

DESIGNING WITH ANIMISM

EVOKING NEW MEANING IN EVERYDAY OBJECTS FOR
REFLECTION ON OUR RELATIONSHIP WITH THINGS

Written by JIYOUNG KO



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ABSTRACT

DESIGNING WITH ANIMISM:

Evoking New Meaning In Everyday Objects For
Reflection On Our Relationship With Things

*KEYWORDS: Animism, Poetics, Design for Experience, Aesthetics
in Use, Rich Interaction, Expressivity, Form Language*

As technology becomes increasingly intelligent and pervasive in the physical context of daily life, it is crucial to consider the design of technological artifacts to develop new interaction paradigms that can expand technological capabilities, shape behaviors, establish new practices, and broaden our worldview.

This thesis proposes using principles of animism to inform the design of interactive objects as a way to encourage people to reflect on their relationships with the world around them, and to perceive objects beyond their roles as mere tools or ephemeral fashion products. Animism, as a design metaphor, can be powerful in creating expressive, affective, and empathetic interactions with interactive objects. *Through the use of behavioral, physical, and social metaphors, an animistic object can communicate in a more nuanced way with its changing form and behavior within a given context.* An animistic object can connect in multi-sensorial ways to provide an individual and idiosyncratic experience, which can afford one to construct new meanings with their surrounding objects and re-form their relationship with them. Animistic objects aim to create a poetic dialogue between themselves and their humans, fostering a deeper relationship that surpasses their utilitarian and aesthetic value. The goal of this thesis is to define animism in the context of industrial and interaction design, examine dimensions of animistic qualities, and evaluate implications of animistic objects in building rapport between human and artifacts.

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PART 1 / INTRODUCTION

“Considered as an operator acting in relation to the daily environment, the designer’s ultimate responsibility can only be contribute to the production of a habitable world, a world in which human beings do not merely survive but also express and expand their cultural and spiritual possibilities.”¹

- Ezio Manzini, *Prometheus of the Everyday*

1.1 BACKGROUND

Over the past decade, the border between digital and physical dimensions has been rapidly disappearing with the advent of technology such as the “Internet of Things” (IoT). The IoT technologies allow everyday objects to be connected to the internet and create a network among themselves. The IoT market is expected to reach \$1.7 trillion in 2020² and more than six billion devices³ will have access to the internet. As the market interests are growing to expand into the everyday home setting (through products such as thermostat, personal assistant, among many others), these artifacts with “intelligence” are increasingly getting pervasive in the physical context of households. The shift from communicating static information (single level) to

dynamic information (multiple levels) differentiates these objects from the traditional artifacts of industrial design. As the technology progresses, these objects will build a better understanding of the users’ contexts, intentions, and nuances. With such knowledge, these objects will have a greater agency, which may enable them to proactively initiate interactions with users. As these objects take on more dynamic qualities, we can start to envision a more lively and natural dialogue between the technology and the human in the physical context. With this trajectory in mind, it becomes critical to consider the design of such artifacts, evaluate opportunities presented by the technology, and reflect on implications of current and future design practices.



Figure 1: SmartHome IoT Gadgets, HMG Journal



Figure 2: Hiroshi Ishii, "Music Bottles"

A quick survey of currently offered market products suggests gaps and missed opportunities in designing interactive artifacts that operate across the digital and physical realms. The gaps appear in three ways: cognitive overload, detached experience, and social criticality. First, many of current intelligent products heavily rely on the cognitive ability of the users. Often, these products are manipulated with screen-based interfaces (Fig.1). Consequently, the physical artifacts placed in the environment merely serve passive roles such as sensors, encasing shells for screens, or buttons to control simple tasks. Researchers have found that interactions mediated solely through graphical user interfaces (GUI) on screens can be cognitively heavy and contextually removed. Second, hermeneutic representations, such as numbers and data visualizations on screens, provide

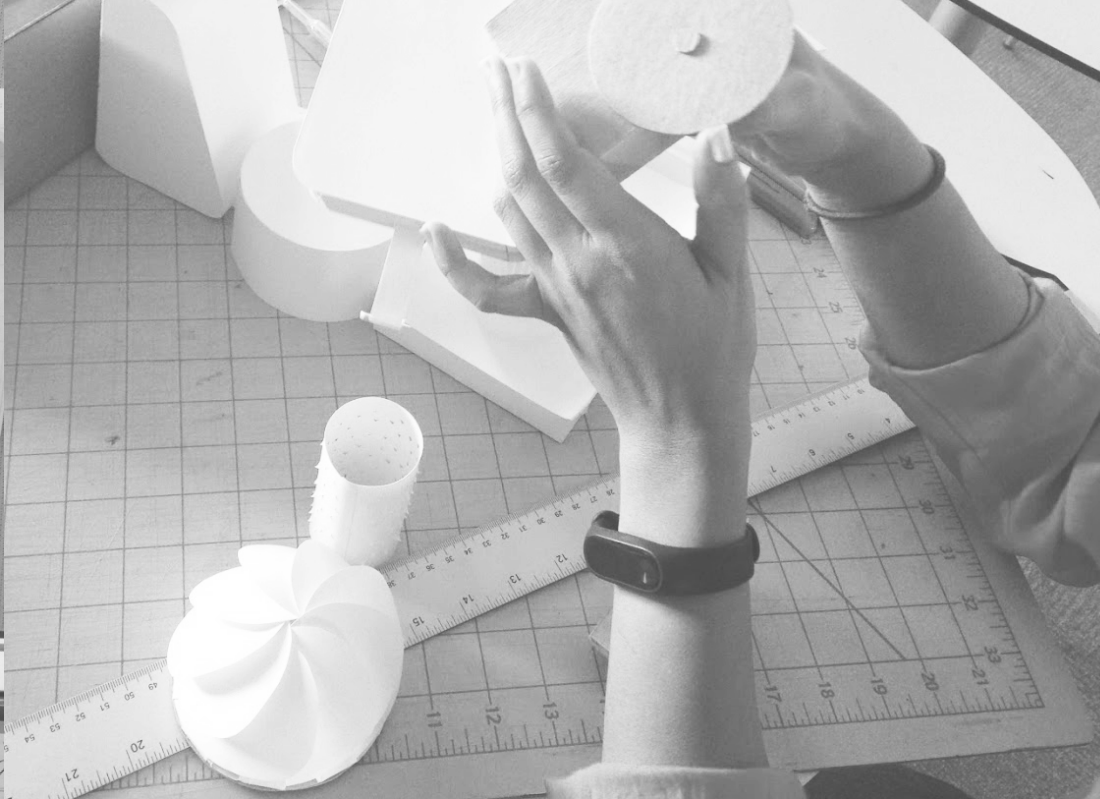
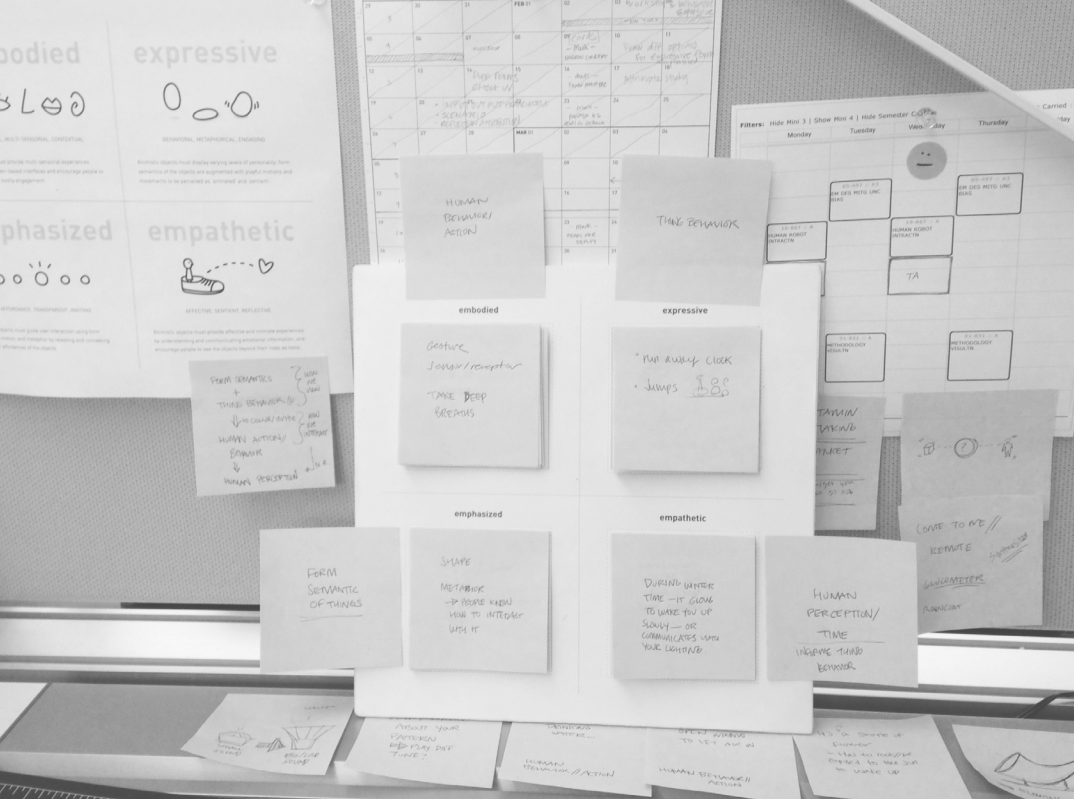
detached experiences due to their lack of connection to people's bodily perceptions. "Artifacts help to shape human interpretation of reality not only because they play a role in interpretive frameworks, but also because of their role in sensory perception, which determines the very possibilities human beings have for interpreting reality."⁴ As the interaction with these intelligent artifacts is mainly limited to screen-based interfaces, there seems to be missed opportunities in utilizing sensorial perceptions that bring richer engagement. Third, a screen focused interaction hinders people from having rich engagement with their environment and from reflecting on their relationship with the world. In *What things do*, Verbeek writes about Borgmann's concept of *focal things and practices*—"ways of dealing with the world that are characterized by engagement."⁵

Borgmann believes that, with products that do not encourage our bodily engagement with the world, people are prevented from building a meaningful relationship with the world. "[The technological objects] diminish people's engagement with each other and with the world around them."⁶ Current design practice with its focus on delivering speed and convenience seems to further promote consumptive behaviors, priming people to look for easier and faster products without any moment of reflection.

In order to close the gap in digital and physical experience, many designers and researchers have strived to conceive a more rich and natural way of communicating with the artifacts in our physical context. Paul Dourish, known for his work in Human-Computer Interaction, advocates for interaction between technological artifacts and human to be more phenomenologically delivered. In his book, *Where the Action Is*, he discusses philosophers such as Heidegger and Merleau-Ponty to examine an alternative way of crafting interaction between human and computer, which utilizes physical skills rather than rationality.⁷ Dourish coined this interaction approach as 'embodied interaction,' which emphasizes the natural practice of bodily skills over cognitive skills when interacting with technology. Similarly, Hiroshi Ishii from MIT's MediaLab stresses that designers should leverage what humans naturally do in the physical world. "Humans have evolved a heightened ability to sense and manipulate the physical world, yet the digital world takes little advantage of our capacity for hand-eye coordination... However powerful, GUIs are inconsistent with our interactions with the rest of the physical world."⁸ A classic example from MediaLab that demonstrates his philosophy is Music Bottles (Fig.2). In this project, the metaphor of lid is used

to naturally guide user's interaction with the physical artifact. Realizing the limitations of GUI, designers and researchers have considered interfaces that are more grounded in the physical context through tangible artifacts. Yet, little focus has been given to implications of richer engagements between physical artifacts and people beyond the pragmatic value in minimizing cognitive load.

This thesis proposes using principles of animism to inform the design of the interaction with objects as a way to encourage people to reflect on their relationships with objects around them. With the rise of intelligent artifacts that can adapt, learn, and response to the human, we can envision introducing the nuanced semantics in designing interaction with such artifacts. We now live in a world where the interaction with things will no longer be held in static forms. Within the framework of animism, the dynamic fluctuation of data can be expressed through the form and movement as a 'behavior' of an interactive object, where the object can start to react, respond, and modify itself over time. Moreover, animism can offer a lens to move away from the current attitude of designing artifacts for consumption. The design practices focusing on providing convenience, commodities, and ease, promote consumptive behaviors, which may ultimately lead to an unsustainable future. By focusing on the quality of dialogue between people and objects, designers can start to address something that is beyond the issue of functionality and create a deeper relationship between the objects and humans that surpasses its functional and aesthetic value. •



1.2 DESIGN APPROACH

The thesis went through four main stages: exploration, definition, experimentation, and reflection.

EXPLORATION

In ‘exploration’ stage, I wanted to build a foundational understanding of the artifact-human interaction in the context of industrial design and interaction design as well as design philosophies. I conducted comprehensive literature reviews covering related topics such as philosophies of technology, product ecology, speculative design, embodiment, ethical aesthetic, movement-based design, affective design, dematerialization, etc. Also, by surveying currently offered products, I was able to understand various qualities of the objects that make them animistic in different ways. Following a design approach of ‘research through making,’ I created a series of paper sketches to study how various form languages invite different types of engagements.

DEFINITION

In ‘definition’ stage, animism was defined for the context of my thesis. I categorized existing products to understand different animistic qualities that make objects to gain values beyond their roles as tools. Based on my understanding through form studies and product analysis, I was able to draw out a range of qualities that contribute to making an object to be perceived animistic. After assessing these different qualities and dimensions of animism, I identified four criteria of designing animistic objects; embodied, expressive, emphasized, and empathetic.

EXPERIMENTATION

In ‘experimentation’ stage, I applied the animism framework to a case study in the context of waking up. The project began with an exploratory research to understand general practices and attitudes within the given context; it involved various research methods such as interviews, generative workshop, love letter and break-up letter, and body movement studies. With the insight from the previous phase, I used previously developed criteria of animistic qualities to make a number of prototypes. They were shown to participants to receive feedback and to inform the design of the final object with balanced animistic qualities. To illustrate a day in the life with an animistic object, I made a walk-through scenario to demonstrate the experience.

REFLECTION

In ‘reflection’ stage, I used insights from the thesis process to reflect on the animism framework, and how they addressed the goals of re-evaluating how we perceive, interact with, and design things. I also shared dimensions of reflection that animism can elicit and how animism can add value to current design practices.

PART 2 / ANIMISM

Animism?
noun | an·i·mism | \ ' a-nə- , mi-zəm\
1: a doctrine that the vital principle of organic development is immaterial spirit
2: attribution of conscious life to objects in and phenomena of nature or to inanimate objects
- "Animism." Merriam-Webster.

2.1 ANIMISM AS A DESIGN METAPHOR

Animism as a design metaphor comes from examining the history of human-technology interaction. Assessing the development of interaction modes reveals that technology has progressed to be understood using more natural human skills rather than cognitive or knowledge-based skills. In *Where the Action Is*, Paul Dourish writes how computer interfaces have evolved to “[exploit] different sets of human skills.”¹⁰ Presently, with the advent of technologies such as artificial intelligence, machine learning, and natural language processing (NLP), things are starting to take a more active role in the interaction than ever before. As things are increasingly speaking ‘human,’ they are starting to be perceived as more ‘alive.’ With such qualities of liveliness defined as attributes of animism, how can they offer us the trajectory of where we are headed next?

In the early phase of “computers,” people needed in-depth technical knowledge in order to operate the computing machine (Fig.3). Prior to digital computers, these computing machines were manipulated mechanically through changes in circuits and hard components. Accordingly, interacting with computers required people to have high knowledge of the computer’s configurations mechanically. During this early stage, people had to speak the ‘machine.’

As computing machines developed, interaction moved to a text-based interaction utilizing people’s linguistic ability (Fig.4). Through the use of system-assembly language, various tasks of computers were conceptualized in a linguistic format, allowing people to instruct computers in a language closer to human’s,

which then were translated into the machine code for computers to understand.

The one-dimensional, text-based interaction moved into the two-dimensional space with the use of graphical user interface (GUI). In 1973, the Xerox PARC Alto —the first computer to use GUI — was introduced (Fig.5).¹¹ The concept of GUI utilizes real-world metaphors to allow people to draw from their knowledge of the real world. For example, when Apple announced its first iPhone in 2007, the graphic treatment of the phone employed a high level of skeuomorphism. Mimicking the real world counterparts, GUI on iPhone helped people to understand various functions and programs on the phone (Fig.6). Through GUI, computers started to leverage people’s understanding of the real-world context.

