application. With only one question to answer before leveling up you return to the learning page

Tasks to complete:

1. Answer the last question and level up to level 50
2. Progress through onboarding
 - a. What do you think the purpose of verifying photos is?
 - Being able to identify helmets to get a certification from AEMA
 - Expand knowledge
 - Earn points
3. They can then work through their feed, first seeing verification questions
 - a. How do you think we could make this process more understandable?
 - No changes
 - i. Do you think it provides a sense of reinforcement or contributes to your learning and mentoring?
 - Reinforcement: yes
 - Mentoring: doesn't understand it
4. Use feed to answer learning and verification questions
 - a. Does having two different types of questions feel confusing or overwhelming?
 - Yes
 - Not sure if they were the same or different
 - The process for each one is simple though
 - b. How would you differentiate between the two different types of questions?

- One is told what to answer and one is to confirm if the answer is right or not
5. Flag a question for suggesting the incorrect answer
 - a. What would you want to tell the person who submitted the question?
 - Say the correct answer
 - Tell them why the other is wrong
 - Tell them why they know its incorrect
 - b. How do you know the user is suggesting an incorrect answer?
 - Based of their own knowledge
 - c. Is the purpose of submitting feedback clear?
 - So there's correct information to users

Reflection Questions:

1. How would you describe the overall experience of this application?
 - Pretty straight forward
 - Buttons provide guidance
 - Learning tab is confusing
2. Were there any aspects of the application that you found to be most confusing or overwhelming?
 - Verifying and learning questions are hard to differentiate
3. Were there any parts of Helmet Tracker you found to be most memorable and engaging?
 - Style of choosing what's correct is nice
 - quiz/quizlet format
 - a. If you were a student equipment manager, how would you feel about using an application like this?
 - It would be good to test own knowledge
 - Having people verifying might cause issues
 - b. How necessary would it be to incorporate it in your day to day work?
 - Quizzing oneself would use
 - Not submitting
4. Any changes you would suggest making?
 - no

Tasks to complete:

1. Complete Onboarding for learning portion of application
 - a. What is your current understanding of the functionality of the application?
 - A way to learn about football equipment with competition.
 - Get badges to show your progress, kind of like an unofficial certification.
 - Digital tool to see all kinds of football equipment.
 - b. How do you feel going through the onboarding process?
 - Easy to understand, pretty standard across most apps.
 - It's nice that it guides you through the account creation.
2. Drop them on the landing page
 - a. How would you go about submitting a photo of a helmet you have but don't know what it is?
 - Click the button that says i dont know the information, skip to uploading pictures at the bottom.
 - b. Was the course of action here intuitive and easy to understand? Why or why not?
 - Screen seems a little messy.
 - Could be formatted cleaner.
 - Too much in the middle.
 - Why six photos?
 - Asking for specific angles?
 - Confused about categories.
 - What are the other options?
 - Is the app for all sorts of football equipment?
3. Submit photos of a helmet and create questions?
 - a. Go through question builder
 - Why is question builder linked to photo submission?
 - Can anyone submit questions?
 - Beginners shouldnt be able to?
 - What are the "pre-written" questions?
 - b. As a novice equipment manager, you have a question about a helmet that you would like answered. What would you do to carry this task out?

- Didn't notice a way of doing that yet.
- Assumed the database would be the place to go to find that helmet and maybe ask the question there.
- 4. After submitting question, see "receipt", move back to landing page
 - a. What did you earn by submitting a photo?
 - Nothing it seems
 - b. How did you feel about this? Does it mean anything to you as an EM?
 - Thinks it's nice that users can submit questions.
 - Seems like a helpful tool.
 - Question builder could be simplified, is a bit confusing.
- 5. Move into the learning phase of application?
 - a. How do you expect to choose your answer, what happens when you answer a question correctly?
 - Expects to just tap the answer and it says if it's right or not.
 - Likes the XP earned, adds incentive to use the app.
 - Clean and easy to understand UI.
 - Can move through it quickly.
 - b. Now you've moved into trying to learn more about different helmets. Go through what the experience of doing so is like.
 - i. What are your thoughts about what you gained from this?
 - Likes the overview when learning is finished.
 - Very helpful.

After spending a month with Helmet Tracker, you have made it to level 49, which is one level away from reaching the halfway point of the application. With only one question to answer before leveling up you return to the learning page

Tasks to complete:

1. Answer the last question and level up to level 50
2. Progress through onboarding
 - a. What do you think the purpose of verifying photos is?
 - To make sure submitted questions and photos are correct since anyone can send them.
 - To help progress further as an equipment manager.
3. They can then work through their feed, first seeing verification questions

- a. How do you think we could make this process more understandable?
 - Makes sense, pretty straight forward.
 - i. Do you think it provides a sense of reinforcement or contributes to your learning and mentoring?
 - Definitely reinforces the learning.
- 4. Use feed to answer learning and verification questions
 - a. Does having two different types of questions feel confusing or overwhelming?
 - No, the interfaces are simple enough to be understandable.
 - b. How would you differentiate between the two different types of questions?
 - The big "verification" at the top of the screen.
- 5. Flag a question for suggesting the incorrect answer
 - a. What would you want to tell the person who submitted the question?
How do you know the user is suggesting an incorrect answer?
 - What was incorrect and why.
 - b. Is the purpose of submitting feedback clear?
 - Yeah, pretty simple.

Reflection Questions:

- 1. How would you describe the overall experience of this application?
 - Useful and somewhat easy to understand.
 - Submitting photos and question builder is pretty messy.
 - Onboarding eases new users into the process.
- 2. Were there any aspects of the application that you found to be most confusing or overwhelming?
 - Nothing too confusing or overwhelming, question builder can be refined.
- 3. Were there any parts of Helmet Tracker you found to be most memorable and engaging?
 - The learning section was engaging.
 - Likes to earn xp.
 - a. If you were a student equipment manager, how would you feel about using an application like this?
 - Would be a useful tool during and outside of work.

- b. How necessary would it be to incorporate it in your day to day work?
 - Would see equipment managers using it before and/or after work.
- 4. Any changes you would suggest making?
 - Maybe have questions generate automatically for the learning part.
 - Thinks its weird to have users creating and verifying questions.
 - Can see it being a very confusing part of the app.