# Qualitative Research

Curiosity, Empathy, Inspiration, Storytelling, and Actionable Insights

THIS BOOK CONTAINS:
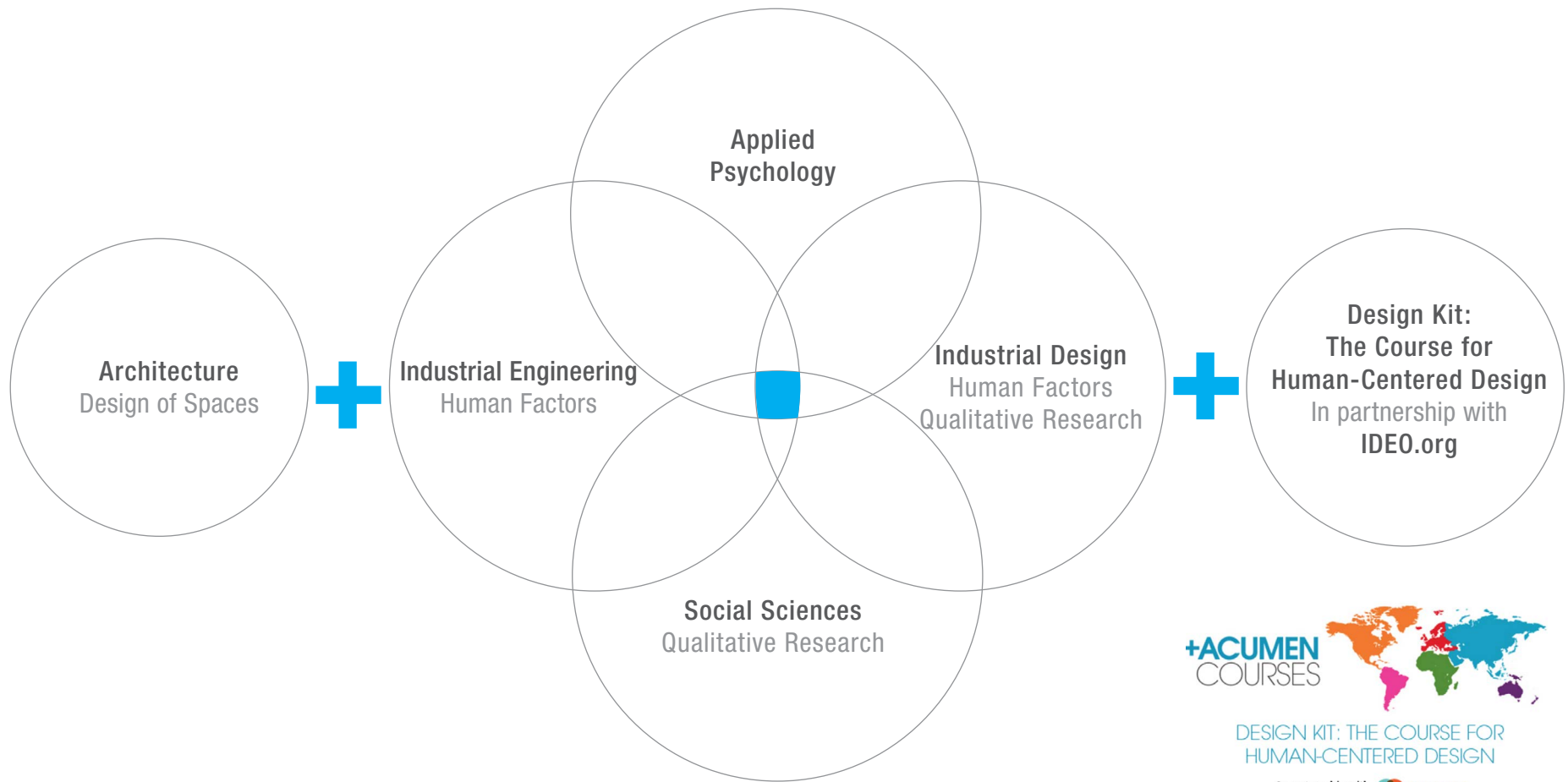
**M.S. in Design**, Focus: Design Research and Human Factors, Arizona State University

**Bachelor of Architecture**, University of Mumbai

**Applied Psychology**

**Architecture**
Design of Spaces

**+**

**Industrial Engineering**
Human Factors

**Industrial Design**
Human Factors
Qualitative Research

**+**

**Design Kit:
The Course for
Human-Centered Design**
In partnership with
**IDEO.org**

**Social Sciences**
Qualitative Research

Residential, Commercial,
Interiors, Exhibition Design,
Set Design, and Miniatures

**Graduate level coursework in** Applied
Psychology, Industrial Engineering,
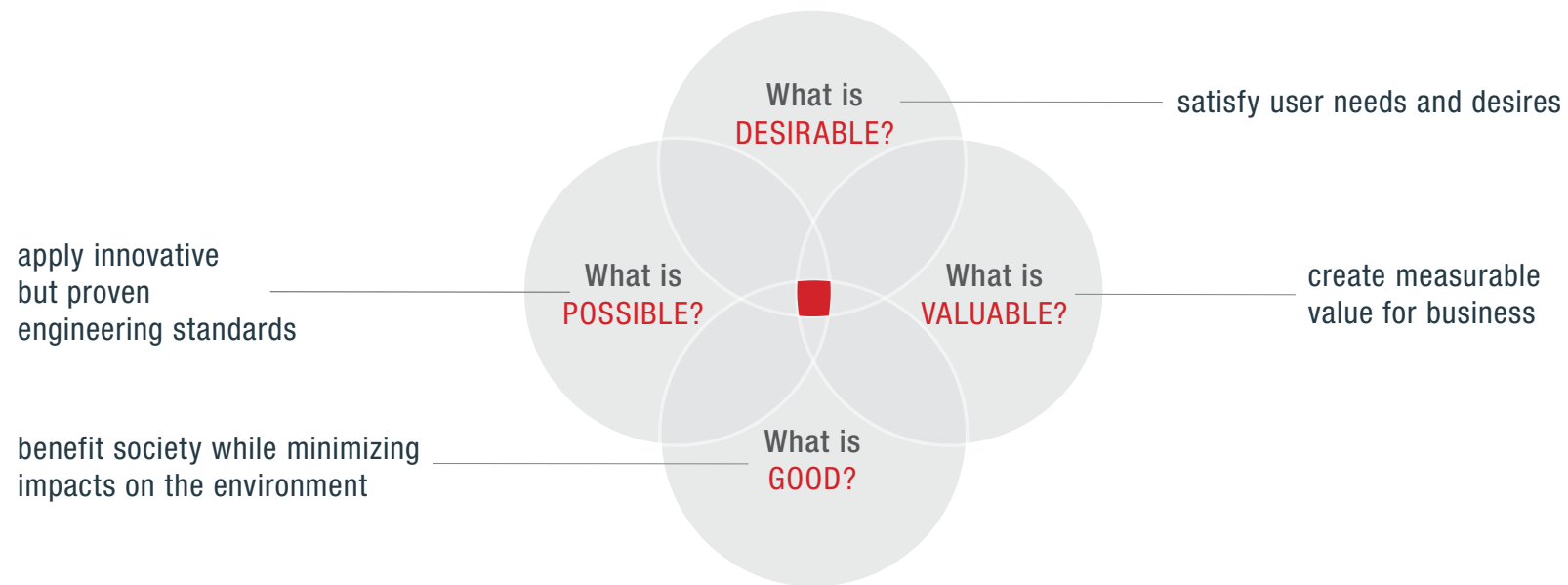Industrial Design, and Social Sciences

This 7-week course provided an
introduction to the methods and tools
of human-centered design while
tackling a real-world design challenge.

As a researcher, I draw inspiration from a diverse range of sources for my research approach—personal and professional experiences, academic background, ASU's Integrated Innovation Model, late Prof. Paul Rothstein's a(x4) method, and thought leaders in design and innovation such as IDEO, Google Ventures UX Research and more. I have used fast, reliable user research and applied user-centered methods in my recent work (*click to view recent work portfolio*) to inspire and inform product teams to come up with innovative solutions.

**Integrated innovation model: Guiding the process of sustainable product development:**
The integrated innovation model was developed by Arizona State University - supported research laboratory known as InnovationSpace. In this lab, cross-functional teams of faculty and students—drawn from business, graphic design, engineering and product design—explore integrated innovation, a model for sustainable product development. The teams systematically work through a matrix of four questions:

What is
DESIRABLE?                    satisfy user needs and desires

apply innovative
but proven          What is                    What is          create measurable
engineering standards   POSSIBLE?              VALUABLE?         value for business

benefit society while minimizing          What is
impacts on the environment                 GOOD?

REFERENCES:

Risks and Rewards: Rethinking Design Education      Learn more about InnovationSpace and Integrated
in a time of Change by Paul Rothstein              Innovation Model at innovationspace.asu.edu
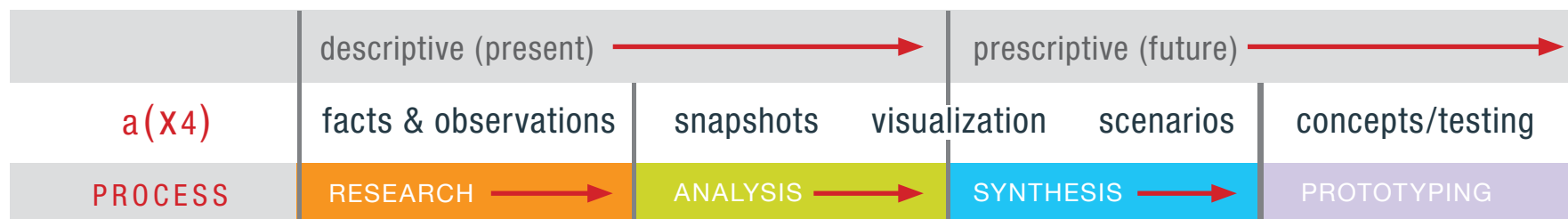
## a(x4): a user-centered method for designing experience

