COMP 3603: Human Computer Interaction Assignment 1
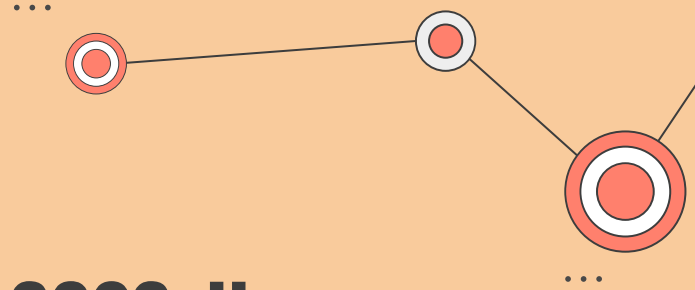
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How Design Influences Dissociation on Social Media

Literature Review by Thomas Ramdeo

BACKGROUND

Publication

Conference: CHI '22: CHI Conference on Human Factors in Computing Systems

Publication Venue: Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems

Category: Papers in Health and Social Media

Title: "I Don't Even Remember What I Read": How Design Influences Dissociation on Social Media

Publication Date: April 29 - May 5, 2022

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ABSTRACT

Objectives | Contributions | Findings

Objectives

- Investigate Normative Dissociation:
  - To explore the phenomenon of normative dissociation

- Examine Design Impact:
  - To understand how different design elements contribute to users experiencing normative dissociation

Contributions

- Custom Tool Deployment:
  - Using a custom Twitter client, "Chirp", to gather data on user experiences with normative dissociation

- Experience Sampling and Interviews:
  - Conducted experience sampling and interviews to gather detailed insights on the effects of normative dissociation on users

- Design Interventions:
  - Testing specific design interventions that can help to reduce normative dissociation

Findings

- **Positive and Negative Aspects:**
  - Normative dissociation can provide a useful break but may also lead to passive, unproductive engagement.

- **Effective Design Interventions:**
  - Design features like custom lists and usage statistics can help reduce normative dissociation and improve control over social media use.

METHODOLOGY

The research employed a comprehensive approach to studying normative dissociation through a custom-designed Twitter client, combining both quantitative metrics and qualitative feedback to assess the impact of design interventions on user behavior.

Development of Chirp (Custom Twitter Client)

Chirp, a modified Twitter client based on Twidere, was created to investigate normative dissociation and the impact of different design interventions.

Four versions of Chirp were developed to test the effects of various design interventions. These included:

- Internal Interventions: Changes to tweet consumption (e.g., reading history labels, custom lists, filtering out popular tweets and retweets/replies).

- External Interventions: Tools to monitor usage (e.g., usage statistics page, time limit dialogs).

- Control Version: No interventions applied.

- Combined Version: All internal and external interventions enabled.
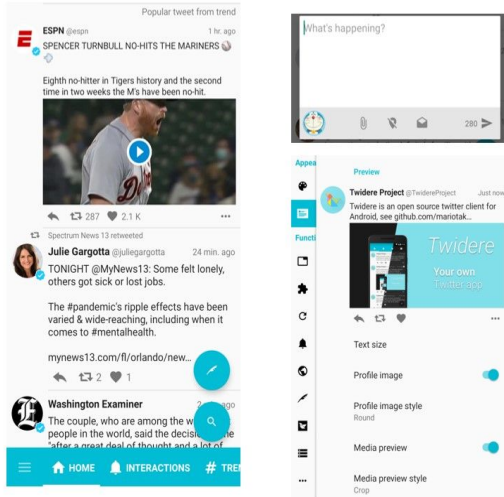
Data Collection Techniques

Quantitative Data:

- **Usage Statistics:** Metrics like time spent on Chirp, number of app opens, and interactions with features (e.g., clicks on the usage statistics page and time limit dialog).

