

DESIGNING AN APP TO PROMOTE MENTAL WELL-BEING THROUGH USER ENGAGEMENT

ABSTRACT

The research pictorial shows the development and designing of a mental wellbeing mobile application that is based on employing elements of enhanced user-engagement. Being active and connected plays an important role in promoting mental wellbeing, especially among the working professionals. This mobile application uses the elements of story-telling, gamification and quality content to engage users in an appealing way. The pictorial demonstrates the various processes that were implemented to design the application based on the Double Diamond UX-design framework.

INTRODUCTION

COVID-19 had some severe repercussions on various aspects of human life, especially mental health. The working professionals' diaspora suffered massively due to remote working environments, lack of in-person collaboration and communication. It's important for organisations and government bodies to intervene and prevent a further downfall of conditions like these. It is deemed more important and efficient to prevent the deterioration of mental and emotional health than curing and treating it. Hence, maintaining a healthy and active lifestyle is the key to avoid or slow down the effects of declining mental health. In this paper, we are shedding light on the development of a mobile application for working professionals to promote mental wellbeing. This product was developed and based on scientific and proven methods, duly suggested by NHS, UK and the entire process was carried out under the progressive and widely accepted UX design framework - Double Diamond. The emphasis on data-driven ideation and product development was laid across every stage. An important highlight is the use of user-engagement tactics to encourage the app usage in order to achieve the desired goals.

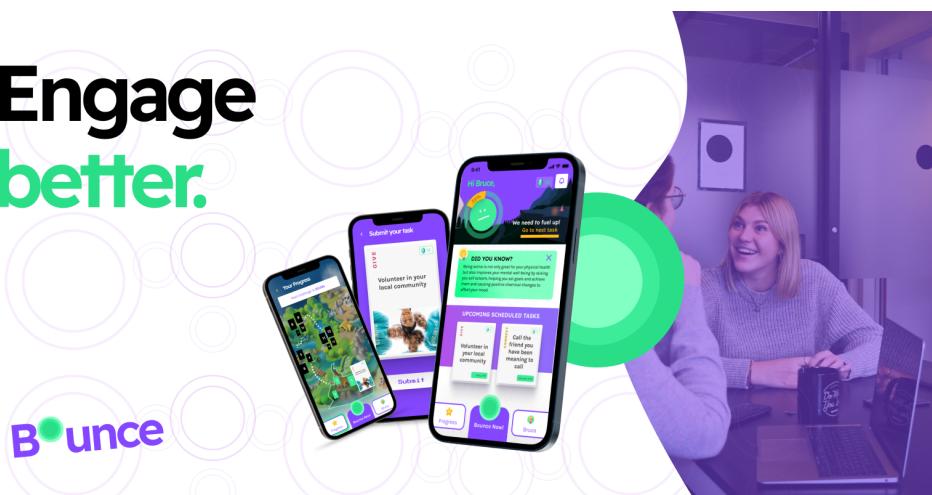


Figure 1: Mockup of the Bounce App

BACKGROUND RESEARCH

Understanding and promoting mental health and well-being initiatives at the workplace is important. Especially post pandemic, where the mental health numbers are increasing and that requires immediate intervention. More importantly, it helps to reduce absenteeism and presenteeism, as mentioned by Rajgopal (2010). There are various ways to achieve this. He further states that flexible working conditions and providing more job autonomy can reduce the numbers and symptoms for conditions like anxiety and depression significantly. Additionally, promoting physical movement, activity and reducing sitting hours too helps in the cause. The NHS, UK (2022) too has drafted a 5-step solution to promote mental well-being. These cover active contributions in segments like social connectivity, taking notice about oneself, giving, learning new habits.

Technological interventions are being made in the workplace to aid the professionals to maintain a healthy mindset and wellbeing attitude.

As per Weber, Lorenz and Hemmings (2019), mobile health interventions ('apps') are being used by workplaces as they are an increasingly popular method to improve stress-management and wellbeing over time. This provides a good ground to use mobile applications, both as a remedial and preventive approach to mental health disorders in workplaces.

Alternatively, Riches et al. (2023) worked on assessing the role of advanced-immersive technologies like Mixed Reality and found significant outcomes and a scope of higher acceptability. The study however fails to highlight the fact that Virtual Reality solutions are still under nascent stage and require a lot of resources to be developed, distributed and analysed. The solution may be the best but it's too early to consider it.

APPROACH

The overall approach to the development of this product was to focus on the central research question. "How might we promote mental well-being through an engagement with technology?"

To assist answering the question, a hypothesis was created stating
- If the solution experience is engaging, then the users might use it more actively which will help promote mental well-being in their lives.

I was able to formulate my idea based on two central findings:

1. A 5-step mental being guide provided by the NHS, UK (NHS, 2022). This helped me to come up with solutions based on scientific research and backing.
2. Bitrián, Buil and Catalán (2021) have stated in their paper about the benefits of gamification in a mobile application. The paper highlighted the growing avenue of using gamification to enhance user-engagement. Interaction with game elements promotes psychological needs being met and that in turn helps in achieving the goals.

FRAMEWORK AND DESIGN SYSTEM

A UX-design framework acts as a guide to creating user-friendly products. The key role of such a framework is to enable the designer to formulate, document and account the thoughts and factors that are essential to the development of the product. The framework also provides a pathway for the subsequent steps and eventually leading to the final version of the product. A good UX framework aids the designer to design a product that is beautiful, usable and scalable.

The project has employed the Double Diamond UX design framework, Design Council, UK (2004) - which is suitable to build products across 4 major steps and in a non-linear way. It also focuses on putting people and users first in any design decisions, emphasis on communicating and collaboration and lastly, the significance of ideation.

