Understanding the Behaviors and Motivations Behind a Sedentary Lifestyle

HCI 516

Group 4

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Problem Area & Target Audience

- Exploring behavior and motivations that lead to a sedentary lifestyle
- It is important to understand and improve this behavior as today with remote work, online degrees and even leisure activities often lead to compromising sitting positions
- The people who deal with these problems aren't limited to those with desk-based jobs, but even students who spend their days sitting in class or studying at home, and blue-collar workers who spend their time after work relaxing in front of the tv for hours at a time.
- Our goal is to understand why, despite the amount of and accessibility to information regarding the detrimental effects of sedentary behavior, people do not engage in healthier and beneficial practices.do not engage in healthier and more beneficial practices. lot of time sitting and in often compromising positions.

Hypotheses

If physical activity can be better integrated into people's lives without feeling disruptive to their work, people will more likely stick to the routine and may be able to reduce their pain and improve their posture.

If a work/study setup is designed to promote good posture habits, people will experience less neck and back pain.

Methodology & Research Participants

- Screener:
  - Must be 18+ years old
  - Spends at least 6 hours at a time sitting for work, study, or leisure
- Consent form
- A pre-interview sitting log that asks participants to measure the time they sit throughout the day and note their feelings in real time. This was used a reference in the interviews.
- 8 Virtual 45-minute interview that were recorded, transcribed and coded.

People who attempt to counteract their sedentary lifestyle with other activities like working out, walks, etc and:

- Sit for at least 6 hours a time a day on average
- Engage in physical activity for 3 hours or more a week

VS

People who do not and:

- Sit for at least 6 hours a time a day on average
- Engage in physical activity for less than 3 hours a week

Emerging Themes

1. **Motivations to Move**
    a. Pain and Discomfort: 3 participants expressed they only move when they start feeling pain/discomfort in their neck, back or shoulders. Many times, they do not remember to take breaks, walk or do stretches unless their body tells them to.

    b. Other Needs: 6 participants also stated they tend to move when someone needs them to help or if they need to do something like cook food, run errands or take care of chores.

Participant 6 - *"Yeah, I will say like when I was at [my old house] and I did not have [this setup] like I would get up way more frequently because I would start getting a lot of back pain"*

Participant 8 - *"If I'm working in the office, I'll get up from my desk to grab some water, use the restroom, or get a coffee from our coffee bar. Most of the time though, I'm getting up to help one of our customers we support"*

Emerging Themes

2. **Barriers in Getting Help**
    a. Demanding Work: 5 participants expressed that they need to sit for long periods of time to maintain focus due to their demanding professional/academic work.

    b. Cost and Hesitancy with Medical Care: 2 participants expressed they are hesitant to get medical help. They either feel it may be too expensive or they won't be satisfied with the care.

Participant 5 *- "...last week...we had this all-staff meeting, and it was pretty much sitting from when I got there, I didn't have a lunch or nothing like that, until probably like 30 minutes [before it was] time for me to go home. So [we're] sitting all day for this, all staff meetings. Because it's one of these big annual meetings that we have and ...we have to sit the whole day."*

Participant 1 *- "I've seen doctors about it. They can give me some drugs, but if I take drugs, it'll affect my mental capability of doing whatever I'm working on. So that doesn't help … And then my ribs, they said that they would have to tear my entire rib cage and rebuild it so its not an issue anymore, and obviously I'm not going to do that."*

Emerging Themes

3. **Posture & Sedentary Lifestyle Awareness**
   a. Positive Awareness: 4 participants were aware of the importance of moving/standing throughout the day to maintain good posture. Some were aware of the importance of maintaining good posture but because they don't feel pain/discomfort they don't consider it.
   b. Negative Awareness: 2 participants weren't aware of the importance of moving/standing throughout the day have little to no awareness of their posture or maintaining good posture.

Participant 6 *- "I do, but I forget about it. I don't know...it's like when I'm working, I'm concerned about what I'm doing rather than like my posture. But then every once in a while I'll look at somebody like, well, they're standing upright. And then I look at myself like, oh, I'm not standing upright. I'm going to fix that"*

Participant 3 *- "I haven't been too observant about my sitting habits. I think today this sitting log made me realize that I've been sitting continuously from the time I got to work like I didn't. I didn't get up once to even like socialize"*

Emerging Themes

4. **Environmental Factors**
    a. Ergonomic Workplace: 5 participants recognized that their workspaces could be more ergonomically friendly to help the pains they feel due to bad posture.
    b. Small Personal Spaces: 3 participants mentioned being limited by their small spaces in order to have a more ergonomic workplace at home. They can't fit larger chairs or desks to increase their comfort.

Participant 2 *- "Probably get a different desk. Because the desk is static and it can't really move. So maybe getting something like...allows me to stand or change the position of the desk would help."*

Participant 8 *- "I live in a studio so my workspace is my small dining room table. I don't have a designated workspace. I do find myself slouched over my table sometimes. If I had room for an actual desk and chair, I think I would enjoy working from home more often."*

Emerging Themes

5. **Current Coping Mechanisms**
   a. Time Management: 2 participants mentioned they try to plan their schedule to not end up in a last-minute situation. Not doing so, leads to them sitting for longer periods of time.
   b. Technology usage: 5 participants mentioned using some kind of technology as a reminder to be active (e.g smart watches) or to improve overall comfort (e.g adjustable seats) to reduce the pains they felt.

Participant 1 - *"I just try to pace myself. Like I said, if I know it's something, that can be broken down into tasks and I'm going to do each task across several day"*

Participant 2 - *"I tried to set up reminders to get up at least once an hour and walk around for like 5 minutes or so and that's helped with that lower back pain issue that I that I was having."*

Emerging Themes

c. Workouts after work/study: 6 participants stated that they incorporated physical activity (running, walking, strength training, spin) into their daily/weekly training.

Participant 7 *- "I try to go to spin cycling 3x a week in the morning. Monday, Wednesday and Friday that I do that it gets me up pretty early in the morning and it's a consistent 45 minute. Spin class so that gets me going. I do like to walk, so I tend to walk pretty fast just in my regular walking."*

d. Adjustable seating positions: 5 participants mentioned that if their sitting position can be adjusted or they can sit in a comfortable chair/bed then they can continue to sit for a long period.

Participant 3 *- "if I'm playing video games with my friends, I'll try to do as much as I can on a couch so that way it's more comfortable and I can change any kind of number of positions on the couch that we're not doing it."*

New Hypotheses

Our hypotheses assumes that long periods of sitting is coupled with inactivity. However, our participants' engagement in physical activity was not necessarily related to their time spent sitting. This is also true for any pain they might have felt while sitting. While physical activity may have provided relief, the lack thereof didn't necessarily correlate to pain felt while sitting either. Thus, we decided to adjust our first hypotheses as follows:

If physical activity can be better integrated into people's lives without feeling disruptive to their work, people will more likely stick to the routine and may be able to reduce their pain and improve their posture.

