Anticipating One's Reproductive Future(s): Sociotechnical Anticipation Work by Reproductive Citizens

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Field Prelim Defense
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Committee:
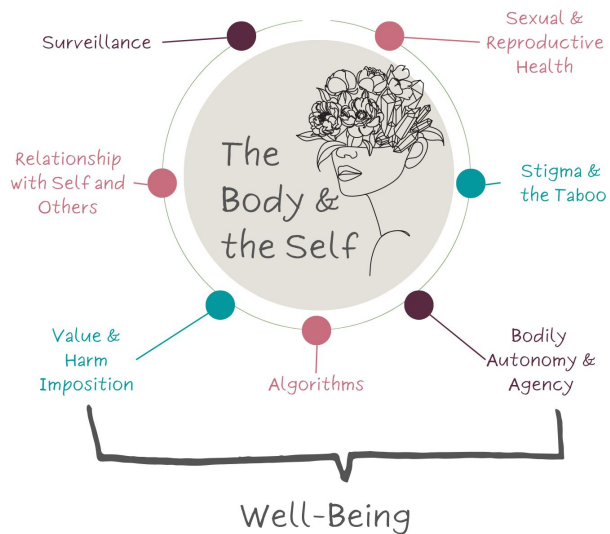Dr. Lisa Harris,
Dr. Silvia Lindtner

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Outline

- ★ Intro/Terminology
- ★ Theoretical Framework & Key Concepts
- ★ Anticipation in Sociotechnical Reproductive Contexts
  - ○ Sociotechnical Anticipation Work by People Trying to Conceive
- ★ Contested Landscape of Reproduction in the U.S.
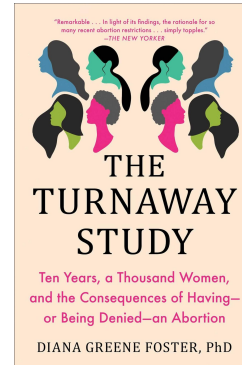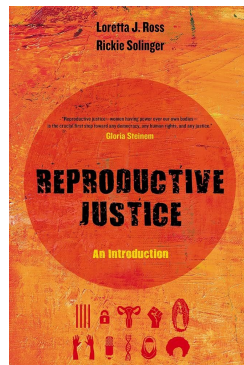- ★ Project Proposal
- ★ Q&A

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Choosing a Field Prelim Topic

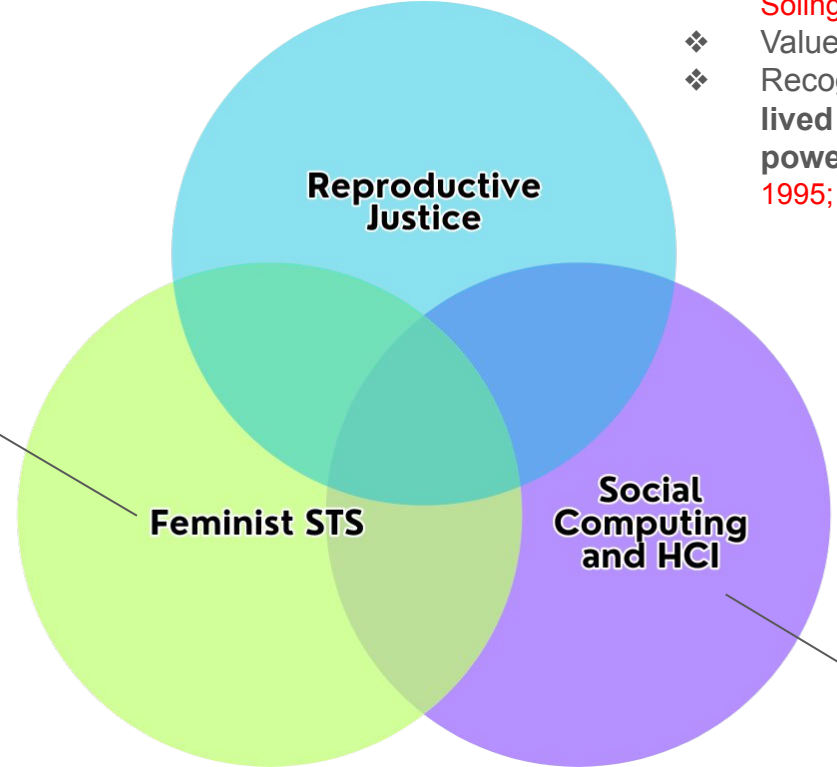- Existing interest in **Bodily Autonomy**, **Sexual, and Reproductive Health**

