



DESIGN DESIGN PROBES



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Introduction

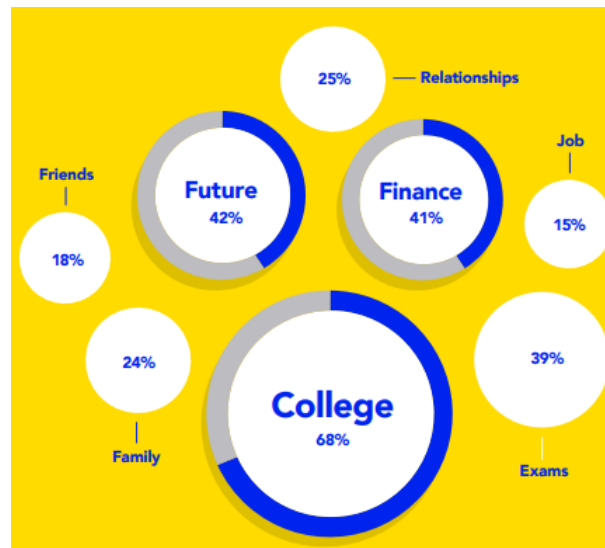
The topic chosen for this project is mental self-care, with a special focus on international students. The rationale for this selection is explained as follows. Studying abroad takes courage. It requires young people to jump into the unknown. Students from all over the world migrate to an all-new place in pursuit of their education and start living in a place where they have never lived before. Moving into a new place is coupled with a series of challenges such as, finding a suitable accommodation, performing errands and chores, becoming culturally familiar with the locals, managing studies along with working part time to achieve financial stability, language barriers etc. As per an Irish news article, frauds, high rent, and no accommodation are some of the problems being faced by international students in Ireland. (*thejournal.ie*, 2017).

The multiplicity of these concerns and events often contribute to stress levels of students. According to European Association of International Education (EAIE), as a result of these multiple stressors international students are particularly vulnerable to developing mental disorders such as anxiety, panic attacks, stress etc. In the context of the current times in the pandemic, students may experience heightened stress-levels as the existing challenges are now expanded with the addition of loneliness and social isolation, as we are confined to our homes. Another news article reports woes of international students and quotes one such student who shares how the student is mentally affected by sleeping, working, and eating in one room and paying thousands of euros without any access to campus. (*Mannion, 2021*) In order to deal with this, students have resorted to digital modes of communication, but it does not match up to the experience of real interactions.



Findings from the survey

Factors affecting mental well being



PCHEI : My world survey 2,2019 & USI student Mental health survey,2019

Therefore, it is important for students to consider the conscious management of their emotions through mental self-care. Mental self-care can be performed by participating in various activities that have a therapeutic effect; whether it is playing sports, cooking, meditation, or doing yoga, it can be achieved by doing the things you love doing in order to make yourself calm and relaxed. Such activities have proven to be a stressbuster and a respite from the harsh realities of life. There are many areas under the umbrella of mental self-care, such as **Emotional** care. This involves engaging in activities that help individuals connect, process, and reflect on a full range of emotions. E.g., seeing a therapist, creating art, journaling your thoughts. **Physical** care can also be considered a way of enhancing one's mental well-being. For instance, regular exercise and getting enough sleep is known to boost mood. **Practical** care requires being cognizant of your realities and identifying areas for optimisation to enhance your overall well-being and prevent stressful situations in the future. For instance, creating a budget or taking up professional development classes. **Spiritual** care involves engaging in activities that nurture your spirit and lead to higher self-awareness. E.g., meditation, yoga, nature trails. **Social** engagement is another form of mental self-care, which enables individuals to nurture and deepen relationships with people in their lives. For instance, going for a brunch, calling your loved ones regularly. All these engagements have an impact on your mental well-being and possess the capability to reduce stress levels and enhance your mood.

With the application of certain design probes, I hope to gain insights from international students on the factors and circumstantial situations that cause stress, anxiety, and paranoia et al as well as an understanding of the current coping up mechanisms that students apply to combat stress in their own ways and find new ways of mental self-care. These design probes are created in a gamified manner to seek natural and candid responses from users.

State-of-the-art of Mental Self Care

The current technologies in place that facilitate mental self-care include using chatbots, robotics that are programmed to talk to humans, immersive technology, augmented reality/virtual reality, internet-based help groups, on-demand self-care such as books and journals to access from clouds, meditation apps, etc. Some of these are explained below.

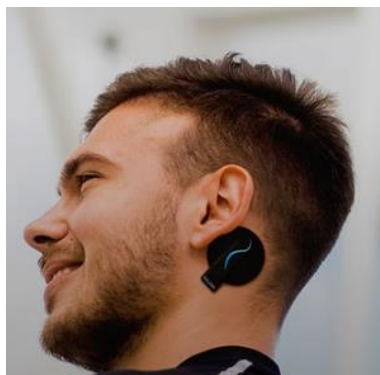
(References: Click the links provided)



[Pepper : The Robot](#) Care Home, PK News



[BrainLink Lite EEG](#) Headband



[Feeling](#) -Neurostimulation



[Healium](#) : Oculus



[ZeeQ Pillow](#) Sleep Moderator



Headspace





Snugvest – Wearable Technology



[Cove](#): Stress Cancelling Technology



[Healium](#)- AR

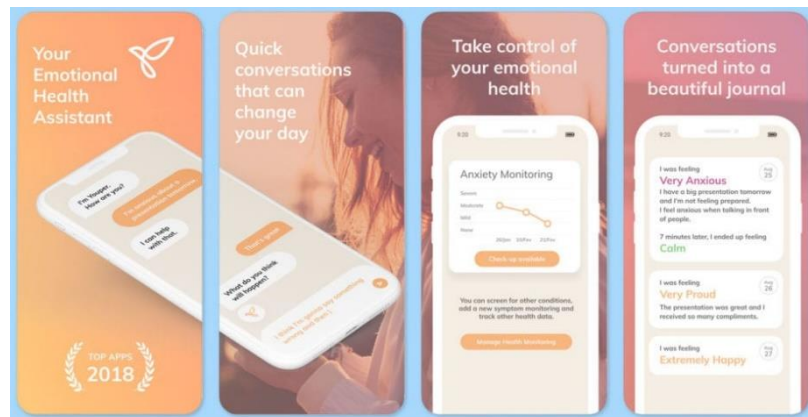
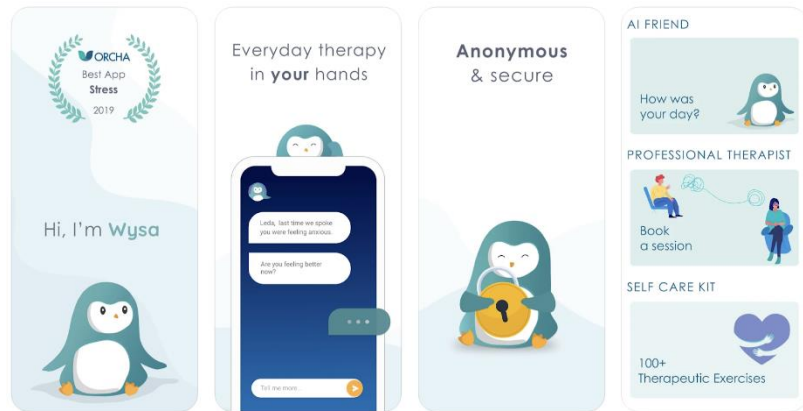


[ExploreDeep](#) Meditative game controlled by breathing

AI powered chat-bots and other apps

There are many apps designed to support those struggling with their mental health. Some of them employ artificial intelligence to provide emotional support. These are also termed as [Emotional Therapy Chatbots](#). Chatbots are such apps that can act as a much-needed conversation partner and combat loneliness.

For instance, apps such as Wysa and Youper provide this functionality. Wysa supports those with depression, stress, anxiety, and a range of other wellness needs and acts as a intelligent chatbot that reacts to emotions expressed by users.



It must be noted that meditation and mindfulness apps such as Headspace and Calm have grown in popularity over the recent years. The products that positively impact loneliness will be the ones that deliver highly personalised experiences for users, by leveraging technologies like AI, big data, and biofeedback.



Robotics

It is now possible to have robotic companions as a solution for improving the psychological well-being. With innovations in artificial intelligence, personal robots will become increasingly sophisticated, offering contextual solutions by adopting traits and habits required to match the specific user needs and personalities.