*by Paul Rothstein, Arizona State University*

a(x4) provides researchers with a tool to develop user experience scenarios. As shown below, it consists of a quartet that includes actors, activities, artifacts and atmosphere. It can be defined as: multifunctional framework and method, based on the dynamic relationship between the key elements (actors, activities, artifacts and atmosphere) of an experience in a design context, and used for exploring, developing and communicating scenarios about user experience.
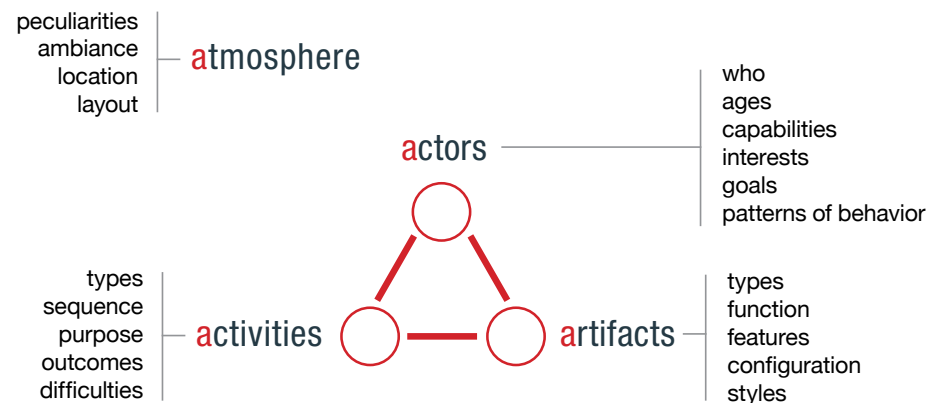


It can be applied in a relatively linear fashion (though this can be modified according to the constraints of specific projects or assignments). The process includes four steps or phases, as illustrated by this diagram:

| a(x4) | descriptive (present) → | | prescriptive (future) → | |
|---|---|---|---|---|
| | facts & observations | snapshots | visualization | scenarios | concepts/testing |
| PROCESS | RESEARCH → | ANALYSIS → | SYNTHESIS → | PROTOTYPING |

## Phase One: **RESEARCH**

User and market research, technology research and socio/cultural trends research help generate a fairly comprehensive body of knowledge about existing user experiences.

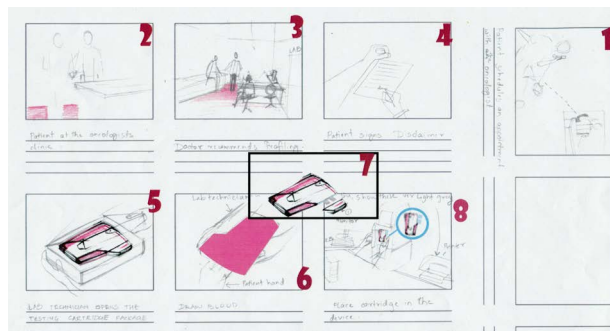Photos showing research phase activities
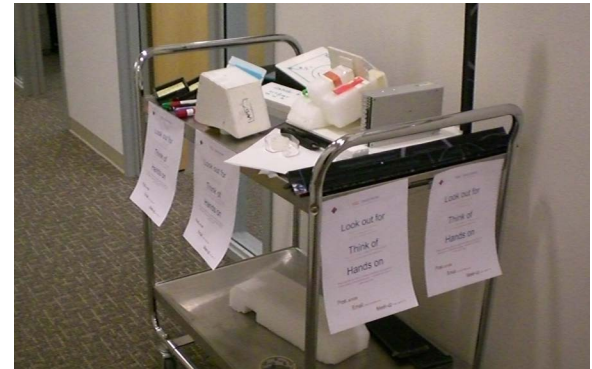


▲ **Field research**

▲ **Visual information sharing and feedback**

## Phase Two: **ANALYSIS**

User profiles, activity models, technology forecasts, SWOT analysis, market benchmarking, trends forecasts, etc. help Identify recurring themes and patterns.

Storyboarding Sketch



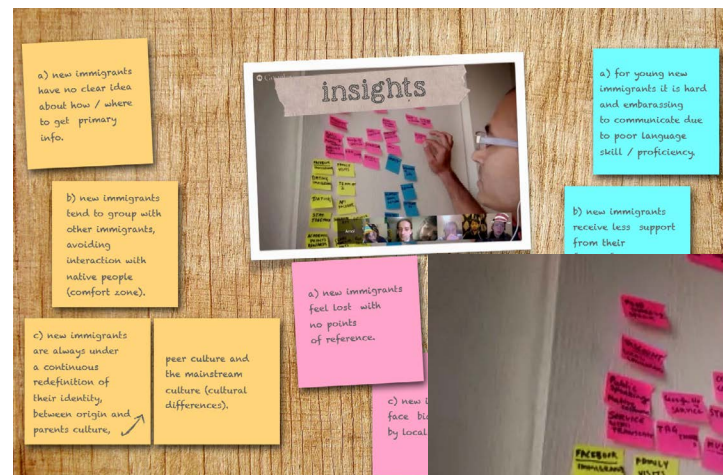Design Kit: The Course for Human-Centered Design

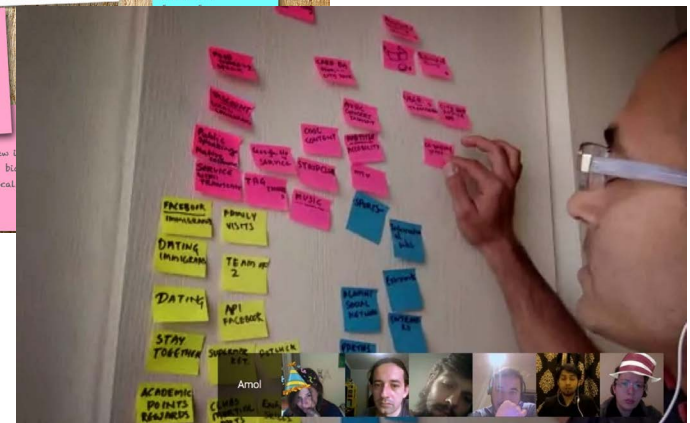IDEO.org + Acumen

CallYourBuddy: How might we improve education experiences for new immigrants?

*Click here to view the final presentation*



Scenario Development



▲ ▶ **Virtual brainstorming with team members from 8 countries!**

*Click here to view the full project*

## Phase Three: **SYNTHESIS**

Strategy definition, opportunity mapping, concept visualization, justification, storyboarding, and scenario development help translate data and research into actionable insights, product development and innovation opportunities.

Future Scenario and Personas Examples from Mater's Applied Research Project   *Click here to view the full project*
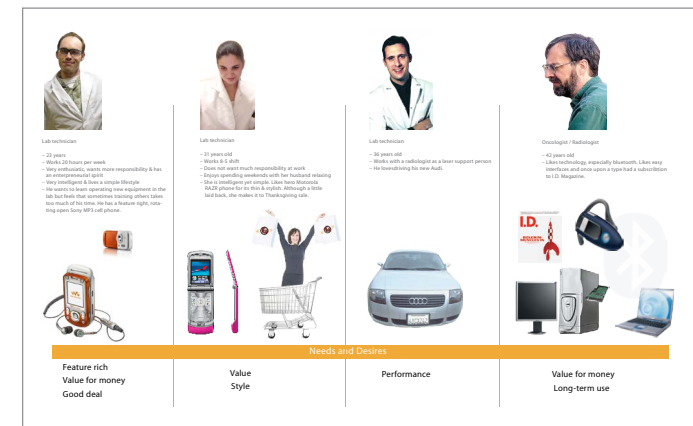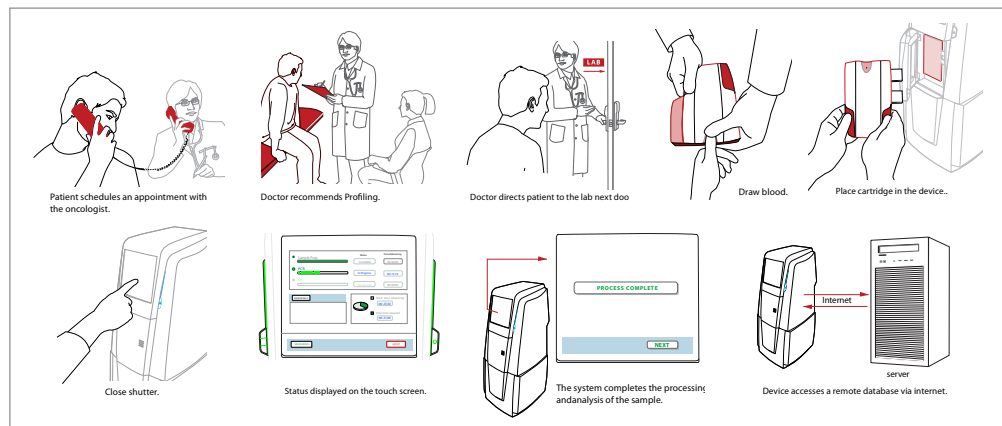


**Future Scenario**

*Click here to view this project in the Recent Work Portfolio (page 5)*
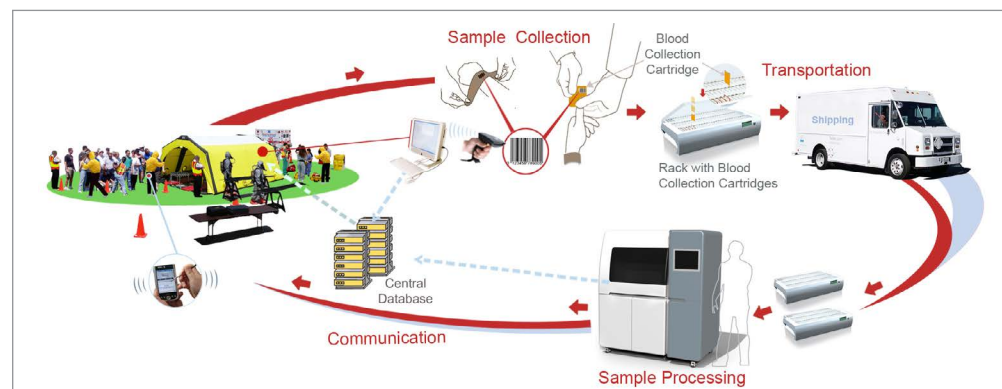
## Phase Four: **PROTOTYPING**

Storyboarding, user experience scenarios (multimedia), developing prototypes and testing.