- **2nd year of PhD:**
  - **GSRA** Position for a study on **Reproductive Health** and **Privacy** in a Post-Roe Context
  - **SI 706** Course
  - My own **personal reproductive experiences**

A **map of my research interests** I made my *1st year* of the PhD program

Surveillance

Sexual & Reproductive Health

Relationship with Self and Others

The Body & the Self

Stigma & the Taboo

Value & Harm Imposition

Algorithms

Bodily Autonomy & Agency

Well-Being

Loretta J. Ross
Rickie Solinger

REPRODUCTIVE JUSTICE

An Introduction

Scarlet

THE ETHICS, LAW, & POLITICS OF ORDINARY ABORTION

KATIE WATSON

THE TURNAWAY STUDY

Ten Years, a Thousand Women, and the Consequences of Having— or Being Denied—an Abortion

DIANA GREENE FOSTER, PhD

Challenges masculinist values of objectivity and neutrality (Weber, 2006)

Views **technology and knowledge** as reflecting **culture and societal processes** found in their development and deployment (Wajcman, 2010)

A **"movement building and organizing framework"** (Ross & Solinger, 2017)

Values **historical context**

Recognizes **differences in lived experience**, and **power imbalances** (Colen, 1995; Ross & Solinger, 2017)

Reproductive Justice

Feminist STS

Social Computing and HCI

Interested in **relations between people and technology**

Formally **incorporating feminist principles** into its **research and design** efforts (Bardzell, 2010)

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Inclusion and Exclusion Criteria

Inclusion:

- **Offers a relevant framework/theory** that can be used to make sense of reproductive technologies' involvement in the 5 dimensions of anticipation (Adams et al., 2009) and anticipation work (Clarke, 2016).
- Provides **a case study of technology being** involved in prediction, anticipation, inference for reproductive health goals or can be clearly connected to that context**.**
- Provides **an example or additional context for reproductive technological artifacts** and how they're intertwined with people, history, organizations, knowledge and cultural values/meanings.

Exclusion:

- **Framework/theory cannot be connected to anticipation in the context of reproductive health futures**.
- **Provides general reproductive health information (e.g. medical journals)** without engaging with ethical or social implications relevant to processes of decision-making, and/or reproductive or bodily autonomy.
- **Does not engage with futures/predictions/anticipation**, OR **does not engage with technology's** role in accessing or addressing the future/predictions/anticipation**.**

Note on Terminology

Not just **Women's Health** or **only involving** **Cisgender Women** (Keyes et al., 2020; Reime et al., 2023b).

Reproduction (ACRJ, 2005)

Reproductive Health (WHO, 2005)

Technology

***Tools** that **assist with or infringe upon** the biological and social processes salient to reproduction and reproductive health*

Social Construction of Technology (Bijker et al., 2012; Wajcman, 2010; Weber, 2006)