- **Activity Logs:** Detailed logs of reading activities, including time spent on different feeds and scrolling past reading history labels.
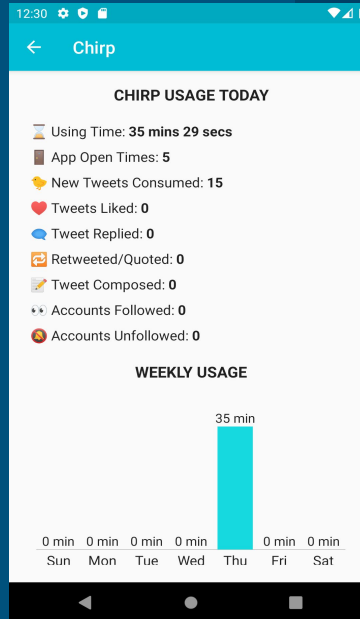
Qualitative Data:

- **Interviews:** Conducted with 11 participants, focusing on experiences of mindless scrolling, the impact of design features, and general experiences with social media.

- **Coding and Analysis:** Responses were analyzed through open and closed coding, grounded theory analysis, and thematic mapping to understand normative dissociation.

Experience Sampling Method (ESM):

- In-Situ Feedback: Participants responded to ESM questions about their level of attention while using Chirp, using a Likert scale.

RESULTS

Participants described becoming absorbed or "lost" in content, often experiencing a reduction in self-awareness and sense of agency.

Design Impact:
The study found that design interventions like custom lists, reading history labels, time limits, and usage stats reduced dissociation, helping users regain control over social media use.

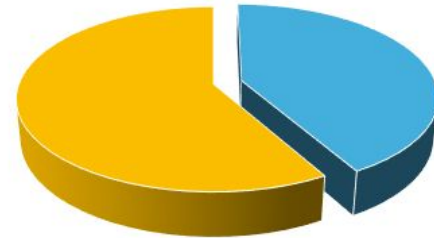# Interview Responses

A Comparison of Interviewees Who Experienced Dissociation vs. Interviewees Who Did Not
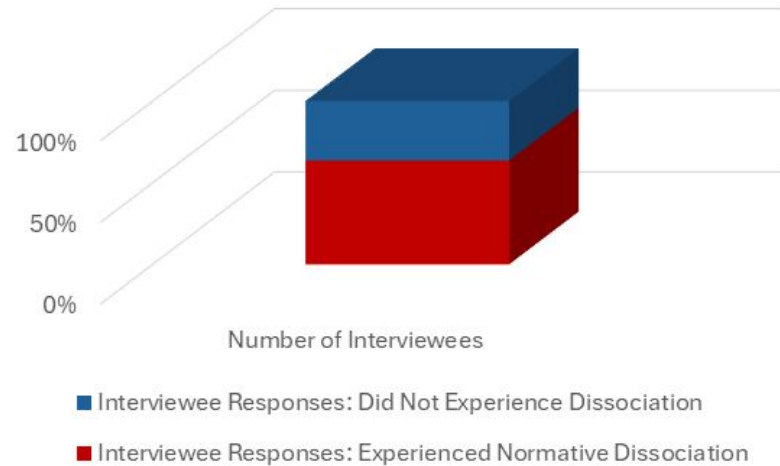
Experienced Sampling Method(ESM) Responses

A Comparison of Participants Who Reported Experiencing Normative Dissociation vs Participants Who Did Not

- Agreed/Strongly Agreed With Experiencing Dissociation
- Did Not Experience Dissociation

DISCUSSION

Implications & Significance in HCI

Design Interventions

- Based on the Different Design Interventions tested, there are specific designs that reduce users' self awareness and can lead to dissociation

Design For Healthy Engagement:
- Recognising these designs can prove to be helpful for designers to create a healthy environment for users

Limitations and Shortcomings

Content Influence:
- Unexamined Content Impact:
  - The study didn't explore how different content types affect normative dissociation, which could reveal how specific content influences user engagement and dissociation.

Platform Specificity:
- Single Platform Focus:
  - The study focused on Twitter, and findings may not apply to other platforms with different content types. Future research should examine normative dissociation across various platforms to tailor design interventions.

CONCLUSION

This research reframes social media use from addiction to normative dissociation, a state of deep absorption.
It suggests that design interventions can enhance user well-being by aligning with cognitive needs and offers a framework for healthier engagement and improved user experiences.

MAIN TAKEAWAYS

Normative Dissociation Model:

Social media use often leads to normative dissociation, where users lose self-awareness and control, showing that platforms actively engage cognitive processes and reduce volition.
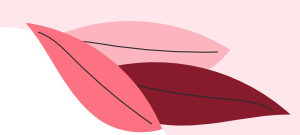
MAIN TAKEAWAYS

Design Implications:

The study identifies design features like custom lists, reading history, time limits, and usage stats that enhance user awareness and self-regulation, promoting more mindful social media use.

