

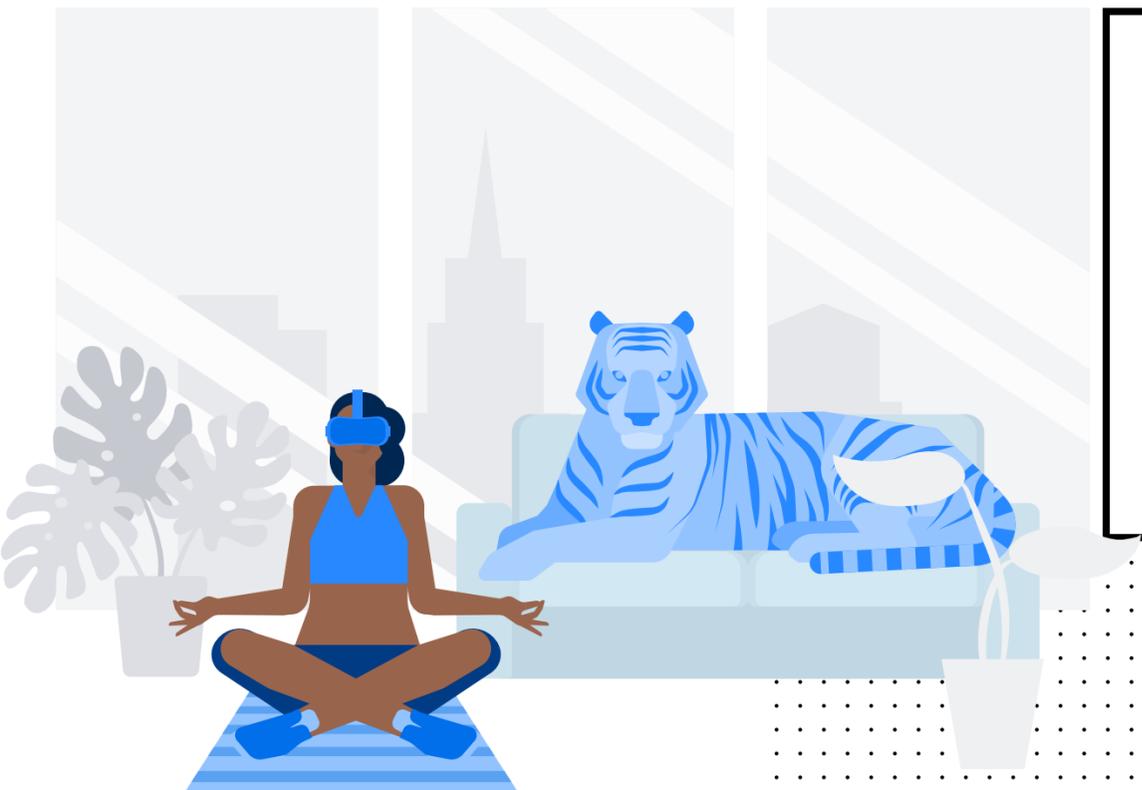
Exploring...



# the MetaGym

VR/AR x Edu  
Team 5

Start →



# Meet our Team



**Rachel**

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Senior  
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Computer Science  
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Long Island, NY

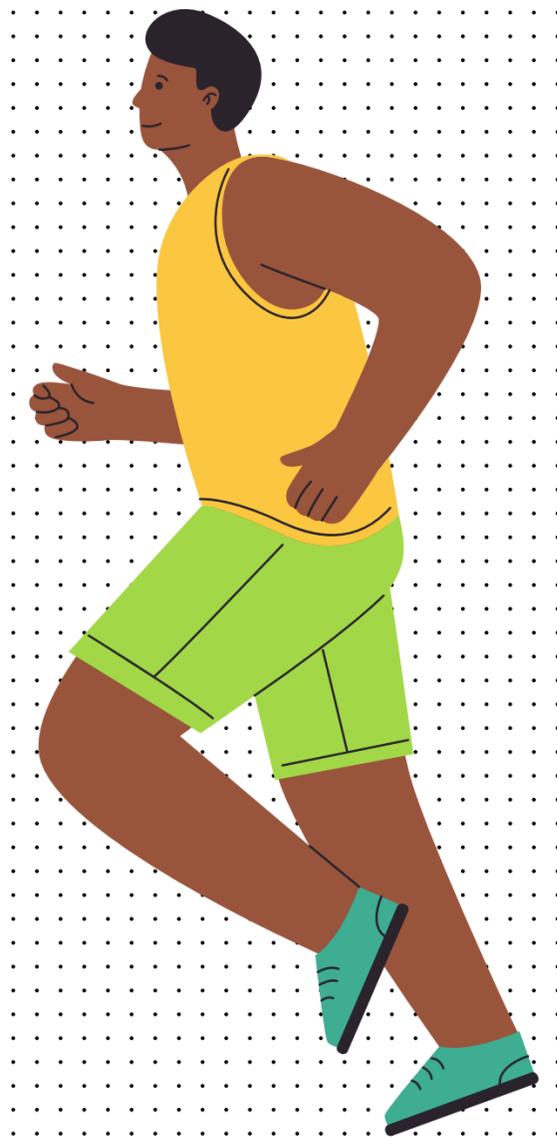


Problem Domain

***THE FITNESS  
INSTRUCTION  
EXPERIENCE***

## Initial POV

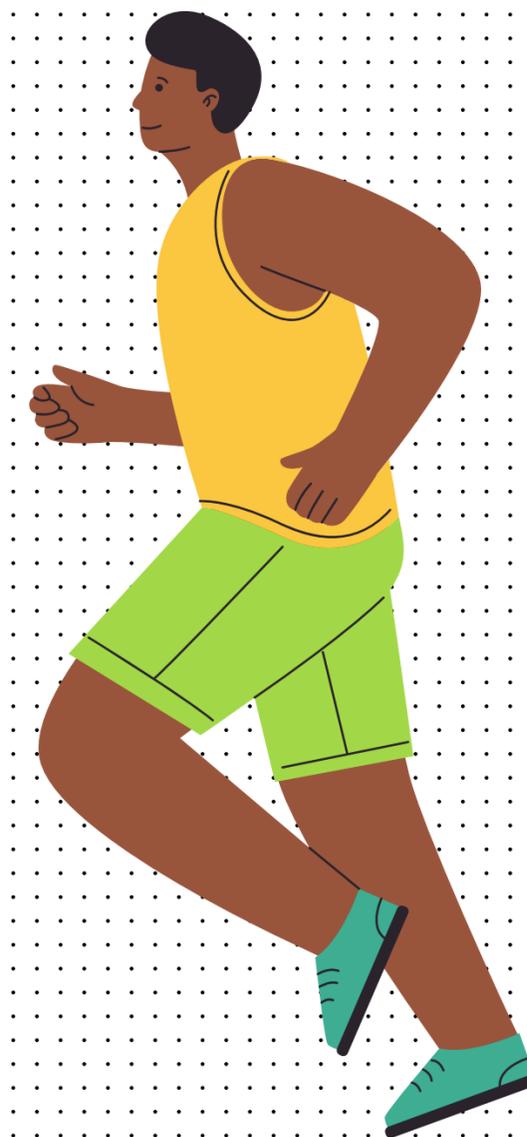
**We met...** Khalil, a 19 year old black male at Howard University and a workout beginner from Queens, NY.