Anticipation
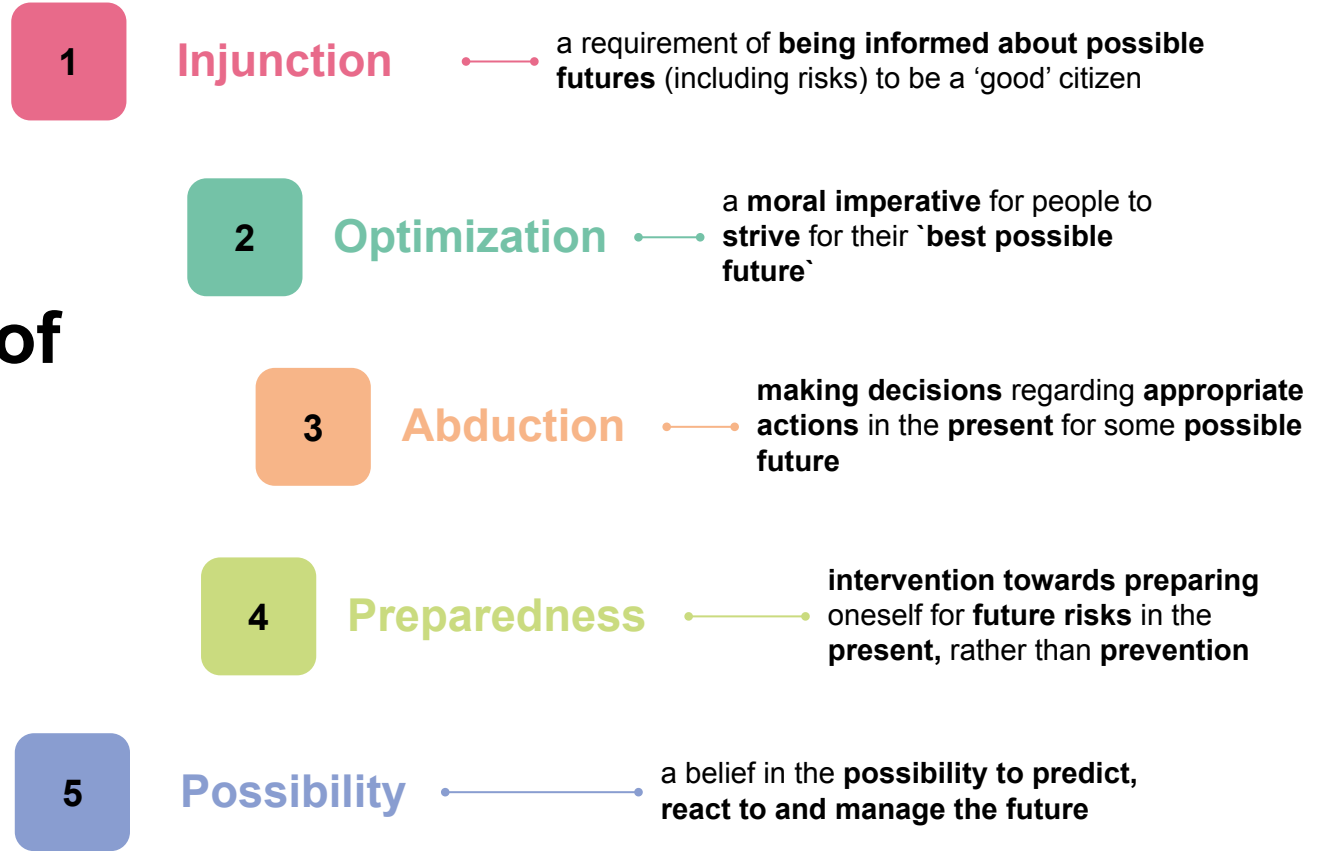(Adams et al., 2009)

Anticipation Work
(Clarke, 2016)

Theoretical Framework: Anticipation
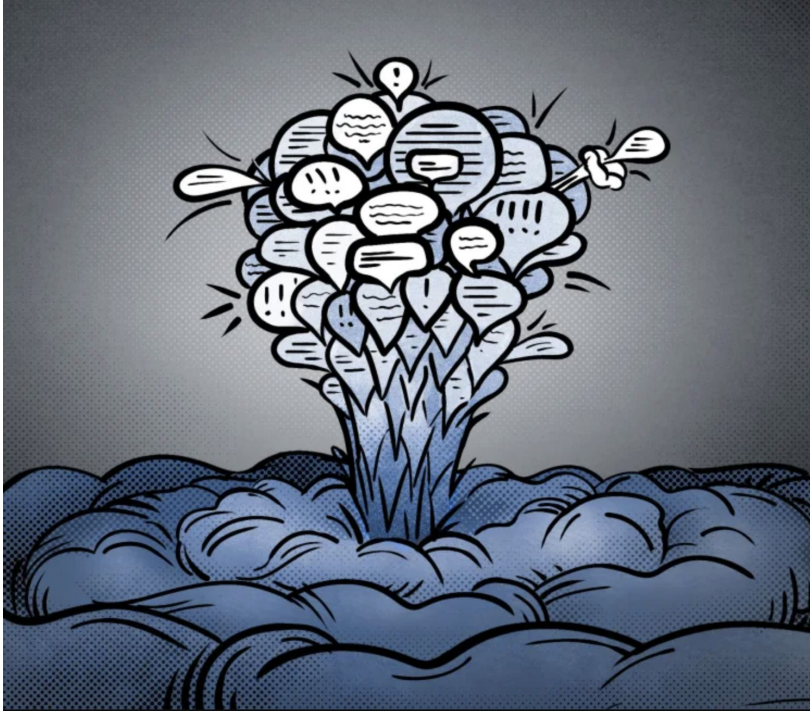
Anticipation (Adams et al., 2009) :

- An **affect**
- An affective **relationship with time**, specifically **the future**
- **5 Key Dimensions**:
  - Injunction
  - Optimization
  - Abduction
  - Preparedness
  - Possibility