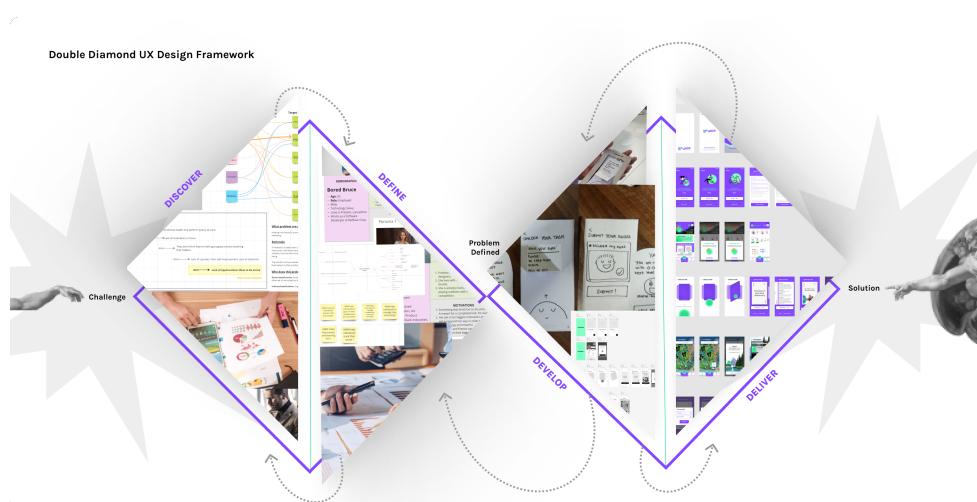


Figure 2: Double Diamond UX Design Framework

Problem Breakdown

Every product is a solution to a problem. To begin understanding the broader purpose of our product, the first step was to begin defining and unearthing the problem. The issues faced by the employees post Covid-19 and its implications on various aspects of their lives impacted their mental well being.

Survey

An initial user survey was conducted among 7 participants. These shared a similar demographic and profile. The participants were aware of working environments and the stress factor associated with it. The survey gave us a sneak-peak towards the mindset of our potential users, their pain points and helped us identify the winning factors.



Figure 3: Survey Analysis

Figure 4: Survey Results

5 Whys

The 5 Whys method not only helped understand the problem statement better but also gave an impetus to uncover the 'real' issue. The method focuses on finding the reason behind each of the statements and finally after repeating the exercise for 4 more times, we tend to find the real issue. This helped to focus our thoughts and energy toward the real problem to solve and discard the rest.

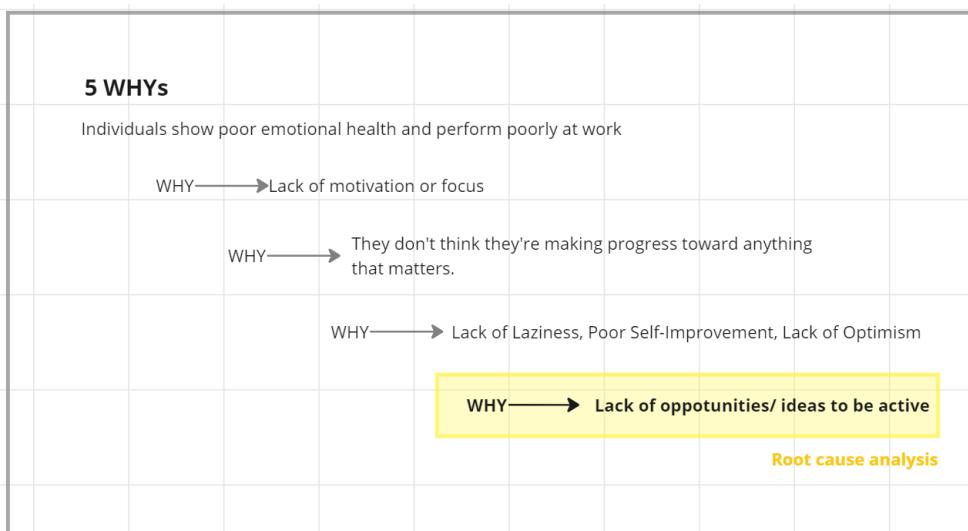


Figure 5: 5 WHYS method

Problem Re-framing

We used this method to collate all our findings and turn it into meaningful sentences. When these sentences are further refined based on the problem's purpose, occurrence, intensity - we get a holistic one liner that highlights the problem statement with clarity and precision.

How Might We?

How Might We techniques be applied in order to brainstorm and define our challenges. This is also to discuss the solution with more creativity and with possible collaborations. HMWs helps identify the scope of the user challenge and gives a canvas to draw solutions that can solve them effectively. Here, we have implemented the HMWs across breath and length of the challenge statement. Right from helping users to perform better at work to how they can interact with people effectively, we have scoped out a broad range of targets.

HOW MIGHT WE



Figure 6: How Might We?

Decision Matrix

The next step is to assess the possibility and feasibility of a challenge /HMW statement. The decision matrix is based on two parameters that have a positive and a negative range of its own. We have designed our decision matrix based on whether it is short or long term and also on the difficulty/ easiness of the execution. Our HMWs that fell in the Easy/ Short term quadrant gave us the ideas to focus on for the next steps.

Mind Mapping

Mind mapping helped us to collect and collate all the required and available information and enabled us to form connections amongst them. This activity helped us to structure it into a meaningful and systematic way. In hindsight, our challenges and possible solutions that were scattered across the board are now segmented and categorised in a way we can understand it easily.