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**We were surprised to notice...** he would prefer to work out with other people, but works out alone.

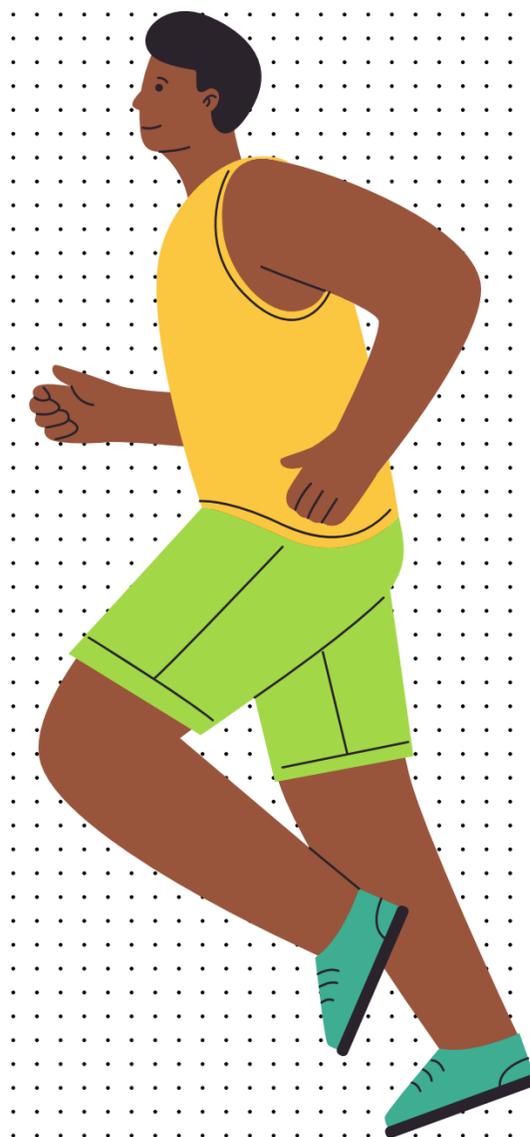


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**We wonder if this means...**he would work out with other people if he could find other people that had the same fitness goals.



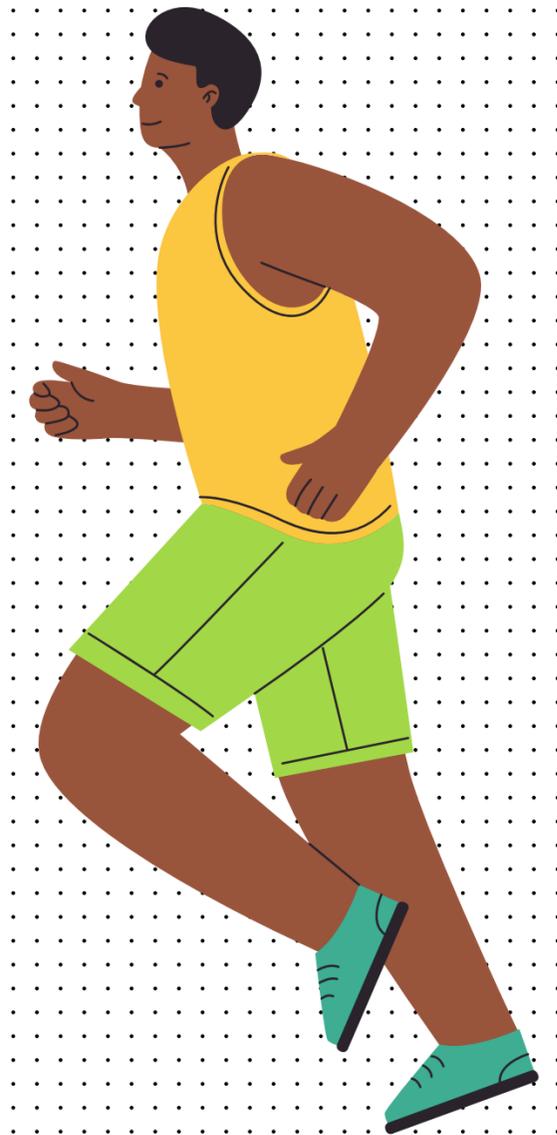
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**It would be game-changing to...** be able to find a community that shared his fitness goals.

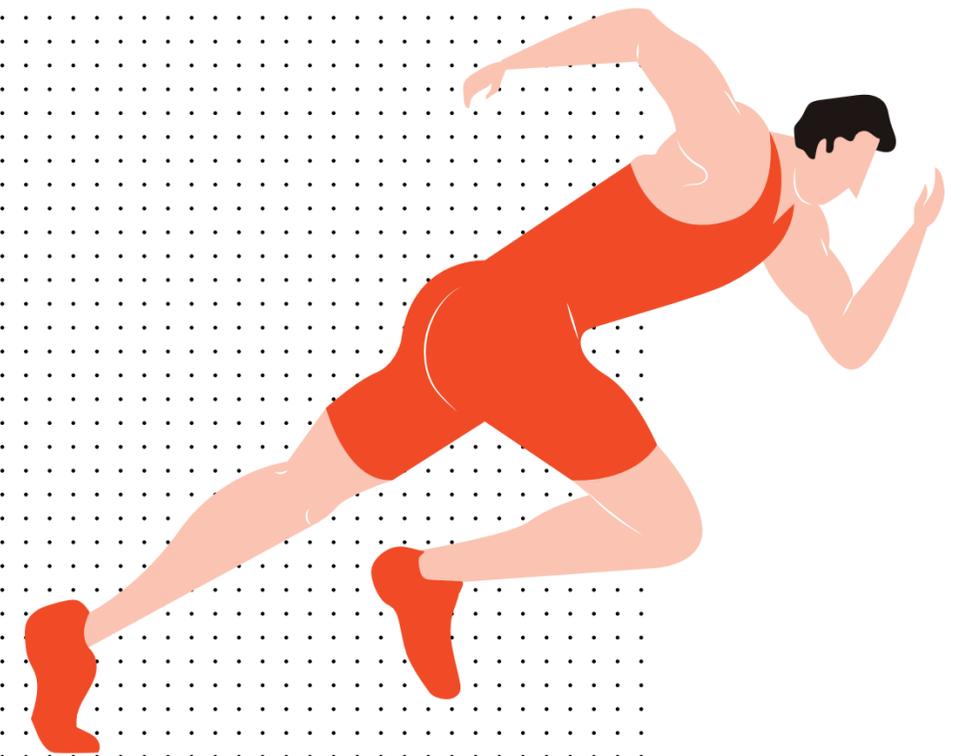


James is a 20-year old white male and a D1 varsity track athlete at Stanford.