If frequent breaks from sitting can be better integrated into people's sedentary habits without feeling disruptive to their work, people will be more likely to stick to the routine, and promote healthy habits of activity in addition to exercise.

New Hypotheses

Our second hypothesis,

> If a workspace is designed to promote good posture habits, people will experience less neck and back pain.

will remain the same as we did still see a correlation between a workspace set up and pain experienced while sitting

Secondary Research

While we did gain some insight during this round of research and interviews, our change in hypothesis will require more targeted research to understand if, how, and why people integrate breaks into periods of sitting. Similarly to our previous methodology we will begin seeing what research may have already be done, understand what other gaps we may have, and engage in a participant study to fill in those gaps.

JOURNEY MAPS AND BEHAVIORAL ARCHETYPES

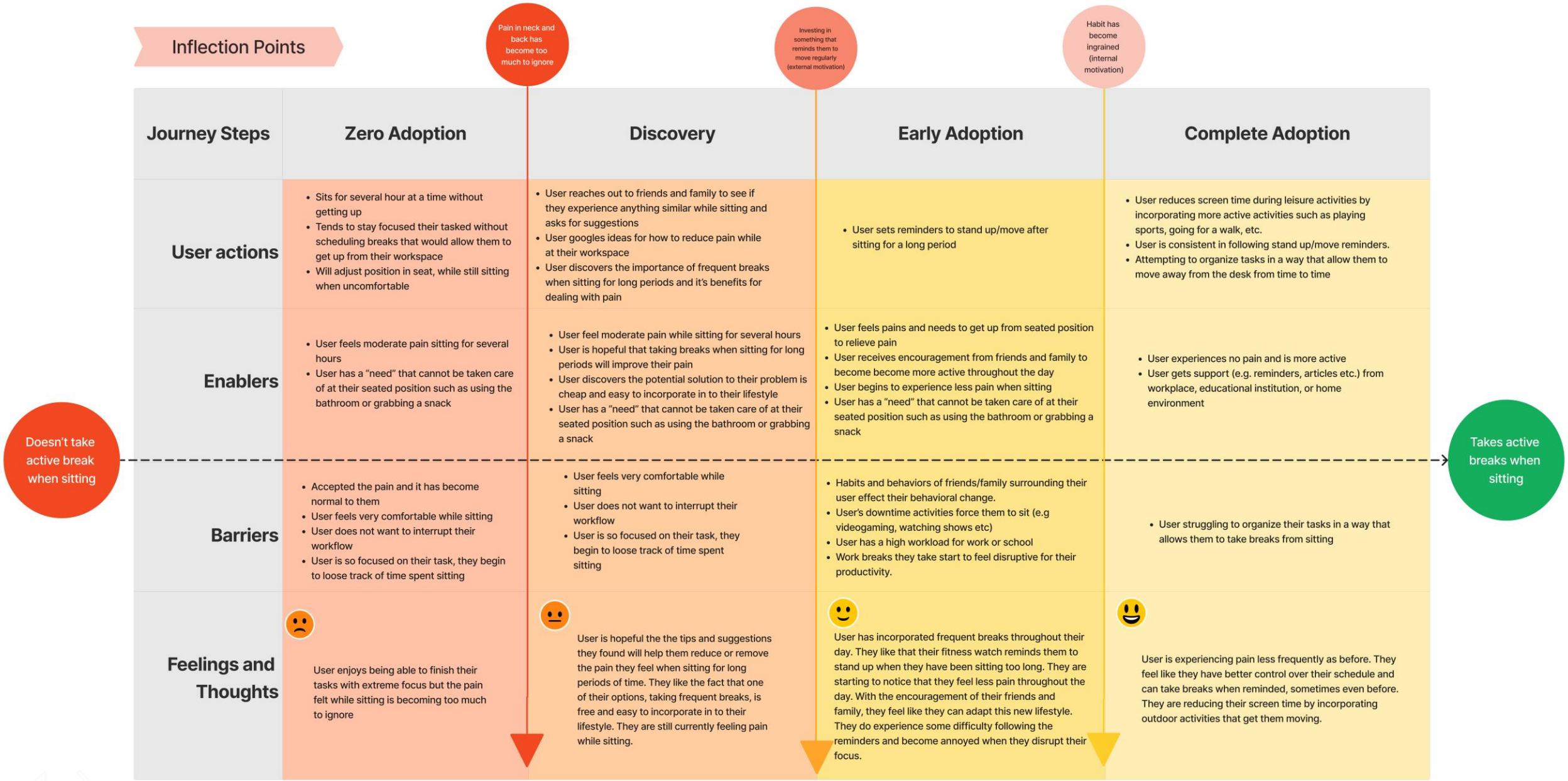
Journey Map: Actor

Journey towards reducing sedentary behavior

View: Macro - developing habits to reduce sedentary behavior

Actor is...

- A sedentary person
- Sits for more than 6 hours at a time when working engaging in leisure activities
- Experiencing back and neck pain when sitting for long periods of time
- Wants to reduce their pain in a way that's inexpensive and doesn't interrupt their workflow



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Start: Doesn't take active breaks when sitting

Zero Adoption

Actions

- Sits for several hour at a time without getting up
- Tends to stay focused their tasked without scheduling breaks that would allow them to get up from their workspace
- Will adjust position in seat, while still sitting when uncomfortable

Enablers

- User feels moderate pain sitting for several hours
- User has a “need” that cannot be taken care of at their seated position such as using the bathroom or grabbing a snack

Barriers

- Accepted the pain and it has become normal to them
- User feels very comfortable while sitting
- User does not want to interrupt their workflow
- User is so focused on their task, they begin to loose track of time spent sitting

Feelings

User enjoys being able to finish their tasks with extreme focus but the pain felt while sitting is becoming too much to ignore

Inflection Point

Pain in neck and back has become too much to ignore

→

Discovery

Actions

- User reaches out to friends and family to see if they experience anything similar while sitting and asks for suggestions
- User googles ideas for how to reduce pain while at their workspace
- User discovers the importance of frequent breaks when sitting for long periods and it's benefits for dealing with pain

Enablers

- User feel moderate pain while sitting for several hours
- User is hopeful that taking breaks when sitting for long periods will improve their pain
- User discovers the potential solution to their problem is cheap and easy to incorporate in to their lifestyle
- User has a "need" that cannot be taken care of at their seated position such as using the bathroom or grabbing a snack

Barriers

- User feels very comfortable while sitting
- User does not want to interrupt their workflow
- User is so focused on their task, they begin to loose track of time spent sitting

Feelings

User is hopeful the the tips and suggestions they found will help them reduce or remove the pain they feel when sitting for long periods of time. They like the fact that one of their options, taking frequent breaks, is free and easy to incorporate in to their lifestyle. They are still currently feeling pain while sitting.