'Understanding your customers'

The given template aided in simplifying the users and their pain points. It also gave a platform to ideate and think over the factors that motivate and demotivate them to use the product. It helps to empathise with the potential users based on their demographics, needs, fears and aspirations. This activity helped to jot-down the users that we have in mind

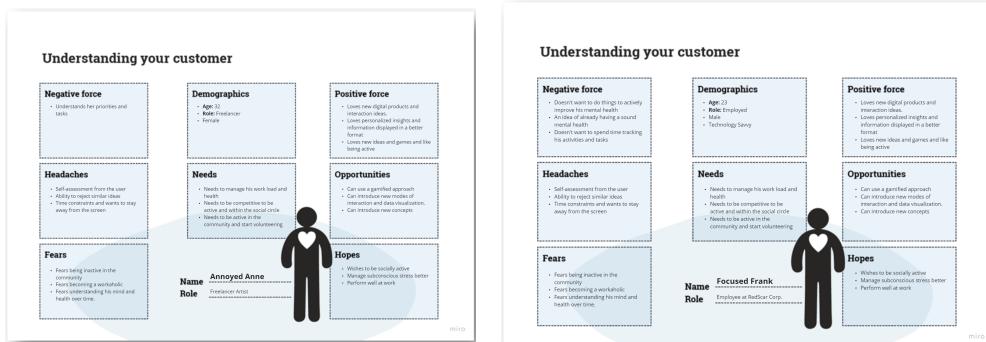


Figure 7: Understanding your customers method

Brain Dumping

Braindumping is the activity where we have collated all the possible ideas and information about our potential users and then review them time-to-time in order to find a single point of user information or direction we require to frame our product solutions.

Crazy 8

The Crazy8 method was implemented wherein 8 versions of the same ideas were drawn on a piece of paper, within a given timeframe. The fast sketching was beneficial to generate 8 distinct ideas which further aided to explore and ideate the possibility of a central solution.

Dot Voting

In order to identify the validity of the solutions, the dot-voting technique was applied. The previous 8-sketches were run over across various participants who were the potential users of the product. Based on their preferences, experience and ability - they voted out the best possible ones. This helped us do the initial validation and narrow down the options. The activity also enabled us to arrive at the designs that were important and acceptable and strike out the rest..

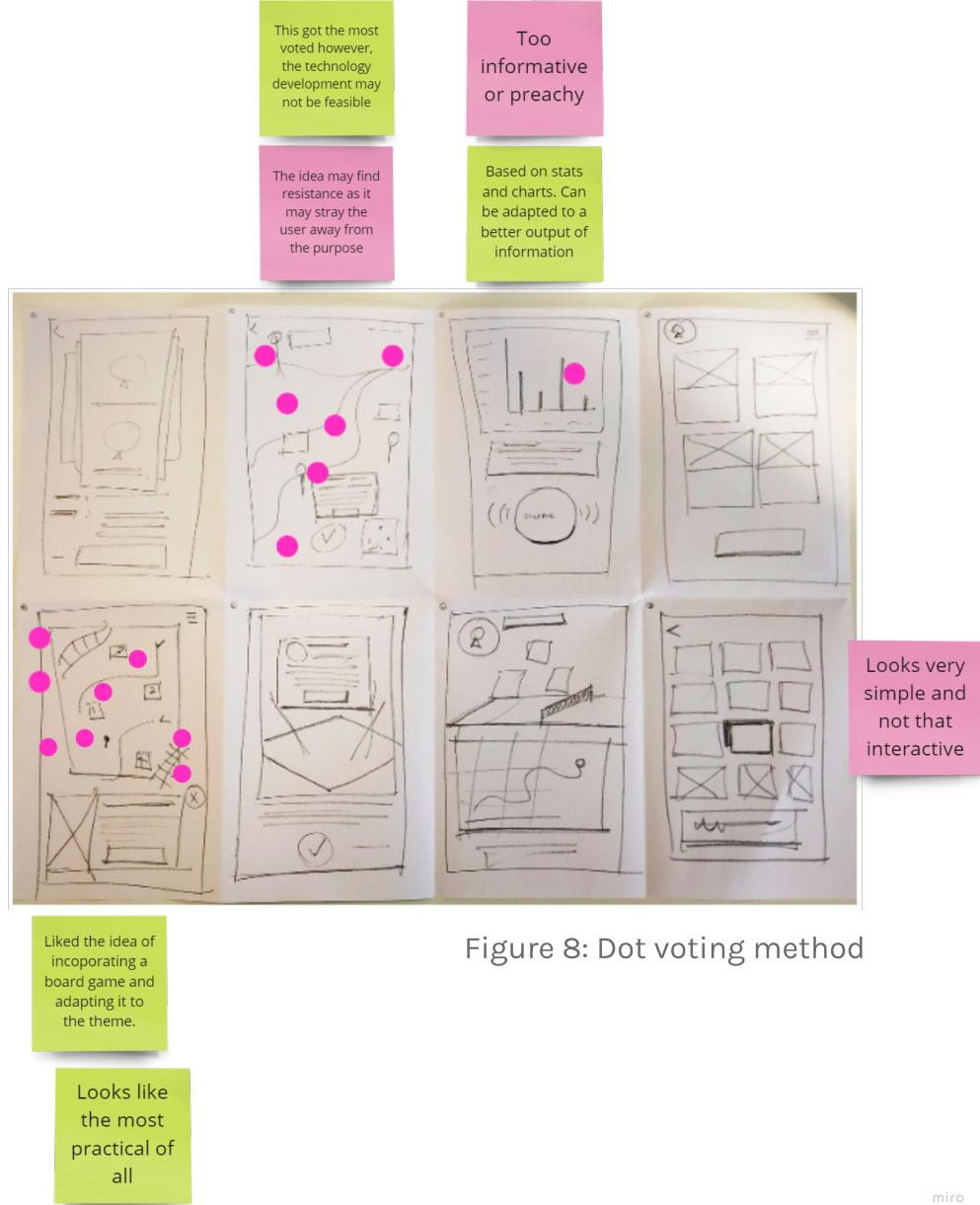


Figure 8: Dot voting method

SCAMPER

SCAMPER is a brainstorming activity that boosts creative ideation for a desired solution. I was able to identify and change, alter or modify key-features of my solution. It helped to improve, adapt or eliminate features from the existing solutions. This method further refined the solutions through creative collaboration and ideation.

