



Service Fictions as a Method in Problem-Finding Research in the Field of Sleep

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Abstract

The original purpose for this study revolved around identifying possible whitespaces (innovation opportunities for unmet needs) applied to the concept of sleep. Through much early work on sleep, it became apparent that sleep is a semi-private concept and the boundaries of what was possible for potential whitespaces needed to be further explored with participants. From there the intention of the research shifted to identify the best possible method to aid in this discovery. Speculative design was considered an appropriate method. Speculative design is meant to garner reactions from viewers. Attempts were made to find a way to get participants to engage with proposed speculative scenarios and explore them as they related to themselves, instead of just reacting to them. Service Fictions

were created to take a participant through the thought process to arrive at the speculative scenario. Twelve participants co-created scenarios that would fit into their life with prompts from the designer. This method was successful in understanding underlying values and a participant's boundaries around what was comfortable and acceptable to them. Service Fictions were applied to a case study meant to expose the boundaries of care around sleep. Insights gained from Service Fictions were distilled down to four main categories. The categories were technology, people, control and sleep. These categories were turned into guidelines to consider when applied to sleep, but possibly extendable to other concepts as well.

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Introduction

This thesis describes the development of Service Fictions and gives an example of their use through a case study in the field of sleep. The case study will involve explorations in the themes of Care and Control related to Sleep Practices. Insights are gained through the use of Service Fictions. It is an exploration of whether the use of Speculative Design can prompt deeper insights beyond those gained in a conventional human-centered design process.

Service Fictions are defined as scripts for services that are co-created with participants in reactions to a speculative scenario. By allowing participants to create scripts that are related to their own personal values and rituals around sleep, individuals could reflect on what was acceptable to them, and what they would expect from a caregiver who was there to help them sleep. Service Fictions allow participants to experience and engage with the speculative fiction rather than just reacting internally to the fiction.

In the case study, the speculative scenario utilized in generating of the scripts attempted to capture and explore the 'edges' of caregiving and care receiving in relation to sleep, and was based on literature reviews and informal interviews.

The speculative scenario used was based on participants' sleep systems that considered their nightly rituals and thought practices around sleep. Actor Network Theory was used to interchange actors in these mapped

systems. By interchanging actors from nonhuman to human, systems became services. In the speculative service scenarios generated, the role of the human was explored in the context of the attainment of sleep, and the scenarios attempted to make a case for humans in such services.

The theme of Human vs. Technology emerged through the use of Service Fictions. Service Fictions showed the variety of degrees of 'human' and 'technology' presence people were comfortable with, and the degree that they were willing to go in order to get a good night's sleep. For example, one participant wanted someone to come into their home at night to place eye drops in their eyes so that they wouldn't have to wake up in the middle of the night. Other participants did not want a person in their house at all, but were comfortable with a person watching them sleep remotely. In each interview, contrasting the use of technology to physical human interactions facilitating the same action brought out the benefits and disadvantages to each, and highlighted the scenarios where one would be more appropriate than the other.

These considerations enabled the development of a framework for designers addressing similar situations, where the benefits and the disadvantages of the roles that human interaction and technology take in a service need to be carefully examined.

Service Fictions

Grounding

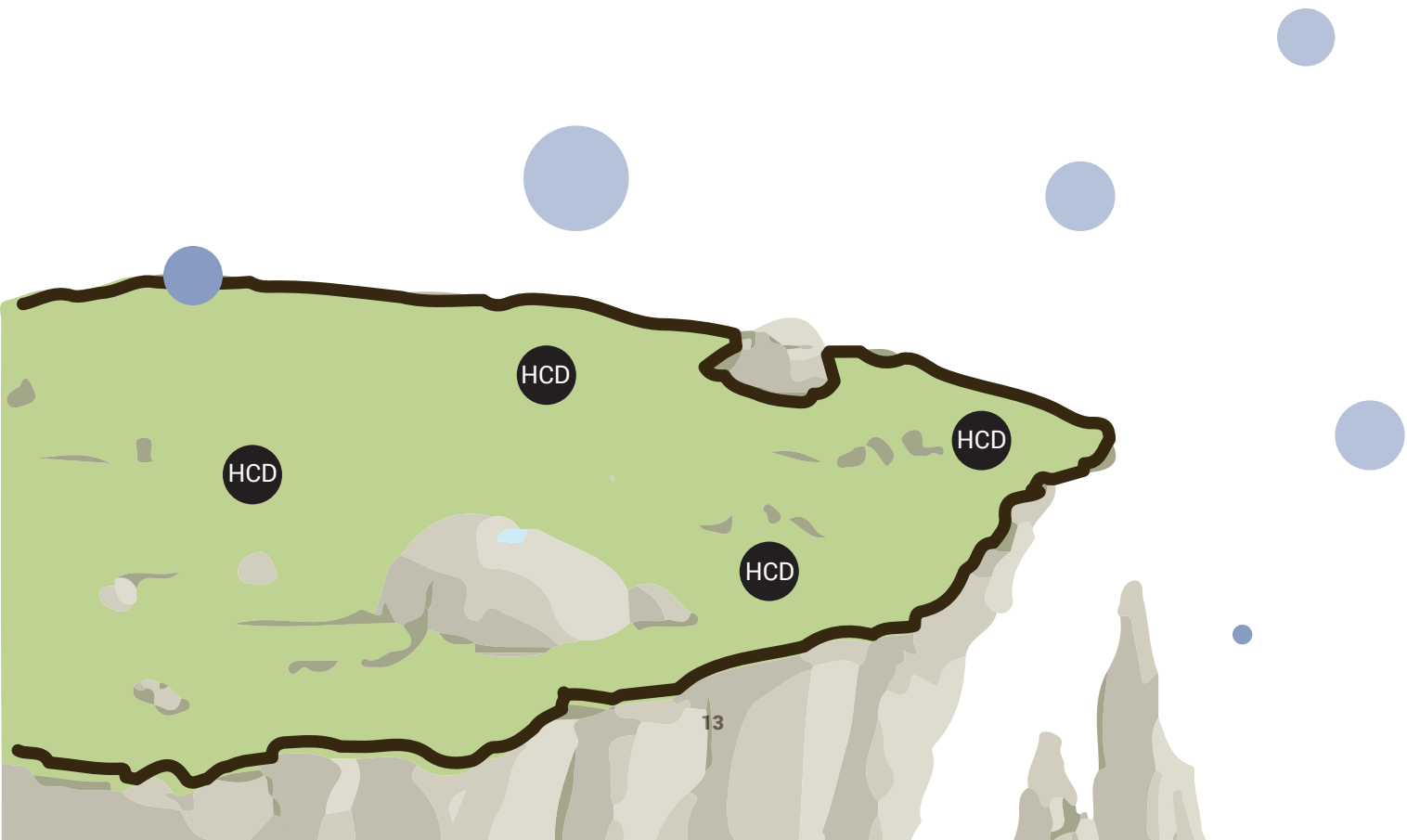
Main Ideology

This thesis utilized a research through design methodology. Research through design is “a creative way of investigating what a potential future might be” (Zimmerman et al. 2010, 313). In problem finding research or research through design, one is looking to identify frictions in systems. Speculative design is a natural extension of this as it allows these frictions to become front and center.

Service Fictions bring the participant through the speculative scenario, and were a key form of

research in this thesis. Directions and iterations were determined through making, reflexive practice and/or in explorations of comments from interviews and secondary research.

My goal was to find this friction and the edge of where people were comfortable and then move one step towards the speculative to gather insights. The Scenario provided a medium for reflection, as well as a basis for co-creation of the Service Fictions with peers.



Speculative Design

A subset of Design Fictions, Speculative Design was used in this thesis to define what the edges are around the values of sleep. This methodology is a way of provoking reactions through controversial manifestations of ideas and concepts. It is meant to spur discussion, however at the present there is no formal way of gathering insights after the fact. Much Speculative Design work has been primarily intended for gallery exhibition rather than for research with potential users or stakeholders. Since it is not solving a problem for a specific person, rather just heightening issues so people have a stronger reaction to the concept, it can be seen as a form of provocative art. The power

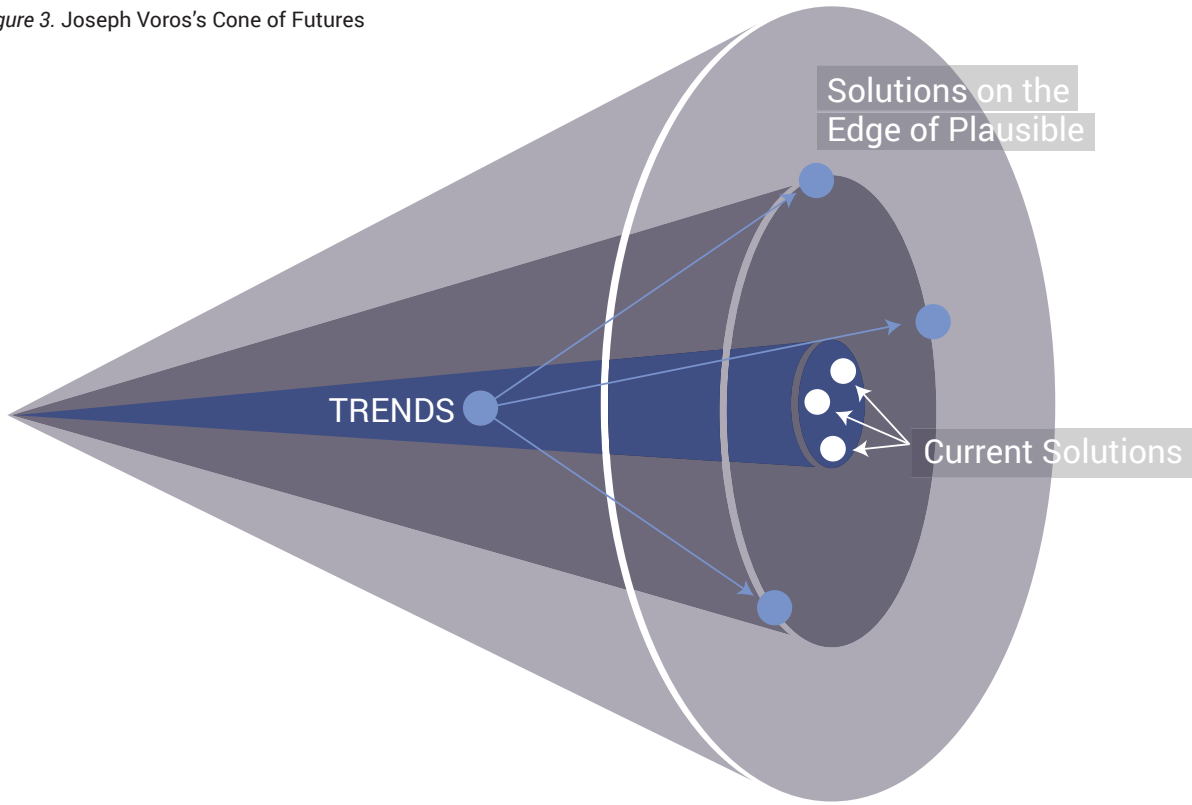
of Speculative Design is when concepts stay close to reality. Dunne and Raby state, “Design needs to be closer to the everyday life, that’s where its power to disturb comes from. Too weird and it’s considered art. If it’s regarded as art it is easier to deal with, but remains as design... it suggests that the everyday as we know it could be different, that things could change.” (Dunne 2007,10)

If speculations are viewed in a gallery setting, the designer is dictating that their design is to be viewed from an observer’s perspective, rather than meant to be truly experienced. Like art, Speculative Design is meant to provoke, and is meant for

A.	B.
Philips	Inquiry by design
Pathologizing sleep	Reframing sleep
Productizing sleep, productizing symptoms	Underlying causes/ issues (via Speculative Design)
User	Society
Problem solving	Problem finding
Deep understanding of user	Deep understanding of system
Make us Buy	Makes us Think
Design for production	Design for Debate
	In the service of society
	Asks questions

Figure 2. Adaption of Dunne and Raby's A/B List.

Figure 3. Joseph Voros's Cone of Futures



impact, it is not meant as an exploration to uncover values. Through separating oneself via a gallery setting, reactions are meant to be personal. And these reactions from participants are often not collected and incorporated into the next iteration.

This study used Speculative Design to find what the edge of values associated with sleep are as well to find friction and further being able to explore this friction. Having scenarios at the edge of what is weird allows people to imagine, or in Dunne and Raby's words 'to disturb'.

Dunne and Raby talk about the benefits of Speculative Design as "opening up new possibilities" as a way of inspiring

the imagination. They state "It feeds the profession's imagination and it opens up new possibilities, not only for technology, materials, and manufacturing but also for narrative, meaning, and the rethinking of everyday life." (Dunne and Raby 2014, 31) They go on to say, "The best speculative designs do more than communicate; they suggest possible uses, interactions, and behaviors not always obvious at a quick glance." (Dunne and Raby 2014, 139).

Service Fictions facilitate the gathering of insights for these behaviors, values, and preferences 'not always obvious at a quick glance.' (Dunne and Raby 2014, 139).

Speculative Design as Human Centered Design (HCD)

There is precedent to using Speculative Designs as probes to exploring and understanding the participant's values and collect reactions. However, in the examples I have found, incited reactions to the speculative probe were collected but were not incorporated as insights into the next iteration, they were mostly collected as a form of art. In the case of Dunne and Raby's Placebo project, they designed various devices that "absorbed electromagnetic waves in the atmosphere". Their test was whether or not they could influence people's perceptions of an object (Dunne and Raby, 2001, 75). They wanted to learn about the life an object took on and the relationship the individual developed towards the object. Dunne and Raby state "We are not interested in whether these stories are true or scientific, but we are interested in [the] narratives people develop to explain and relate to electronic technologies, especially the invisible"(Dunne and Raby, 2001, 75).

I am not interested whether or not the Service Fictions are true, I am 'interested in the narratives that people develop' in order to explain their preferences and relate to the scenario they create.

Similarly, Bill Gaver and the Interaction Research Studio at Goldsmiths, give speculative designs to participants to live with. His designs are used as research probes, where conversations often started with the designed object but opened up to "encompass the broader and more particular issues, practices and controversies with which our volunteers were living."(Gaver et al. 2015) Gaver recognized that conversations lacked in evaluation of the product but were rich in conversations around the object. This was my hope around service fictions.

Frame Innovation

In Kees Dorst's *Frame Innovation* he talks about leading the client to the solution, and making it seem like it is their own. He recommends "suggest[ing] a frame by encouraging the others to arrive at the same frame idea themselves. Through these vague hints of a frame, the designer bypasses the adoption problem: people usually adopt their own ideas much more eagerly, actively and fully than those of others" (Dorst 2015, 65). In a certain light there is this in Service Fictions. It is leading the participant through your thought process to get them to engage in a desired way.

Provotype

Provotypes are speculative prototypes. A provotype is a speculative probe meant to garner insights from participant. In a participatory sense, Provotypes are used for participants to more tangibly experience speculations. The idea of Provotypes is to demonstrate and involve participants in an probable experience, and can manifest in any form. Boer et al. state "Prototypes should be intrusive and estrange to challenge perceptions and stimulate ongoing reflection, but should also be inconspicuous and embraced in order to be domesticated and not be rejected." (Boer and Donovan 2012)

Storytelling

Storytelling allows users to exist in a fiction, but as they talk their values are reflected in what they say. It is a way to gain access to values relating to a subject but also to do so indirectly through analogous story lines. If the story they are asked to tell goes to a speculative extreme, these values are amplified even further.

Storytelling is recommended when using children as research subjects (Austin et al. 2011). As stories are about experiences and how a subject related to the circumstances rather than what happened. If a child tells a story in a research setting, the undercurrents of the story portray the values the child is concerned with and working on displaying. Austin et al. state, “the function of telling a particular story in a particular setting is to solve some kind of emotional or cognitive puzzle. ... The interesting thing about narratives is that they embody, symbolize and communicate thoughts of the teller, but the teller is not necessarily aware of what is in their own story” (Austin et al. 2011). This is also true for adults

In Service Fictions, values of the participant are displayed in each script generated.

Service Design

“Service Design is concerned with [designing] interactions and relations” (Steenson 2017). Services are systems that provide value over time. Polaine states “A service has no or little intrinsic value until the moment of its use or consumption. Services or experiences cannot be stored in a warehouse” (Polaine et al. 2013). It is intangible until it is ‘consumed’.

Richard Buchanan refused to define service design but talked about its result. In that “the ultimate purpose of service design is to give people the INFORMATION and TOOLS needed to ACT – to be free to live as one would choose.” (Buchanan, 2007). In this respect Service design leads to designing someone’s job and therefore their livelihood (Tonkinwise, 2016).

Actor Network Theory (ANT)

Systems are comprised of different actors. These actors work together so the system can move forward to complete an action. Latour saw systems as not only technological but also in need of human actants to allow the system to function and work seamlessly. He felt that having either a purely social or technological network was lacking and did not take into consideration the co-dependency artifacts that humans had with each other. Latour states “The choice is simple: either we alternate between two absurdities, or we redistribute actantional roles” (Brey 2005, 72). In ANT, both non-human and human actors are equal players, so much so that they are indistinguishable in the system and one is reliant on the other for the network to work.

An example of this would be a sleep mobile application. The app would not be effective unless the person who downloaded it interacts with it and has entered data such as times going to sleep and waking up. The app is useless without the data. One actor is reliant on the other for the action to take place, but both have equal agency.

At a high level, each actor in a system plays a role necessary for the system to move forward. If one starts playing with whether or not an actor was human or non-human, the script the actor follows stays the same but its connotation changes. By interchanging actors from human to non-human, these systems become services.

Service Fictions:

Service Fictions are framed in this manner. If a person provides the same action as a non-human actor would, the action is then a service. Service Fiction scenarios play with differing types of actors at a system level.

The output of Service Fictions are scripts for services that are co-created with the participants in reactions to a speculative scenario. They allow the participants to experience and engage with the speculative fiction rather than just reacting to it. As participants did not know how to engage with just the speculative scenario by themselves. By allowing the participants to create scripts that are related to their own personal values and rituals around sleep, individuals could reflect on what was acceptable to them, and what they would expect from a caregiver who was there to help them sleep.

Case Study

Background on Sleep

In this Case Study, I used sleep as a way of exploring how to strengthen and capture insights gathered via Speculative Design leading to integrated with and into Human Centered Design. Originally this thesis started as a mapping exercise to find whitespaces in the field of sleep and then develop a design to occupy. Whitespaces are product areas where nothing currently exists, and opportunities for corporations lie(Johnson, 2017).

The use of speculative design was used initially as a way to uncover and open up these whitespaces. The key pivot point in this thesis was during the process of showing these speculative scenarios to participants and realizing that the desired level of interaction

and exploration with the scenarios from the participants was not at the anticipated level. Quickly, this thesis turned into trying different modalities to have participants engage with these speculative designs, eventually resulting in the method of Service Fictions. Service Fictions were also coupled with technology probes, bodystorming, and interviews to gather differing types of feedback.

The desired result of this thesis was to explore the intricacies and complexities and frictions brought out through speculative scenarios around and supporting sleep. The output was different from the initial intention and led to guidelines of when to use human and non-human actors.

Choosing Sleep

Over the summer, I interned at Philips Design in Eindhoven, the Netherlands. There, I worked as part of the sleep team, and was given a project looking at the interaction between the primary care physician (PCP) and the insomniac at the point when they decided to come in for help. The idea was to just in time educate the PCP so that they could recommend more effective treatments such as cognitive behavior therapy for insomnia (CBT-i).

During this ten week internship I learned a lot about sleep from the medical point of view. As well as the support structures necessary in an insomniac's life for life style changes and CBT-i to be effective.

I mapped the insomniac's journey from their decision to get medical help up to their 'recovery'. (See Figure 5) While I was looking

at this problem mainly from both the PCP's and insomniac's point of view, the insomniac's support came from the family and primary circle. Not just because they cared about them, but, because their sleep cycle was just as affected by their partner's insomnia. The PCP in the context that I was working under was used for accountability and support. External to the context, the spouse was seen as a measure of support for the insomniac since they were the ones who were most affected.

This led to the question of how to design the interactions between a PCP and an insomniac to include and incorporate the support given from the spouse. This eventually led to looking at what one person was willing to receive and give to another in the form of care in this thesis.

Sleep Hygiene and Cognitive Behavioral Therapy for insomnia (CBT-i)

The literature reviewed around sleep medicine viewed sleep medicine as a band-aid. Medication would help in the short term, but other changes to one's routine and hygiene were necessary if they were looking for the long term fix.

When patients go in for help, a sleep hygiene pamphlet is given to the patient before they are asked to do a sleep diary. Sleep Hygiene states that you only go to bed when you are tired, you don't do anything except sleep in your bed. There are strict guidelines for caffeine intake during the day. By recognizing things that make it harder to sleep and conditioning your body that your bed is only where you sleep allows low level insomniac's eventually have a full night's sleep.

Cognitive Behavioral Therapy for insomnia (CBT-i) is taught when sleep hygiene alone doesn't work. It is where individuals work with psychologists to reboot their bodies in order to sleep. Sleep hygiene is incorporated in this, but it is extended by restricting one's sleep to a particular protocol. The sleep doctor I worked with over the summer stated that it is a very hard sell, and they usually ask the patient to try it for a couple of days to start. That usually allows patients enough time to see its benefits and to buy in. The patient is shocked by day three when they slept through the night, so then they continue with the new protocol and sleep gets easier over time.

Sleep and Society

From a societal level, sleep has a connotation of weakness. Sleep historically, has been looked at with a puritanical ideal, where the less one sleeps, the more dedicated one is to the cause (Williams 2011, 9). Current Western culture looks down on sleeping 'too much', even though it is essential and there is no 'normal amount' due to differing circadian rhythms. Thomas Edison's states "We are always hearing people talk about "loss of sleep" as a calamity. They better call it loss of time, vitality and opportunities" (Wolf-Meyer and Matthew 2016, 1). Productivity is placed above balancing an individual's needs.