**Innovation Cart**
Facilitating efficient communication between diverse teams during Pre-proposal preparation



**Visual Meetings**
Utilizing visuals to facilitate effective Pre-proposal team brainstorming and idea collection sessions
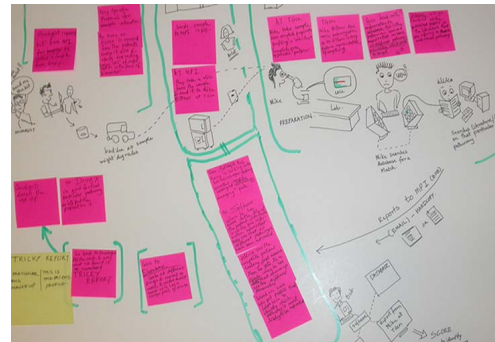


**Card Sorting Toolkit**
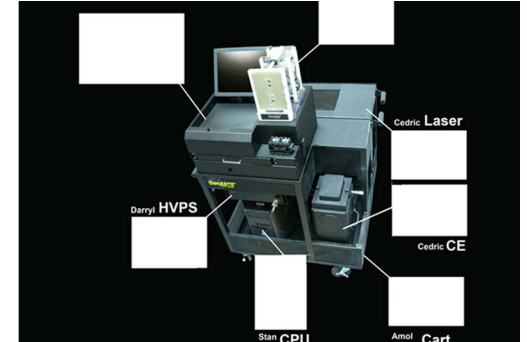Helping sponsors visualize systems and use-cases



**Quick 3D mock-ups**
Helping diverse teams communicate effectively



**Post-it Scenarios**
Co-creating scenarios to help identify research opportunities and use-cases



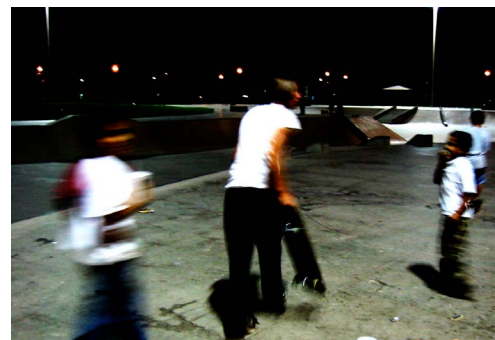**Fill-in-the-blanks**
Inspiring team to contribute content for research project brochure



**Quick Ethnography/Observation**
Gathering information about users and tasks directly from users in their normal environment



**Contextual/Ethnographic Interviews**
Interviewing users in their natural environment/workplace



**Usability**
Testing the ease of use and learnability

# Selected Research Projects

# PROJECT 1 | Bridging the gap between wearable technology and music therapy

**Team:** Amol Surve and Dean Bacalzo

This project involved the investigation of music therapists and how wearable technology can be used to facilitate therapy sessions with clients of all ages and conditions. We observed the therapists in their natural setting and determined what needs, if any, could be satisfied to improve the effectiveness of the therapy session; one main goal was to incorporate wearable technology.



## Topics and Questions

1. Current music therapy and wearable technology trends
   - What do music therapists do during a therapy session?
   - What tools do music therapist require?
   - What is the difference between conventional therapy tools and existing wearable products?

2. Therapist's unarticulated needs
   - What types of technology are therapists currently using? Do they hinder or help the therapy session?
   - Can wearables be used to assist in the session?
   - What inefficient actions are therapists performing during a session?

3. Client's needs
   - Are there general needs that can be applied to all clients?
   - What happens after the therapy sessions? How do parents help continue the therapy at home?
   - Can wearables be used to assist in the session?

4. Environment
   - Where are all the tools and instruments kept?
   - Are there any specific needs for all involved, i.e. therapists, clients, parents, observers, etc.?
   - What is the general feeling during a therapy session?

## Conceptual Framework
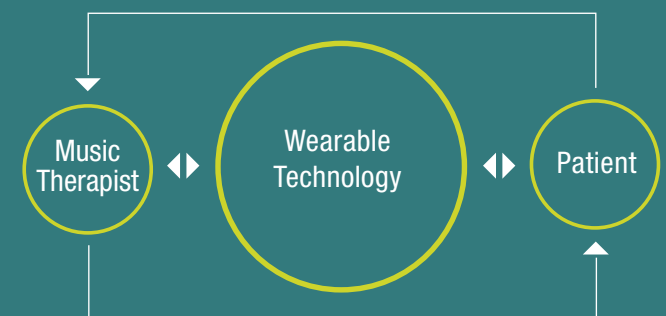


This conceptual framework identifies the importance and influence of wearable technology to the music therapist and to the client. Currently, the "wearable technology" that is being used are traditional musical instruments.

# PROJECT 1 | Bridging the gap between wearable technology and music therapy

## Research Strategies, Methodologies, and Methods

The project consisted of three phases: information gathering, analysis and interpretation, and documentation. We used a flexible design research strategy, grounded theory, to guide our research.

### Information Gathering

We used observation as our primary method for data gathering, along with interviews. The methods of observation used were observer-as-participant. The interview methods used were chosen based on the amount of time available, and consisted of semi-structured for interviews shorter than 30-minutes and unstructured interviews for interviews longer than 45-minutes. The third method that we used was data archives in the form of music therapy lesson plans and reports obtained from the student therapist.

Utilizing these three methods of data gathering, we were able to triangulate our data and provide validity for our analysis and design solutions.

### Analysis and Interpretation

**Analysis and interpretation was a continual process throughout the data gathering process.** We watched the videotapes and listened to audio recordings separately and then together as a team. During these team analysis sessions we had a pad of paper in front of us, wrote down recurring themes, and sketched out any potential ideas that came to us.

### Research Sites and Participants

We conducted our research at ASU sponsored facilities as outline below:

• Community Services Building: we were able to observe a variety of music therapy sessions and conducted an interview in the cafeteria

• Music Therapy Library: we conducted our interview of the student therapist at this location. During our interview she was able to show us different instruments as well as documentation she referred for the therapy.

The participants consisted of: student therapists, professional therapist, therapy clients and parents of clients.

**Findings**

## 1. Actors:



| Music Therapists | Therapy Clients/Patients | Parents |
|---|---|---|
| • Love for music | • All ages | • Unconditional love for their child |
| • Need to help people | • All physical and mental abilities | • Very knowledgeable of different therapies available |
| • Ability to improvise in music and all situations | • May seem "normal" on the surface | • Dedicated |
| • Analytical and organized | • Requires "custom" therapy as they mature and learn | • Willing to spend any amount of money on products if they will help their child |
| • Sensitive to client's needs | • "Moody" and active just like everyone else | |

**Findings**

## 2. Artifacts:

- Instrument(s) and accessories: Drums of all shapes and sizes, guitar, piano, mallets of shapes and sizes, and an Omni chord
- Stereo equipment and speakers
- Computers with MP3 players
- Oscillating fan
- Cabinets
- Chairs

## 3. Atmosphere:

- Windows allowed for natural lighting, but also provided distractions for clients, i.e. birds, trees, cars, etc...
- Rooms were very cluttered with musical instruments and had a confined feel

- Rooms were somewhat unorganized and required the therapists to often times leave their clients to retrieve instruments or turn on equipment

- The walls are painted a light color and the floor is covered with a dark industrial grade carpet.

- Fluorescent lighting was installed, but not often used due to sensitivity of the clients
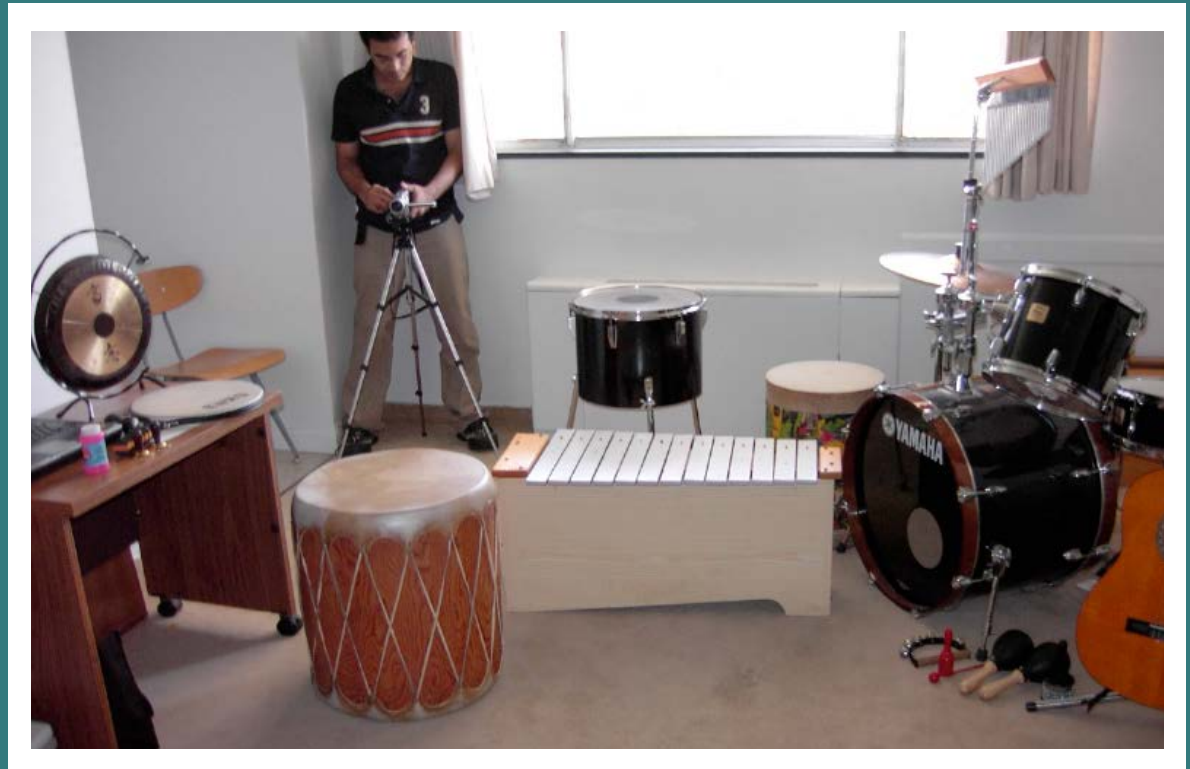
**Findings**

