



“Synchronized Dining”

Tangible Mediated Communication For Remote Commensality

Judit Komaromi Haque

TARGET GROUP



Geographically distributed families & loved ones



a result of
globalisation
work oriented
life style

DESIGN QUESTION



“How may we create togetherness
-with the help of an interactive device-
between loved ones separated by distance
during dining,
through remote communication?”

RESEARCH QUESTIONS



How do you sense
togetherness
while geographically
separated?

How do you sense
it through touch?

How can it be mediated
through an
interactive device?

GOALS CRITERIAS



Employ the
modality of touch

Representation
of movement

Immediacy

Joint
action

Contextualised
medium

BACKGROUND **THEORY**



Psychology, Physiology
Sociology, Communication
Interaction Design

Commensality

Touch

Nonverbal
Communication

Emotional
Contagion



COMMENSALITY

- Most frequently repeated social activity
- Vital part of human life
- Universal medium
- Shared experience
- Social bonds
- Togetherness



SENSE OF **TOUCH**

“Touch is worth a thousand words”

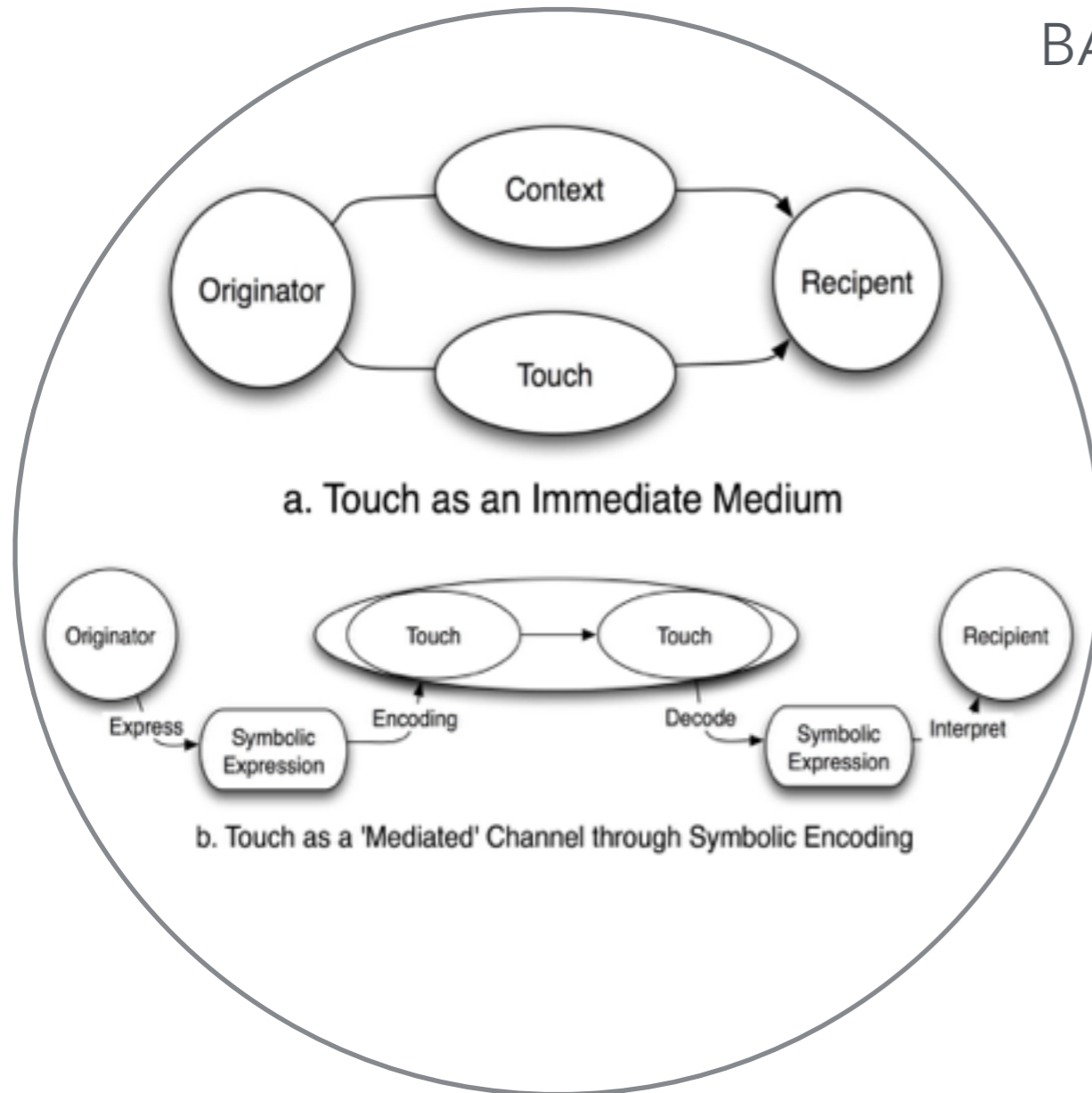
**Affective & immediate
communication channel**

Physiological phenomenon

Cutaneous - receptors of skin

Kinesthetic - movement of body,
active and passive modes of touch

Haptic - both Cutaneous & Kinesthetic



SENSE OF **TOUCH**

Immediate channel

“it carries unique affective information”
(Wang and Quek, 2010)

Contextualised medium

age, gender, environment, etc

Non-vulnerable & Vulnerable

body parts



NONVERBAL **COMMUNICATION**

Physical & spatial environment
Unique physical characteristics
of the communicator
Body movements & positions



EMOTIONAL **CONTAGION**

DEFINITION

"automatically mimic and synchronise expressions, vocalizations, postures, and movements" (Hatfield, 1965)