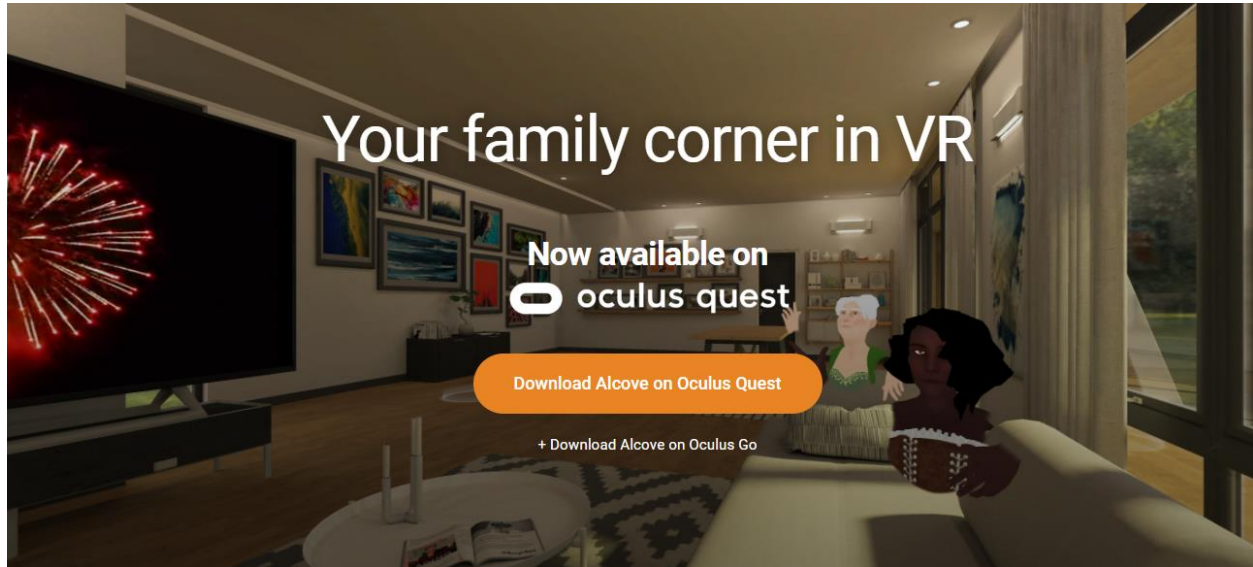
For instance, Intuition Robotics employs artificial intelligence to create personalized companion technologies it has created ElliQ, which is a digital home companion. It possesses the capabilities to respond to questions, make calls and book appointments. Further, it assesses the user's environment and provides entertaining activities as well as activities that lead to mental well-being.



Another example is that of [PARO](#), a therapeutic robot developed by AIST, in the form of a baby seal. It is commonly used for patients with dementia, whereby sensors enable the robot to recognize the user's environment, sense being petted, and recognize voices and words. It has known to reduce patient stress and that of their caregivers.



There is a growing trend of applying immersive technologies to elevate mental health. For instance, [Alcovevr](#) is a virtual living room curated by the AARP Innovation Labs to bring international and intergenerational families together to play games, watch videos, and forge memories.



Hang out with friends and family and catch up on the couch in your own virtual home



Take a cross-country road trip, ride in a hot air balloon, and explore the depths of the ocean



Grab a friend to play checkers or keep your mind engaged with brain games



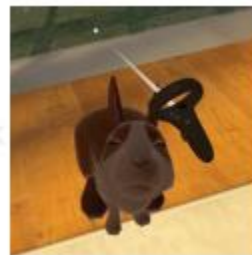
Follow or lead other users

Guide friends or family who aren't yet comfortable using VR around the house and into experiences




Join experiences together

Join friends and family in a hot air balloon over the Swiss Alps or listen to the same concert together



Play with your own pet rabbit

Dress up your pet bunny with hats, play fetch, or chase it around the house



“Rendever” is another example of a VR platform that is targeted at older adults experiencing loneliness, which leverages neuroscience to perform activities for mental stimulation, socialisation, and therapy.

Limitations of self-care :

- One might lack the perspective to properly understand the nature of their issues.
- One might lack the knowledge on fixing their issues.
- One might lack the motivation or will power to stick to a plan and do things.

Future possibilities- Digital phenotyping


Another recent and exciting development is “digital phenotyping”. This involves harnessing data gathered from people's personal devices - such as smartphones and wearable devices - to learn about their behaviors and overall state of health. Research is ongoing to understand how new sources of data, including the number of hours someone spends looking at their phone, their geographical information, and the way they “click and tap”, can be turned into valuable clinical information. It could help recognize those at higher risk of relapse and intervene before their symptoms worsen.


Target Audience for Mental Self care

According to Minister Harris, the leading issue for young people in Ireland remains concerns about mental health. (gov.ie, 2020). It is aimed to explore the area of mental self-care by analysing the current coping mechanisms and activities that people perform with the intention of protecting their mental well-being. Further, it is also aimed to understand the causes of stress among international students.

The potential respondents for our research are international students studying in Ireland, both male and female, above the age of 18 years. In order to promote generation of a wide range of insights, different kinds of international students will be engaged with. The types of international students that will be chosen are as follows. This includes international students currently living in Ireland and pursuing their education, students who are based in their home country and studying remotely owing to restrictions, students working part-time and so on. The selection of distinct types of international students would unveil unique challenges faced by them as well as insights into their engagement into different activities of mental self-care.

In order to further gain diverse insights, different personality types will be recruited for the design probes, for instance, international students that are often found socialising as well as those that usually demonstrate shyness or aversion from social activities. Likewise, it would be beneficial to recruit students who demonstrate high levels of emotional intelligence and who often inspire their friends and colleagues to have a positive outlook towards life, as this would unveil some of the effective coping mechanisms and activities employed by these students to promote their mental self-care. The differences and multiplicity of experiences of those recruited should result in a greater variety of ideas and collaborative discussion.






As a member of the university clubs and societies, I plan to recruit people from on campus accommodations who are from various parts of the world. I would explain the prospective respondents about the activities and their expressions of interest towards participation and confirmation would be sought by digital modes of communication such as instant messaging. Once the materials and resources required for the probe are prepared, I will contact all those who are willing to participate, along with another brief overview of the purpose of the activity and the game itself.

Summary

The aim of this project is to explore mental self-care for international students. According to Minister Harris, the leading issue for young people in Ireland remains concerns about mental health. (gov.ie, 2020). While we are familiar with a variety of trends as well as technologies prevalent in the current times to practice mental self-care used in the area as discussed above, I aim to carry out a research to uncover in-depth insights on mental self-care in a range of areas. These can be enlisted as follows. Firstly, I would like to understand the current activities and technologies that international students engage with to protect their mental well-being and indulge in self-care. Secondly, I would like to identify the causes of stress among international students. Further, I would like to examine the impact of circumstantial situations and environmental factors on the mental well-being of international students. These diverse insights would lead to the revelation of current and future possibilities.

The motivation for the selection of the area mental self-care stems from the insight, as evident in the media and amongst local student communities, that international students are significantly affected by the COVID-19 pandemic. This is in furtherance to a series of stressors that already impacted them earlier, which are typically experienced when moving to a new location. It is found that owing to the advent of the pandemic, higher levels of stress were significantly associated with the students of international status. (O'Byrne et al., 2021). This is further validated by a Google Trends analysis, that revealed rapidly growing search volumes for the keyword “mental self-care” (see exhibit 1). Interestingly, the Google Trends analysis reveals that a related topic that is usually found in conjunction with mental self-care is students (see exhibit 2), which indicates that there is growing interest among students in this area in order to protect their mental well-being.



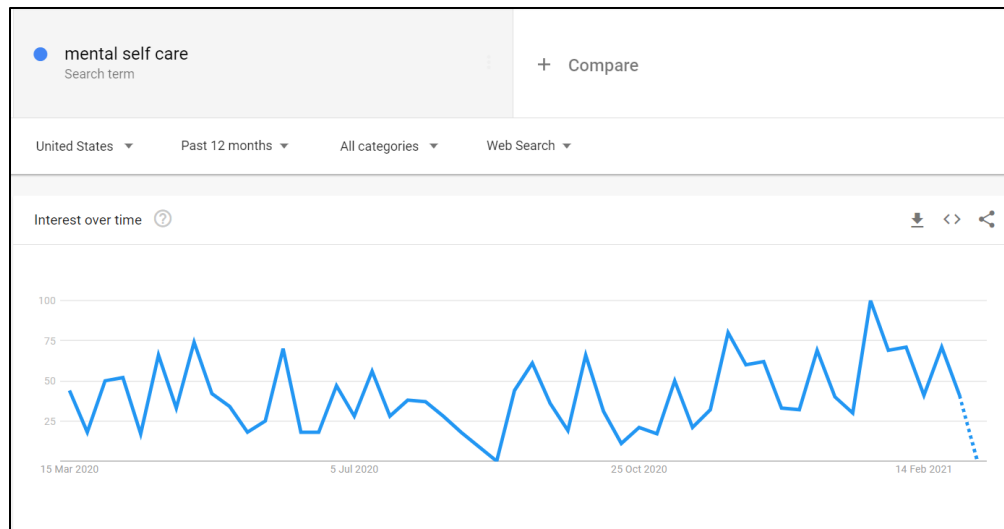


Exhibit 1 : Trends over Mental Self care

Related topics ?		Rising ▼	Download	Zoom	Share
1	Anxiety - Emotional disorder	Breakout			
2	Preventive healthcare - Topic	Breakout			
3	Student - Topic	Breakout			
4	Self-esteem - Topic	Breakout			
5	Management - Topic	Breakout			

Exhibit 2:Trends Related topics

As discussed in the previous sections of the report, there are a variety of applications and technologies that have been utilized for improving mental well-being, for example, meditation apps, chatbots, immersive technologies et al. International students are also seen to be engaging in various activities for practicing mental self-care, as indicated in the latter section of the report that showcases a netnography study.

With an awareness of these trends, through employing design probes and performing a series of engaging activities, it is aimed at reimagining, recreating, and enhancing the experiences of practicing mental self-care, on the foundation of razor-sharp insights gained as a result of these probes. Through these probes, it is expected that the user's personal contexts and perceptions would be revealed, as argued by Mattelmäki, 2006. This would be helpful to unveil the mindsets of international students and how they view the areas of stress and mental self-care. Mattelmäki further opines that probes have an exploratory character and that they explore new

opportunities rather than solve problems that are known already. In this manner, the probes would help me identify the shortcomings of current practices of mental self-care in order to overcome them.