## 4. Activity Model:
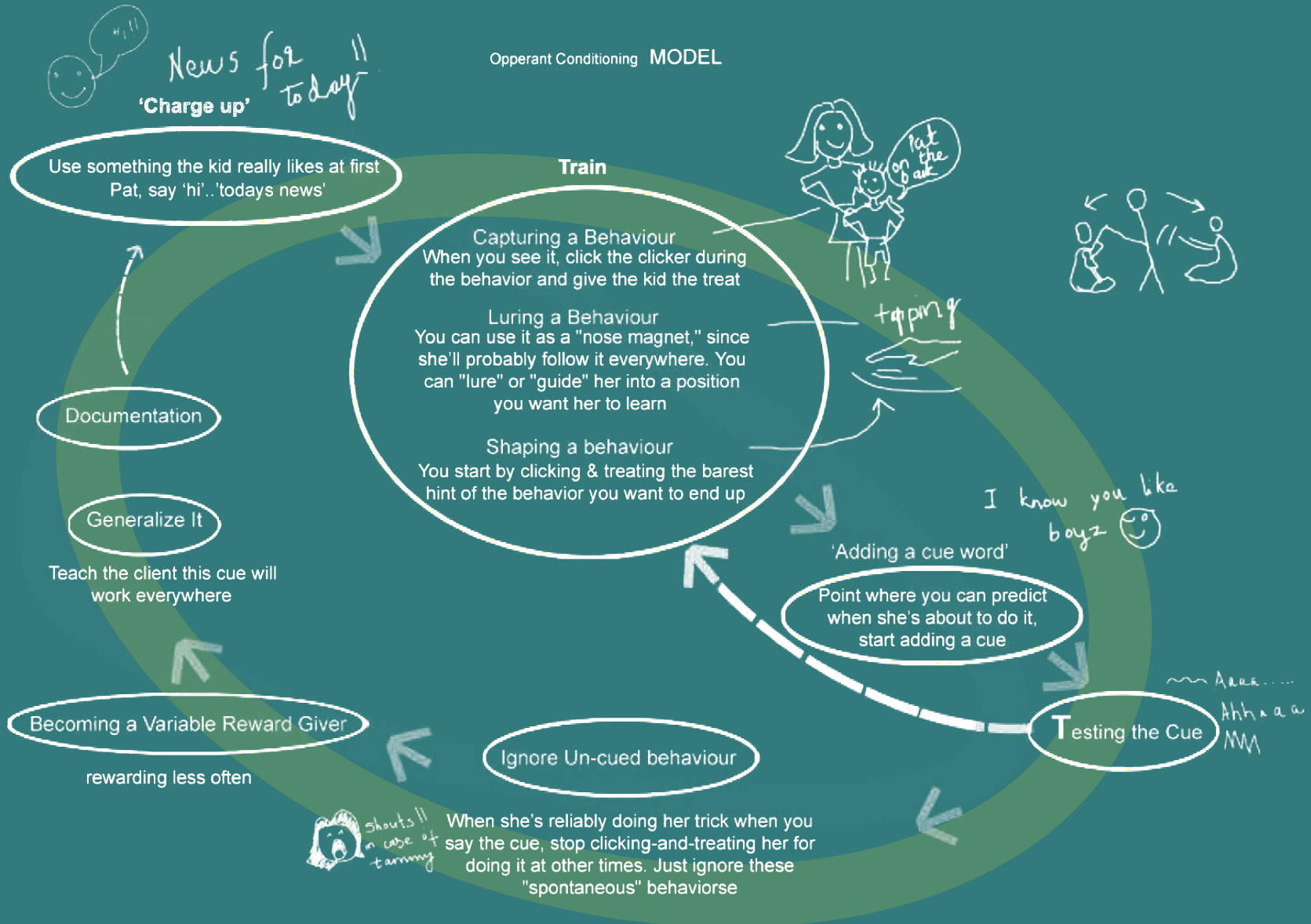
## Insights and Conclusions

- Environment is Important to efficiency and effectiveness
- Client's needs continue after a therapy session
- Therapists need to maintain the attention of their client

- Therapists main tool is improvisation
- Each client is an individual and the therapist's main tool for addressing this is improvisation

## Design Concepts

▼ **Concept 1**
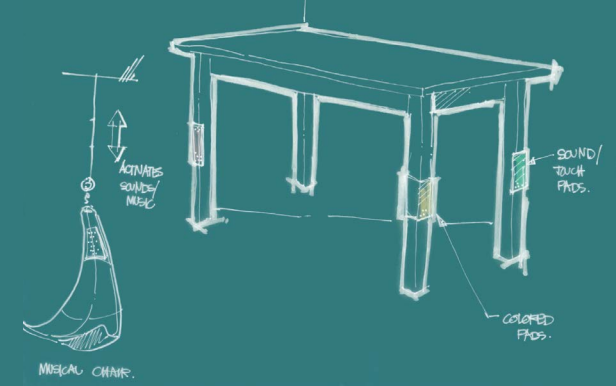**Everyday objects with built-in sound/music modules**

BUTTONS FOR SOUND ACTIVATION
SPEAKER
SCENT
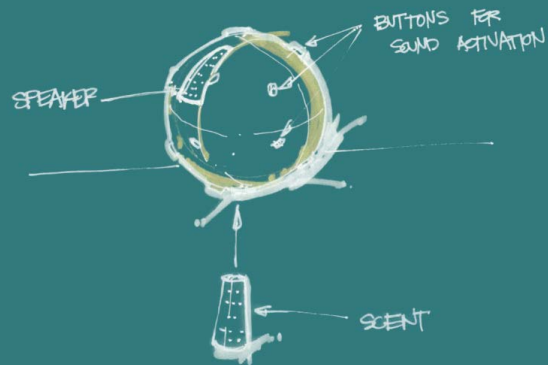
▼ **Concept 2**
**Therapy learned skills can be used at home**

SOUND ACTIVATING COLLAR/SWITCH
SOUND ACTIVATING BUTTONS/SWITCHES

▼ **Concept 3**
**Sound/music helps to motivate with daily actions**

ACTIVATES SOUND/MUSIC
SOUND/TOUCH PADS.
COLORED PADS.
MUSICAL CHAIR.

▼ **Concept 4**
**Client driven solutions**

ABILITY TO CONTROL OF VOICE;
SPEAKERS
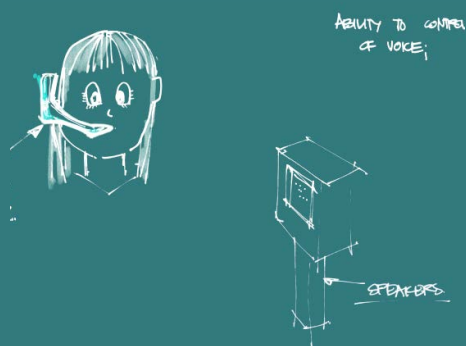
▼ **Concept 5**
**Allows the therapist to maintain eye contact with and focus on the client**

LCD SCREEN/MUSIC LIST
RF/BLUE TOOTH
PLAY CONTROLS.
EYE CONTACT - ATTENTION SPAN
LAPTOP FOR MUSIC. MP3?
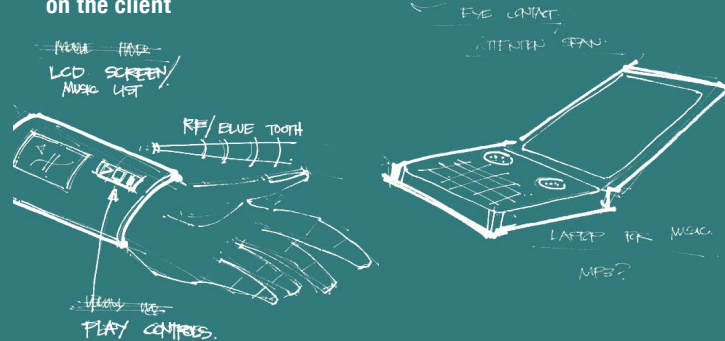
▼ **Concept 6**
**Mild introduction to wearable technology; Uses familiar technologies that musicians should be accustomed to**
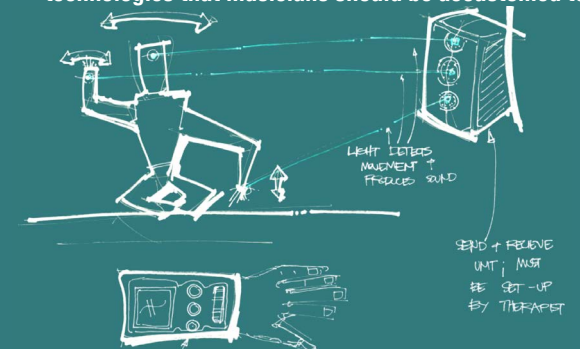
LIGHT DETECTS MOVEMENT & PRODUCES SOUND
SEND & RECEIVE UNIT; MUST BE SET-UP BY THERAPIST

## Presentation



▲ **Snapshot of the PowerPoint presentation showing the music therapists in session**

▶ **Snapshots of the PowerPoint presentation showing the "actors"**

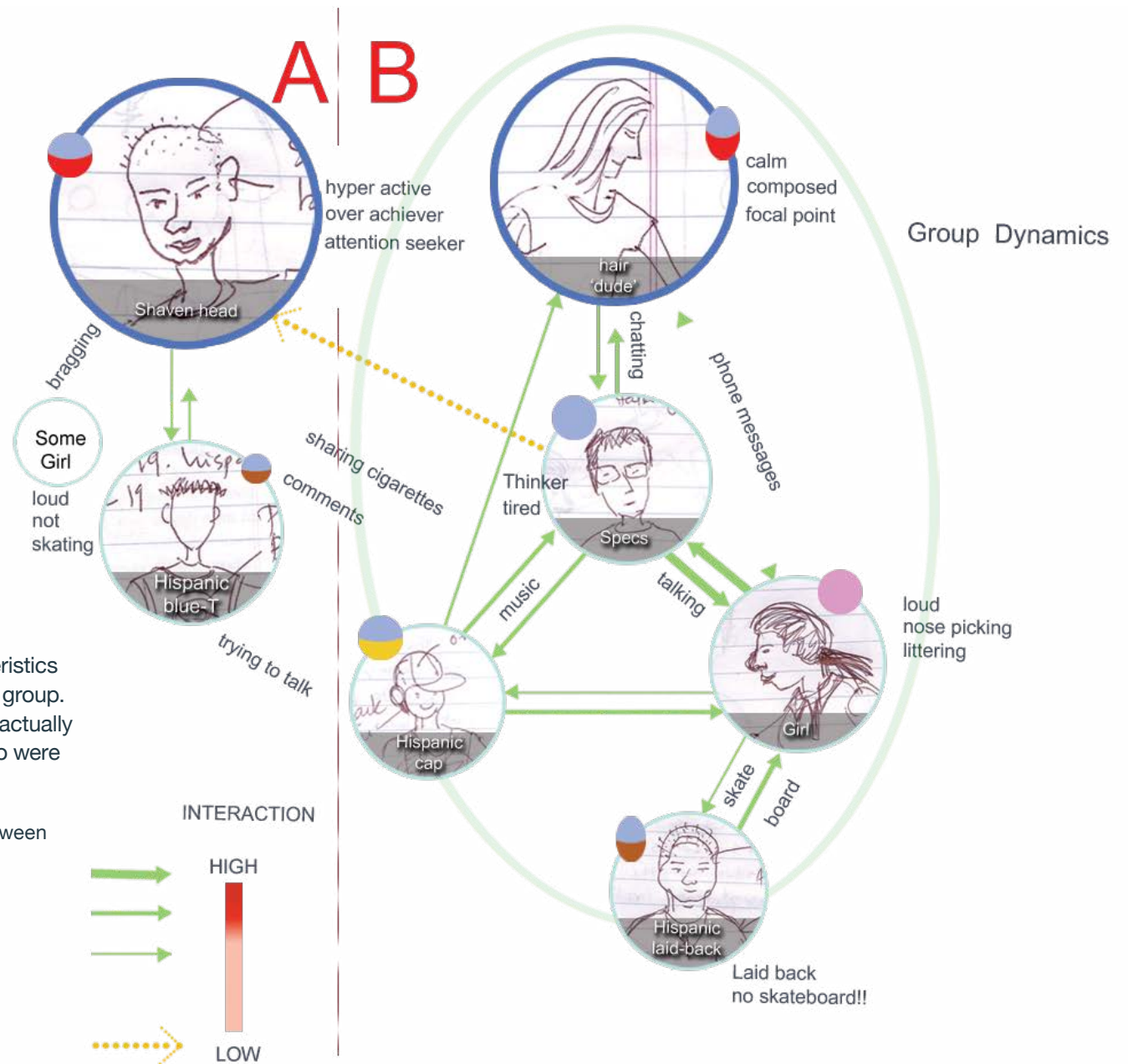# PROJECT 2 | Studying the nature of teenager cliques