Then, the digital pixels started to move out of the screens through the tangible user interface (TUI). Using TUI, researchers and designers looked at how digital information can take its shape in the three-dimensional domain of the physical world. Mark Weiser, a scientist from Xerox PARC known for coining the term “Ubiquitous Computing,” envisioned a future where the technologies take any shape and form in the physical domain beyond computer screens.¹² A well-known design example employing TUI is Durrell Bishop’s “Marble Answering Machine” (Fig.7). In his design, the marbles act as physical manifestations of the voice messages that are left. Not only marbles act as visual representations for the number of the messages but also can be moved physically to play the voice messages that are embodied in the marble. With the concept of TUI, human-technology interaction allowed people to take advantage of their bodily skills to directly engage with digital information.

Today, the rise of many advanced technologies is making it possible for human-technology interactions to take various forms and modalities that are more human than ever before. Technological artifacts not only wait to be used but also proactively initiate interaction, displaying a sense of agency. Increasing interest in achieving Human-Machine Symbiosis¹³ is pushing designers and researchers to seek more natural and collaborative interactions between technology and human. For example, with NLP technology, humans can interact with technological objects through their most natural mode of communication, voice (Fig.8). Moreover, technologies such as artificial intelligence and machine learning are making it possible for things to learn about people and adapt their behaviors accordingly, making them act more appropriately to the environmental, social, and situational context.

It is evident that things are increasingly speaking ‘human’ and making themselves perceived to be more alive. With such lifelike qualities defined as animism, it can be a powerful theme to consider new roles interactive objects can play in everyday context, gauge future of human-technology interaction, and inform a new design approach in conceiving technological artifacts. •

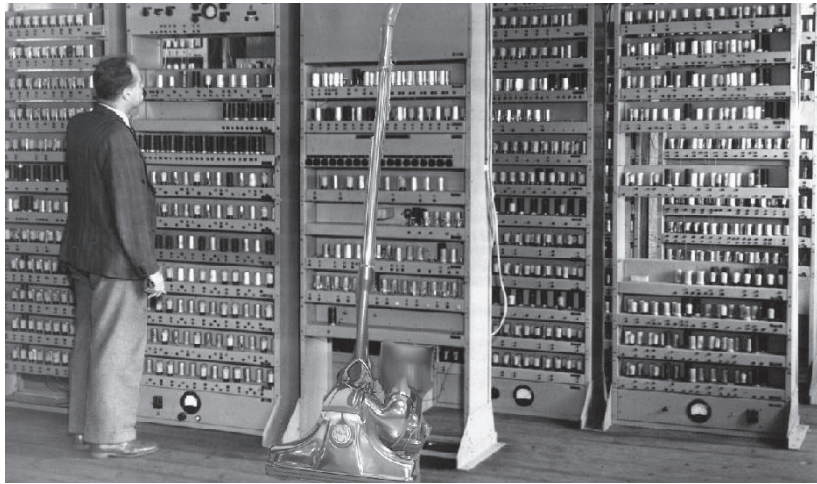


Figure 3: Early Computer

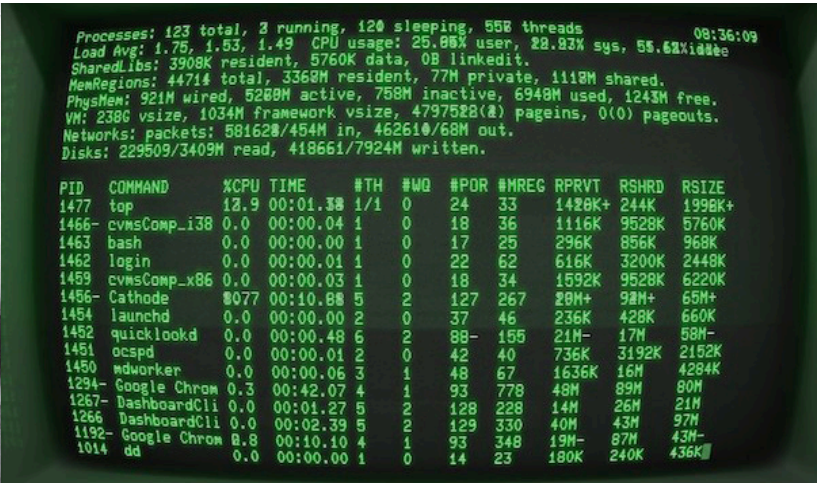


Figure 4: Text-based Interface

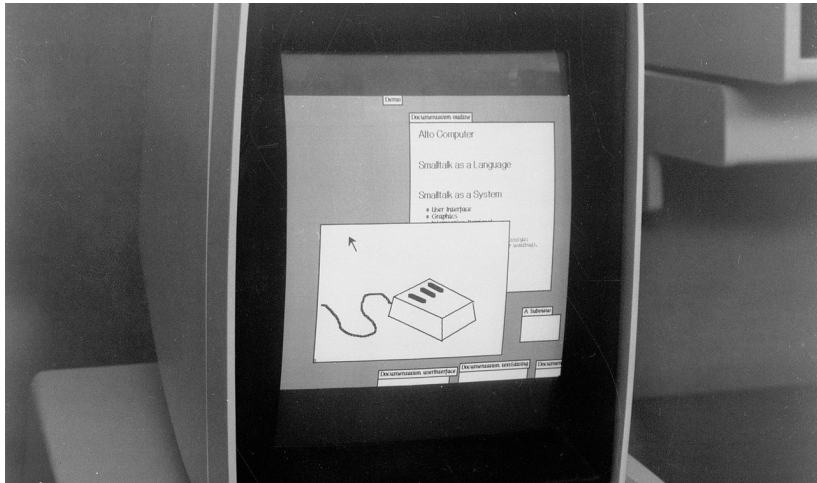


Figure 5: Xerox PARC Alto



Figure 6: Skeuomorphic GUI on iPhone

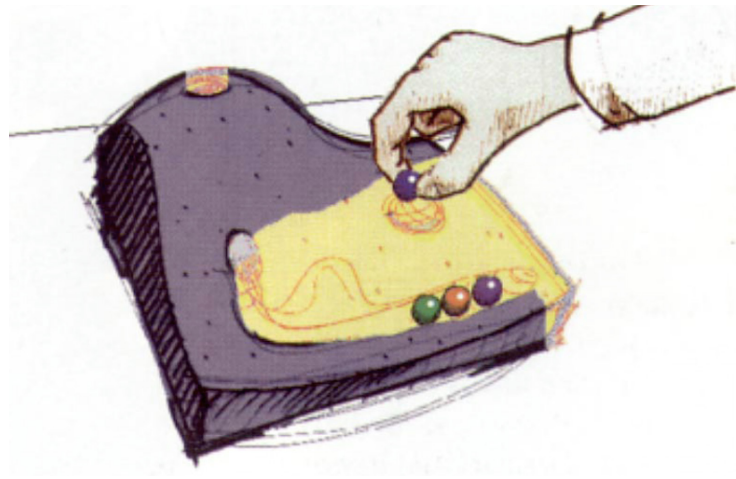


Figure 7: Durrell Bishop's Marble Answering Machine



Figure 8: Conversational Agent



Figure 9: "Aibo", the Robot Dog



Figure 10: "MEDi", the Humanoid Robot

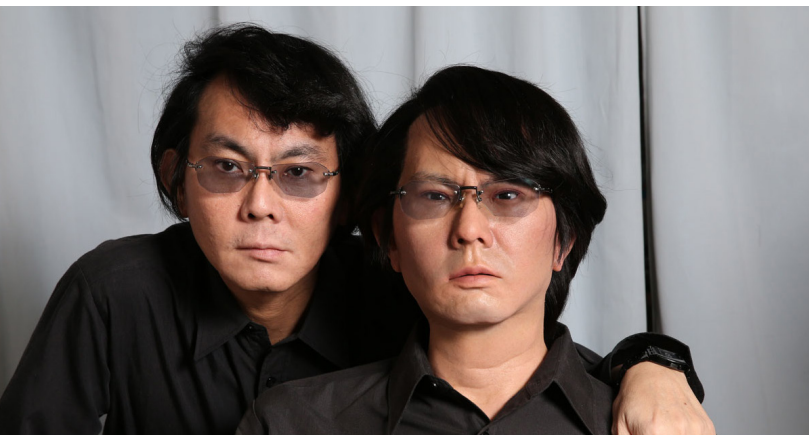


Figure 11: Hiroshi Ishiguro and Geminoid



Figure 12: "AniThings"

2.2 ANIMISM IN OTHER DESIGN CONTEXTS

Examining animism in previous design practices can inform how animism can be situated in the context of this thesis. The concept of animism has been considered in design practices in various ways. Animism has been explored in three main applications: as a way to (1) give the anthropomorphic appearance, (2) introduce unpredictability in a creative process, and (3) consider made artifacts as sentient beings.

(1) ANTHROPOMORPHISM

The most direct approach of applying animism in design is to make something 'look alive' by giving it an anthropomorphic appearance. Designers have used anthropomorphic design as a way to make products

more friendly and approachable. In a commercial setting, products use familiar human and animal attributions to appeal to broader audiences. This approach is also widely employed in designing social robots to increase trust and affection.

Although anthropomorphic design approach can be beneficial in some settings, there seem to be limitations to this approach as well. In 1999, SONY released a robot dog called Aibo (Fig.9); this robot dog was able to connect with the audience through mimicking a dog's physical appearance and behaviors. However, hasty adaptations of anthropomorphic characteristic pose a number of shortcomings. One of the well-known problems is Uncanny Valley¹⁴ introduced by Masahiro

Mori, a former robotics professor at the Tokyo Institute of Technology. Mori argues that people experience a sense of revulsion when encountering non-living things that closely resemble something living. That negative emotional response amplifies when a movement is introduced to the thing, due to the gap between the level of lifelike appearance and people's mental schema of a real living thing (Fig.11). Moreover, based on a number of interviews I conducted, there seemed to be an underlying discomfort and fear of non-living things replacing living things. While the anthropomorphic design method can be useful in forming an affective relationship quickly, the drawbacks suggest that borrowing human-like attributes can cause negative reactions.

Furthermore, when an object borrows its identity from another being, the resulting relationship between the object and human can be said to be 'inauthentic.' In *The Things That Matter*, Verbeek discusses that the attachment to the 'representation' of the thing, in contrast to the 'thing as a thing', calls for a premature disposal of the object. "Such a product could be replaced by any other product with the same nonmaterial quality. The attachment these products evoke does not concern the products themselves, but only the ideas they embody."¹⁵ As the thing's value resides in its symbolic status, the thing merely becomes a carrier for the idea and something that can be easily exchanged.

(2) SOURCE OF UNPREDICTABILITY

Recently, Betti Marenko, a researcher from Central Saint Martins, and Philip van Allen, a professor at Art Center College of Design, have considered animism as a way to interrupt currently linear and predictable interaction paradigm.¹⁶ They argue that animistic behavior can be

used as a source of ambiguity in digital experiences to move beyond predictable interactions. They see the animistic behavior especially valuable in a creative setting to achieve a new sense of human-computer collaboration, where the artifact's aim is to disturb, not to assist, providing unexpectedness to challenge and reconfigure designer's preconceptions.

Their project, *AniThings* (Fig.12), introduce a set of small devices, where each artifact has a distinct personality and goal to disrupt the design process. The devices, consisting of screens encased in various forms, are placed on the designer's desk. When the designer asks the devices to assist her with the research, each artifact provides mixed results based on its personality. For example, one device will search for the latest information while the other will look for historical references for the same topic. By doing so, *AniThings* seeks to digitally augment the creative process by presenting alternative possibilities beyond what is expected.

While *AniThings* presents value in introducing animistic behaviors in digital experiences to move beyond the 'prediction-driven interaction,' a further exploration of ambiguous animistic behaviors in the physical domain may illuminate its potential value as design metaphor to surpass its productive role. What if the objects actively start the conversation? Are objects contextually aware of their environment? Do object know who and how you are? Do objects possess a single personality or does it change over time? How does non-linear interaction affect the human-object relationship? There are missed opportunities in considering animistic behaviors in designing interactions with physical artifacts.

(3) SENTIENCE IN MAKING OF
AND IN USE OF A MADE ARTIFACT

Elaine Scarry, a well-known theorist interested in material making, considers animism as embodied empathy in the process of and in use of designed objects. From her point of view, made objects reflect designer’s value and thinking; the making process of an artifact is grounded in the maker’s understanding of the other’s pain, and the maker’s care that has been put into the object becomes alive when the object is in use.

In Scarry’s book, *The Body In Pain*, she sees artifacts as an extension of the maker. A maker puts her care and understanding of human needs into the making of an artifact that, when in use, the artifact becomes an extension of the maker. “A perception about human sentience is, through labor, projected into freestanding artifact (chair, coat, poem, telescope, medical vaccine), and in turn the artifact refers back to human sentience, either directly extending its powers and acuity (poem, telescope) or indirectly by extending its powers and acuity by eliminating its aversiveness (chair, vaccine)”¹⁷ Even when the maker is not physically present, the artifact allows maker to be ‘present’ through the created artifact. For example, a designer of a smoke detector can be considered to be manifested through the designed smoke detector to keep people safe from the fire.

In the modern design practice so far, the notion of animism can be found in relieving people from their immediate pain or needs. Most of the time, these artifacts aim to ‘help’ and ‘better’ people’s lives by providing convenience and efficiency. Cameron Tonkinwise, a former professor at Carnegie Mellon University, argues that such artifacts are so successful at this that their

services are taken-for-granted.¹⁸ He advocates that there seems to be a need for a more critical approach to the practice of making things. Artifacts should be made not only to relieve people from immediate needs but also allow people to shift their practices and reflect on their relationship with things to move towards a more habitable future.

Examining various approaches of using animism in design practices suggest that there are underexplored opportunities in employing animism as a way to (1) allow things to gain value as a material thing, (2) explore value of ambiguous interactions with artifacts in the physical realm, and (3) move beyond providing convenience and ease of use. •

2.3 ANIMISM AS A LENS

This part presents animism as a powerful theme in providing new perspectives to our current relationship with things. The history of human-technology interaction development reveals that things are increasingly perceived to be ‘alive’ and playing more active roles in everyday lives. While the notion of animism has been previously used in various design practices to give lively appearances, incorporate intentional ambiguity in creative processes, and contemplate sentience in made artifacts, this thesis gives animistic qualities to everyday objects as a way to re-evaluate how we perceive, interact with, and design artifacts.

(1) RE-EVALUATING HOW WE PERCEIVE OBJECTS

Things with animistic qualities allow agency and intent of the object to be more visible. Although things are actively communicating their role in people’s daily lives today, they are still considered as mere instruments. The importance of overcoming the dichotomy between subject and object has been addressed by many well-known theorists in technology. Moreover, many researchers and designers have questioned implications of technological advancement in the future of our relationship with things. How can we start to question the role objects play in everyday life by applying animistic qualities to mundane objects?

Philosophy in Technology

The role of artifacts beyond their instrumental function has been considered by many thinkers and philosophers. According to Martin Heidegger, a philosopher known for developing the field of phenomenology, humans do not learn and interpret the world through reflection and

thinking, rather humans do it through their experience of the world. “In Heidegger’s analysis of ‘being-in-the-world’ things play an important role; indeed, in the form of tools they make it possible that relations between humans and the world come about.”¹⁹ The way human beings access the reality is in the form of *Gestell* (‘enframing’); technological objects shape everyday practices and ‘unconceal’ reality in a particular way. While phenomenology acknowledges everyday objects as touch points between human experience and the world, artifacts still play a passive role in this framework. To address this dichotomy, post-phenomenology tries to overcome the separation between subject and object. In the post-phenomenological framework, object and subject constitute one another, which allows a technological artifact to be interpreted beyond its role as a mere tool. Don Ihde, one of the most prominent thinkers of post-phenomenology, explains that artifacts play a crucial role in mediating the relation between humanity and the world. Through what Ihde calls ‘artifact intentionality,’ artifacts co-shape human experiences and practices. In this perspective, artifacts are interpreted beyond its function as mere tools to simply ‘reveal’ reality, but also actively shape reality.