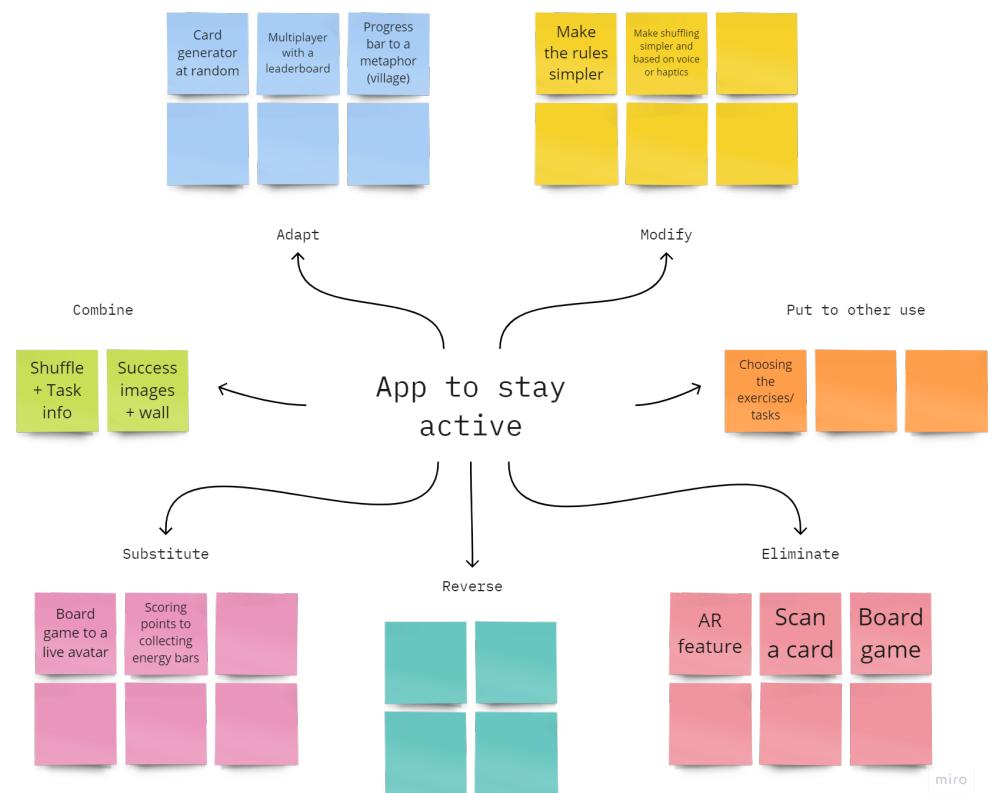


Figure 8.1: SCAMPER

User Personas

Based on the surveys and the secondary research, the activity to carve out personas to highlight two major users and their use cases was undertaken. We have taken 2 major personas. i.e. Bored Bruce and Demotivated Daisy. They both have their own set of problems and here we define a bit more about their demographics, how they spend their day and what are their pain points. Developing personas helped envision the potential users and also give them a personality in form of a name and an image. These personas helped further develop the scenarios around them and also created a go-to point to generate empathy towards them.

Persona 1							
 Bored Bruce Age: 26 Role: Employed Male Technology Savvy Lives in Preston, Lancashire Works as a Software Developer at RedStar Corp.	GOALS 1. Wishes to be socially active 2. Wants to be fit and healthy 3. Wants to use an app that will help him stay active and manage stress and anxiety in a fun and engaging way.		CHALLENGES Bruce finds it difficult to stay motivated to stay active and manage stress and anxiety. He is looking for something to help him stay focused.		QUOTES <i>"I would want to try out new things and take random breaks in between my work to energize and refresh myself."</i> <i>"I feel like finding new ways to involve more with my community and neighbors."</i>		
	ENVIRONMENT - Bruce has a family of 2 who are quite active and enjoys going for hikes and bike rides every week. He loves going for movies with friends and plays golf every last Sunday.		NEEDS - Needs activity recommendations that are fun and engaging. - Needs to communicate about his life in better ways. - Needs to spend time with loved ones. - Needs motivation to stay active and manage stress or try out new things.		MOTIVATIONS - Loves new digital products and interaction. Likes playing video games and enjoys competitive games in a better format. - Loves spending time with friends and like being active. - Bruce is motivated by his need for a healthy and balanced lifestyle and his need for a break from his everyday life.		FRUSTRATIONS 1. Not able to manage and find ideas that makes him try and do more. 2. Not able to spend quality time with himself or other around. 3. Doesn't have an app that requires his active attention and are motivating.
 Demotivated Daisy Age: 29 Role: Employed Female Output Focused Lives in London, UK Works as Sr. Product Manager at Stark Industries.	GOALS 1. Wishes to stay active and occupied. 2. Wishes to be fit and communicate well with others 3. Wishes to see her team perform well and also exceed as a team.		CHALLENGES 1. Her team is sometimes on a different page and that makes it difficult for her to bond with them. 2. Building a rapport with new team members and getting the work communicated effectively.		QUOTES <i>"If there's a solution to enhance team bonding over time and helps understand each other, that would be great!"</i> <i>"The best thing about competitive sports is that it teaches you to stay in the game and understand your opponents or co-players and their moves."</i>		
	ENVIRONMENT 1. Professionally she manages a team of 5 designers. 2. She lives with her parents and a labrador, Groovy. 3. She is actively involved in gymming and playing outdoors with friends. She loves competition.		NEEDS 1. She needs to find a way to communicate and build a rapport with her team and other members. Needs to strike a balance between her professional and personal life. 2. Needs motivation to get things started and going on.		MOTIVATIONS 1. Something that binds her to do something. A reward for a challenging task, for example. 2. Her pet is her biggest motivation and will go beyond her way in order to make Groovy happy and cheerful. 3. Her family and friends supports her well and they are their biggest motivation.		FRUSTRATIONS 1. She struggles with understanding a person or her team member and often times she misjudged their opinions. 2. When it comes to finishing work at a close deadline and is unable to push others due to her mental limitations as she doesn't know them well.