**PART I: OBSERVATION**

This exercise required me to spend a couple of hours observing teenagers in a public setting and recording the observations in the form of descriptive field notes—recorded on the spot and immediately thereafter. Next step was writing an analysis based on the field notes.

## Phase I: Field Notes

Describing the setting as accurately as possible, including observable characteristics of participants as individuals and social group. Recording social interactions that were actually seen or heard. Things to pay attention to were age, leadership, power and authority.

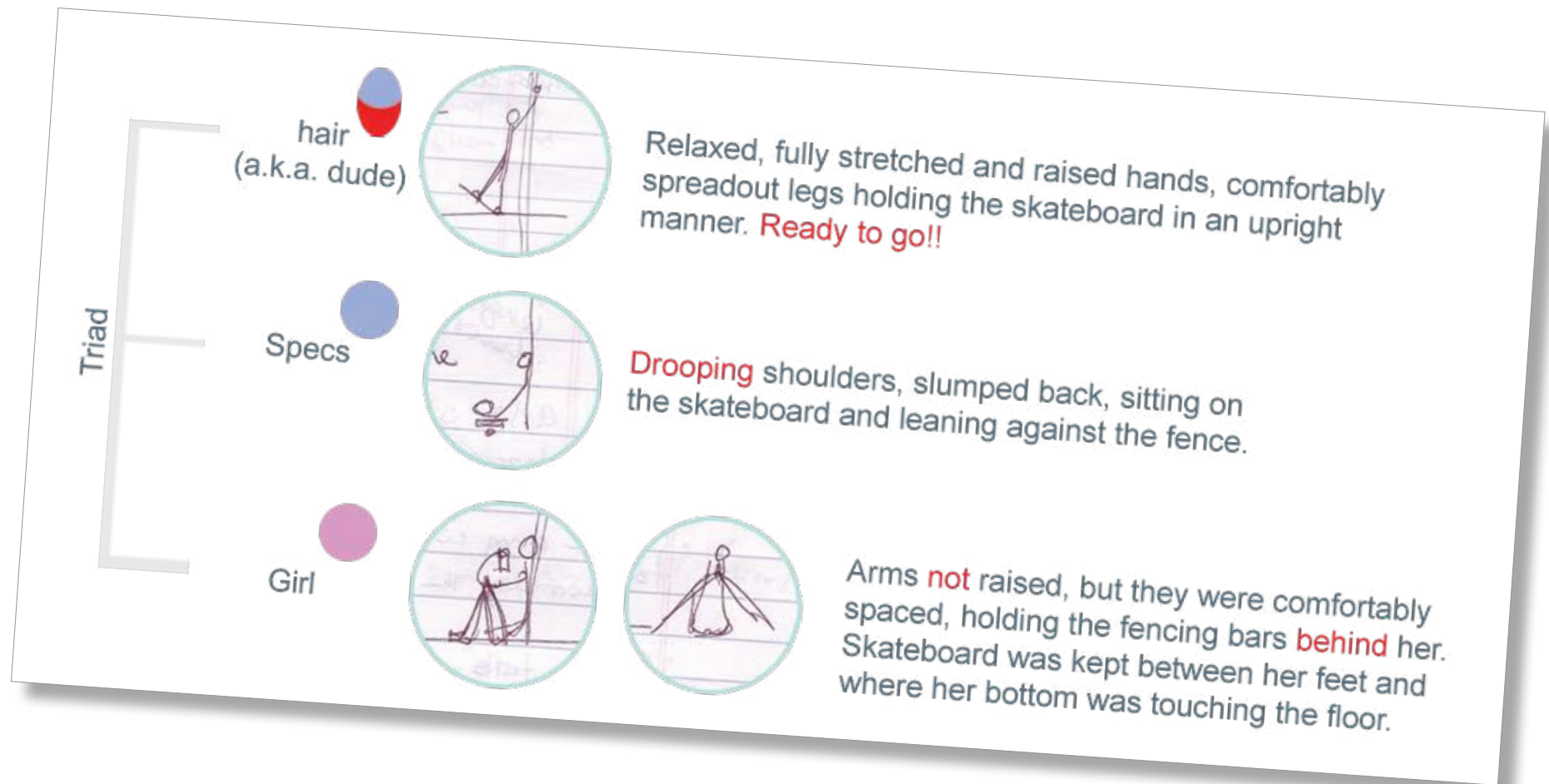▸ Framework showing the interaction between the subjects.

A B

hyper active
over achiever
attention seeker

Shaven head

calm
composed
focal point

hair
'dude'

Group Dynamics

bragging

Some Girl

loud
not
skating

chatting

phone messages

sharing cigarettes

comments

Thinker
tired

Specs

Hispanic
blue-T

trying to talk

music

talking

loud
nose picking
littering

Girl

Hispanic
cap

skate
board

INTERACTION

HIGH

Hispanic
laid-back

Laid back
no skateboard!!

LOW

**PART I: OBSERVATION**

## Phase I: Field Notes (continued)

▼  Field notes in the form of quick sketches recording the body language of the subjects.



Triad

hair
(a.k.a. dude)

Relaxed, fully stretched and raised hands, comfortably spreadout legs holding the skateboard in an upright manner. Ready to go!!

Specs

Drooping shoulders, slumped back, sitting on the skateboard and leaning against the fence.

Girl

Arms not raised, but they were comfortably spaced, holding the fencing bars behind her. Skateboard was kept between her feet and where her bottom was touching the floor.

**PART I: OBSERVATION**

## Phase II: Analysis

The analysis helped answer the following questions:

| **What norms of social behavior were evident?** | **How do we know what is happening?** | **What is the position of the observer?** |
| --- | --- | --- |
| • How do people take turns and walk in groups? | • Background knowledge | • Did my presence have any impact on what I was observing? |
| • What norms govern gender relations etc? | • Interpret meaning | |

▼ Sketches from the field that were re-touched in Photoshop explain the relative position of the subjects in the field giving us insights about their inter-relationships.
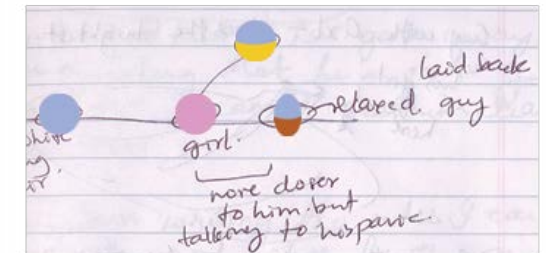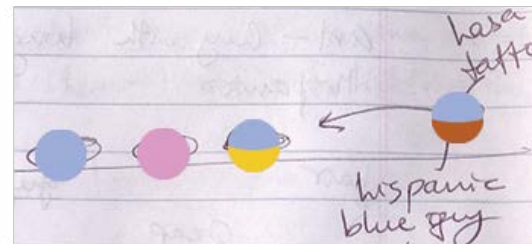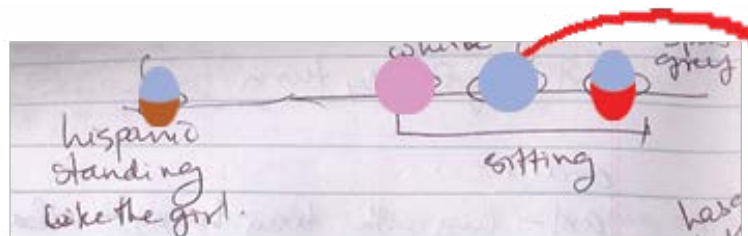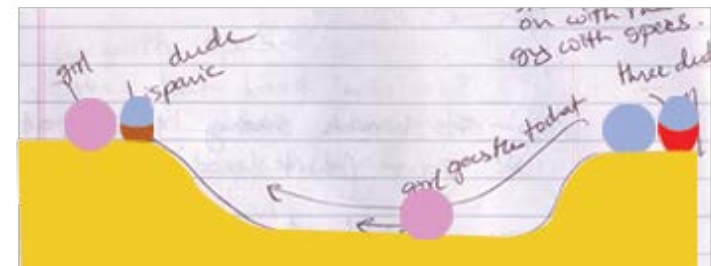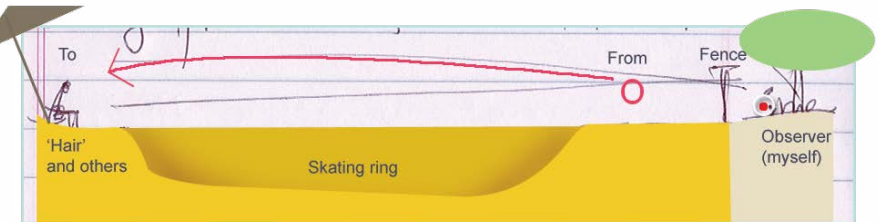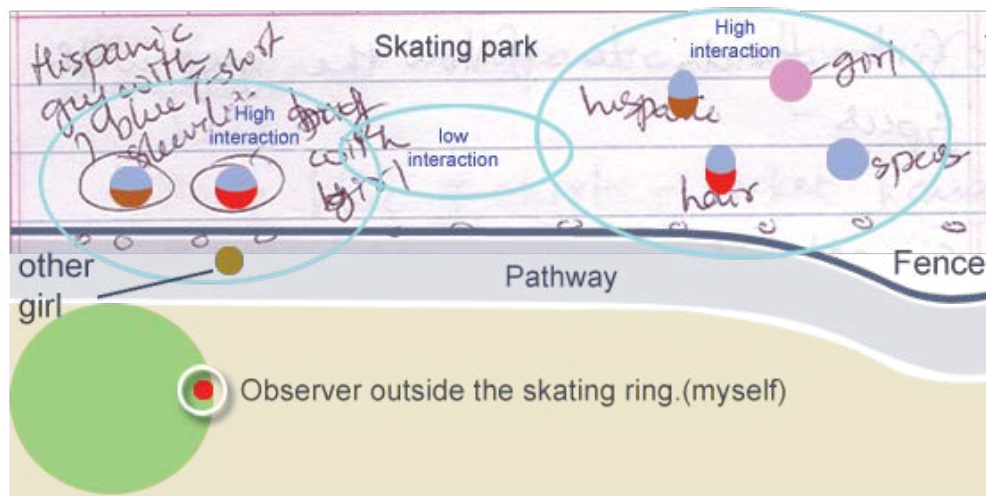
# PROJECT 2 | Studying the nature of teenager cliques