Mimicking emotions through
visual cue

RELATED WORK INSPIRATION



Friendl

Remote communication during dinner

Synchronous behaviour



inTouch

Connected objects

Haptic, force-feedback technology

Physical link
Representation of movement



Frebble

Remotely hold hands, send and receive squeezes

Tactile experience

Simultaneous action



Touch&Talk

Haptic interaction

Allows expression of effect

DESIGN METHODOLOGY



Research
Through
Design

Scenarios

Workshops

Experience
Prototyping

DESIGN PROCESS



DINNER WORKSHOPS

GOAL

To identify features of
face-to-face communication
with focus on nonverbal

To find touch points, surfaces

Social dynamics, code of conduct





EATING ALONE RECORDING 1

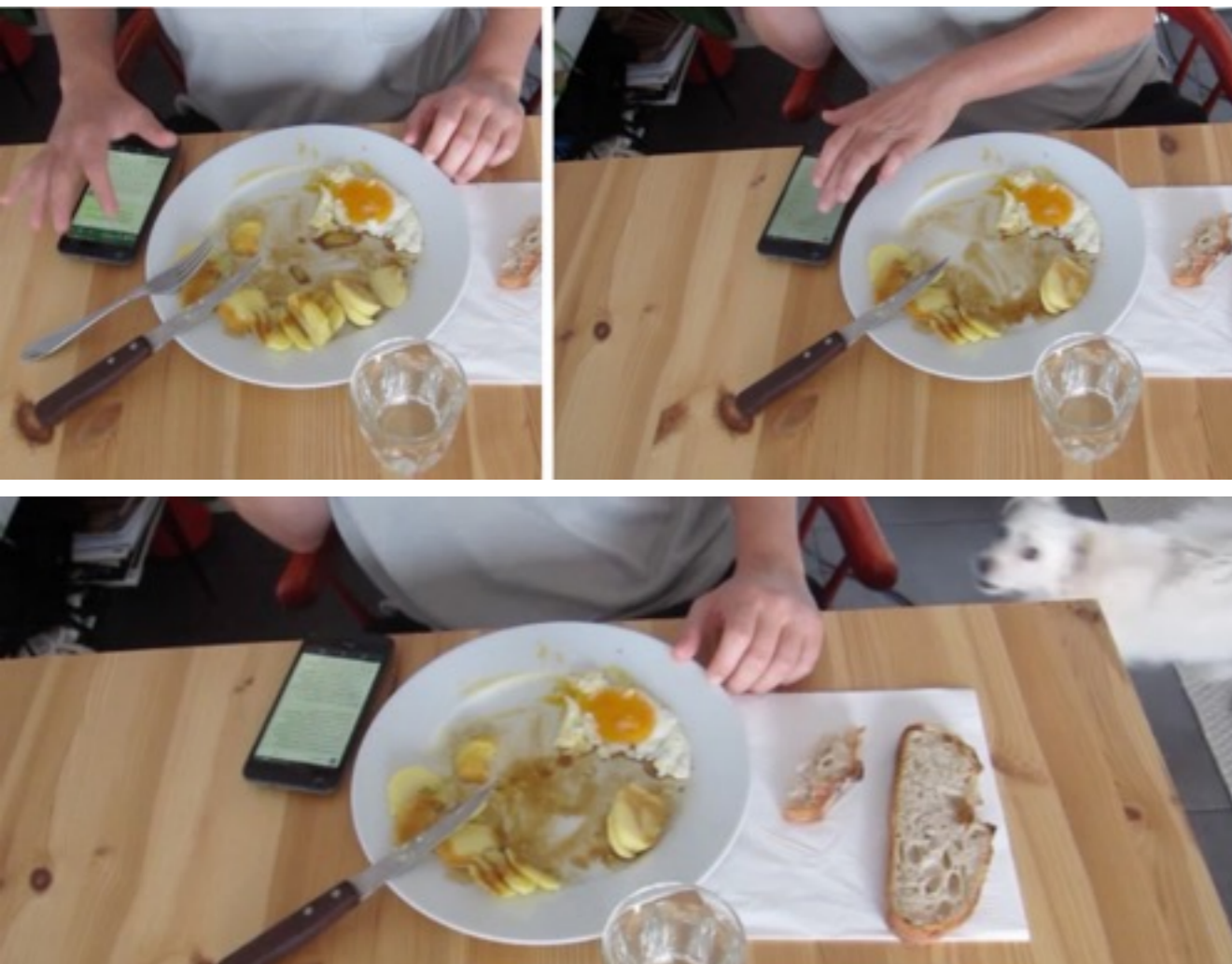
“Left-over lunch alone”

GOAL

To identify and collect touch points, surfaces, movements, sound elements and the emotions of participant.

FEEDBACK

Lunch felt “meaningless”
“bored”, “lonely”





EATING ALONE RECORDING 2

“Quick and busy lunch break”

GOAL

To identify and collect touch points, surfaces, movements, sound elements and the emotions of participant.

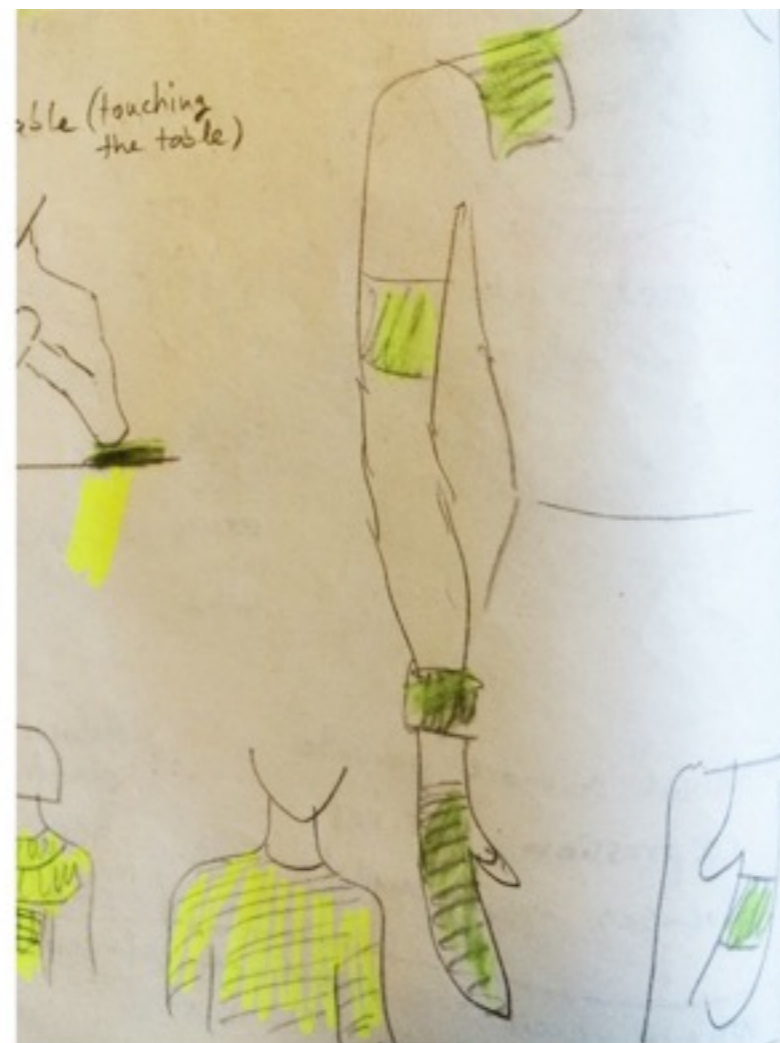
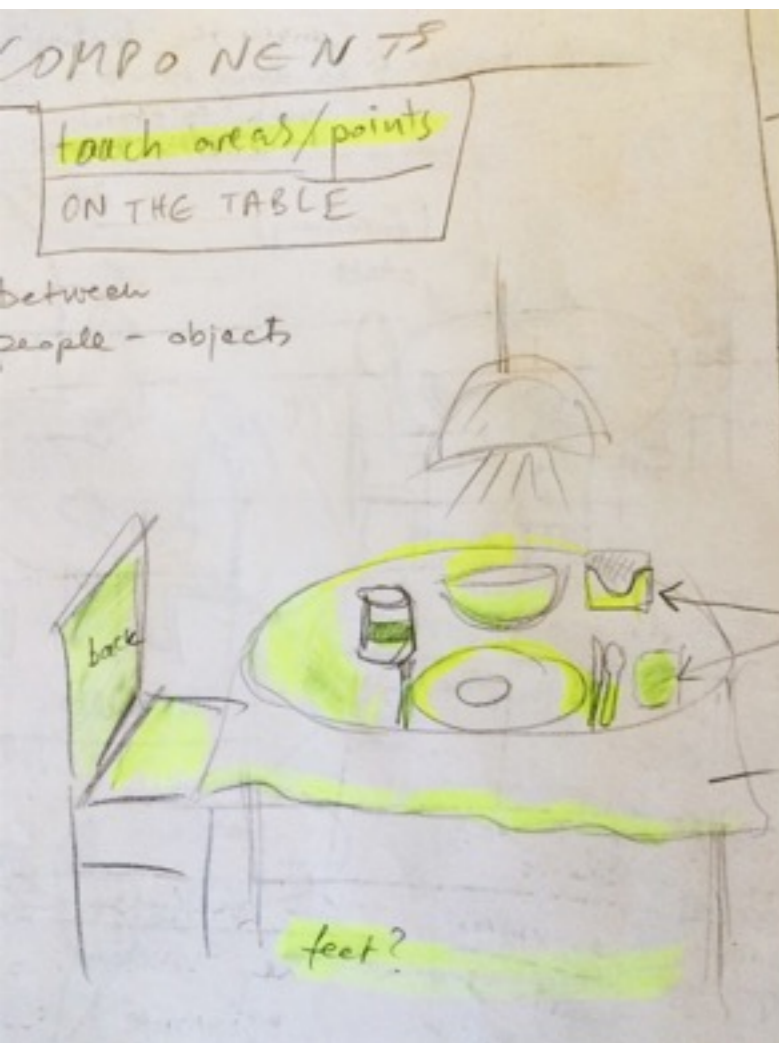
FEEDBACK

