SHAMAN IN THE OFFICE

DESIGN SPECULATIONS ON THE FUTURE OF PSYCHEDELIC MICRODOSING IN THE WORKPLACE

Master thesis by

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IN THE WORKPLACE

MSc Thesis **Design for Interaction**
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August, 2024

TUDelft

Preface

"What are you doing with drugs, Gul?"

This is the question I've been asked most frequently over the last seven months. My answers were usually: *"No, I don't do tests. No, I'm not designing settings either. I'm just exploring."*

This project has been a long and important exploration for me – not only about psychedelics, research, and society but also about managing a large project with all the ups and downs in life, challenging my habits of what I know to be "design" and "research," and trying to be less doubtful about myself. I think anyone who has been through this process would agree: It's been a journey.

Yes, it is a journey – long but short, challenging but smooth. In the end, what made this roller coaster ride shorter and smoother was the people around me. Especially at a university where it's not just about classrooms, lectures, and grades, but also about the connections you make, the care you receive, and the love you find. I can't express how grateful I am to have found this community of wonderful people here in Delft. Without them, I wouldn't have been able to complete this project in this way, nor would I be the person I am today. So before I present my thesis, I'd like to thank all the people who made this project possible.

First and foremost, I would like to thank my supervisors, Roy Bendor and Pieter Desmet. Your contributions to this project and to my personal development go far beyond your academic guidance and expertise. From the very beginning of this journey, when everything felt darker and colder, you gave me the freedom to explore and placed great trust in me. You encouraged me to believe in myself while lighting the tunnel and helping me find my way when I was lost. I've learned so much from you and I know I'll always carry those lessons with me.

Next, I would like to thank Aadjan van der Helm for giving me a place and a sense of home at StudioLab. I'm grateful for the opportunity to meet amazing people in the lab and build lifelong relationships. To the StudioLabbers – Alessandro, Timothy, Mahan, Laura, and Hannah – I microdosed (and sometimes macrodosed...) you with my questions almost every day. Thank you so much for all the long and passionate discussions, helpful tips, and mental support.

Executive Summary

The project began with my curiosity about accelerating research and increasing media attention on the use of psychedelic substances for well-being and self-development. The primary goal was to stimulate discussions and gather public opinion on the emerging topic of psychedelic microdosing, particularly concerning its potential benefits, risks, and challenges as a socially accepted practice. To achieve this, I employed critical and speculative design approaches to surface the tensions in psychedelic practices and explore the topic more deeply through design-based research.

Through speculative design, I presented alternative possibilities that challenge the sense of inevitability and the hype surrounding psychedelics in popular media. My aim was to provoke critical thinking about future trajectories, encouraging the audience to question: What kind of future do we want if psychedelic microdosing becomes more common and accepted?

To create scenarios that prompt meaningful discussions and resonate with the audience, I grounded the project in existing practices and research, as detailed in Chapter 2. This foundational research included an extensive literature review on microdosing studies, two semi-structured interviews with members of psychedelic societies and organizations, an online questionnaire to catalog different microdosing practices, and several observational activities at various microdosing events to gain deeper insights into the context.

This research phase led to identifying four main themes for further exploration. The first theme, *A Paradigm Shift*, examines varying perspectives on the use and implications of psychedelics in Western culture. The second theme, *Microdosing as Technologies-of-Self*, explores how microdosing is used as a technology for self-regulation for reasons such as improving well-being, slow living, and cognitive enhancement. The third theme, *The Role of Intuition*, discusses the differences between intuitive practices and applying strict protocols. The final theme, *Evidential Basis*, highlights the research gap in microdosing, emphasizing the need for rigorous studies on its health effects.

Following this phase, I created speculative artifacts to address issues and initial tensions within these themes. I shared these artifacts with other people, encouraging reflection on different scenarios and deeper exploration of the themes. Based on the insights gained, I identified four overarching tensions in

microdosing: (1) *Perspective*: This tension delves into conflicting perspectives on the use and implications of psychedelics in Western culture, between spiritual and utilitarian views. (2) *Reasoning:* This explores the tension between intuitive and logical decision-making in substance use. (3) *Outcome*: This looks into the tension between the use of microdosing for self-discovery and its use for self-regulation to meet ever-increasing expert expectations. (4) *Potential*: This discusses the tension between the hype and hope surrounding microdosing.

These tensions become more pronounced in the workplace context, highlighting the contrast between the healing, connecting, and spiritual purposes of psychedelics and the pragmatic, commodified approaches to microdosing as a corporate activity. This context critiques the popularizing "Silicon Valley" culture of microdosing, exploring its risks, challenges, and benefits in the corporate world.

To make these tensions experiential and initiate discussions, I created a short film shared with a diverse audience to gather their reflections. While often promoted for boosting creativity and focus, the reflections on the project reveal concerns about the significant social and ethical risks of this trending technology. A major concern is the potential for employers or authorities to use microdosing as a means to further control and regulate employee performance, highlighting the limited focus on individual well-being in profit-driven environments. The media hype around cognitive enhancement through microdosing creates an illusion of quick fixes for deeper personal or systemic issues, which this project critically examines through speculative future scenarios.

Additionally, the project highlights the risk of commodification of indigenous traditions and psychedelics in Western contexts, particularly in the workplace. It raises ethical questions about using plant-based medicines and rituals purely for capitalist gains, urging reflection on broader implications.

The project's findings contribute to ongoing debates, emphasizing the need for careful consideration of the ethical and social consequences before integrating microdosing into corporate culture.

Glossary

Depressants: Substances that reduce the activity of the central nervous system. They are often used to relieve anxiety, promote sleep, and prevent seizures.

FDA: The Food and Drug Administration, a federal agency of the United States Department of Health and Human Services, responsible for protecting and promoting public health through the regulation and supervision of food safety, medications, and other consumer products.

Hallucinogens: A category of drugs that cause hallucinations—sensations and images that seem real though they are not.