Figure 9: User Personas

User Scenarios

User Scenarios helped envision the user, the environment they are in, the context of the problems and the potential use of solutions/ our product. Being presented in a story form helps the researcher and the design team, so that they can empathise with the users and understand the potential scope based on their unique scenarios.

User Journey Mapping

The technique of user journey mapping or customer journey mapping was used to visually identify the stages in which our user would undergo the journey. Various emotions, feelings and thinking processes are highlighted for each of the stages i.e. discovery, initial use, repeated use and recommending the product to others, showcasing loyalty. This activity helped to empathise with the users at every stage and find opportunities to solve their needs in any way during this.

Storyformer

This method is used in order to frame the initial story about the user and the product they use to diffuse their pain points/ challenges. It's a set template that cues you in order to formulate and personalise the story.

Storyboarding

This is a visual way of transcribing the story into a comic-style artwork. This helps the stakeholders to understand and empathise with the users, product and the features. It provides a graphical representation of the users and the way they interact with the product and under which circumstances.

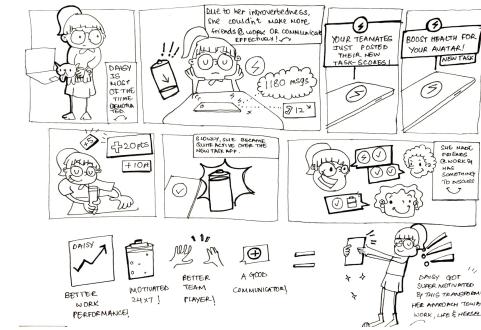
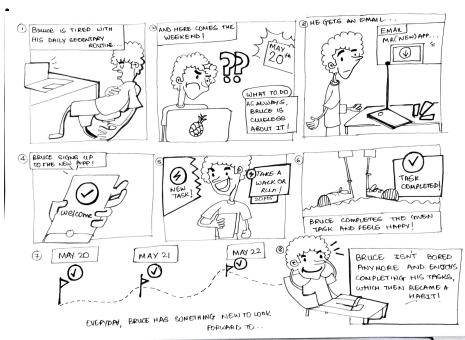


Figure 10: Storyboarding

Task Flow

A product can be used and navigated through various ways. There're 'n' number of permutations and combinations based on the users, their unique requirement and the situation in which they are operating in. The project employed this technique as another graphical representation that helped understand the various possibilities of screens/ pages that they will access in order to reach the solution.

Paper Prototype and Idea Validation

Since the idea was based on a sensitive topic which usually the respondents are not bold enough to discuss, also it was based on the element of enhanced user-engagement, it was important to test out the idea. Upon testing it with 5 users, based on similar demographics and work experience, the validity of the idea was justified and conveyed. It received an average score of 3.9/5 based on the parameters of effectiveness, efficiency and satisfaction. Paper prototyping my idea was also important as it helped me garner initial feedback and feature-requests about the product. It is at this stage, I could've afforded to try out my idea before developing it on the digital screen and saving resources.

Tools: Paper, markers, glue and cardboard.

Time: 2-3 hours

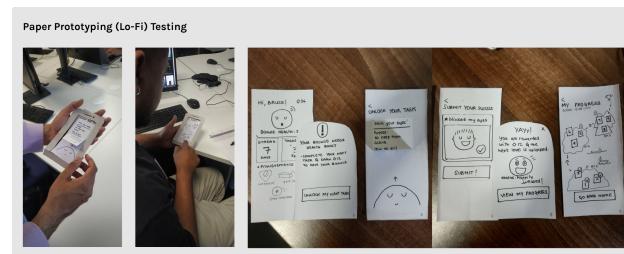


Figure 11: Paper Prototype Testing

Feedback: Paper Prototyping (Lo-Fi) Testing

Stage	Participant No	Challenge	Pathway	Task Completion	Scores		
					Effectiveness	Efficiency	Satisfaction
Paper Prototype	P1	Unlock the task	Home Pop-up/Tap on unlock the task	1	The product idea is engaging and gamifying it makes it even more fun	5	3
	P1	View Progress	Submit Task/View Progress	1			
	P2	Unlock the task	Home Pop-up/Tap on unlock the task	1	Add a function to schedule the task	4	4
	P3	View Progress	Tried looking at the home page	0			
	P3	Unlock the task	Home Pop-up/Tap on unlock the task	1	Made to task purpose a bit more clear, should be right in front Overall the product was engaging	3.5	4
Digital Prototype	P4	View Progress	Submit Task/View Progress	1	Loved the product, could be helpful in experimenting new things with a purpose	3	5
	P4	Unlock the task	Home Pop-up/Tap on unlock the task	1			
	P5	View Progress	Couldnt find it obvious	0	Would love to see the progress to be a bit more open	4	4
	P5					3.9	4
							AVERAGE

Figure 12: Paper Prototype Analysis and Scores

Wireframing

After being convinced about the initial idea and product flow, I jumped on to create some digital wireframes which were Mid-Fi in nature and this helped me to identify the kinks and issues at an initial stage.