### What we learned...

- When learning a new jump technique, James often felt frustrated for not being able to pinpoint where he needed to be. He was also the only male high jumper, so he was learning the technique alone.
- James wishes for more consistency, as he usually focused on something different every practice. Consistency would include focusing on x for a number of weeks, then y for another few weeks.
- James's biggest motivator is the cumulative experience with people on the team. Training with his teammates was a huge plus and he really valued the community aspect of training.

Additional Needfinding: [James](#) 🔍



**James's motivation:** *"Allen and I build off each other. one of us wants to lift more weights than the other, then we'll se each other do it and try to outdo the other. Constant back and forth and competitiveness."*

Oscar, a 52-year old self-employed father/husband living in Los Angeles.

#### What we learned...

- Limited time and a busy lifestyle is what prevents many people his age from working out; Cutting commute time would be valuable
- It's hard for him to find fitness classes that are customized to his lifestyle and expectations
- Avatars could help users focus less on social valuation and more on the workout itself
- The issue with team sports such as basketball is finding people of similar skill & ability to play with
- Leveraging immersive tech to train with sports legends in iconic locations is highly motivating
- Feeling like a superhero when learning new workouts can be fun

Additional Needfinding: **Oscar**



**Oscar's Hot Take:** *"If I could play basketball with Magic Johnson and Kareem Abdul Jabbar and not be judged but instead be praised, I would be incentivized to train all the time"*

## Revised POV: Oscar

### **We met...**

Oscar, a 52-year old self-employed father/husband living in Los Angeles who enjoys sports but struggles to stay consistent.

### **We were surprised to notice...**

it's hard to stay consistent with sports because lack of partners of similar level tailored instruction/feedback

### **We wonder if this means...**

he would improve faster and stay more consistent with his regimen if he had instruction/friends that matched his skill level.

### **It would be game-changing to...**

Give Oscar the opportunity to learn/improve sports from legends and experts



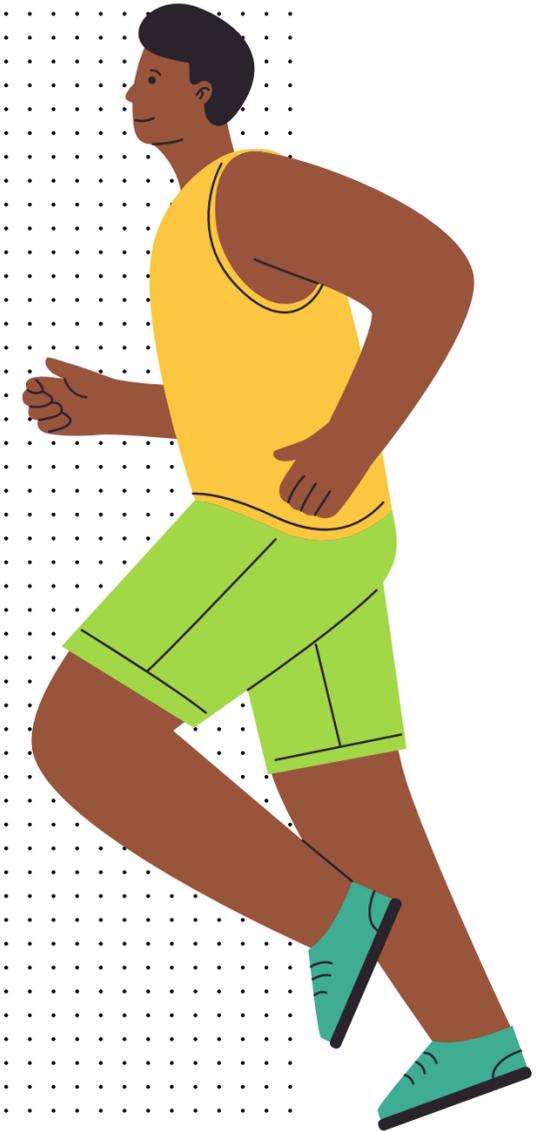
## Revised POV: Khalil

**We met...**Khalil, a 19 year old workout beginner who is an undergrad student at Howard University.

**We were surprised to notice...**how he felt like quitting sometimes because he wasn't getting the instant gratification he got from video games

**We wonder if this means...**he would feel more motivated to keep exercising if there were other noticeable changes he could see other than changes in his body

**It would be game-changing to...**help him see changes more quickly by making him aware of the skills that he obtained during his workout session.



## Revised POV: Kenza

**We met...**Kenza, a 21-year old student at London School of Fashion who's a workout class enthusiast & frequent traveler.

**We were surprised to notice...**how much more she was willing to pay to go to workout classes rather than just going to the gym

**We wonder if this means...**that her motivation to work out stems from quality instruction and community.

**It would be game-changing to...**offer her consistent quality of instruction and community no matter where she is in the world.



# All Things Ideating



**POV: Oscar**

**We met...**  
Oscar, a 52-year-old self-employed father/husband living in Los Angeles who enjoys sports but struggles to stay consistent.

**We were surprised to notice...**  
that a big reason why it's hard for him to stay consistent with sports is lack of partners of similar level and instruction/feedback tailored to his own level.

**We wonder if this means...**  
that he would improve faster and stay more consistent with his regimen if he had access to instruction/friends that matched his skill level.

**It would be game-changing to...**  
Give Oscar the opportunity to learn/improve sports from legends and experts

**How might we...**

- HMW incentivize Oscar to stay consistent with sports in the midst of his busy life?
- HMW incorporate instruction from sports legends/experts while tailoring the lessons to his skill level?
- HMW help Oscar save time/effort to experience seamless & accessible?
- HMW define Oscar's preference in relation to others when training for group-based sports?
- HMW identify other "partners of similar level" to Oscar who feel the same way as him?
- HMW define Oscar's skill level at any point in time during his training/throughout the session (logins, in-app metrics, observed) and track Oscar's progress through the skill levels?
- HMW make something the part of his life that Oscar looks forward to when?
- HMW remove any feelings of judgment about Oscar to have a productive learning environment?
- HMW create AI partners that always match Oscar's skill level?
- HMW provide immediate tailored feedback on Oscar's skills?