Legalization: The process of making the production, sale, and use of a previously illegal substance legal under the law, typically accompanied by regulatory frameworks.

LSD: Lysergic acid diethylamide, a powerful synthetic hallucinogen known for its intense psychological effects, including altered thinking, perception, and mood.

Microdosing: The practice of consuming very low, sub-hallucinogenic doses of a psychedelic substance in a repetitive way, often for the purpose of enhancing creativity, productivity, or emotional wellbeing.

Mushrooms: In the context of psychoactive substances, mushrooms refer to certain fungi that contain psilocybin and psilocin. These are often called magic mushrooms or shrooms.

Neo-shamanism: Modern interpretations of traditional shamanic practices, focusing on personal growth and healing in Western contexts.

Negative effects: Adverse or undesirable outcomes from the use of a substance, such as anxiety, paranoia, nausea, hallucinations, or physical health risks.

Normal (high) dose: A dosage level of a psychoactive substance that is high enough to produce significant psychoactive effects.

Positive effects: Beneficial or desired outcomes from the use of a substance, which can include enhanced mood, increased creativity, spiritual insights, or therapeutic benefits.

Prohibition: The legal act of prohibiting the manufacture, storage, transportation, and sale of a substance.

P**sychoactive drugs:** Chemical substances that affect the mind, altering mood, perception, or consciousness. They include a wide range of drugs from caffeine and alcohol to LSD and heroin.

Psychedelics: A class of psychoactive substances that produce profound alterations in perception, mood, and cognitive processes. Examples include LSD, psilocybin, and DMT.

Psilocin: A psychedelic substance obtained by the dephosphorylation of psilocybin in the body. It is the active metabolite responsible for the effects of magic mushrooms.

Psilocybin: A naturally occurring psychedelic compound found in certain species of mushrooms, commonly referred to as magic mushrooms. It is known for its mind-altering effects.

Recreational use: The casual or leisurely consumption of substances or engagement in activities for enjoyment rather than for therapeutic or professional purposes.

Regulation: The establishment of rules or laws designed to control or govern conduct.

Self-enhancement: Efforts or processes aimed at improving one's self-esteem, confidence, and overall self-perception, often through personal achievements, positive feedback, or self-affirming activities.

Self-growth: The ongoing process of self-improvement in various aspects of life, including emotional, intellectual, and spiritual dimensions, leading to a better understanding and fulfillment of one's potential.

Shamanism: A spiritual practice where a shaman communicates with spirits, often through rituals, to heal and guide the community.

Stimulants: A class of drugs that increase activity in the brain, resulting in increased alertness, attention, and energy.

Truffles: The underground part of certain fungi, which can also contain psilocybin and psilocin. Unlike mushrooms, buying truffles is legal by law in the Netherlands.

War on drugs: A global campaign, initiated by the United States in the 1970s, aimed at reducing illegal drug trade and drug use through prohibition, law enforcement, and military intervention.

Table of contents

"The exercise of imagination is dangerous to those who profit from the way things are because it has the power to show that the way things are is not permanent, not universal, not necessary."