Similarly, Bruno Latour, a well-known philosopher in technology, presents another view to overcome the subject and object dichotomy. In Latour’s framework, Actor-Network Theory (ANT), human and non-human are put on the same level of agency — both humans and non-humans are called actants. “In Latour’s vocabulary, no principled distinction is made between humans and nonhumans; all are actors, or actants, that are able to act, mediate, and influence.”²⁰ In ANT, artifacts have as much



Figure 13: Dunne & Raby, *Technological Dreams Series: no 1, Robots*

agency as humans and play a crucial role in shaping human practice. Similar to the post-phenomenological perspective, the technological artifacts play mediating roles in human actions influencing what people are able to do in the world.

With increasing animistic qualities in artifacts, things can actively communicate their agency. The line between subject and object is getting blurred more than ever before through the advancement in technology broadening possibilities of what artifacts can do. As things can now take a more dynamic and active role in mediating our experiences and actions in the world, it becomes crucial for us to evaluate their newly found capabilities.

Speculative Design

In design practices, the role of future artifacts has been primarily questioned by the field of speculative design. Through the use of design fiction, speculative design approach has critiqued pre-existing assumptions on current design landscape.

Speculative design presents possible future scenarios on our relationship with technology. In 2011, MoMA held an exhibition called *Talk to Me*, featuring technological artifacts that seek to communicate with their users in various ways. The exhibition acknowledged that technological things are getting more pervasive in our lives and suggested scenarios of possible futures we are headed toward. One of the displayed artifacts

was Dunne and Raby’s *Technological Dream Series, No 1: Robots* (Fig. 13), which speculated on our future relationships with post-optimal products. Dunne and Raby are known for proposing speculative design as a way to critically question current practices and possible futures. Through fictional narratives supported by highly polished products, speculative design opens up a conversation to consider what it means to live in various imagined future scenarios and to reflect on our roles in moving towards or away from such futures.

However, there seems to be a need for taking speculative design out of the gallery setting and situating it in everyday contexts. While speculative design encourages people to challenge their assumptions and practices, works of speculative design are usually situated in a rather solemn future scenario detached from everyday context.

With fast developing technology, things are gaining more agency in co-shaping our daily practices and worldview, and many designers and researchers are starting to ask questions about future relationships with these highly ‘living’ things. While speculative design provides perspectives to reconsider our relationships with things, it has been criticized to be mostly confined to gallery settings. As we recognize the crucial role artifacts play in mediating our daily practices, we can start to envision various future relationship we will hold with everyday artifacts around us. In the light of this, animism can be a powerful metaphor for positioning and understanding the dynamic relationship we will have with objects that are becoming more active in our interaction with them.

(2) RE-EVALUATING HOW WE INTERACT WITH OBJECTS Animistic qualities in things can shape our interaction with things to be more nuanced and subtle. Interactions with smart objects are currently often heavily skewed towards screen-based interactions to leverage flexibility and malleability of GUI. Consequently, the physicality of the thing is often static and takes a passive role in the conversation. As interactive objects start to communicate more dynamically and proactively, animism as a theme opens up potentials in designing richer engagements between human and objects through expressive forms, behaviors, and interaction modalities.

As the digital information is increasingly communicated in physical space through interactive objects, many researchers and designers have explored ways to make the digital experience to be more grounded in the physical domain. The concept of TUI is widely known; TUI focuses on making data graspable and manipulable through physical manifestations. Then, a number of industrial designers questioned and explored new ways for the physicality of artifacts to not only embody data but also guide interaction with the presented data. One of such designers, Joep Frens, then a Ph.D. student at Eindhoven University of Technology, proposed Rich Interaction as a new design paradigm to design interface for interactive objects.²¹ While Rich Interaction builds itself from TUI, it further explores how expressive forms can present possibilities for bodily actions during stages of interaction with things. Rich Interaction framework considers various physical affordances that arise during interaction phases (Fig.14). Another designer, Philip R. Ross, also a Ph.D. student from Eindhoven University of Technology, looked at behaviors of an object and how they invite interactions more actively.²² In his case study,

Ross designed a behaving lamp; through the movement of fluid light within the translucent casing, the lamp actively encouraged people to engage with it (Fig.15). With these approaches in mind, this thesis is inspired by how living things communicate through nonverbal cues such as gesture, posture, and spatial usage. Animism can inform how to integrate form, behavior, and interactivity to allow objects to express their intent through dynamic form and behaviors — their body language.

Although previously discussed approaches concern themselves with leveraging people’s motor-perception skills, the use of broader sensory perceptions seems to be underexplored. Maurice Merleau-Ponty, a renowned philosopher of phenomenology, stresses the importance of bodily experiences. In his book, *Phenomenology of Perception*, Merleau-Ponty focuses on sensorial perceptions. “The body is the vehicle of being in the world, and having a body, for a living creature, to be involved in a definite environment, to identify oneself with certain projects and be continually committed to them...I am conscious of the world through the medium of my body.”²³ According to Merleau-Ponty, our bodily experiences, such as the act of touching, picking up, and smelling, shape our understanding of the world. In the animism framework, interactive objects communicate themselves multi-sensorially through a diverse set of interaction modalities.

In addition, animistic qualities in form, behavior, and interaction palette can inspire more playful and fuzzy interactions to bring higher engagement. As animistic object communicates its intent more expressively, it opens up potential for more playful interactions that may compel people to take some time and effort to engage

with the object. Bill Gaver, a professor of Design at Goldsmiths, University of London has advocated the value of playfulness. “We need to embrace an open-ended, self-motivated form of play. This is an engagement that has no fixed path or end, but instead involves a wide-ranging conversation with the circumstances and situations that give it rise.”²⁴ Through idiosyncratic behaviors and forms, an animistic object can spark wonder and curiosity, and allow people to freely interpret its intent to build their own narrative around it.

Often, the current approach of designing interactions with an interactive object seems to be confined to screen interfaces, which may create a gap between action and intent. Designers and researchers have recognized the disconnect and addressed it through various approaches such as TUI, Rich Interaction, and behavioral affordance. In addition to current methodologies, this thesis aims to use animism as a way to introduce design considerations for object body language, wider use of sensorial perceptions, and playful interaction. By doing so, animism provides a strategy to merge HCI and industrial design principles to inspire a more integrated design approach in designing rich engagements with interactive objects (Fig.16).

(3) RE-EVALUATING HOW WE DESIGN OBJECTS

Animism can provide alternative perspectives and attitudes to shift design practices that are currently focused on providing commodities, convenience, and ease. Today, we live in a fast-paced world, where things are perceived to have not much value beyond providing convenience. Our daily practices are shaped by the use of artifacts that mirror our worldview, cultures, and values. By re-evaluating how artifacts are designed and used,



Figure 14: Joep Frens, Rich Interaction



Figure 15: Philip Ross, Intelligent Lighting “Fonckel One”

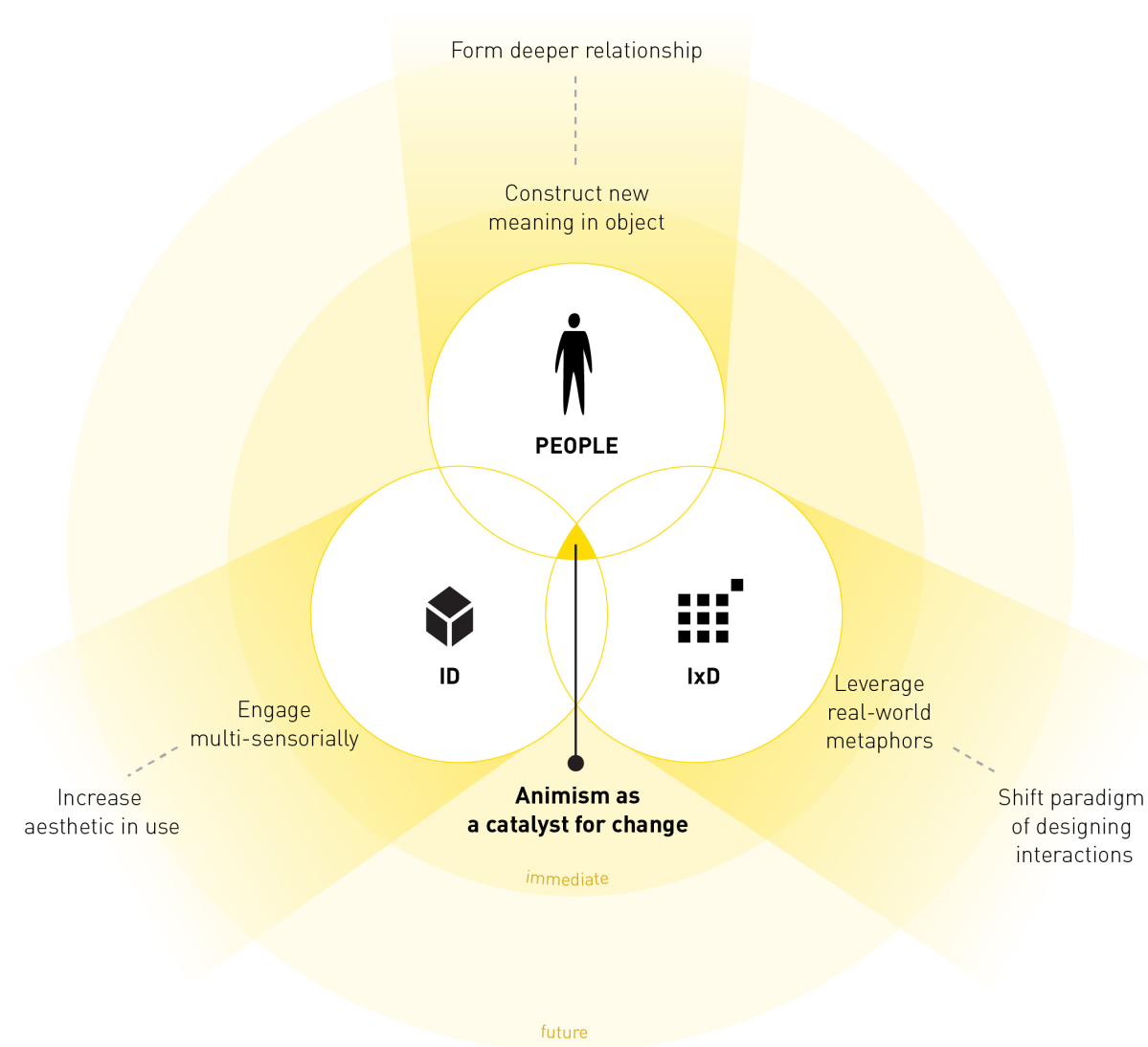


Figure 16: Animism Conceptual Map

designers can foster more sustainable and mindful behaviors. Thus, it becomes crucial for designers to set a stage for a moment of reflection through the design of artifacts. This thesis advocates that through the lens of animism, things may start to be seen as cohabitants rather than something to be easily disposed of.

In today's society, things are considered disposable and consumable. Many electronic devices reach landfill even before they become truly obsolete. The Environmental Protection Agency (EPA) reported that 3,140,000 tons of e-waste are generated annually, according to their most recent data point.²⁵ When things are viewed to exist to solely serve human needs, they can easily become replaceable and irrelevant in people's lives. Once things lose aesthetic, functional, or social value, they are discarded before their physical lifespan without much consideration. The current approach of designing things for efficiency and speed seems to promote people to consume faster and more. Such attitude not only commodifies human experiences but also can be detrimental to the environment. Designers need to shift their focus to take responsibility in creating products that can maintain longer lasting meaning in people's lives.

Ezio Manzini, one of prominent thinkers in design for sustainability, offers alternative views on objects as things to be taken care of — like trees in a garden. In his essay, *The Garden of Objects*, Manzini discusses a new quality to consider — object's meaning in people's lives as the new quality. According to Manzini, a designer's role exists beyond the service to the firm, but how she shapes the product with her own vision of the world. He proposes new considerations for objects, which

can connect to their environment — physically and semiotically. "Objects that... would be loved for how they are and what they do. Objects that would render a service and would require tending."²⁶ He argues that as people take care of their objects, similar sensibility can be carried towards the environment and the Earth.

This thesis aims to use animism to foster a new dialogue between people and things, to encourage people to appreciate things for their services, and to foster deeper relationships between the two. Animism can offer a moment of reflection for people to reconsider their sense of value and relationship with things. Designers touch upon corners of people's lives through their made artifacts. With designers striving to achieve the new quality, we may be able to move towards a more habitable future.

Animism can be a lens to re-evaluate our relationship with things by acknowledging the mediating role of artifacts, bringing richer interaction palettes, and offering alternative considerations for designers. •

PART 3 / DESIGNING WITH ANIMISM

3.1 FOUNDATIONAL RESEARCH

PRELIMINARY PRODUCT ANALYSIS

In this chapter, I aim to build a foundational knowledge of the design territory. In order to understand how the notion of animism can be observed in the currently offered product landscape, I conducted a preliminary survey of how objects can be understood through a lens of animism. I selected several products — both highly technical and non-technical — that people would use during their daily practices and evaluated their animistic qualities they might possess. The basis for assessing animistic qualities was roughly on their services, appearances, communication modes, and level of empathy in its use. For this quick survey, I chose to look at an umbrella, window shades, Maps—an application on a mobile phone, Roomba—a robotic vacuum cleaner,

and Amazon Alexa—a conversational agent (Fig. 17-22). From this product analysis, I learned that all products can be considered to be animistic in a way that they were made to serve our needs. The biggest difference between the highly-technical products and non-technical products is that highly technical products were more actively communicating the services they are providing whereas non-technical products seem to communicate it subtly through their form semantics, material choices, and posture.

RESEARCH THROUGH MAKING

In parallel with the market analysis, I made a series of paper prototypes to receive feedback (Fig.23-28). Through the making of prototypes, I was able to study



Figure 17: Window Shade
- Protective & Empathetic



Figure 18: Umbrella
- Protective & Caring

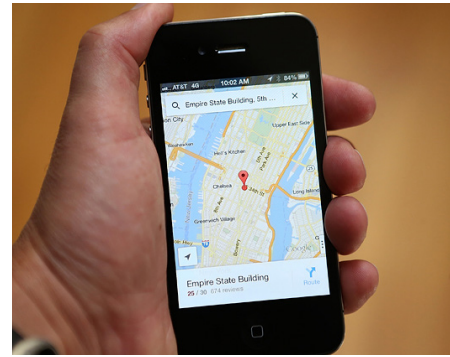


Figure 19: Maps Application
- Proactive (alert) & Conversational



Figure 20: Nest Thermostat
- Adaptive & Caring



Figure 21: Roomba
- Energetic & Helpful



Figure 22: Amazon Alexa
- Conversational & Responsive

how various form languages invite different actions and interpretations. The prototypes were presented to research participants, who were asked to explain what they thought each prototype was doing and how they might engage with each prototype.

From the session, I received a range of comments and feedback. Based on participants' sensitivity to form languages, some immediately responded and envisioned what the prototypes were doing while others took some time to communicate what they saw in the form. Although the interpretation of the prototype varied from one participant to another, it seemed that most participants were leveraging various metaphors to describe the prototypes. Many participants explained

reasonings for particular appearances of the prototypes. For example, in discussing the spiky texture prototype (Fig.23), one of the participants explained that the prototype didn't want to be touched because it was 'angry'. This participant deduced what the form semantic by assigning an emotional metaphor to the object. In a similar manner, for the round dome prototype (Fig. 26), another participant imagined that the form was concealing something valuable from the viewer — "is it hiding sweets in there?." Such comments revealed that there's a tendency for people to naturally make a connection between the form expression and its intent. Also, they envisioned the forms of the prototypes to be fluid rather than static, as if the prototypes were only showing a moment of their actions.