**PART II: INTERVIEW**

The objective of this assignment was to use the technique of the ethnographic interview to gather data about the nature of teenager cliques and networks. It was planned into the following four phases:

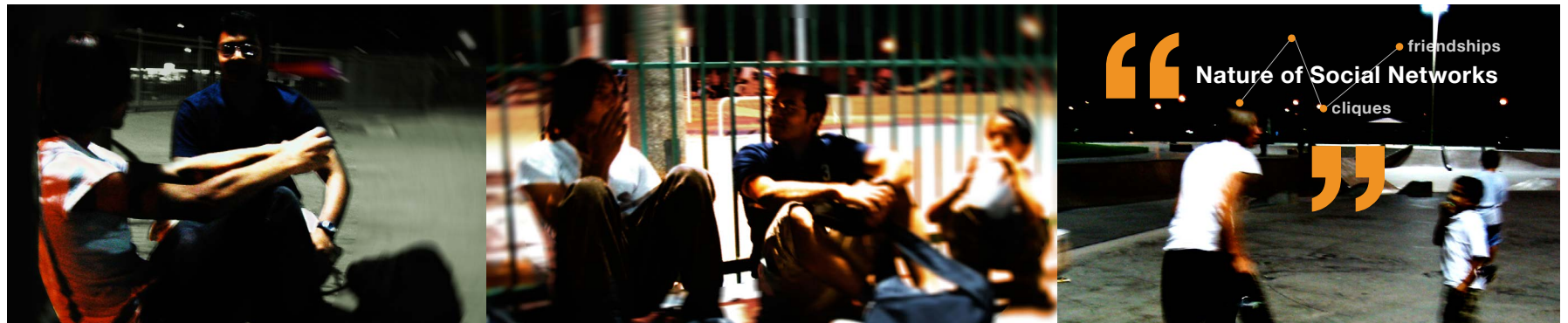**Planning the open-ended interview** → **Conducting the interview** → **Analyzing data** → **Result**



### Brainstorming...!!!

**Friend circle...**
what do you look for in a friend.
who do you hangout with.
how do you relax ..chill..
what gives you a real high...

**Connectors...**
5 things that are most important to you

**Sympathy/empathy**
Hey, I have to write a paper...and it has to be minimum 5 pages!!!
I am from India, totally naive to the Acerican experience of growing up...

**Change of role...**
How do you look at me or feel about me ...do I belong to a particular 'clique'
as far as you can remember...

**Self image...**
how do you see yourself...
Something that would help me relate to you...

**Knowing John...**
events that shaped you..
a peek in your world..
I want to hear your story
tell me about your upbringing...
give me an account...

**Networking...**
who are the various people that you come in touch with
where do you seek moral support
nicknames...
How did you meet these friends...

Every question or *discussion initiator* was a combination of either two or three topics

▲ Brainstorming interview questions



Nature of Social Networks
friendships
cliques
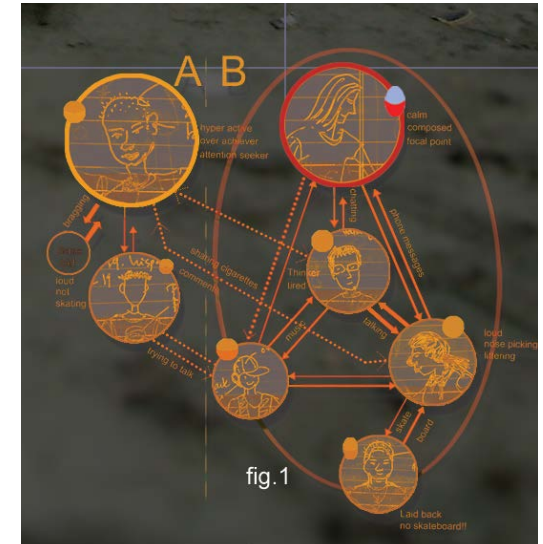
▲ Snapshots of the research report and photos from the field

# PROJECT 2 | Studying the nature of teenager cliques

**PART II: INTERVIEW**

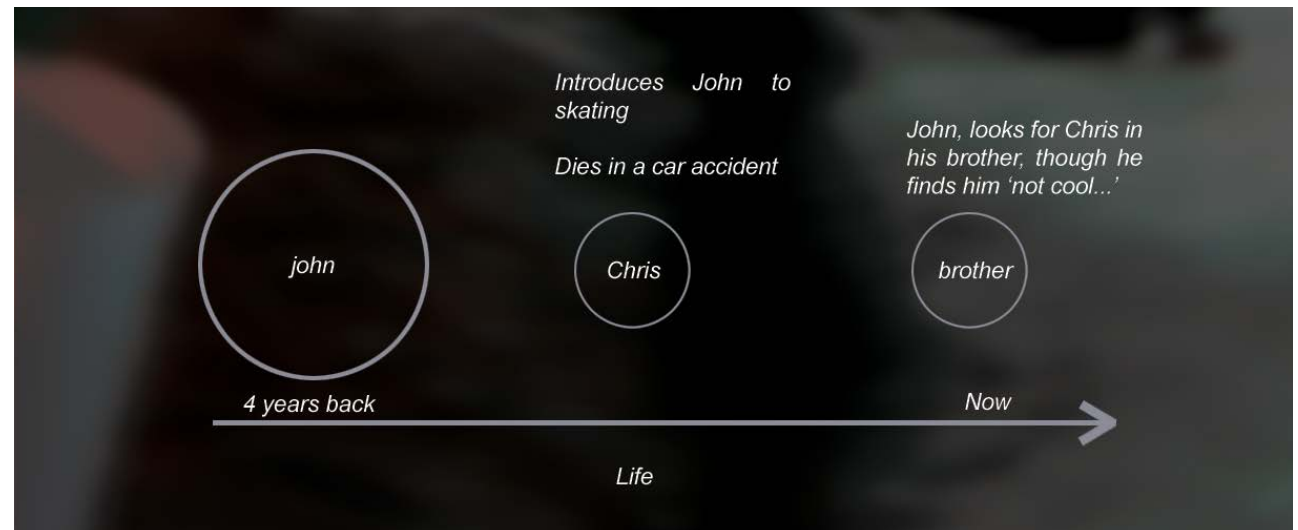▼ Snapshots of the research report and photos from the field



"...He was like…like a brother to me...."
[Talking about his friend Chris, who introduced him to skating and died in a car accident a year ago]

"...He got like..kicked out of his house..and we ..my mom..let him live at our house for like 3months...."
[Talking about his friend Chris, who introduced him to skating and died in a car accident a year ago]

▲ Snapshot of the final report highlighting direct quotes



fig.1

▲ Diagraming behavior



▲ Photos from the field



Introduces John to skating

Dies in a car accident

John, looks for Chris in his brother, though he finds him 'not cool...'

john          Chris          brother

4 years back                          Now

Life

▲ Visual representation of timeline
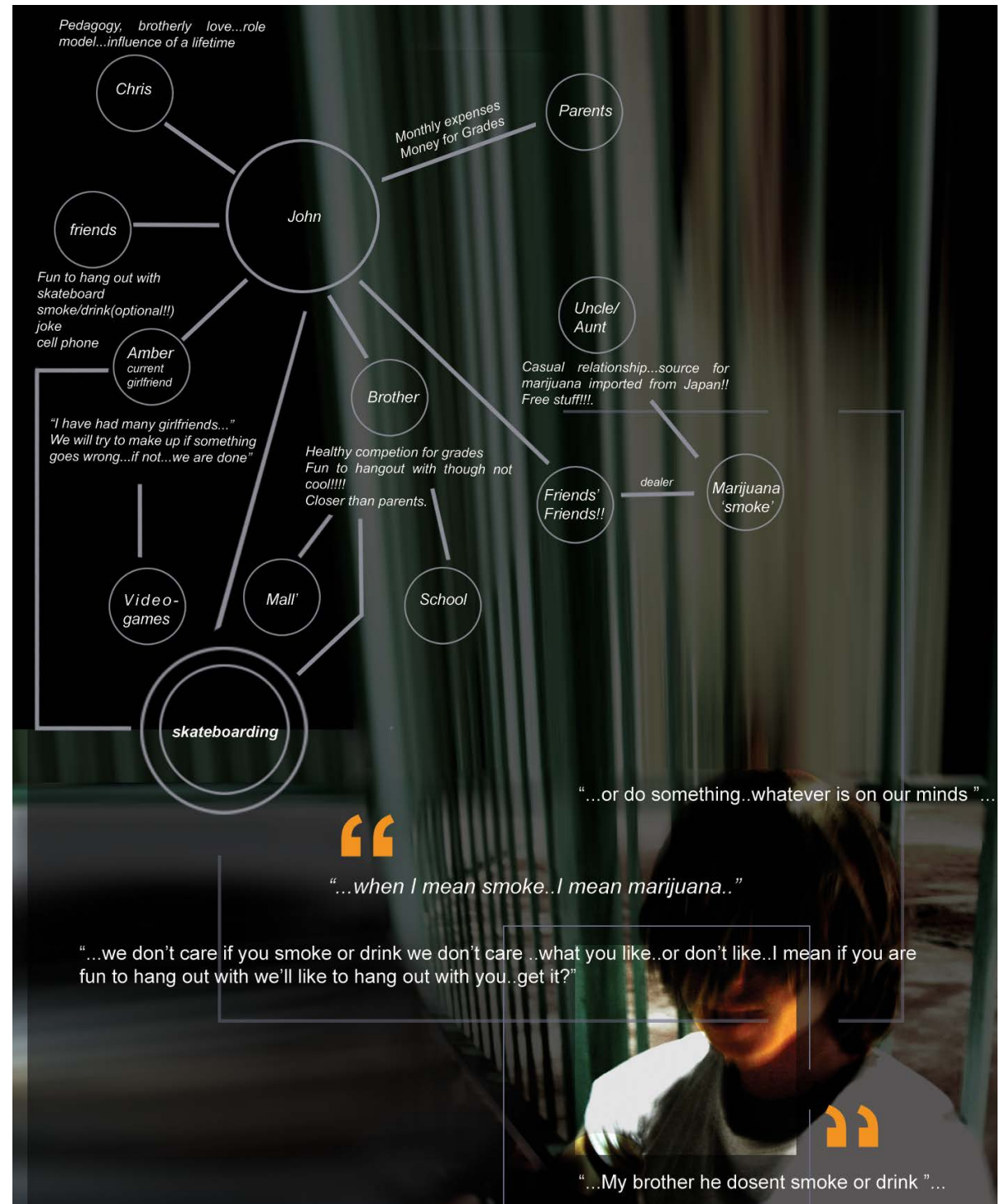
**PART II: INTERVIEW**

