When the Developers Become the (Micro) Crowd:
An Educational Case Study on Multidisciplinary Requirements Engineering

CrowdRE'21

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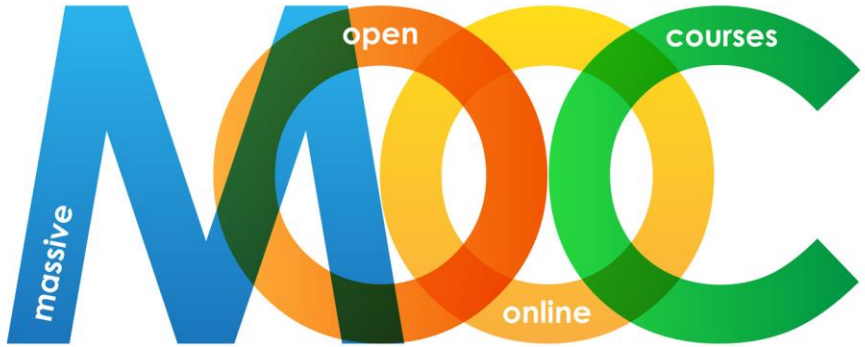
Loneliness is one of the major problems in our society in the 21th century.

“Jam week” Event Details



750 students

30 specialists from Shenkar and worldwide

25 lecturers from Shenkar – teams’ leaders

5 lectures

5 organizations

4 preparation days

4 “Merkaha” (Jam) days

3 international groups

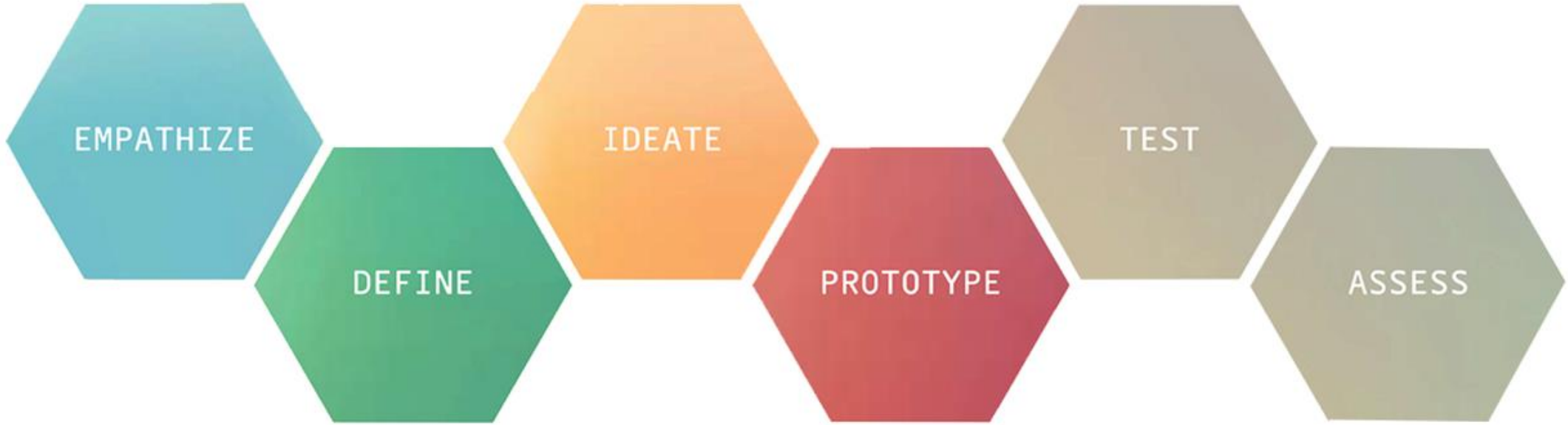
2 schools and research centers of Shenkar