**Notes:**

intrinsic motivation  
match the difficulty level to the user's current experience  
user level should go with the person experiencing it  
intrinsically motivated to get better/improve  
motivation to keep learning and get better

provides that consistency  
"instant gratification"

**POV: Kenya**

**We met...**  
Kenya, a 21-year-old student at London School of Fashion who's a workout class enthusiast & frequent traveler.

**We were surprised to notice...**  
how much more she was willing to pay to go to workout classes rather than just going to the gym.

**We wonder if this means...**  
that her motivation to work out stems from quality instruction and community.

**It would be game-changing to...**  
offer her consistent quality of instruction and community no matter where she is in the world.

**How might we...**

- HMW allow Kenya to take the same instructor with her everywhere?
- HMW make Kenya feel like the instructor/community is in the room with her?
- HMW give Kenya the ability to receive instruction/feedback on full body movement?
- HMW give Kenya the ability to interact with teammates during workouts while traveling?
- HMW teach Kenya new workouts without her having to be present?
- HMW keep up Kenya's motivation to improve through fun and engaging working experiences (environment, music, etc)?
- HMW focus on variety in Kenya's workout classes?
- HMW lower the friction of the financial barrier for workout classes?
- HMW give Kenya a constant and/or new community and the same high caliber of teaching on a real-life to an online experience?
- HMW let Kenya have the choice to keep up with the same community of workout friends and to be able to meet new friends/communities while she travels?
- HMW help Kenya stay consistent with her workout no matter where she is in the world?
- HMW give Kenya a workout class environment without having her be physically present?

**Notes:**

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match the difficulty level to the user's current experience  
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**We wonder if this means...**  
he would feel more motivated to keep exercising if there were other noticeable changes he could see other than changes in his body.

**It would be game-changing to...**  
Help him see changes more quickly by making him aware of the skills that he obtained during his workout session.

**How might we...**

- HMW make working out more like a video game?
- HMW reward people more at the end of work out sessions?
- HMW teach Khalil new skills that are in line with his goals?
- HMW give Khalil the ability to review what he's learned/accomplished at the end of a workout?
- HMW give Khalil gratification during his workout by showing him what he's learned so far?
- HMW give Khalil a varied workout each time so that he feels like he's learning new skills?
- HMW provide Khalil the repetition required for gaining muscle but also give him the gratification of learning something new?
- HMW create a new sport/game that helps Khalil grow muscle but also gives Khalil skills to work on improving?
- HMW make Khalil aware of these intangible changes learned?
- HMW disincentive quitting exercise vs. incentivize consistent exercise? (e.g. utilizing loss aversion principles?)

**Notes:**

intrinsic motivation  
match the difficulty level to the user's current experience  
user level should go with the person experiencing it  
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solutions

VR Chat but for working out	"masterclass" style instruction in vr/ar	AI legend/expert instructors that tailor to user performance	metrics that show improvement	Video game style levels that coincide with someone's workout level	avatars that represent other live users in the class	"Points" system for working out everyone (e.g. Headpace's daily meditation check, other app where u can grow plants and if u miss a day they die/look)	Live chat during class where people can comment, cheer each other on, add reactions	Customizable workout buddy in VR	
option between AI	VR multiplayer golf game with skill-based minigames	modules/units within a course for depth into a subject & breadth amongst skills, after completing a set of modules, you are then advanced a "half level" -> earns a sense of improvement	community "stack" where workout members can interact & make friends with others	VR game where user is diving against instructor (e.g. boxing, basketball)	AR app that takes video of user playing golf that gives immediate feedback	portable/travel-friendly workout equipment that also incorporates live classes digi	VR fitness app with light, music, levels -> modified avatar	VR multiplayer basketball game with skill-based minigames	VR resistance band training where learning new skills leads to more powerful character
New VR sport that gives feedback on body position, speed, and power	VR running game with expert tailored plans and in-game skills	VR multiplayer cycling with friends and instructor	workouts that incorporate immersion to help users feel like they're supernatural/superheroes	Multiplayer competitive style game for different spots	customizable elements for workout classes (location, music, ambiance)	"MIRROR" workout class instruction in VR	Group workout in VR for community		
New AR sport with instructor that requires user to learn new body movements	VR rooms with different skill levels	VR fitness game that requires you to communicate with your teammates to win	VR fitness game that sends players out on "missions"	A rhythm based workout game with a variety of music	Weightlifting classes where different weightlifting skills are taught each class	new classes at least once a day	rewards based "streaks" for staying consistent	Expert sport instructors	

**Assumptions**

People are comfortable working out in VR  
People feel connected in VR  
You can provide accurate instruction in VR

Weightlifting with the headset

"Masterclass" style instruction from fitness/athletic experts in VR

Rewards-based "streaks" to help users stay consistent

Working out with others in VR to build community

VR headset - are they comfortable working out?

**1. "points/streak" system for every time interval/day you workout**

**methodology:** have people hold a plank for one minute, and right after, either **experimental group**) text them a note & congrats graphic to represent the "streak," or **control group**) don't text them a congrats note. ask both groups a few hours later how likely they are to do another short workout circuit

**assumption:** people will be more inclined to stay consistent if they are given rewards that give them a sense of instant gratification