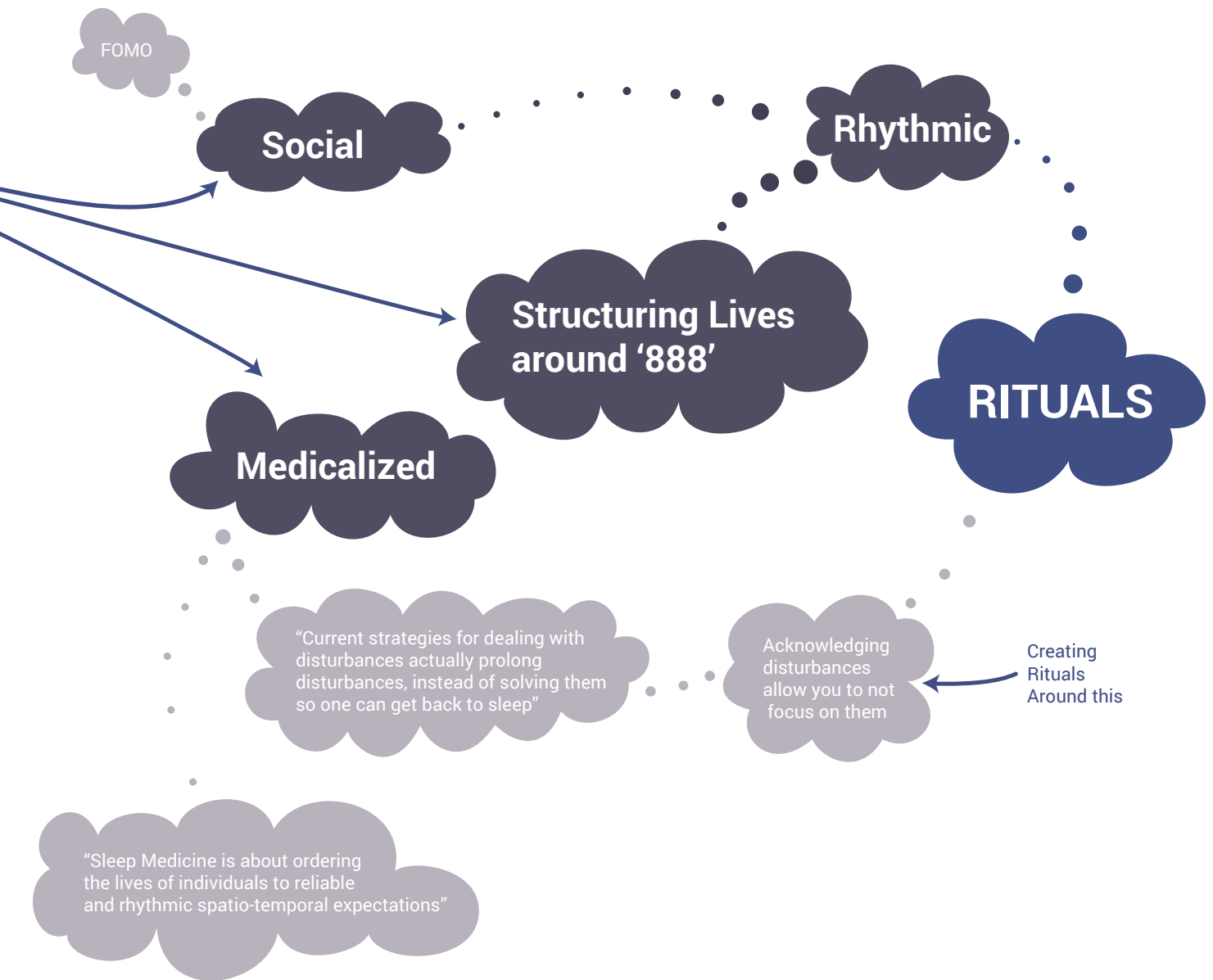
Slowly society has been moving away from this ideal and towards the idea that we as citizens have "the 'right to determine our tempos' or a 'better balance between work and life'" (Williams 2011, 49). But this ideology is not prevalent, as was the case in my interviews where sleep was de-prioritized over other activities that take precedence.

Sleep is needed by everyone, and governments are working towards changing this ideal to where sleep is seen as a 'productive act' (Williams 2011, 30). Governments are attempting to change this ideology towards one where sleep is accepted in society. An example of this would be movements such as promoting naps at the office as part of office culture (Wolf-Meyer and Matthew 2016), sleeping in public, and public policy measures to put in place and promote a better life balance, all of which lead away from this puritanical ideology. Workplaces are realizing the benefits of sleep. If an employee is well rested, they will work longer hours. If an employee naps after lunch they can work later into the night. Governments have gotten rid of siesta or introducing siestas to be more economically competitive with their surrounding countries (Steger 2003, 19,63).

Sleep and Society: Mind Map



Figure 6. Mind Map of the Social Construction of Sleep



Sleep as a Social Construct

Sleep structures an individual's life whether or not they choose to do so consciously. In society, most of us sleep at the same time, to then work at the same time, so we can socialize at the same time. Worker Unions delineate this type of life as '888', eight hours of sleep, eight hours of work, eight hours of time to oneself. If one falls out of the realm of this socially constructed idea of 'normalcy' around having much less than 8 hours of sleep, it is considered abnormal, and labelled as having a sleep disorder which in turn can also be considered a social disorder. (See Figure 6.) Wolf-Meyer states that "Sleep Medicine is about= ordering the lives of individuals to reliable and rhythmic spatiotemporal expectations [to allow people to integrate into society]" (Wolf-Meyer, 2012, 10). Ideals are prohibitive in that individuals can never achieve them; norms on the other hand, are accepted as such because they can be achieved. Different cultures have differing norms and one needs to adhere to the norms to be socially accepted in many cases.

Interview on Values and Thoughts around Sleep

Interviews on values and thoughts around sleep. During the literature review stage, informal conversations with individuals around what were their values and viewpoints concerning sleep.

I asked participants to create a magical device that would ensure a solid night sleep. Devices drawn were to give control over either the body or the environment. (See Figure 7)



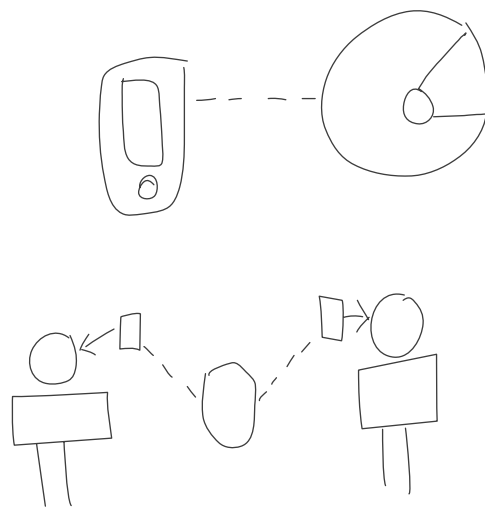
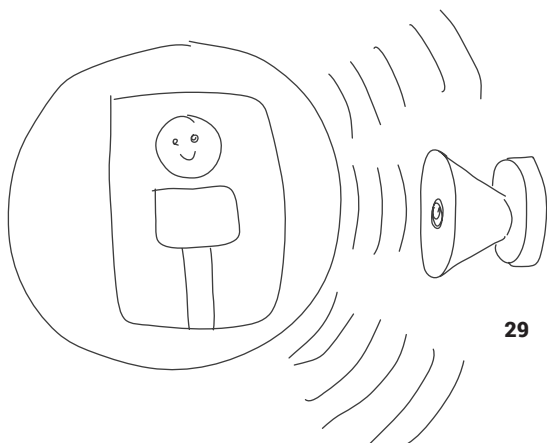
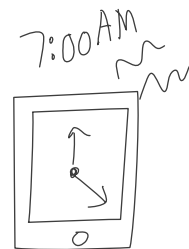
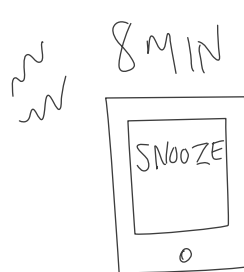
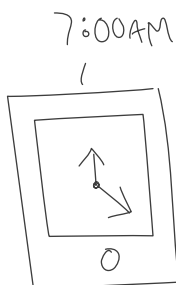
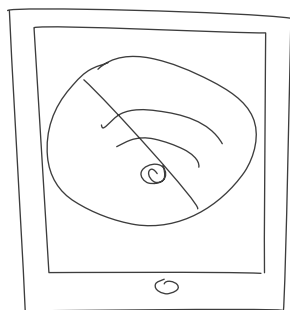
* forces me to keep a strict schedule

* cats that cuddle @ will



* control temp + sound

* something that records / carries on w/ my work as I sleep



I asked these individuals what their rituals and patterns were around sleep. I had a 24 hour clock as a prompt to which individuals filled out their activities. (See Figure 8) The individuals I talked to were fellow graduate students whose schedule (in most cases) prioritized work over sleep. A question I received was if they should fill this out as themselves currently in graduate school or if they should fill it out as in their life prior to graduate school. I responded by saying “your idealized schedule”.

A theme that emerged from the interviews was around the role sleep played with the participants emotional well being. This exercise showed the variety of people’s schedule, and rituals. These conversations were converted into small systems

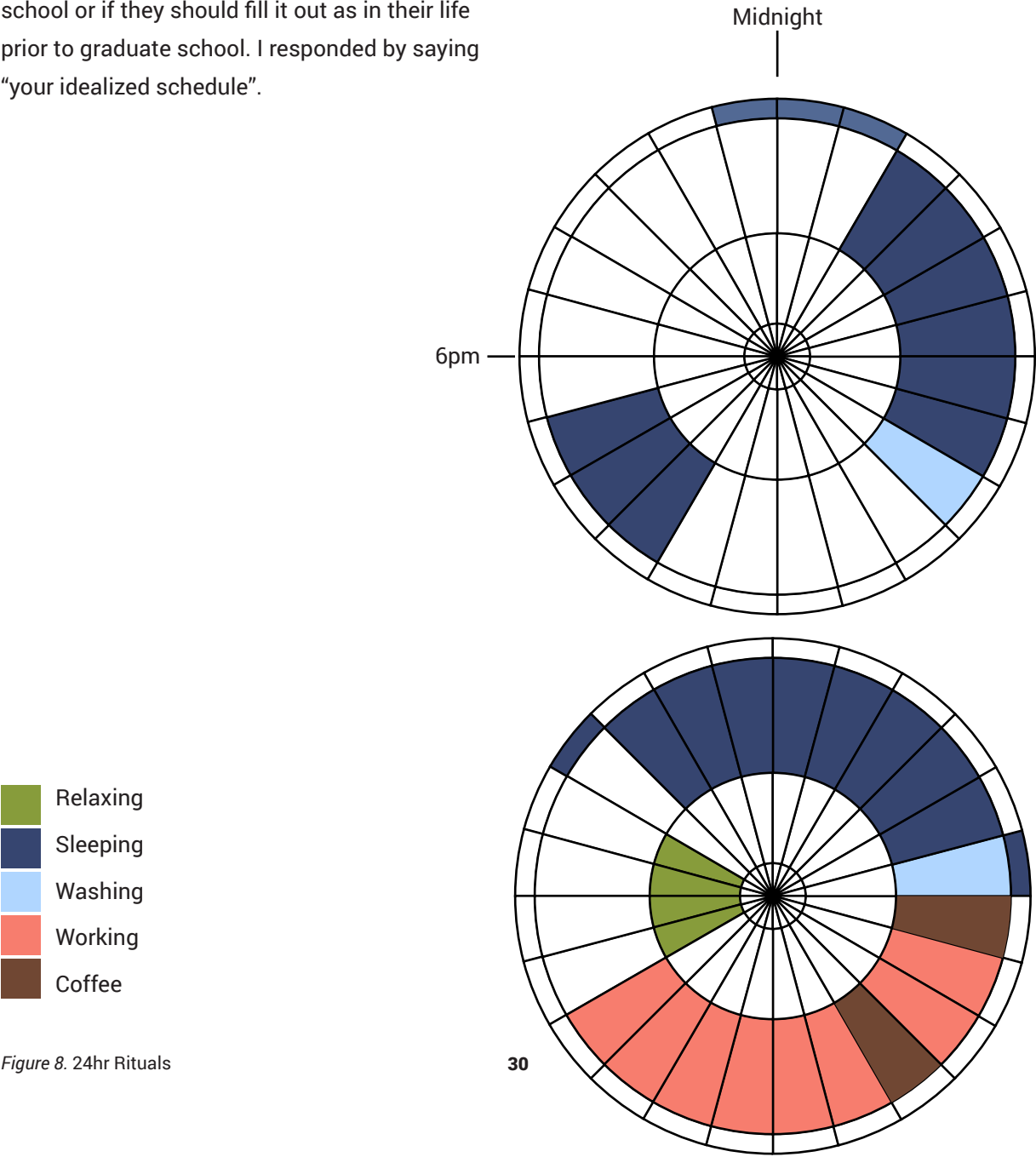
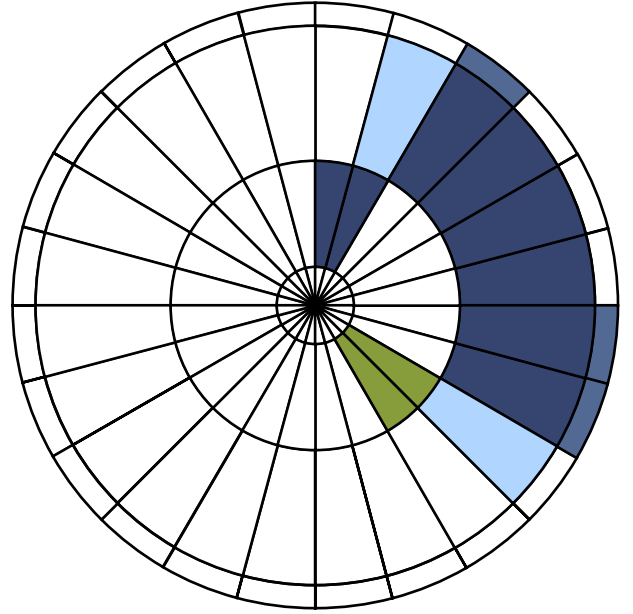
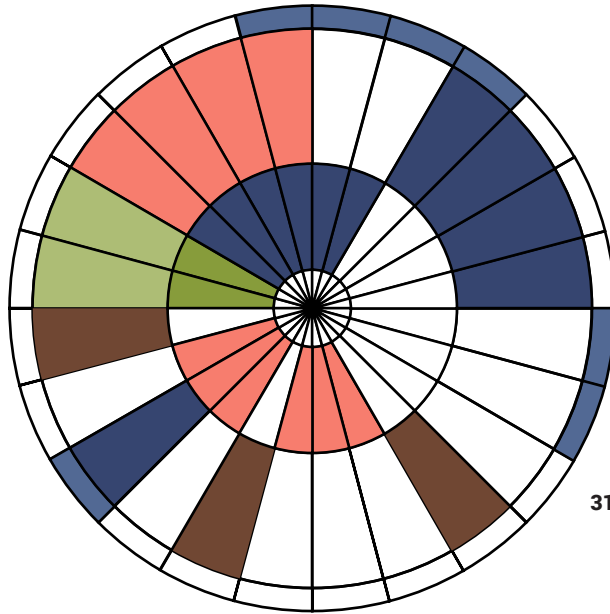
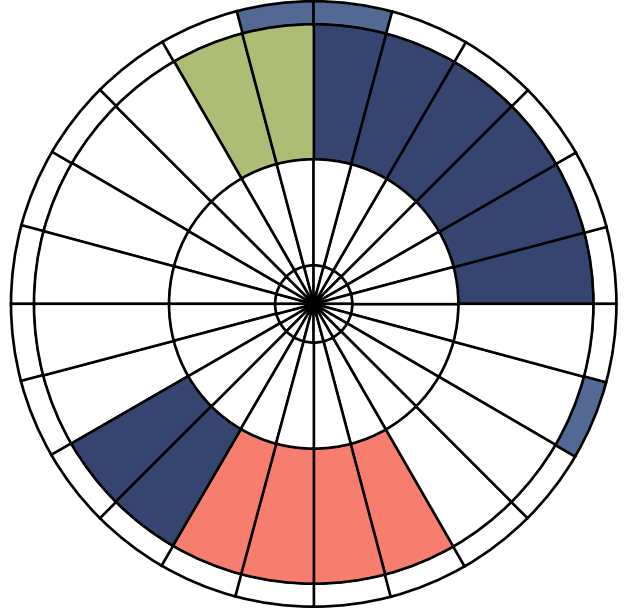
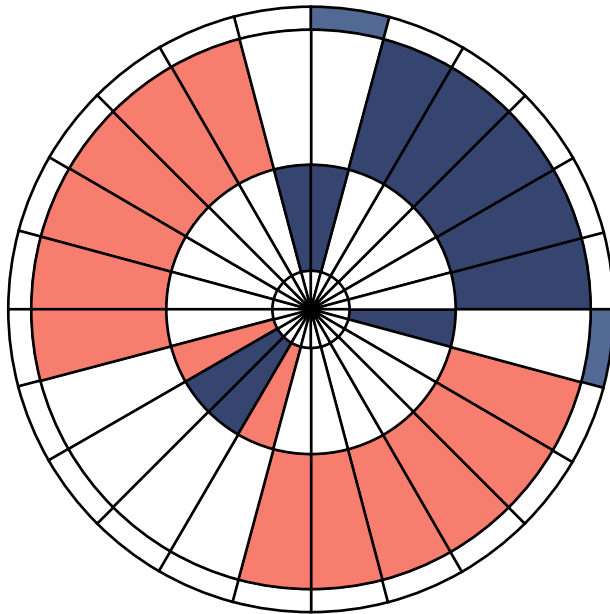
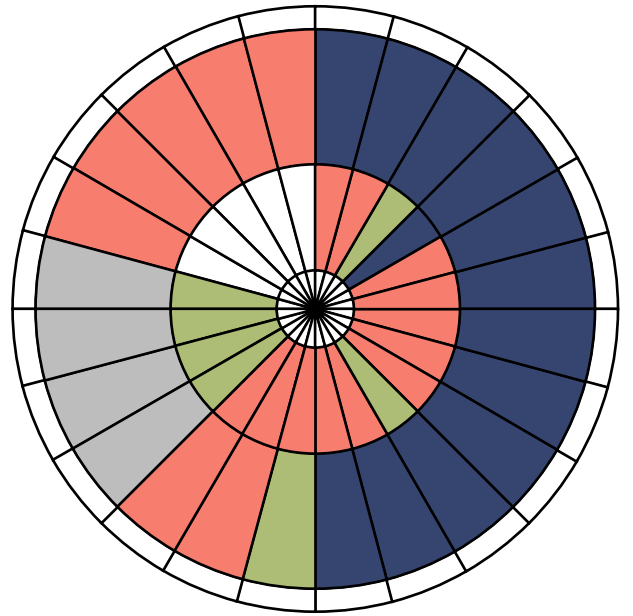
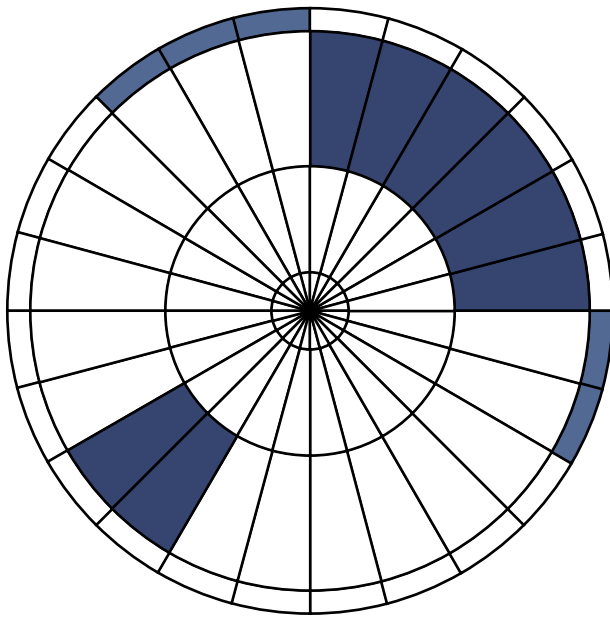


Figure 8. 24hr Rituals



Sleep and Actor Network Theory (ANT)

These small systems provided the inspiration to use ANT to play with the actors in each system. Doing so turned systems into services which led to my speculative service scenarios. (See Figure 9.)

Latour describes systems as having both human and non-human actors. A system only works when it is comprised of both. Each actor constitutes the rest of the system and the action the system implements can only exist when actants follow their role.

For example, a bed is only a bed because of the person who inhabits it, otherwise, it is a decorated mattress. An unmade bed is just a mattress. Sheets outside the bed system are only large pieces of fabric. It isn't until you make the bed, and use it, does it become a bed. Each artifact on the bed has a different prescription that makes the 'bed system' work and move forward. Each artifact prescription tells the human how to act and calls forth programs specific to that network. For example, the prescription a pillow tells

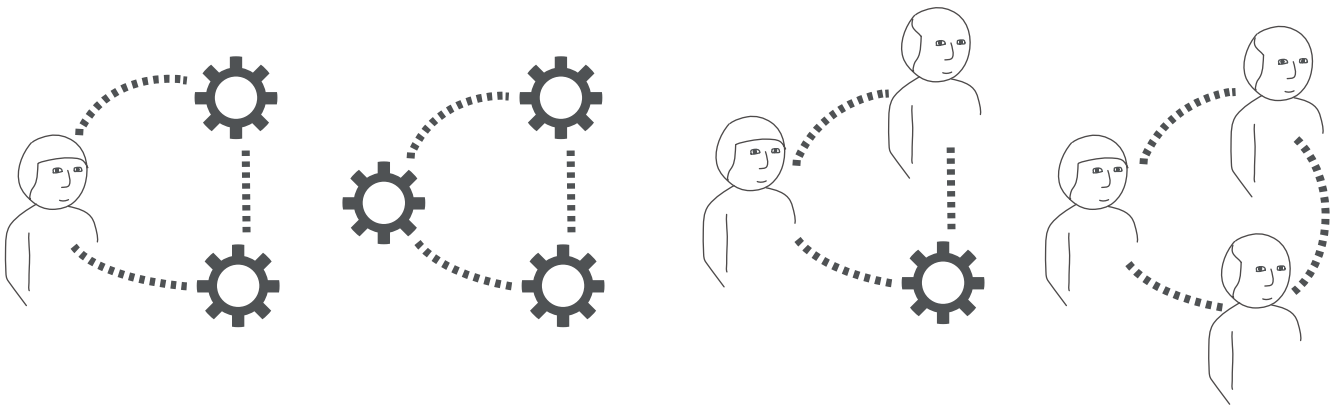
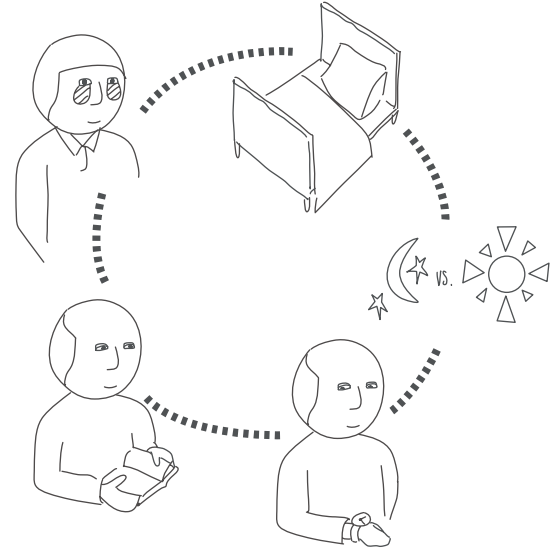
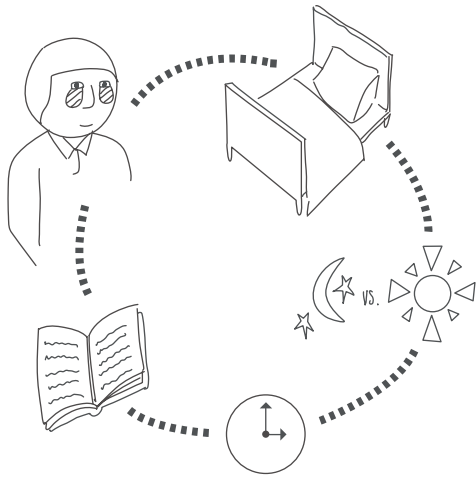


Figure 9. Actor Network Theory. Configuring systems by Interchanging actors, allows tensions to bubble up. The action of the system remains the same, but the actors are different.