Selection of design probes

From my interactions with international students in the local community, it was often brought to light that students were experiencing the conditions of loneliness, paranoia and stress owing to the lockdown, coupled with the other challenges of being an international student such as financial and other constraints as well as adaptation to an all-new culture.

In order to gauge the current practices being employed by international students to practice mental self-care in order to overcome their pressing situation, I conducted netnography to identify certain patterns among international students that may indicate the activities they indulge in for mental self-care. The netnography study was carried out non-intrusively by researching Instagram accounts of international students, that showcased publicly accessible content and pictures. It is evident from the below exhibits that students often indulge in cooking, exercise, travelling, et al as ways to uplift their mental well-being and it is their way of practicing mental self-care.



Exhibit: A student from Limerick is seen indulging in preparing cocktails for leisure



Exhibit: A student from Dublin can be seen exploring the Dublin Mountains



Exhibit: A student from Dublin is seen engaging in exercise, by riding a bike to practice self-care

While the netnography indicates the 'what' i.e. the activities people indulge in for practicing mental self-care, it fails to explain the 'why'. In other words, it does not explain why people engage in the above activities and to what extent does the performance of these impact their mental health, nor does it reveal the shortcomings and limitations of these activities. In order to penetrate deeper into the psychology and behavioural practices of our respondents, the listed design probes were selected to uncover further insights.

The design probes selected are as follows:

- Participants are asked to relive memories from the past and share pictures of activities they love doing
- Participants will be asked to associate experiences, things and people with words provided to them
- Participants are asked to brainstorm solutions to achieve mental peace in a counter-intuitive manner
- Participants are asked to take pictures of elements from life that affect their mental health
- Participants are asked to sketch out places they have visited in the past that affect their mental health

Descriptions of the tasks/activities

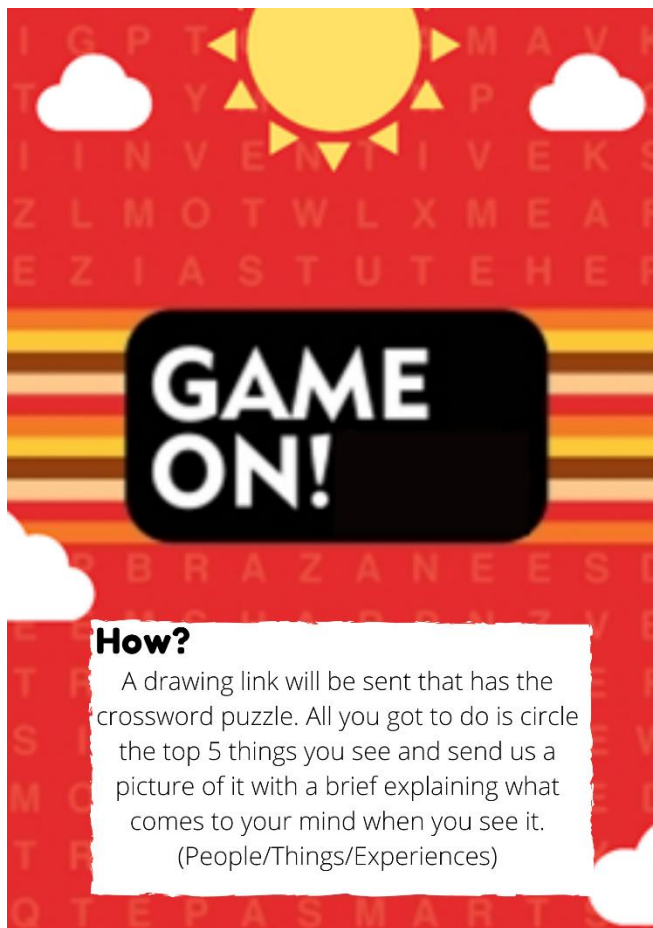
Task 1:



In this probe, participants are asked to relive old memories by going through pictures and videos from their Instagram archives/Facebook feeds/Snapchat memories and similar social media accounts and are asked to share pictures that evoke positive emotions. This is expected to unveil what/who are the situations, people and factors that promote the experience of a range of positive feelings and emotions amongst respondents. They would be further asked to share reasons for engaging in these activities in the past and what is the frequency of such engagements by them in present times. This would help unveil whether the respondents currently have opportunities to experience a similar range of emotions or if they are unable to do so and therefore experience negative conditions such as loneliness.

Participants are asked to share these pictures with a hashtag #TDML (acronym for Trip Down Memory Lane) on their social media accounts, as people like sharing throwback pictures from the past and hence this would naturally fit into their current practices.

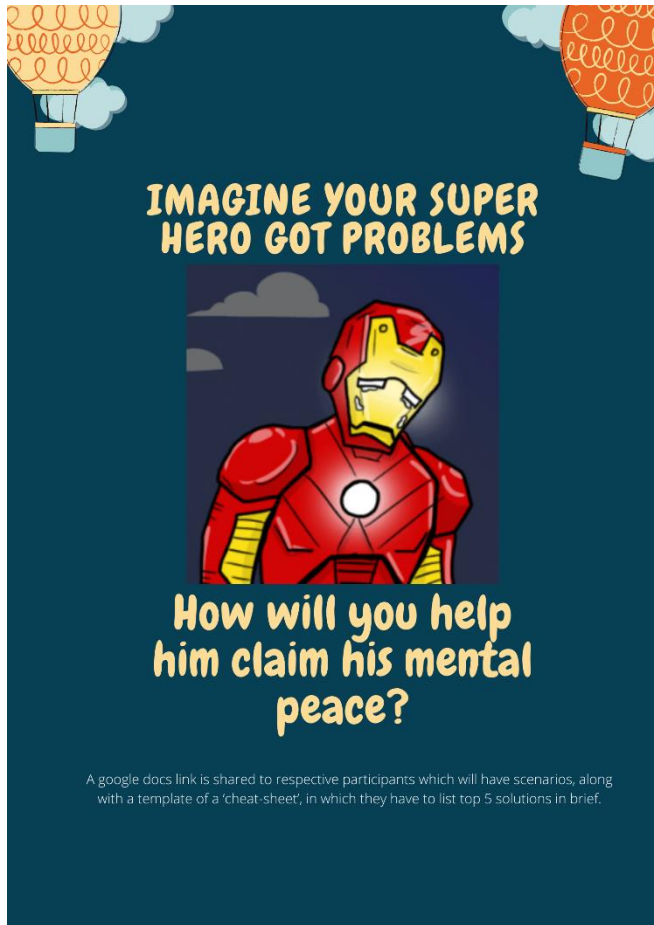
Task 2:



In this probe, each participant is asked to look at a cross word puzzle with different words hidden in it. Some examples of these words include 'stress', 'happiness', 'part-time job', 'lockdown', etc that are expected to evoke a range of thoughts and stimulate discussion. The respondents are asked to name things/people/experiences that comes to their mind when they see these words. This is expected to unveil their concerns and feelings that they experience as international students. For example, 'stress' could evoke a discussion from respondents regarding assignments or loans.

A link will be sent to the participants containing the crossword puzzle in it. The participant can then circle the first five words seen by them and saves the picture. The participants would be requested to send the picture to me via instant messaging app, upon which I would request them to share the thoughts coming to their mind then they see those words.

Task 3:



In this probe, participants will be given hypothetical problems and scenarios faced by their favorite superheroes, such as stress, financial concerns, loneliness, isolation, etc. Participants are tasked with creating a list of solutions (life-hacks or cheat-sheet) that the superhero could implement to cope with the problems. Often, people are likely to recommend solutions to others that work for them personally. Therefore, this activity is expected to unveil the current coping mechanisms and activities employed by international students to practice mental self-care as well as to cope with stress. They are also requested to brainstorm new ideas of thinking or sketching of tools/gadgets/ that can be invented or are in use to cope with mental well-being. A google docs link is shared to respective participants which will have scenarios, along with a template of a 'cheat-sheet', in which they have to list top 5 solutions in brief.

Task 4:



In this probe, participants are asked to take pictures of objects/technological artifacts available at their home, that they use to practice mental self-care. Further, they are asked to give it a name and explain why. This is expected to unveil what are the solutions that international students have currently employed to cope with stress and disturbances and further why are these solutions working to their advantage.

Respondents will be requested to share their photos and given names on WhatsApp or any other instant messaging tool as may be found convenient to the respondents.



JOURNEY MAP



This activity would unveil the impact of circumstantial situations and environmental factors on their state of mental well-being. A template of a 'journey map' will be sent to participants, in which they have to post their submissions.



1.0 Introduction.

This assignment is the subsequent to the one submitted before that revolves around the topic mental self-care. The motivation for the selection of the area mental self-care stems from the insight and present reflections, as evident in the media and amongst local student communities, that international students are significantly affected by the COVID-19 pandemic (*thejournal.ie*, 2017).

It stems into gaining insights from participants by engaging them into a series of activities using design probes. The second assignment is aimed at reimagining, recreating, and enhancing the experiences of practicing mental self-care, on the foundation of razor-sharp insights gained as a result of these probes. For this, a focus has been led on international students and the stressors they encounter when they move to a different place to pursue their education, or at their home country but pursuing master's education online. Through these probes, it is expected that the user's personal contexts and perceptions would be revealed, as argued by *Mattelmäki, 2006*. This would be helpful to unveil the mindsets of international students and how they view the areas of stress and mental self-care.