1 panel of specialists

1 Miro collaboration environment

Human Centred Design

Design Thinking Process Diagram*



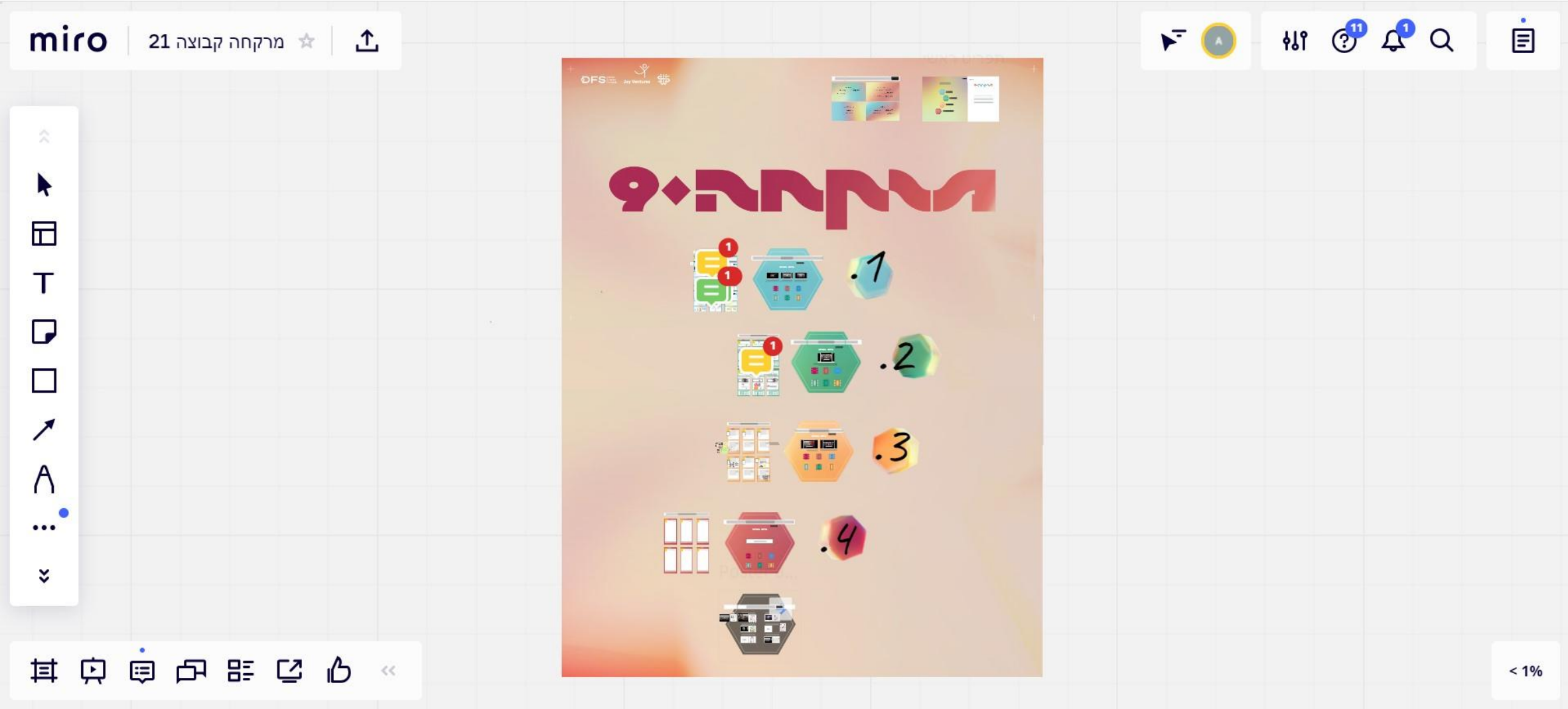
d.school Executive Education
Hasso Plattner Institue of Design at Stanford University

*not necessarily linear, apply as needed ©2019

Loneliness of:

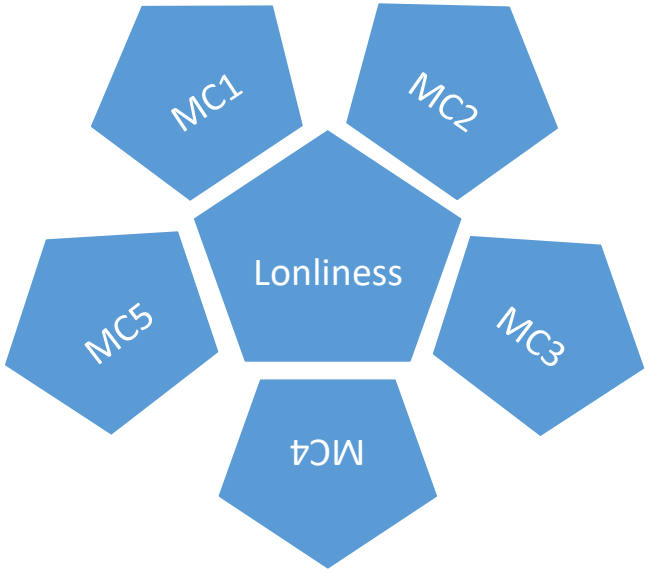
- Old-aged people
- Covid-19 hospital departments' staff
- mentally challenged people
- children with neurological problems
- Z-generation

Miro Collaborative Tool



Micro-crowd (MC) based requirements engineering (RE) was proposed as a gradual approach to crowd-based RE in order to mitigate risks stemming from this approach, such as low engagement of the crowd’s individuals

MCs Coping with Loneliness



1. How did the MCs perform RE activities while practicing the DT methodology?
2. How did the online, structured, collaborative tool foster DT in MC RE?

Case study

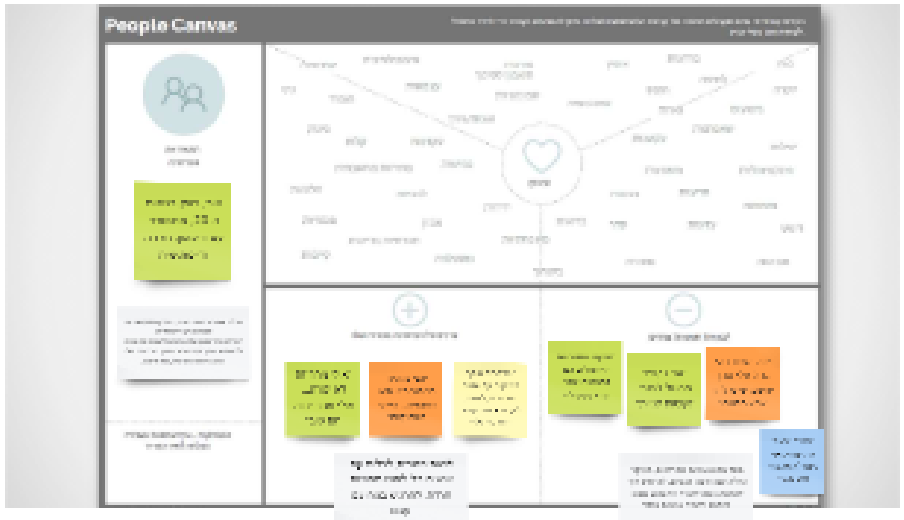
Qualitatively analyzed the data gathered on the team's online boards