It was like to “kill two birds with one stone”



SKETCHING & IDEATION

Touch points, surfaces





“share our presence
to each other”

“the best time
of the day”

“connecting,
recharging”

“a sense of belonging
and sharing”

“touching each other’s
feet accidentally”

“doubling the
taste of food
with laughter”

“sharing thoughts
and experiences”

“it means that
you care for
each other”

“sweet”

“laughing”

“you make an effort to
keep the relationship alive”

“sharing”

“love.
sharing is
caring”

“being around the table”

ONLINE SURVEY

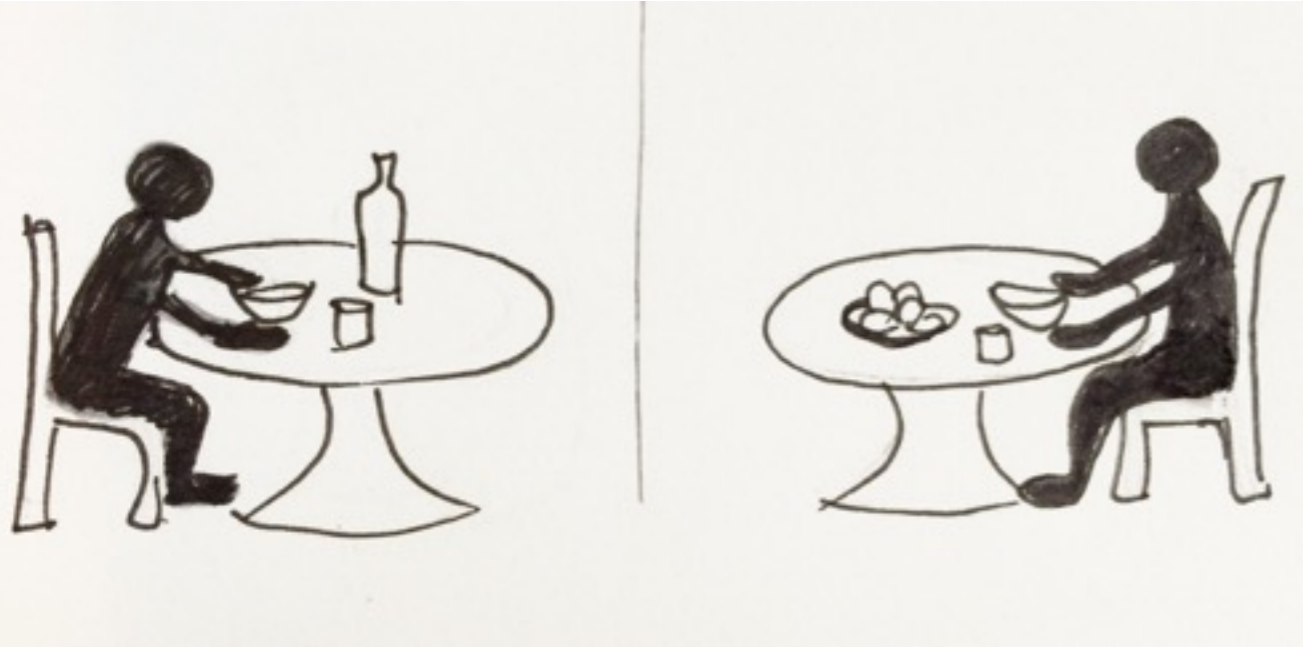
“Togetherness during mealtime”

GOAL

To find out what togetherness means
during mealtime

PROCESS

Seventeen people completed it



BACKGROUND

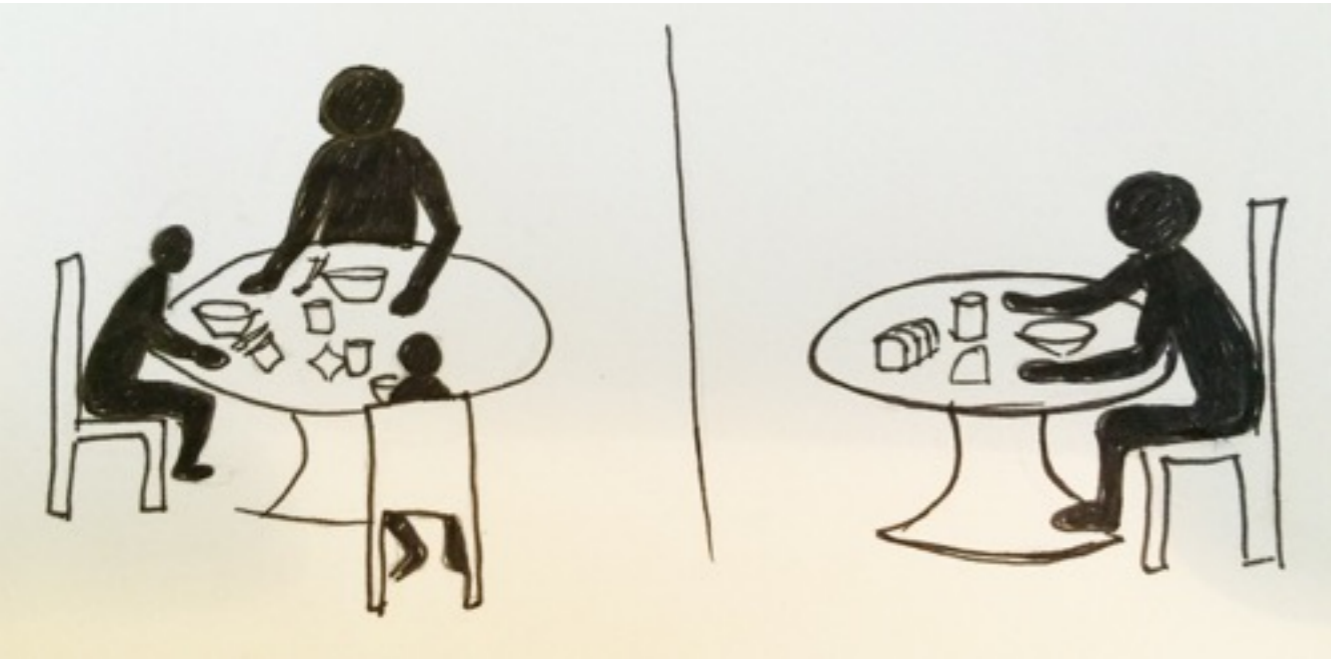
Often separated because of work, going on business trips regularly.