To achieve that, the design probes I created consisted of various activities and tasks (E.g., Sharing past pictures that invoke positive emotions, circling words, sharing artefacts that imbibe a feeling of positivity etc.). These probes inspired participants to ideate on what/ who are the situations, people and factors that promote the experience of a range of positive feelings and emotions and artefacts that they use to keep their mental wellbeing and the frequency of their engagement in practicing activities that they love doing.

Hence further considering the insights gained, I decided to develop a concept of looping people together in circles allowing them to join a group or a community to achieve a sense of belonging. This was developed by carrying out a research into the existing products available to cope up with mental self-care in the context of international students. I began to brainstorm ideas and create sketches. These led to the development of computer aided prototype and a video prototype.

2.0 Collaborative Design Sessions

2.1 How the collaborative design sessions were organized

The collaborative design sessions are undertaken in planned and controlled settings allowing participants to control what they do, when they do and how long they do. I had reached few of my friends who are international students in pursuit of education asking them if they want to be a part of the design sessions. Greater the diversity of the group involved, greater the potential to reach innovative solutions as stated by *Gustavo da Cunha, 2018*. The purpose of the session was explained in general terms. Only after they agreed willingly, fliers have been rolled out to every participant explaining what the task is about and how the task is to be done.



For the purposes of this project, it was chosen to accommodate outside influences and distractions E.g., Part time jobs/ Time zone difference that might affect design sessions. Hence, participants were requested to complete the activity and send back the probes only when they have enough time. The design probes were sent to five individuals via WhatsApp Messenger, who are similar to the target user population and have the same characteristics of target audience.

Before beginning the process of collaborative design sessions, the following time considerations were made:

- How much time do I have?
- How much time will it take to complete every activity?
- How much time the users have?

Selecting the right tasks is crucial to evaluate the shortcomings of mental self-care. Therefore, specific tasks were defined, that are achievable and not such tasks that are beyond capabilities and functionalities. The tasks were articulated in a manner that can be understood by the users with ease. (*Tina Hsieh, 2018*).

Tasks:

1. Sharing pictures of things that one loves doing
 - Participants are asked to relive old memories by going through pictures and videos from their Instagram archives/Facebook feeds/Snapchat memories and similar social media accounts and are asked to share pictures that evoke positive emotions.
2. Word Search puzzle
 - Participant are asked to look at a cross word puzzle with different words hidden in it. The respondents are asked to name things/people/experiences that comes to their mind when they see these words.
3. Creating a cheat sheet/ Life Hacks to solve problems
 - Participants are tasked with creating a list of solutions that work for them.
4. Artifacts that one employs at their home to practice mental self-care
 - Participants are asked to take pictures of objects/technological artifacts available at their home, that they use to practice mental self-care.
5. Listing out places that one has been to earlier in their journey of life
 - Participants are asked to explain their life journey by listing out the places they worked at earlier or have visited earlier or studied at.

2.2 What was learned during the activities conducted online:

- The participants wanted as little effort as possible whilst doing the activities.
- Participants wanted more accessible approach of communication. They thought and were comfortable using WhatsApp as the mode of communication whenever they had to share

or talk about an activity rather involving themselves over a face-to-face communication on MS Teams.

- They wanted a more secluded , secured, accessible and an open medium to share about the experiences they have had.
- Participants wanted a more engaging and a fun way of doing activities.

Participant 1 :

What they shared :

"I miss travelling. I used to travel at least 3-4 times a year. I miss the idea of going to new places, eating new food, experiencing new cultures and traditions. Right now, being in a global pandemic has definitely stopped all travel. But I think the financial strain as well as time commitment travel takes also leads to me travelling lesser."

"I think that the only way to help someone overcome their feeling of not fitting in is empathy. To show them that despite our differences or different responsibilities what makes them and us the same. Sometimes the understanding that you're not in it alone helps improve mental health by a lot"

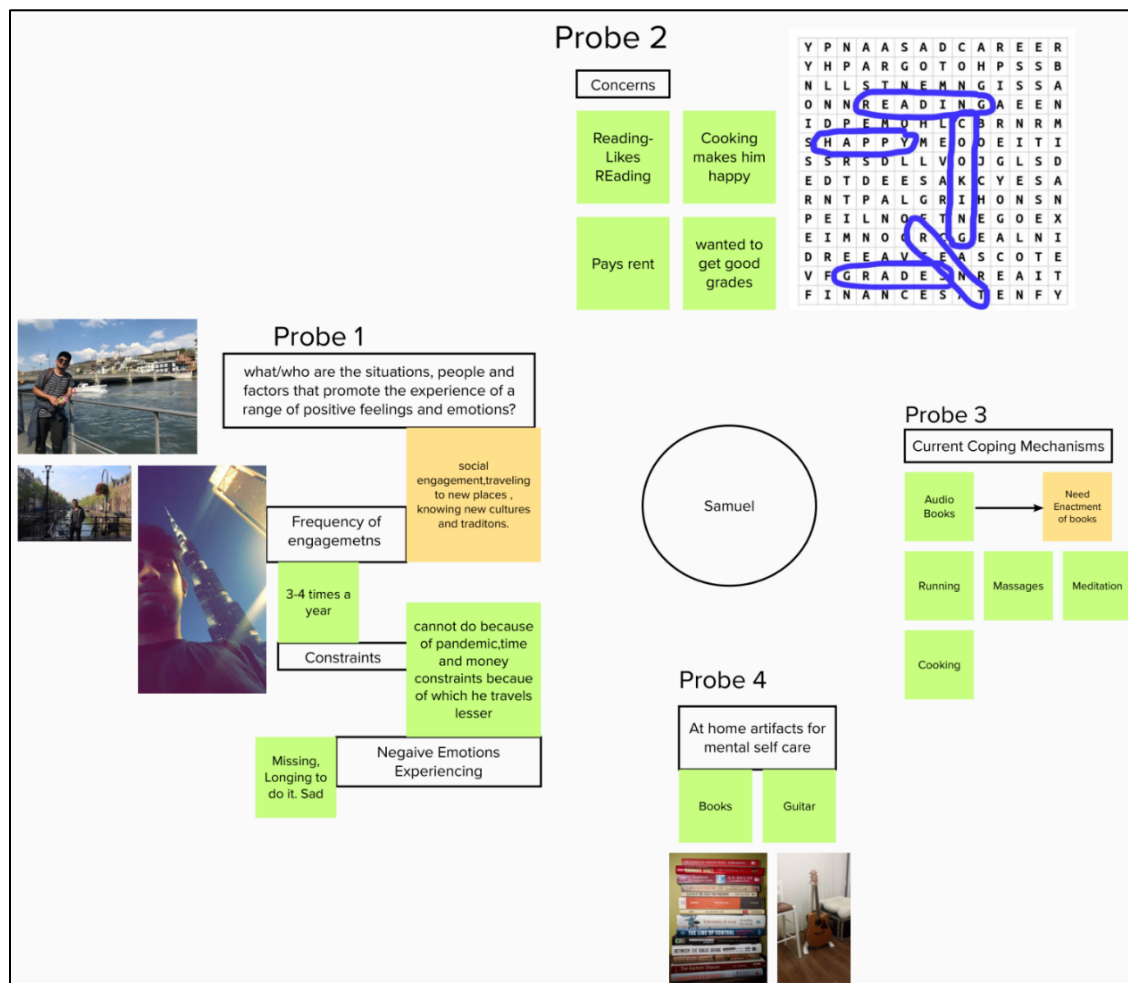


Exhibit 1: Findings of Participant 1

What they shared :

"#TDTMLI absolutely loved going to Sunday brunches quite a few times in a month. That was my most favorite indulgence and I would so look forward to them. It was a great experience to try different cuisines, with an impressive ambience and a great place to spend time with friends. I recount it among my favorite memories in India.

Unfortunately, due to COVID this is no more a possibility as the hospitality industry is facing the lockdown. I haven't been to a brunch ever since I came to Ireland and even in India during the lockdown and I miss that. My Sundays are so dull now. Makes me sad"

"I feel the happiest of my times in Dublin were with my Indian friends. We cooked Indian food together and shared happy times.....I feel that things close to India make me feel warm...Thanks to the Asian stores, I don't miss the savory Indian breads from home, I can devour them from this store...nothing more satisfying than involving in your community, your tribe!. It fills me with immense happiness especially when we are all distant from each other in the lockdown"