▼ Relationship diagram for analysis and synthesis
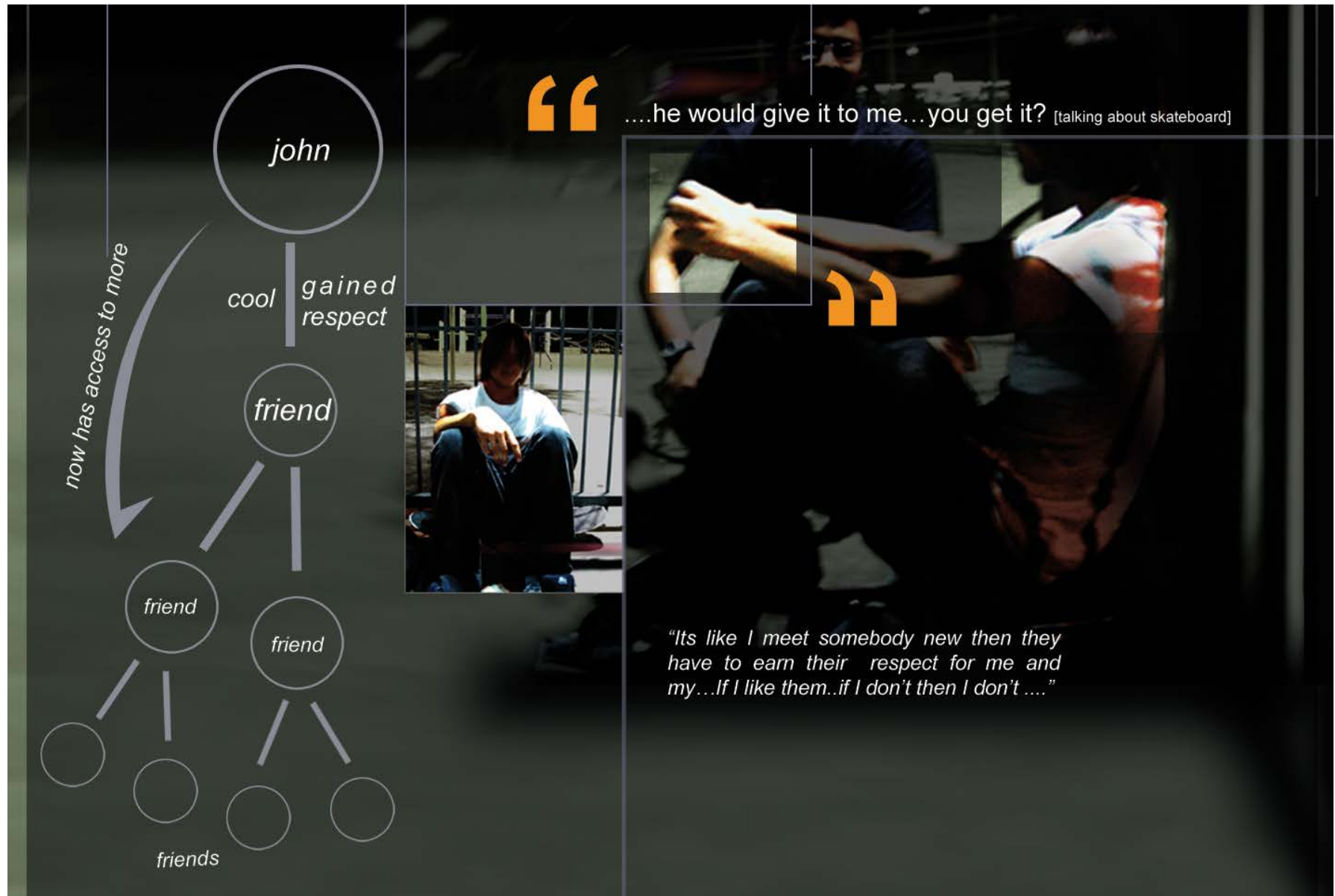
# PROJECT 2 | Studying
## the nature of teenager cliques

**PART II: INTERVIEW**

▸ Network diagram for analysis and synthesis

Pedagogy, brotherly love...role model...influence of a lifetime

Chris

Parents

Monthly expenses
Money for Grades

John

friends

Fun to hang out with
skateboard
smoke/drink(optional!!)
joke
cell phone

Amber
current
girlfriend

"I have had many girlfriends..."
We will try to make up if something
goes wrong...if not...we are done"

Uncle/
Aunt

Casual relationship...source for
marijuana imported from Japan!!
Free stuff!!!.

Brother

Healthy competion for grades
Fun to hangout with though not
cool!!!!
Closer than parents.

Friends'
Friends!!

dealer

Marijuana
'smoke'

Video-
games

Mall'

School

skateboarding

"...or do something..whatever is on our minds "...

"

"...when I mean smoke..I mean marijuana.."

"...we don't care if you smoke or drink we don't care ..what you like..or don't like..I mean if you are
fun to hang out with we'll like to hang out with you..get it?"

"

"...My brother he dosent smoke or drink "...

Study grocery shoppers with kid or kids in a stroller: a week-long observational research in Food City grocery store, which primarily caters to hispanic customers.
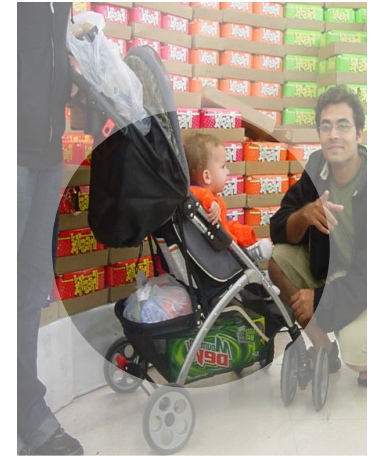


## Significance

- Hispanics are the nation's fastest-growing ethnic group.
- They are an attractive market segment due to large families.
- A design solution that caters to this group will not only have a positive impact on the grocer but will also be very desirable to it's customers.

## Purpose

- Understanding the characteristics and values of shoppers using strollers for grocery.
- Come up with design solutions to enhance the grocery shopping experience of customers with a kid or kids in a stroller keeping in mind the safety of the kids in the stollers.

## Conceptual Framework

**Product & Services**
- Ideal price
- Perceived level of comfort and safety
- Appealing features and aesthetics
- Facilities provided by grocer

**Feasibility**
of using a stroller
for shopping
and transporting
groceries

Customers
- Characteristics and values
- Needs
- Customers and their mode of transport pattern
- Most common mode of transport
- Proximity to grocery store

## Observation Notes

- Signage system was not effective.
- Children influenced their parents' purchase decisions.
- Some shoppers trasported groceries home in the shopping cart.
- Food City utilized a cart retrieval service, which collected the carts found off the store's premises and returned them to the store for a fee.
- Most women brought kids to the grocery store. The younger ones were carried in strollers while the older ones would help the parents with shopping.
- Shoppers put grocery items in the basket under the stroller.
- The shoppers, especially families living in close proximity of the store preferred carrying the groceirs back home in the strollers—this to me was an 'aha! moment'.
- Shoppers used the back of the stroller and handle bars to carry groceries. Sometimes they even piled bags on the kids lap.

**Product Opportunity:** Integrating the Stroller with the Shopping Cart.



- Extra-Large detachable storage basket
- One-hand folding
- Quick set-up
- Locking wheels
- Parent organizer tray with cup holder
- Light, modular and safe.

**Service Opportunity:** Food City® Courtesy Grocery Shuttle Service

- Food City could offer a free shuttle service that will ferry neighborhood grocery shoppers to it's Tempe, AZ store. This will benefit customers with limited access to personal transportation or limited mobility.

- Brand Strategy: The shuttle will increase Food City's brand visibility and position it as a brand that cares for and supports the local community.



▲ Food City Courtesy Shuttle: Safe and Convenient Grocery Shopping Experience.

# PROJECT 4 | Health game

Develop a health game to educate kids about basic safety precautions for minimizing sun exposure to help prevent skin cancer.
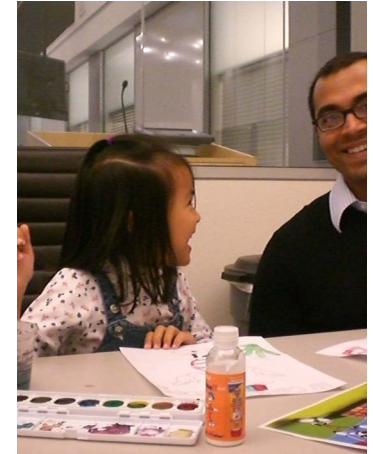


## Problem

- More than 90% of skin cancers are associated with sun exposure*.
- Most kids rack up between 50% and 80% of their lifetime sun exposure before age 18.**

  *skincancer.org  **kidshealth.org

## Project Development

Proven effectiveness of Game Based Learning

Outreach for research activities

Skin Cancer awareness needed for kids in Arizona

Tap into available resources within University, e.g. School of Computing and Design

**+**  **→**  PROMee!!

AN/BM Center for Applied NanoBioscience & Medicine

## Team Members

Amol Surve, M.S. | Design Research      Deepti Dulluru, M.S. | Computer Science      Shilpa Shinde, Ph.D. | Statistics
Frederic Zenhausern, Ph.D. | Director, Center for Applied NanoBioscience, Arizona State University

**Character Development**



Who is ProMee?  His story…..