Inflection Point
Pain in neck and back has become too much to ignore

←

Inflection Point
Investing in something that reminds them to move regularly (external motivation)

→

Inflection Point
Investing in something that reminds them to move regularly (external motivation)
←

Early Adoption

Actions

- User sets reminders to stand up/move after sitting for a long period

Enablers

- User feels pains and needs to get up from seated position to relieve pain
- User receives encouragement from friends and family to become become more active throughout the day
- User begins to experience less pain when sitting
- User has a "need" that cannot be taken care of at their seated position such as using the bathroom or grabbing a snack

Barriers

- Habits and behaviors of friends/family surrounding their user effect their behavioral change.
- User's downtime activities force them to sit (e.g videogaming, watching shows etc)
- User has a high workload for work or school
- Work breaks they take start to feel disruptive for their productivity.

Feelings

User has incorporated frequent breaks throughout their day. They like that their fitness watch reminds them to stand up when they have been sitting too long. They are starting to notice that they feel less pain throughout the day. With the encouragement of their friends and family, they feel like they can adapt this new lifestyle. They do experience some difficulty following the reminders and become annoyed when they disrupt their focus.

Inflection Point
Habit has become ingrained (internal motivation)
→

Complete Adoption

Actions

- User reduces screen time during leisure activities by incorporating more active activities such as playing sports, going for a walk, etc.
- User is consistent in following stand up/move reminders.
- Attempting to organize tasks in a way that allow them to move away from the desk from time to time

Enablers

- User experiences no pain and is more active
- User gets support (e.g. reminders, articles etc.) from workplace, educational institution, or home environment

Barriers

- User struggling to organize their tasks in a way that allows them to take breaks from sitting

Feelings

User is experiencing pain less frequently as before. They feel like they have better control over their schedule and can take breaks when reminded, sometimes even before. They are reducing their screen time by incorporating outdoor activities that get them moving.

Inflection Point
Habit has become ingrained (internal motivation)

End: Takes active breaks when sitting

Behavioral Archetypes

1) The Fitness Enthusiast

Personality: Proactive about pursuing a healthy and fit lifestyle

Goals

Be consistent and regular with their workout routine involving weight-lifting and cardio
Trying to reduce some pains they feel while sitting for long amounts of time

Motivations

Counter the long periods of sitting at work by incorporating workouts after work.
Be fit and healthy

Mental Models

Adding intense workouts lasting 1-2 hours at the end of the day should improve their overall health, hence, the pains they experience while sitting as well.
Work time is to focus and be productive in their job

Agency

Motivated and driven to take care of their health. Doesn't let their tiresome day stop them from going to the gym to exercise.
Unable to change their workplace set-up as it is company issued and not customizable

Self-Image

Active/physically fitter than most people around them.

2) The Conscious Adapter

Personality: Being active and fit is not as important to them.

Goals

To Incorporate more movement during their work to prevent sitting for long periods of time.

Motivations

To reduce neck and back pain they may feel while working.

Mental Models

Aware of their sedentary behavior during work hours involving sitting or standing for long periods of time without movement.

Too tired to incorporate physical activity after work hours.

Feels like incorporating movement throughout the day will help alleviate their pains.

Agency

Setting reminders to move around to prevent sitting for long periods of time.

Organizing work/work-related tasks to make time for movement.

Self-Image

Does not see themselves as the “exercising type.”

Design Strategy for Each Stage

Zero Adoption

Actions

- Sits for several hour at a time without getting up
- Tends to stay focused their tasked without scheduling breaks that would allow them to get up from their workspace
- Will adjust position in seat, while still sitting when uncomfortable

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Feelings

User enjoys being able to finish their tasks with extreme focus but the pain felt while sitting is becoming too much to ignore

Opportunity Areas:

- Communicate awareness about reducing pain
- Communicate the idea that pain while sitting isn't normal

Decision Levers:

- Mental models: better performance if pain reduced (goal alignment)
- Sel- concept: agency, efficacy, empathy gap, etc.

Relevant Stakeholders:

- Family/friends they live with
- Manager at their job
- Instructor of a course

Relevant Systems:

- Workplace/Academic Institution

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Opportunity Areas

- Design effective communication about pain reduction/prevention strategies and the importance of moving
- Make these strategies feel accessible
- Normalizing conversations among user's network

Decision Levers

- Goal alignment
- Task difficulty
- Intrinsic motivation
  - Gaining new knowledge about pain reduction/prevention strategies
  - Reducing pain
- Social Dynamics: reference network, social network

Relevant Stakeholders

- Family/Friends
- Employers and coworkers/Universities and instructors
- Doctors and healthcare professionals

Relevant Systems

- Workplace/Academic Institution
- Healthcare system

Inflection Point
Investing in something that reminds them to move regularly (external motivation)

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Inflection Point
Investing in something that reminds them to move regularly (external motivation)

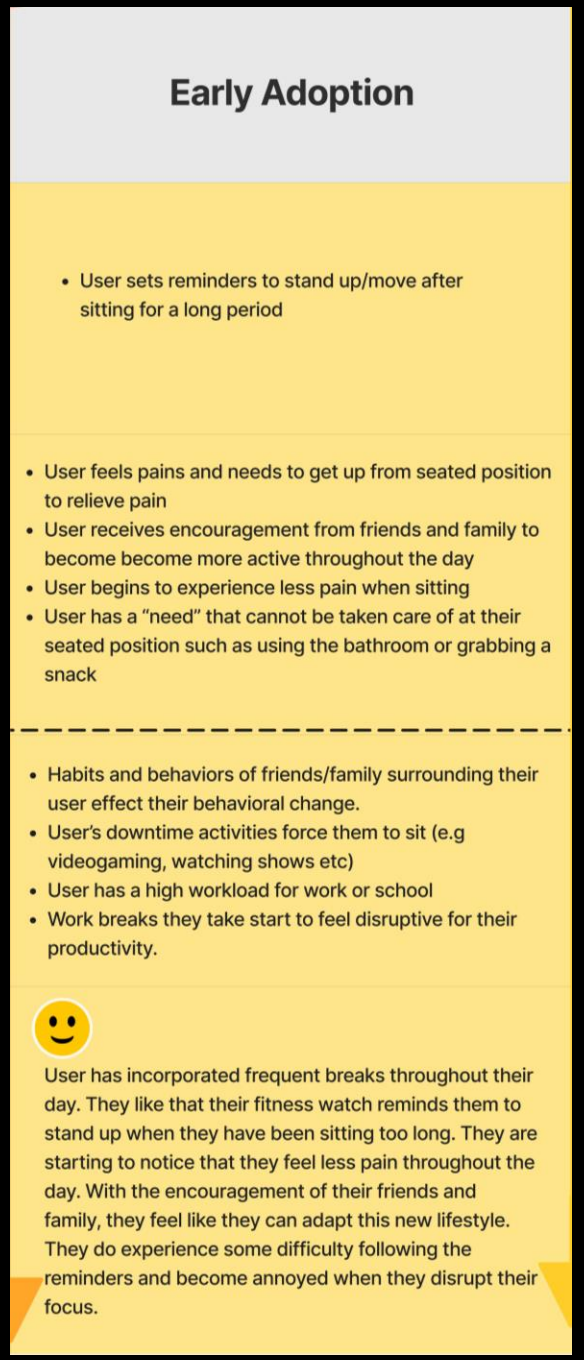
←

Actions

Enablers

Barriers

Feelings



Opportunity Areas

- Using user's need to complete priority tasks away from their sitting space
- Providing alternative methods for completing tasks that are usually done while sitting
- Using user's network who is already exhibits desired behavior to encourage them
- Merging breaks with user's natural work rhythms
- Using reduction in user's pain from habits as further encouragement (feedback loop)