Unpacking the Lived Experience of Collaborative Pregnancy Tracking

Literature Review by:
Gabrielle De Young

BACKGROUND

Publication

Conference: CHI '24: Conference on Human Factors in Computing Systems

Publication Venue: Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems

Category: Reproductive Rights and Privacy

Title: Unpacking the Lived Experience of Collaborative Pregnancy Tracking

Publication Date: 11 May, 2024

Authors
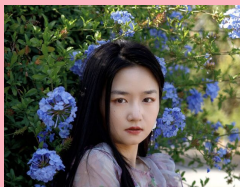
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ABSTRACT

Objectives|Contributions|Findings

Objectives

- Understand How People Collaborate around Pregnancy Tracking:
  - ➔ To gain insight into how pregnant and non-pregnant stakeholders collaborate for pregnancy tracking and how they wish to do so
- Identify Tensions and Challenges:
  - ➔ To discover pregnant people's privacy concerns
  - ➔ To understand stakeholders' varied levels of interest in tracking
- Inform How Technology could be better designed to support collaborative pregnancy tracking practices

Contributions

- Conduct interviews
  - ➔ Interviewed pregnant and non- pregnant stakeholders in the U.S to understand how people collaborate through pregnancy tracking.
  - ➔ Stakeholders included partners, friends and grandparents to be
- Design Intervention:
  - ➔ Identifying opportunities for designing collaborative technology that aligns with and challenges socio-cultural practices around pregnancy tracking

Findings

- People Collaborate for goals:
  - → Social Bonding
  - → Jointly managing pregnancy data

- Stakeholders Collaborated by:
  - → Dividing data types
  - → Collectively monitoring the same information

METHODOLOGY

This research was conducted through qualitative research methods by drawing influence from an inductive approach to thematic analysis

Study Overview

To explore collaborative pregnancy tracking between pregnant and non-pregnant stakeholders.

- 24 Participants
  - ➔ 13 pregnant or recently pregnant
  - ➔ 11 non-pregnant stakeholders who supported a pregnant person
- Criteria:
  - ➔ U.S resident, 18 years or older
  - ➔ Participants with Pregnancy experience: Currently pregnant or experienced a pregnancy within the last 2 years.
  - ➔ Non-pregnant stakeholders: Supported someone through pregnancy within the last two years.

Participant Recruitment

- Research Match:
  - ➔ Nonprofit program sponsored by the National Institute of Health(NIH).
  - ➔ Aids in connecting volunteers through organising demographic and health condition criteria.
  - ➔ Filters set to pregnant, pregnant planned and parenting caregiver status to achieve potential participants.
- Social Media Platforms:
  - ➔ Reddit
  - ➔ Parenting Discord servers
  - ➔ Twitter
  - ➔ Public Facebook groups

Potential participants were sent a demographic survey through Qualtrics to further screen eligibility.

Key Research Questions

1. **RQ1:** Why do pregnant people and non-pregnant stakeholders collaborate for tracking and managing pregnancy in everyday situations?

2. **RQ2:** How do pregnant people and non-pregnant stakeholders collaborate for tracking and managing pregnancy in everyday situations?

3. **RQ3:** What challenges and tensions do pregnant people and non-pregnant stakeholders face in the collaborative pregnancy tracking process?

The Interview Process

- Conducted via Zoom through 1 hour semi-structured interviews in which participants received $25 compensation.
- Interviews with pregnant people were split into three parts:
  1. How their close social network supported their pregnancy.
  2. Examining their experiences with self tracking.
  3. How their close social relationships participated in pregnancy tracking
- Interviews with non-pregnant stakeholders had two parts:
  1. How they generally supported their pregnant person's pregnancy.
  2. How they were involved in tracking around the pregnancy.

Inductive Thematic Analysis

- Used to identify, analyze and report patterns within the data.

- This involved three processes:

  1. Initial Coding - Two authors independently read the first 10 interview transcripts in which they applied open coding by tagging any relevant information.