Tools: Figma

Time: 3-5 hours

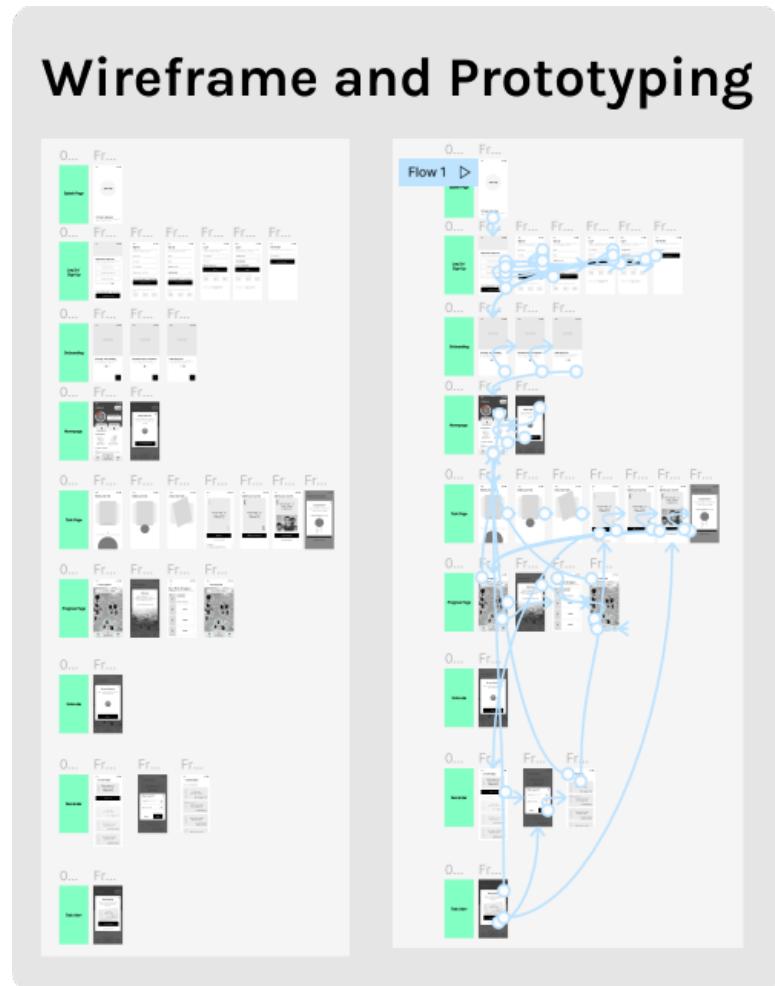


Figure 13: Wireframes and Prototyping

Usability Testing and Feedback

These wireframes were then linked to each other with the help of the prototype feature and added on the Maze interface as a different set of tasks.