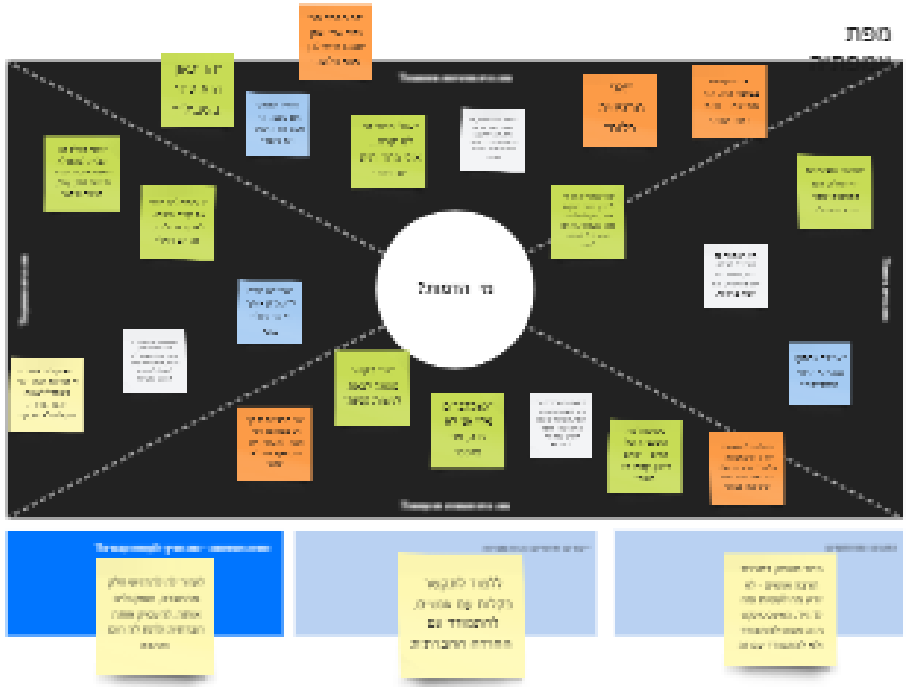
Results:
MC-based RE in the DT process

Each MC was comprised of 5-6 groups, working with one organization

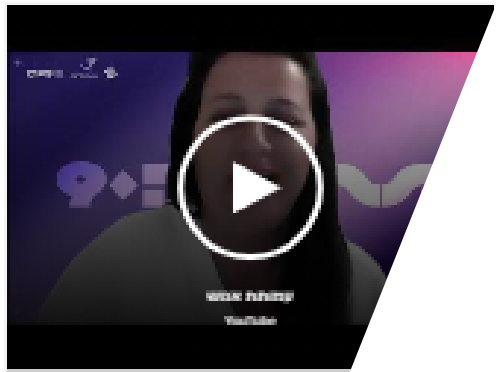
Each group included 6 teams of 5-6 students each.

Each team in the MC worked on private Miro boards and came up with a different focus.





האתגר: העלאת
מודעות להיקף
תופעת הבדידות



Part Three. Movie: HCD Methodology, Alex Padua. Task: Continue to refine the problem - start the research

Instructions:

Keep exploring the challenge.
Try to understand the needs from the users' point of view.
It is advisable to consult with the representatives of the Organizations in the hive and with your instructors.

Look for inspirations, test cases and examples of similar products to make sure you do not offer solutions that already exist.

A worksheet for your use:

t One. Task: Define - Finalize the challenge

tructions:

the relevant users

Map and rate the importance of the tasks

ulate the challenge

can we help the (target audience) the younger generation do (action) reach out in order to (any value)

Please re
constant
documenting
the process, t
and the work be
will need t
documentation a
poster and pitch tha
will submit on the last

cising diversion and Convergent thinking

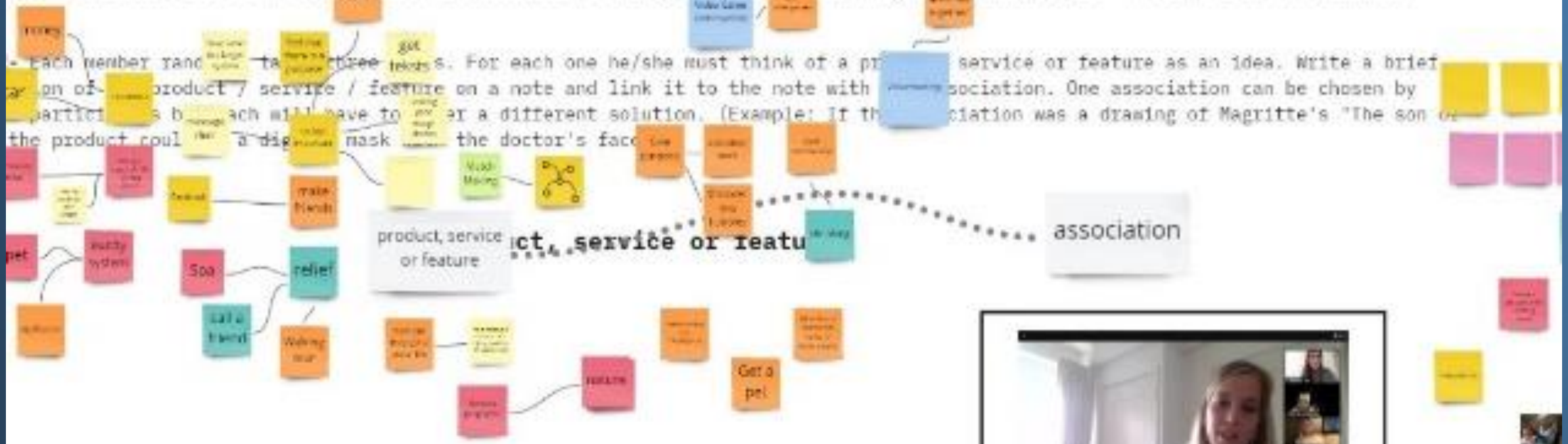
uctions

me: Diversion Thinking

ask has two steps:

. Each participant thinks of three associations regarding the group challenge and writes them on three notes.
sociation can be a word, a sentence, a proverb, a quote, a drawing or any other reference, verbal or non-verbal (for example - the
nge - the loneliness of a doct tient relationship during C ien; Magri drawing of "The son of man"; Community

- Each member ranc ta three s. For each one he/she must think of a pr service or feature as an idea. Write a brief
r on of product / service / feature on a note and link it to the note with sociation. One association can be chosen by
particip s b ach will have to er a different solution. (Example: If th ciation was a drawing of Magritte's "The son o
the product coul a dig mask the doctor's face



Two: Convergent Thinking

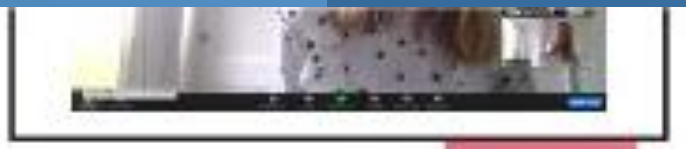
Convergent Thinking

three steps to this task:

eam members will prepare a list of important characteristics for a possible solution for the they have chosen (sample features - digital; accessibility; physical, etc.).

ch feature will receive a breakdown of its important elements, as well as an indication of its mportance (for example - for the 'digital' feature the breakdown may be: ability to run on evices, accessibility for the blinde, etc.).

e: According to these features and characteristics you will be able to rate the ideas you have th below, so give some thought and rating the features. At this point you need to understand portant in the project and how different features can help or interfere with the fulfillment pose.