5 Dimensions of Anticipation

(according to Adams et al., 2009)

1 **Injunction** — a requirement of **being informed about possible futures** (including risks) to be a 'good' citizen

2 **Optimization** — a **moral imperative** for people to **strive** for their `best possible future`

3 **Abduction** — **making decisions** regarding **appropriate actions** in the **present** for some **possible future**

4 **Preparedness** — **intervention towards preparing** oneself for **future risks** in the **present,** rather than **prevention**

5 **Possibility** — a belief in the **possibility to predict, react to and manage the future**

Theoretical Framework: Anticipation Work

Anticipation Work…(Clarke, 2016)

- a type of labor emerging from *anticipation*
- "**gathering information, abducting, simplifying, guessing, deciding, planning, acting**, and **hoping against hope** that the guesses made are good enough"(Clarke, 2016)

Abduction   **Simplification**   **Hope**

Overlapping Types of Anticipation Work (Clarke, 2016)

Abduction An iterative process of **aggregating information, thinking about information, and judging its value** for addressing **future possibilities (and needs)**

Simplification the practice of **sorting through, managing, and making sense** of **information** in accordance with one's **goals**

Hope fuels **anticipation work—**is *a labor and practice of hoping and expression of hope*
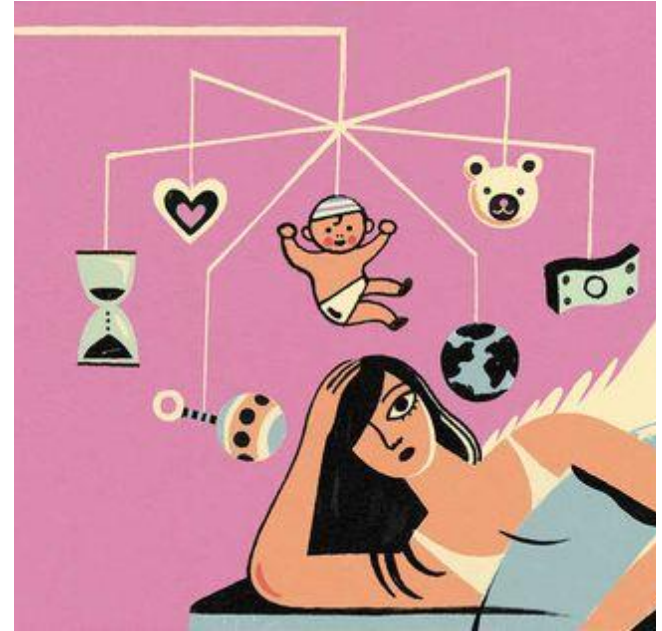
How does Anticipation relate to <u>Reproduction</u>?

- Both have a complex relationship with **time**, **the future**, and **uncertainty**
- **Time** operates as a **tool for the structuring of** and a **source of pressure and influence** on reproductive processes (Costa Figueiredo & Chen, 2021)
- <u>Key Concept:</u> **Reproductive Temporalities**

    "...lived and embodied **experiences of reproductive time** and the **entanglements of past and future** that form **actions in the present**"(Reime et al., 2023)

- **Anticipation [Work]** (Adams et al., 2009; Clarke, 2016) offers a new lens to **make sense of people's relationships** with **time and labor towards some desired reproductive future**

How does Anticipation relate to <u>Reproduction</u>? Cont.

- In the present, people may:
  - Strive for **certain future reproductive outcomes** (e.g., pregnancy)
  - Have **expectations for reliable technical interventions** (e.g., effective birth control)
  - And, engage in labor to try and **ensure experiences associated with these reproductive health outcomes or expectations**
- **Competing ideas** of what **optimization** (Adams et al., 2009) means in the reproductive health context
  - i.e., Framework of Anticipatory Motherhood (Waggoner, 2015)
- People navigate prescriptive ideas of **what desirable reproductive futures are**, and **for whom,** while trying to preserve and achieve their own

Responsible Reproductive Citizenship

- **Scoping this Field Prelim:**
  - The **individual** who participates, engages with, or is the target of **anticipatory regimes** and/or **performs anticipation work** towards a reproductive future(s)
- **Individuals → Reproductive Citizens**
- **Responsible Reproductive Citizenship Framework** *(Carroll & Kroløkke, 2018)*
  - Individuals **should manage and anticipate their future (in)fertility**, and **act to protect their reproductive future** by **investing their time, money, and energy**
  - Responsibility is **gendered**

Technologies as 'Reproductive Citizenship Projects'

Technologies:

- Embody **cultural meanings, & social and political relationships** (Bijker et al., 2012)
- Can enable **new ways of relating to reproduction** (Kroløkke & Petersen, 2017)

Reproductive Citizenship Projects (Kroløkke & Petersen, 2017)**:**

- Technologies and their relation to reproduction allow *"an individual [to] exercise[s] his/her reproductive rights and choice to become a legitimate (active and responsible) reproductive citizen"*(Kroløkke & Petersen, 2017)

Anticipation in Sociotechnical Reproductive Contexts

Examples:

- Menstrual and Fertility Tracking Applications (MFTAs)
- AI and Precision Medicine
- Online Support Groups

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- **Online Support Groups**

MFTAs and *Anticipation*

past future present

- Build an anticipated future **based on the quantified self** (Lupton, 2015) of **one's past and present**
- Configure **present bodily experiences** into **data archives** of the past that **help inform present action** to try and **ensure some anticipated future** (Reime et al., 2023a)
- Support **simplification** (Clarke, 2016)
  - e.g., through data visualizations (Reime et al., 2023a, Reime et al., 2023b)
- Necessitate **Abduction** (Clarke, 2016)
  - Struggles to understand data prompt **additional sense-making labor** (Costa Figueiredo et al., 2017)

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Online Support Groups and *Anticipation*

- Sites for **abduction, simplification and hope** (Clarke, 2016)
  - Engage in labor of **gathering, sharing and making sense of information** about one's reproductive health experiences (Chopra et al., 2021, Reime et al., 2023a)
  - **Finding hope** in those with **similar circumstances** who have **reached one's desired reproductive outcome** (Reime et al., 2023a) **but also harms….**
- Can **perpetuate normative expectations** for reproductive health experiences (Andalibi and Garcia, 2021, Reime et al., 2023a)

Sociotechnical Anticipation Work by People Trying to Conceive

Sociotechnical Anticipation Work towards Conception

- Use of **Self-Tracking Technologies** and **Online Support Groups** as a way to **work** towards a **hoped** for **reproductive future** of *pregnancy* or *having a child* (Costa Figueiredo et al., 2017; Costa Figueiredo et al., 2021; Reime et al., 2023)
  - Help with **managing** and **practicing the labor** of trying to conceive (Reime et al., 2023; Costa Figueiredo et al., 2017)
  - Support an **increased awareness** and sense of being **prepared** for navigating a possible pregnancy as they wish (Costa Figueiredo et al., 2017)
- **Knowledge- and Emotionally- Intensive** Sociotechnical Context
  - Constantly **collecting and reflecting on data** to **prepare** for **future fertility** cycles (Costa Figueiredo et al., 2017)
  - Experience feelings of **hope** and **disappointment** dealing with **uncertainty** (Costa Figueiredo et al., 2021)

Sociotechnical Anticipation Work towards Conception

- Data interpretation challenges **increase uncertainty** and **emotional burden** (Costa Figueiredo et al., 2021)
  - Occur despite **simplification** supported by data visualizations (Reime et al, 2023)
- Raises questions of:
  - How technology's design might support or complicate **abduction** and **simplification** (Clarke, 2016) when anticipating reproductive futurity
  - How **emotional experiences** of trying to conceive are **configured** by the relationship between **technology** and **anticipatory processes**

Labor of Trying to Conceive

- Not **one right** way to conceive, but frequently includes **tracking and making sense of multiple reproductive health data points** (Costa Figueiredo et al., 2017)
- A lot of *techno-utopian* **discourse** frames **self-tracking** data practices as a way to **ensure one's goals** (e.g., conception) (Costa Figueiredo & Chen, 2021)
  - **Labor** of trying to conceive becomes *moralized*, a `right way to labor'
- **Labor** of self-tracking and managing reproductive health data for conception is **unequally experienced**(Agigian, 2007; Costa Figueiredo et al., 2017; Carroll & Kroløkke, 2018; Ma et al., 2023):
  - Falls on person expected to carry a pregnancy
  - May become shared with healthcare providers as medical complexity increases (Costa Figueiredo et al., 2017)

Empowerment and Vulnerability

- Using technology in anticipating reproductive futurity can be **empowering** (Costa Figueiredo et al., 2018)
- Introduce **vulnerabilities** on the bases of *gender, sexuality, race, ability, class and health status*:
  - Increased **surveillance** (Lowry, 2004)
  - Exposure to **normative presentations** of fertility (Andalibi and Garcia, 2021; Reime, Cohn, et al., 2023; Reime, Tsaknaki, et al., 2023)
- **Design** reflects **what experiences are valued** by technologists *and* informs **sense-making** of people trying to conceive about their **past/present experiences** and **anticipated futures**