Figure 10. Actor Network Theory, Interchanging Actors



you that you should lay on the bed in this orientation. The prescription of the sheets confines the human as to call up a program of action that tells the human that it is ok to relax to the point of sleep. A blanket plays with a human's body temperature which allows their body temperature to rise and then fall which reinforces the program of action and feeling of sleep. These combined scripts lull the human actor to sleep. (See Figure 10.)

Switching actants provides an imbalance that allows one to examine the roles and meaning placed upon nonhuman or human actors. In this case study, the role an object or technology played became intrusive and awkward when a human did the same action, highlighting questions about the types of relationships we have with our objects.

Sleep and Social Practice Theory (SPT)

Sleep is mainly a social practice, and is imbued with social conditioning. One's history and exposure to a specific social construction of sleep delineates how one acts and relates to sleep. For example, this program of sleep is the result of social conditioning that 'one sleeps on a bed'. Technically, you can fall asleep anywhere, but more likely than not, humans choose to sleep on a bed because of this program and a bed's strong prescription. This is because you have slept in a bed most of your life, you have grown up sleeping in a bed, you put meaning into the bed, and this meaning and ritual of every night preparation for bed is part of what supports and strengthens the program that allows you to sleep best when you are used to something and are within the limits of what is comfortable. Programs come from social conditioning and come from repeat practices and reinforcement.

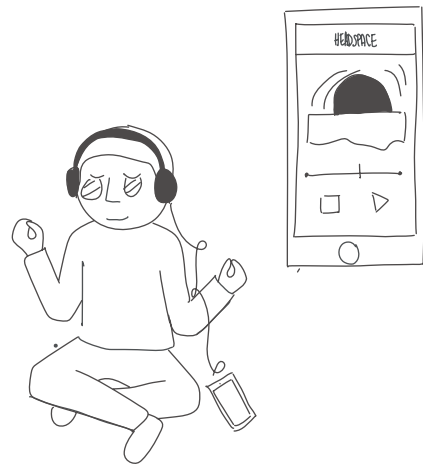
A practice is defined as anything a human does daily that they do without much thought

associated to the action, i.e. brushing one's teeth, or tying your shoes. It is a learned action and can be accomplished when on auto pilot. Practices differ from ANT networks in that practices are concerned with the ideas around how they 'may be carried out and what that might mean'(Julier, 2007, 44). It is looking beyond the ANT's programs of action and asking 'why', and looking primarily at its meaning. A practice is shaped by meanings, knowledge, norms and materials (Shove, 2007, 13). Wakkary et al define a practice as "embodied patterns of behaviors and ways of understanding, knowing how, and desiring"(Wakkary, 2013, 3). Basically it is the 'why' to scripts and programs.

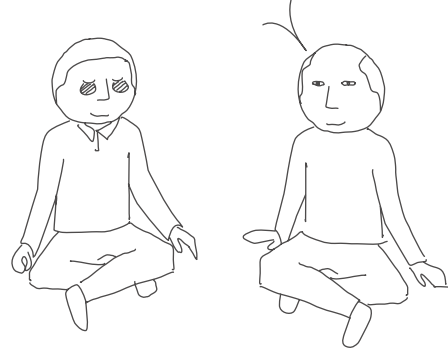
In my thesis I am using ANT to get at the essence of what sleep is about and ask why. I am looking at individuals' programs and practices around sleep, and shaking them up in an effort to understand. (See Figure 11.)



Here is your
bedtime tea.



Let your legs
feel heavy...



Case Study: Finding Methodology

Research through Design.

In tandem to the literature review and the informal interviews with peers; I was exploring scenarios that had to deal with what I was learning. I took concepts and applied them to different contexts. This was done in order to develop a direction but also to learn from concepts and to gain insight about concepts from others. These insights were then applied to the next round of scenario creation.

I broke down the different contexts discovered in the literature review and interviews. The original thought was to do small sprints to have a family of projects at the end of the year that explored these whitespaces. Later, the

approach was to take these systems and create scenarios around these systems, then push the concept to the extreme. Pushing the scenarios to an extreme was done by employing ANT to change out different actors in these systems to be non-human or human.

In Cameron Tonkinwise's talk on the 'Value of Design' (Tonkinwise, 2016) he said that design's value is to recognize and to "Stay with the anomalies" (Spinoza et al. 1997). The continuation of specific scenarios was an attempt to try to understand what made the scenario weird.

cup bed

How up bed w/ that like structure for coverage.
Air circulates for comfort

Turns over before you wake up.

no experience sleeping

When you wake

Google goals → rearrange items to not waste time

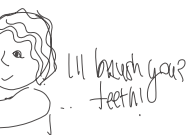
Online counselling.



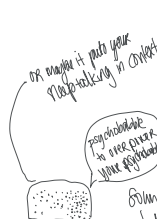
Please make your way to the bedroom now



human body pillow
Real human (bedfellow)



Read up on sleep training



Smart-house
Change lights from blue light to red.

Sound machine w/ non sense talk so that you're so doesn't know if it was you or the machine



do people in sleeping bags sleep walk

Pajamas that zipper to the fitted sheet

Sleep walking safety guards

Handcuff to bed, so you can't sleep walk

You don't remember your experiences when sleeping

→ that's why people record

→ sleep trackers

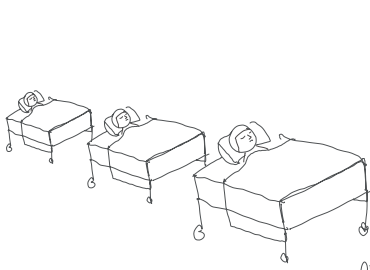
→ VR dreamscapes → replay dreams.

→ shared dreams.



for sleep walking.

bed tilt, based on stress levels



Sleeping pack.

Autonomous mobile home, brings you where you have to be in the morning
bed moves you

through meditation

Anxiety

lessen

heighten

take mind off of not being able to sleep.
distract, reassure?

automatically put on music?

→ like the alarm clock that tells you to wake up earlier

but if it's a sleepless night, it reprograms the schedule



lead you through bed time routine



announcements to fall asleep

Countdown: ten minutes left nine minutes left.

alarm - remove ability to sleep



Personalised smart created from Brown's past praying music signalling sleep.

* signal start of routine

Scenarios

In the scenarios, there was tension with the new concepts used for sleep. Concepts utilized a shift in convention and participants had a hard time articulating reactions to the scenarios. These concepts were not outside the realm of possibility, they could be normal and accepted, but they were not. This tension spurred more scenarios as a way of testing what the limits of acceptability was.

Figure 13. Seeing Aspects of Early Scenarios

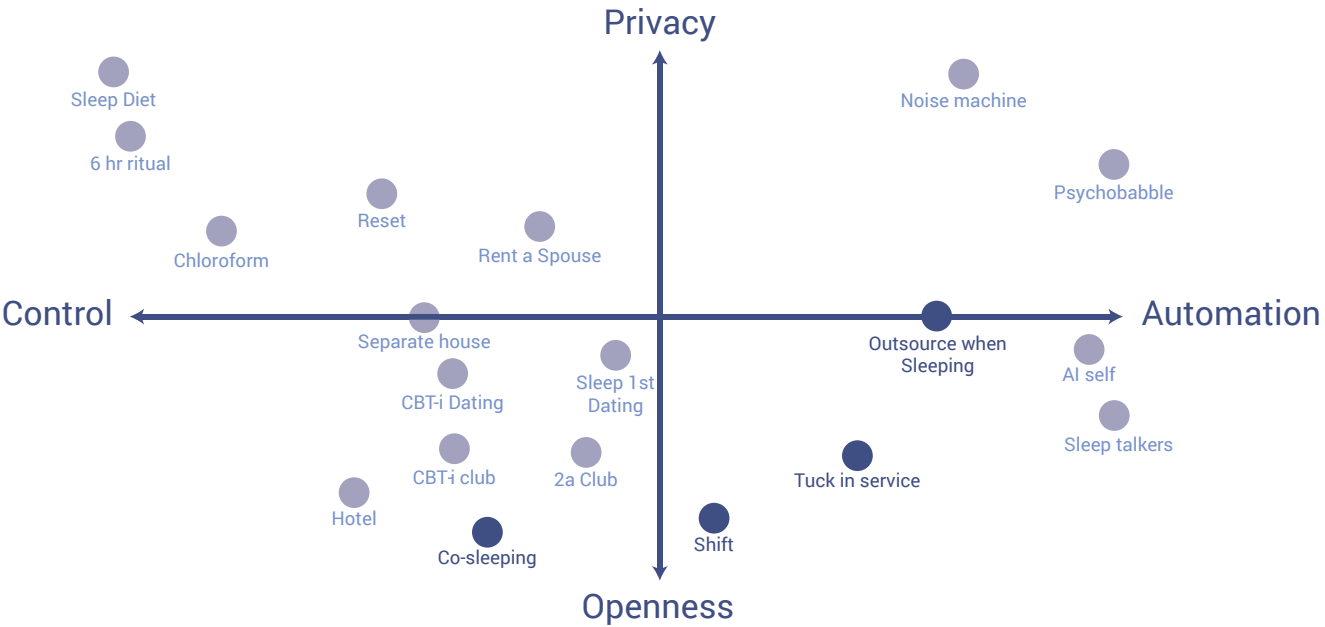
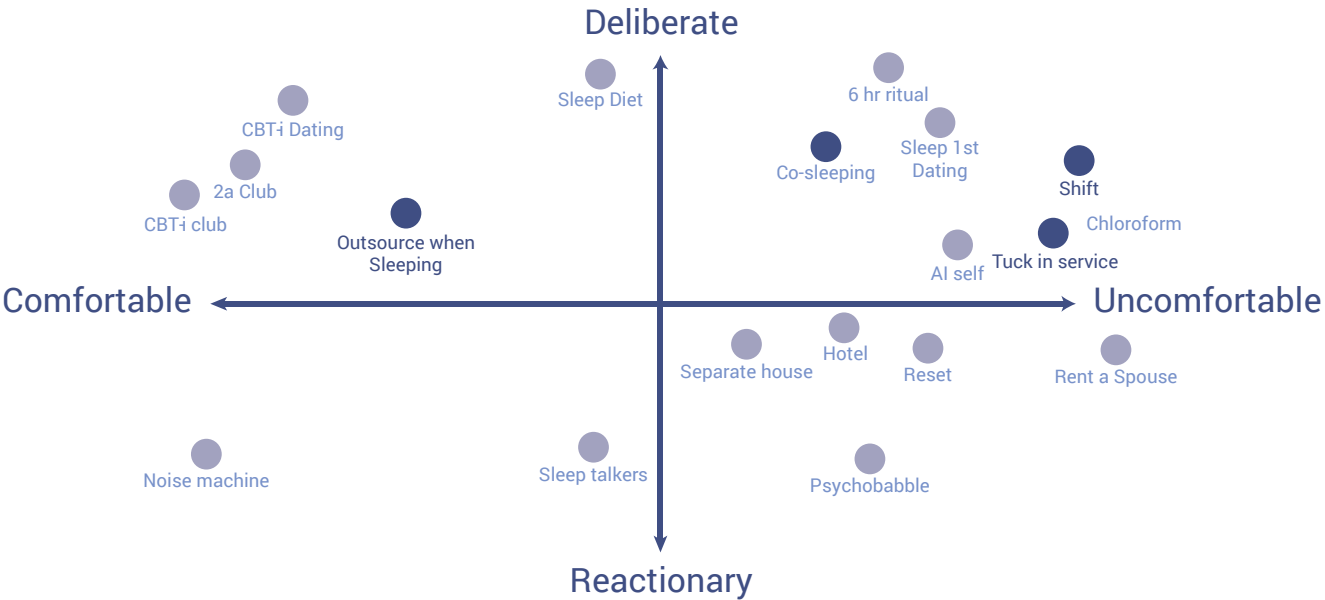




Figure 14. CBT-i Coach

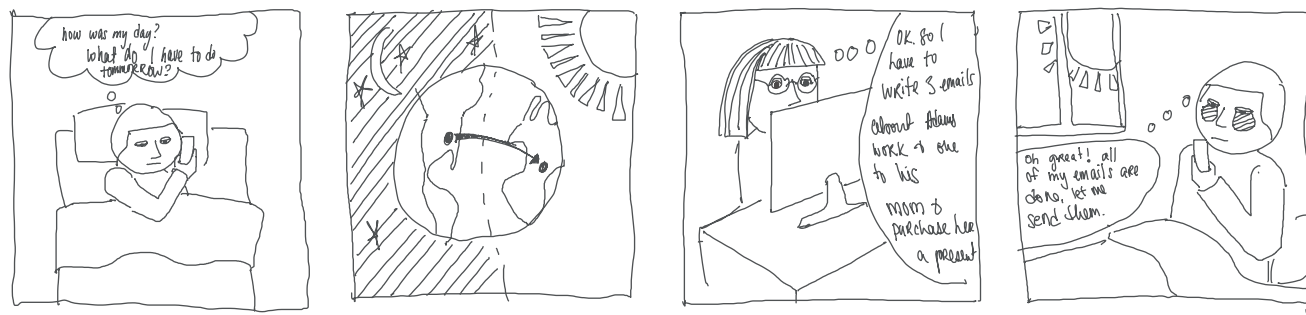
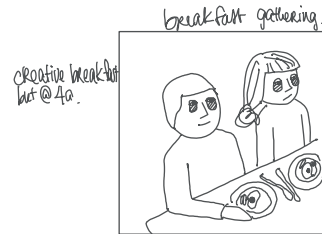


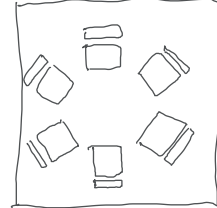
Figure 15. Globalization

Figure 16. 3a Club

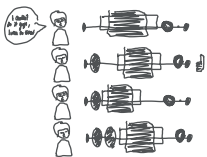


* something w/ social obligations
some structure
insomniacs w/ an interest in art
what would make me want to get out of

like AAA



maybe its a community group
insomniacs support group
meets 2a-4a



#1 Peer Ob-i



maybe its just a check in



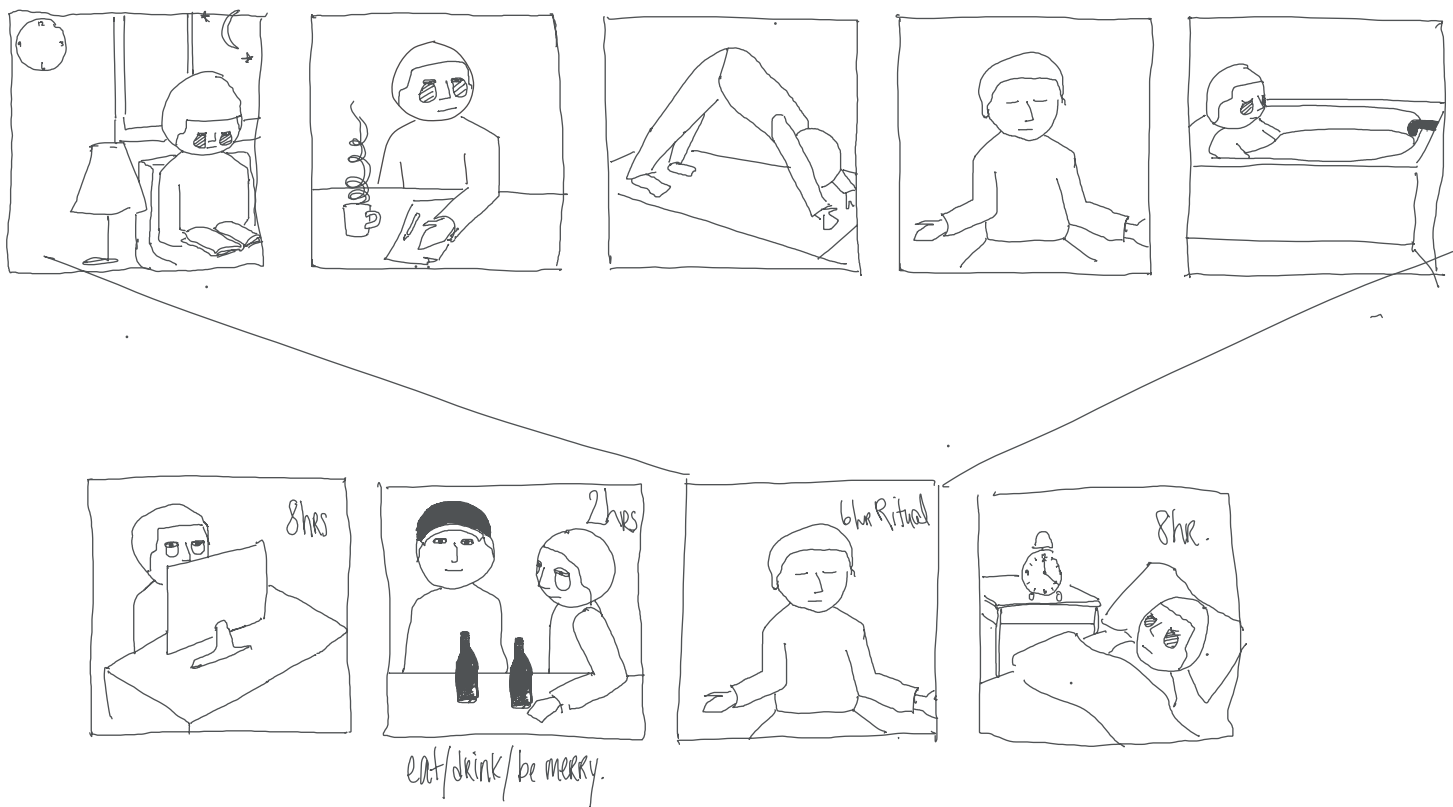
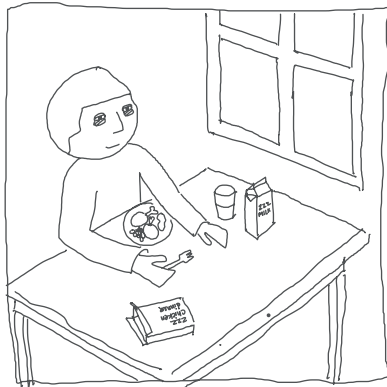
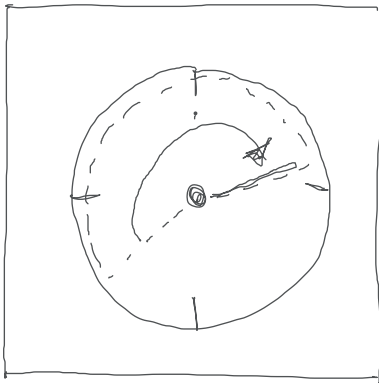
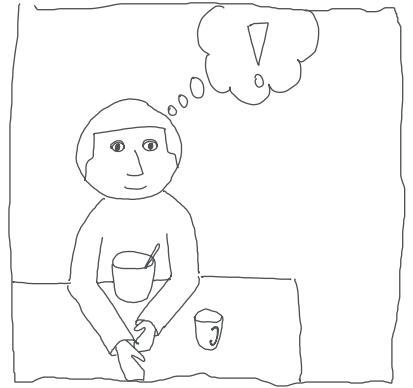
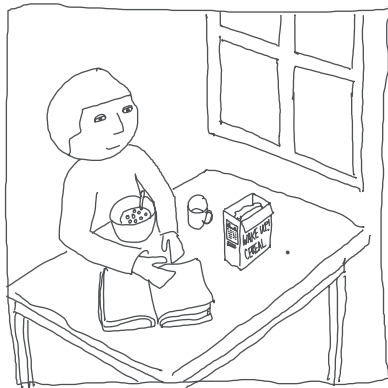
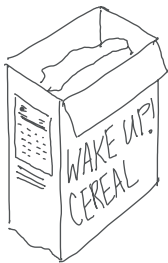


Figure 17. 6 Hour Ritual for Sleep



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night time cows.



Sleepy chicken

Figure 18. Food for Sleep

Sleep as emotional regulation



Figure 19. Co-Nap

Sleep as emotional regulation



Figure 20. Chloroform

Rent a spouse.