**2. compare learning from generic video vs sport expert:**

**methodology:** use engagevr video player and show user videos back to back and ask them how effective they felt

**3. test resistance band workout in VR**

**4. workout session in VR:**

**methodology:** use engagevr video player to show users a Chloe Ting workout video

**assumption 1:** people are comfortable working out in VR

**assumption 2:** people will have a greater sensory experience, and thus, workout experience, in VR.

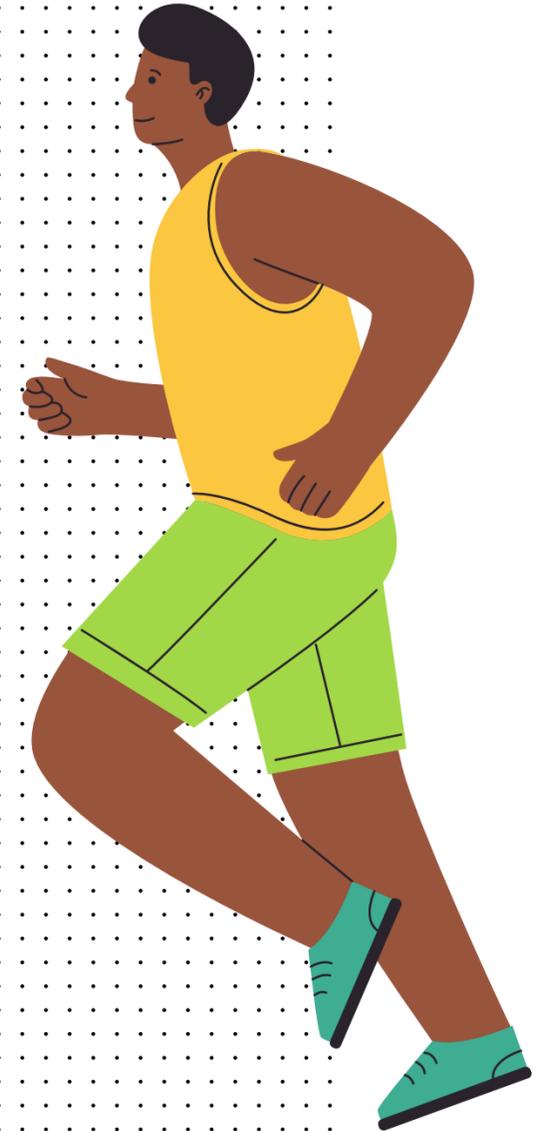
How Might We: Oscar

How might we incorporate instruction from sports legends/experts while tailoring the lessons to his skill level?



## How Might We: Khalil

How might we provide Khalil the repetition required for gaining muscle but also give him the gratification of learning something new?



## How Might We: Kenza

How might we give Kenza a constant and/or new community and the same high caliber of teaching offered in real-life to an online experience?



# Brainstormed Solutions



VR Chat but for working out

"masterclass" style instruction in vr/ar

AI legend/expert instructors that tailor to user performance

metrics that show improvement

Video game style levels that coincide with someone's workout level

avatars that represent other live users in the clas

"Points" system for working out everyday (e.g. Headspace's daily meditation check, other apps where u can grow plants and if u miss a day they day lolol)

Live chat during class where people can comment, cheer each other on, add reactions

In the beginning u take a quiz to see where ur currently @ and what your needs are. Then creates a customized workout plan with xyz classes for the next x weeks

Customizable workout buddy in VR

option between AI

VR multiplayer golf game with skill-based minigames

modules/units within a course for depth into a skillset & breadth amongst skills; after completing a set of modules, you are then advanced a "skill" level -> forms a sense of improvement

community "slack" where workout members can interact & make friends with others

VR game where user is playing against instructor (e.g. boxing, basketball)

AR app that takes video of user playing golf that gives immediate feedback

portable/travel-friendly workout equipment that also incorporates live classes digi

VR fitness aura with lights, music, beats -> amplified senses

VR multiplayer basketball game with skill-based minigames

VR resistance band training where learning new skills leads to more powerful character

New VR sport that gives feedback on body position, speed, and power

VR weightlifting game that teaches different skills to attack monsters

AR running game with expert tailored plans and in-game skills

VR multiplayer cycling with friends and instructor

workouts that incorporate immersion to help users feel like they're supernatural/superheroes

Multiplayer competitive style game for different spots

Avatar-like, customizable profile with "badges" like "the coolest cyclist" or "brilliant bodybuilder" to build their profile. can have a leaderboard or something in the community where these insights are shareable! -> to incentivize ppl to come to classes

customizable elements for workout classes (location, music, ambiance

"MIRROR" workout class instruction in VR

Group workout in VR for community

New AR sport with instructor that requires user to learn new body movements

VR rooms with different skill levels

VR fitness game that requires you to communicate with your teammates to win

VR fitness game that sends players out on "missions"

A rhythm based workout game with a variety of music

AR strategy game with live chat with teammates that requires running

Weightlifting classes where different weightlifting skills are taught each class

new classes at least once a day

rewards based "streaks" for staying consistent

Expert sport instructors

# Top 4 Ideas to Test



"Masterclass" style instruction from fitness/athletic experts in VR

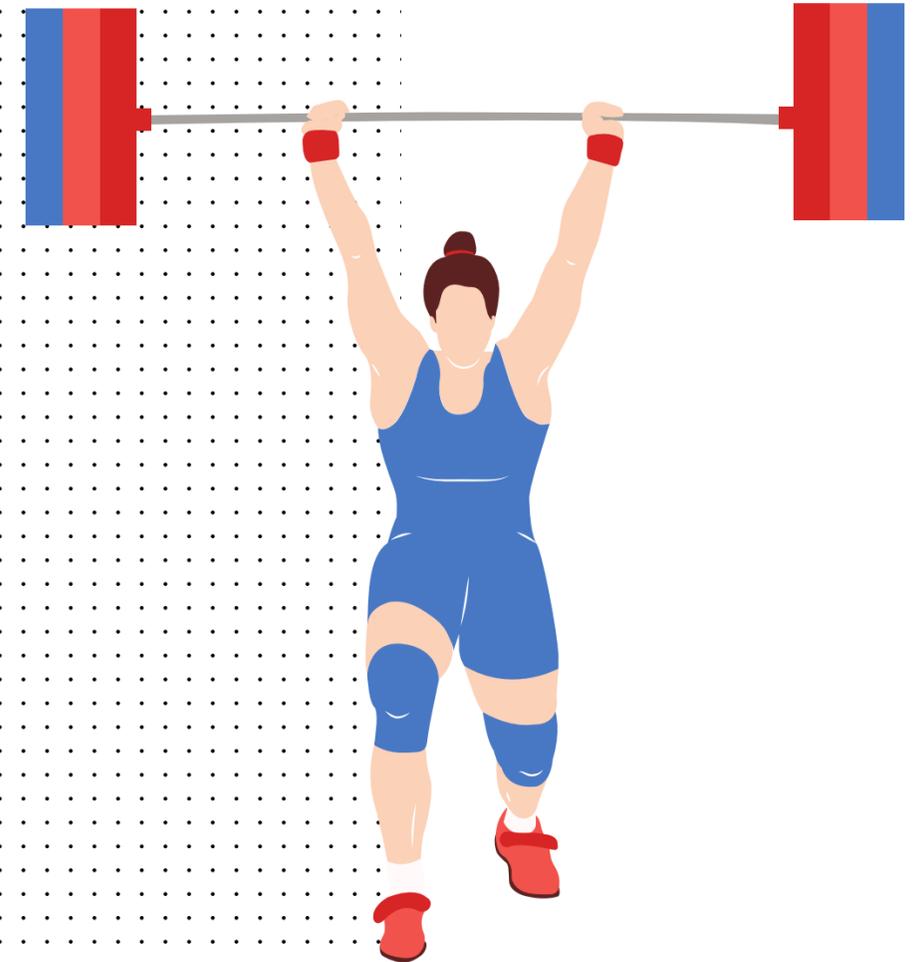
Rewards-based "streaks" to help users stay consistent with training everyday (e.g. Headspace's daily meditation check, grow plant app)

Working out with others in VR to build community

VR headsets: Are they comfortable to work out with?