## Story boarding and Game Planning

Goals + Levels + Scoring + Engagement + Learning
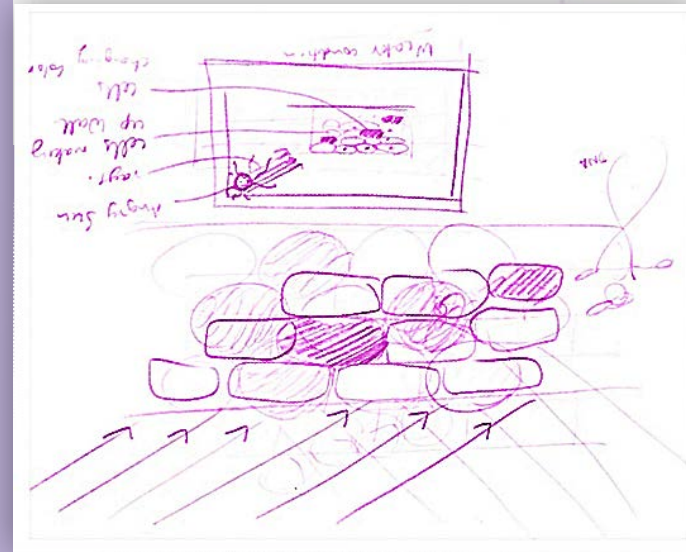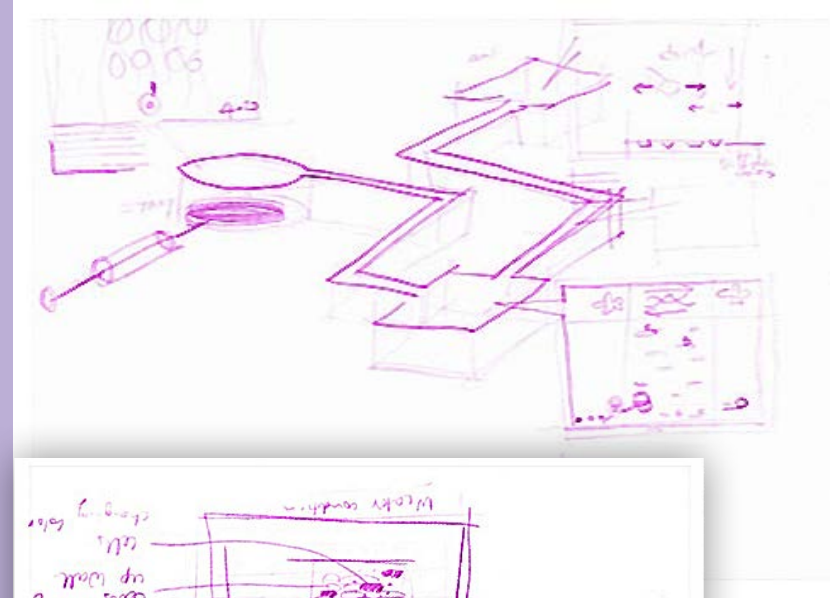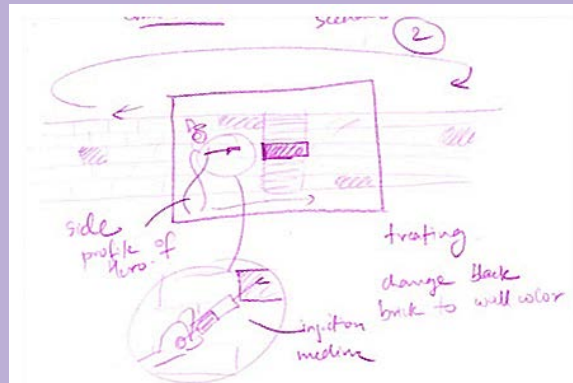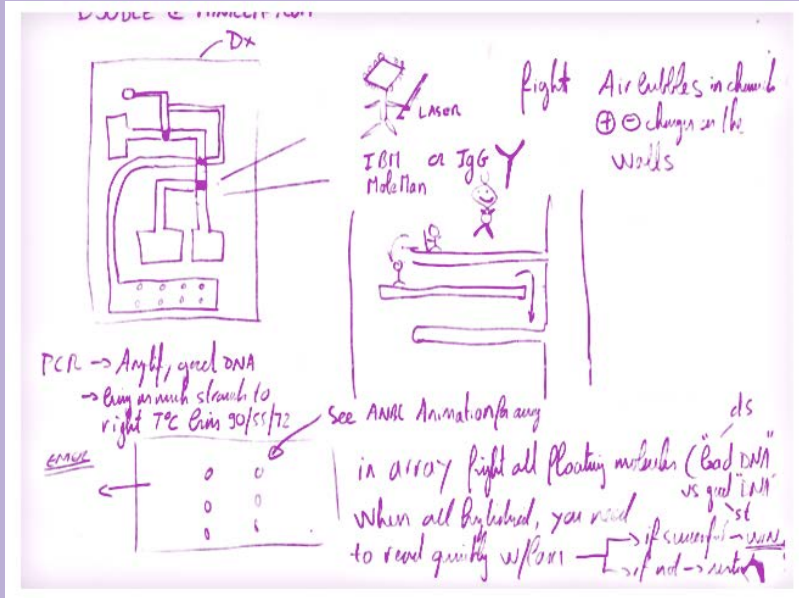
**Game Play! Testing with kids..**

## Giveaways

Reinforcing learning and increasing the possibility that the kids will share their learning with their friends

## Data Analysis

Radar graph for pre and post questionnaire



Legend:
- before game
- after game
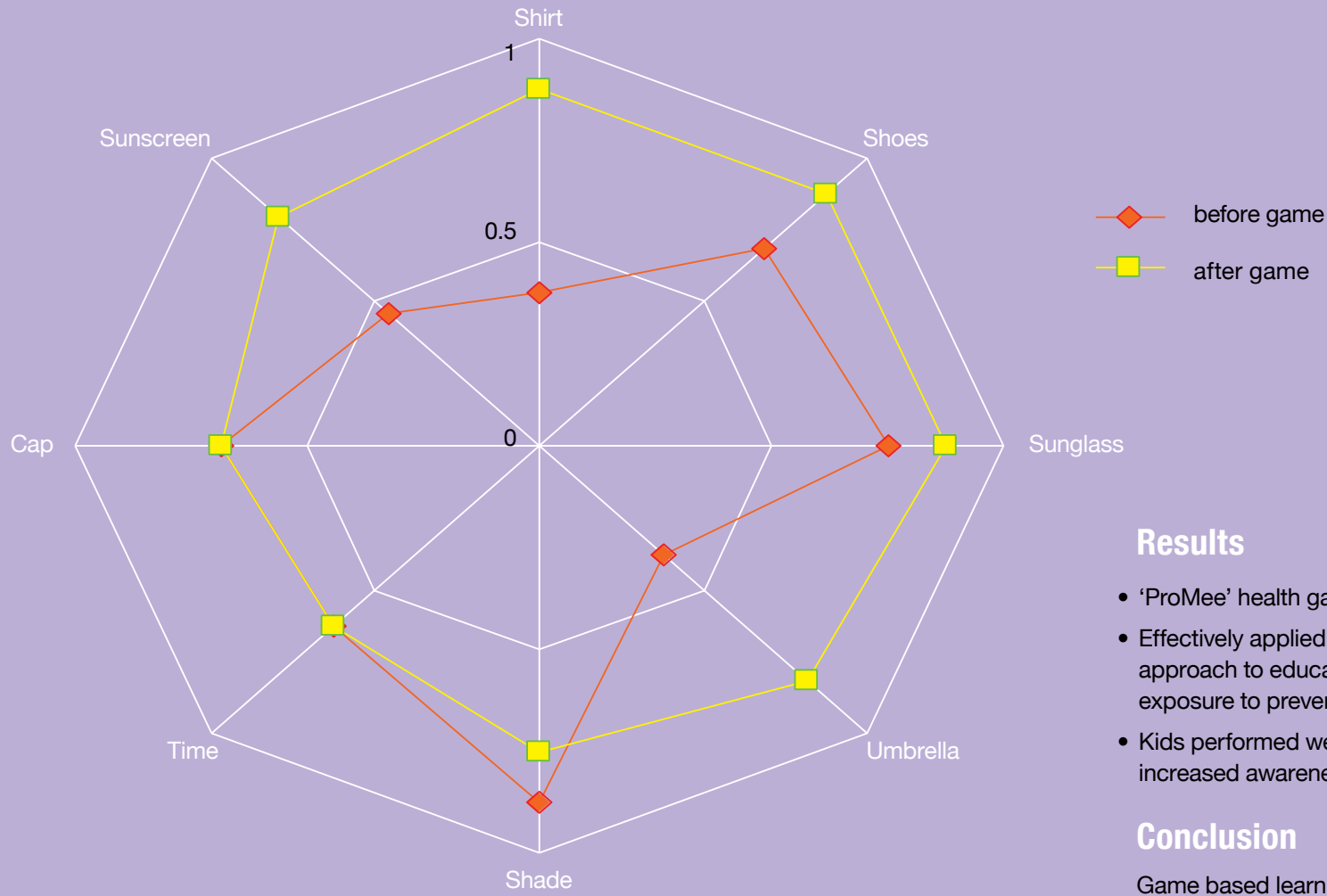
## Results

- 'ProMee' health game was developed and tested.
- Effectively applied 'Game based learning' (GBL) approach to educate kids about minimizing sun exposure to prevent skin cancer.
- Kids performed well in post game survey demonstrating increased awareness about sun exposure.

## Conclusion

Game based learning can be effectively used to educate kids and build their awareness about issues that impact them.

Learn more about my *recent work* and *Master's Applied Research* at www.amolsurve.com

*Thank you for your time,*
Amol Surve

surveamol@gmail.com     480-619-0677