Decision Levers

- Align their goals and motivations for getting up with our goals for them to get up frequently
- Engaging user's influencers
- Cues
- Habits
- Tradeoffs

Relevant Stakeholders

- Employers/Educators
- Furniture manufacturers
- Family and friends
- Software companies

Relevant Systems

- Company/Academic institution
- Furniture retailers

Inflection Point
Habit has become ingrained (internal motivation)

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Complete Adoption

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←

Opportunity Areas

- Network encourages user to take scheduled or unscheduled breaks throughout the day
- Inspire users' prolonged commitment to habit

Decision Levers

- Building commitment – leverages reminders to get them standing and moving throughout the day
- Self-efficacy
- Motivation
- Self-concept

Relevant Stakeholders

- Family
- Friends
- Employers
- Software companies

Relevant Systems

- Workplace/Academic Institution

Design Concept

Prioritization

- We decided to select **stage 3** and utilize the user's network and their need to improve their behavior as a form of motivation:
  - We felt this stage required low effort for a higher impact
  - Giving people who are already motivated a way to change their behavior can be effective as we are attempting to give a structured way to track their progress
  - People who are aware of their problem and don't know where start can also see what the motivated users are using and try it for themselves
- The **Stakeholder/systems required**:
  - Developers to make the tool
  - Workplace/academic institution willing to implement the tool
- The **Audience targeted**:
  - The end user, specifically people in the workplace (remote or in-person).

Prototype

Objective

Help those that are interested in reducing their sedentary behavior with building a habit of taking frequent breaks from sitting

Prototype uses a gamification to motivate users

Decision Levers Leveraged

Cues, habit building, goal alignment.

Using influencers like friends/colleagues

Target Behavior desired

User is regularly taking breaks and getting long streaks

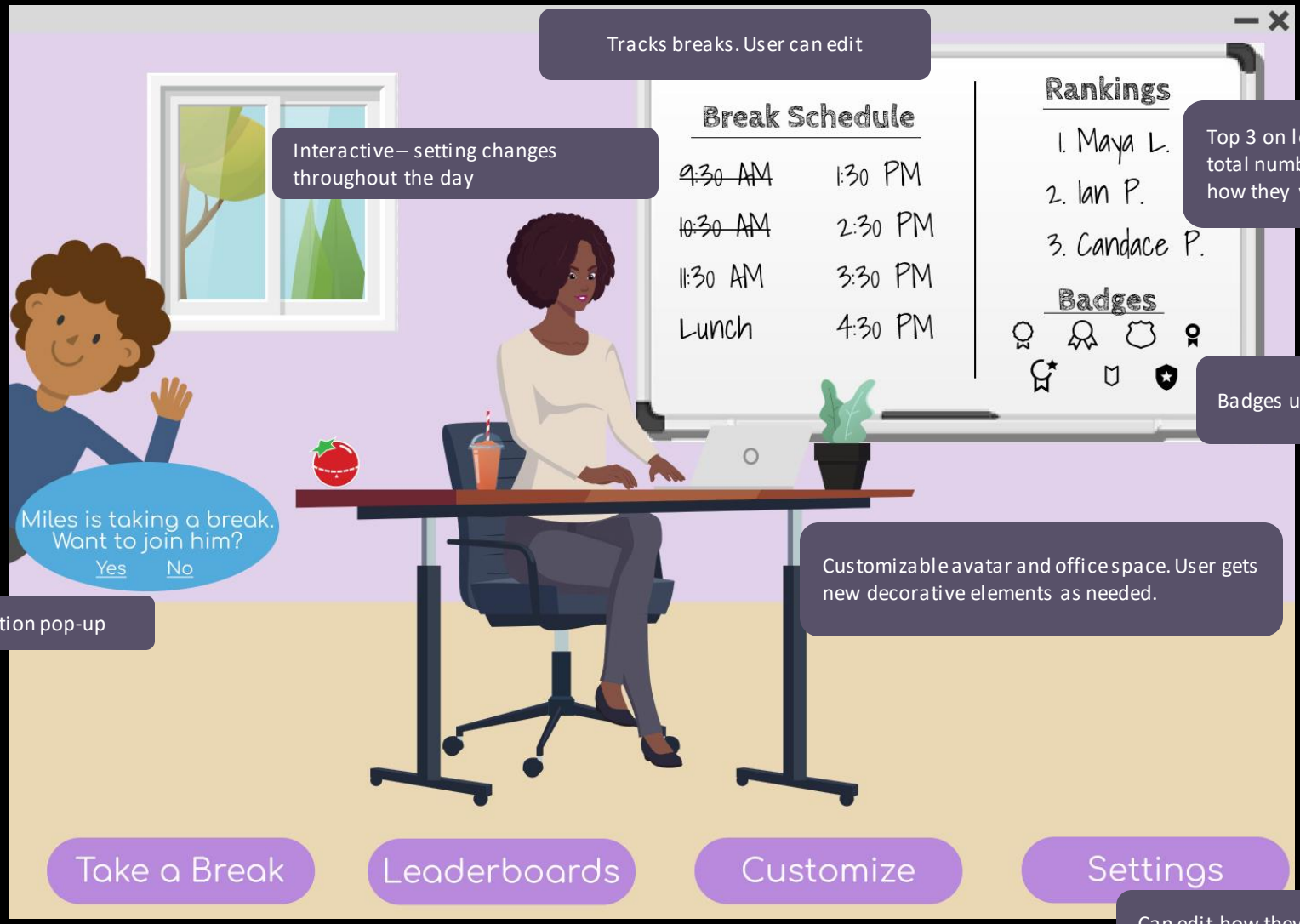
Planning their work around taking breaks to move

Dashboard

Dashboard

From the dashboard, users will get a bird's eye view of the desktop app. Users can see their own break schedule, their place in the leaderboards, and achievements they've earned at a glance.

Users can also see their own customized avatar and view alerts they get within the desktop app.