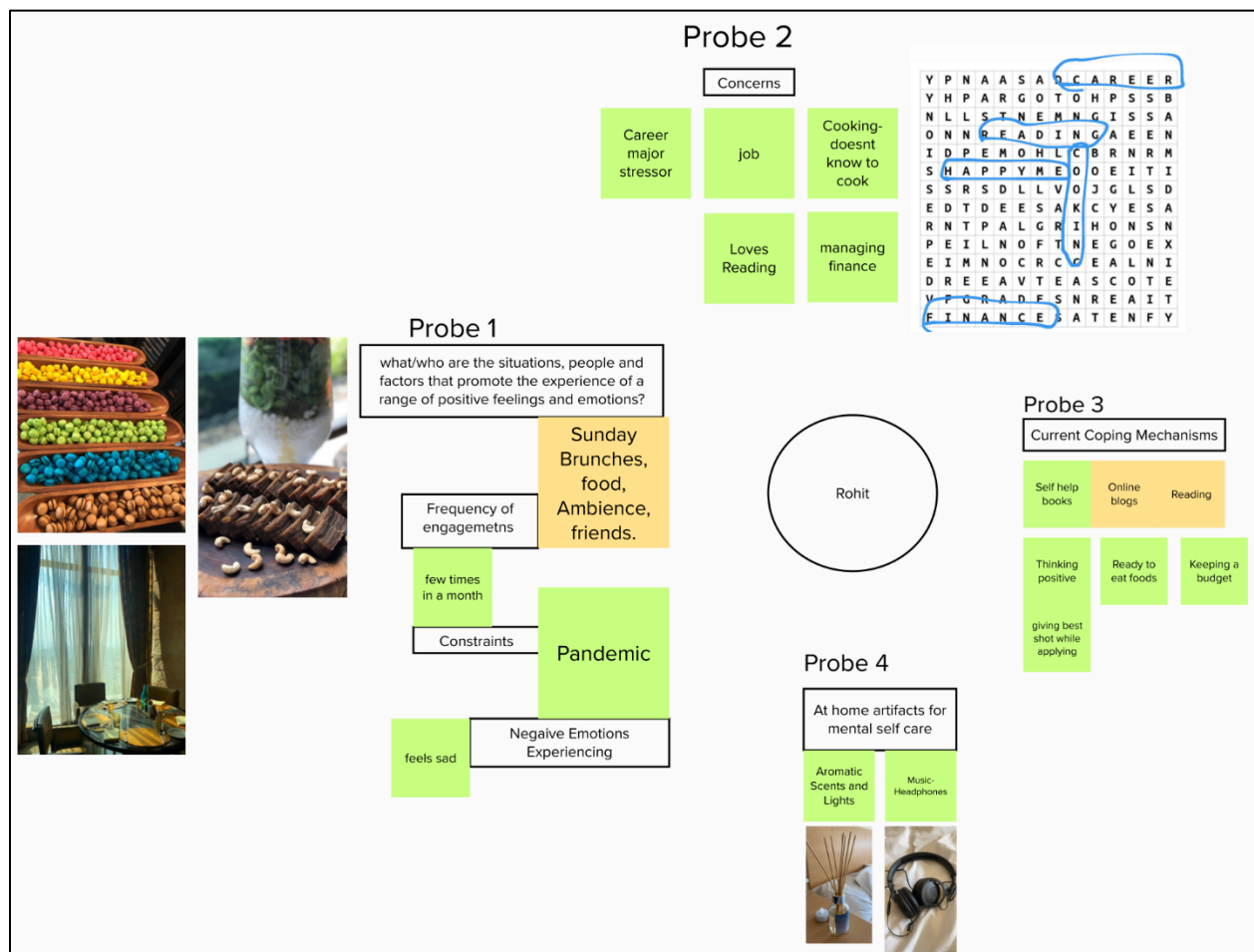


Exhibit 2: Findings of Participant 2

Participant 3:
What they shared :

"I miss the time when I used to hang out with my friends at least once in two weeks now that our paths have changed, and everyone flew to different countries for their career we are unable to hangout. Even though we are connected virtually it actually doesn't fill my heart as much as meeting in person does."

"I love cooking and I believe that the best way to impress anyone is by cooking".

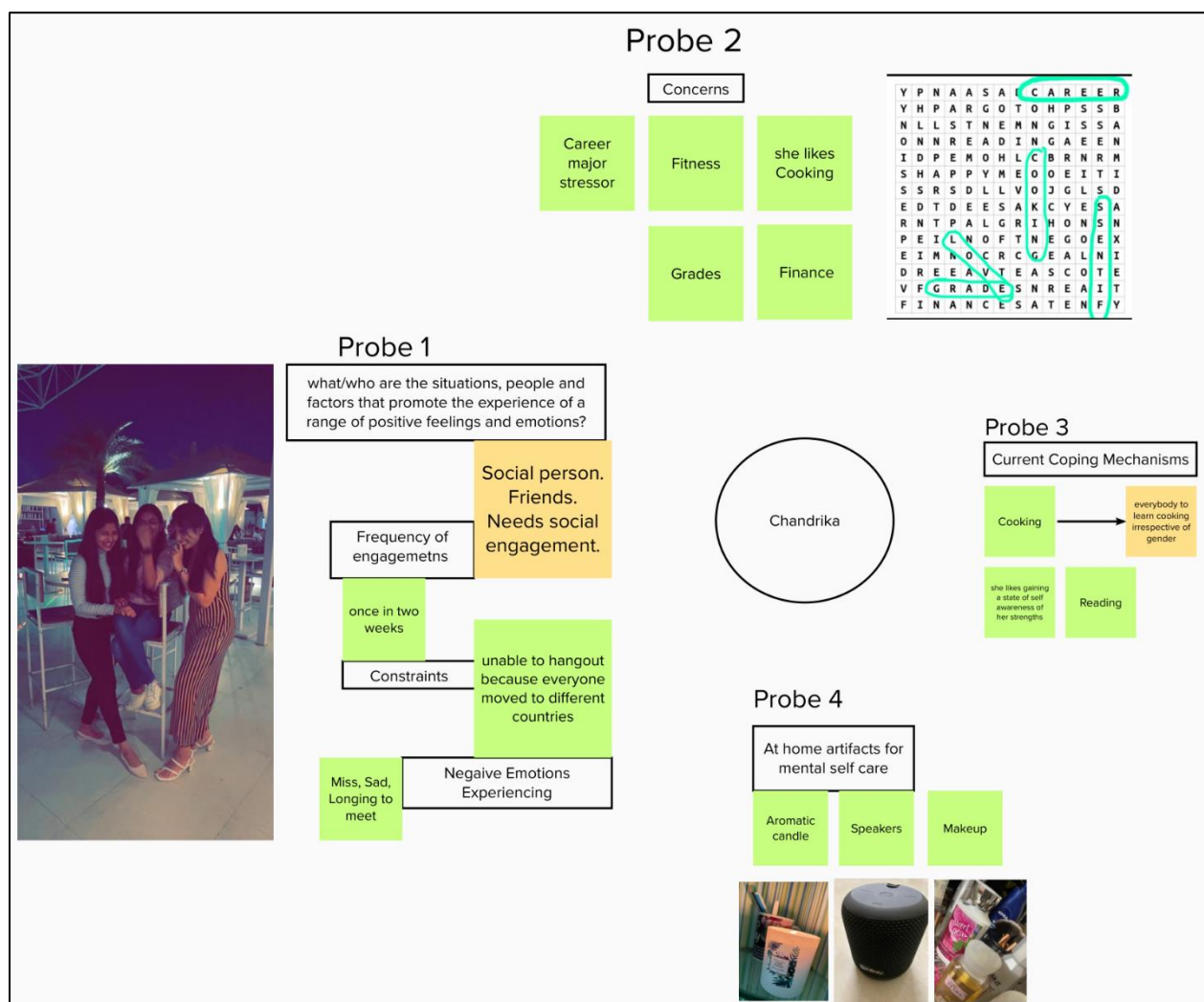


Exhibit 3: Findings of Participant 3

Participant 4:
What they shared:

"I am avid admirer of nature and loves to spend time around greenery. Fortunately, our campus is known for its spectacular architecture around greenery. It's almost a daily routine to have campus walks around this beautiful and colorful tree after a long hectic day. I found a new interest to click scenic pictures during those times. Time spent around this with a bunch of friends was always cherishable. Right now, I am home for the summer break and can't wait to be back to my campus"

"I love reading self-help books, the ones which can affect us from our roots, our "thoughts". I miss reading them lately because of my hectic curriculum."