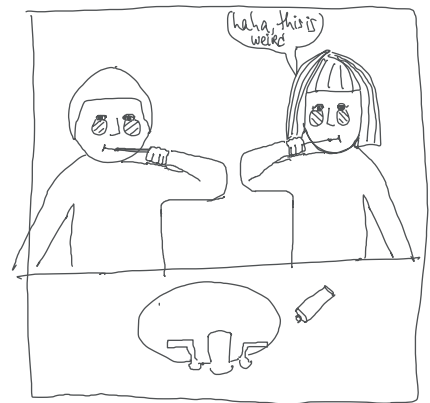
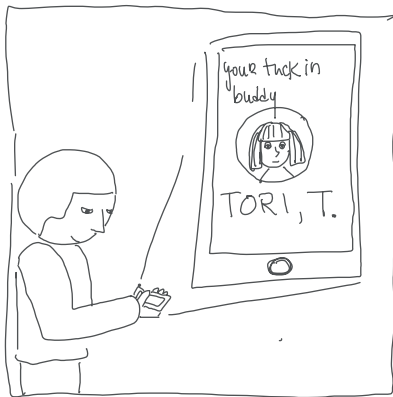


Figure 21. Rent a spouse

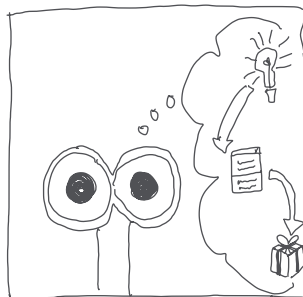
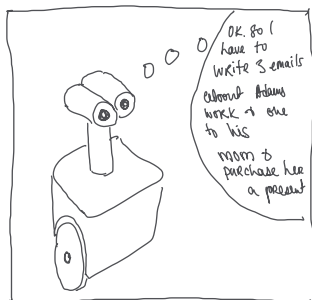
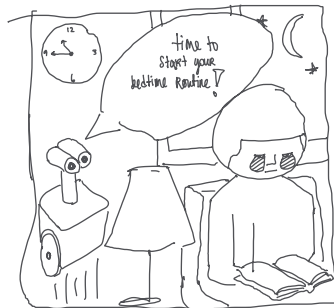


Figure 22. Sleep Robot



Figure 23. Sleep-aid Helper



Figure 24. Sleep-aid Global Helper

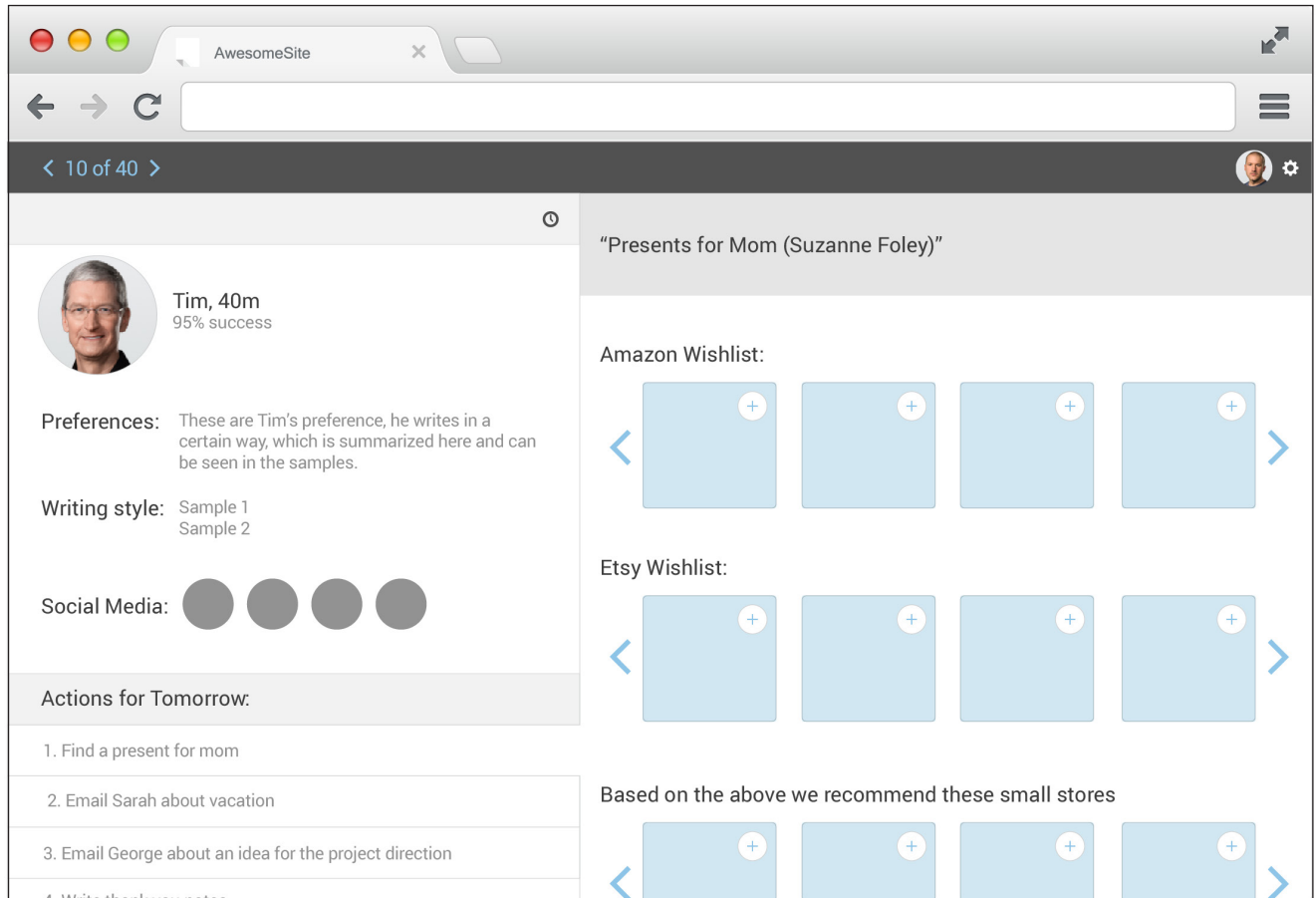


Figure 25. Interface for Sleep-aid Global Helper- Employee 52

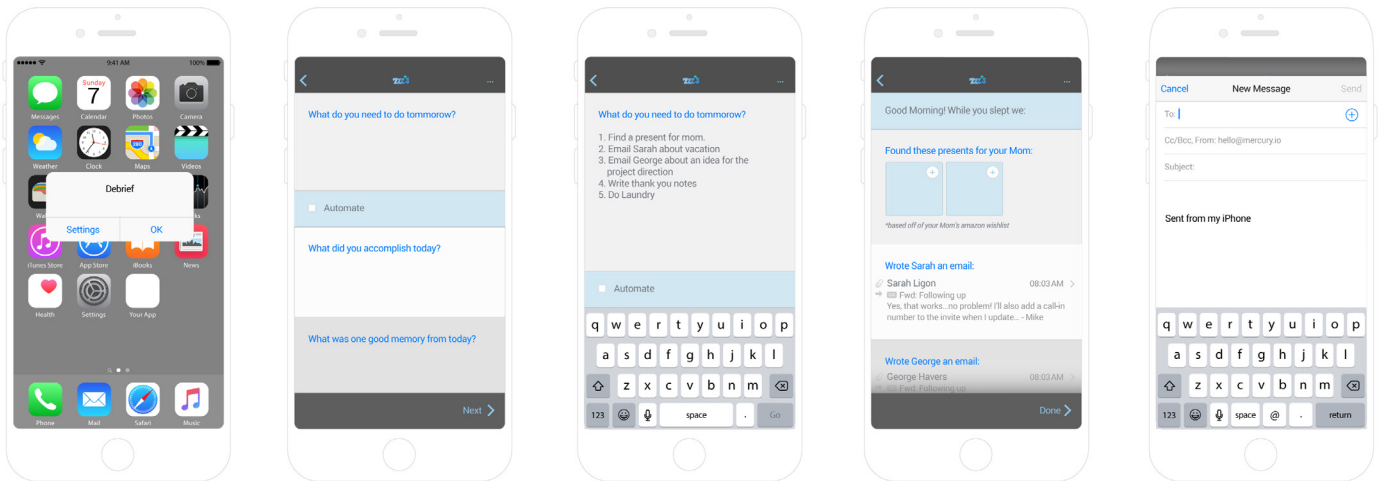


Figure 26. Interface for Sleep-aid Global Helper- User

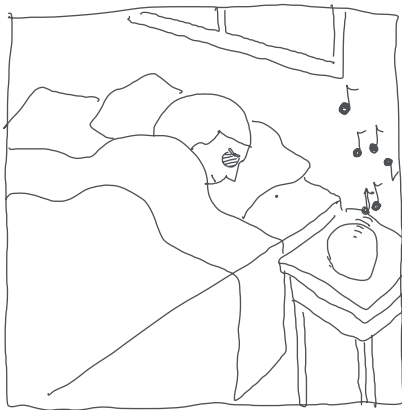


Figure 27. Psychobabble for your Psychobabble

Exploring what people can do to help people:



Figure 28. Sleep-Aid flatmate

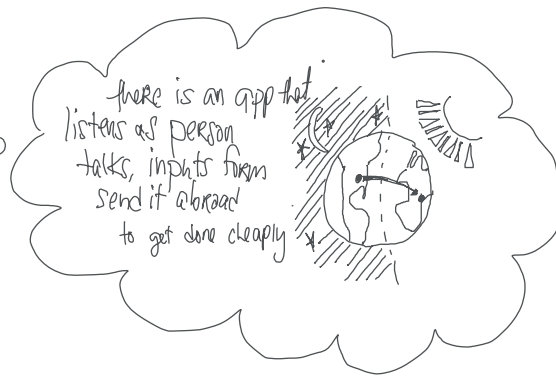
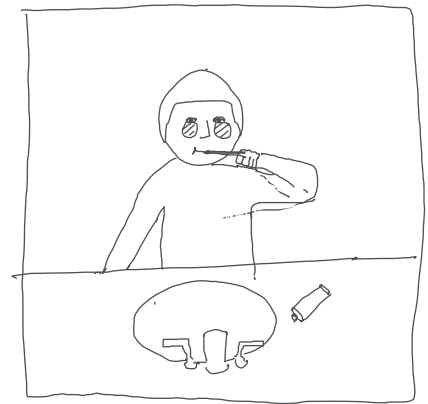


Figure 29. Shift Apartment 1





Figure 31. Shift Apartment 3



Figure 32. Sleep-aid Hotel

Shift Apartments: Sleep and Sharing

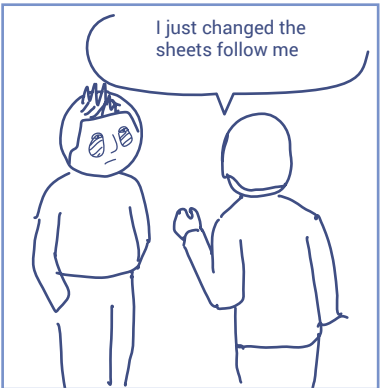
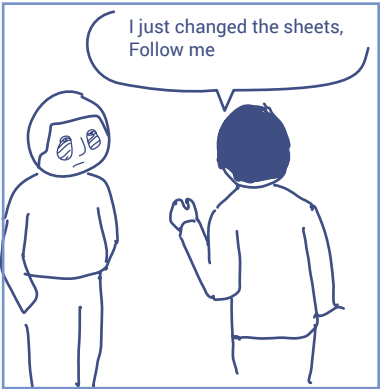


Figure 33. Shift Apartment

Tuck in Service: Service of sleep



Figure 34. "Tuck in Service" ie Sleep aids.

Normalizing as a Way of Understanding

I tried to reduce the friction in the scenario to make it more acceptable and attractive as a concept as a way of understanding the friction internal to the scenario. In that. One way of normalizing the scenario of the person who comes in to help you sleep was to medicalize it. If you delineated the relationship between the sleeper and the sleep aid to be one that is sterile and only about sleep, participants were more comfortable. Likewise if you introduced this person in a medical setting outside of one's house, participants were more comfortable and had less of a stranger-danger type of feeling. The ambiguity of the relationship between the person who was supposed to help the sleeper made people feel uncomfortable. Through this idea of medicalizing as a way of normalizing linked directly to my earlier research about how people view sleep as purely medical, and less social.

Individuals who worked in the medical field gave examples of this service happening in the ICU. Where nurses go around and try to relax patients by placing lavender scents in their room. Individuals also related this to hotels having a turndown service, and other related this to milk cafes in Japan.

Through this the idea that people felt comfortable talking about rituals but not sharing rituals was highlighted. Rituals around falling asleep were private and having someone come in and help you, even if it was the only way you could fall asleep was seen as an imposition. Sleep isn't just falling asleep. Sleep builds based on the rituals and actions from when you get home after work. Sleep includes the rituals where you cook dinner, clean the kitchen, and decompress. If one was to garner social support, it was better if it was in a 3AM insomnia club where you remained anonymous.

Enactments/ Bodystorming

Bodystorming comes from improvisational theatre where actors act out a 'loosely configured' (Martin and Hanington, 2012, 20) scenario to understand where the concept could go. I had two actors act out the sleep aid scenario. In my case, I wanted to see what type of conversation the actors would have and how the two actors would interact. My instruction to the sleep aid was that they were trying to get the sleeper to reflect on this day and plan the next day. The script was created by the participants.

The actor who was the person who needed help sleeping, misunderstood the scenario and treated the sleep aid as a maid. Instead of

internal reflection of what to do tomorrow, he was telling the sleep aid what to do while he slept. The point of the scenarios was that he was internally reflecting on what he had to do, and the sleep aid would then help with what they could to make the sleeper's day easier.

There are parallels with Speculative Enactments (Elsden 2017), in that it is enacting a speculative scenario. However it differs from Speculative Enactments because the power of the script is given to the participants. Allowing participants to use their own words has allowed for preconceptions about their role and what they expect from the other participant's role to come through.

Figure 35. Stills from Enactment



Service Fictions:

Through interviews, focus of the sleep aid shifted to what an individual found to be helpful. In order to have scenarios be personalized, I had participants create their own scenario with prompts based on their rituals. The purpose of these scripts was for the participant to explore a scenario that is outside of their comfort zone. Service Fictions provided steps for the Participant to think through how a Sleep aid would fit into their lives, and what would be preferable for them in the attainment of sleep.

These co-created scenarios were a script for the sleep aid. And dictated what the sleep aid would do when they got to the participants house. I found that by stepping through the thought process taken in creating a scenario, the resistance to engage in the scenario was less than it was when the scenario was shown to the participant. Stepping through a scenario allowed the participants to experience and engage with the speculative fiction rather than just reacting to it. The scripts generated reflected the participants own personal values and boundaries around sleep.

Service Fictions: Methodology

Recruitment:

In this case study, I put out an informal call to my network asking to talk with individuals who have insomnia. Of the 40 who responded, 12 service fictions were created.

Method

To generate the Service Fictions, I prompted participants with situations that were slight shifts to conventional practices, and presented Speculative Service Scenarios as provocations. These slightly counterfactual scenarios were the basis for the scripts. Instead of presenting the scenario at face value, the interview mirrored my thought process when creating the Service Scenario. From there, the participants were asked to co-create scenarios to the initial prompts. Making part of the interview a co-creation session allowed for the participants to closely relate to the material. Participants were able to talk through and reflect on what the speculative service would look like in order to fit into their individual lives, values around sleep, and rituals.

Development of the counterfactual provocative scenario.

The speculative scenario utilized in creation of the service fiction applied Actor Network Theory to provide slightly counterfactual scenarios that highlighted the relationship we as humans have

with technology and other humans.

By interchanging actors in these sleep systems, the role an object or technology played became intrusive and awkward when a human did the same action. People were more aware of the actions humans performed, rather than an object providing the same action. This highlights questions about the types of relationships we have with our objects and the amount of control we actually hand over to technology.

Engagement with a speculative scenario.

It was important to lead the participant through the thought process taken to generate the speculative scenario before engaging in co-creation of a script. 'Priming the Participant' was necessary for them to 'arrive at the same frame idea themselves' therefore '[bypassing] the adoption problem'(Dorst, 2015, 65).

The co-creation development of the script allowed individuals to react, and situate the service scenario in their own life but also to remain emotionally separated. Counterfactual probes allow participants to think about circumstances that are close to reality but are still based in fiction, therefore giving themselves permission to explore the topic in a way they might not normally have considered. The participants' insights given in storytelling nevertheless still reflect their individual values and thoughts towards certain issues. Service

fictions allow participants to play with a certain idea without having to actually live through it in reality.

Interview Script

1. What are your rituals around sleep?
2. If there was any technology used (since I was trying to make a case for the human)
3. How would it change the activity if someone was facilitating that action?
4. Let's create a script for this person who comes in.
 - When would they come?
 - What would your conversation be like?
 - What would they do?
 - When would they leave?

When can this method be used?

Service Fictions should be done at the end of the exploratory phase, and at the beginning of the generative phase.

The Service Fictions allow individuals to experience and imagine how speculations would manifest in their lives.

Understanding how speculations would manifest in the participant's life, allows the researcher to see values, boundaries, and beliefs that would otherwise be harder to get to.

Service Fictions: Methodology cont.

How to use this method:

The idea for Service Fiction's is to take participants through the designers thought process in order to have them engage with the scenario.

The openness left the participant capable of creating the scenario as it related to them. This leads to insights out of the scope of the researcher.

Limitations of this method:

This method is used to gather insights, it does not attempt to analyze insights. Analysis used in this thesis was clustering and other design research methodologies.

Benefit:

Service Fictions are an attempt to allow individuals to engage and react with speculative scenarios in a way that can be captured.

Service Fictions can allow one to understand forces at play that make up the "weirdness" of the scenario.

Possible Procedure:

Development of speculative scenario.

Since my method was interchanging actors as a way of highlighting tensions in the action of objects, It was important to develop the scenario separately beforehand for the development of the interview.

Designers should capture their thought processes taken to get to the scenario, break down the core concept and devise steps on how to get the participant to the desired result.

Interview:

Breakdown thought process to:

- What happens now, what do you wish was easier, what is challenging?
- Shifts in convention, and how that would change things.
- Engagement with scenario prompts.

Post-interview:

Each created script was illustrated in storyboard format, using the same character and environment for each script.

Service Fictions: What worked and what did not.

Tips and Concerns:

The creation of the speculative scenario used in Service Fictions does not need to be born from interchanging actants from non-human to human. Actor network theory in this iteration of Service Fictions has proved useful when trying to understanding social conditioning and constructs as related to one's possessions and the type of care one deems to be acceptable.

As part of the script co-creation, the 'why' questions were embedded in conversation leading the participant to really consider their next move. I would also add the 'why' again to the end.

Potential application of service fictions:

- Enables doing research around sensitive subjects.
- Participants may be reluctant to voice their experiences to a complete stranger.
- Service Fictions allow the interviewer to dig deeper without hitting the participant's boundaries.

Differentiation

Service Fictions only prompt to allow participants to create according to their own construction.

Since the subject of sleep is semi-private, some people still found it hard to engage and only answered what was specifically asked. This made it more difficult to spur conversations or to go off script, so scenarios were short and not very detailed. The benefit of the semi-structured-ness of the script creation was to allow people to wander and reflect in the moment.

People were still initially reluctant to explore creation of the script because it was still out of their comfort zone. It was only when I said I understand it is weird and I understand you may not want this, but what would happen if this were the only way you could go to sleep. It was the allowance needed for people to engage in the service fictions. Service fictions seemed to be the right amount of abstraction for people to engage.

In retrospect, it was hard to ask 'why' at the end of the creation of each service fiction. Instead 'whys' were asked during the conversation or the participant felt the need to explain.

Service Fictions

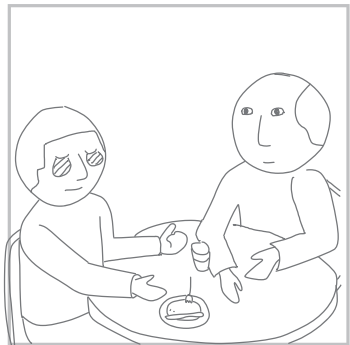
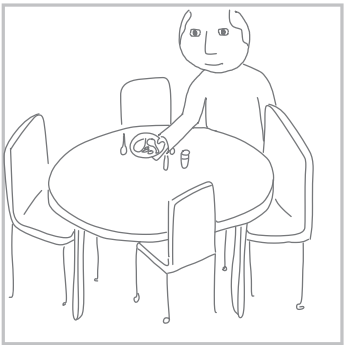
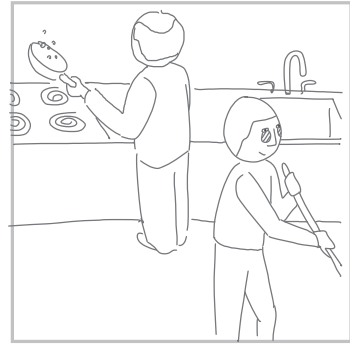
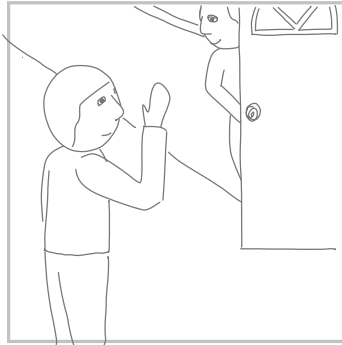
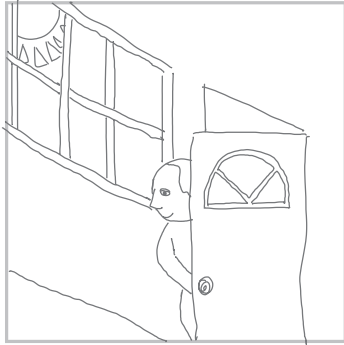


Figure 37. Service Fiction #1

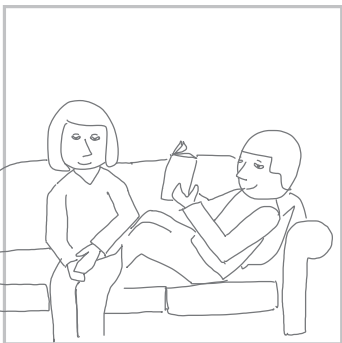
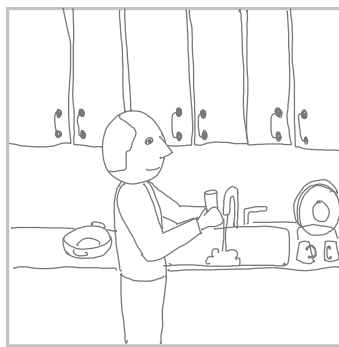
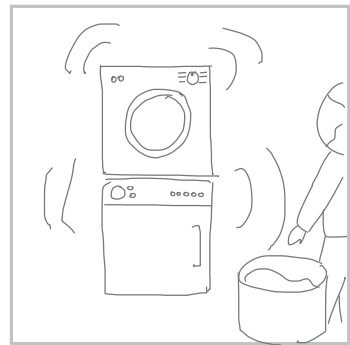
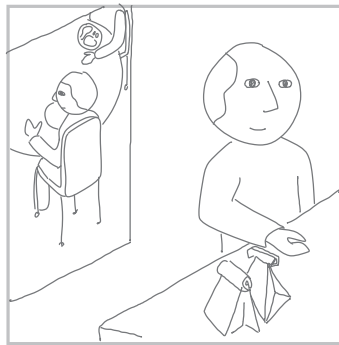
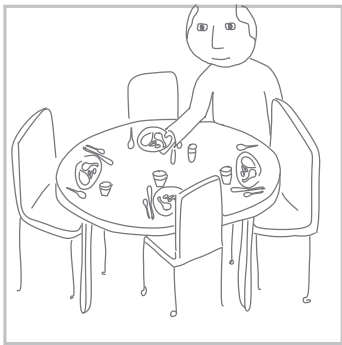
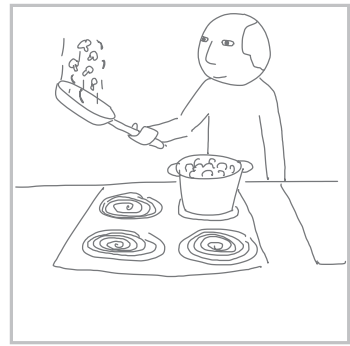