Tracks breaks. User can edit

Interactive – setting changes throughout the day

Top 3 on leaderboard – highest break streak, total number of minutes etc., the user can select how they want to view this

Badges users have earned for their progress

In-app notification pop-up

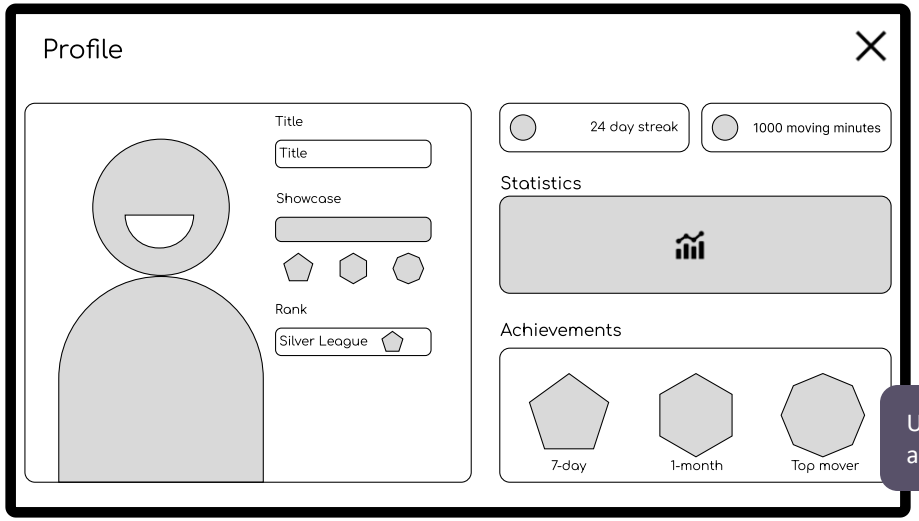
Customizable avatar and office space. User gets new decorative elements as needed.

Can edit how they want their goals to be set up, how often they need reminders, etc.

Profile

Profile, avatars, titles, and achievements

This profile card will open when the user clicks on their own avatar. The user can get a deeper view of their profile, achievements, and movement streaks. Seeing how far they've come on their journey can help motivate users to stay on track.

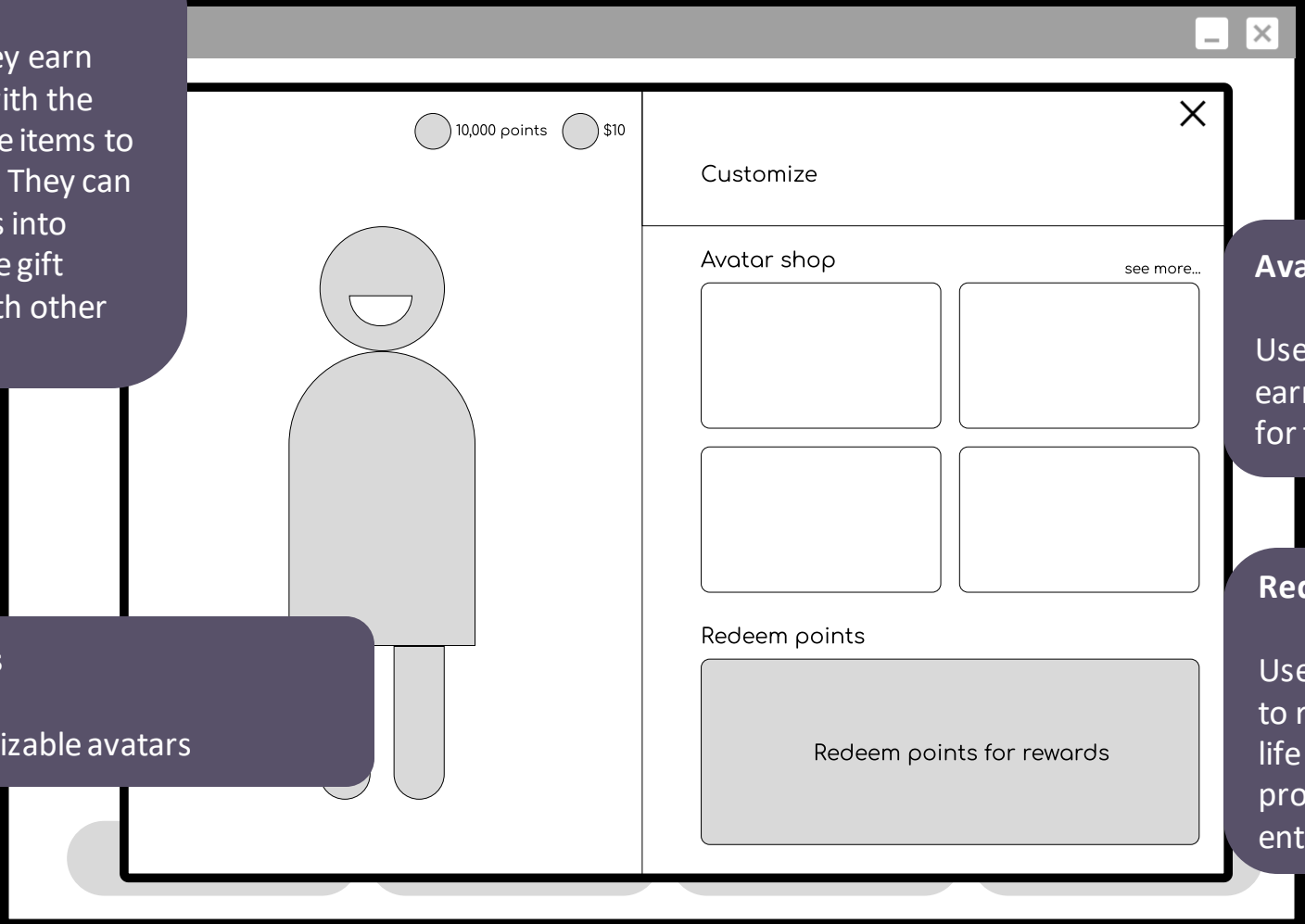


User can collect badges and achievements for various milestones

Customization

Customize

Users can use points they earn from being consistent with the app to purchase in-game items to customize their avatars. They can also convert their points into redeemable rewards like gift cards, in partnership with other businesses.



Avatar shop

Users can use points they earn to buy in-game items for their avatar

Avatars

Customizable avatars

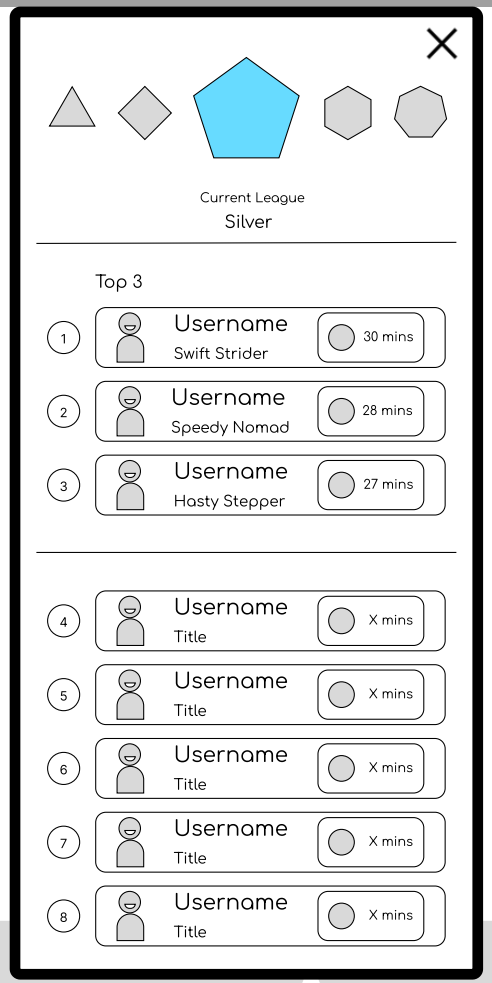
Redeem points

Users will also have the option to redeem their points for real life prizes such as gift cards, products, or sweepstakes entries.