Ursula K. Le Guin
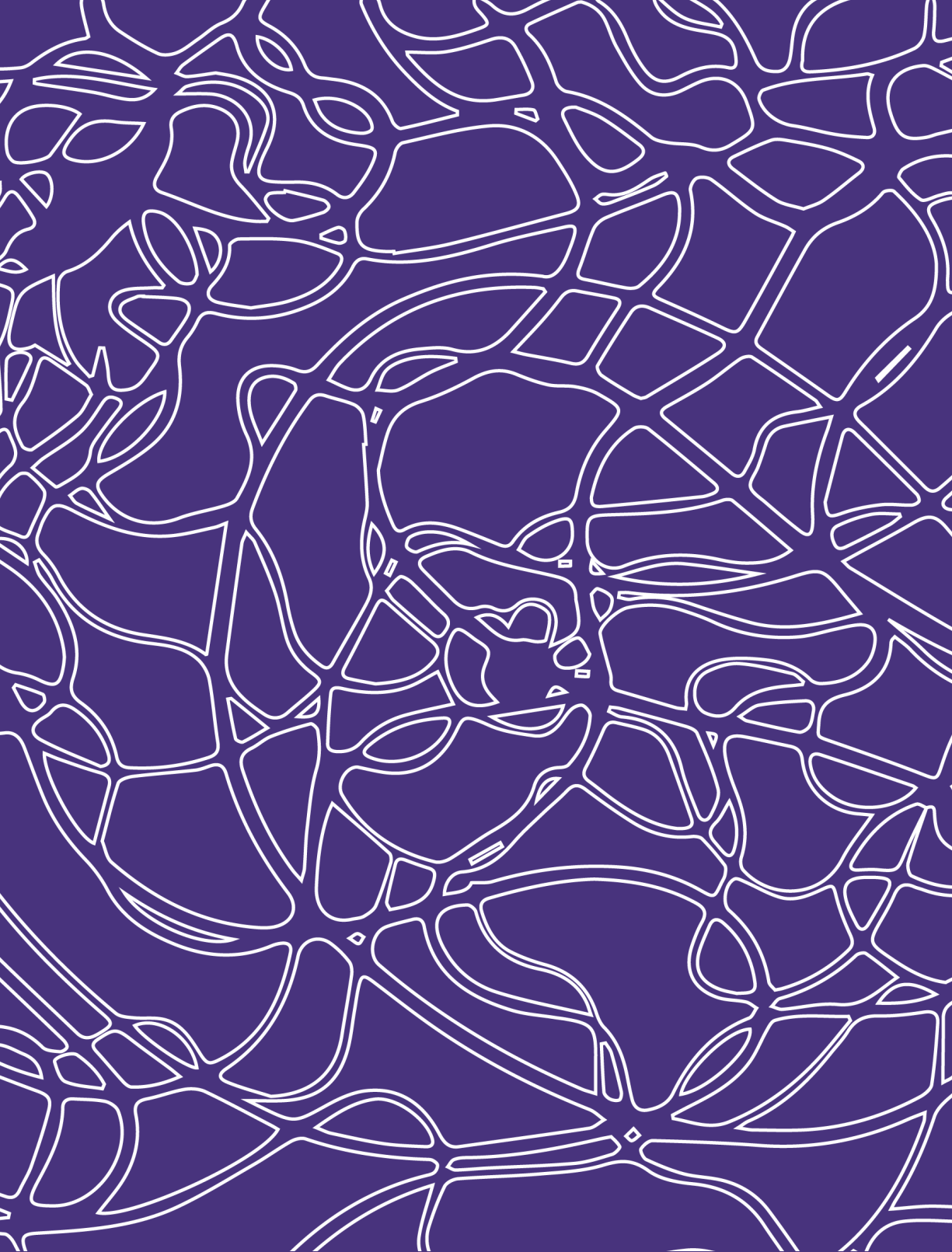
INTRODUCTION

Opening Question Natural medicines, prohibited drugs, and now cognitive enhancers. What is happening with psychedelics?

In this chapter, I introduce the assignment of my graduation project. Firstly, I describe the context, talking about the recent developments of psychedelics briefly. Later, I explain the approach of the project, objectives and the main research question. Finally, I present the project planning and my personal motivations for the project.

1.1 Context

Research studies on psychedelics (from the Greek psyché, meaning 'mind, soul' and déleín, meaning 'to manifest') have gained increasing importance and visibility both in the scientific press and mainstream media, suggesting that we are in the midst of a "Psychedelic Renaissance" (Sessa, 2018). Clinical studies have demonstrated that psychedelic substances such as LSD, MDMA, and psilocybin offer numerous therapeutic benefits for mental health, including the treatment of post-traumatic stress disorder, treatment-resistant major depression, addiction to alcohol and tobacco, anxiety, and various other conditions (dos Santos et al., 2018). As a result, the medical approval of MDMA and psilocybin is anticipated in the near future, particularly in the US, where most clinical research is currently being conducted (Schwarz-Plaschg, 2022).

More recently, psychedelics have gained new attention in contemporary society with the phenomenon of microdosing, as a new tool for self-enhancement, self-healing, and personal growth (Gray, 2020). Microdosing refers to the practice of consuming small doses of psychedelic substances, mainly LSD and psilocybin, repeatedly over a period of time with a specific intention (Fadiman, 2011; Kuypers et al., 2019). The intention can be having subtle improvements in mood, focus, ease, and motivation, contributing to an overall "better quality of life" (Webb et al., 2019), or promoting creative thinking and problem-solving (Anderson et al., 2019).

In addition to being a potential alternative self-treatment method, microdosing has gained another popularity within Silicon Valley culture as a new "productivity hack" (Glatter, 2015). Many public figures have revealed their microdosing routines, praising performance benefits at work as if it were a quick solution for achieving better outcomes (Carnegie, 2023). This popularization has led to significant online activity, and even inspired famous design firms to conceptualize and develop new products for self-enhancement through psychedelic microdosing in a future where psychedelics are legalized and socially accepted (Figures 1 and 2).

Despite this growing interest, there is still a lack of evidence regarding the short- or long-term effects of microdosing due to insufficient rigorous research (Kuypers et al., 2019). The potential ethical consequences of increased, socially accepted use remain unclear, and there is uncertainty about regulations due to unforeseen challenges and political tensions (Schwarz-Plaschg, 2022). Nevertheless, the ongoing hype in popular media (Carnegie, 2023; Pollan, 2019) continues to promote psychedelics as the future of therapy and enhancement for work. Numerous capital ventures and start-ups have recognized psychedelics as a new "gold mine" (Farah, 2022), driving increased demand and market expansion (FinancialNewsMedia.com, 2021). Some experts are even concerned that market growth is outpacing research, potentially leading to self-medication and unregulated use (Londoño, 2024).
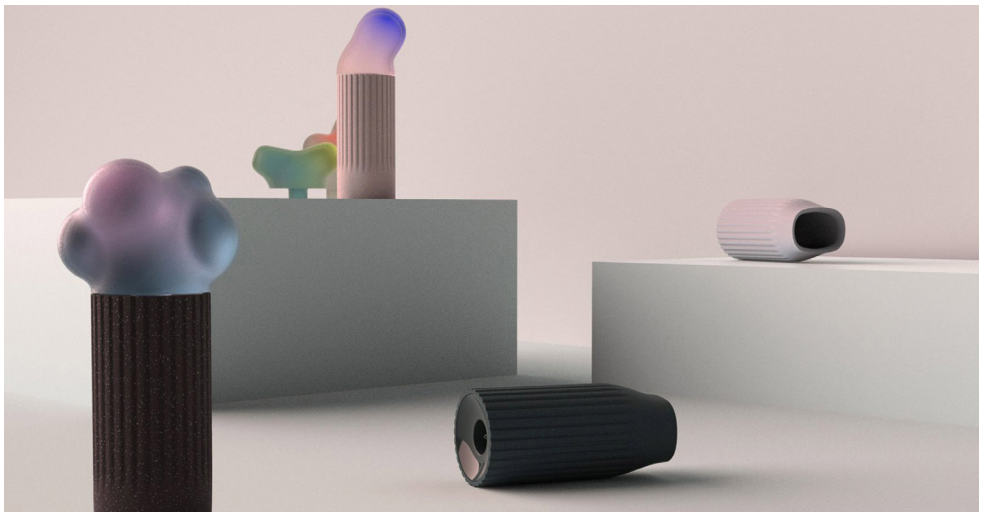
Figure 1: (top) The Keia concept; a sustainable psychedelic edible subscription service for improving mental and emotional well-being, by Benjamin Hubert's studio Layer, (Keia, n.d.)