Figure 38. Service Fiction #2



Figure 39. Service Fiction #3

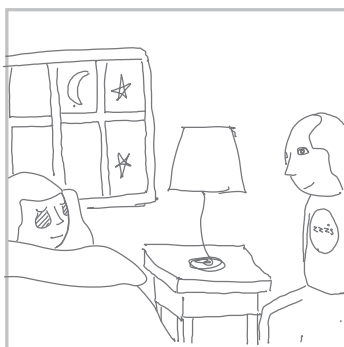
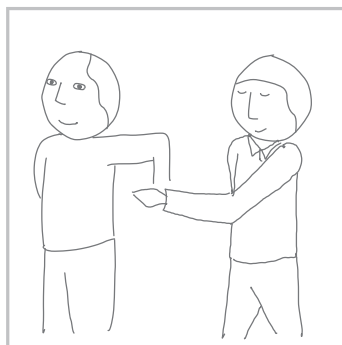
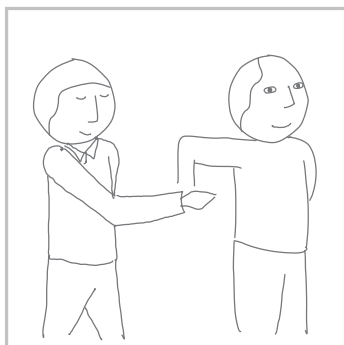
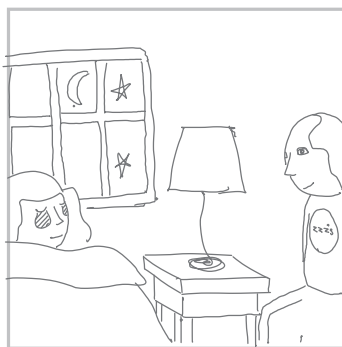
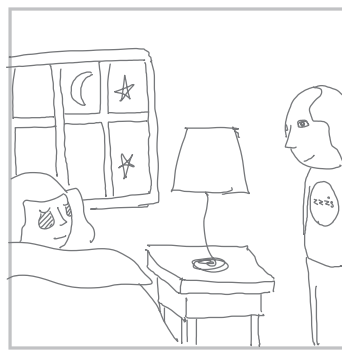
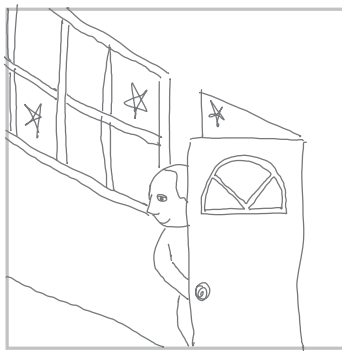
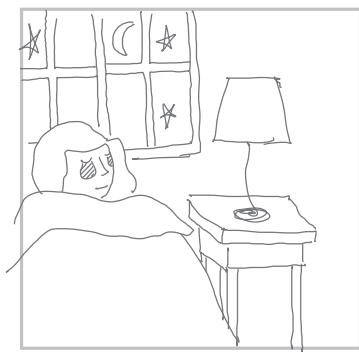


Figure 40. Service Fiction #4

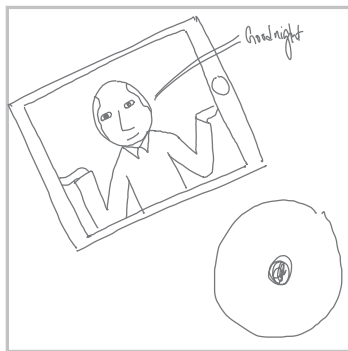
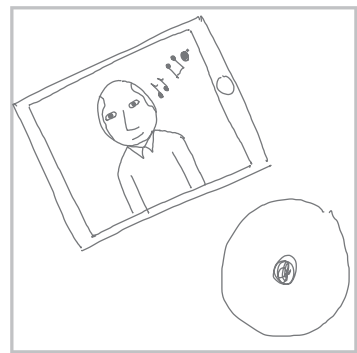
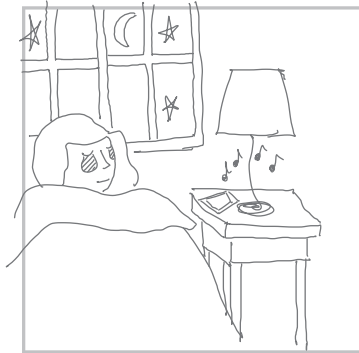


Figure 41. Service Fiction #5

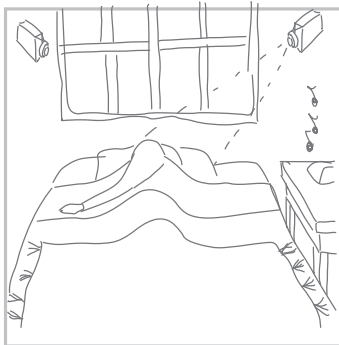
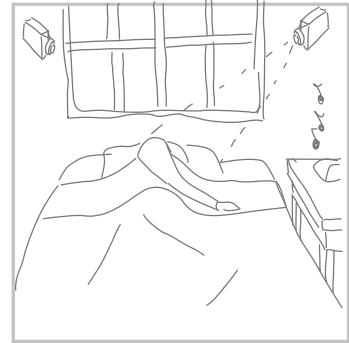
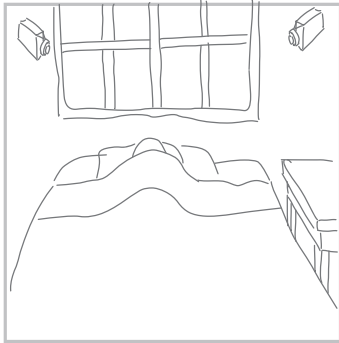


Figure 42. Service Fiction #6

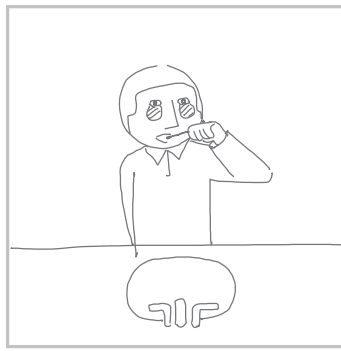


Figure 43. Service Fiction #7

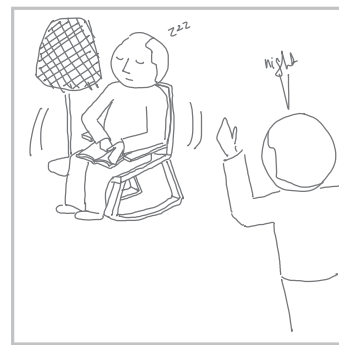
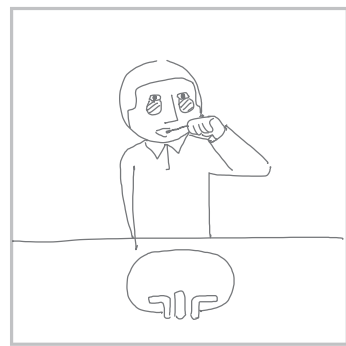
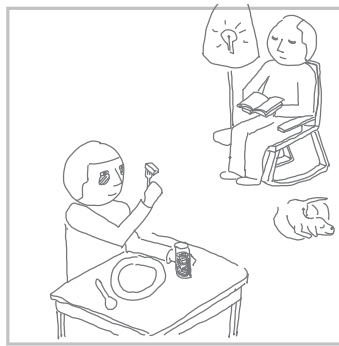
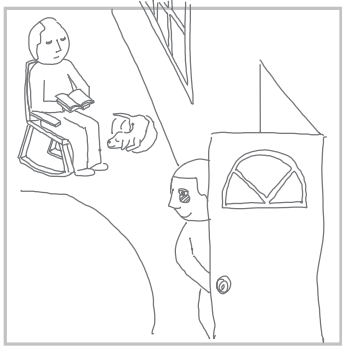


Figure 44. Service Fiction #8

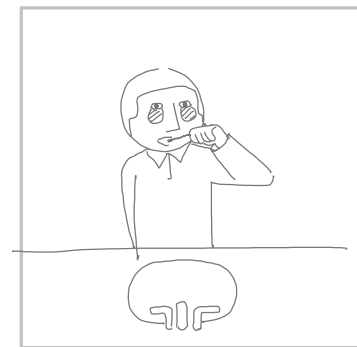
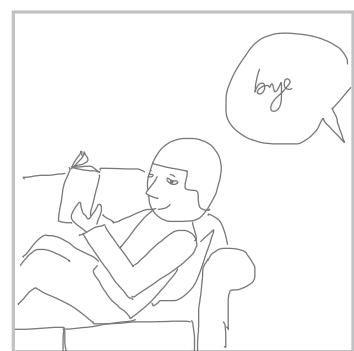
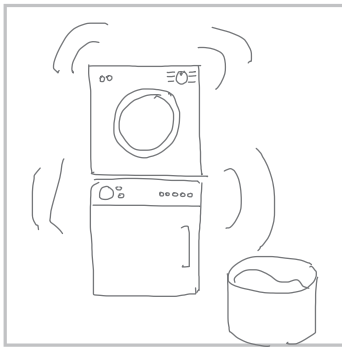


Figure 45. Service Fiction #9

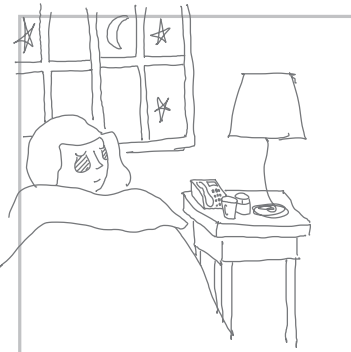
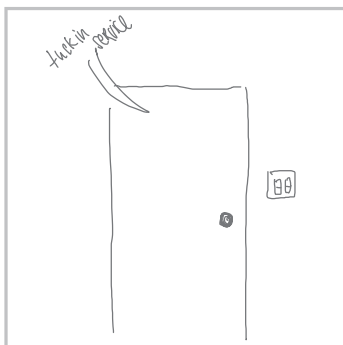
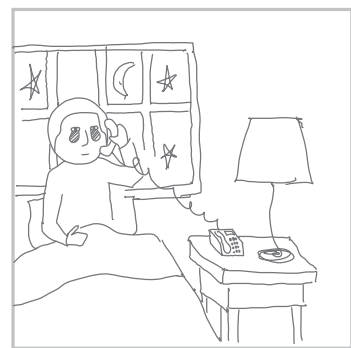
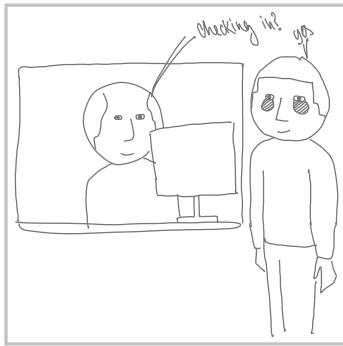


Figure 46. Service Fiction #10

Experiential 'Ask'

At the end of some interviews, if the person seemed in favor of their script, I asked if they were willing to body-storm it with someone and report back to me. This request was somewhat too intrusive, as people felt weird invading another's space which made it feel contrived.

I was able to find one participant who was willing to skype me and put me to 'sleep'. The conversation seemed a lot more natural than originally anticipated, and in a way was soothing. Sleep is very contagious, all the other person needed to say was the word sleep over and over. It was comforting because they asked about how my day was, and told me what they were up to.

Service fiction requests were too much for participants to consider. One participant said "You are asking about a pretty intimate time". However participants did talk about how they did do this with some friends or when they found talking to someone helped them fall asleep.

One participant told a story about his aunt calming him down to sleep after he had experienced a trauma. The participant noted that talking to someone got them outside of their head and allowed them to calm down enough to sleep.

Technology Probes:

Technology probes were used to explore the idea of automation and control. Probes were developed initially so that I could live with them, to understand what type of control or automation made me comfortable.

Probes were then given to participants to try on (vest) or to live with (lights). Interviewing participants in the situation of them using the vest or reflecting on their experience of the light allowed them to react in a more considered way about the idea of giving up control.

These reactions were in direct contrast of the magical devices the same individuals drew in the fall semester. Participants were willing to try objects on a trial basis, but were hesitant in giving an object full control. Stating that giving control to technology is still 'me communicating with my future self' and it is the intention and the connection to that original intention that was important. Participants were wary that there is a point where they are no longer in control of the technology, and questioned when/where that point would be.

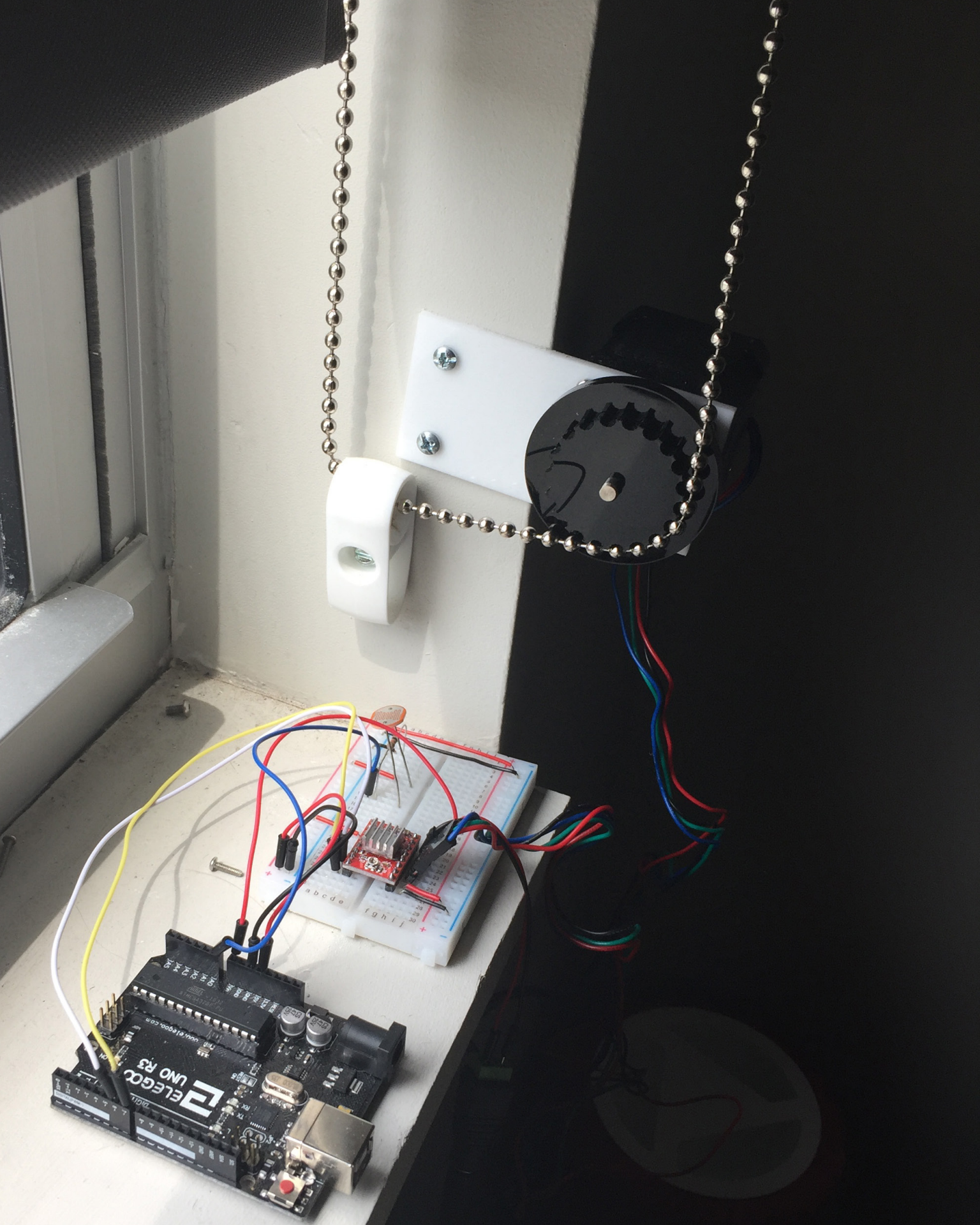
Philips Hue Probe:

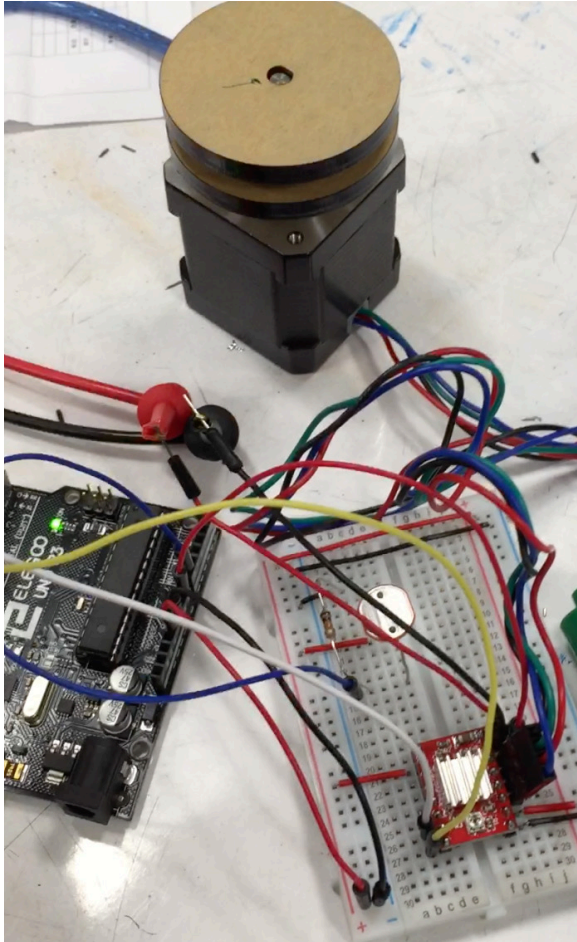
There were three probes, the first one was a Philips Hue bulb. (See Figure 47.) The idea was that the probe would turn on at sunset and gradually dim out until they turn off at 11:30p through IFTTT (If This Then That) is an app that connects different internet of things through applets) . It was a way of

enforcing patterns naturally and passively. The bulb served as a reminder but abstractly, the user was still in control.

The hue bulbs was given to a participant to live with for the period of a week.



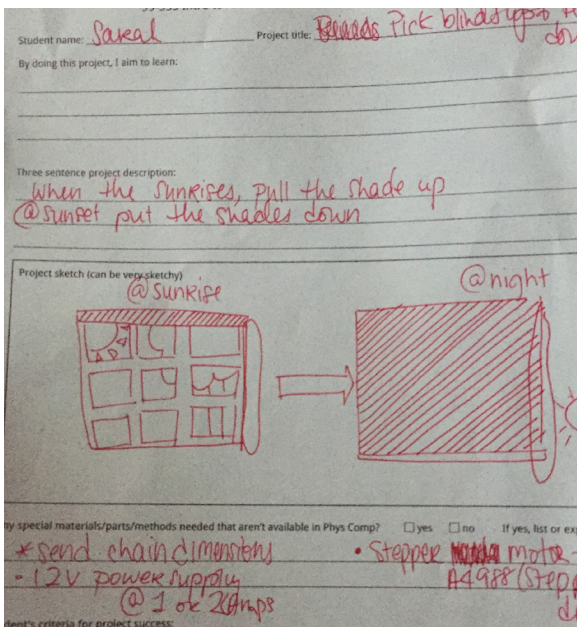




Blinds:

At the same time to augment the effect of the Philips hue I programed an arduino to pull the blinds up and down in accordance with the Philips hue. The idea was that at sunset the blinds would come down to emphasize the light from the hue bulb. In the morning it would bring the blinds up so that one could wake up to natural light. (See Figures 48-50.)

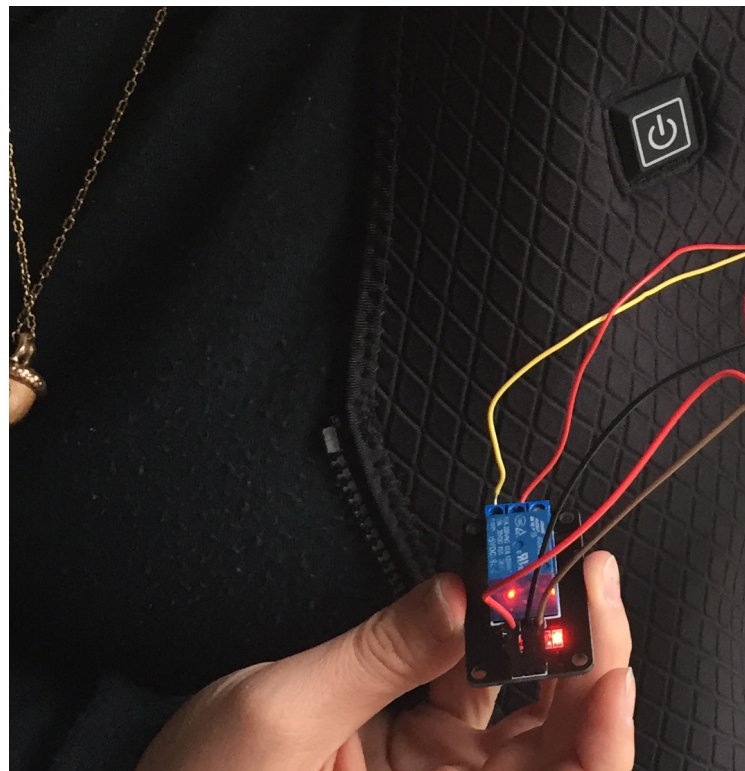
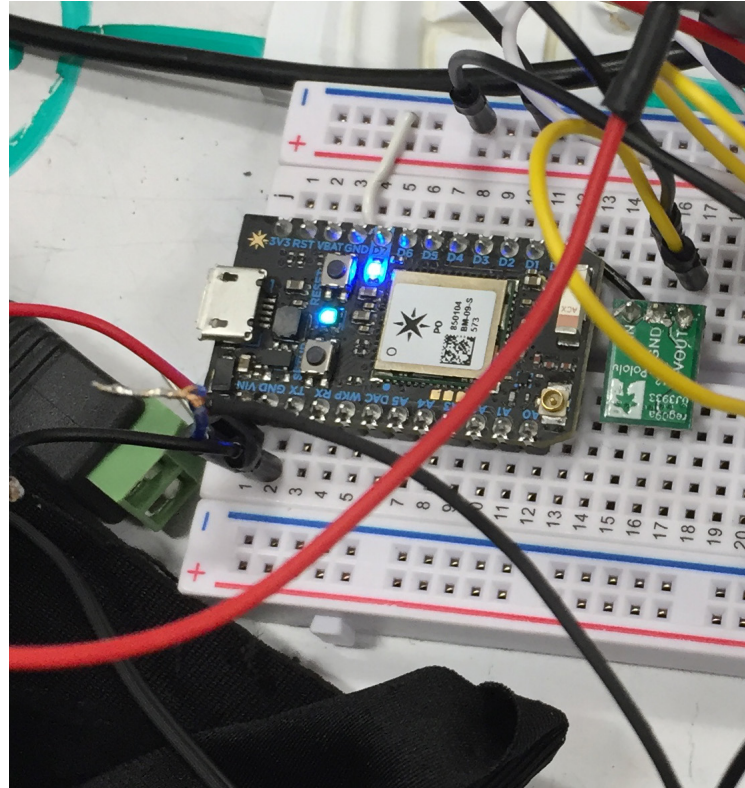
The machine was created by using a photosensor and a stepper motor to sense the ambient light and move the blinds up and down accordingly.