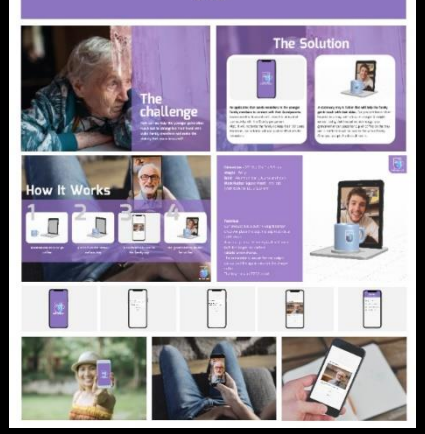
ood ideas

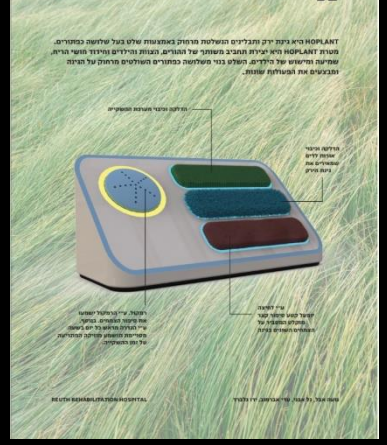
Importance

characteristics

Breakdown / Design Principles

הפיכת היוצרות!
Killin'it

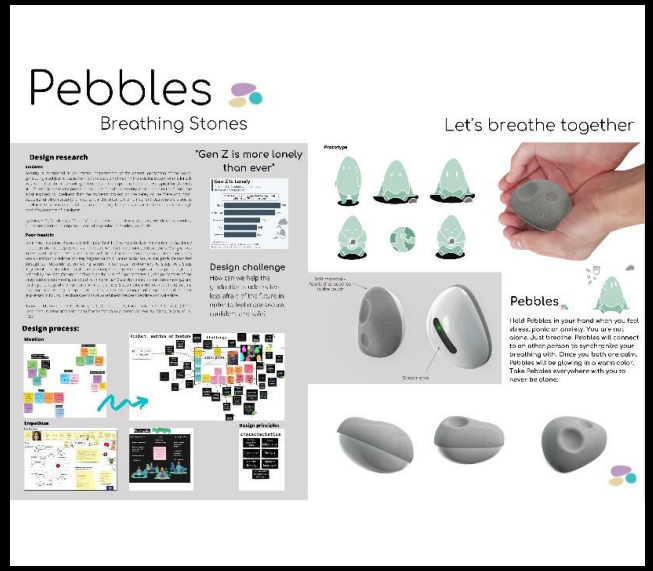

The Solution
The challenge
How It Works



Bondify
Storyboard
Empathy Map
Research Findings
Ideation
Expert Insight

Care Cush
SHENKAR
הבנת הצרכים
מודל נבחר

step 1
step 2
solution suggestions
step 3
sketches & ideas
step 4
finished product
night
day

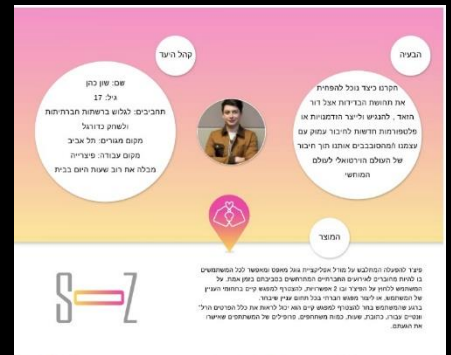

Pebbles
Breathing Stones
Let's breathe together
Design research
Design challenge
Design process:
Pebbles

פלוטו
האפליקציה

CHAD- AN APP FOR MENTAL SUPPORT

COMMUNI - BRACELET

הפרדוקס של דור ה-Z: כיצד קרה שהדור הכי "מחובר" הוא גם הבודד ביותר?
גיבוש פרסונה:
רוני, נערה בת 16 מהמרכז, תלמידה חרוצה, מתנדבת בצופים ומבלה עם חברותיה, עדיין מוצאת את עצמה בודדה כאשר הרשתות החברתיות לא מצליחות למלא את החסר.



30SEC 4HELP
השאלון שעוזר לך לדעת בזמן אמת על מצב בריאותו הנפשית של המטופל
תשובות בזמן אמת
תוצאות מדוייקות

Results:
MCs' DT in online, structured, collaborative tool

Present assumptions and biases regarding the social challenge they faced

Summarize each day and plan future work

Map the identified challenges and stakeholders

Listing challenges from the most important challenge and stakeholder to the least ones

Divergent and convergent thinking

Presenting criteria and priorities

Linking associations and features

Features’ voting

Results:
Feedbacks

Organizations:

Could learn the students' assumptions

High impression from the outcome

Students:

Satisfaction from the collaborative process

Importance of the challenge

Zoom fatigue

Stressed nature of the "Jam week"

Results:
Shared
understanding of all MCs

Solutions should manifest:

social connections

family involvement

sharing one's feelings with others

and empower the users with meaningful and enjoyable activities for improving their self-confidence

Several MCs address a challenge

For different stakeholders and from different points of view

Working in parallel

Using a collaborative tool

Applying human-centered-design methodology

Research Contribution

- ✓ DT process facilitated in-depth learning of the various stakeholders
- ✓ The platform enabled the documentation of the work process
- ✓ The platform also enabled to share the MCs' proposed solutions with the stakeholders from the organizations, who were able to choose their preferred ones
- ✓ Having multiple MCs working in parallel on the same challenge with different stakeholders helped to understand the fundamental needs of lonely people
- ✓ Our findings highlight the important role of a collaboration platform in performing the DT process, and the contribution of interdisciplinary MCs working in parallel

Research Limitation and Future Research

Limitation:

- ✓ A single execution of multidisciplinary developers MCs practicing RE

Future Research

- ✓ Studying additional educational settings in facilitating this educational agenda and developers MCs RE
- ✓ Examining MCs RE in business settings that can involve developers' MCs, where each copes with different stakeholders
- ✓ Focus on different ways in which such MCs are formed and combined to a large crowd

Thank you!

Q&A

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