Figure 2: (bottom) A conceptual wellness product for inhaling low-dose psychedelics, anticipating the future of a legal frame of microdosing for mental health treatment, by NewTerritory Design Studio, (Aouf, 2022)

In their paper "The Sociology of Cognitive Enhancement" (2011), Coveney et al. examine the dynamic role of future expectations in shaping the framing and positioning of new neurotechnologies and other developments in the pharmaceutical industry. They argue that the development and discourse around these technologies are largely shaped by anticipated futures rather than the realities of the present. This creates a sense of "inevitability," along with hopes and fears in society. The inevitability of these futures is often constructed by portraying certain medicines as already common and effective. This narrative is evident in the ongoing discourse of the "Psychedelic Renaissance" and the mainstream discussion of how psychedelics are already changing the way people live, work, and heal.

Given this context, it is crucial to examine how the current trajectories of psychedelics shape expectations at individual and community levels, and how these expectations mobilize public support, profits, and related promises (Coveney et al., 2011). Considering the positivist approach to scientific research and the mainstream hype, it is necessary to adopt a method of inquiry that questions how these futures could be, rather than how they should be (Encinas et al., 2023). Therefore, raising awareness from a critical perspective and initiating a broader public discussion on current developments and trending microdosing practices are essential.

*"There's this psychedelic gold rush, and you're getting these psychedelic business conferences and herds of investors flooding in and looking to see if maybe this is going to be a nice way to make a quick buck. And in the process of that, with investor dollars, or private funding, or whatever it is, **they're promoting this message of psychedelics [as] this miracle treatment**." (Wright, 2022)*

Brad Burge – founder of Integration Communications

Figure 3. Rick Doblin, the founder of MAPS (Multidisciplinary Association for Psychedelic Research) projecting "the future of therapy" in Psychedelic Science 2023 – Be Part of the Breakthrough conference

*"**The psychedelic clinics of the future will look something like this**, that you'll be able to go to therapists who are cross-trained in ketamine, and MDMA, and psilocybin, and ibogaine, and 5-MeO-DMT, and whoever else gets invented on the line. … Now, how do we all move forward? The first thing is every one of us can step out of the psychedelic closet. … We need more federal, state, and local funding for psychedelic research. … None of this is possible, actually, without resources. And so the psychedelic revolution needs you."*

Rick Doblin – founder of MAPS

1.2 Assignment

OBJECTIVES My primary goal with this project is to stimulate discussion and gather public opinion on the trending use of psychedelics, particularly in the context of microdosing for self-enhancement. By presenting alternative possibilities and provoking critical thinking, I aim to resist the sense of inevitability described earlier in the chapter and challenge the prevailing "techno-utopian positivist narrative of Silicon Valley" (Mitrović et al., 2021). To achieve this, I have chosen critical and speculative design as the primary approach for this project, which also allows me to conduct research through design (Stappers and Giaccardi, 2017). These approaches provide a playground for exploring the topic and expanding the possibilities of future applications.

I employed tensions as a tactic to make conflicting situations tangible and provoke the audience to ask relevant questions. These tensions, identified during the theoretical research in the grounding phase and iterated through the design exploration phase, are intended to be made experiential through speculative artifacts and narratives. By doing so, I hope to foster critical thinking and open up these tensions for broader discussion on possible futures with microdosing.

While grounding the project firmly in current research and scientific developments, I pose the following research question for the project:

> *How can design surface the risks, benefits, and challenges of microdosing as a future socially accepted practice?*

CONTEXT OF THE PROJECT The cultural and political context of this project, based in the Netherlands, offers several advantages for achieving the project's objectives. The Netherlands' lenient legal status on certain psychedelic substances and its established communities make it easier to engage various psychedelic communities and individuals in discussion compared to other countries.

Discussions on how to regulate psychedelics and provide safer options for users are still ongoing in the Netherlands. Conferences and experimental public debates on the regulation of drugs are currently organized by municipalities, universities, and museums (Amsterdam, 2024; Snelders et al., 2023). Additionally, emerging local business organizations market psychedelics as new socializing beverages or supplements for cognitive and mood enhancement (Microdose Pro, 2024; Microdose Together, 2024). Therefore, by applying a designerly perspective on psychedelic developments, this project aims to encourage critical awareness and reflection on the use of psychedelics within this richly relevant context.

PLANNING The project was initially divided into three main phases: (1) grounding and sense-making, (2) worldbuilding and prototyping, and (3) public discussion and reflection. These activities were not pursued in a linear fashion but instead evolved iteratively, with each phase informing and altering the others. However, the first weeks of the project focused primarily on grounding and sense-making. This involved reviewing existing literature, conducting an online questionnaire, and interviewing two experts to deepen my understanding of the topic and explore conflicting areas or issues. I also attended various psychedelic events in different settings for contextual observation. To comprehensively identify tensions, I considered a wide range of perspectives, including those of health practitioners, psychedelic researchers, individual users, and business organization owners.

After identifying different approaches and initial tension areas, informed by brief historical research (mainly from a Western perspective), I began prototyping and scenario-making. The thought-provoking scenarios and prototypes I created were later shared with an audience for reflection in various settings.

The final concept of the project includes a set of critical tensions and a short film presenting these tensions, along with a thorough reflection by the audience on the risks, benefits, and challenges of future microdosing use in society. This reflection and problem-framing could later be used to inform related organizations.

1.3 Personal motivation

I believe in the power of design and designers to highlight ethically and socially challenging issues and create social impact, rather than merely developing functional products for enhanced usability and market profit. From the beginning of this journey, my primary motivation for my thesis project has been to bring a contemporary, controversial socio-technological issue to public discussion using a critical approach, while also improving my design research skills in materializing critical thinking through speculative artifacts. Though I anticipated that this would not be an easy task, my previous involvement in theater and performative arts provided me with valuable experience and a deep interest in imagination, worldbuilding, and public engagement. After being introduced to speculative design at TU Delft by my supervisor Roy Bendor, I became enthusiastic about using such tools to imagine alternative realities, challenge conventional trajectories, discuss socio-technical issues, and, hopefully, inspire action. Consequently, I decided to focus my graduation project on a critical design approach centered on an emerging issue—psychedelics—where I could develop alternative scenarios and use design as a tool to encourage people to see things differently.