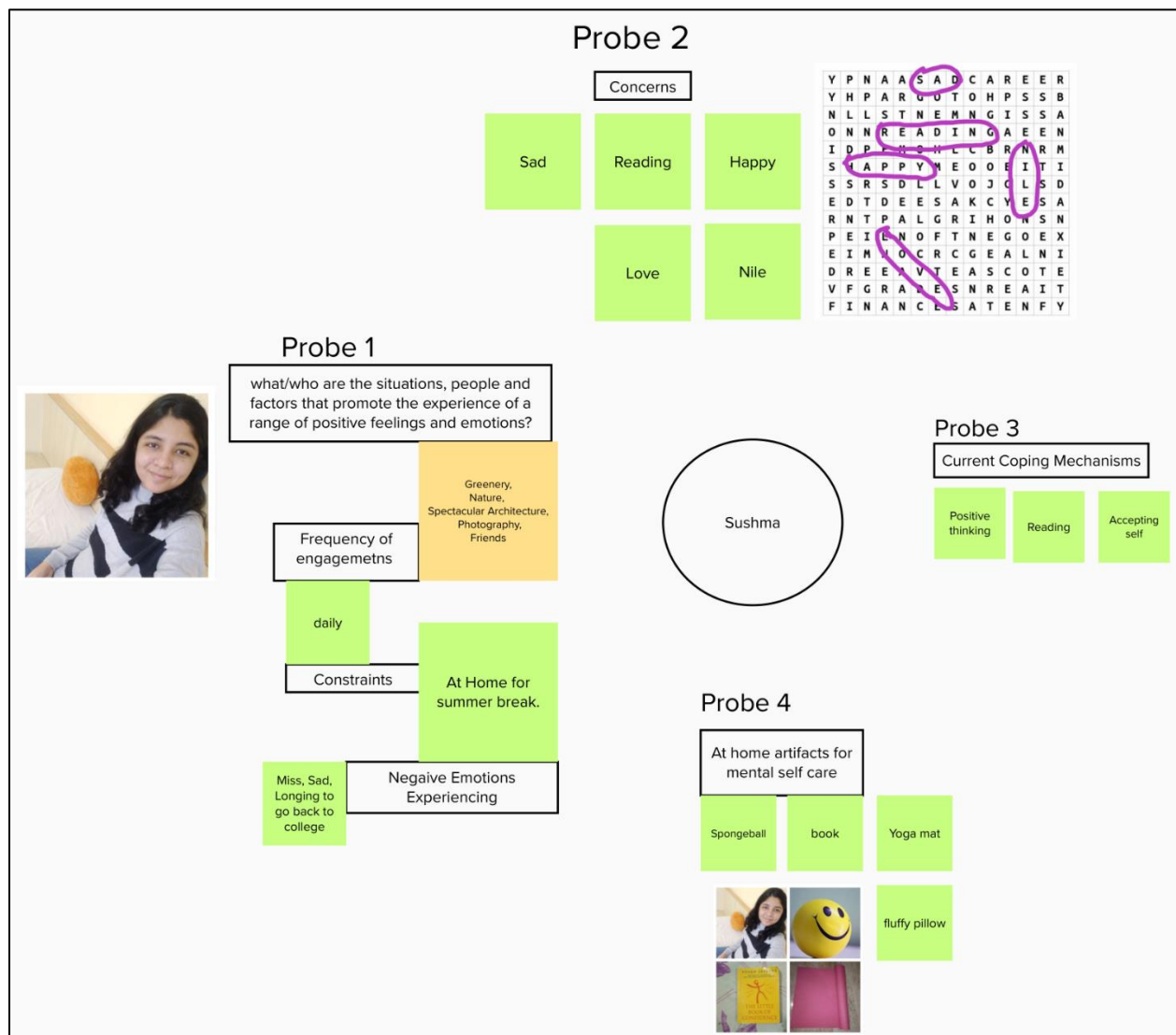



Exhibit 4: Findings of Participant 4

3.0 Analysis of the results of the collaborative design session

The findings from the design probes are structured in the below table. The table consists of an analysis of the responses generated from the design probes in the following areas:

1. Activities and experiences engaged in by the respondents in order to evoke a range of positive emotions and feelings.
2. The causes and factors of stressful experiences and feelings among international students.
3. Methods and techniques of managing as well as regulating one's emotions.
4. Artefacts used to combat stress and negative emotions or to simply experience positive emotions.

	Activities that cause positive emotions (Activity 1)	Causes of stress (Activity 2)	Methods of regulating emotions (Activity 3)	Artefacts employed to deal with stress (Activity 4)	Conclusive Insight
Participant 1 Milan, Italy Politecnico di Milano (Masters)	Travel, eating new food, experiencing new cultures and traditions, exercise, therapeutic immersions such as massages	The financial repercussions of leisure activities and overall management of finances	Seeking social and peer support for stress management	Books, guitar	The respondent seeks peer support for stress management. Often, he also resorts to cultural immersions in order to practice mental self-care.
Participant 2 Dublin, Ireland -UCD School of Business	Brunches, ready to eat food and socializing with Friends, engaging in activities and food from home culture	The uncertainties posed by the job market and responsibility of cooking for self as an international student	Seeking the support of self-help books	Music (Headphones), Aromatic candles and lights	The respondent regulates emotions guided by expert advice usually found in self-help books.
Participant 3 Newfoundland, Canada -University of Newfoundland	Immersing in nature and greenery and clicking scenic pictures	Rigorous schedule which restricts the respondent from indulging in mental self-care activities. E.g., Reading	Emotional Self-regulation with the help of positive visualization	Books, sponge ball, yoga mat, fluffy pillow	The respondent experiences emotional fluctuations due to a busy schedule as well as the challenges coupled with in an international location. In order to combat this, she employs a range of solutions



					from self-help books to stress reducing objects
Participant 4 Brisbane, Australia -University of Queensland	Cooking and spending time with loved ones	Self Esteem concerns posed by lack of fitness-driving engagements and academic pressures	Self-awareness about passions and career paths helps the respondent achieve a state of mental stability	Candle, Speaker, make-up	The respondent is devoid of opportunities for social engagement as a result of the circumstantial repercussions of the pandemic
Participant 5 Limerick, Ireland -University of Limerick	Environmental Immersion	Did not return back the probes	Did not return back the probes	Did not return back the probes	Did not return back the probes

The key themes emerging from the above analysis are explained as follows:

Reliance on external factors for happiness

It is evident from the responses that the respondents (international students) appreciate stability in the external environment and correlate it with the feeling of positivity and happiness. These external factors include social interaction and engagements, financial stability, academic commitments and fitness. The respondents are likely to experience happiness when all they can experience all these factors in a positive manner. For instance, in the case of one respondent, the inability to travel across the globe owing to financial concerns as well as the pandemic situation causes stress. In another case, a respondent reported high stress levels owing to her inability to manage her schedule owing to her academic commitments.

Desire to regulate emotions

A commonality among all respondents is their desire and willingness to control their emotions and experience a range of positive feelings. This is demonstrated by the tendencies of certain respondents to turn to activities that promote positivity and happiness as well as through the use of various artefacts as reported in the above table. This also unveils that international students have a certain level of awareness of their emotions, and they proactively take the initiative to regulate them in their own unique ways.

Engagement with activities to experience happiness

While some respondents have an intrinsic way of dealing with stress, other respondents expressed tendencies to seek social support for stress management and well-being. In both cases, the respondents prefer engagement with an activity of some kind to uplift their moods. Some respondents have demonstrated an internalized way of dealing with their emotions such as positive visualization, regulation of thoughts and reading self-help books in order to gain effective ways of promoting mental self-care. While some other respondents reported external engagements such as seeking social support or indulging in recreational activities such as travel, culinary explorations and more.

Use of artefacts to manage emotions

The respondents own multiple artefacts which are specifically designed in order to release stress. For instance, certain respondents mentioned the use of a sponge ball which can be held and pressed to release stress. Another respondent said that she owns a mat which can be used to perform Yoga. Certain respondents confirmed their use of aromatic and scented artefacts such as candles in order to create a positive mood. The respondents also use technological artefacts to immerse themselves in a state of happiness for e.g., using headphones to listen to music

Engagements with the home culture at the foreign destination

The respondents reported a higher level of fulfilment while engaging with activities that of cultural relevance to their home country. This experience helps them feel at home and results in a greater level of contentment. For instance, one respondent shared that he prefers food products from his home country, however they are often expensive at the international destination.


4.0 Synthesis of the results and Development of a specific design concept or scenario

Synthesis of results & focus areas for development

The above themes indicate the need to develop a design intervention that fulfil the following objectives:

Provide users an opportunity to experience stability

It is evident that international students appreciate a certain level of stability as they have come to study at a foreign destination. They would like to experience stability in various facets of life such as finances, government restrictions on travel and so on. While these are external circumstances that cannot be controlled with the help of a design intervention, they can certainly be managed better. For instance, with the use of a design intervention, users can be provided an opportunity



to manage their finances better which would help them achieve financial stability and therefore overall mental stability as a result.

Provide users an opportunity to seek guidance on emotional regulation

From the design probes, it was unveiled that users are personally interested in regulating their emotions. They try and apply various approaches to achieve this regulation. A commonly occurring instance among the respondents is turning to self-help books for advice and information, which they can use to regulate their state of mind. This reveals the need for a design intervention that can provide expert guidance and advice on stress management which can be used to the advantage of international students. Further, users also demonstrated their need of seeking social support to achieve emotional regulation and thus the design intervention must also achieve this outcome.

Provide users an opportunity to engage in activities that promote mental self-care

The findings emerging from the design probes indicate that users engage in various recreational activities in order to enhance their level of mental self-care. These include reading, listening to music, travel, et al. It is also reported that the academic rigors that international students must face, reduce the amount of time at their disposal to engage in these activities. The design intervention must promote the engagement with such activities in order to ensure that the respondents can achieve stability of emotions and experience happiness. It must also ensure that such engagements are frequent and adequate.


Provide users an opportunity to experience home-culture at the international destination of study

The design probe findings indicate that users appreciate when elements of their home culture are found at the international destination of their study. This helps them experience higher level of contentment as discussed before in this report. The design intervention must therefore present users an opportunity to engage with elements of their home culture

5.0 Using creative tools and exploring Design Space

5.1 Brainstorming and Selecting a final idea for Prototyping

The insights generated from the probes are the reflection of the present scenario rather than visions of the future. In order to address the complexities and dynamics of the current situation facing international students, it is decided to place focus on addressing some of the key issues cited by our respondents.



As it has been discussed earlier in this report, the design intervention must be able to achieve the following objectives:

- Provide users an opportunity to experience stability
- Provide users an opportunity to seek guidance on emotional regulation
- Provide users an opportunity to engage in activities that promote mental self-care
- Provide users an opportunity to experience home-culture at the international destination of study

A series of ideas were brainstormed in order to achieve these objectives, as also illustrated in Exhibit 5.

Firstly, a self-help app was conceptualized in order to empower users with the ability to self-regulate emotions. This app is proposed to contain a wide variety of resources catering to self-help content topics in multiple formats such as audios, videos, podcasts, et al. Further, it also provides users an opportunity to seek expert guidance anonymously, when they feel that the self-help approach is beginning to show only diminishing returns.