## Solution 1

VR weightlifting game that  
teaches different skills  
to attack monsters



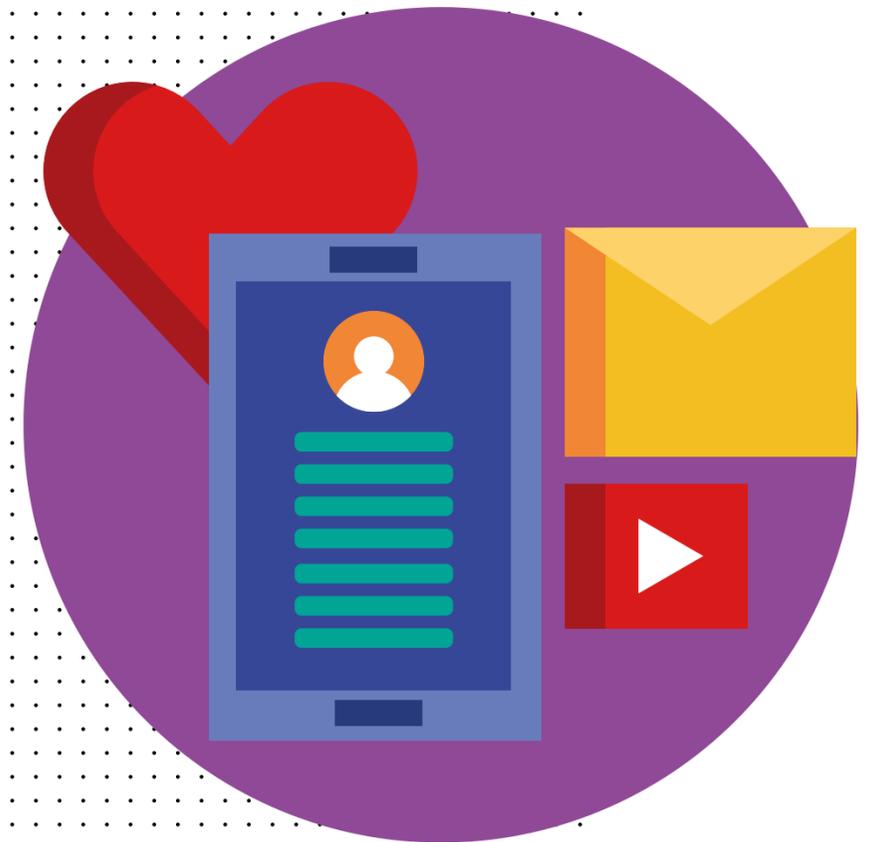
## Solution 2

VR fitness class rooms with  
different skill levels



## Solution 3

Fitness classes + online  
community with achievement  
badges, leaderboard, and  
shareable fitness insights



## Solution 4

Learning fitness/athletic  
lessons from industry  
legends and celebrities

(rather than generic instructors)



# Prototype 1:

## Weightlifting in VR

**Description:** Used passthrough mode on Oculus Quest and the Oculus browser to play a weightlifting workout video.

**Assumption 1:** Weightlifting in VR is comfortable.

**Assumption 2:** Weightlifting in VR is safe.

### **Things That Worked:**

- All movements were comfortable.
- Passthrough allowed user to see their body, the instruction, and surroundings