Main Impressions of Literature

- Primarily focuses on how people **navigate uncertainty** to manage their **fertility-related goals** using **self-tracking technologies** and **online support groups**

- Focuses on goals related to **binary outcomes**, like the goal of becoming pregnant (as opposed to not)

- What about:
  - **Goals** associated with **the experience** of trying to conceive?
  - The **wider net** of **technologies** implicated by **anticipation** in the reproductive context?
  - How the **broader social, political, and cultural contexts** shape this **anticipation work** for those **trying to conceive**?

Contested Landscape of Sociotechnical Anticipation Work by Reproductive Citizens

Narratives of Responsible Reproductive Citizenship

Reproductive (In)justice, Power and Control

Reproductive Privacy Concerns

Stigma

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Reproductive Justice, Power, and Control

- **Reproductive Justice**(Ross and Solinger, 2017)**, Stratified Reproduction** (Colen, 1995)
- **Powers** invested in **controlling reproductive capacity**
  - Implications for labor force, military, economy, nation building, and maintaining nodes of power (Ross and Solinger, 2017)
- U.S. long **history** of **surveilling reproductive health** (Ross & Solinger, 2017; Solinger, 2019)
  - Comstock Law (Sheraden, 2023)
- Targeted **pro- and anti-natalist policies** to govern reproductive capacity based on *race, class,* etc.
- Policies **criminalizing motherhood** and **pregnancy** (Frye et al., 2024; Goodwin, 2020)

Reproductive Privacy Concerns

- **Intimate Privacy** (Citron, 2022) → privacy concerning our embodied experiences
  - Threatened by digital surveillance, and lack of regulation (Citron, 2022)
- **HCI** starting to grapple with **digital privacy** in **reproductive contexts**
  - Primarily focusing on **FemTech** and **MFTAs**
  - Pose **increased risk over stationary devices** as they're entangled with individuals' many environments **across space and time** (Almeida et al., 2022)
- **Users of FemTech** and **MFTAs** understand intimate data collected **poses a risk to their privacy**, but are **unclear** about **how to protect** against these privacy threats (Cao et al., 2024; Mehrnezhad et al., 2023)
- Anticipating Reproductive Privacy Threats
  - Post-Roe, individuals **implemented different privacy strategies** when anticipating **future privacy intrusions** that might revealing their (criminalized) reproductive health decisions (e.g., having an abortion) (McDonald & Andalibi, 2023)

Contested Landscape of Sociotechnical Anticipation Work by Reproductive Citizens

Narratives of Responsible Reproductive Citizenship

Reproductive (In)justice, Power and Control

Reproductive Privacy Concerns

Stigma

Takeaways

- **Anticipation is integral** to reproductive health and reproductive futures
- **Technology is implicated** in anticipating reproductive futurity
- There is a **contested social, political, and cultural landscape** for reproductive citizens

What I want to work towards…

- Understanding:
  - the **breadth of entanglements** (Haraway, 1987) of anticipating reproductive futurity *across time and space*
  - how the **contested landscape shapes** these entanglements
  - How technology is involved in anticipating and striving for certain *experiences* **of reproductive futurity,** beyond focusing on binary outcomes (e.g., pregnant/not pregnant, fertile/infertile)

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Study Proposal

Overview of Study Proposal

A **4-month mixed methods** (asynchronous remote community, semi-structured interviews) study with **people trying to become pregnant** or who are in their **first trimester** of pregnancy:

RQ1: What are the **sociotechnical entanglements of anticipating reproductive futurity** for people trying to conceive and into the first trimester of pregnancy?

    1.1: What **technology-mediated labor emerges** among people trying to conceive and into the first trimester of pregnancy **due to anticipation**?

    1.2: What **cultural, political, and social framings** [of pregnancy, motherhood, pregnant people] **motivate or inform this sociotechnical labor**?

    1.3: What uncertainties do people who are trying to become pregnant or are in early pregnancy **try to manage**? How do these **uncertainties and their efforts to manage** them **shift across time and space**? And, how do **technologies configure this management**?