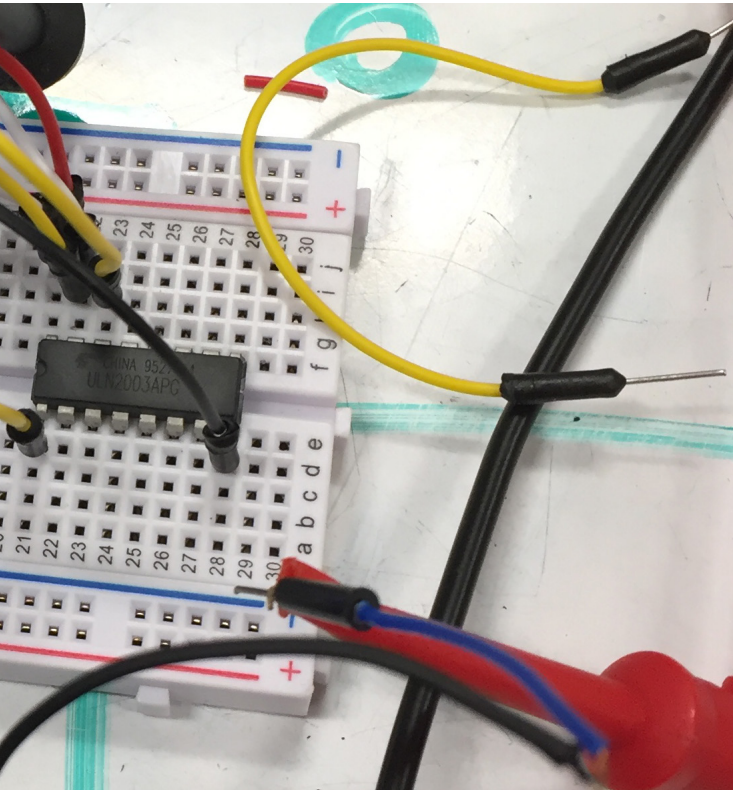


Vest:

The vest was used to mimic the body's response for sleep. (See Figure 51.) In my research for Philips, there were certain projects focused around things one can do to make oneself more tired. Such as when people take a bath or drink hot tea, the warmth of the water heats their body up which then makes their body cool down when they get out, which brings on the sleepy feeling. I bought a heated vest, and hacked it so it would turn on at a certain time at night, which was an attempt to mimic this bodily response of heating the body up and then cooling it down.

The idea was that participants would wear the vest and experience the heat when talking about the type of control they would be willing to give up. At the end of the interview we then talked about the difference between giving control to technology vs giving control to a human. Reactions were initially about the vest itself, style etc. once the intention was explained that it was more ubiquitous, and could be part of any clothing conversations started addressing control.





When technology goes wrong

The Philips hue worked perfectly until it was given to the participant. After the participant lived with it for a week I tried to reinstall the bulb in my bedroom. Since the schedule was via IFTTT, it turned off when requested but would turn on in the middle of the night. This made me too nervous and anxious about it continuing to do so. By the end of a couple days my IFTTT applets were set to check every half hour to make sure the bulb was off. This experience left me feeling out of control and left me too anxious about having to wake up in the middle of the night.

Likewise, the vest because it wasn't soldered to a board, the wires kept on popping out, leaving the vest to not heat up during interviews. This did not affect the interviews that much. The interviews where the vest worked returned comments such as "I didn't think it would work, but it really does".

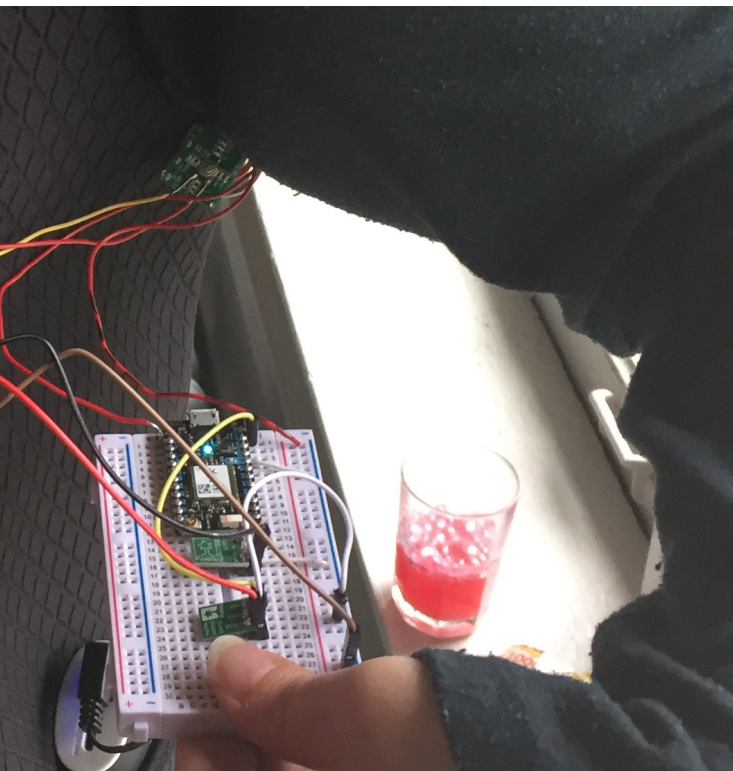


Figure 51. Vest

Mechanical Turk Ads

Mechanical Turk is amazon's online marketplace for "work that requires human intelligence" (Mturk.com). 'Turkers' accomplish small tasks for often less than a dollar. I chose to use Mechanical Turk for this study because of its 'opt-in' nature. 'Turkers' have already given consent to do small tasks.

The creation of the ads was to find out what type of person would be interested in such concepts, at what boundaries around sleep people were comfortable or uncomfortable, and what types of expectations they had from the arrangement. Originally created ads were meant for Craigslist as it was targeting the type of people I wanted to attract, however Mechanical Turk was more appropriate according to

guidelines of the IRB as there was no deception. Initially, My hope that was when people responded I could follow up with an interview.

Since people do mechanical turk for a living, the amount of time spent on each hiit was not enough to get good responses. Responses were very vague and repeated what was in the ad.

The ads in the end, helped with thinking through what people were looking for, and what were my assumptions for what types of qualifications the sleep aid held, as well as what someone was looking for in order to find the shift apartments appropriate. (See Figures 52-55.)

CL pittsburgh > housing > sublets & temporary

post | account

reply

prohibited

Posted about 8 hours ago

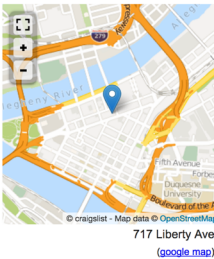

print

prev

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☆ \$800- Luxury 1bd Shift apartment for rent 8pm-8am (Pittsburgh)

image 3 of 6



1BR / 1Ba 605ft² available mar 12

cats are OK - purrr

dogs are OK - woodf

furnished

apartment

wld in unit

no smoking

attached garage

private bath

private room

wheelchair accessible

One bedroom available from 8pm-8a.
I am looking for a "roomate" for my one bedroom. I work the night shift at UPMC and am looking to rent out my place for when I am not there. Ie, when most people need their apartment.

The benefit- you will never see me, so you get a one bedroom to yourself pretty much.

You: Responsible, clean, courteous.
Must have a day job, basically you leave the apartment during the day so when I get back I can sleep.

1st, last and security required for move in.

• do NOT contact me with unsolicited services or offers

post id: 6020512603 posted: about 8 hours ago [email to friend](#) [best of](#)

Please flag [discriminatory housing ads](#)

Avoid [scams, deal locally!](#) DO NOT wire funds (e.g. Western Union), or buy/rent sight unseen

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Posted 3 days ago

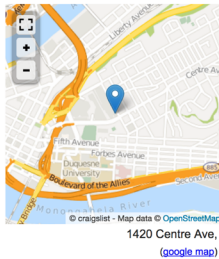

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☆ \$800- Luxury 1bd Shift apartment for rent 8pm-8am (Pittsburgh)

image 9 of 12



1BR / 1Ba 827ft² available now

cats are OK - purrr

dogs are OK - woodf

furnished

apartment

wld in unit

attached garage

private bath

private room

wheelchair accessible

One bedroom available from 8a-8p.
I am looking for a "roomate" for my one bedroom. While I work, you use my apartment.

You:
Responsible, clean, courteous.
Must work the night shift, you do not need the apartment at night.
When you come back, I will be at work and the apartment will be yours!

Me:
I am an attorney who works long hours, and am looking to rent out my place for when I am not there.

The benefit- you will never see me, so you get a one bedroom to yourself pretty much.

1st, last and security required for move in.

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Avoid [scams, deal locally!](#) DO NOT wire funds (e.g. Western Union), or buy/rent sight unseen

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CL pittsburgh > jobs > healthcare

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Posted about 12 hours ago

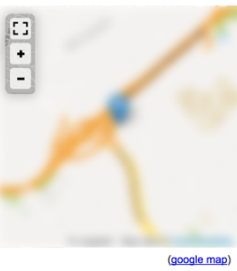
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☆ \$300 SIGN ON BONUS - HIRING SLEEPGIVERS!!

(SQUIRREL HILL, OAKLAND, SHADYSIDE and Surrounding Areas)



compensation: Starting at \$10.10-\$12.00/h

employment type: part-time

Help others get the sleep they deserve!
Our Staff LOVE their Jobs!

SleepGivers Care is the employer of choice for compassionate individuals that want to make a difference in the life of another. We are in need of Sleep Aides for all shifts especially Saturday and Sunday. Consistent schedules available. Sleep Aides are needed to assist clients with mentally winding down and inforce sleep hygiene.

Great for retirees. Training provided. Vehicle required. Must be able to complete drug screen and various background checks. We are an equal opportunity employer. Opportunities are made available to all individuals at will regardless of age, race, gender, religion, creed, national origin, marital status, pregnancy, presence of disability, sexual orientation, ancestry, and any other status protected by law.

SleepGiver Care provides a range of services including companionship, relaxation and meditation exercises, light housekeeping, medication reminders, and more. When Clients are not able to sleep, Sleep Aides tries to work 1:1 with clients so they can eventually sleep without help.

Please respond by email or call the office for more information.

• Principals only. Recruiters, please don't contact this job poster.
• do NOT contact us with unsolicited services or offers

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amazonmechanicalturk

REQUESTER

Home Create Manage Developer Help

Results Workers Qualification Types

Manage Batches > Review Results

Review Results

Select the check boxes on the left to approve or reject results. You only pay for approved results. To evaluate results offline, select Download CSV.

For additional batch information, view batch details.

Sleep Service 7

Customize View Filter Results

1 of 1 assignments (FILTER APPLIED: only show assignments that are in "Submitted" status)

Approve	Reject	HIT ID	Worker ID	Lifetime Approval Rate	Reason	Writing Tests	Age	Apply	Gender
<input type="checkbox"/>	<input type="checkbox"/>					Dear sir or madam: I am applying for the sleep aid job. I meet all the things that are outlined in your ad. I am able to drive and I am very educated. I also have experience as a life coach and more than one year as a sleep aid. I am very qualified to do this and I meet all the buttons on your list. I also am very good with the general public. My job have always involved interaction with members of the general public. I am able to connect with people can get people to do what I ask them to do with minimal problems. I am very trained at taking care of problems that come up and can deal with issues as they arise. I also have a bunch of friends and family that have G PAP machines and I am very interested in this field. I love the way a person can come in for one night and there are ways we can get them sleeping like they did when they were 13 or 14. Great sleep equals and provides so many other things that create a healthy and happy life style. It makes it so much better for everyone involved. People are able to do things for themselves and they feel so much better. I like having a job that makes me help people and I feel like I am very good at it. I will work hard and come to work ready and able every single day. I can provide many references and would request an interview as soon as possible. You will not regret me and will have a good person if you hire me. Thank.			
<input type="checkbox"/>	<input type="checkbox"/>	3PKVQGFHXYGVFGNNHJDGBXYND	ATGKEIBHACEN	100% (1/1)	Not in field.				
<input type="checkbox"/>	<input type="checkbox"/>								

1 of 1 assignments (FILTER APPLIED: only show assignments that are in "Submitted" status)

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meditation helps- headspace- breath
really deeply and count how many
breathes you are taking

Case Study: Framework

someone reading to me is not as calming

sleep- if they also cannot
hands us

only
was a

if things are not going well, they would coach you
through situations

person is directed at mind

if something will keep you awake you can unpack it

element of therapy

the human tendency is to listen and respond- the response
could be why dont you do this about it

retrospective

start with small talk-how was your day (reflection)
give affirmation- "that is not that embarrassing"

they would do guided meditation

plans for the next day

reviews the days happenings

help me gather my thoughts- thinking about how i could
have said differently

therapist

person is actually dealing with your issues

reflection is really important

talking to me about my day- i do that with my wife when
we are getting dinner ready

i would take them up on guided meditation

harder- seeking help from a shrink

if you are married- therapy is built in

when i talk about what i am thinking it makes me more
vulnerable- more anxious

if a person- you would have to interact- it would be more
helpful

i wouldnt want someone to read to me- it may keep me up

getting up makes you more wired

i cant turn off my brain if there is contact with a person.

i would get caught up in the interaction- additional stimulus
as long as something is engaging my
mind i will stay awake

if human

if i only knew them from when i was sleeping
really weird

the inte

when i fall
they would

it takes a long time
want someone you

anytime you introd
new levels of stress
how they fit in

the more intimate it
it is always weird in

my house keeping t
weird

human but
not present

helps me fall asleep- i
talk for hours
because of the human

ve someone put me to

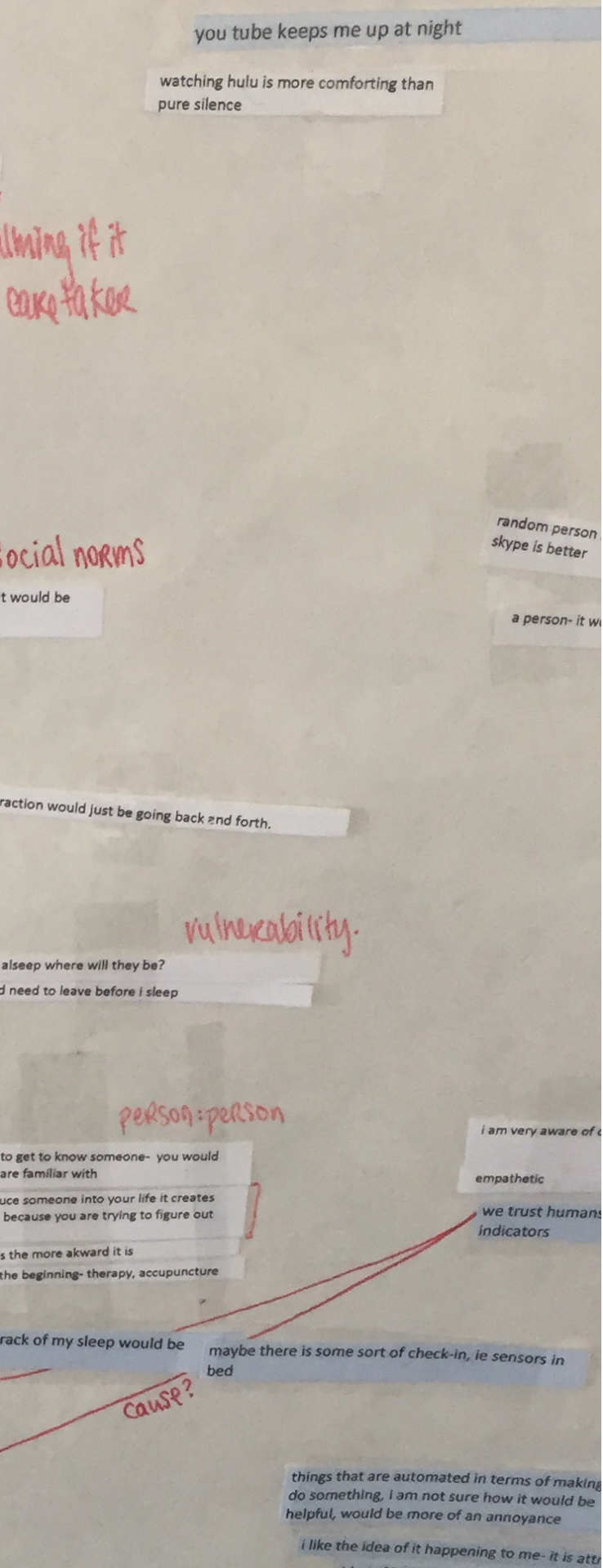
do you really
care what they
are collecting on you
are not
any who
thinking

at is in their head, what are they

are you listening? do you
actually care?

n- you dont know what he is thinking

ids and you are able to trust



Insights from the Service Fictions were distilled into the following categories. A Framework was generated from these insights and captured in guidelines that allow one to examine where the benefits and the disadvantages of the roles that human interaction and technology take in a service. It's intended for designers who design services or ventures. Its main limitation is that it was developed in the context of sleep, and extensibility has not been validated. (See Figure 56.)

Sleep

Through applying Service Fictions to the study of sleep, I was able to learn more about the nature of sleep.

Sleep is very contagious, the word sleep makes you sleepy, reading about sleep makes you sleepy and talking about sleep makes you tired. If other people around you are tired then you become tired. Yawning is also contagious.

Sleep is very environmental, and this contagion sets the mood for one to sleep. In my interviews people talked about the best sleep they got as in a hostel with others around them sleeping because if people around you are sleeping, you are more likely to want to sleep. The mood people set, such as making the atmosphere calm, allow people to relax which then allows individuals to sleep. The nature of winding down is environmental, lights set the calmness. In interviews pets and spouses came up repeatedly as setting the stage for sleep. When pets snuggle with you in bed, it calms

individuals down and comforts them.

Winding down is also about limiting interactions. In my research it was found that having people around makes one want to engage or feel obliged to engage with the other, unless the person doesn't pay attention to them (such as having anonymity in a public space) or they know the person, and the person is part of their every day sleep ritual.

This leads to the research question: How do you make someone care about spending time with a stranger? Having a person who is not known to the individual is seen as an intrusion as people are selective to who they bring into their rituals.

Throughout my research there was a tension with participants where I was putting sleep and the prioritization of sleep front and center. Sleep is not always a priority, other things especially when in school take priority over the need to sleep.

Control

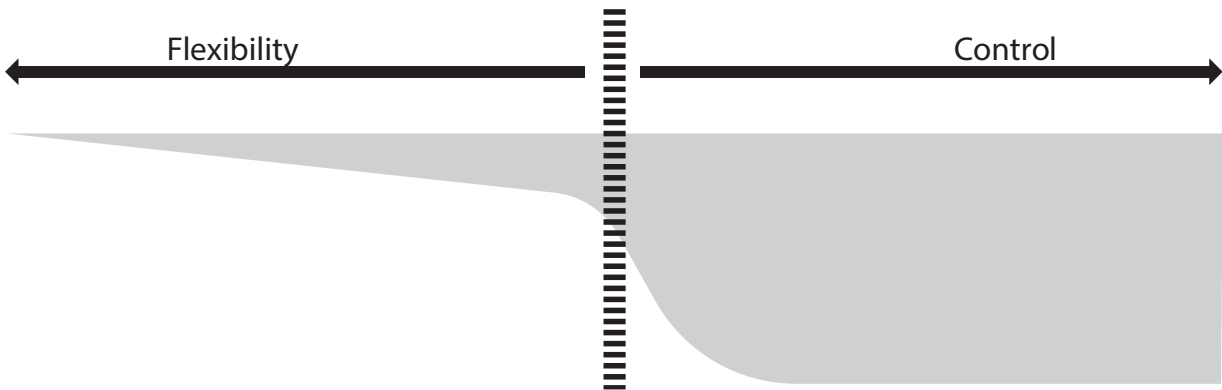


Figure 57. Cliff of Control

Technological probes explored the theme of control in a more tangible way than service fictions did. It was a balance between Machines that give or take control and People that give or take control.

I found that people are much more willing to give control to an object than they are to another person. (See Figure 57.)

However, they needed to remain in control, and the acceptance amount was tied to how closely they felt to their original intention. Participants stated “it’s still me communicating to me”.

I found that participants who were self-identified insomniacs knew good sleep hygiene but did not adhere to what they knew they should do. Participants in original interviews wished for control over their body or environment, which was in direct opposition to what came out of the Service Fictions.

Routine came out as a theme within control. One stated “Routine makes you feel homey/familiar with the place”. However, another participant stated “having a stranger in your house makes your place no longer feel like home”.