My engagement with the trending topic of psychedelics and microdosing followed naturally. I view psychedelics as a compelling research subject, especially from a design perspective, for several reasons. First, the topic remains highly controversial and provocative, largely due to its complex cultural, political, and legal background. Second, the rapid acceleration of scientific research and media coverage makes it imperative to open this subject to public inquiry. Finally, psychedelic represents an ideal subject for an original investigation utilizing critical and speculative design tools due to its inherent uncertainties and ethical complexity.

I hope that this research can draw attention to the future developments, regulations, and practices surrounding psychedelics, demonstrate the capacity of design to initiate critical discussions, and serve as a strong example of how to communicate tensions through speculative narratives.

chapter 2

GROUNDING

Opening Question Considering the complicated historical and cultural background, ongoing media hype, and difference in practices, what is microdosing and what is not?

Anthony Dunne and Fiona Raby, two pioneers in critical and speculative design, emphasize that understanding the cultural and societal context is crucial for creating designs that resonate and provoke thought (2013). Therefore, to gain insight into the social, cultural, and political dynamics behind the use of psychedelics, this grounding chapter draws upon various research activities.

The chapter includes a brief overview of the modern history of psychedelics (mainly from the Western perspective), focusing on key events and figures. This overview will help readers understand essential scientific discoveries, the complex interplay of historical and political factors, the pervasive stigma surrounding psychedelics, and the development of microdosing in contemporary society. Following this, an extensive literature review and several empirical research activities aim to provide a general understanding of microdosing practices and identify existing research gaps. To compile a comprehensive inventory of different microdosing practices, perceived effects, and underlying motivations, I reviewed relevant and recent research studies on microdosing (Grusauskaite & Van Eijck, 2022; Hutten et al., 2019; Johnstad, 2018; Lea et al., 2020; Webb et al., 2019). Complementary activities included an online questionnaire (n=33), two semi-structured interviews, and observations (n=3) at various psychedelic events to gain contextual awareness (Malpass, 2019), and their methodologies are briefly explained in the beginning of the chapter. All these grounding activities focus on investigating three main areas:

Development How did psychedelics emerge in Western society, and how did they evolve into current microdosing practices?
Definition What is microdosing? What are the different intentions and reasons for microdosing?
Effectiveness What are the effects of microdosing? What does current science say about its efficacy?

From these grounding activities, four general themes emerged, which will be further explored with research through design activities, presented in Chapter 4.

questionnaire

Primary objective Gathering insights into the diverse intentions, motivations, and practices associated with microdosing.

Methodology The questionnaire involved 22 questions, including a mix of open-ended, multiple-choice, and single-choice questions. It was distributed through a microdose organization's online platform to reach a relevant target group, yielding 33 responses. Respondents remained anonymous but had the option to provide contact information for further inquiries or participation in additional research. Results are visually represented as a map in Chapter 2.2.

Question Themes
Demographics: Occupation, age, gender
Practice: Protocols, routines, complementary practices
Intention: Motivations and expected outcomes
Substance: Dose and substance choice
Source of Information: Scientific or anecdotal sources for information on microdosing

interviews

Primary objective To gain a deeper understanding of opposing perspectives on psychedelics, particularly regarding cognitive enhancement versus other intentions.

Methodology I conducted two semi-structured interviews, including 6-7 questions. The first interview, held online, lasted approximately 1 hour. The second, in-person interview involved two participants and lasted about 2 hours. I took notes and made audio recordings during the interviews for subsequent thematic analysis. The analysis was cross-referenced with literature review findings and other research activities.

1. Participant (P1) Co-founder of a psychedelic society in the Netherlands, dedicated to providing information on the safe use of psychedelics and support among members. Holding a master's degree in cognitive science and neuroscience, the interviewee defines her profession as 'health optimization', which sounds more 'scientific' to her, in her words. She has a strong opinion on having a scientific and logical approach to psychedelic use, rather than neo-shamanic approaches. She is currently a facilitator in a psychedelic retreat center and co-creator of a program in a longevity center, in addition to being a trained psychedelic sitter.

2. (P2) And 3. (P3) Participants Co-founders of an Amsterdam-based microdosing organization, whose mission is to provide education and space for experimenting on how microdosing (with psilocybin truffles) can be an alternative socializing activity to alcohol consumption. For this change in social practices, they offer unique tea blends with truffle options in their shop. They organize microdosing events for socializing purposes and work with many different organizations to introduce their products and introduce microdosing to the public.

observations

Primary objective To observe microdosing practices in real-world contexts and understand varying intentions, doses, and routines.

Methodology I attended three events and documented my observations and informal conversations with attendees. The first event was an open microdosing event, which helped me understand people's main motivations and curiosities about microdosing in a public setting. The second event, a sound healing workshop, allowed me to experience microdosing for meditative purposes and talk to people about their experiences. At the third, a mycelium meetup, I observed people microdosing for community building. Throughout all of these events, I carried my notebook and recorded all of my observations and small conversations with people who volunteered to share their experiences with me. I extracted my findings by considering emerging themes from the literature review and interviews.

Figure 4. (left) Event 1
Figure 5. (top right) Event 2
Figure 6. (bottom right) Event 3

Event 1: Microdosing Open Day Open Day events are organized by an Amsterdam-based microdosing organization to educate the public about microdosing and to introduce their tea blends with truffles to a wider group of users. During this event, the founders provided detailed information on microdosing practices, safety and harm reduction, its socializing effects, and the story behind each of their tea blends. While some attendees had previous experience with microdosing, most were curious newcomers. The event lasted approximately 4 hours, allowing everyone to try each product multiple times. Due to legal restrictions on selling active psilocin truffles, participants ground their own truffles, which bartenders then mixed with their choice of hot or cold tea. Throughout the event, I observed 30-40 people visiting the office to learn about the products, sample them, or make purchases. I spoke with 3 of them during the event about their experiences.