COUPLE ALONE SCENARIO

NEEDS - They want to
feel close while remotely dining

communicate affect

feel cozy, a sense of warmth



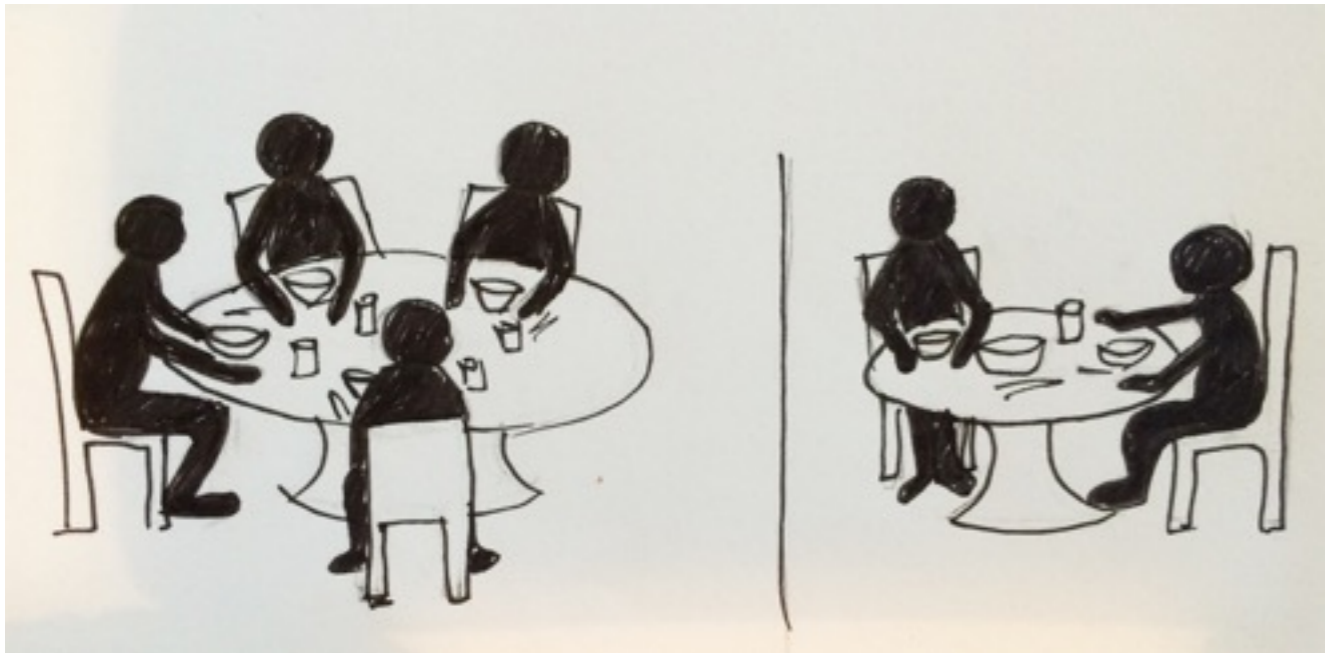
BACKGROUND

A parent with two children, and a grandfather at a distant location. They can only dine together couple of times a year.

FAMILY SCENARIO

NEEDS - They want to feel as if they're sitting around the same table

'come together' and feel 'united' as a family.



BACKGROUND

Couple dining with their own families at distant locations, away from each other.

TWO COUPLES SCENARIO

NEEDS - They want to
communicate while eating with their families

discrete communication that doesn't interrupt others

feel closeness, together, warmth



RAPID PROTOTYPING

GOAL

Show joint action or movement

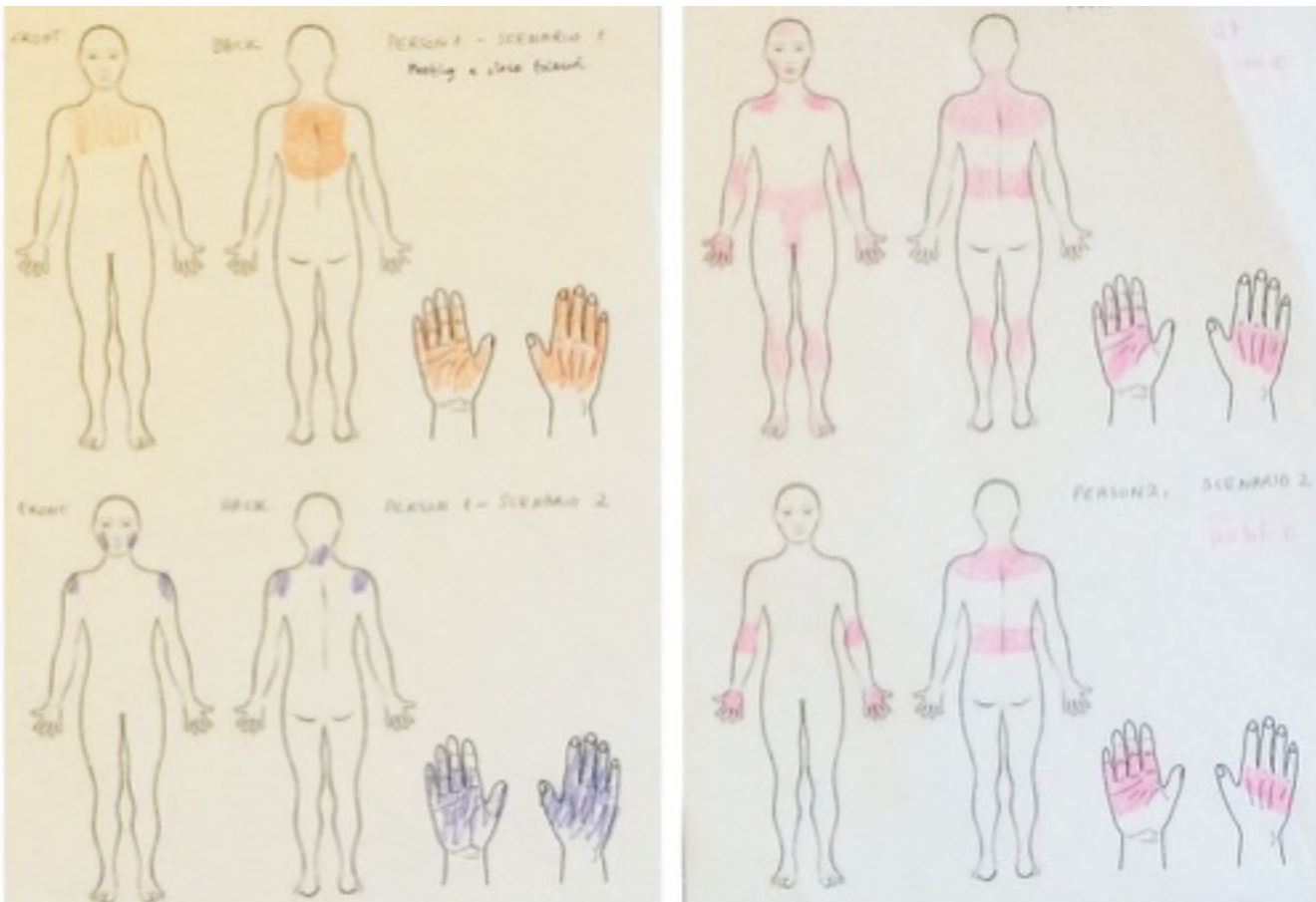
PROCESS

Four participants during dining
Inflated gloves & tube

RESULT

Positive about joint action,
it made them feel connected





COLOR-IN EXERCISE

“Body, touch and context”

GOAL

Explore the relationship between touch, body parts & context

PROCESS

Twelve participants

RESULT

Most touched are
Non vulnerable body parts





EXPLORING FORMS

GOAL

Exploring grips, squeezes, and different hand positions

RESULT

Informed the building of prototypes



EMOTIONS & TOUCH WORKSHOP 1

“Togetherness”

GOAL

Find out if it's possible to express togetherness through sense of touch?

PROCESS

Seven participants during dining with family

RESULT

Different dimensions of touch could be explored - location, duration, intensity





EMOTIONS & TOUCH WORKSHOP 2

GOAL

Find out if it's possible to communicate feelings via touch

Explore dimensions of touch: intensity, duration, etc

PROCESS

Three participants

Described & expressed their feelings

RESULT

Similar feelings 'relaxed' were expressed in a similar way, relatively same length of time



DESIGN PROCESS



EXPERIENCE PROTOTYPING

“Modalities of expression”

GOAL

Explore the interaction alternatives of each scenario

Where to place the objects

Explore design possibilities around the bodies, objects, table, etc

To inform the final design solutions



EXPERIENCE PROTOTYPING

“Modalities of expression”