  2. Collaborative Refinement - Both authors compared their findings to identify common themes and differences. Helped create the preliminary codebook.

  3. Final Codebook - Contains 3 parent codes and 11 child codes

- Parent Codes - Broad themes covering primary aspects of pregnancy tracking

- Child Codes - Specific Themes under each parent code

Final Codebook

Parent Codes

- Tracking Goals: Why participants track pregnancy.
  Eg. health, milestones
- Tracking Practices: How tracking is done.
  Eg. tools used, methods
- Collaboration Factors: The dynamics of collaboration during pregnancy tracking.

Child Codes

- Privacy - Concerns on sharing personal data
- Self- Tracking - Solo tracking
- Social Sharing - Sharing pregnancy data
- Co-Tracking - Tracking with others
- Interaction Concerns - Issues with how others interact with the tracking process
- Autonomy - Maintaining control over one's own pregnancy data

Participant Demographics: Has Pregnancy Experience

Table 1: The self-reported demographic information of 13 participants who had pregnancy experience.

ID	Age	Gender	Occupation	# Times Pregnant	Pregnancy Complications	Pregnancy Progress
P1	33	Female	IRB Staff	2	No	Birth 1-2 Years Ago
P2	32	Female	Social Worker	4	Diabetes	In the Third Trimester
P3	33	Female	Engineer	2	Anemia, Anxiety or Depression	Birth 1-2 Years Ago
P4	28	Female	Resident Assistant, Stay At Home Mom	3	No	In the Second Trimester
P5	35	Female	Consultant	2	No	In the Second Trimester
P6	37	Female	Stay At Home Mom, previously RN	4	Anxiety or Depression, Diabetes, Young or Old Maternal Age	Birth 1-2 Years Ago
P7	38	Female	Not Disclosed	1	Anxiety or Depression, High Blood Pressure, Young or Old Maternal Age	Birth 1-2 Years Ago
P8	34	Female	Homemaker	1	Anxiety or Depression	Birth 1-2 Years Ago
P9	28	Female	Postdoctoral Researcher	1	High Blood Pressure	Birth 1-2 Years Ago
P10	33	Female	Homemaker	1	Anxiety or Depression	Birth Less than 1 Month Ago
P11	29	Female	Not Disclosed	1	Anxiety or Depression	Birth 1-2 Years Ago
P12	36	Female	Social Worker	5	Young or Old Maternal Age	In the Second Trimester
P13	33	Female	Mental Health Counselor	1	Anxiety or Depression	Birth Less than 1 Month Ago

Race: White (10), Hispanic or Latino (1), Asian (1), Asian and White (1)

Sexual Orientation: Heterosexual (11), Bisexual (2)

Marital Status: Married or in a Domestic Partnership (13)

Partner's Gender: Male (13)

Education: Bachelor's Degree (4), in Graduate School (1), Graduate degree (8)

Annual Household: $20,000 to $39,000 (2), $80,000 to $99,999 (1), $100,000 or more (10)

Participant Demographics: Non-Pregnant Stakeholders

Table 2: The self-reported demographic information of 11 participants who supported a pregnant person.

ID	Age	Gender	Occupation	Relationship	Pregnancy Progress Supported by the Participant
N1	23	Male	Law Student	Fiance	In the Third Trimester
N2	25	Male	Information Technician	Sibling	Birth 1-2 Years Ago
N3	33	Male	Software Developer	Partner	In the Second Trimester
N4	35	Male	BI Data Analyst	Partner	Birth 1-2 Years Ago
N5	47	Male	Business Manager	Partner	Birth 1-2 Years Ago
N6	28	Female	Therapist	Close Friend	Birth Less than 1 year ago
N7	31	Male	Research/Teaching Assistant	Sibling	In the Third Trimester
N8	69	Female	Economic Development Coordinator	Mother	Birth 1-2 Years Ago
N9	58	Female	Public Adjuster	Mother	Birth Less than 1 Month Ago
N10	75	Male	International Finance	Partner	Birth 1-2 Years Ago
N11	47	Non-binary	Homemaker	Partner	Birth 1-2 Years Ago

Race: White (6), Black or African-American (2), Asian (1), Two or More (2)

Sexual Orientation: Heterosexual (9), Bisexual (1), Gay or Lesbian (1)