Tech-Human Continuum

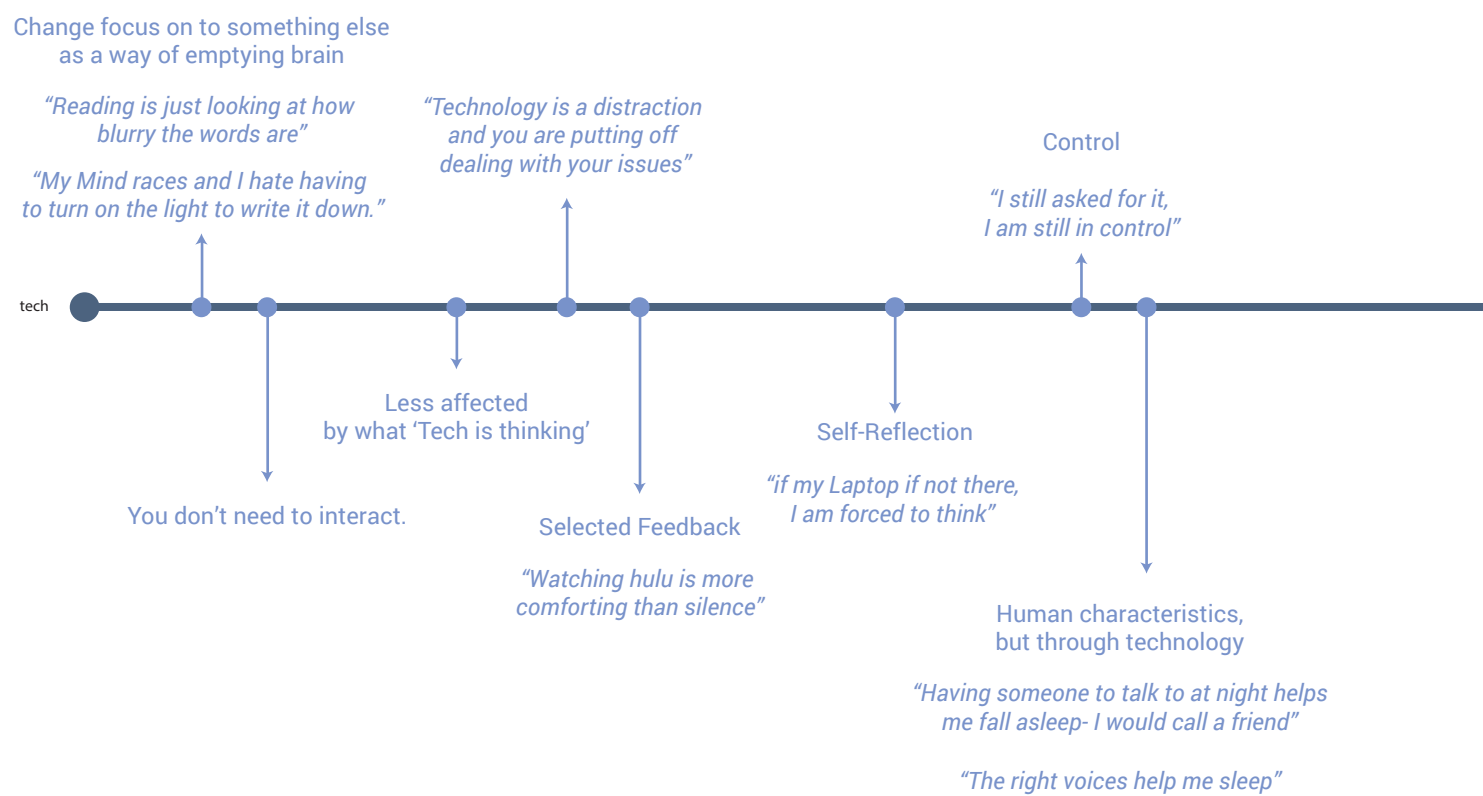
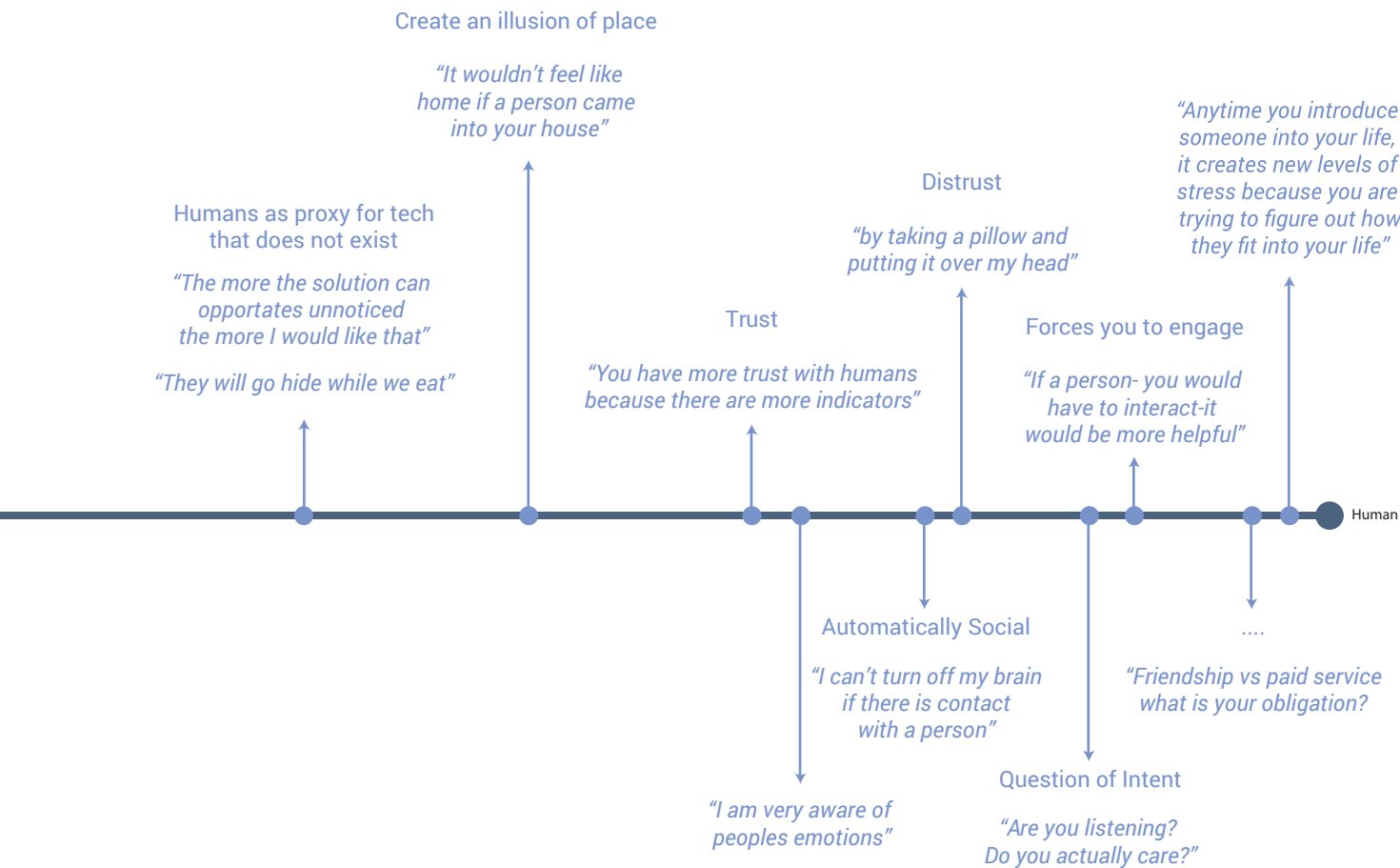


Figure 58 Tech-Human Continuum



Humans vs. Technology

In this thesis I was attempting to make a case for human over technology. A question examined was the reasoning for why someone would help another. This led to the question of when, in designing, it was more appropriate to use humans, and when to use technology

Humans

In the case of the sleep aid service, there was an overwhelming negative reaction to sleep aids coming into your house to put you to sleep. This was mostly because participants worried that they couldn't trust this individual. Participant's comments were around not knowing what this person was thinking or if they listened or if they even cared. Trust was equated to genuineness. Humans have more cues than an individual can read, but the sleep aid was still seen as a wild card and in some cases as an intruder.

Introducing a person into one's life produces anxiety in that one needs to figure out how they fit into their life. If there is another person who comes in to help you sleep it is no longer just about the sleeper, it is about the person helping them as well. This led participants to feel guilty and pressured them to go to sleep faster as the insomniac was using the sleep aid's time, or having them do things that the insomniac felt like they should be doing. They stated that they would feel pressured to go to sleep, which would not allow them to do so.

When going one layer beneath the initial negative reaction individuals saw the value of having a human in the scenario because a human actor forces one to address your problems. Humans that came into the scenario either acted as maids or as a psychologist depending on the individual's life stage. Married participants tended to go for the

maid (delegation of chores) while single participants tended to go for the psychologist. Humans in the psychologist scenario help you disconnect from technology and helped “be in the moment”. The maid served to free up the participant to do activities that mattered more to them.

The human was used as a proxy for technology that did not yet exist, because the human is adaptable and can allow for more individualized rituals. - i.e. read one night, exercise the next or see when they were going to wake up and turn the music on. There was a constant thread of participants wanting to reduce the human-ness of the ‘sleep aids’. Most participants did not want to talk to or have the sleep aids bother them. One participant joked about the sleep aid hiding in a closet while they ate, to which they then corrected themselves and said, “no that’s mean, we would feed them” . With humans social standards come into play, one feels the need to talk to them, or one feels the need to offer them a drink or food. When winding down, limiting interactions becomes necessary. It was stated repeatedly that if there was a human present they would feel obliged to talk to them, thus ‘revving’ up rather than winding themselves down.

Certain human qualities were seen as appealing. Individuals found it comforting to fall asleep to human voices especially when they

did not have to engage with them. Individuals described ‘Certain types of voices and shows’ to be comforting and others to not be. Individuals listened to audiobooks or watched TV as a way of having background noise and to let their mind wander. There was also an appeal to talk to someone, but not having that individual in the room. It was common for individuals to talk to their friend on the phone or over facetime. Individuals would rather have someone virtually help them, than have someone in person help them. This comment goes back to the idea of home and comfort, when a stranger is there, home is no longer just yours, and therefore they could not relax.

Humans were also seen as smarter than technology. Participants repeatedly had sleep aids taking sheets on and off as they slept, or watching to see if they slept with their eyes open to then “put eye drops in my eyes so I didn’t have to wake up”. Watching remotely and turning on and off the music according to sleep stage was also appealing. Humans do not return an expected response. The types of feedback given from a human is specific to the situation and different personalities. This high variance in feedback tests the idea of trust. Where the amount of variance equals the trust. Technology provides expected feedback and is thus trusted more in the time of sleep.

Technology

Technology was used in the service fictions as a distraction from over-thinking. Technology allows one to empty their mind without any preconceived feedback. Technology does not introduce another factor, you get what you expect. However participants acknowledged that the use of technology was not addressing the problem, but it provided comfort. Participants had quotes such as, “watching hulu is more comforting than pure silence”, where technology was a way to quiet their mind.

If a human was needed, technology was used to anonymize the person, as well as to ‘secure’ their home.

Expectations

When participants were describing the type of person they would expect to be a sleep aid, there was a common theme of needing to have the warmth of a caretaker or be a “Hippy earth mama”. They expected the sleep aid to have the necessary qualifications and credentials necessary to be an in home caregiver, even though the role of the caregiver was more companionship and guidance. People who were weirded out with this service were ok with this service if it were provided by a loved one who was a previous caretaker, such as a mom.

I talked to one caregiver who stated “I don’t get too involved”. When I asked if it would be weird for her to provide similar services to someone who just can’t sleep, she responded “yes it would be weird, because they don’t need me.”

When I asked participants if they were the ones theoretically providing care, they wanted to learn about routines and help to facilitate those routines. When thinking about what they would receive they do not want someone else to dictate their routines.

Guidelines

Guidelines were developed for designers to take into consideration when designing in specific contexts. While these guidelines were distilled from a case study having to deal with sleep, I foresee these guidelines to have a larger context and applicability to realms outside of the subject of sleep. For example, these guidelines could be applied when designing a new hotel or even a retail experience. I believe that these guidelines, while they need to be tested in a broader context have the ability to be universal.

One could consider these guidelines to be an etiquette guide book that outlines the social rules for tech when aimed at users.

Guidelines for designing for sleep

- Consider Environment/Mood as Mechanical.

Participants were highly affected by the environment they were in. In some cases, Participants talked about the environment as a cue to start their sleep routine. For example, if there is someone setting the mood, by reading in a corner on a rocking chair, a participant thought the turning of the pages would be very relaxing, therefore setting the mood for sleep.

- The idea of 'Sleep' is contagious, and can be used to one's advantage.
- People want to limit interactions before they go to bed. Interactions tend to energize individuals instead of calming them down.
- People want to make their head quiet.
Participants have done this by emptying the contents of their brain before they sleep. Other methods were to distract them with something they didn't have to pay attention to. One participant talked about how

'reading was about seeing how blurry the words were on the page'

- Idea of letting go into sleep.
One participant enjoyed the prospect of giving over control to technology. Most however did not.
- "As long as something is engaging my mind, I will stay asleep".
- Cannot be a focal point, design must blend into routine or into the background.
- Sleep can be seen as a luxury.
Sleep is not always a priority when in contrast to tasks needed to get done for graduate school or within in a small family. Sleep can be idealized, but is not always prioritized.
- Make the process of falling asleep fun.
"Because I can't sleep, I find the process of falling asleep very boring"

Guidelines for Designing with Humans as part of a System or Service

- Set expectations of what to expect from this person.
 - Define this relationship upfront.
 - The ambiguity of the relationship put people on edge, as they did not know what to expect from the relationship.
- Tell people how this person fits into their life.
- When creating interactions for high levels of engagement use people instead of technology.
- Interactions between Human actors were seen as either energize or become burdensome depending on context.

Participants repeatedly said that having a human actor would make them more energized. If someone came into their house, they would want to talk to them, if they started talking to them, participants stated that they would get a second wind and no longer be tired. Solutions to this were to not talk to the sleep aid or to talk to them as little as possible.
- Seen as more allowing Free Will, and thus more adaptive.

Since human actors are not prescribed to one action, they were seen more as wild cards. This was also seen as a benefit to some participants as the sleep aid could adapt to what their needs were at a given point and time.
- Social expectations play a large role.

Especially when welcoming an individual into one's home, there is this guest/host relationship that impaired the participant acceptance of the scenario.
- Preference for humans who are not physically there.

Aspects of human actors are comforting, such as their voice and their ability to understand things in a human way "it looks like they are about to wake up, so I'll turn on background noise"
- It takes a while to be comfortable with people.

"The more intimate the situation is, the more awkward it is, it is always weird in the beginning- therapy, acupuncture, etc"
- People need time to figure out how someone new will fit into their life.

Guidelines for designing with tech

- **Provide more indicators.**

In the Service Fictions, Human actors were not trusted, but more so because intentions and motivations of the sleep aid were not clear in the scenario. But they provide more cues. You can tell if an individual is happy or sad, or if something you said offended them. Technology does not have the same cues. It is not necessarily animism, it is more designing to provide transparency for humans to understand what their technology is doing.

- **Make the interface embodied.**

Embodied interactions were preferred over screen interactions. Some Participants noted that they prefer to have a no screens policy after a certain hour.

- **Actions do not have to be digital.**

"I would love it if when I walked into my bedroom, that would be the signal, and my lights would dim."

- **Technology has scripted responses.**

I hypothesize that technologies' 'comfort' in my studies, comes with knowing the type of response one gets from technology.

- **Technology needs to either be super smart or super dumb, not in between.**

- **Use if distraction is preferred.**

Participants recognized that their use of tech was to distract themselves to let their mind calm down, or 'empty'. They felt like they would not be able to wind down as effectively if a person was there to help them sleep. Designers should recognize that the use of technology also impacts the level of engagement with a service/system.

- **Utilize social.**

People find people comforting, but prefer them remotely when winding down. There are some aspects of a human actor that Participants found comforting, such as their voice, their brain power and the ability for them to be flexible. Designers should acknowledge this when designing for technology and incorporate the human as much as they can.

Guidelines for designing for control for users.

- Users need to feel connected to their initial intention.
If they feel connected, their compliance is higher- "It's still me communicating to me". If they feel disconnected, it is more of an annoyance. When designing this connection can be used as encouragement.
- Acknowledge independence of the user.
Users need to see the benefit and to buy in and to use the concept.
"If I knew the science behind it, I would just do it on my own- I wouldn't be motivated to buy it".
"If it is a tool I would like to do it on my own."
- Establish trust with the user. Trust starts with knowing how to use it and problem solve difficulties.
"I am ok giving agency to things- but it depends on how they build trust with me".
- Encouragement can be outsourced.
Participants can be reminded of their goals for positive results.
"It's like a fitbit, it reminds you that you are trying to do something and makes you feel guilty when you don't."

Reflection/ Evaluation and Conclusion

Reflection

The use of ANT highlighted the differences in conceptions of human actors and non-human actors. Considering interchanging actors, how one interacts with non-human actors is different from how one interacts with human actors doing the same action. When placing how one interacts with technology onto a human, one is more likely to try to decrease their human-ness. In the service fictions that turns the sleep aid into a maid, they want someone to do chores so they can do something that matters more to them, such as spend time with family. At the same time, the participants made it clear that they do not want contact with the person, and they would prefer to not talk to the sleep aid, stating that they would prefer the sleep aid to 'hide in a closet' while their family was eating.

This brings into question what is acceptable from the other side, and what 'Human' means. In the Latourian sense, humans are technology that does not yet exist. Interchanging actors impact systems in such a way that they become services. What needs and values, need to be protected when designing for this sleep aid as the main stakeholder? Service Fictions were created from the sleeper's perspective. It would be interesting to see the types of scenarios created when the participant imagined themselves as the sleep aid, rather than the receiver. When I talked to a night nurse who helped an elderly couple, she responded to the prompt in an almost insulted manner. She thought that if someone needed help sleeping that was not enough to warrant her job. Even though the services she provided to the elderly couple were parallel to some of the service fictions created.

In the service fictions that turned the sleep aid into a psychologist, participants wanted someone to provide them feedback. This being said, participants still felt weird reflecting about their day with a stranger. One can reflect about their day if via a digital diary, however instead of talking to a person, you are talking to a corporation via a free app you downloaded from the app store. There is a fluid state of trust around technology. Participants did not trust sleep aids because they did not know what they were thinking. However, you don't know what technology is thinking either, because it is completely invisible and just lines of code. Humans probably won't do much with your data, apps will.

One of the interesting conversations that have come out of this thesis was the notion of people behind technology. One of the service fiction talks about surveillance, and how instead of it being automated, they would rather have a person watching them, because they had more confidence that they would be able to tell when they were about to wake up or not. There was a story on twistedstifter.com where a grandmother thought that there was a person behind google search, so she made sure to say 'Please' and 'Thank you'. (TwistedSifter, 2016) My mother talks to siri like it is a person. Something to the effect of "Hello Siri, can you please tell me when the sunset is tonight, thank you". It is an interesting tension, because politeness doesn't matter when asking for information from an algorithm, but maybe it should?

Evaluation

Service Fictions allowed people to explore speculative scenarios, in a way that they could intertwine their values and rituals into a co-created speculative scenario. In allowing scenarios to be fictionalized, comments were made that probably wouldn't have been made in a concept speed-dating session, or even an interview about values and thought practices around sleep.

It might just be the tangibility of the concept that they experience and can truly react to, rather than vaguely talking about thought practices around sleep, or reacting to a complete scenario. Participants can entrench themselves in the scenario and create one that makes sense for them.

An assumption in the case study was that participants wanted sleep. Participants were self-identified insomniacs. An insomniac is

someone who wants to sleep but cannot. Participants were comfortable with their patterns and didn't necessarily want to change them. If this case study were carried forward, it may be interesting to create Service Fictions with individuals who needed sleep, not just individuals who would like more sleep. Assumed compliance might not be such a concern.

In creation of these Service Fictions there was still some resistance from the participants in that they might not want the scenario that they created. This is a weakness to this method. However, I believe that these scenarios were still created in the way that bests makes sense for the participant. And the scenarios still relate to their personal values, thought practices and rituals around sleep. In a dystopian world, where this was the only way they could fall asleep this is what the participant would prefer.

Significance

There is a trend and realization within the Design and HCI communities that experiential speculative design enables more unearthed insights from participants who actively engaged with an scenario related to their own life. This can be seen through Elsdén's Speculative Enactments (Elsden et al. 2017), Rozendaal's Narrative Prototyping (Rozendaal et al. 2015), Mogensen's Provotypes (Mogensen 1992), and Stewart Candy's Experiential Futures (Candy 2010).

Tanenbaum states "Good design fictions incorporate the elements of good storytelling alongside an understanding of how readers interpret and understand narratives to create compelling (and believable) fictional worlds around an imagined technology?" (Tanenbaum 2014). The significance of the Service Fictions lies in the participant relating the speculation to how it would specifically fit into their life through an experiential script. The script gives insights about the values, thought practices and preferences that one normally doesn't think to vocalize in other research methods.

Further Work

Service Fictions were developed in the context of sleep. To fully validate this method, it needs to be applied to other contexts. As well as tested quantitatively by having two groups, one that uses service fictions and one that doesn't and comparing the outcomes.

In the writing of this thesis, the scenario creations were the aspect of Service Fictions that were used.

However I think Service Fictions could be extended to include enactment. It would be interesting to see how the scenario changes from when the participant creates the script to then having them act it out. Service Fictions are about walking the participant through your thought process and then co-creating an experience.

Actor Network Theory (ANT) provides a way to examine systems, and proved useful for the development of initial concepts. It prods the system in a way that is familiar but slightly counterfactual. Teaching ANT would relate to teaching speculative design. Service fictions can utilize ANT like I have done or not. A future step would be trying it without and seeing if the same caliber of insights were gained.

Or the inverse, Service Fictions could be a tool to understand the scripts internal to ANT systems. Likewise, Service Fictions could be an exercise to teach ANT.

One could see Service Fictions integrated into the research of more experimental consultancies as a way of gathering insights.

Conclusion

Service Fictions were employed in this study to elicit participants' perspective on a concept, namely sleep. Although sleep is a universal concept, it is a semi-private concept. Usual ways of eliciting information about values and norms concerning sleep from participants was challenging due to its semi-private nature. In order to get participants to reveal their values and norms related to sleep, another approach was necessary. Service Fictions were created. Service Fictions use Speculative Design and participatory design in the co-creation of scenarios to attempt to have participants engage and explore scenarios instead of just reacting to them. Having the participant follow the thought process in the creation of the scenario, and then create a scenario based on their life, routines and preferences produced the type of insight sought after. Service Fictions

proved to be a unique approach that could be used along side other methodology where a designer is trying to understand underlying values towards practices or spaces where the boundaries are not fully defined and could be pushed. Service Fictions are also about finding boundaries internal to the participants, what they are comfortable with or uncomfortable with and why. In the sleep case study, these boundaries were demonstrated through the Service Fiction scripts.