Secondly, the concept of an app that promotes mental self-care activities was brainstormed. From the findings of the probe, it was revealed that cooking, travel & reading helped the respondents experience a range of positive emotions. The area of cooking and especially community cooking was further explored, especially as this is a growing trend among international students, when they have only a dearth of safe opportunities for socializing, and cooking with apartment-mates is one of them. Towards this, an app containing easy recipes was suggested for international students and these recipes would be served in a contextual manner based on their countries of origin.

Thirdly, an app was brainstormed to provide an aggregation of regionally tailored events, list of supermarkets, community events – all of these would be contextual to the users' country of origin. We saw from the results of the design probes, that they preferred socializing with people from their community and appreciated elements of home culture to feel a sense of belongingness, even when away from home. This app would be able to allow users to experience their home-culture in a foreign land.

Lastly, an app was conceptualized to equip international students with financial planning and budgeting abilities, as financial concerns and stability were recurring themes witnessed in the results from many probes. This app would help students keep a track of their spends and provide suggestions for budget optimization.

It was realized from the design probes that international students relied on a wide variety of factors for their overall well-being and for experiencing mental self-care. On one hand, they want to be able to experience stability in terms of their finances, but they also want to have abundant opportunity for socializing and particularly with their communities. Further, they also rely on self-help and expert guidance to regulate their emotions. They also expressed interest in activities such

as cooking, socializing, et al as ways to experience positive emotions. It is clear from this discussion that there is not one standalone factor that alone possesses the capabilities to maximize their happiness, but a combination of several of these factors.

Therefore, if any of the above brainstormed ideas were carried to fruition, it would have been myopic; as it would have addressed only one factor at a time, and not a multiplicity of them. As a result, it was decided to provide an amalgamation or bundle of benefits as an aggregation, in order to ensure that users have the opportunity to experience positive emotions from a wide range of factors; financial stability, socializing, peer support & community engagement. This amalgamation of benefits is proposed to be an application known as ‘Looped’, which is explained further in *section 5.3* of this report.

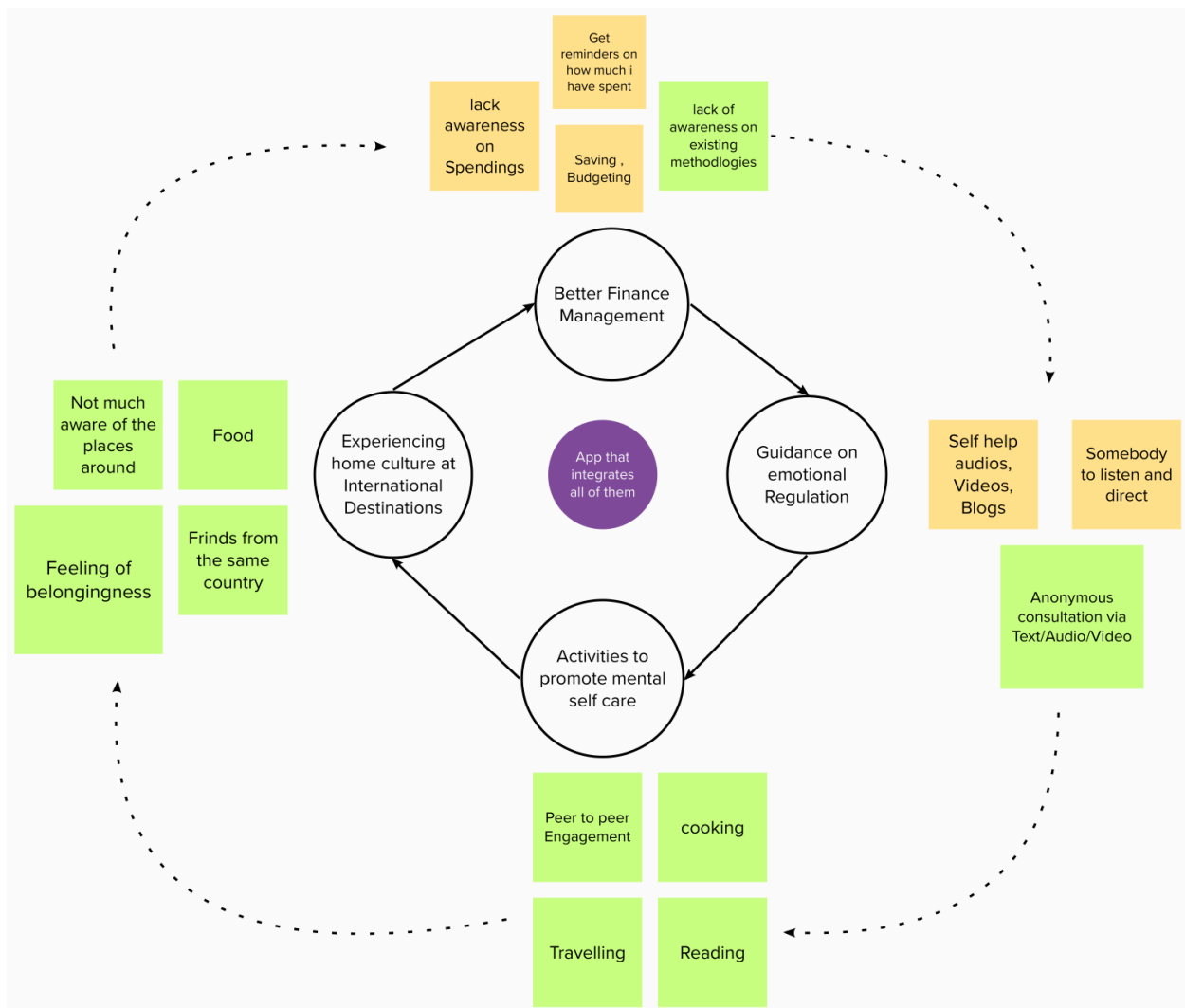


Exhibit 5: Brainstorming Ideas

5.2 Sketches

Wireframe provides a clear picture of the page structure, layout, and feature. On this work process, focus has been led on narrowing down about how the user web experience flow looks like. I hand drew a skeleton outline of each of the app screen. *"Sketching is not about drawing. Rather, it is about design"* - Saul Greenberg et al. (2012)

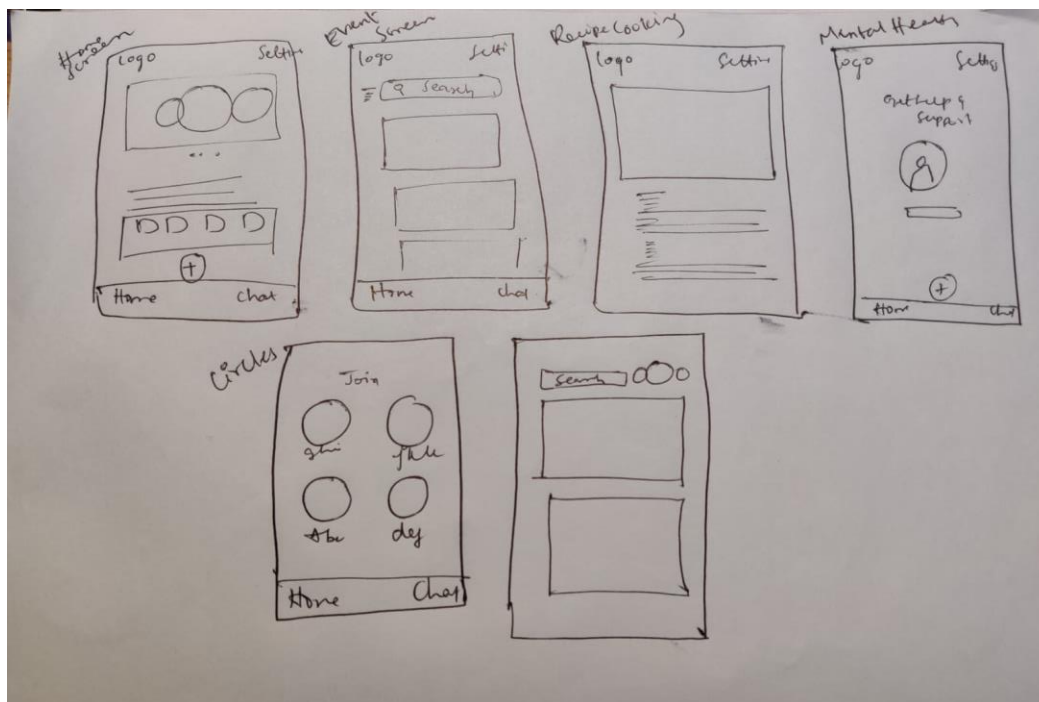



Exhibit 6: Sketching

5.3 Description of final concept or scenario

The proposed application is called 'Looped', an app for international students to join groups or 'circles' where they can engage and converse with people from their community as well as other communities. This would inculcate a sense of belonging among the international students, when at a foreign destination. The app enables users to join groups/circles on a variety of topics in a range of clusters. These clusters or 'circles' include commonalities by interests such as travelling, cooking, et al, commonalities by community such as Indians, Africans, Chinese, et al, clusters of people who are adept at budgeting and finances and so on. Further, students also have an option to seek peer support from like-minded others to cope up with their emotions. The app also aggregates information on local events and activities of regional relevance to international students (relevant to their country of origin) and further it provides recipes that international students can follow.