Marital Status: Married or in a Domestic Partnership (8), Single (2), Divorced (1)

Education: Some College (1), Bachelor's Degree (3), in Graduate School (1), Graduate Degree (6)

Annual Household: 0 to $39,999 (2), $40,000 to $59,999 (3), $60,000 to $79,999 (2), $100,000 or More (4)

Average Frequency of Interaction with Pregnant Person: Once per Week (1), 2 to 3 Times per Week (1), More than 3 Times per Week (9)

Pregnant Person's Gender: Female (11)

RESULTS

Answers to Research Question 1

RQ1: Why do pregnant people and non-pregnant stakeholders collaborate for tracking and managing pregnancy in everyday situations?

Pregnant people and non-pregnant stakeholders collaborate to:

➔ Bond with each other

➔ Seek or provide social support

➔ Jointly manage pregnancy data

➔ Promote a healthy pregnancy together

Answers to Research Question 2

RQ2: How do pregnant people and non-pregnant stakeholders collaborate for tracking and managing pregnancy in everyday situations?

Pregnant people and non-pregnant stakeholders collaborate by:

➔ Dividing tracking responsibilities

➔ Monitoring different types of data

➔ Collectively tracking the same piece of information

Answers to Research Question 3

RQ3: What challenges and tensions do pregnant people and non-pregnant stakeholders face in the collaborative pregnancy tracking process?

Tensions and challenges stakeholders experience around collaborative tracking:

➔ Privacy concerns

➔ Managing their opinions and feelings

➔ Level of trust in different stakeholders

➔ Varied interests in tracking

➔ Desire to occasionally disengage

Pregnancy Data and their Tracking Technologies

Table 3: A summary of pregnancy tracking data and their associated tracking tools.

Types of Pregnancy Data	Technology or Tools
Maternal health data (e.g., weight, blood pressure, symptoms, and medications)	Pregnancy tracking apps, weight scales, blood pressure monitors, electronic health records (e.g., MyChart and Kaiser Permanente), digital technologies (e.g., Google Doc, Excel Sheet, and Word), notes on the phone, paper reports, and paper journals
Mental health data	Mood journaling apps, pregnancy tracking apps, and paper journals
Lifestyle data (e.g., physical activity, diet, and sleep)	Food journaling apps, wearable devices (e.g., Apple Watch), and paper journals
Fetal growth data (e.g., ultrasound photos, fetal size comparison, and fetal kicks)	Pregnancy tracking apps, ultrasound photos, and paper report during doctor appointments
Pregnancy and labor logistics (e.g., doctor appointments, notes, and checklists)	Calendar, digital technologies (e.g., Google Doc, Excel Sheet, and Word), and notes on the phone

DISCUSSION

Impact of Socio-Cultural Norms on Collaborative Tracking

- Gender Roles : Traditional gender norms impact stakeholder involvement in pregnancy tracking

- Cultural Influence: Within patriarchal cultures pregnancy data is controlled and managed by male partners or elder family members.

- Tracking Inequality: Non-pregnant stakeholders may have little to no interest which will affect collaborative tracking.

This is why technology for pregnancy tracking must avoid stereotypical categories and consider cultural contexts.

Bodily Autonomy vs Stakeholder Involvement

- Collaborative tracking can lead to pregnant people that they don't have control over their own data.
- Collaborative tracking also leads to unwanted pressure or advice from stakeholders since they have access to the data.

For these technologies pregnant persons should have full control of who accesses their data. For instance the technology should have different modes or settings such as:

➔ Self Tracking

➔ Social sharing

➔ Collaboration

Design Interventions

- Support Customization: Allow stakeholders to define data to be tracked and accessed
- Facilitate Conversations: Allow communication between stakeholders
- Challenge Inequality: Introduce technology that encourages non pregnant stakeholders to be involved

Limitations and Shortcomings

- Education and Income levels in participant demographics: Contained high education and income levels; limited representation of racial minorities and lower income groups.

- Recruitment Challenges: No participants tracking the same pregnancy therefore missing important dynamics.

- Cultural Scope: Study was conducted only on U.S participants leading to lack of information from different cultures.

- Age Range: No representation of younger, i.e ages 18-27 or older i.e. 40+ pregnant persons. Leads to a lack of diversity in tracking needs.