Event 2: Amsterdam Health Festival At the Amsterdam Health Festival 2024, a handpan studio together with a microdosing organization hosted a sound healing workshop. Held alongside other health-related activities, the event was attended by 30-40 people, which was more than expected. The workshop began with participants drinking "Flow State" tea, with or without truffles, which is a special blend that helps people get "in the zone," where someone is absorbed and deeply focused on something they are doing. A facilitator then introduced handpan instruments, followed by a group meditation session with live handpan music. After an hour, the participants shared their experiences. I watched from the tea counter as people made their tea and participated in the event, and spoke with two participants about their experiences after the event.

Event 3: Mycelium meetup A mycelium meetup, organized by a psychedelic research association, aimed to share information about mycelium and connect with those interested in psychedelics. Participants were introduced to different types of mycelium and the process of growing mushrooms. The workshop began with an "opening circle" where everyone introduced themselves and their expectations for the event. Facilitators offered truffles on a special glass plate to encourage connection in the circle. The workshop covered some information on mushroom identification and poisonous varieties, followed by a group forest walk. It concluded with a closing circle where people shared their feelings and learnings from the event, as well as servings of mushroom soup and snacks. The 3-hour event was attended by 14 people.

2.1 Short history of psychedelics

The history of psychedelics from the 1920s to the present day is a story of scientific discovery, cultural influence, legal battles, and changes in social acceptance. Understanding this history helps to better understand how psychedelics entered the Western world, and illuminates how psychedelics transitioned from traditional uses to stigmatized substances, and now to potential tools for personal development in contemporary society.

A new era of scientific inquiry over spirituality (1920)
In the 1920s, German psychiatrists initiated research on peyote for its therapeutic potential, focusing on mescaline, its active chemical compound, rather than its traditional use in indigenous rituals (Rouhier, 1927). Peyote is a cactus traditionally employed in indigenous ceremonies for spiritual communion and healing. Despite the colonial and cultural dismissal of peyote's traditional and ritualistic use, Western scientists persisted, in isolating and synthesizing mescaline. This marked a shift towards scientific objectivity, sidelining the ritualistic and spiritual dimensions in favor of so-called scientific objectivity (Dyck, 2018). Nonetheless, mescaline continued to carry associations with its religious and spiritual origins in society.

A purely modern technology: LSD (1938)
LSD - lysergic acid diethylamide, a triumph of modern science, was synthesized by the Swiss chemist Albert Hofmann in his laboratory in Basel. For five years, no one tried it and its psychedelic properties were unknown. Later, because of its purely synthetic nature and lack of religious or cultural background, scientists spoke of it as 'a secular technology, a product of dedicated science' (Dyck, 2018). It was "purely modern" and, unlike mescaline, was not associated with any spiritual history or future.

Emerging curiosity for spirituality in the Western World (1943)
Hofmann had his first experience with LSD and "perceived an uninterrupted stream of fantastic images, extraordinary shapes, and an intense, kaleidoscopic play of colors" (Hofmann, 2013, p. 18). After this famous experiment, people in psychiatry, psychotherapy, and psychoanalysis began to work on the psychological effects of LSD. As researchers applied different research methods to LSD, people began to conduct non-clinical investigations that soon gained attention for cultivating spiritual and creative thinking (Ellwood, 1994; McClure, 1992; Fuller, 2000). Although some people dedicated their research to its benefits in clinical settings, others realized that they could go beyond its medical status and explore new ways to enrich human thinking and evolution (Dyck, 2018). During this time, some researchers uncovered a long tradition of using hallucinogens in healing practices in Aboriginal cultures and non-Christian religions (Hoffer & Osmond, 1967). This led to a new curiosity in modern psychology about combining spiritual healing traditions with psychological treatments (Dyck & Bradford, 2012).

Collectives for imagining futures (1950–1953)

After Aldous Huxley's first mescaline experience with his close friend Humphry Osmond, the two collaborated to create a network known as "Outsight." This collective brought together intellectual elites and thinkers dedicated to advancing human consciousness through chemically induced means to access higher dimensions (Symons, 2015). Dyck (2018, p. 5) describes this initiative by Huxley and Osmond not only as a think tank for discussing the power of human capacities but also for developing "the language of psychedelics, using concepts and approaches infused with an expansive set of possibilities that drew deeply from the past to imagine a different set of futures."

Their interests ranged from clinical applications to the cultural and ritual aspects of plant medicine often overlooked by Western science. Osmond emphasized that substances such as LSD, peyote (mescaline), and ibogaine allowed Western medicine to integrate biomedical approaches with spiritual and psychological healing, aspects marginalized by modern biomedicine's emphasis on the physical body over the spiritual realm (Dyck, 2018).

The term 'psychedelics' (1957)

The term "psychedelics" was coined by Humphry Osmond, who worked in a mental hospital in Canada, with input from his writer friend Huxley.

Controversial research on LSD (1960)

By the early 1960s, LSD was well known in clinical trials but had not yet reached mainstream popularity. During this time, some influential figures emerged, such as Timothy Leary. Timothy Leary, along with Richard Alpert (later Ram Dass), conducted controversial research with prisoners at Harvard University (Greenfield, 2006). He also advocated the use of psychedelics for spiritual and personal growth, which caused significant problems and the banning of psychedelic science for many years.

Anarchy, safety, and War on Drugs (1965–70)

In the mid-1960s, psychedelics became central to the counterculture movement, influencing art, music, and social movements such as anti-Vietnam War protests. The media soon began to attribute suicides, murders, and health problems to LSD use. Figures such as Timothy Leary, Ken Kesey, and Allen Ginsberg emerged as advocates of the drug, criticizing the government for being conservative and stifling cultural evolution. This created a cultural divide in which conventional authorities and researchers risked being labeled as bad citizens and bad scientists. Due to widespread safety concerns, psychedelics were criminalized in many countries, including the United States with the Controlled Substances Act of 1970 and the War on Drugs.