Therefore, 'Looped' is a bundle of multiple benefits, that when provided as an amalgamation can empower international students to maximize positive emotions and enhance their mental self-care.



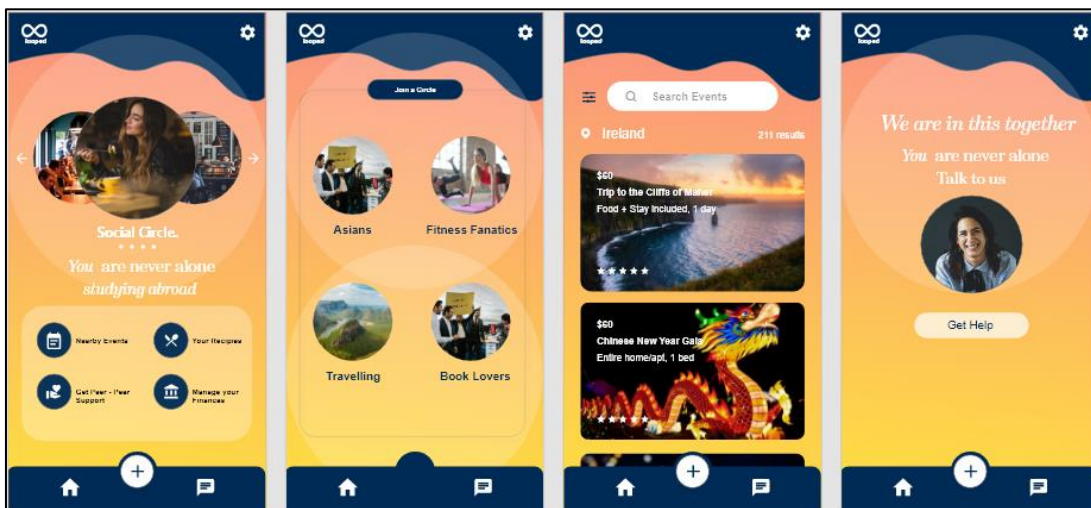
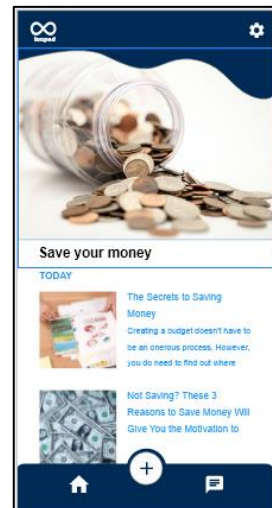
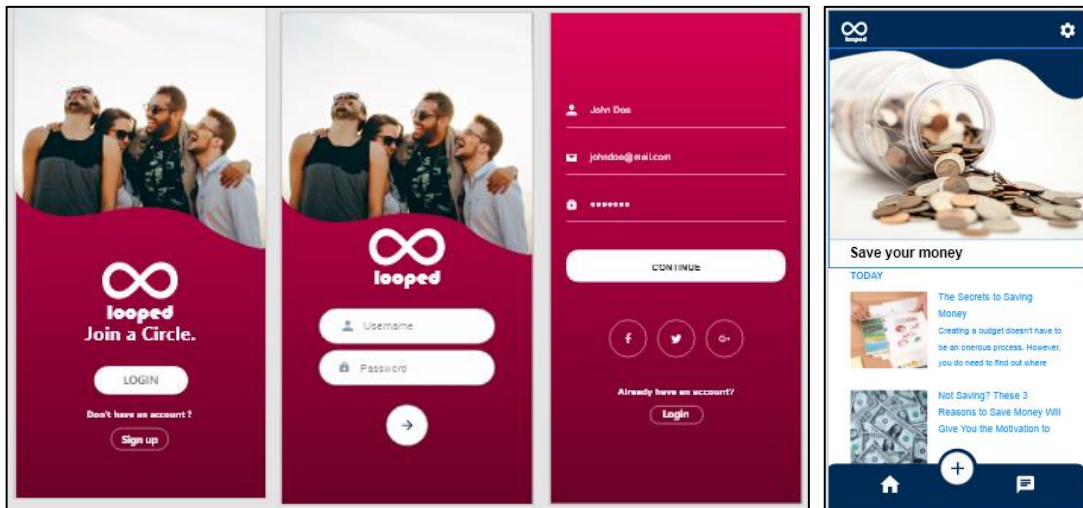
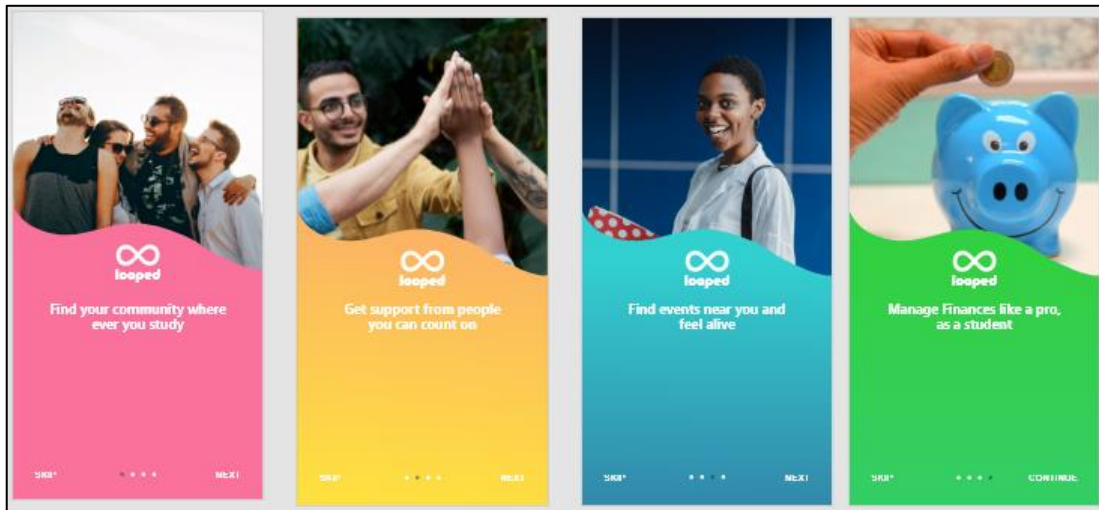
The features of the application are enunciated as follows:

1. So international students have an opportunity to join various circles. Circles represent a homogeneous group of users who share commonalities such as interests, communities, and so on. Some of the examples of circles include the Reading circle, Book lovers circle, Indian's circle, African's circle and so on. By joining a circle, users are subscribing to join a platform where they have an opportunity to engage with like-minded others. And therefore, this supports their need of socialization in times of the pandemic.
2. Find nearby events - using this feature, International students would be able to explore events happening in the neighborhood, these events would include a mix of regionally tailored events in order to provide users an opportunity to engage with their community as seen in the mockups. Some of the upcoming events seen in the application include the Chinese New Year gala and a trip to the cliffs of Moher organized by international students. As a result of this feature, we are empowering users to fully experience their prefer leisure activities such as traveling and community engagement.
3. Get peer support - Using this feature, international students have an opportunity to converse anonymously and confidentially with like-minded peers. This would be vital in times of the pandemic where international students feel isolated and often helpless in a manner to regulate their emotions on their own. This feature allows users an opportunity to seek support from their peers.
4. Manage your finances - International students would have an opportunity to gain access to a wide variety of multimedia formats, such as videos, blogs and more. This content would be crowd sourced from university students who can choose to voluntarily share financial tips that are working for them. Thus because of this feature, we are providing an opportunity to international students to manage their finances better and therefore experience overall financial stability and consequently, mental stability.

Please find the link to the prototype here :

<https://xd.adobe.com/view/59a186ac-ef01-42bd-a133-4a3c7347b5c6-0cf2/>

Computer Aided Prototype





Conclusion

Learning interventions through technology are a great way to solve critical challenges faced in the real world. This is evident in this project, where an application has been developed to overcome the challenges faced by international students. This exercise helped me to empathize with unmet consumer needs and expectations. This assignment taught me on how to probe users and turn a design idea from a concept to a prototype.

Immersing in this riveting experience of working on the project has helped me derive multiple learning outcomes on various levels:

- The power of imagination and brainstorming to create radical ideas.
- Recognize the challenges associated with probing users and taking into consideration all key themes to develop an intervention.
- Knowledge and awareness of meaningful design and the ability to articulate your own design sense.
- The importance of empathizing with the users.
- Create mobile applications that manipulate a variety of digital media file formats.
- Collaboration and co-creation as a crucial skill.
- Product design and prototyping.
- Problem solving skills.
- Counter-intuitive thinking.

References

Fitzgerald, S., 2017. *Fraud, high rents, no accommodation: The problems facing Ireland's international students*. [online] *TheJournal.ie*. Available at: <https://www.thejournal.ie/international-students-problems-3409555-May2017/> [Accessed 9 March 2021].

Mattelmäki, T. (2005) *Applying probes – from inspirational notes to collaborative insights*, in *CoDesign* 1(2), pp. 83-102

Mattelmäki, T., 2006. *Design Probes*

Hsieh, Tina., 2018. *8 tips for hosting your first participatory workshop*. [online] *Medium*. Available at: <https://medium.com/mozilla-taipei-ux/8-tips-for-hosting-your-first-participatory-workshop-f63856d286a0>

- Extracts from Ch 12 - Preece, J., Rogers, Y. and Sharp, H. (2019) *Interaction Design: Beyond Human Computer Interaction* (5th edition), John Wiley & Sons