CONCLUSION

- Both pregnant and non-pregnant stakeholders seek to collaboratively monitor and manage pregnancy data

- Privacy concerns along with levels of interest is shaped by societal norms which may create barriers in collaborative tracking.

- Although tracking research advocates for equal data access, it was found that this may disrupt autonomy for pregnant persons.

BACKGROUND

PUBLICATIONS

Conference: CHI '22: CHI Conference on Human Factors in Computing Systems

Publication Venue: Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems

Category: Children and Learning

Title: The Unboxing Experience: Exploration and Design of Initial Interactions between Children and Social Robots

Publication Date: April 29 - May 5, 2022

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ABSTRACT

OBJECTIVE|CONTRIBUTIONS|FINDINGS

OBJECTIVES

- Understand the social nature of these social robots.

- Understand the children's excitement into meeting the product for the first time

- Understand children's perceptions on social robots.

- Design an improved prototype for children to interact with

CONTRIBUTIONS

Observation and Interviews

    - 22 children between the ages of 8 and 13

    - Social Robot Miko in the Unboxing Experience

Design Intervention:

    - Observe interactions between child and robot package

    - Observe socialization in child-robot bond

Design Exploration:

    - Develop an improved prototype and observe child-robot
        interactions and socialization

FINDINGS

1. Unboxing as a Social Phenomenon

Recognition of unboxing as an important social event that influences user experiences.

2. Collaborative Design and Prototype

Co-designing new unboxing experiences with children, leading to the development of a novel prototype box.

3. Impact and Design Guidelines

Insights into how unboxing shapes children's perceptions of social robots, resulting in design recommendations for robot packaging.

METHODOLOGY and RESULTS

METHODOLOGY

In this research question, 3 studies were
conducted:

- Observation (Zoom)
- Co-design (Zoom)
- Evaluation (In-person)

A Thematic Analysis was used based on the
interview recordings to identify the themes
related to children's experiences,
preferences and perceptions toward the
social robot unboxing experience.

STUDY 1

Observe how children
unbox a social robot
(Miko) product in a
naturalistic environment

STUDY 2

Conduct co-design
sessions to ideate and
prototype novel social
robot unboxing
experiences.

STUDY 3

Observe and evaluate of
the redefined design of
and unboxing experience
created from study 2.

STUDY 1: EXPLORATION CHILDREN SOCIAL ROBOT UNBOXING EXPERIENCE

Aim: Explore and identify children's experience with unboxing a social robot (Miko)

Number of participating children: 12

Time taken: 90 minutes

The study was carried out in two parts with limited guidance and semi-structured interviews by researchers.

Part 1: Children unbox and observe the details of the original packaging

Part 2: Children interact with robots using its available set of activities.

Visual Representation of Miko

STUDY 1: FINDINGS

- 9 common themes

- subcategorized in 2 ways:

PHYSICAL DESIGN OF THE BOX

1) Appearance of the Box

2) Opening of the Robot's Box

3) Reusability of the Physical Box

4) Background Story

5) Instruction manuals provided in the box

SOCIAL INTERACTION DESIGN

6) Robot Greeting

7) First Interaction

8) Personality of the Robot

9) Shared activities with the Robot

PHYSICAL DESIGN OF THE BOX

RELATED TO TANGIBLE, CONCRETE OR AESTHETIC DESIGN FACTORS

1.Appearance of the box:
• Children shared that the box should reflect the contents within
• Children also suggest adding windows to give a better glimpse of the product inside

2. Opening of the robot's box
• At least one child found trouble opening the package.
• Children mentioned the importance of an easily openable box. This is to ensure interest is maintained.

3. Reusability of the Physical Box
• Children suggested that boxes for electronic devices usually needs to be replaced, and is described as unsteady.
• The box should be reusable as it can play a permanent role in giving the robot a place to stay.

4. Background Story
• The robot should have a background story as this piques children's interest and give them a stronger sense of connection.

5. Instruction Manuals provided in the Box
• The instruction manual was cumbersome and complicated to read.
• Children suggested novel and creative ways to deliver instructions and guides to children to make it more engaging.

SOCIAL INTERACTION DESIGN

BETWEEN CHILDREN AND SOCIAL ROBOTS

First Interactions

· Significant moment where children decide on whether or not to maintain interest or curiosity of the robot.