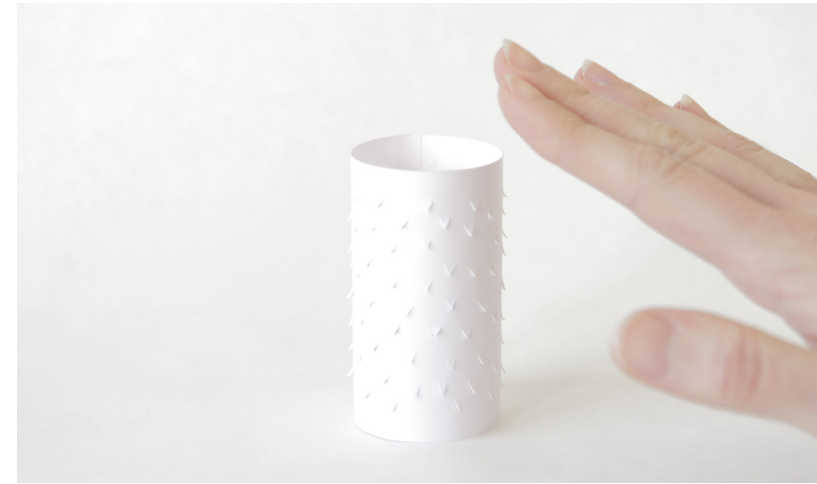


Figure 23: Spiky Texture ("Don't touch me!")



Figure 24: Cylinder with Long Cuts



Figure 25: Greeting Lamp

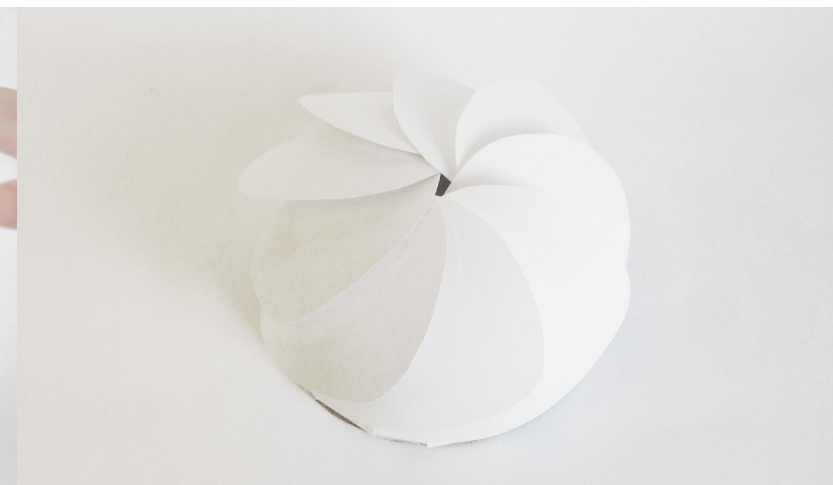


Figure 26: Round Dome



Figure 27: Opening and Closing Lens



Figure 28: Pinwheel

The level of familiarity in the form also seemed to affect the participants’ reactions to the object. When the object had a recognizable form, the participants knew exactly how to engage with it. For example, when the pinwheel prototype (Fig.28) was shown, most participants would immediately pick it up and swing their arms to spin it. Some participants didn’t express any interest in engaging with the object since they already knew what it did and opted to verbally explain how they would interact with it. Overall, there was less speculation on its intents or form expressions. When I asked participants to imagine fictional functions of the prototype, many had difficulty envisioning its function beyond its assumed role based on its appearance. In contrast, participants were more open to suggest fictional functions for prototypes with abstract forms.

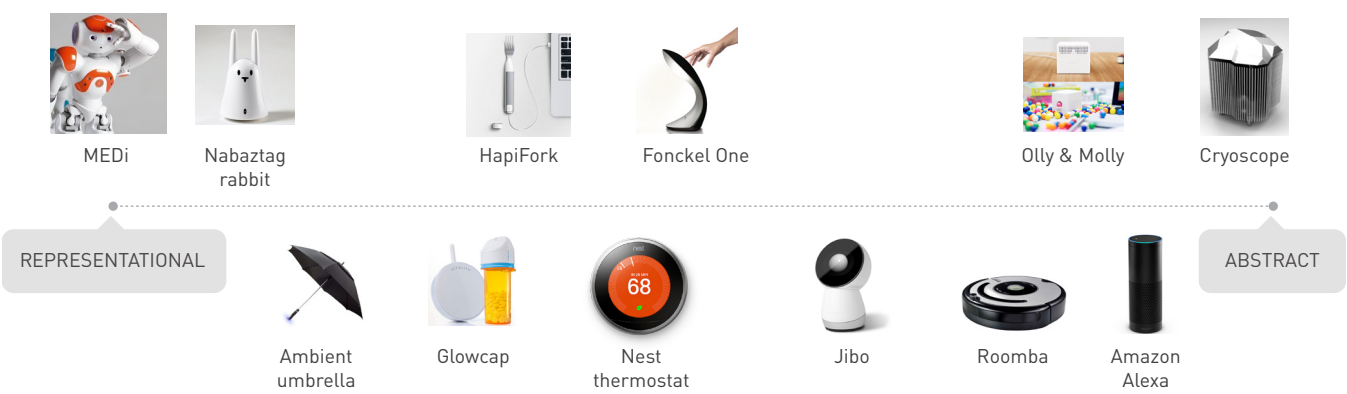
While recognizable forms seem to better communicate their intended functions, leveraging existing forms pose drawbacks as well. Eva Hornecker, a professor of HCI at the Bauhaus-Universität Weimar in Germany, conducted a study on how hasty adaptations of familiar forms can give a false affordance.²⁷ In her study, physical paddles were used as controllers for the interactions shown on the screen. The players assumed that they could use the paddles as they would in the physical world. However, as a controller, the paddle served a different purpose from a regular paddle, and the form used in the study did not address such shift. Since the form of the controller only suggested the function of a regular paddle, it did not clearly inform the difference in usage and behavior of the product when coupled with a digital medium.

Less familiar forms can be used to avoid giving false affordance. However, they can be less effective in

guiding interactions and easily lose the active role in the conversation. To address such issue, we can consider using motions and expressive forms to give new affordance to an interactive object. As I have discussed earlier, the aforementioned prototype research revealed that abstract shapes gave a wider room for interpretations. During the prototype feedback sessions, many participants came up with their own narratives to figure out how to engage with the abstract prototypes. In such narratives, participants envisioned the form of the prototype as a fluid element that expresses its intent. Based on the research observation, changing behaviors of an object expressed through its physicality have potentials in mediating user interaction. •

3.2 QUALITIES OF ANIMISM

Intelligent objects in the current market are plotted on various scales reveal emergent patterns. Products are assessed by five categories of animistic qualities; form (affordance and familiarity), movement and motion (behavior and perceived agency), adaptability (contextual awareness) and, maturability (temporal and emotional elements), and participation (use of various interaction modalities).

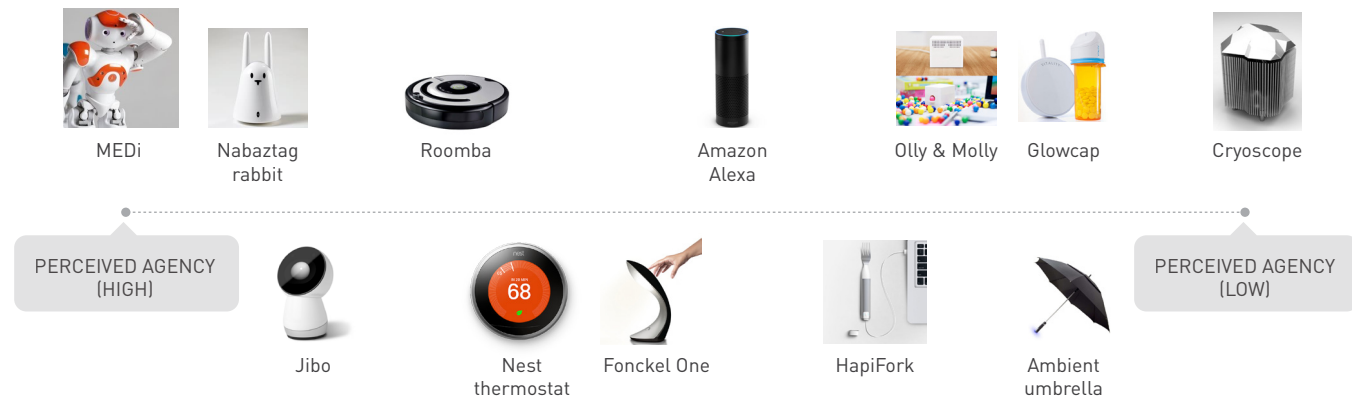


(1) FORM

Products are placed on the scale of representational (non-abstract) to abstract in term of their form. Anthropomorphic objects are at the end of the representational spectrum. When the form is highly representational, users can easily recognize its form and envision potential interactions to be more human-like. However, such representational forms can mislead users to have a higher expectation of the object’s capacity in communicating its intent. Objects with more traditional ‘product’ forms are placed in the mid-range. People

understand interactions with these products based on their previous experience with similar looking products or by the perceived and physical affordance provided by the form. Highly abstract objects are placed on the other end of the scale. The abstract forms may obscure the object’s functionality and affordance, and require a higher learning curve to use it. In many cases, when forms take on a more passive role in interaction, the provided services become the focus.

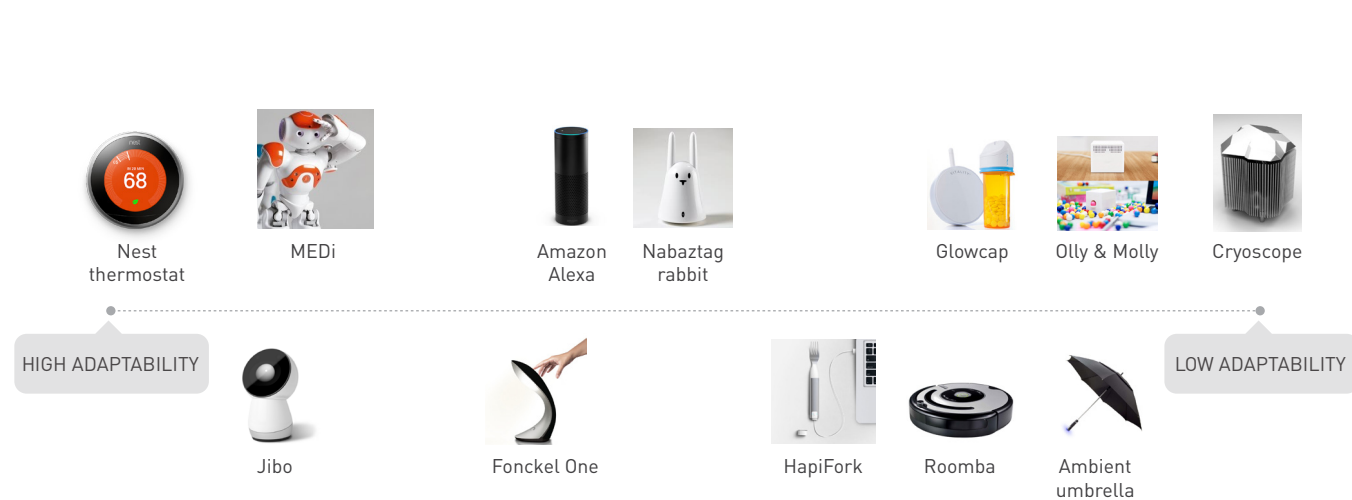
ABOVE IMAGES (from left): **Figure 29:** "MEDi", **Figure 30:** "Nabaztag Rabbit", WiFi Enabled Device, **Figure 31:** "Ambient Umbrella", Weather Forecasting Umbrella, **Figure 32:** "GlowCap", Connected Pill Bottle, **Figure 33:** "HapiFork", Smart Fork, **Figure 34:** "Nest Thermostat", Smart Thermostat, **Figure 35:** "Fonckel One", Intelligent Lighting, **Figure 36:** "Jibo", Social Robot, **Figure 37:** "Roomba", **Figure 38:** "Olly & Molly", the Web Connected Things, **Figure 39:** "Amazon Alexa", **Figure 40:** "Cryoscope", Touch-Based Weather Communication Device



(2) MOVEMENT & MOTION

Through the use of movement and motion, an object can communicate subtle information that cannot be conveyed through a static object, and encourage people to perceive artifacts as more ‘alive.’ The previous research on form languages suggests that movement and motion can play an integral role in communicating

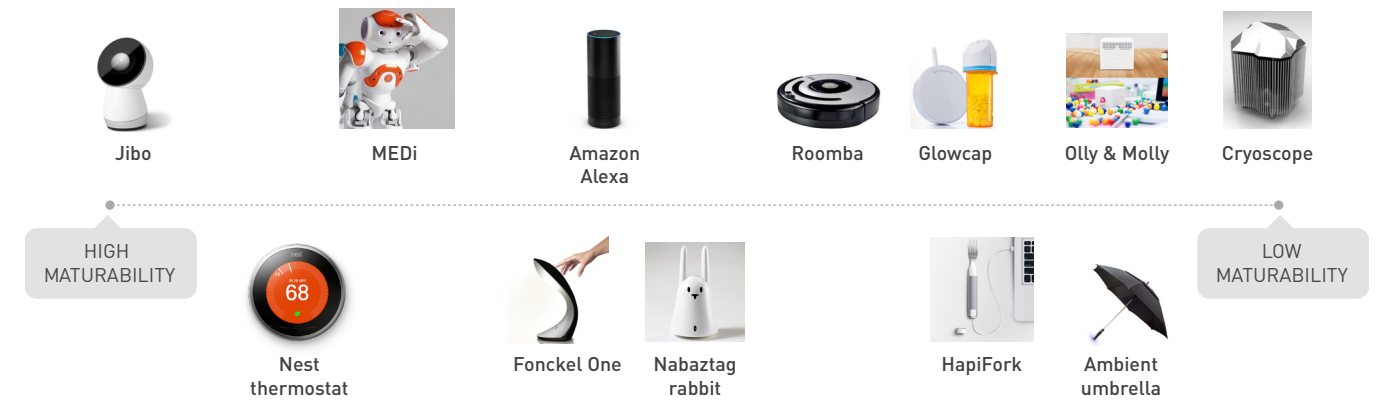
the object’s functionality and guiding interaction with the objects. However, when the movement and motion of the object do not satisfy the level of the livelihood assumed from its façade, the experience can quickly break and people will immediately notice the seam. Such gap can appear more easily from highly representational objects.



(3) ADAPTABILITY

An object is considered more animistic when it can sense and adapt to one’s changing context. When an object is able to learn about people and their environment over time, it can change its behavior accordingly to provide more empathetic experience. Such experience

acknowledges individual qualities (state of emotion, presence, pattern, daily routine, etc) as well as changes in the environment (temperature, body movement, noise level, light intensity, time of the day, etc.).



(4) MATURABILITY

Temporal elements can make an object perceived to be more animistic. Some artifacts gain value as it gets used over time. In non-technical objects, form-fitting and worn-in qualities in the material can be considered to be animistic. On the other hand, highly technical objects can

mature over time when paired with technology such as machine learning. As these artifacts gather information about you and surrounding environment over time, they adjust their behavior to provide varying experiences accordingly.

	MEDi	Jibo	Nabaztag rabbit	Roomba	Nest thermostat	Amazon Alexa	Fonckel One	Ambient umbrella	Glowcap	Olly & Molly	Cryoscope
SIGHT	●	●	●	●	●	●	●	●	●	●	
HEARING	●	●	●		●	●			●		
TASTE										●	
SMELL										●	
TOUCH					●		●				●

(5) PARTICIPATION

Multimodal engagements can communicate more rich information to allow an object to be perceived more animistic. The survey of current products reveals that there are underexplored opportunities for interactions

to move beyond sight and hearing, where the modalities of touch, smell, and taste can play more active roles. Such subtle and fuzzy interactions can spark curiosities to lead to deeper engagement.

3.3 CATEGORIES OF ANIMISM

Four categories of distinct animistic qualities that allow objects to gain meaning in people's lives to surpass their instrumental values.