Leaderboard

Leaderboards

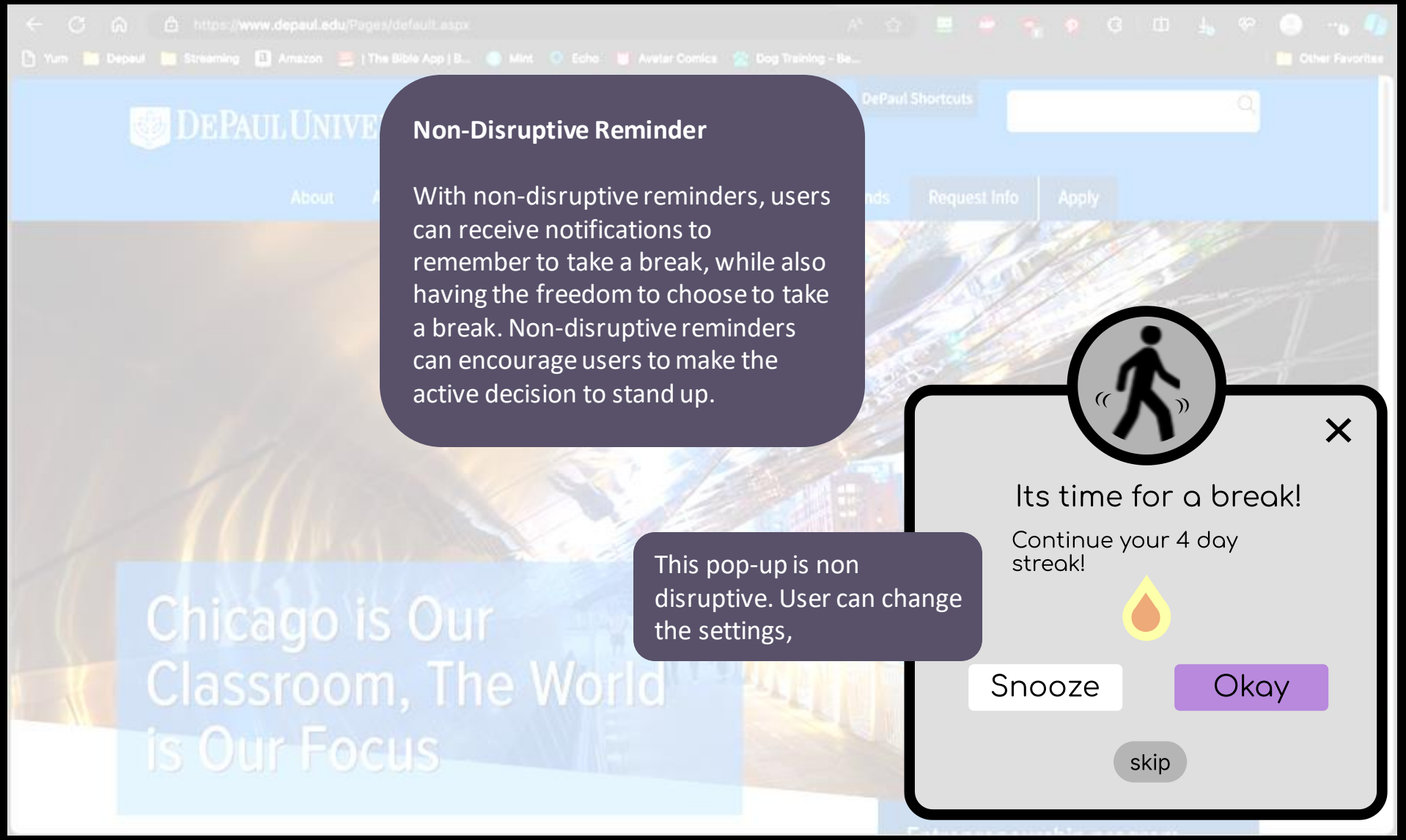
The leaderboard leverages a user's social network to help keep them motivated while staying on track. Leaderboards show the current "rank" users are in. Other users in the same rank compete against each other to move to the next league.