Underground use (1970-1990s)

Despite prohibition, psychedelics continued to be used underground for spiritual, therapeutic, and recreational purposes. Research on psychedelics has largely ceased due to legal restrictions and stigma.

Return of psychedelics in science (2000s)

Since the early 2000s, there has been a resurgence of scientific interest in psychedelics for therapeutic purposes. Institutions such as Johns Hopkins and Imperial College London have conducted studies showing potential benefits for treating depression, PTSD, and addiction. Some countries have decriminalized or reduced penalties for psychedelics. For example, psilocybin has been decriminalized in several US states, and clinical trials have been approved in several countries. Researchers such as Roland Griffiths and Robin Carhart-Harris, and organizations such as MAPS (Multidisciplinary Association for Psychedelic Studies) have been instrumental in advancing psychedelic research and advocacy.

Past and future, science and culture (2017-2020)

After nearly five decades of restrictions on psychedelic research, MAPS, and the Beckley Foundation gathered over 3,000 participants in Oakland, California to explore the future of psychedelics. Some participants highlighted historical data from past research, arguing that previous studies were flawed or oversimplified. The interdisciplinary and culturally diverse environment of the conference, which included social scientists and filmmakers, was seen as a promising way to connect past and future, as well as science and culture (Dyck, 2018). However, tensions between different approaches persisted; scientists working with shamans and traditional plant healers were criticized for perceived insensitivity to these practices (Schwartz, 2017). In addition, historically unequal power dynamics between colonizers and colonized peoples continued to influence and complicate discussions of psychedelics (Mate, 2009). As Dyck describes (2018, p. 11), the resurgence of psychedelics is "a response to the culmination of a cultural shift toward chemically altering our consciousness as a natural response to modern life."

Today

Psilocybin and MDMA-assisted therapy are undergoing clinical trials with promising results that may lead to FDA approval in the near future. There is a growing acceptance and curiosity about psychedelics, driven by scientific evidence and personal testimony. A contemporary phenomenon, microdosing, has emerged in modern society. This practice has gained popularity as a method for enhancing cognition, creativity, and mental health, although it is largely unregulated and its effects are based on anecdotal reports rather than scientific studies.

2.2 What is microdosing?

Microdosing as a practice is not exclusive to psychedelics. In pharmacology, it refers to the use of a very small dose of a substance to study the behavior of a drug during the development and selection process (Lappin & Garner, 2008). The amount of this very small dose is defined as 1% of a pharmacologically active dose (FDA, 2006; EMEA, 2003). In a similar way, the microdose of a psychedelic substance is defined as using 'one-tenth of a normal recreational dose of psychedelic substance' (Fadiman & Korb, 2019). The dose should be minimal enough to avoid intoxication or significant alteration of consciousness (Johnstad, 2018).

Unlike pharmacological testing, psychedelic microdosing is practiced regularly and repetitively. Aylet Waldman, a popular figure for the microdosing practice, describes microdosing as 'the act of integrating sub-perceptual doses of psychedelic drugs, in your weekly routine' (Waldman, 2017). This repetitive and routinely nature defines the second main component of microdosing practice after the dose: protocol, also known as 'regime' (Figure 7). There are several suggested protocols that microdosers might follow (Fadiman, 2011; Microdose.nl, n.d.). The most well-known protocol among microdosers is the Fadiman protocol, where users take a dose 'one to three times a week'. The Fadiman protocol includes a three-day cycle, which can be repeated for four to eight weeks. A microdose is taken on a set day which is then followed by two transition days without consumption. After these three days, the cycle starts again. In this way, microdosers prevent tolerance buildup, ensuring consistent effects.

James Fadiman, an American author known for his research on microdosing, published his book The Psychedelic Explorer's Guide in 2011. In this book, he defines the practice of microdosing as "the use of subthreshold doses of psychedelic drugs in an attempt to improve cognitive tasks, boost physical energy levels, promote emotional balance, and treat anxiety, depression, and addiction. This "attempt" formulates the last major component of microdosing: intention. Intention can vary from person to person, but generally, microdosers intend to achieve some psychological or cognitive improvement, while sometimes it can be for spiritual or social experiences. Without intention, the use of a psychedelic substance is not considered microdosing, but simply the use of psychoactive substances.

Figure 7. Three components of microdosing

focus

creativity

improved memory

other mental health

problem-solving skills

reduced depression

cognitive enhancement

reduced anxiety

curiosity

psychological imrovement

substance use
reduction

healthy eating habits

overall well-being

spirituality

improved sleep quality

intentions

physical health

improved cognitive performance
(more likely for LSD)
people experiences: ease to get in the zone,
works become more fun, more energy, better
at problem solving, enhanced physical
capability

microd

improved mood and wellbeing
(more likely for psilocybin)
experienced: less depressed, more confident,
mind, less stressed, more patient, calmer, less
anxious, less irritable

enhanced connection to people
e experienced: more connected to nature,
enhanced senses, more empathetic, more
connected to people, heightened spiritual
experiences

**perceived
benefits**

effects

other
people experienced: happier than usual, more
connected to self, higher focus, more creativity,
better sex, enjoying music and food more

anxiety
people experienced; difficult concentration,
increased anxiety, feeling overwhelmed,
unwanted thoughts & emotions, irritability,
paranoia