SYMBOLIC
Artifacts with familiar and representational forms can leverage their friendly appearances quickly form bonds with people

EXPERIENTIAL
Objects with intuitive, embodied, and tangible interaction through bodily engagements provide rich and satisfying experiences



ACTIVE
Expressive behaviors through motions and movements increase perceived agency in the objects, encouraging people to see it as separate living entities

EMOTIONAL
Some objects gain sentimental and historical value through personal marks and narratives developed by extended use and commitment²⁸

ABOVE IMAGES (from top left to bottom right): **Figure 41:** "Aibo", **Figure 42:** "Nabaztag Rabbit", **Figure 43:** "Fonckel One", **Figure 44:** Violin, **Figure 45:** "Roomba", **Figure 46:** "Nest Thermostat", **Figure 47:** Leather baseball glove, **Figure 48:** "The History Tablecloth" by Bill Gaver

3.4 DIMENSIONS OF ANIMISM

Below diagram presents the wide range of qualities attribute in making an object animistic

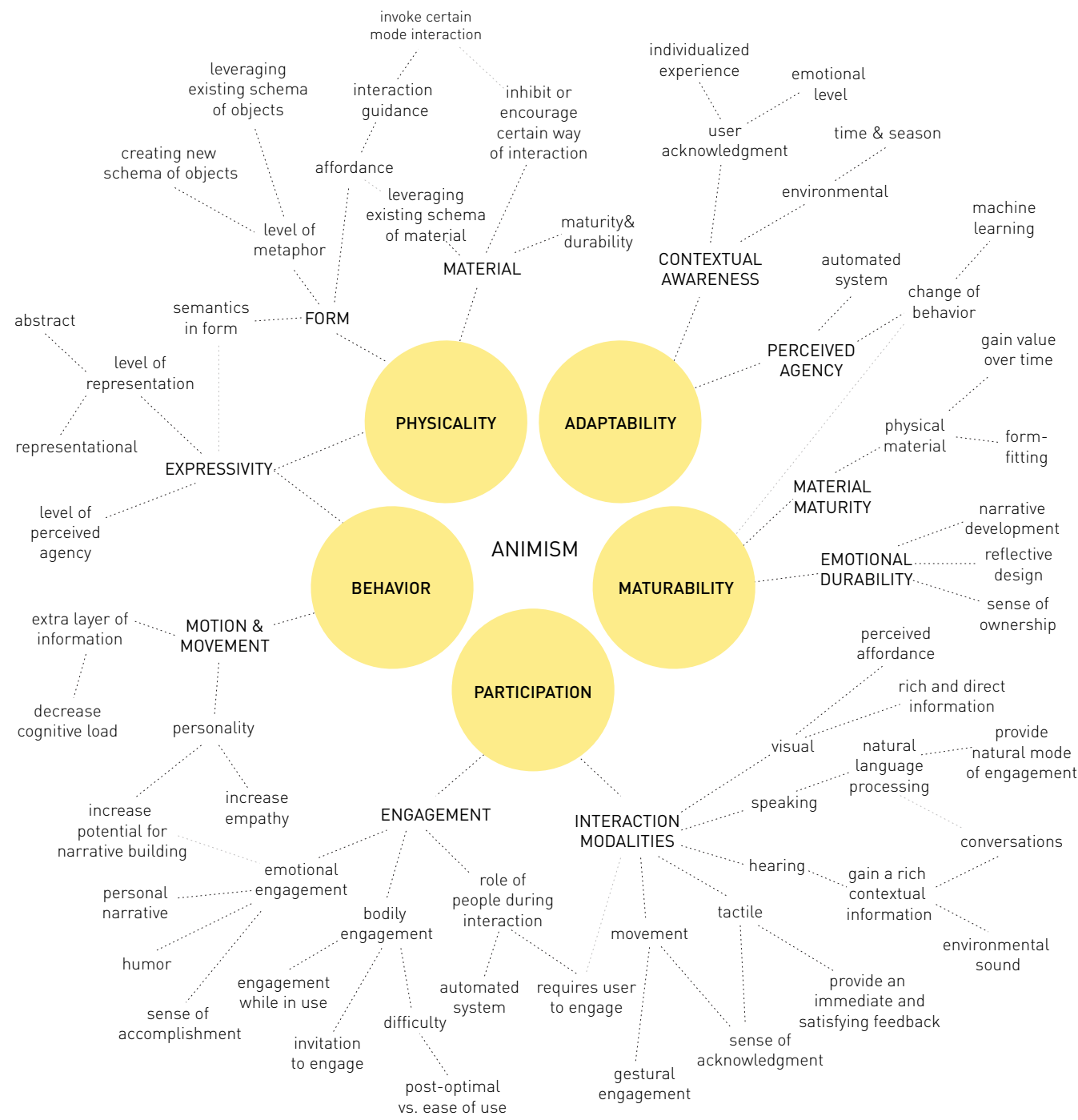


Figure 49: Dimensions of Animism

An animistic object communicates in a more nuanced and multi-sensorial way with its changing form and behavior through the use of physical, behavioral, and social metaphors to deliver integrated interactions.

3.5 CRITERIA OF DESIGNING ANIMISTIC OBJECT

Below shows the four design criteria to design animistic objects. An object with balanced embodied, expressive, emphasized, and empathetic qualities can be considered animistic.



Figure 50: Criteria of Designing Animistic Object

PART 4 / CASE STUDY

4.1 RESEARCH FOR PRODUCT APPLICATION

DEFINING TERRITORY

This chapter aims to contextualize the animism framework in a product application to study its implications in everyday practices. In applying the theory to practice, I was particularly interested in how an animistic object can re-shape a mundane and universal experience. For this case study, I decided to look at the context of waking up. The act of waking up is about transitioning from one state to another. However, the current way of being woken up seems rather binary and mechanistic. How might an animistic object offer a new experience of waking up through a nuanced multi-sensorial engagement?

EXPLORATORY RESEARCH

To start, I conducted exploratory research using several methods including interviews, contextual inquiries, and

workshops to build a general knowledge of the context. In order to better understand people's relationships and experiences with their everyday objects, I used the 'love letter & breakup letter' method (Fig.51). In multiple group settings, I asked each participant to write one love letter and one breakup letter to any product or experience within their context of waking up. To better facilitate the workshop, all participants were given printed letter templates to write their letters on. Once the letters were written, the participants took turns to read their letters aloud to share with the rest of the group. I was able to better understand the participants' values and feelings from their non-verbal cues, such as tone of voice, hand gesture, and body posture.

The exploratory research revealed three main insights: (1) The experience of waking up is naturally associated

with multi-sensorial information. Many participants brought up how smell of coffee or bacon elicited the idea of morning. Some talked about tactile qualities such as the warmth and soft textures of blankets.

(2) People wanted to things to be aware of their contextual needs and accommodate accordingly. Few participants, who typically sets multiple alarms in the morning, wished that their alarms knew that they were already out of the bed and didn't make the sound.

(3) Some participants were resentful that their mobile phones were last and first thing they interact with before sleeping and after waking up.

GENERATIVE WORKSHOP

To gain further insights, I decided to do generative workshops. Prior to the workshop, I conducted a general interview about the experience of waking up. I asked participants to share their most recent waking up experience from that morning and to recount their steps. Participants also shared their ideal and less ideal experience of waking up. Following the interview, participants created an imaginary 'experience' or 'product' that would make their waking up experience more ideal. The abstract visualization with colorful blocks and building elements allowed people to express their ideas more creatively (Fig.50). Once the fictional products were created, I asked participants to name their products and to pitch their concepts to me.

Although many participants considered gentle and slow waking up as an ideal experience, some expressed that abrupt waking up is also necessary depending on their daily needs. While few participants said that they 'preferred' abrupt and startling waking up experience during the initial interviews, the generative exercise

revealed that they didn't think to put the quality of waking up as their priority because it was crucial for those participants to wake up on-time. However, they mentioned that it would be ideal if they could achieve both the quality and waking up at the same time.

MOVEMENT STUDY

Additionally, in order to study how people understand and use body languages, I conducted bodystorming sessions. Nonverbal communication cues play a crucial role in human-human communication. I was interested in how an object can start to communicate its state through its body. I asked each participant to take either a role of an object or the user. For the participant who acted out an object, I asked them to use their body to express the object's function and how they would guide people's interaction using various body movements and postures (Fig.53). The participants with the role of user had to explain aloud what they thought the 'object' is doing and demonstrate how they would engage with the object through its interaction stages. The participants seemed to associate closed body posture (e.g. crouched down) or standing still without any movement as a passive state. When expressing the object in use, more open movement and posture were used; people used bigger motion and movement to showcase rising intensity in its function. Since the objects were played out by people, it was natural for the participants-as-users to treat the participants-as-objects as a living thing. Such perception encouraged the participants-as-users to engage with the participants-as-objects more affectively and empathetically (e.g. patting the head, using a soft voice, etc.). •

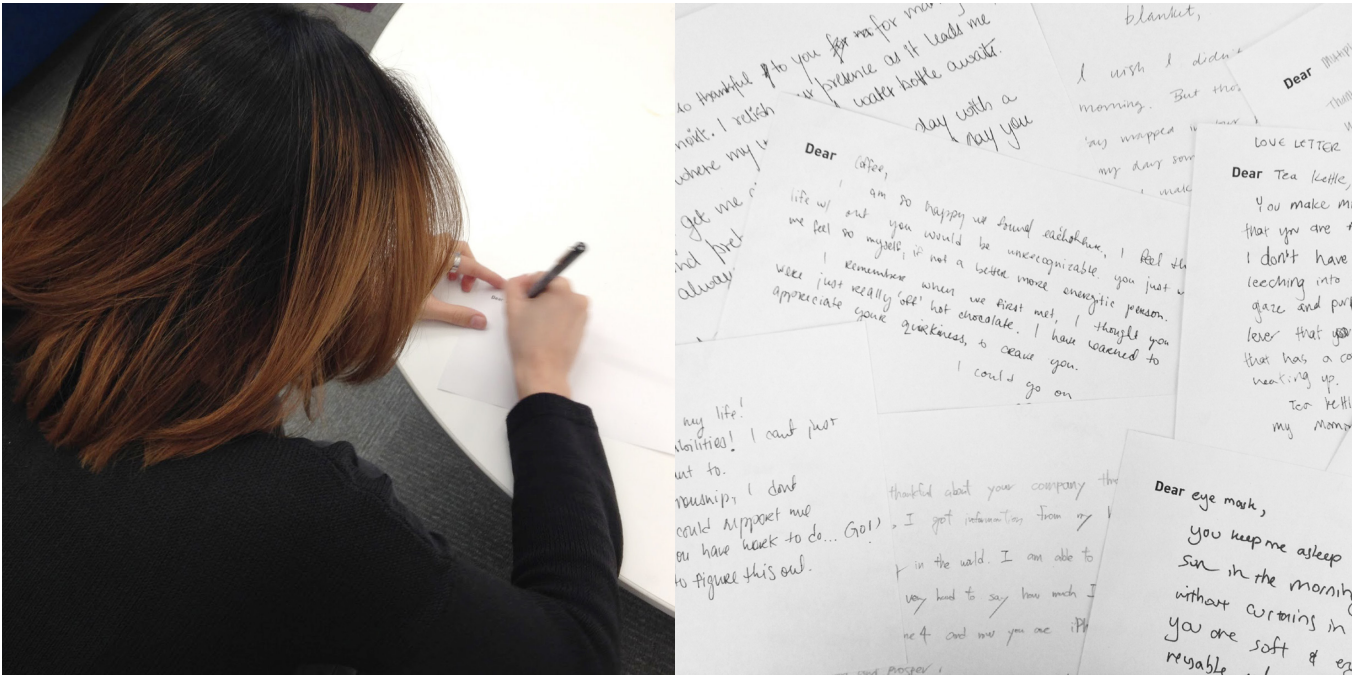


Figure 51: Love Letter & Breakup Letter

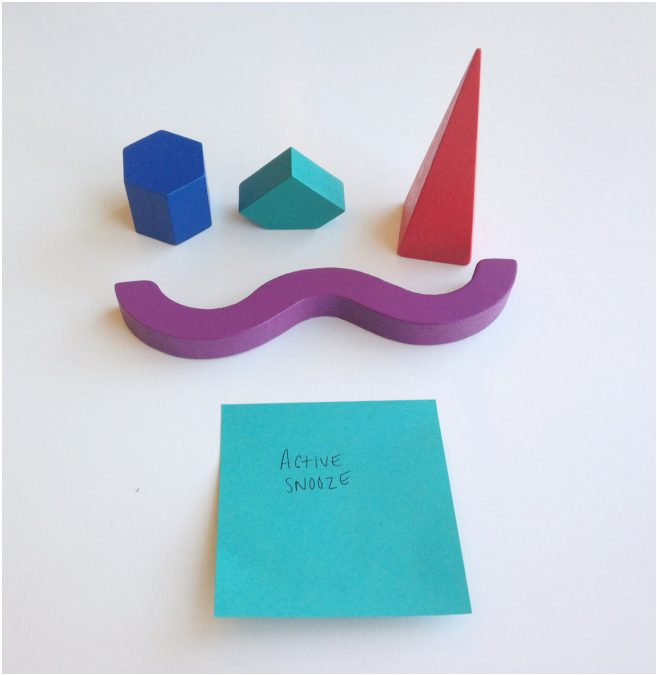


Figure 52: "Active Snooze" from the Generative Workshop

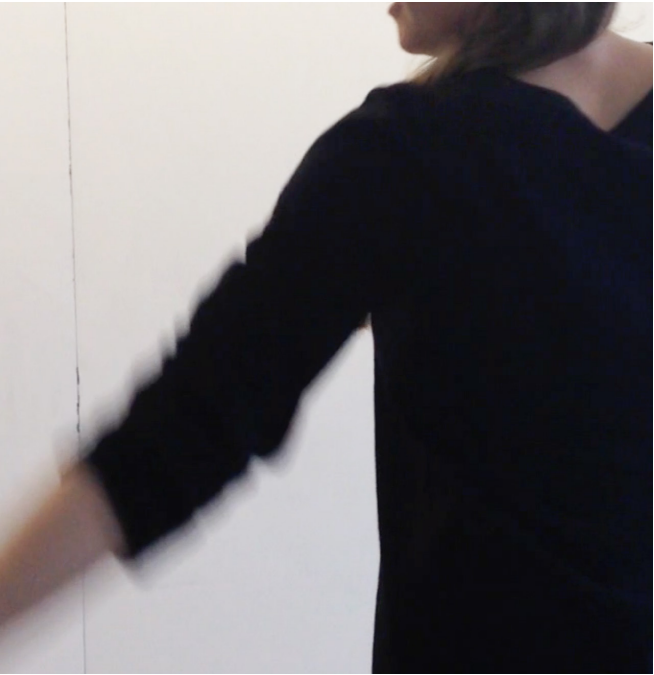


Figure 53: Screenshot from the Movement Study



Figure 54: Paper prototypes

4.2 RESEARCH THROUGH MAKING

With the insights from the research, I developed a set of paper prototypes using the previously defined animism criteria to understand subtleties of the experiences they can provide (Fig.54). Each prototype was made to exhibit distinct animistic qualities of embodied, expressive, emphasized, and empathetic. Using the animism criteria allowed me to do an in-depth exploration for each area (early exploratory sketches for each criteria are shown in APPENDIX A). For the ones that were highly abstract for the purpose of the study were supplemented with storyboards to illustrate their use and behavior. My goal was to gain insights from each iteration, and use them to develop final concept models integrated with

balanced animistic qualities that provide a richer palette of interactions.

I presented the prototypes to participants in two different ways to get balanced feedback. With the first half of the participants, I asked them to actively engage with the prototypes and envision their possible behaviors or functions (Fig.55). Once the participants shared their thoughts, I proceeded to share my concepts to receive their feedback. On the other hand, with the second half of the participants, the process was vice versa, where I shared my ideas before asking for their thoughts on the possible interactions.