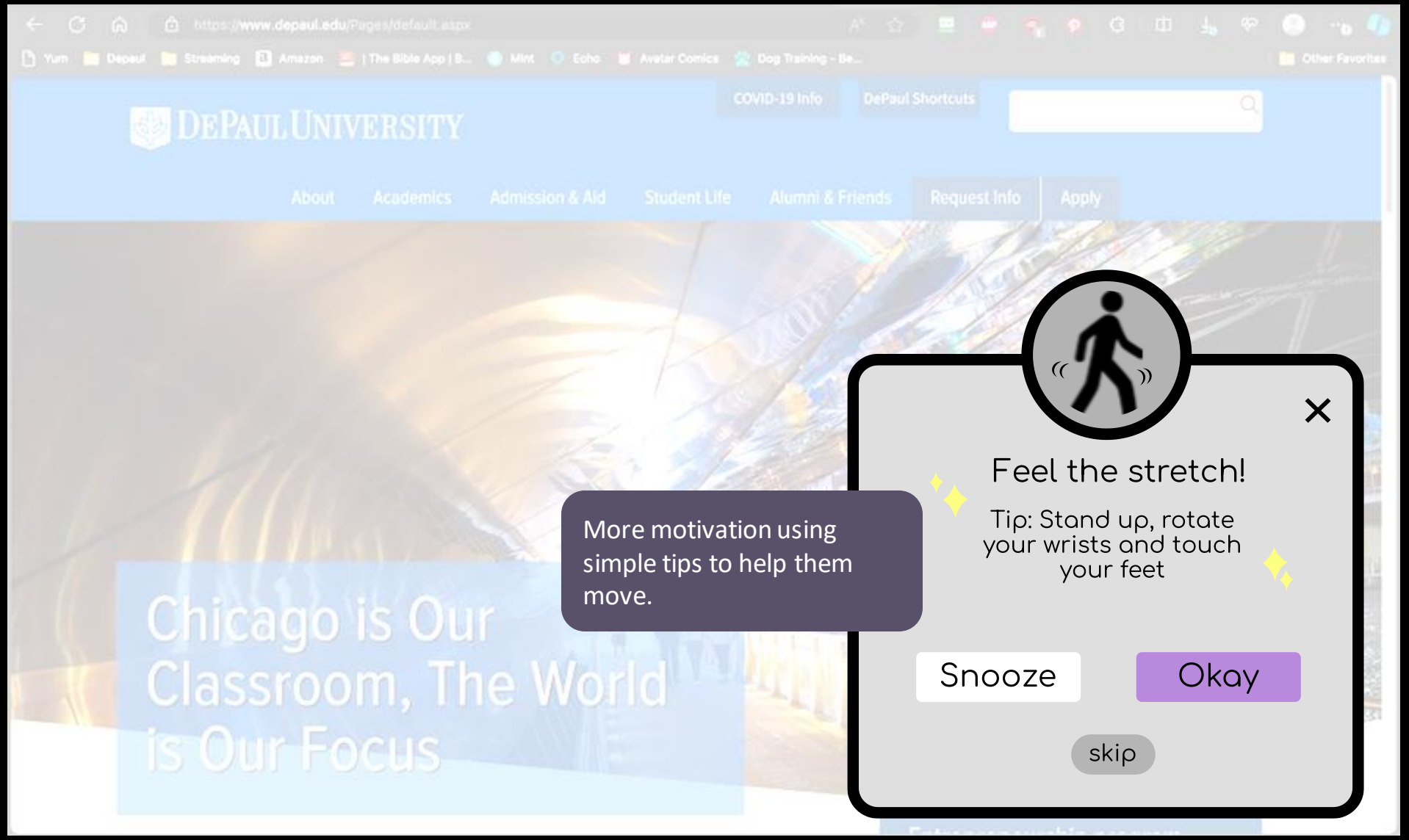
User profiles

Shows username, title, and current movement minutes/streaks for the week

Reminder – Non-disruptive



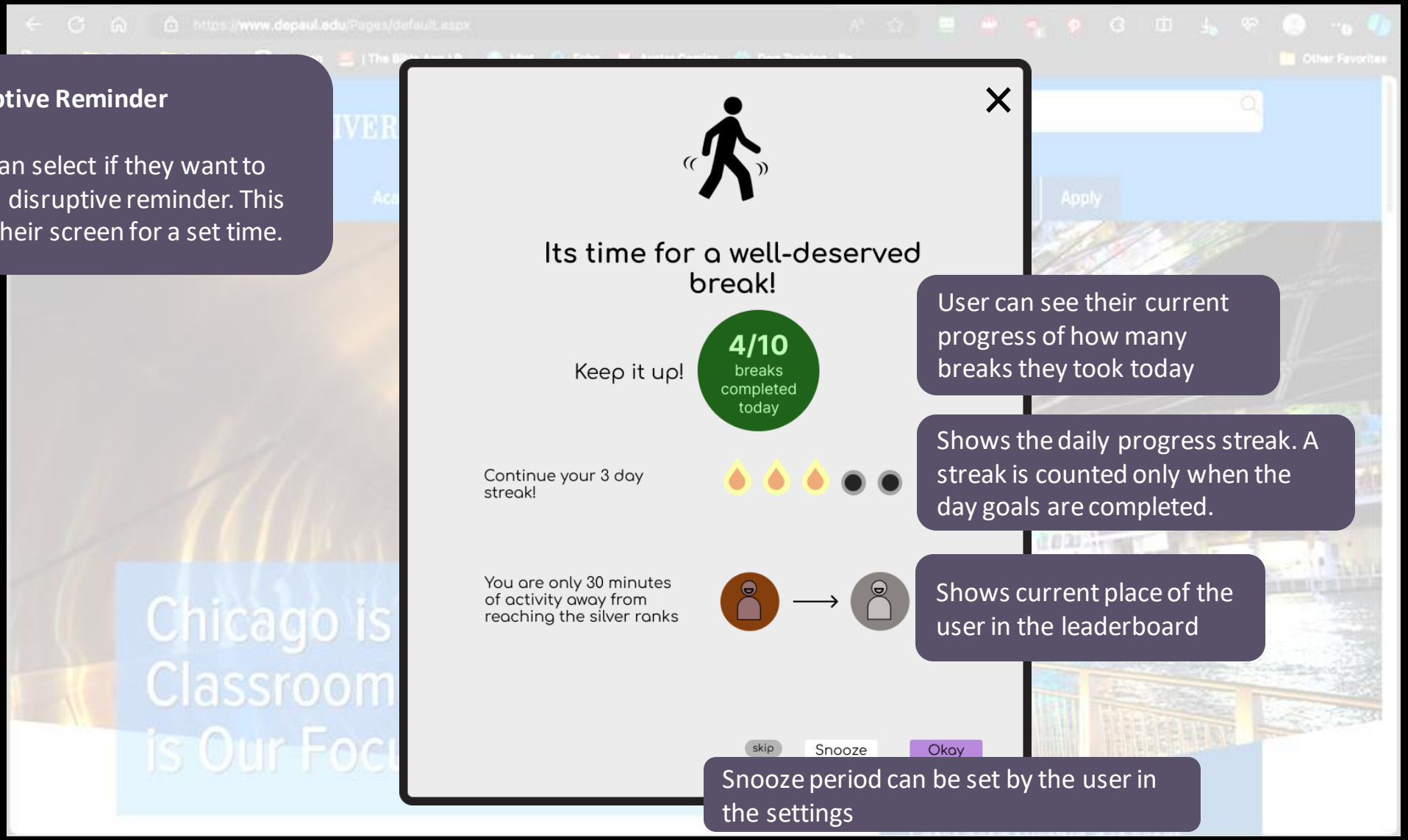
Reminder – Non-disruptive



Reminder - Disruptive

Disruptive Reminder

User can select if they want to have a disruptive reminder. This locks their screen for a set time.