· Delayed playtime resulted in disinterest and brought emphasis on the need to be ready-to-play.

Greetings and Personality

· Children emphasize the robot's facial expression, notable the eyes. This feature allows them to interpret the robot's feelings.

· Children also suggest that the robot should introduce itself and also ask the child for their name.

Shared Activities

· Notably activities were asking the robot to dance and play songs.

· Voice recognition within the robot gave the robot a realistic feel, however one-sided conversation made the interaction discouraging.

· One child suggested that Miko should engage in icebreakers.

STUDY 2.1: CO-DESIGNING SOCIAL ROBOT UNBOXING EXPERIENCES

Aim: To understand children's perspectives and expectations of unboxing a social robot, using the 9 nine themes in Study 1 as guidance.

Number of participating children: 11

Time taken: Approximately 2 hours

Children were to create their own physical design of box and social interaction design.

This study was done in 3 parts with semi-structured interviews following each phase

A sorting activity of the previously defined design themes

A Box Design Activity

A social robot interaction Design Activity

Resources used in Co-Design Sessions

STUDY 2.2: FEEDBACK FOR THE DESIGNED PROTOTYPE

Aim: To receive feedback from children who participated in Study 2.1 using a curate social robot.

Number of participating children: 6

Time taken: 30 minutes

The prototype box featured a plain exterior and an interior design to support the robot's role, with the box explaining the instructions and answering question. This study was done followed by an open- ended discussion between co- designers.

Images that inspired the final design

STUDY 3: EVALUATION OF THE DESIGNED UNBOXING EXPERIENCE

Aim: To evaluate the study's designed unboxing experience with newly recruited children.

Number of participating children: 9

The study took place at each of the participants home. The study utilizing Miko once more with the replacement of its original packaging with the prototype. This study was also structure in 2 parts.

Part 1: Author setting up the design unboxing experience, then children were allowed into the study area were the unboxing experience start.

Part 2: Children freely engaged with the robot.

Image of the robot Miko in the study's designed box.

STUDY 3: FINDINGS

The design topics can be categorized under 2 categories with additional information.

APPEARANCE OF THE BOX

- Children appreciated the magnetic opening and window details, which made the box feel more realistic.
- They found the box's decorative design fun and thought it was worth keeping as a home for the robot.

SOCIAL ASPECTS WITHIN THE UNBOXING EXPERIENCE

- The robot's social presence made it feel friendlier and more approachable, and the box's role was appreciated for changing how packaging is seen.

ADDITIONALLY

- Children were very interested in the lights showing the robot's emotions and the audio making it feel more human-like.
- They found it more enjoyable for the robot to explain instructions compared to traditional manuals.

DISCUSSION

DESIGN IMPLICATIONS

SOCIAL INTEGRATION AND AESTHETIC DESIGN

The Unboxing experience should integrate social behaviors into the package design, making the process interactive and engaging.

STORYTELLING

Designing a backstory that links the robot and the box can reinforce the narrative of the robot's purpose and interaction with the child. This creates a cohesive and engaging experience.

INTERACTIVE ICEBREAKERS

Providing materials such as tutorials or guided interactions, can help children's initial interactions to help them understand its capabilities and functions.

LIMITATIONS

- The exploratory and qualitative nature of the study limits the ability to generalize findings to a broader population
- The sample population size and diversity were restricted as managing resource drop-offs and pick-ups had to be maintained for the online study.
- The study's one-time evaluation in familiar environments may not reflect long-term engagement.
- Future work should include investigation of the long term effect of different unboxing designs.

CONCLUSION

TAKEAWAYS

- Exploration of how unboxing process influences a children perception of a robot.
- Co-designing with participating children to emphasize on child-robot bond
- Enhance child's connection with robot through design unboxing experiences.
- Positive influences between child-robot bond through creative and interactive unboxing experiences.
- Design recommendations for improving social robot products for children

RELEVANCE AND IMPACT

1. The study highlights how first impressions and social interaction are key to improving children's experiences with social robots, offering new design opportunities for companies.

2. Product designers, engineers, and researchers can use these insights to better understand and influence child-robot interactions, helping robots integrate into children's daily lives.

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