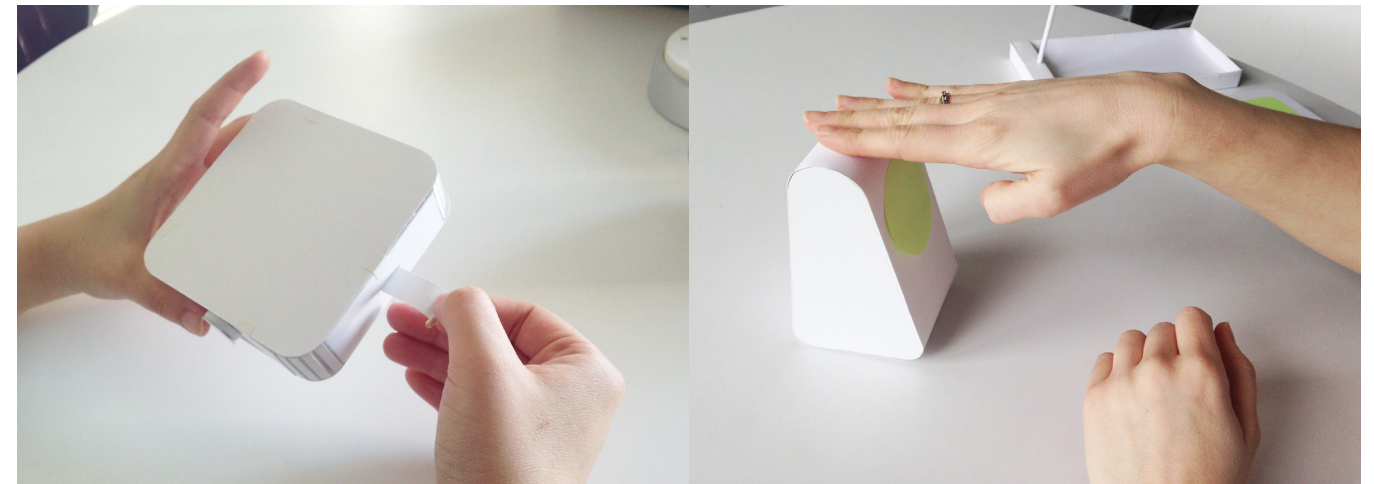


Figure 55: Participants engaging with the prototypes

The form study gave three main insights:

(1) Abstract forms allow people to focus on the changing form and behavior. Although familiar form made it easier for the participants to understand possible interactions with the object, it took attention away from the changing behavior of the object. The participants assumed its function primarily based on its appearance and didn't perceive it to have behaviors beyond what they are already familiar with.

(2) Ambiguity in use, moving away from predictable interaction mode, invites deeper exploration. When the form was obscure in communicating its function, participants were more actively engaged with the object. However, when the object seemed too minimal (e.g. round cylinder shape), participants considered it to stay consistently static.

(3) Context gives meaning to the object's behavior. The participants discussed that an isolated behavior of the object in a different context (time, location, person interacting with the object, etc.) would be illogical. Similar to how people interpret non-verbal cues, the behavior of the object gained its meaning from the previous interaction with the user, time, and location.

Here, I examined distinct qualities of animism using the research through making approach. The form study suggests that a balanced use of abstraction in form and in use can be effective in encouraging richer engagements between the object and the people. Although the interpretation of the object behavior differed from one participant to another, people had general assumptions that the object's behavior had its own logic and wanted to understand its intent by interacting with it. Participants also expressed that they would appreciate the object if it knew more about their context, such as upcoming schedules, the level of tiredness, daily routines, among others. Some participants didn't make an immediate connection between the prototype's changing form and intended interaction, but envisioned that they would learn to properly engage with it over time. •



Figure 56: Samples of sketches

4.3 GIVING FORMS TO BEHAVIORS

With these insights, I went through three brainstorm stages on how such artifact can look and behave (Fig.56).

Subject (Human) → Object (Product)

For the first round of sketching, I was interested in leveraging existing behaviors of people to introduce more engaging and expressive engagement. The review of the initial concepts showed that people's current perceptions and behaviors around the experience of waking up are already shaped by products that are based on mechanistic approach. Accordingly, the design concepts arose from this round had their limitations in communicating objects as subjects.

Object (Product) → Subject (Human)

After, instead of leveraging existing behaviors, I directed my attention to developing expressive forms and behaviors of the objects. I was particularly interested in how the combination of form language and movement can communicate nuanced information and guide interactions. During the ideation process, it became clear that highly expressive forms provided difficulties in delivering a wide range of behaviors due to its lack of flexibility in form changes.

Subject (Human) ↔ Subject (Object)

In the last iteration stage, both the human and object were considered active participants in the dialogue. The first two iterations suggested that it was important to convey objects as subjects in the conversation, and the form of the objects should be malleable enough to express a wide range of behaviors. In order to better understand the quality and the nuance of the dialogue, I developed a swim-lane diagram that details the interaction between the two actors (see APPENDIX B). This exercise informed that escalation in the intensity of multi-sensorial engagements can be used to communicate different levels of information (Fig.57).

The sense of escalation in communication was inspired by how parents wake up their children. In the morning, parents wake up to start their morning—making small sounds around the house. After, they might prepare meals before waking their children up. Once ready, parents gently knock on the children's door and turn the lights on to wake their children up. As time progresses, the parents call their children's name and give them a gentle tap. Observing how parents get their children up in the morning gave me a groundwork for building behaviors of and interactions with animistic objects. •

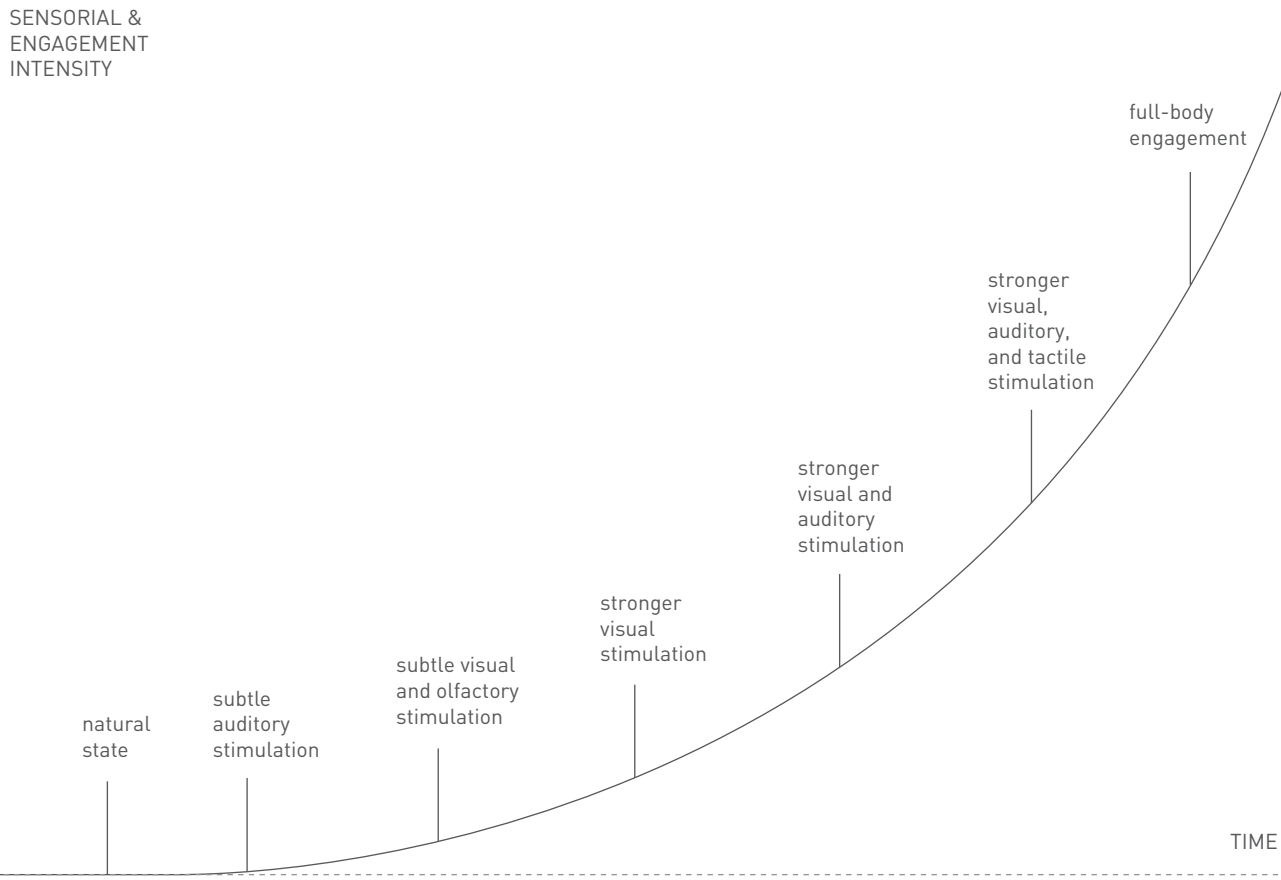


Figure 57: Increasing sensorial experiences



4.4 CASE STUDY WALKTHROUGH

The scenario below demonstrates the gentle waking-up experience with an animistic object. The object is aware of your level of tiredness, the schedule next day, overall sleeping pattern, and previous interactions with you. In this scenario, the object’s behavior and sensorial intensity escalate from subtle to harsh, asking for a greater engagement over time — from interacting with it through voice, gesture, parts of your body, to the entire body (specifics of the interactions are covered in a greater detail in APPENDIX C). The object collects

and senses various changes (light intensity, noise level, movement in the room, mobile phone usage, etc.) to modify its behavior to fit the context.

In an alternative scenario, the object could behave differently based on the contextual need. The object can choose to start from a more intense stage of waking someone up. If needed, it can choose to be more persistent in waking you up as well.

00 CONTEXT

It is late at night, nearing your usual bedtime and you feel a bit tired from the intense project you worked on

during the day. Knowing that, the object starts to flicker the light and dims slowly to invite you to interact with it.



01 RECOGNIZING YOU

The object lights up to acknowledge you when your hand is nearby and indicates that it is ready for setting time. As shown above, the lighting on top indicates time.

Turn the top part of the object to set a desired time to wake up. The lighting on top changes as the top rotates to reflect the amount of sleeping time.



02 WAKING UP

In the morning, the object wakes up and rustles. It doesn't yet have an intention to wake you up.

When you hear the rustling sound, you acknowledge it by a soft voice or simply disregard it in this stage.



04 FOCUSING ON YOU

Nearing the arranged time, the top part of the object opens and focuses the lighting towards your direction.

To reduce the intensity of light, you make a small hand gesture to put the object back into its previous stage.



03 PREPARING ENVIRONMENT

The object prepares the environment to be more suitable for waking up — the object softly glows and emits aroma.

You acknowledge it by a soft voice or simply disregard it in this stage.



05 WAKING YOU UP

The object changes its form to reveal the speaker and wakes you up through a sound that escalates over time.

To cease the sound, you physically engage with the object to put the object back into its previous form.



06 EXPRESSING EMOTION

The object communicates its anxiety through changing surface and tactile quality.

As you interact with it, you notice the change on surface and know that it is getting more anxious.



07 BECOMING MISCHIEVOUS

If the object is not satisfied with your response, it starts to move around the environment causing mischief.

You decide to step out of the bed to stop the object from causing more trouble.

4.5 EVALUATION

For the scope of this thesis, a prototype of an animistic object was used to study its implication in the context of waking up. In the case study, the participants were presented with a walk through of a scenario and a volumetric model to interact with to gain a sense of scale and the range of interactions. Participants shared their thoughts on how they envision themselves engaging with the object in their own context, how varying experiences at different stages would address their needs, and whether they see a potential for the object to become a part of their daily practices. Results from the evaluative process informed areas for future improvements.

Participants had varying feedback for different stages of the dialogue. While light to normal sleepers appreciated the nuanced and subtle introduction of the product behavior, some heavy sleepers were worried that they might not wake up in time to stop the objects from its mischievous acts. Interestingly, when the analogy of ‘parents waking up their children’ was given to them, participants seemed to better understand the behavior of the object. As I walked them through the scenario, some participants added comments using personified descriptions to the object’s behavior. Some participants had concerns that the concept makes the experience of setting up the alarm and waking up more complicated than it needed to be. Overall, participants recognized the dynamic personality in the presented animistic object and saw themselves approaching it with a different attitude from their interaction with a static object.

The evaluative research process revealed insights for improvements and next steps. First, contextualizing the object’s behavior should be considered. I had initially

thought that a very open-ended interpretation would encourage people to construct a narrative that is very curated to their own. However, evaluation suggests that a general introduction to the object’s origin (e.g. sharing inspiration for the behaviors, presenting the object as a companion, etc.) can be effective in building the initial relationship between people and object. Second, the research presented challenges in attracting people, who do not have initial interests in engaging with things, since the value of the object is assumed to be dependent on the continued engagements and usages. For the next step, there seems to be a need for further investigations in design elements, such as material, color, and customizability, to bring more up-front values as well as accrued values. Also, constraints of the thesis raised some questions on this project that would have benefited from more time. For examples, a study on how the relationship between human and object endures over time would require more prolonged time period to see its development.

While the presented final design object was a research prototype, some participants saw a potential fit in industry for animistic objects to foster stronger consumer-product relationships. Companies are striving to find ways to maintain their customer base — animism as a design approach aims to encourage people to hold a prolonged and personal relationship with their objects. People with a higher level of attachment to their objects can become dedicated customers, who would be more willing to explore related services that could work with the objects they already own. •

PART 5 / DISCUSSION

This thesis proposes using animism to provide a metaphor to design richer and integrated interactions. As digital experiences are rapidly expanding into the physical domain of everyday lives, critical thinking is needed to evaluate the current technology applications. As many products today are heavily based on screen interfaces, there are missed opportunities in exploring a way to interact with them in a more kinesthetic way to reduce cognitive load, provide contextually grounded experience, and build rapport between human and objects. Currently, the physical form of such products often plays a passive role in the interaction. Traditionally, the form of a product has been the bridge between human behavior and object behavior. Now, as things are increasingly taking an active role in the conversation, we can envision their physical forms to play a more dynamic role as well. With its changing form and behavior, an

animistic object can be a catalyst to change how we perceive, interact with, and design objects.

Through extensive literature reviews, form studies, movement studies, and qualitative studies, this thesis explored the concept of animism from multiple perspectives to define and situate the animism framework to deliver an alternative approach to the current design practices. Animism as a design metaphor was derived from looking at the development of interaction paradigm, where the technological artifacts are observed to be increasingly speaking 'human.' A survey of currently offered products in the market and prior animistic design approaches revealed an underexplored area in employing object body languages to provide multi-sensorial experience to deepen object-human relationships.

In parallel with academic reviews, the iterative ‘research through making’ process helped identify qualities, dimensions, and criteria of animistic objects. The research revealed that animistic qualities in objects encourage people to construct their own meaning of and narrative with the objects. Through the balanced use of form, behavior, adaptability, maturability, and wide interaction modalities, an animistic object aims to provide experiences that are embodied, expressive, emphasized, and empathetic.

To understand its implications in everyday context, the animism framework was further studied in the product application. In this case study, an animistic object was created to design more rich and nuanced experience of waking up. In the process of concept development, it became clear that considering the object as an active participant in the interaction is crucial in designing interactions within the animism framework. The evaluative research on the concept also suggested its potential value in the industry environment.

FUTURE WORK

For future studies, I believe animism as a design metaphor is capable of expanding itself to inform designing experiences for other contexts and mediums. While the scope of the thesis looked at the context of waking up as an example of its product application, future applications of animism framework in different settings can pose questions that have not been addressed in this thesis yet. Some possible considerations include the following:

(1) *Scale*: How can object start to build a meaningful relationship in a public setting? With a group of people? How does experience provided by a network of animistic

objects differ from one animistic object?

(2) *Medium*: How can animistic approach be applied in different technological medium? How can it inform applications of emerging technologies such as Virtual Reality, Augmented Reality, and Mixed Reality?

(3) *Context*: How does animistic object look and behave in a commercial setting? How does market feasibility start to inform its design? What are the considerations for the services around the object?

CONCLUSION

To move towards a habitable future, animism can offer a lens to re-evaluate how we perceive, interact with, and design objects.

In today’s society, achieving speed, efficiency, and ease is regarded as a virtue. The new norm is to expect easy consumption and dispose of any products, which no longer seem to hold social or aesthetic values, without much consideration. With technological advancements, interactive things are rapidly becoming ubiquitous and taking a more active role in shaping our daily practices. However, people seldom question the role of artifacts beyond their instrumental purposes while the daily engagements with such objects have profound influences on people’s practices, environment, and even worldview. In a society driven by prediction, automation, and efficiency, it is becoming harder for people to reflect on their actions and behaviors.