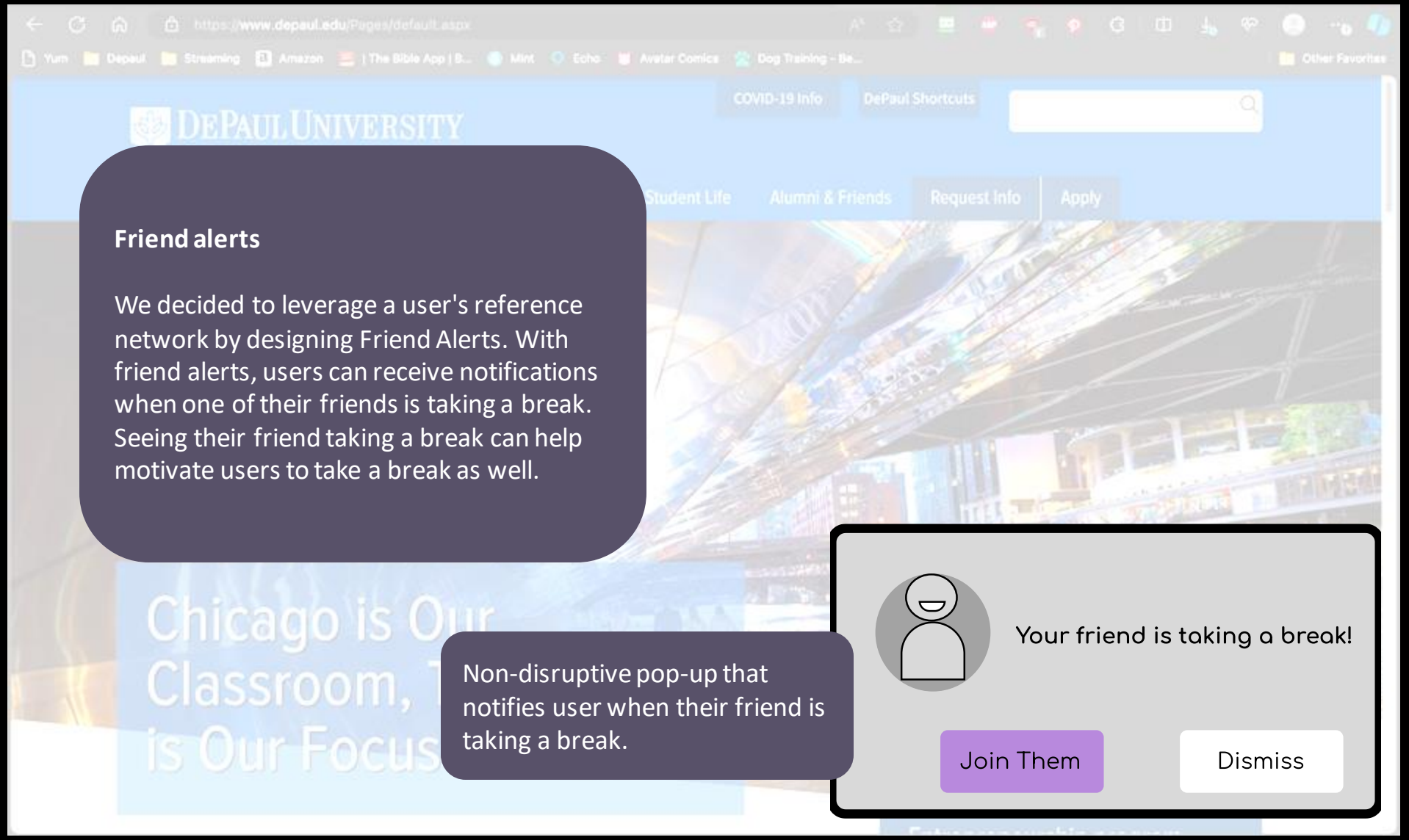
User can see their current progress of how many breaks they took today

Shows the daily progress streak. A streak is counted only when the day goals are completed.

Shows current place of the user in the leaderboard

Snooze period can be set by the user in the settings

Motivation through Friends/Colleagues

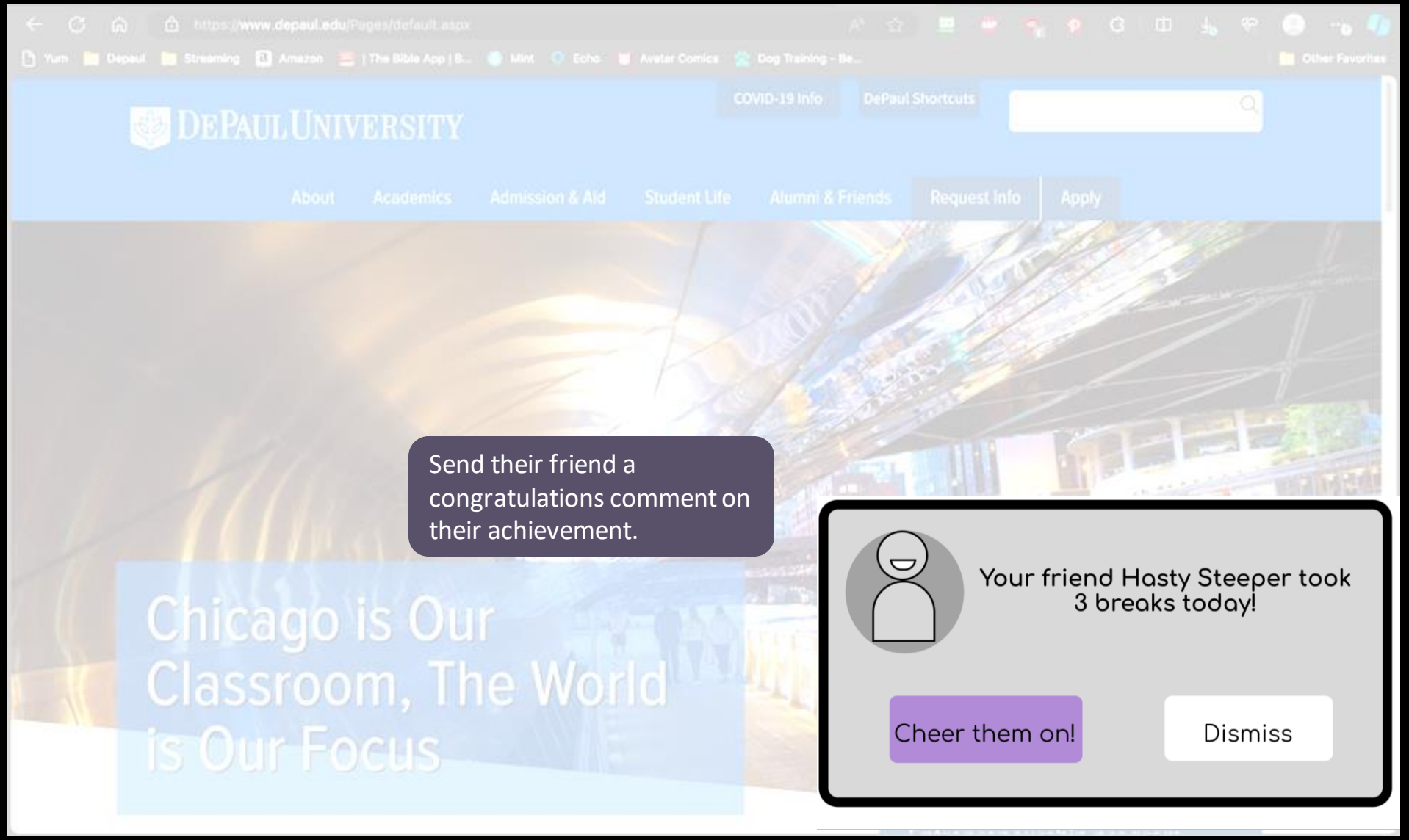


Friend alerts

We decided to leverage a user's reference network by designing Friend Alerts. With friend alerts, users can receive notifications when one of their friends is taking a break. Seeing their friend taking a break can help motivate users to take a break as well.

Non-disruptive pop-up that notifies user when their friend is taking a break.

Motivation through Friends/Colleagues



Peer Review

Peer Review

We collaborated with fellow UX experts in a peer review to gather feedback on our design solution's **desirability, feasibility, and viability.**

- Address the issue of people faking their progress – add an extra activity/step for when someone wants to skip their reminder
- Think about pushback from the workplace about their employees taking frequent breaks from their work
- Incorporate seasonal events and activities
- Ability to set up a "do not disturb" mode

Next Steps

Next Steps

Our next steps include the following:

- In a new iteration, we will design a version for school and leisure time.
- Explore employers' possible concerns for productivity in the workplace and how to address them.

Thank You

end of presentation