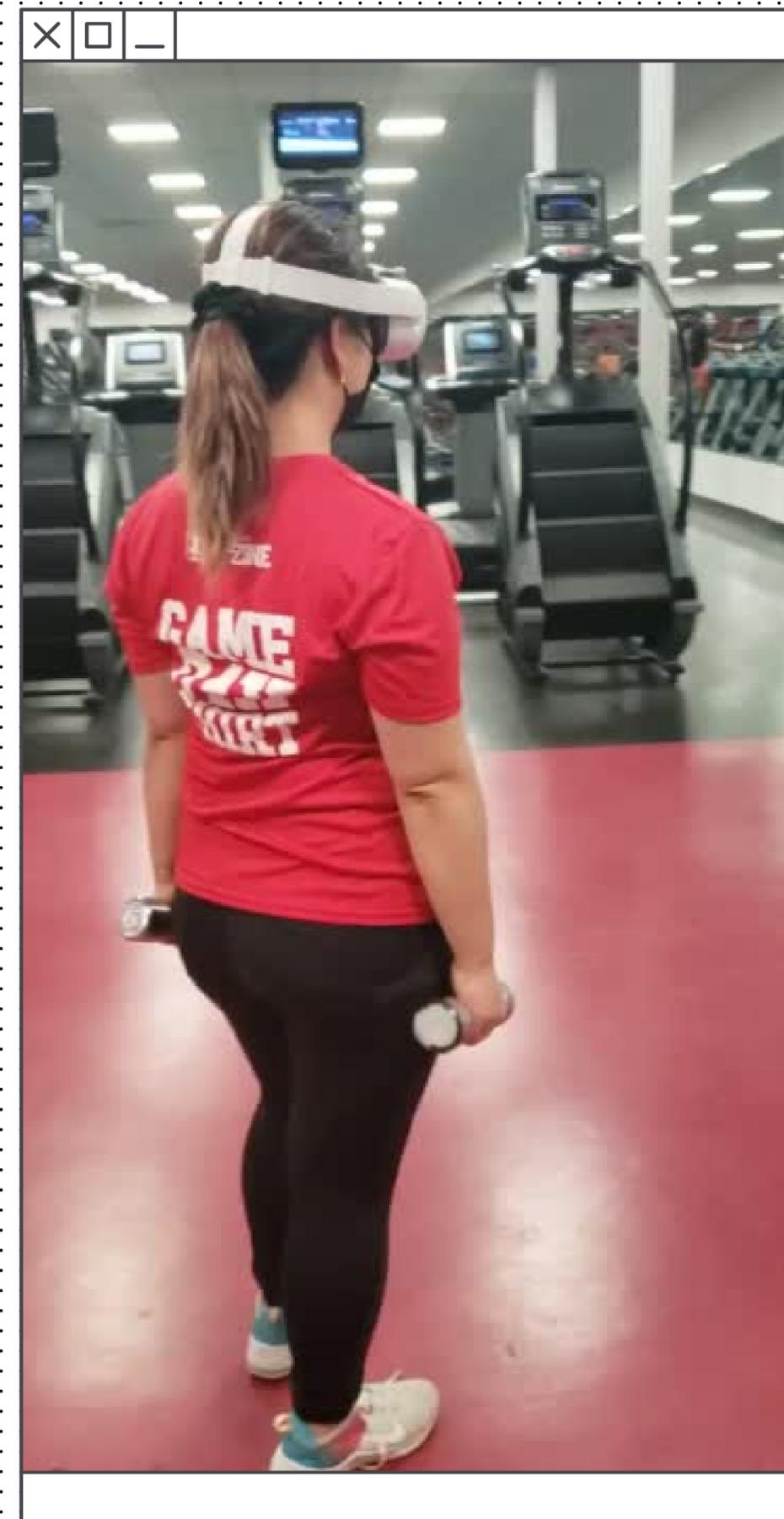
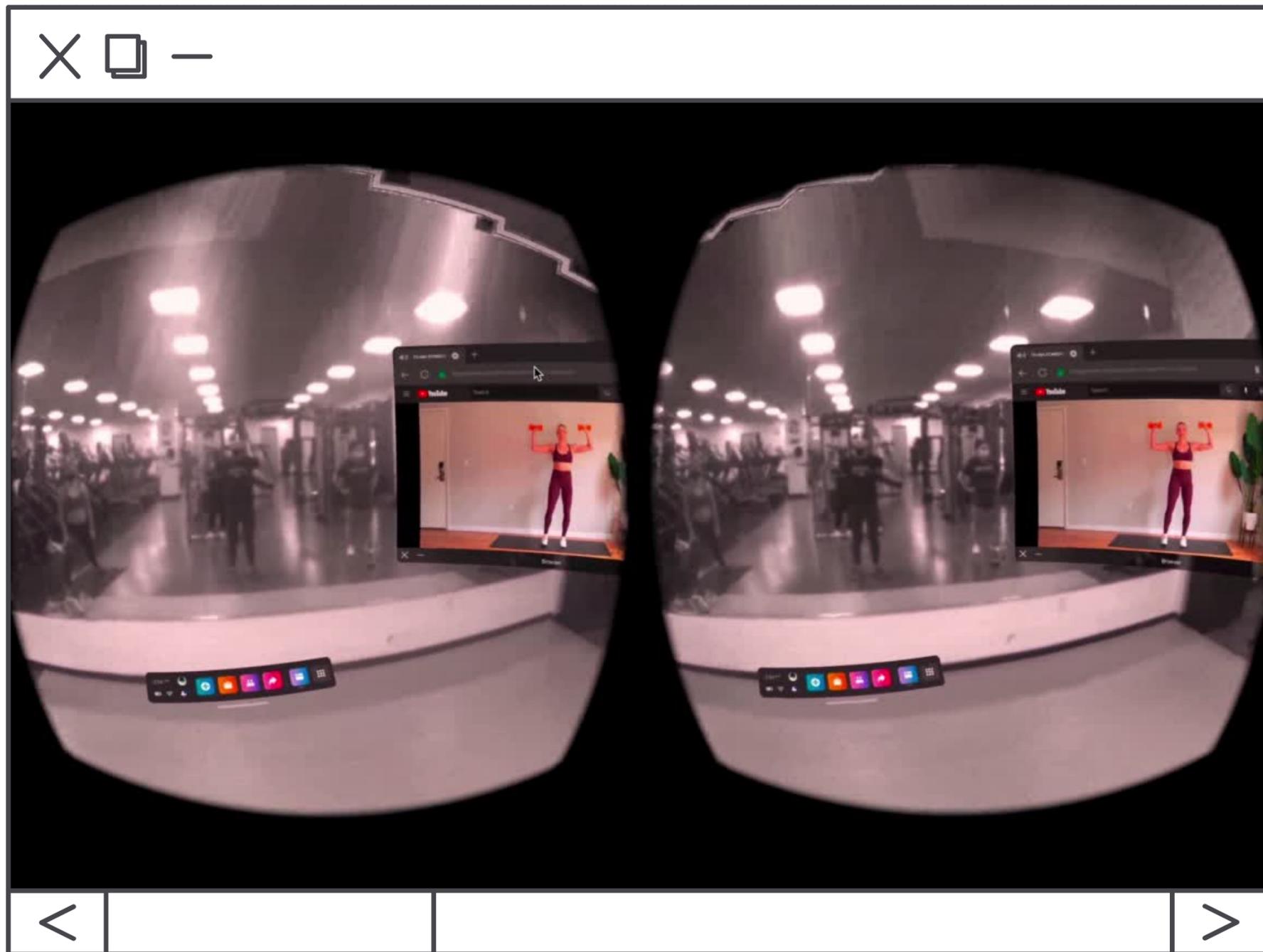
### **Things That Didn't Work:**

- Headset added weight and was humid.
- Slightly worried about hitting someone.

### **Surprises and New Learnings:**

- Fun, but not that different from using a monitor.
- Wished it was more interactive.

# Weightlifting in VR



# Prototype 1:

## Weightlifting in VR

**Validity:** Assumptions were somewhat correct. While the passthrough feature allows users to see their surroundings, it is still a little blurry. It may also not be super comfortable if used for a prolonged period of time.

**New Assumption:** Weightlifting in VR will feel most comfortable + safe if users have a private place to work out and do it for short periods of time.

# Prototype 2:

## Workout Session in VR

**Description:** Use EngageVR video player to have two users exercise to a 10-min Chloe Ting ab workout in a grand 'lecture hall' setting while seeing friend's avatar.

**Assumption 1:** Working out in VR is a comfortable user experience.

**Assumption 2:** Working out with avatars is motivating for users.

### **Things that worked:**

- Both users agreed that the VR classroom setting made the workout more encapsulating and exciting.

### **Things that didn't work:**

- The VR headset was heavy and difficult to stay on while sweating, or in certain exercise positions such as crunches and planks, and bothers the workout.
- Users were confused by the avatars, as the avatars were not shown working out

### **Surprises and New Learnings:**

- Not being able to see the body (core, legs, arms) was disorienting.
- One user liked the big screen, while the other found it a pain point.
- Users stated that having representative avatars would be motivating.