To address this issue, animism challenges the notion of what object is to allow people to reflect on their relationships with things and to change their current posture (Fig.58). By its very attributes, animism puts the role of an object into a question in four different



Figure 58: Future Implications of Animism in Objects

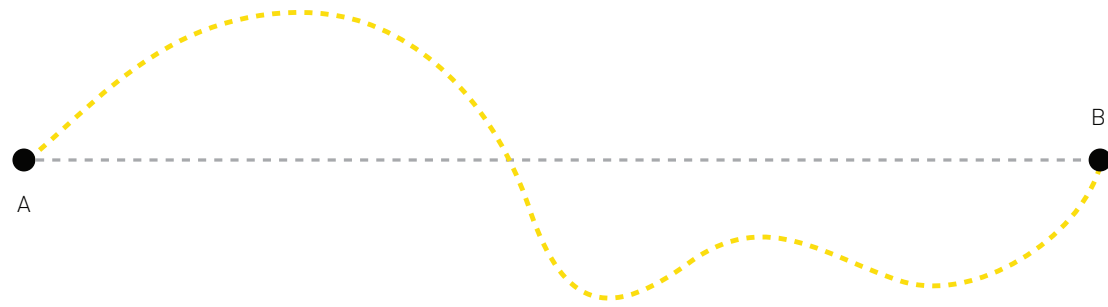


Figure 59: Navigating Ambiguity

ways. First, unlike a non-animistic object, an animistic object has a presence as it reveals its intent and no longer serves in silence. Through its changing form and behavior, people become aware of the object and its service. Second, the animistic object invites people to have bodily engagements through its dynamic form expressions. As people interact with the object over time, they build a deeper and intuitive knowledge of the thing. Instead of providing ease of use, the animistic object promotes poetics in the dialogue, in which people are encouraged to take the time to understand the object and build a new common language with it. Third, an animistic object provides rich sensorial engagements to communicate more nuanced information. With the wider use of bodily perceptions, people become more acutely aware of themselves in the current environment. Last, an animistic object evolves to fit people's changing context to provide an idiosyncratic experience. This way, the object is perceived to be constantly relevant to the dynamic everyday context. By observing the object's changing behavior, people can start to reflect on their own actions that have shaped its current behavior. Animism in an object provides an ambiguous and fuzzy engagement, which challenges the status quo

in interactions that people may find more natural or appropriate. With an animistic object that seeks to elicit a new dialogue that positions itself differently in people's minds, people start to question its role and their posture in approaching and interacting with all of their objects. Insights from the thesis point to something that is inherent to the human experience in the world — navigating ambiguity as a way to learn about themselves and their behaviors (Fig.59). Animistic qualities in objects provide fuzzy interactions that call for deeper dialogues leading to new insights, which will have people to reflect on the role of and their relationships with everyday objects (Fig.60). Animism presents an alternative design approach to explore and emphasize the experience of interaction by moving away from mass market predictability and utilitarianism towards a more idiosyncratic interaction to allow people to construct their own narratives around objects to foster deeper object-human relationships. •

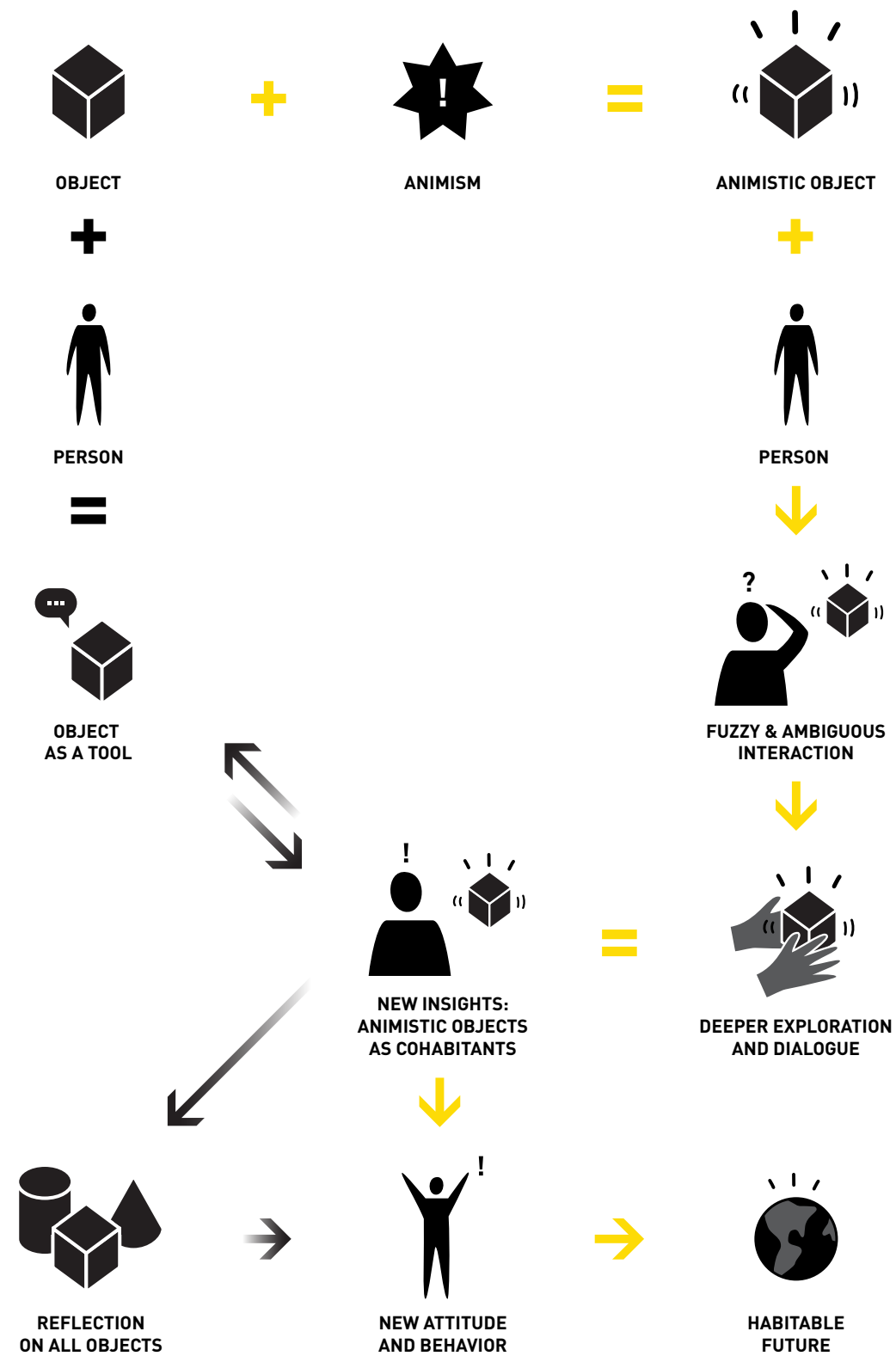


Figure 60: Animism Roadmap

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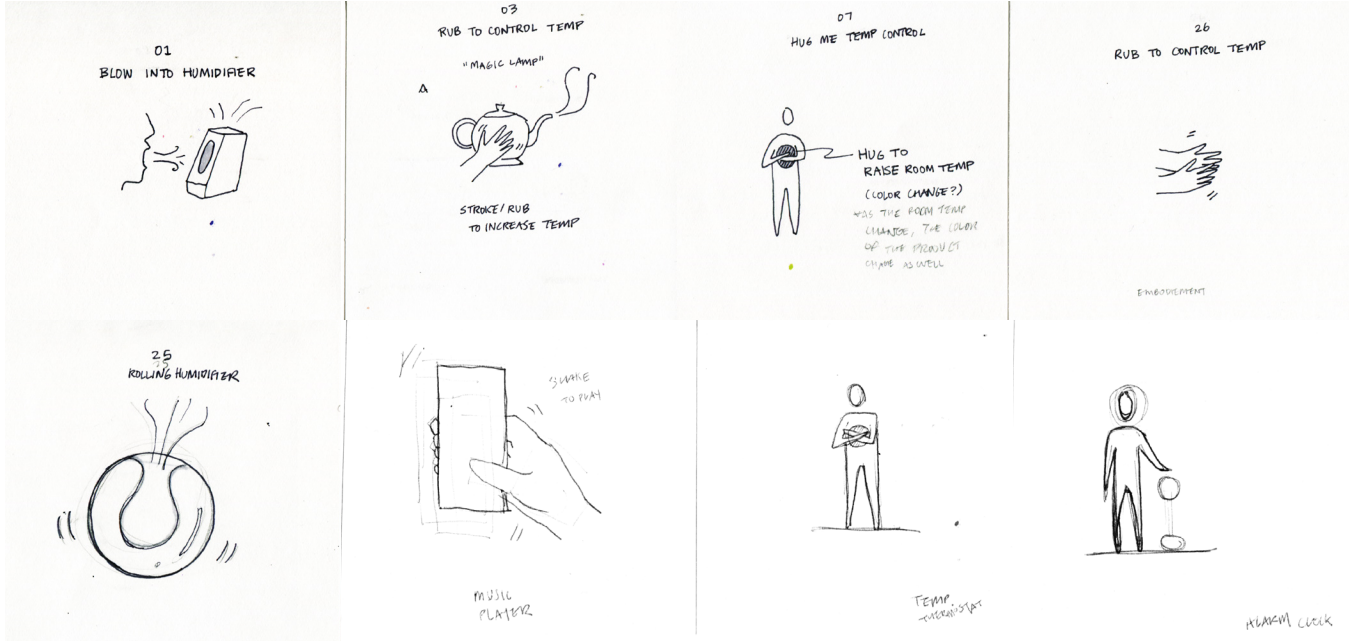
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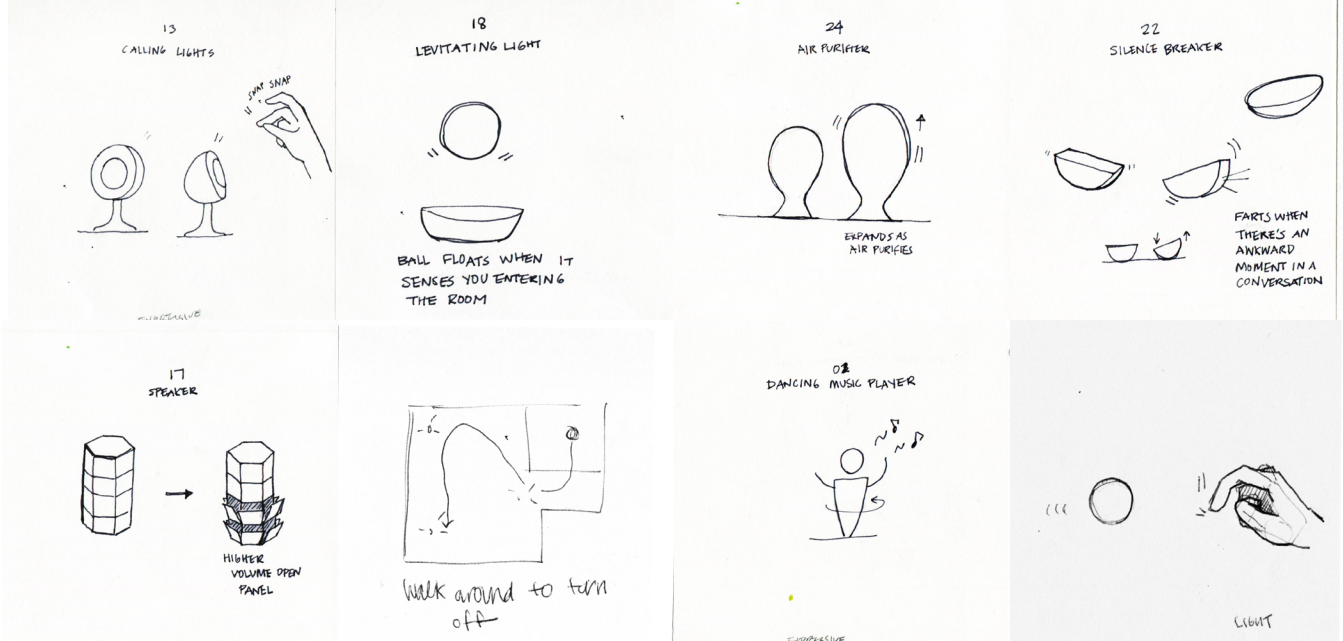
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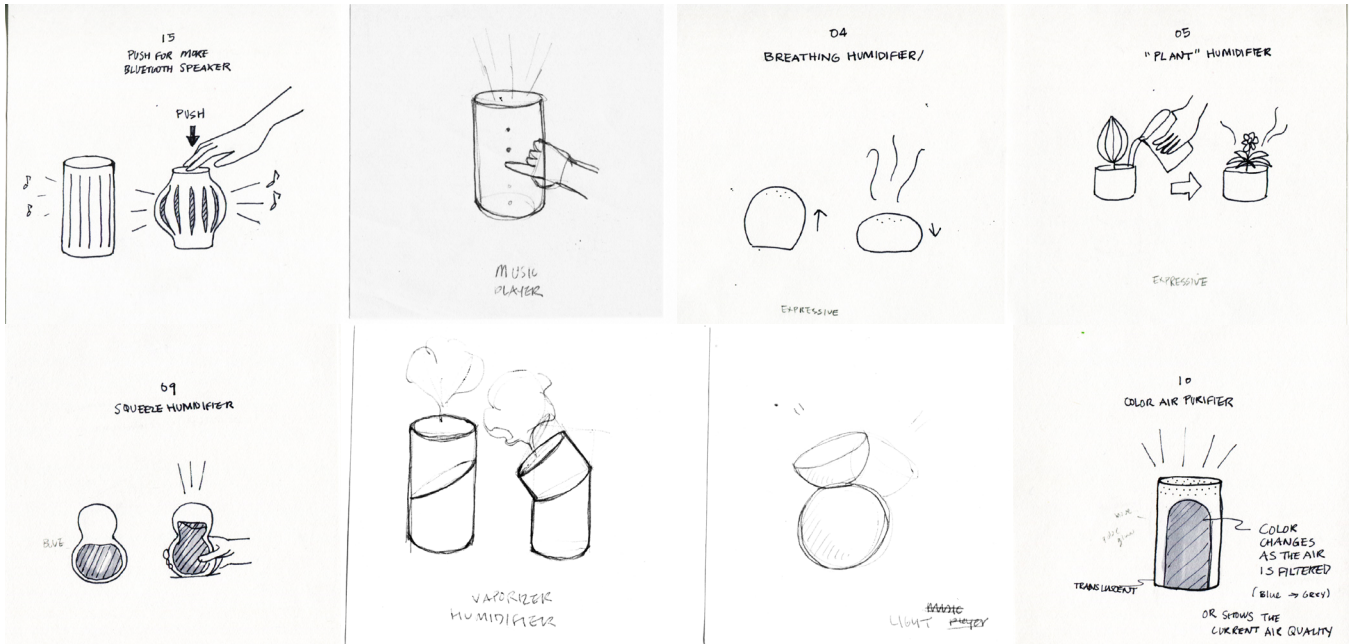
APPENDIX A: Early concept sketches exploring four qualities of animism framework