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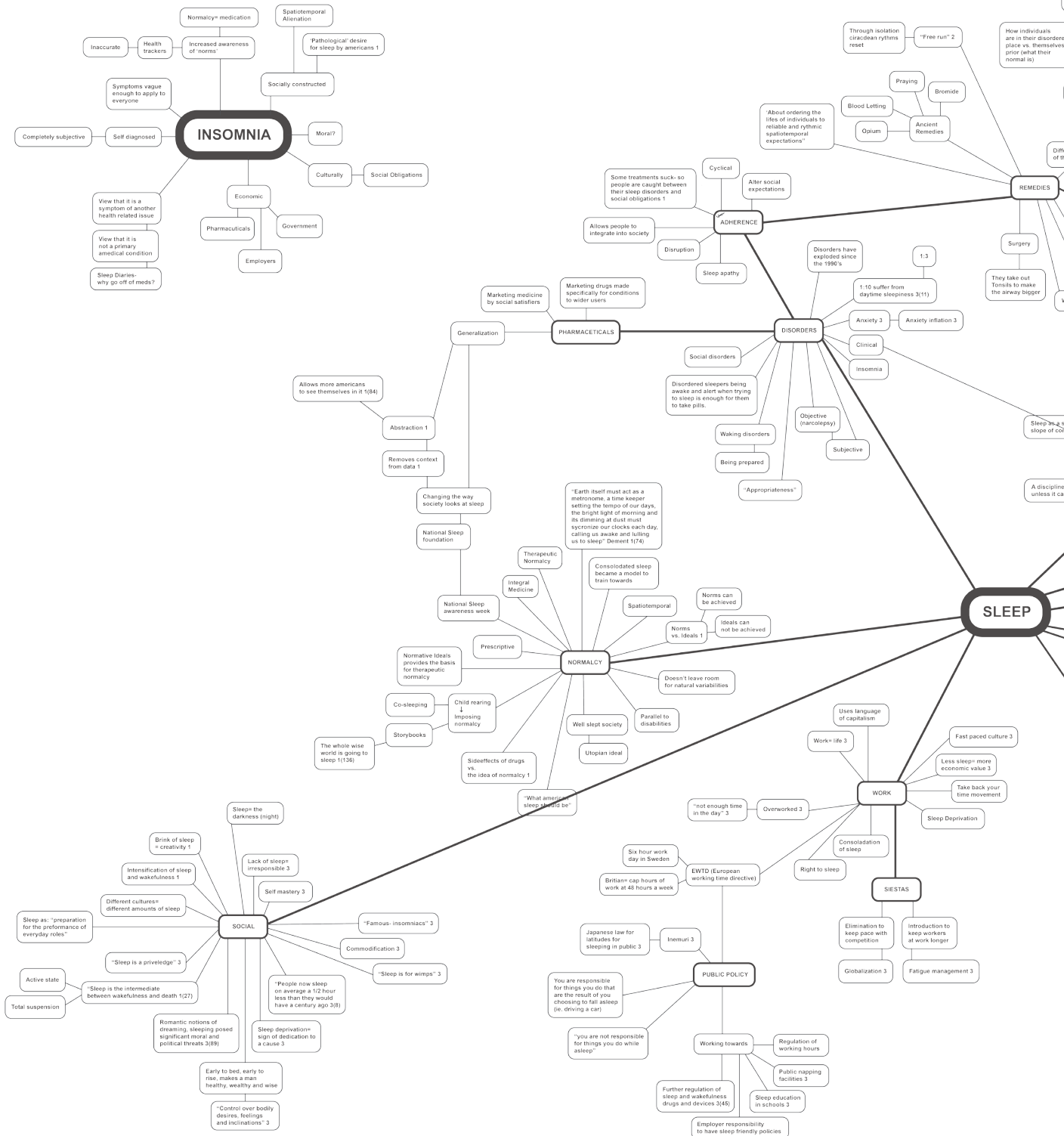
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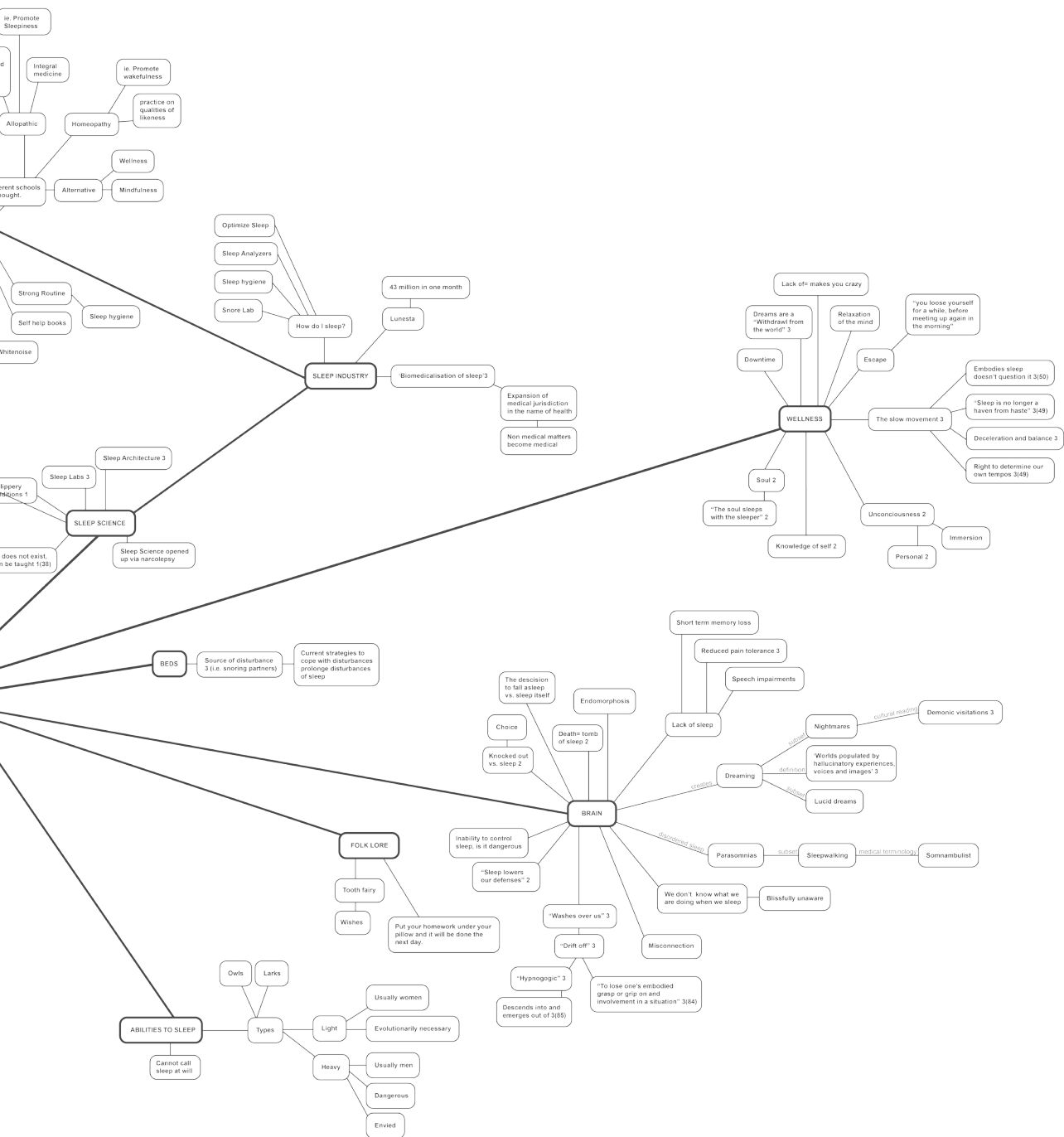
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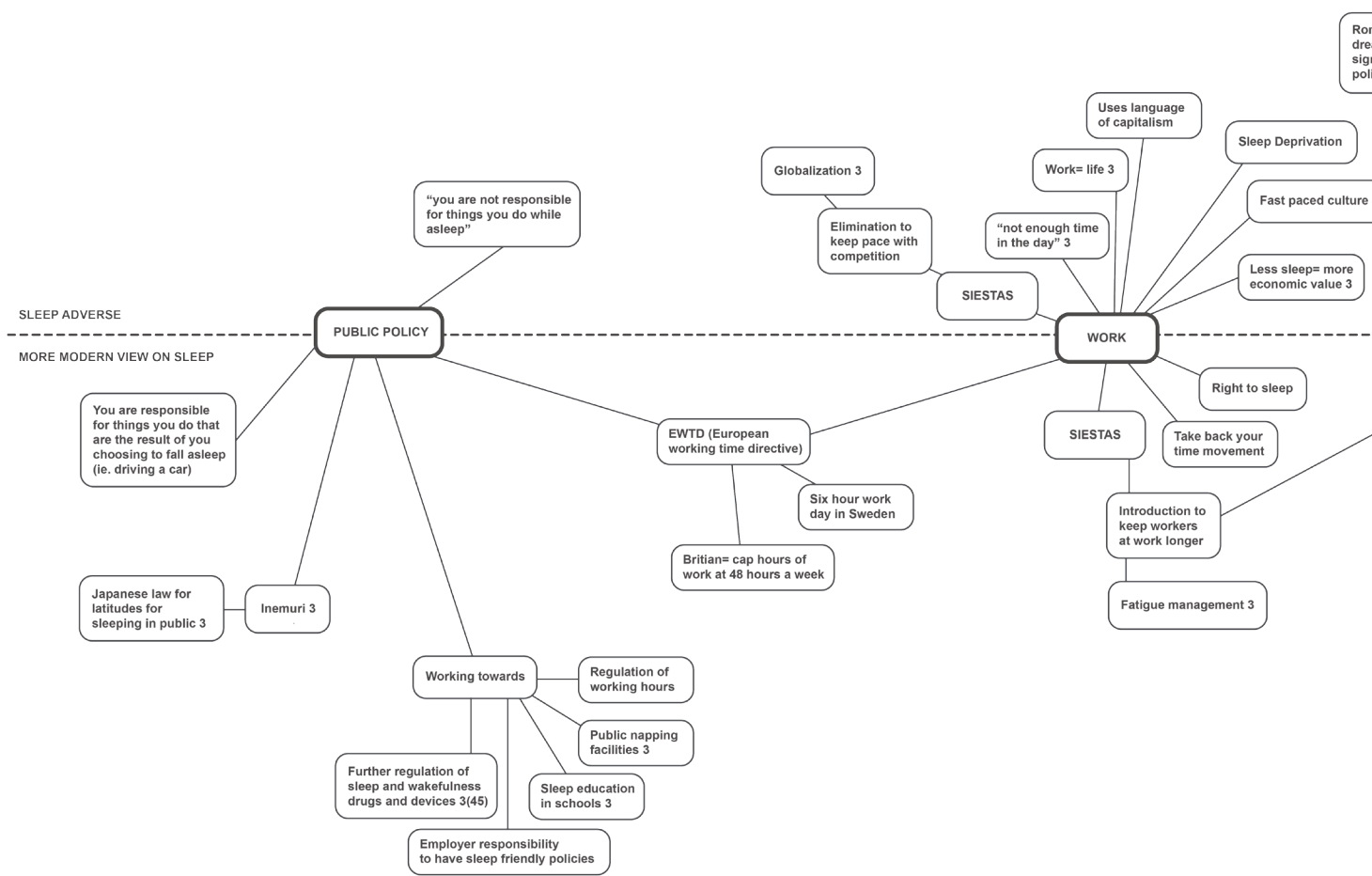
Appendices

Appendix A: Literature Mind Map





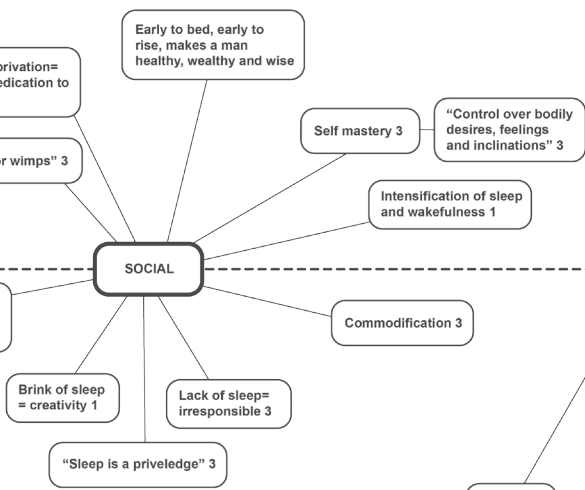
Appendix B: Normalcy Influencing Social Views of Sleep



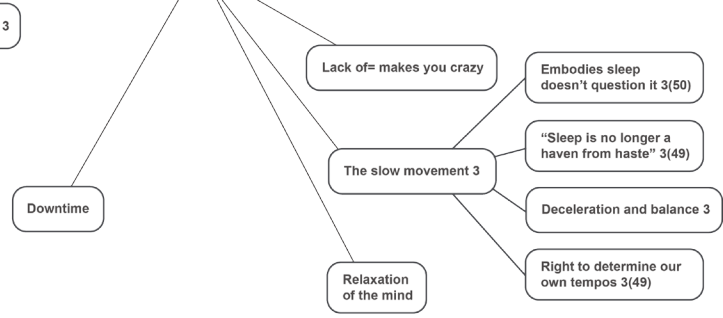
romantic notions of
scheduling, sleeping posed
significant moral and
political threats 3(89)

3

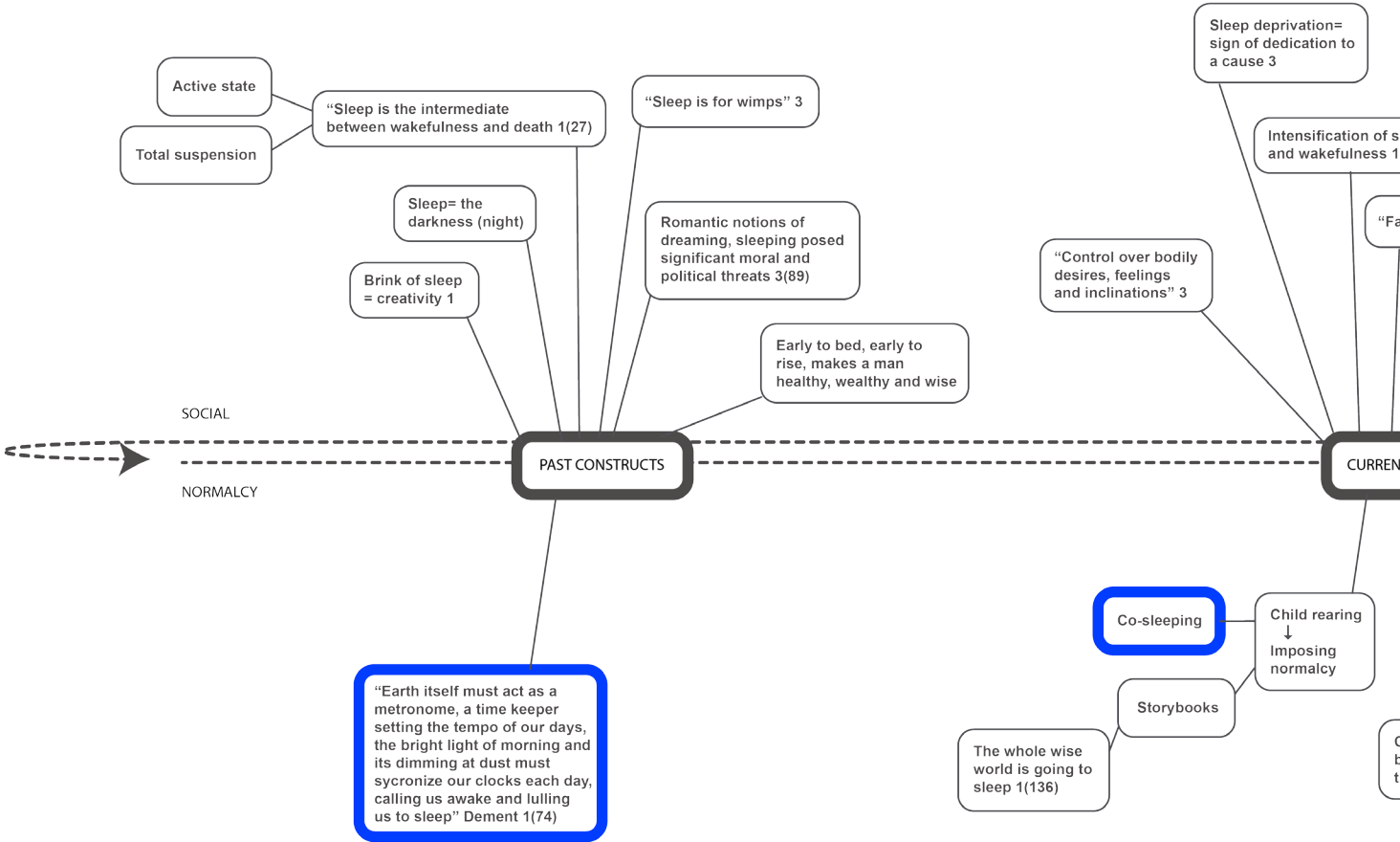
Sleep as: "preparation
for the performance of
everyday roles"

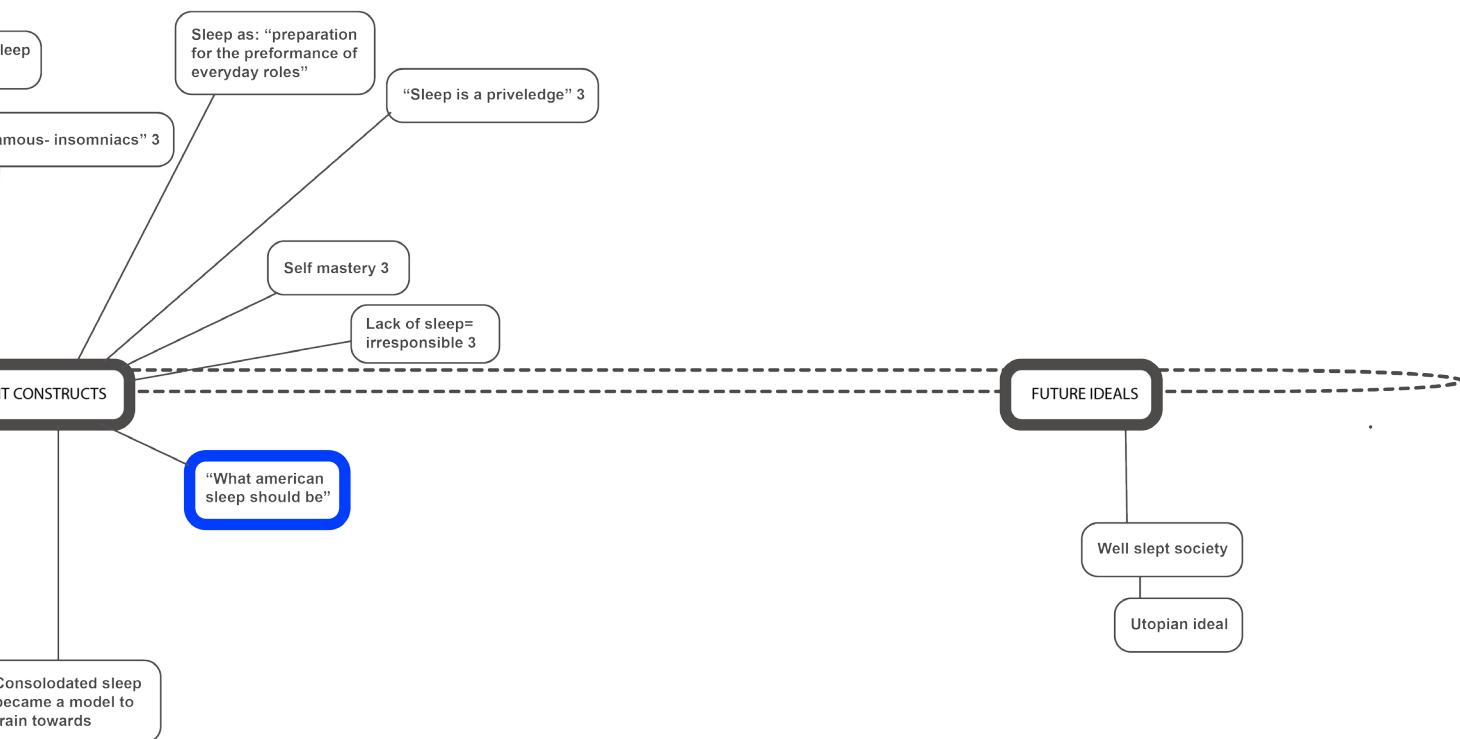


WELLNESS

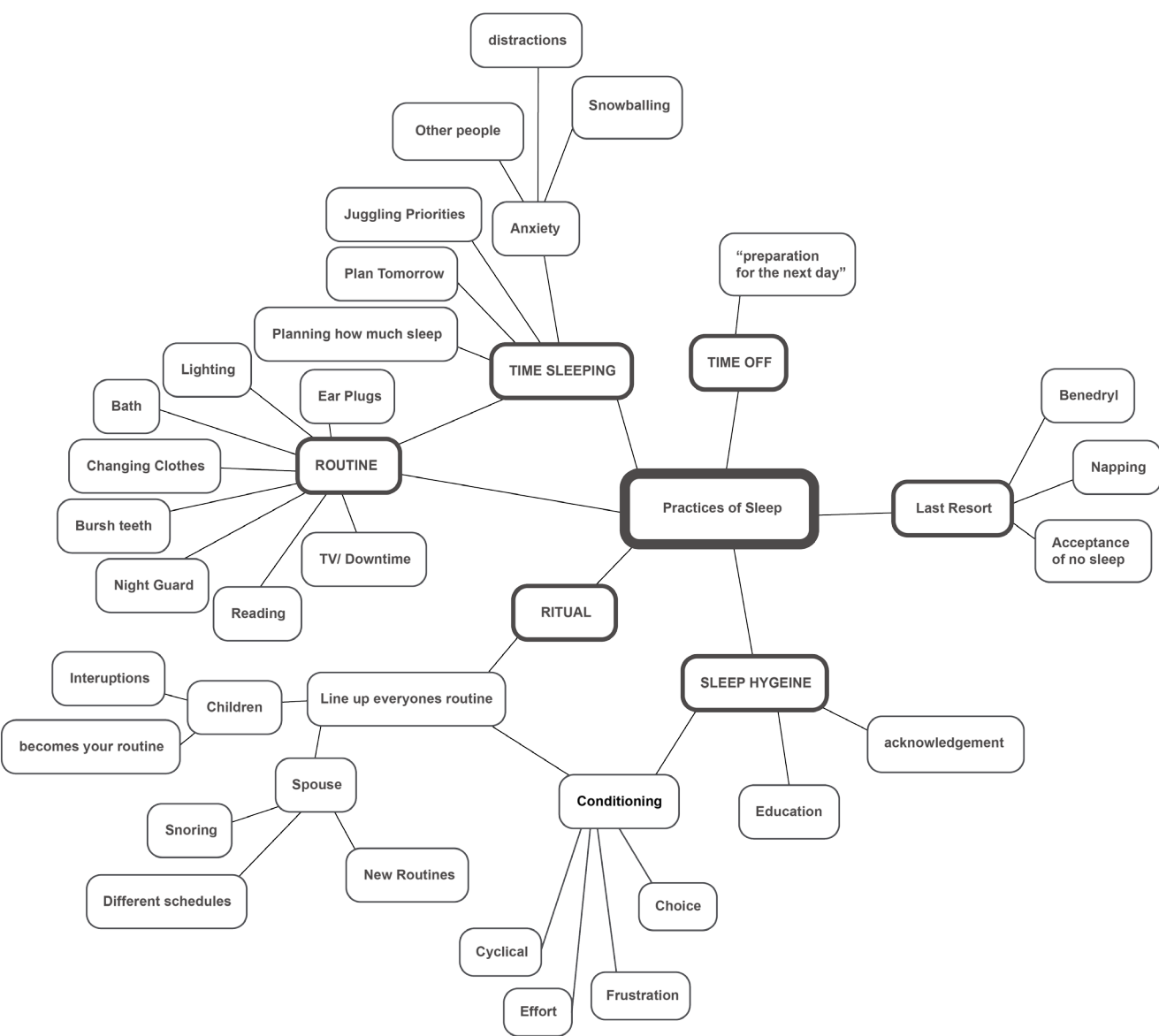


Appendix C: Social Constructs Relating to Normalcy Ideals





Appendix D: Practices of Sleep



Appendix E: Personal Artifacts of Sleep



Appendix F: Framework Personas



THERAPIST	
MOTIVATIONS	"A Person is actually dealing with your issues."
	"If a person, you would have to interact, it would be more helpful."
	"It would be nice to have someone give affirmations."
	"If you are married, therapy is built in."
CONCERNS	"I am very aware of other peoples emotions."
	"It's another interaction, you dont know what they are thinking."
	"Are they listening? Do they actually care? What are they thinking?"
	"When I talk about what I am thinking, it makes more feel vulnerable and makes me more anxious."

OBSERVER	
MOTIVATIONS	"I would love it if when I walked into my bedroom, that would be the signal to dim the lights"
	"Maybe someone is watching remotely and can turn on background noise if it looks like I am about to wake up"
	"Maybe there is some sort of check in- ie sensors in the bed"
	"Someone is watching my history and lets me know I should sleep more"
CONCERNS	"There would be a person who can put eyedrops in my eye before I wake up"
	"If I only knew them from when I was sleeping it would be really weird"
	"Random person in the house is intruder zone- maybe over skype is better"
	"Some sicko that likes to watch people sleep"

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