Tools: Maze

Time: 40-55 minutes

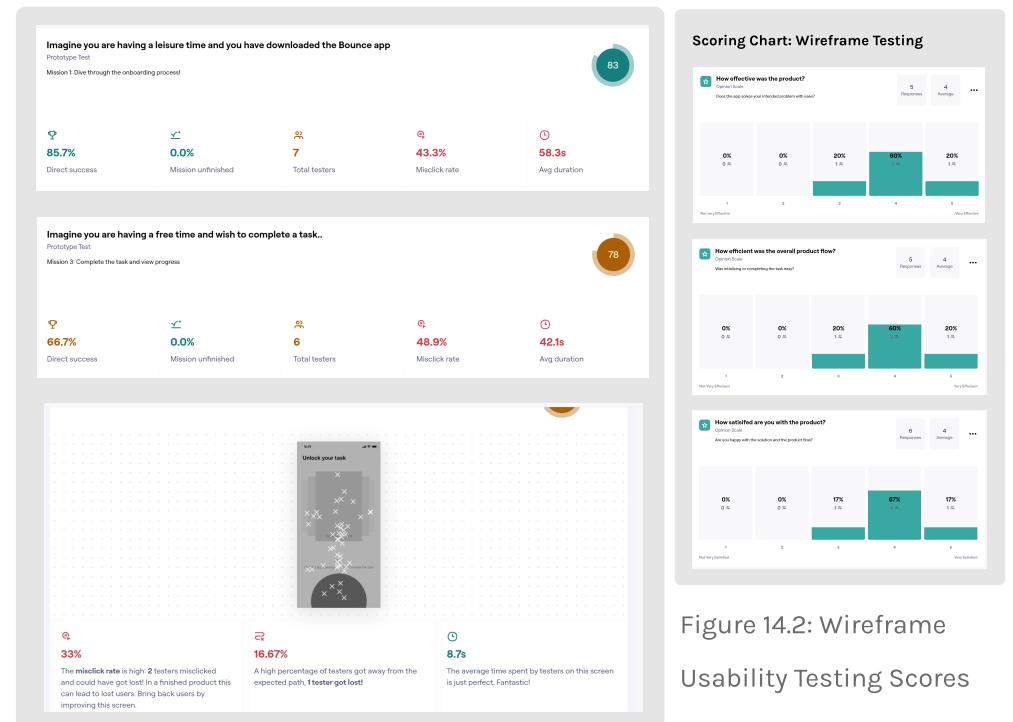


Figure 14.1: Wireframe Usability Testing and Results

Scoring Chart: Wireframe Testing

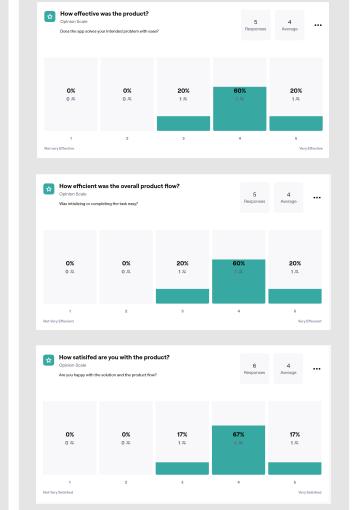


Figure 14.2: Wireframe Usability Testing Scores

Final High Fidelity UI

Based on the feedback received from the usability testing, I took a step back and re-designed the flow and added a few screens where required. Once the final flow was complete, a high-fidelity UI was designed consisting of rich colours and interactions. A special in-house design system was created to facilitate the overall design as consistent and robust. This included the logo, buttons, input fields, typography, images, illustrations, etc.

Tools: Figma

Time: 12-14 Hours

Prototype Link: <https://bit.ly/tryBounce>

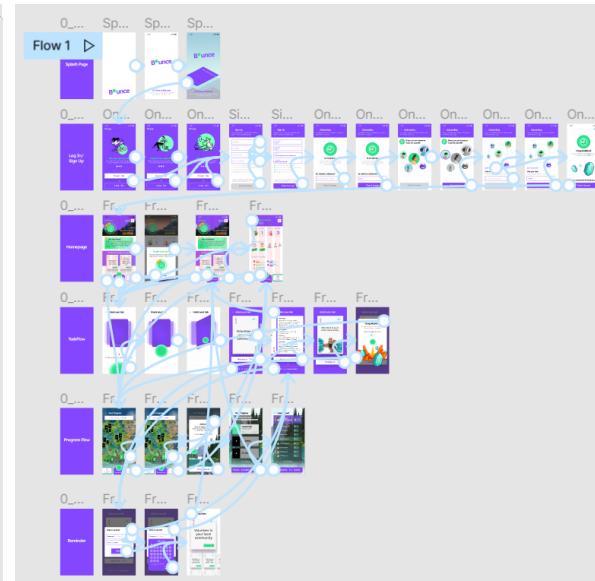
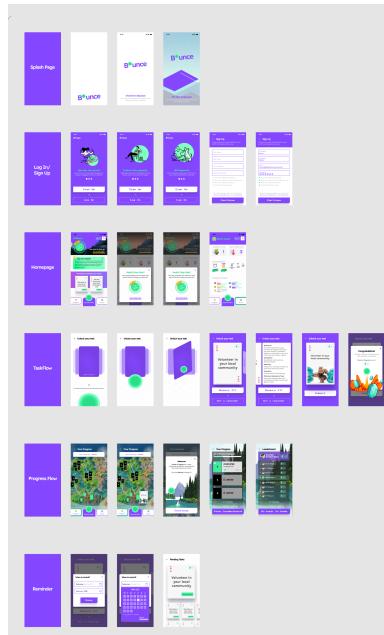


Figure 15: High-Fidelity UI Designs and Flow

IMPORTANCE OF CRITICAL FEEDBACK

The design framework helped me identify the kinks in the overall design and thoughtful iterations made the refining process easier. As a reflection, critical feedback from users turned out to be even more important than praises and approval - because it contributed to the betterment of the product.

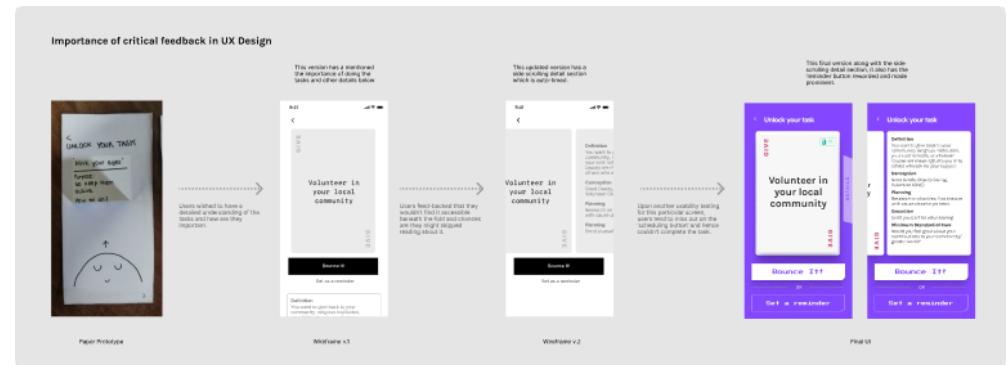


Figure 16: Importance of Critical Feedback

CONCLUSION

Mental well-being and mobile-based intervention is a common phenomena. This is facilitated and well received because of the fact that it works remotely and can provide the necessary output if not better than a physical meeting with well-being professionals. However, to capture the users short attention span - we as designers, deploy elements of user engagement. Gamification and storytelling are the two elements that we have broadly based the 'Bounce' app on. The success and acceptance of this application will be only known through long-term testing and analysis. The end goal is to change users' behaviour, positively so that they are engaged with a healthy mindset.

FUTURE SCOPE

The application would require a few more iterations based on the level of gamification, as accepted by the users. For the next phase, Audio UX and Augmented Reality (AR) are the two other concepts that can be further applied in order to render the application more effective. Also, a long-term usability and acceptance study needs to be conducted in order to assess the impact of the user engagement elements and further evolve the product based on the feedback.