# Workout Session in VR



# Prototype 2:

## Workout Session in VR

**Validity:** Assumption 1 was not entirely valid, as the users didn't feel comfortable doing rigorous activity with a large headset. Assumption 2 had roadblocks in testing, however with a revised methodology, a new assumption we can make is...

**New Assumption:** Users prefer learning in VR community when avatars are moving as realistic as possible to users' actual movement.

# Prototype 3:

## Workout Streak

**Description:** Have people hold a plank for one minute, and right after, either; (experimental group) text them a note & congrats graphic to represent the "streak," or (control group) don't text them a congrats note. ask both groups a few hours later how likely they are to do another short workout circuit

**Assumption:** People will be more inclined to stay consistent if they are given rewards that give them a sense of instant gratification

### **Things That Worked:**

- Experimental group showed positive reactions to the given badges initially.
- Control group had a hard time staying consistent.

### **Things That Didn't Work:**

- After the initial positive reactions, the experimental group showed a decrease interest in staying consistent.

### **Surprises and New Learnings:**

- The streak badges weren't enough to hold the experimental group's attention.

Workout Streak

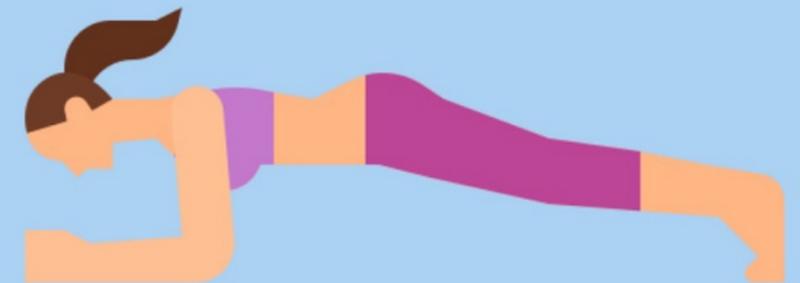


# Plank Streak

wednesday



thursday



# Prototype 3:

## Workout Streak

**Validity:** The assumption was valid, but could use some modifications. The badges weren't enough to keep the experimental group's attention

**New Assumption:** People will be more inclined to stay consistent if they are given a variety of rewards

# Prototype 4:

## Learning From Experts

**Description:** We compared the experience of learning how to shoot a basketball through a video in VR between a standard WikiHow lesson and a lesson taught by Steph Curry.

**Assumption:** Users will feel more engaged, excited, and learn better when learning fitness and athletics from industry legends, rather than generic modules

### Things That Worked:

- Our user enjoyed Steph's lesson more and felt more motivated to come back for a second lesson with Steph.

### Things That Didn't Work:

- Our user felt that he improved the same amount through both lessons (although lesson was short)

### Surprises and New Learnings:

- Given that our user already knew how to shoot a basketball, he felt that getting an "advanced" tip from Steph was helpful
- The celebrity "cool factor" is a motivator for him

# Learning from Experts



### How to Shoot a Basketball

8.4K views • 6 years ago

wikiHow ✓

Follow our social media channels to find



# Learning From Experts: Results



Which lesson did you prefer?

- WikiHow: How to Shoot a Basketball
- Masterclass: Where Steph Aims

On a scale of 1-5, how much did you enjoy the WikiHow lesson?

I hated it      1      2      3      4      5      Most fun I've ever had

On a scale of 1-5, how much did you enjoy Steph Curry's lesson?

I hated it      1      2      3      4      5      Most fun I've ever had

# Learning From Experts: Results



On a scale of 1-5, how much do you feel like you improved after the WikiHow lesson?

1 2 3 4 5

Didn't improve at all      Improved a ton

On a scale of 1-5, how much do you feel like you improved after Steph's lesson?

1 2 3 4 5

Didn't improve at all      Improved a ton

How motivated do you feel about a second Wikihow lesson?

- Not motivated all
- Mildly motivated
- Very motivated

# Learning From Experts: Results



How motivated do you feel about a second lesson from Steph Curry?

- Not motivated all
- Mildly motivated
- Very motivated

Compare your two basketball experiences in terms of enjoyment, confidence of learned skills, motivation to stay consistent with modules, retainment, etc...

I already know how to shoot a basketball, so Steph Curry's pointer was helpful to him, whereas he already knew how to shoot a basketball from WikiHow. Yes, I find it more interesting to learn from legends than the basic. I would rather hear from an expert with an "advanced" tip than a rando. It's definitely possible that I retain the lessons learned better if it's from Steph Curry. Yes, I feel more confident applying skills I learned from Steph Curry rather than a generic lesson. Why? Because he's one of the best shooters in the league, part of the Splash Bros so he's a good shooter so I'd want to learn from him. I feel more motivated to stay consistent given the cool factor of Steph Curry.

# Prototype 4:

## Learning from Experts

**Validity:** Our assumption that people would have a more enjoyable, effective, and motivated learning experience if they were excited by the instructor/trusted their expertise was proven valid.

**New Assumption:** People will learn better if they feel that they are getting "industry-secret" tips from experts  
+ "cool factor" motivates some users.

## Solutions



*The best approach to this problem would be a combination of learning from experts and learning within a virtual community.*

- In our needfinding interviews, we noticed a trend that people enjoyed exercising with others in a community. This was supported by our experience prototype testing when users noted that seeing an avatar representing their friends' workouts in the VR scape would be motivating.
- In the prototype of learning from experts, we observed that the user would find it more motivating to learn from an instructor of established credibility or someone the user looks up to.
- Using a VR headset may be viable, but we need avatars that better represent people's bodies. Users also need to be able to clearly see their own body and surroundings, which makes passthrough mode necessary. The clunkiness means workouts should be kept short.

*Communities that our solution may leave out include users of lower-income or users who are less willing to spend extra money on virtual fitness amenities.*

End →

## Summary



### **This week we:**

- Interviewed 2 new people that expanded our sample demographic
  - Generated POV statements based on our learnings from them
  - Created more HMW statements to kickoff brainstorming
- Brainstormed many potential solutions
  - Determined top 3-4
- Prototyped top 4 concepts
- Used prototypes to test our assumptions with new users
- Validated/invalidated our assumptions + derived new assumptions

End →

## Key Insights



- People are more engaged learners when they're excited about the instructor
- In VR, people prefer learning within a community when the avatars mimic real-life movement
- People are more inclined to stay consistent w/ their learning if they are rewarded (and surprised by the reward)
- Working out with a VR headset (Oculus Quest) is feasible, but has limitations

End →

## Next Steps



- Create more prototypes that begin to combine our best solutions
- Test on a broader audience group
- Begin to solidify our selected solution

End →

Thank you!