GOAL

Explore interaction alternatives of that allows playfulness

Explore design possibilities around the table while dining

To inform the final design solutions

OBSERVATIONS

Kids interested in shared object
Focus was on table & each other

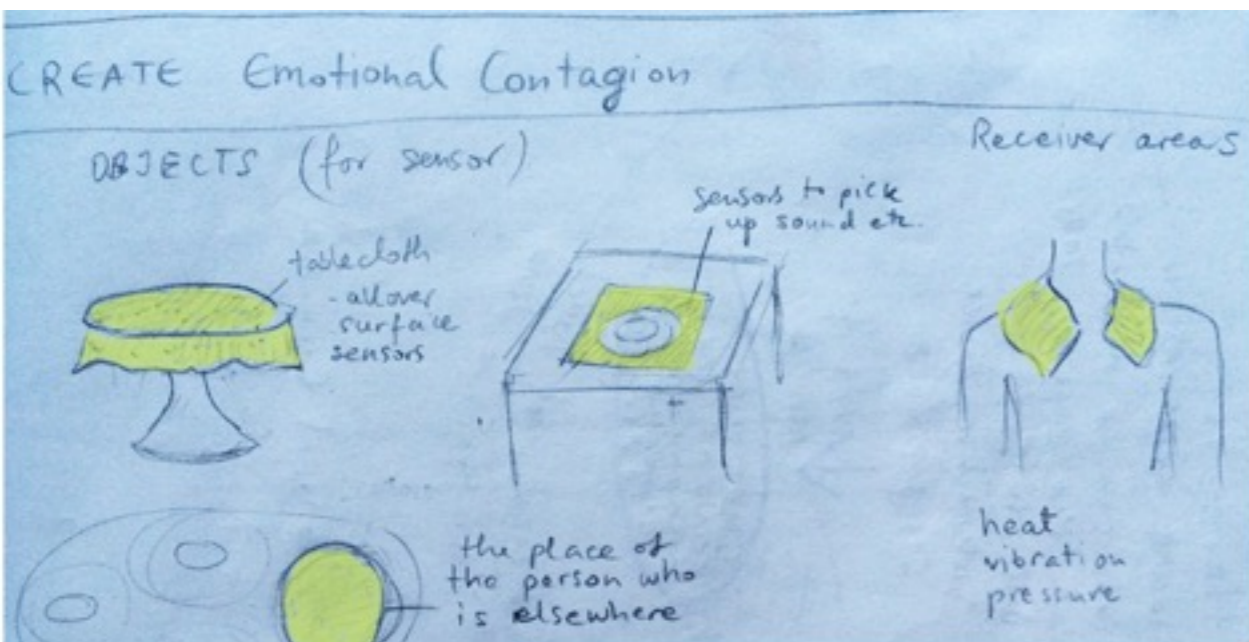




EVALUATING IDEAS SKETCHES

Placing the object

Selecting the right movements, actions



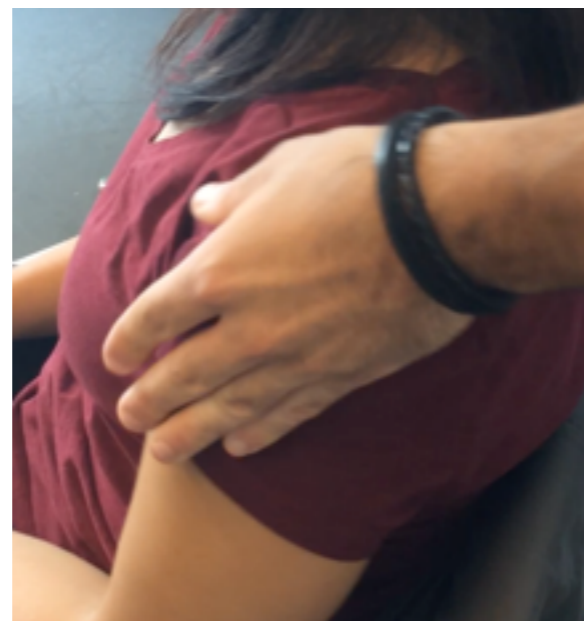
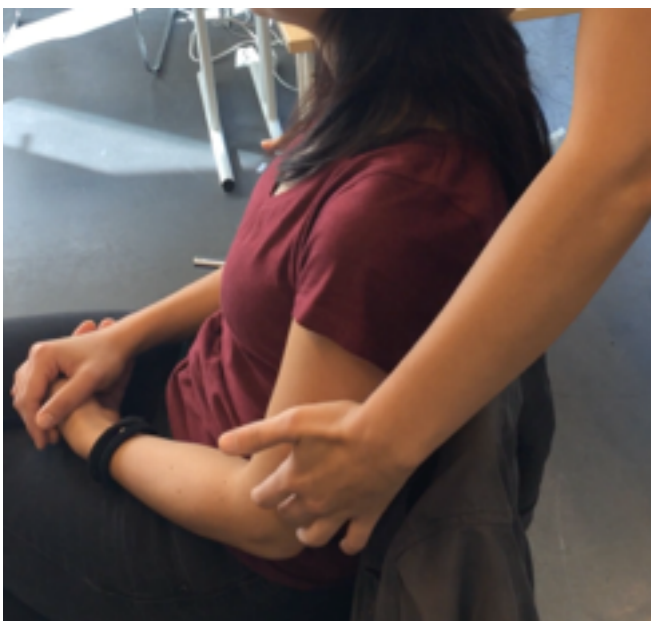
FINAL DESIGN SUGGESTION 1



'CUDDLY' COZINESS

INSPIRATION

Inspired by participant descriptions:
'slow down', 'relaxed', 'warmth'



Motivated by touches observed during
"Mealtime, feelings and touch"
workshop

FINAL DESIGN SUGGESTION 1



'CUDDLY' COZINESS

DESCRIPTION

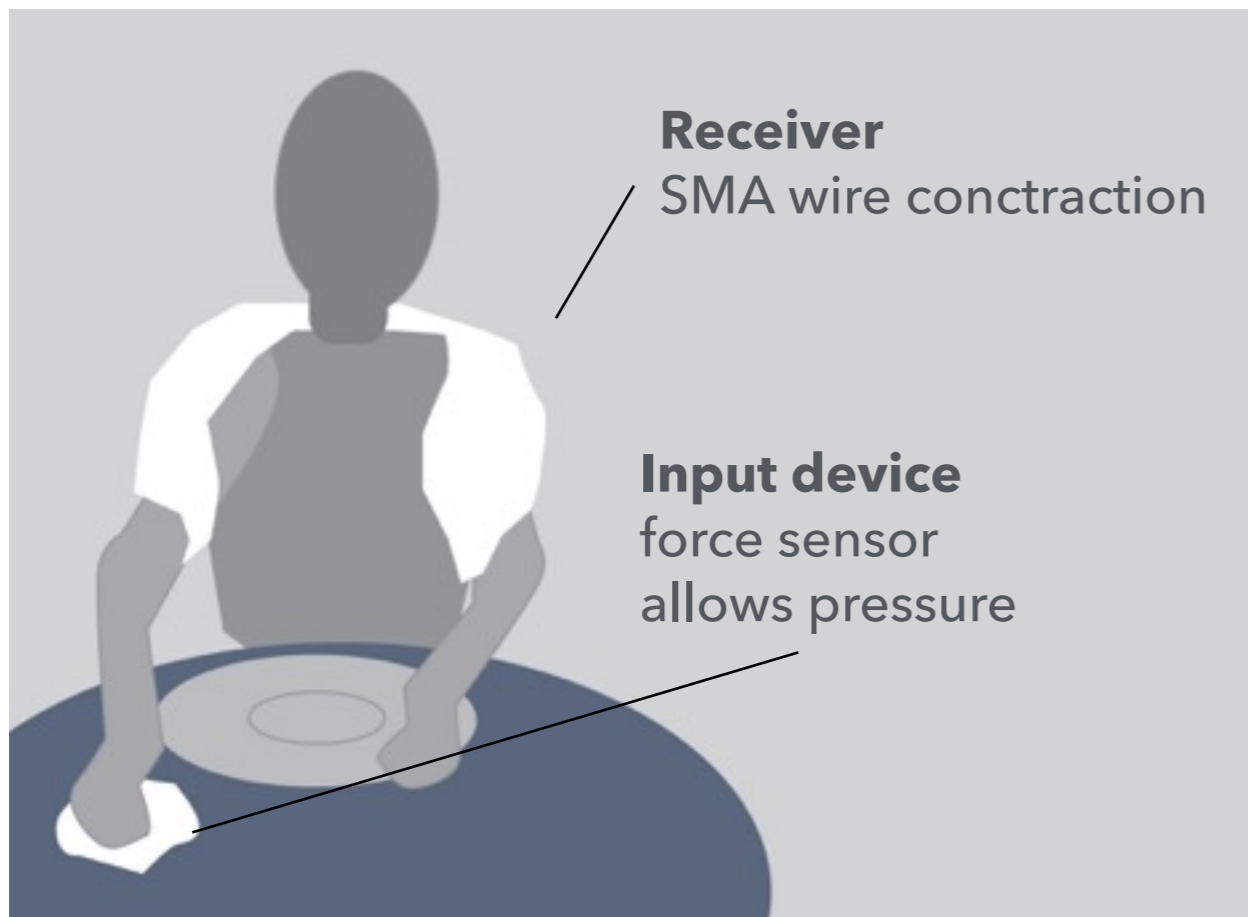
Enables a sense of warmth and togetherness