Methods

Asynchronous Remote Community (Months 1-3)

- A **closed private group** where participants **complete asynchronous tasks** and **interact with discussions** at their **own pace** (MacLeod et al., 2016; MacLeod et al., 2017)
- **Adapt and draw activities from existing HCI-specific guides**—including those applied to sensitive reproductive health contexts—to answer study's RQs (Kresnye et al., 2021; MacLeod et al., 2016, 2017; Prabhakar et al., 2017)

#	Name	Activity	Shared with Group	Duration	Generative or Recall?	Medium	RQs	Connection to RQs
A1	Preferences Poll	Participants are asked to complete a poll answering questions about their preferences regarding days when activities are shared with the group, and how often.	Directly	One Time	Generative	Poll	N/A	This question helps me understand the desired cadence of activities among the group.
A2	Timeline	Participants create a timeline of their experiences trying to conceive or into pregnancy. They are invited to comment and engage with what others share.	Directly	One Time	Recall	Text, Media	1.1 1.3	This question is meant to begin to elicit recollection of one's experiences across time and space, and used as a starting point for future activities. The timeline will highlight the order of 'events' they experienced and may need to manage and labor towards.
A3	Technology Use Timeline	Participants are asked to return to A2, and add to it the type of technologies they've used and why. They are invited to comment and engage with what others share.	Directly	One Time	Recall	Text, Media	1.1, 1.3	Similar to A3, however, this timeline activity will explicitly elicit the types of technologies used across time and space, and the purpose of these uses—as a result, it will illuminate what types of uncertainties these technologies were used to manage.
A4	Future Technology	Participants are asked to think about future interactions they may have with technology in their experiences relating to trying to conceive or pregnancy, and why they may or may not interact with these technologies.	Directly	One Time	Generative	Text	1.2, 1.3	This activity will bring out participants' anticipated technology uses they might engage with (or might not), and why. This will help bring out attitudes around possible sociotechnical labor in anticipating reproductive futurity.
A5	Problems (Uncertainties)	Participants are asked to submit a list of things they feel uncertain about with regards to their experiences trying to conceive or early pregnancy.	Not Shared	One Time	Generative	Text	1.3	This activity will elicit uncertainties people may try to manage in their experiences.
A6	Ranking	Participants rank a list of uncertainties, generated from A5, in order of how much each is a concern for them personally.	Not Shared	One Time	Generative	Ranking	1.3	Building off of A5, this activity will ask all participants to rank the uncertainties that emerged among the group and which ones are concerns for them. This will allow me to assess for patterns of these uncertainties among participants based on identity, whether they're trying to conceive or in early pregnancy, etc.
A7	Organizing Tools	Participants will be asked to look at the lists of uncertainties, generated from A5, and the technologies referenced in A3 and A4. They will be asked to organize the technologies based on which they've used to manage these uncertainties that are a concern for them.	Directly	One Time	Recall	Media	1.1, 1.3	Building off earlier activities, this activity will explicitly help me bridge technologies participants use with the uncertainties they may manage.

Some of the activities from my Field Prelim….

Methods

Semi-Structured Interviews (Month 4)

- Asking questions relating to:
  - *individuals' desired reproductive health experiences and outcomes*
  - *the types of labor they engage in to ensure these outcomes*
  - *how technology and contested landscape is salient to this labor*
- **ARC activities used as artefacts** to help tailor questions or ask detailed follow up questions
- Will begin once ARC is completed

9. Thinking about technology, are there certain technologies you've used while trying to conceive? **Probe: Online Support Groups, MFTAs, Telehealth, ARTs, medicines to assist conception?...**

How have you used [**technology**]?

How did you decide to incorporate [**technology**]?

What do you hope [**technology**] helps you with?

Do you have any concerns about your decision to use [**technology**]? If yes, what are they? How do you manage these concerns?

Recruitment

Participant Pool: 30 people (age 18+) **trying to conceive** or in the **first trimester** of pregnancy who currently live in the **United States**

- 50% Trying to Conceive
- 50% First Trimester
- Aim to **recruit across a diverse population** on the basis of:
  - Race/Ethnicity
  - Gender
  - Sexual orientation
  - Socioeconomic status

Recruitment Sources:

- UMHealthResearch
- Online Forums
- My Own Social Media Platforms

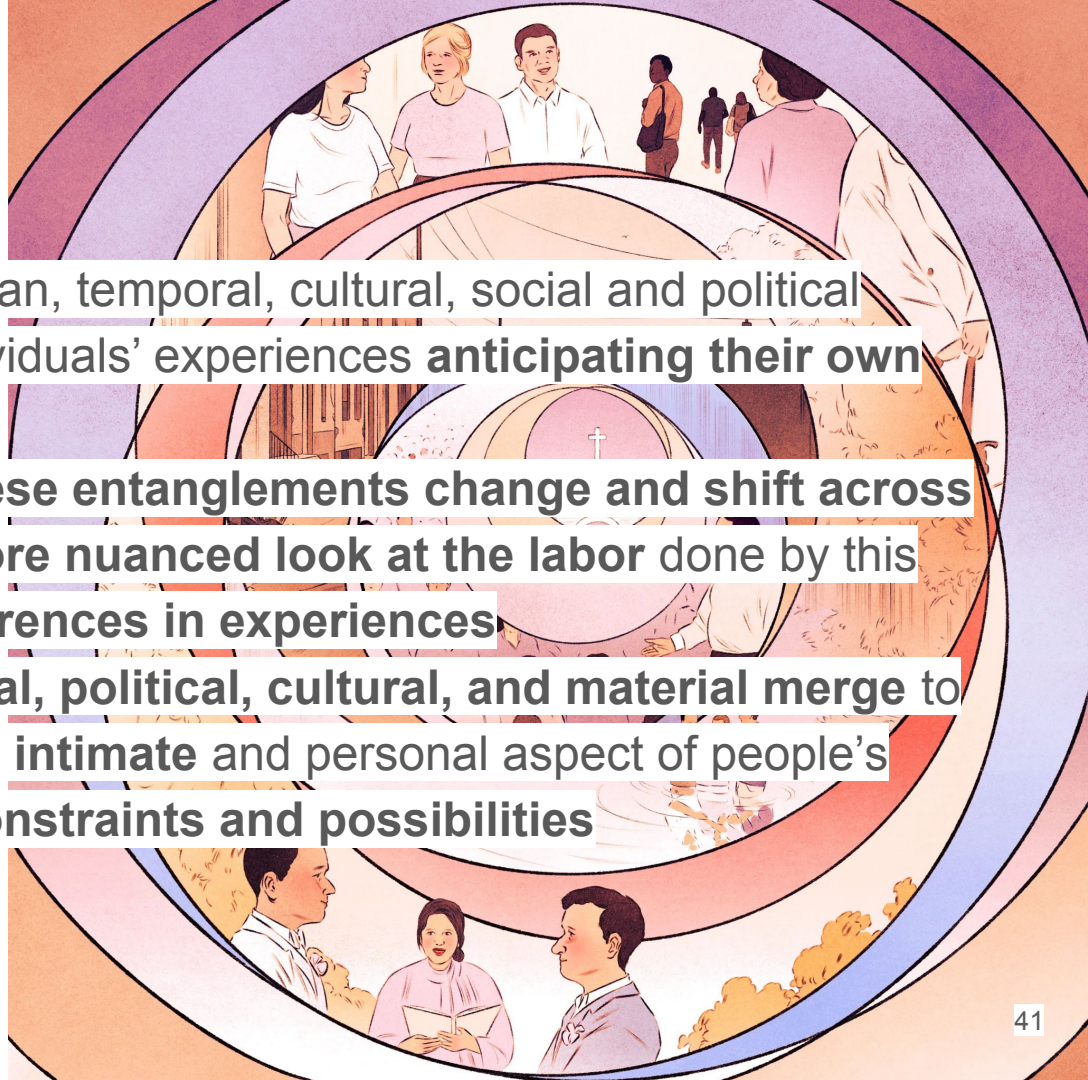**Interviewees will be recruited from ARC participants**

Data Analysis

- Combine **Situational Analysis** (Clarke et al., 2018) with **Constructivist Grounded Theory** (Charmaz, 2012)
- Situational Analysis → mapping human and non-human actors(Clarke et al., 2018)
- Constructivist Grounded Theory→ Apply **open, focused, and axial coding** to participants' interviews and text responses in the ARC (Charmaz, 2012)
- These analysis approaches **align with my own commitments** from Feminist STS and Feminist HCI to **be attentive to broader social context**

Expected Contributions

- **A map of the** human, nonhuman, temporal, cultural, social and political **elements entangled** with individuals' experiences **anticipating their own experiences** of reproduction
- An **understanding of how these entanglements change and shift across space and time**, offering a **more nuanced look at the labor** done by this group that is **attentive to differences in experiences**
- An illustration of **how the social, political, cultural, and material merge** to shape and **influence a deeply intimate** and personal aspect of people's lives, illuminating **tensions, constraints and possibilities**

Thank you for listening! Questions? Feedback?

Photo Credit

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