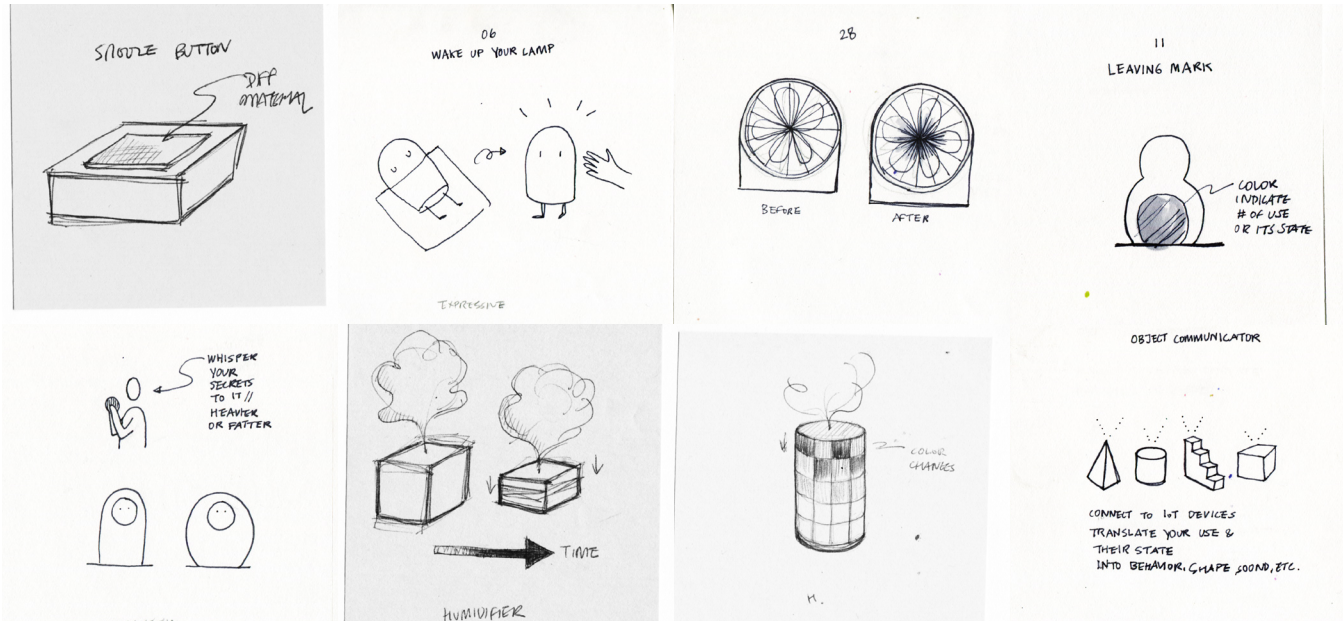
Concept sketches with 'embodied' qualities



Concept sketches with 'expressive' qualities



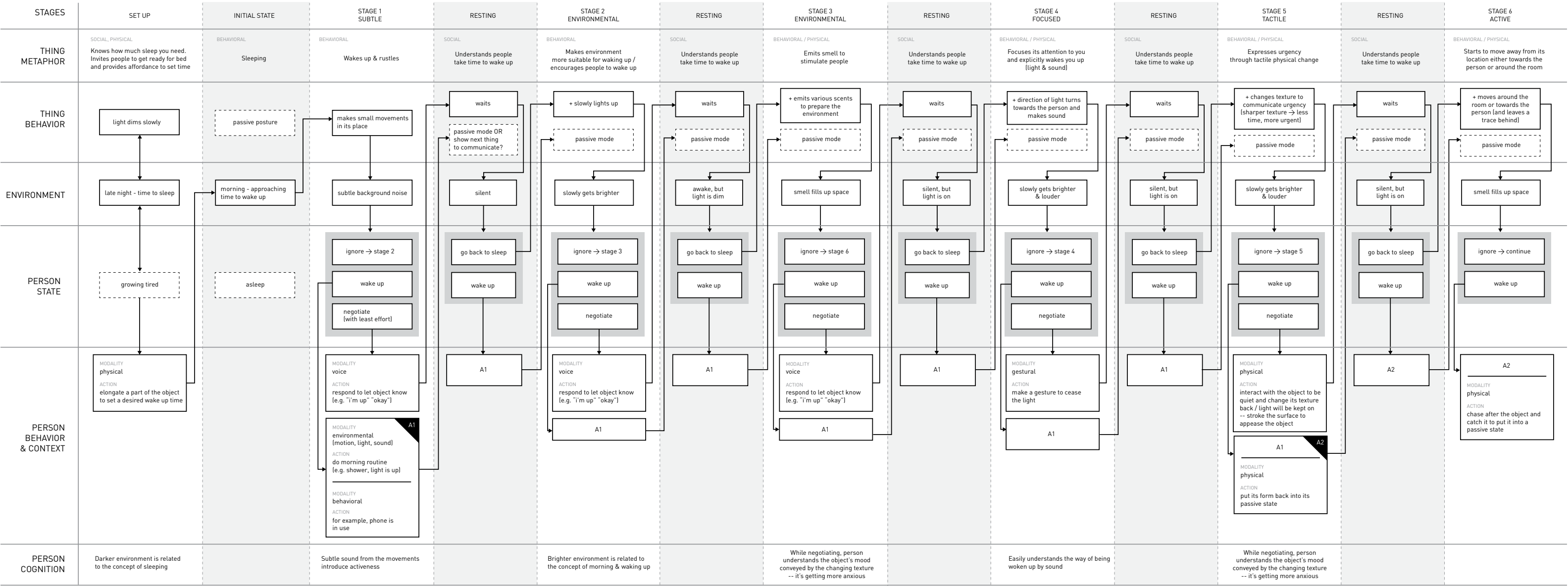
Concept sketches with 'emphasized' qualities

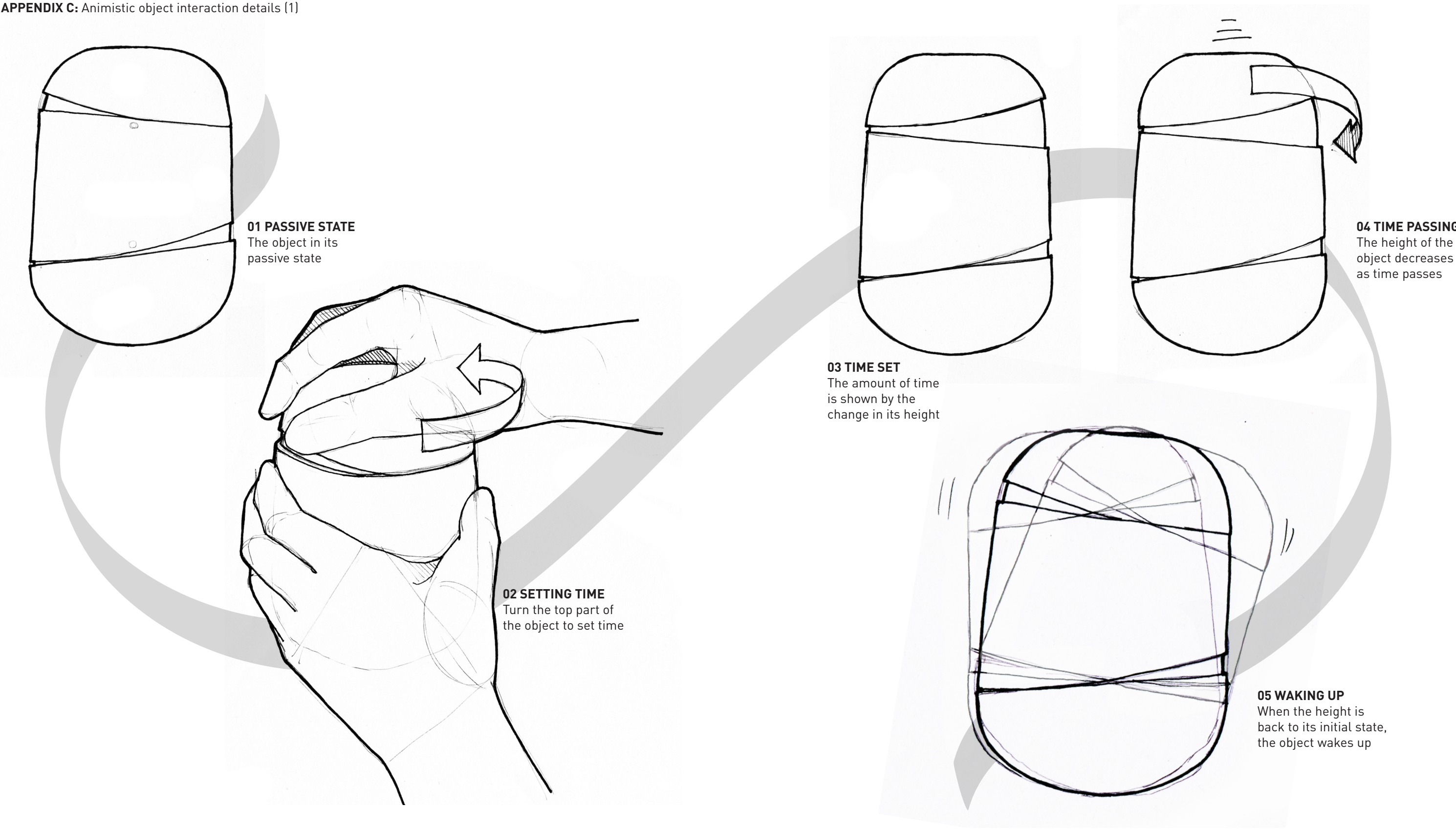


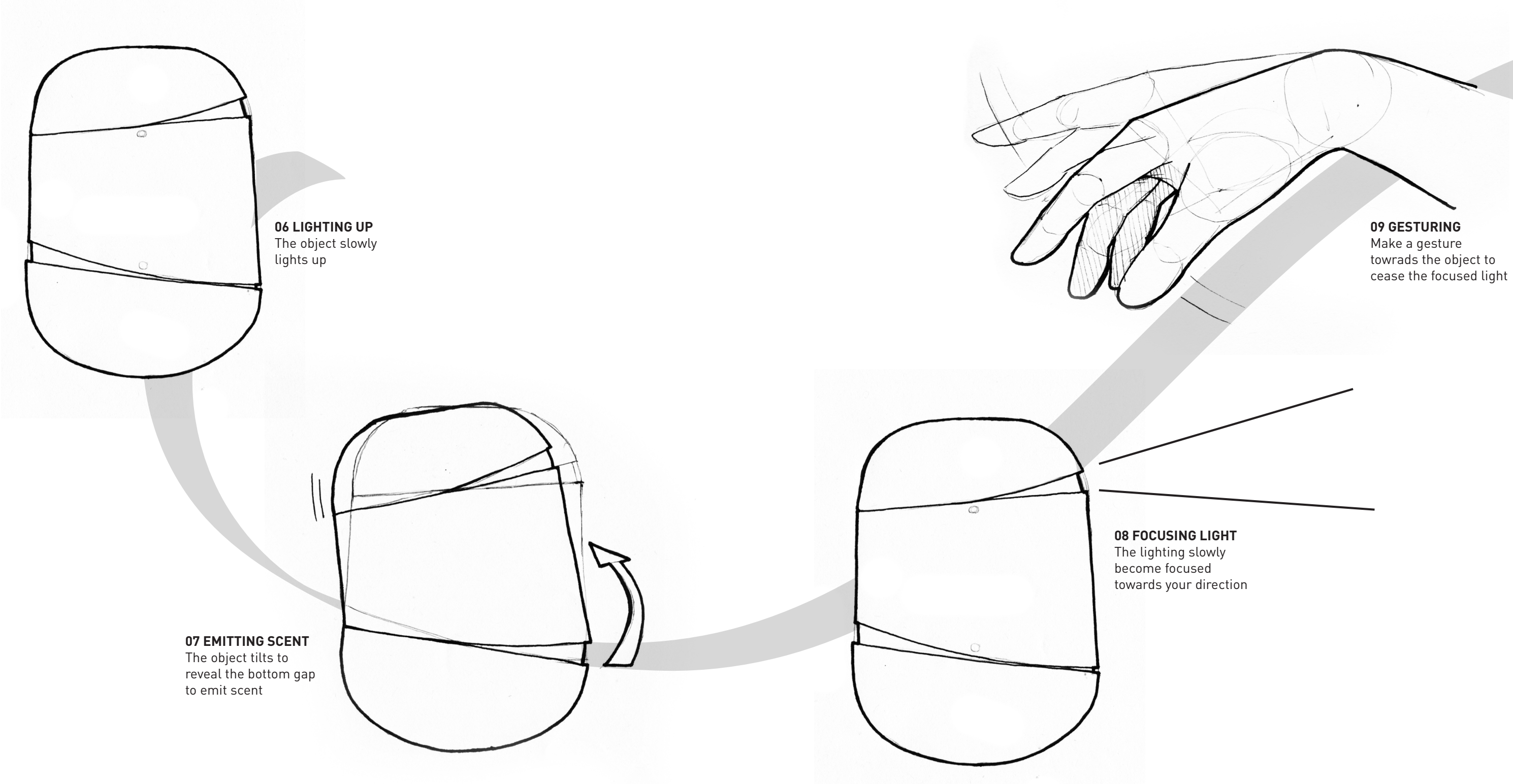
Concept sketches with 'empathetic' qualities

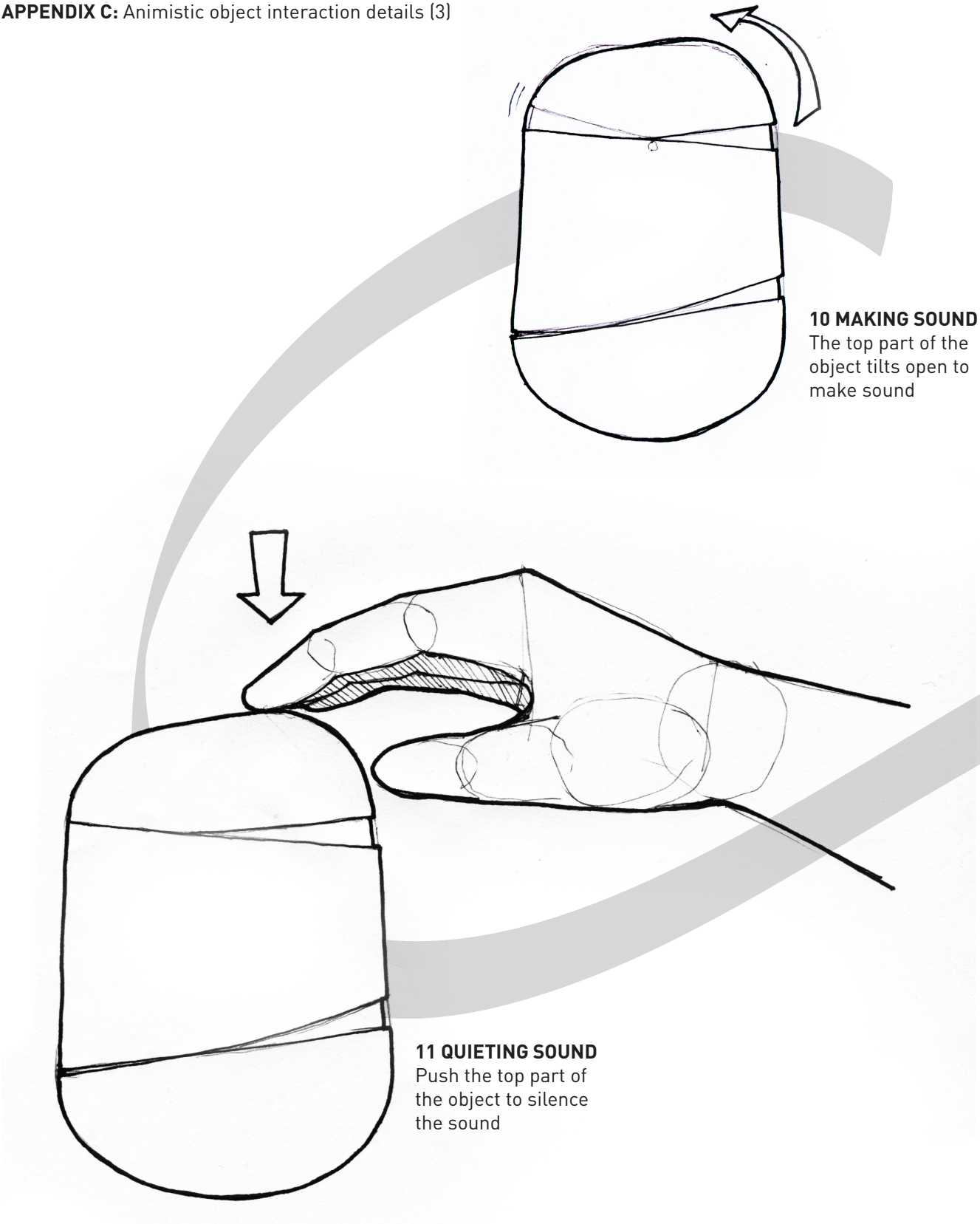
APPENDIX B: Swimlane Diagram

— Below swimlane diagram illustrates different stages of interactions. For each stage, I analyzed types of metaphor (physical, behavioral, and social), object's behavior, change in environment, state of the person, his/her behavior, and changes in his/her cognition.









12 GETTING ANXIOUS
The object is getting anxious that you are not waking up and changes its surface