Modalities

pressure
vibration

Input device: force sensor (pressure)

Receiver: SMA wire contraction



FINAL DESIGN SUGGESTION 2

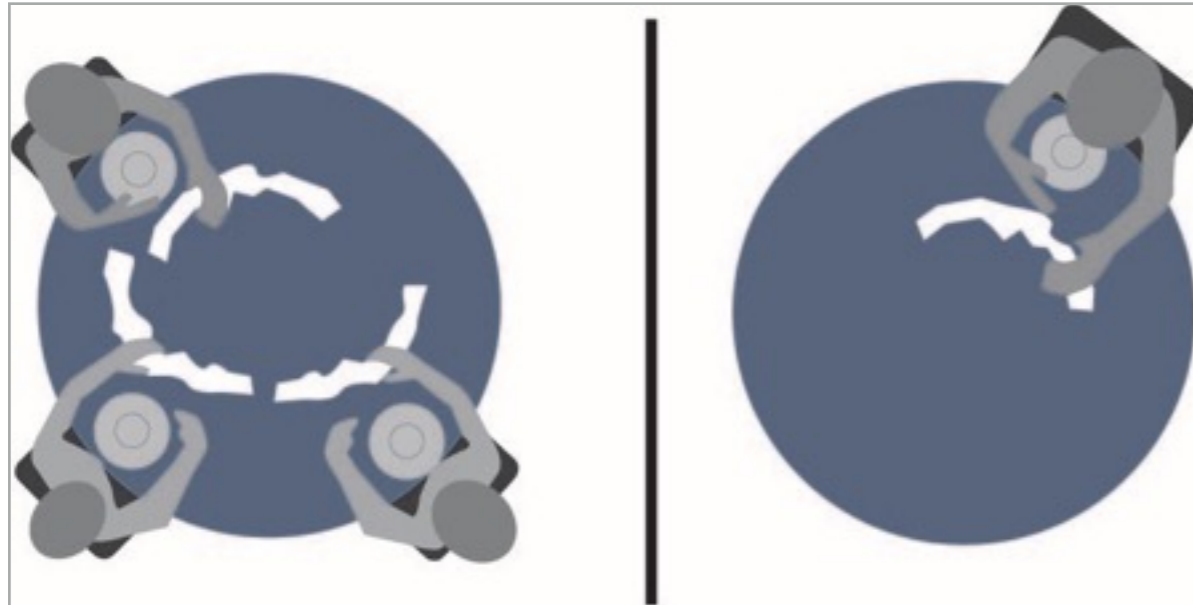


“CIRCLE OF HANDS” PLAYFULNESS

INSPIRATION

Circle games - children hold hands
Family dining - similar setup





“CIRCLE OF HANDS” **PLAYFULNESS**

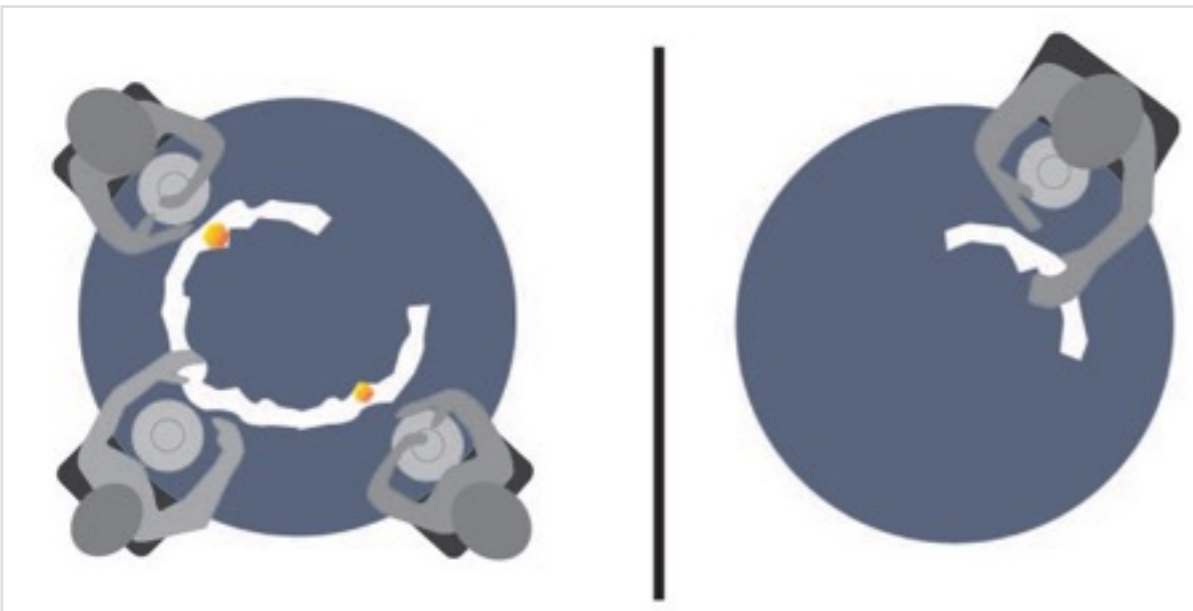
DESCRIPTION

Composite - multiparts, depending on the number of family members

Haptic feedback - physical link

Sender & receiver same object

Real-time joint action