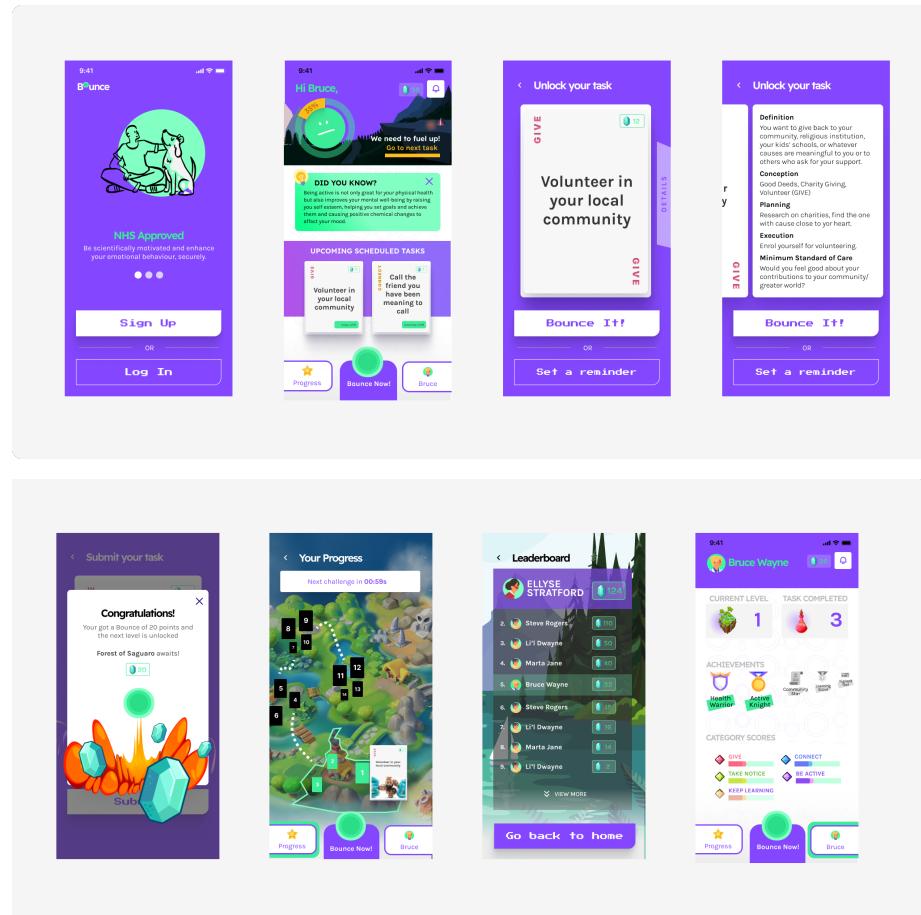


Figure 16: Bounce screens in detail

REFERENCES

1. Bitrián, P., Buil, I. and Catalán, S. (2021). Enhancing user engagement: The role of gamification in mobile apps. *Journal of Business Research*, [online] 132, pp.170–185. doi:<https://doi.org/10.1016/j.jbusres.2021.04.028>.
2. NHS (2022). 5 Steps to Mental Wellbeing. [online] nhs.uk. Available at: <https://www.nhs.uk/mental-health/self-help-guides-tools-and-activities/five-steps-to-mental-wellbeing/>.
3. Riches, S., Taylor, L., Jeyarajaguru, P., Veling, W. and Valmaggia, L. (2023). Virtual reality and immersive technologies to promote workplace wellbeing: a systematic review. *Journal of Mental Health*, pp.1–21. doi:<https://doi.org/10.1080/09638237.2023.2182428>.
4. Weber, S., Lorenz, C. and Hemmings, N. (2019). Improving Stress and Positive Mental Health at Work via an App-Based Intervention: A Large-Scale Multi-Center Randomized Control Trial. *Frontiers in Psychology*, 10. doi:<https://doi.org/10.3389/fpsyg.2019.02745>.
5. www.who.int. (2022). World Mental Health Report. [online] Available at: <https://www.who.int/teams/mental-health-and-substance-use/world-mental-health-report>.
6. Design Council (2019). Framework for Innovation: Design Council's evolved Double Diamond. [online] design council. Available at: <https://www.designcouncil.org.uk/our-work/skills-learning/tools-frameworks/framework-for-innovation-design-councils-evolved-double-diamond/>.

7. Rajgopal, T. (2010). Mental well-being at the workplace. Indian Journal of Occupational and Environmental Medicine, [online] 14(3), p.63. doi:<https://doi.org/10.4103/0019-5278.75691>.

APPENDIX

1. Software Used:

Figma (www.figma.com)

Miro (www.miro.com)

Maze (www.maze.com)

Unsplash (www.unsplash.com)

Flaticons (www.flaticons.com)

Figma Community

MS Forms

MS Teams and GoogleMeet

2. Project Links:

Whiteboarding (Miro)

<https://miro.com/app/board/uXjVMfGMQEe=/>

Wireframing and UI (Figma)

<https://www.figma.com/file/Z60f7hJoleOPkyb2jvYZoK/UXAway?type=design&node-id=1-7&t=aHCNbAIHEGm3mmvr-0>

Usability Testing - Wireframes (Maze)

<https://app.maze.co/report/WireframesBounce/80md9hhlh262n7i/intro>

Survey (MS Forms)

<https://forms.office.com/Pages/AnalysisPage.aspx?AnalyzerToken=3SEExryP2NWB5ZpT3Y13FqSg10GY76hZS&id=gpn262sDxEyyAnrrGUxQZcdVlt70NlFBn99cQEnUIshUNjZWUjVYRFgwTUxWQVIMWEEdOOFIDRTdPMC4u>

Usability Testing (Maze)

<https://app.maze.co/report/UIBounce/vx5imhlhatviob/intro>