Modalities

squeeze

twist

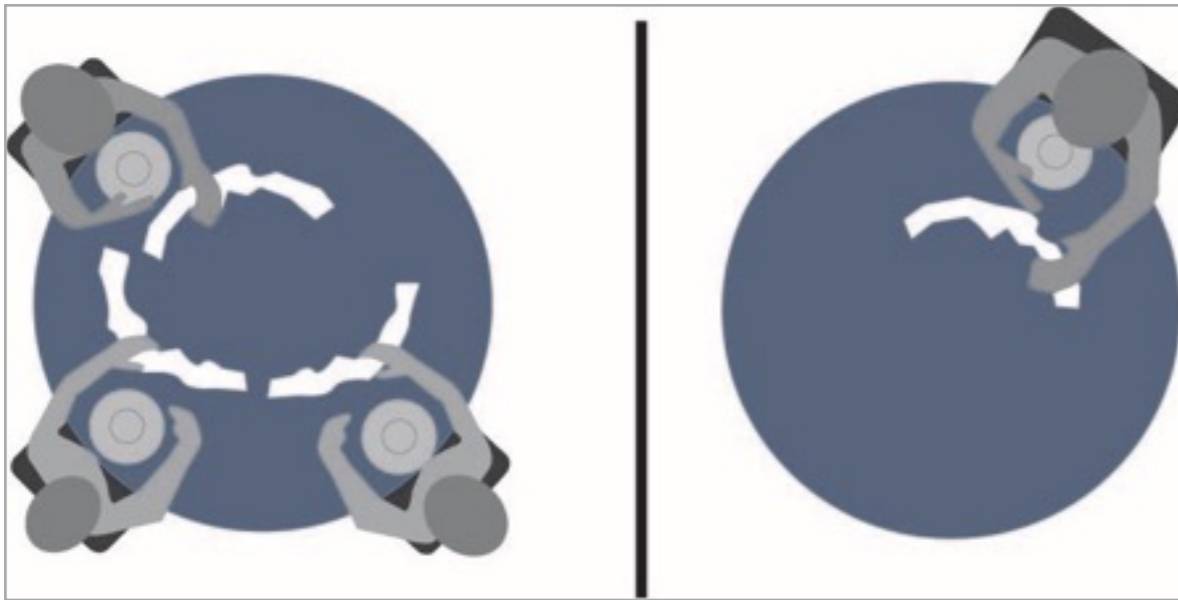
pressure

light

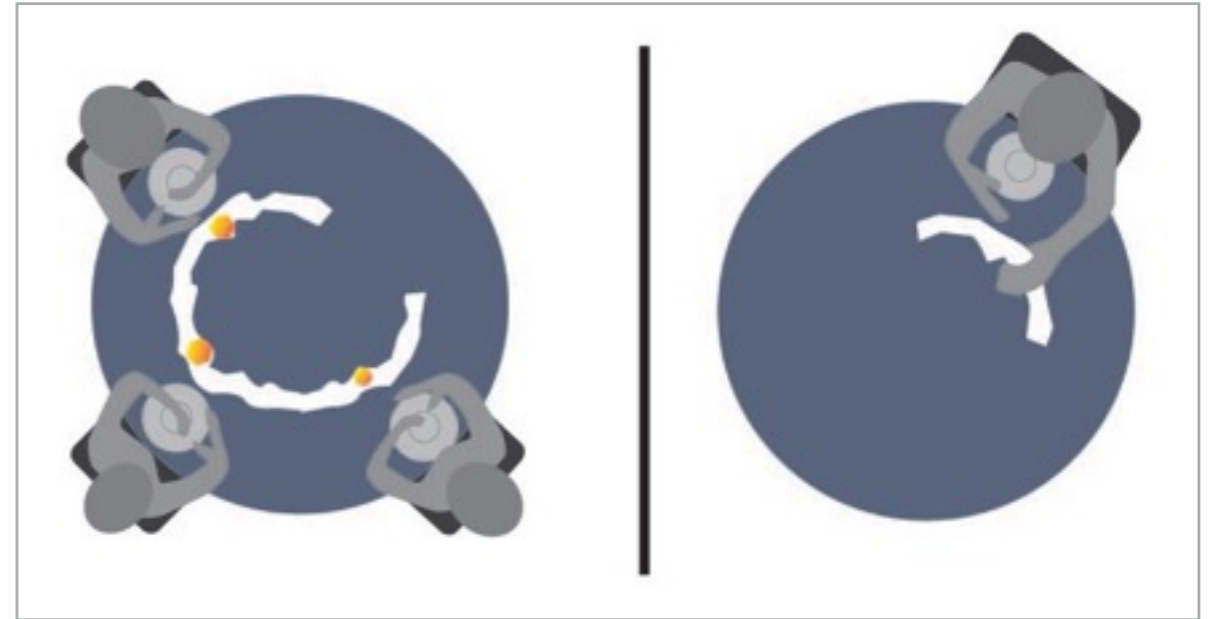
FINAL DESIGN SUGGESTION 2



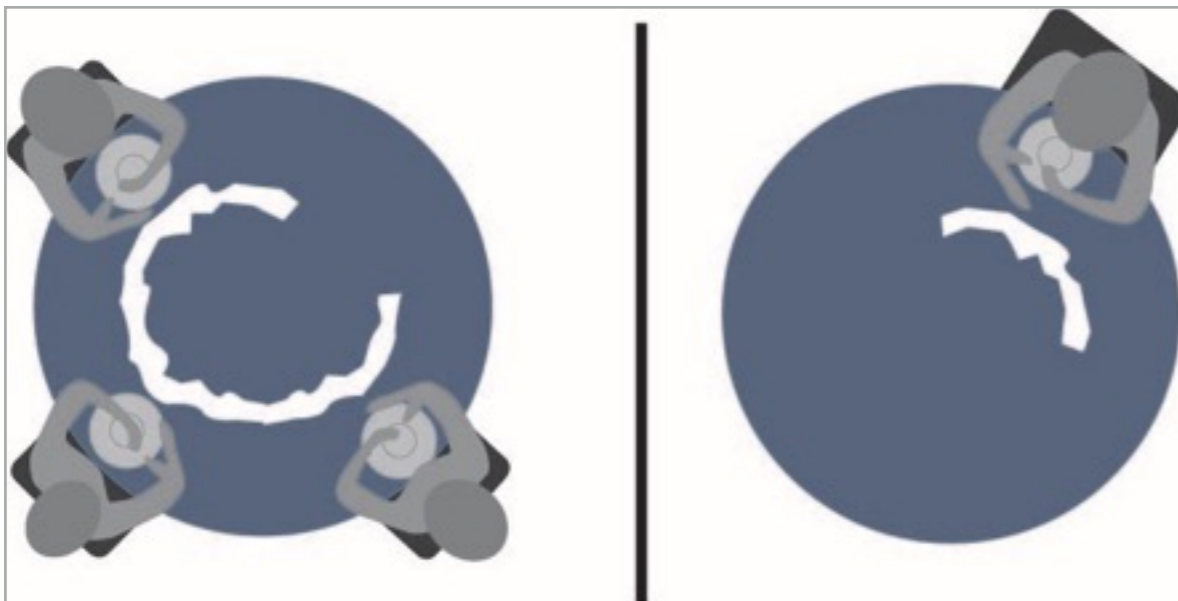
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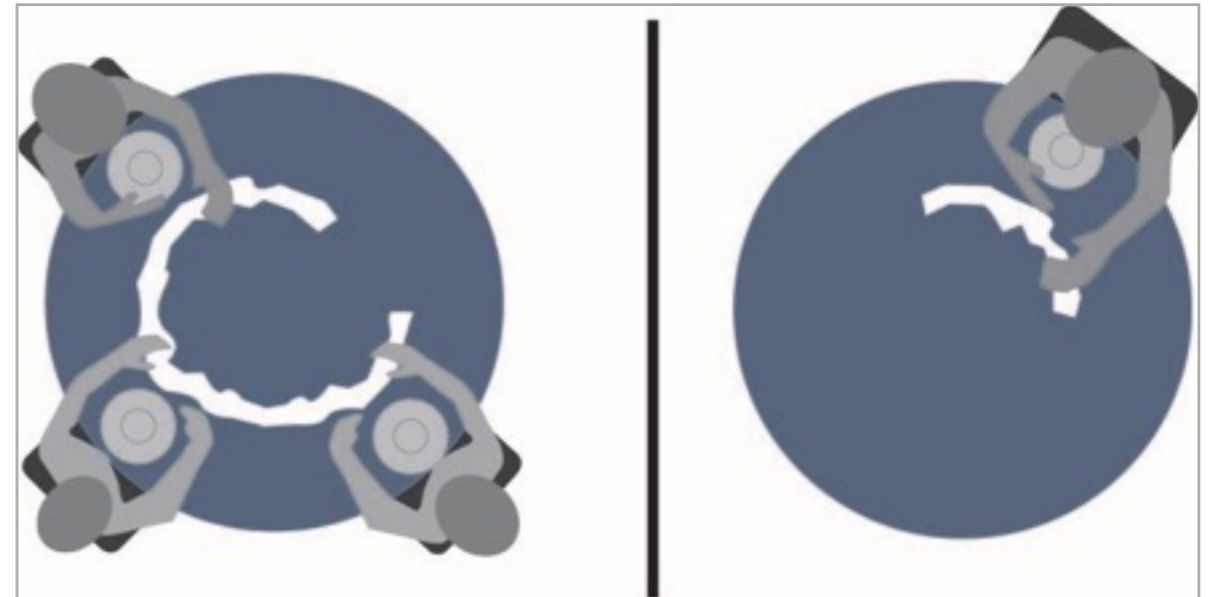
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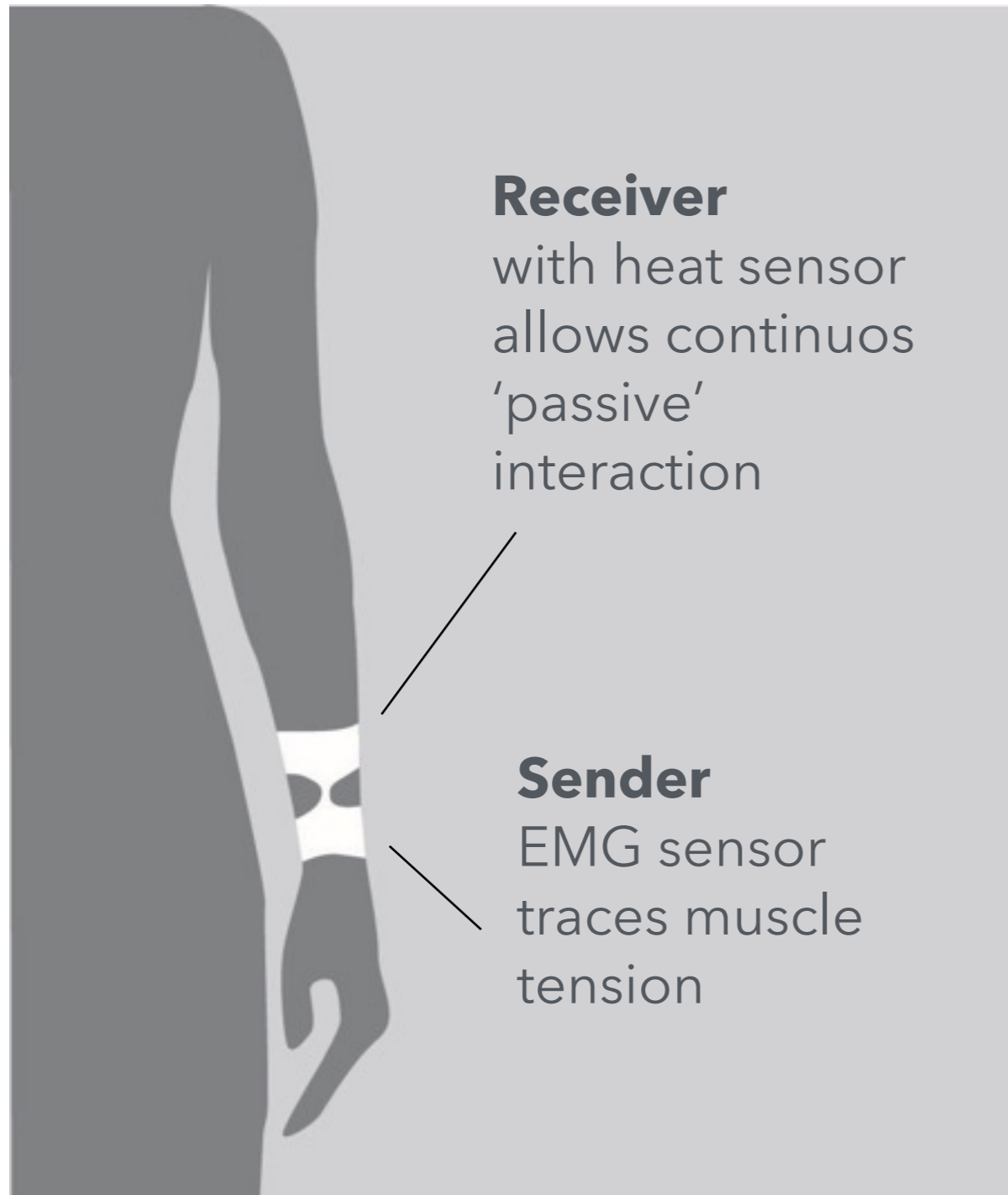
'DINNER COMPANION' **DISCRETENESS**

INSPIRATION

Inspired by couples entwining their arms

The gesture was also observed during the family dinner workshop





'DINNER COMPANION' **DISCRETENESS**

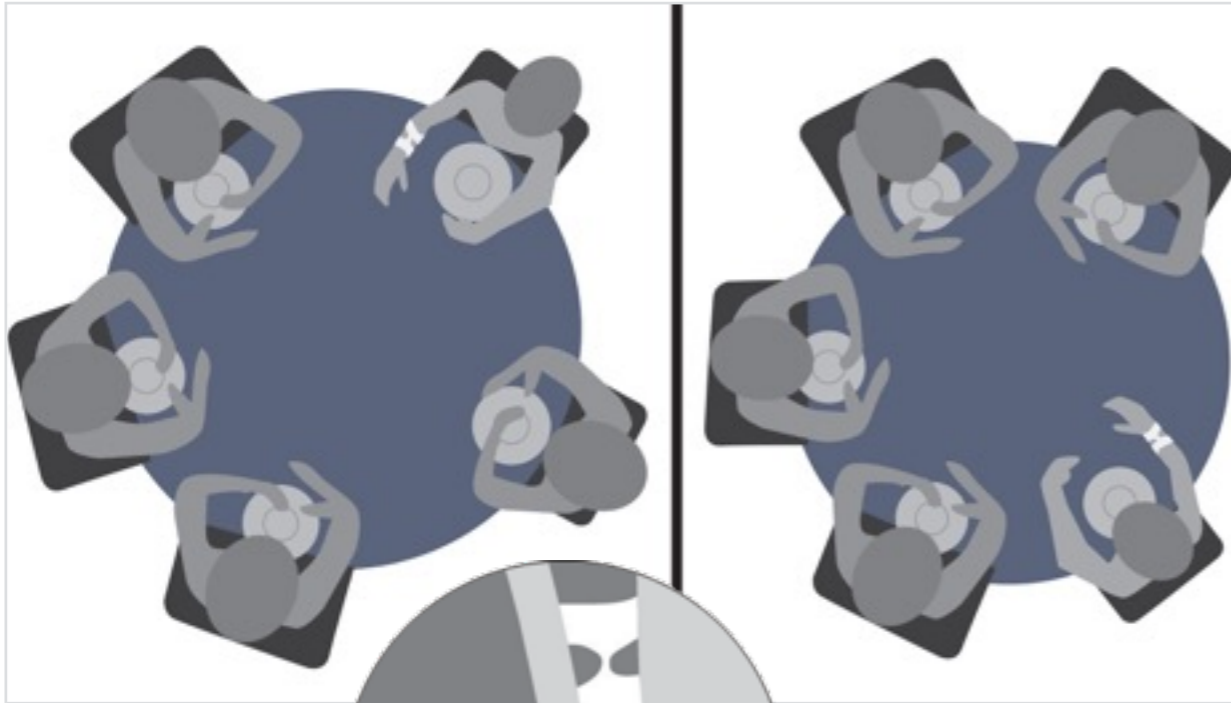
MODALITIES

It relies on both sensory & kinesthetic
system of sense of touch

Movement (muscle)

Heat - feel each others temperature

FINAL DESIGN SUGGESTION 3



'DINNER COMPANION' DISCRETENESS

DESCRIPTION

Enables couples remotely 'being there' with each other

Allows 'discrete' interaction





FUTURE POSSIBILITIES

Refinement
of design

Explore other
social activities
& modalities

Explore
technologies

User testing

Thank You