**unwanted
effects**

physical effects
people experienced; trouble sleeping,
overstimulation, headache, muscle pain

psychedelic effect
euphoria, mild tripping, altered sense of time
nd space, dilated pupils, hallucination or visual
distortion

other
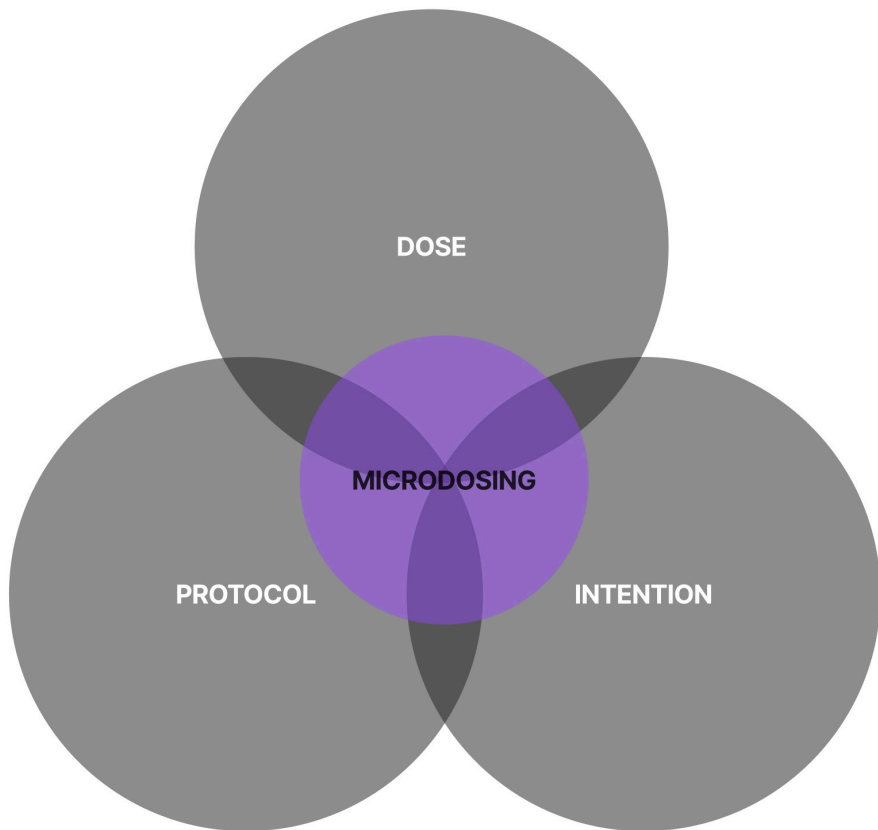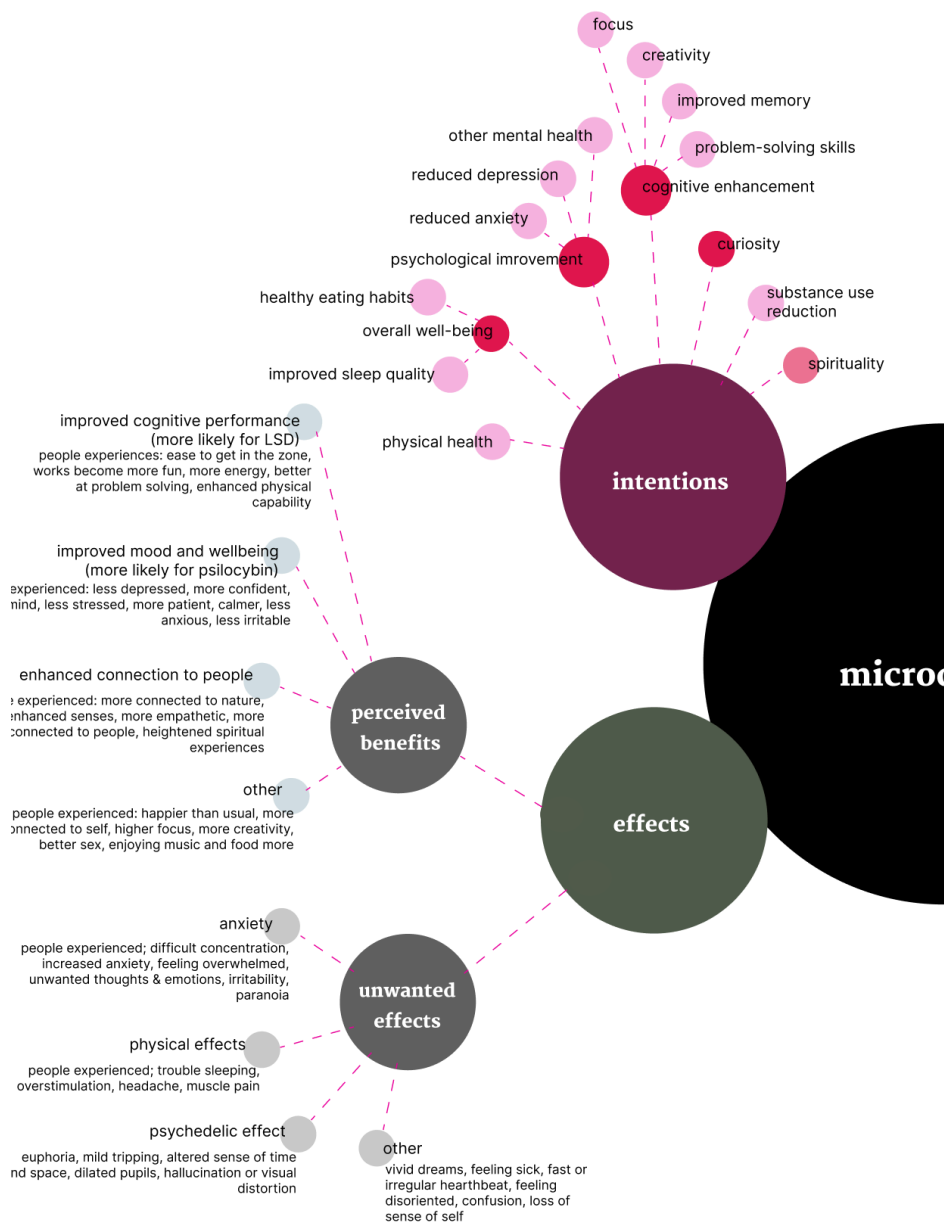vivid dreams, feeling sick, fast or
irregular hearthbeat, feeling
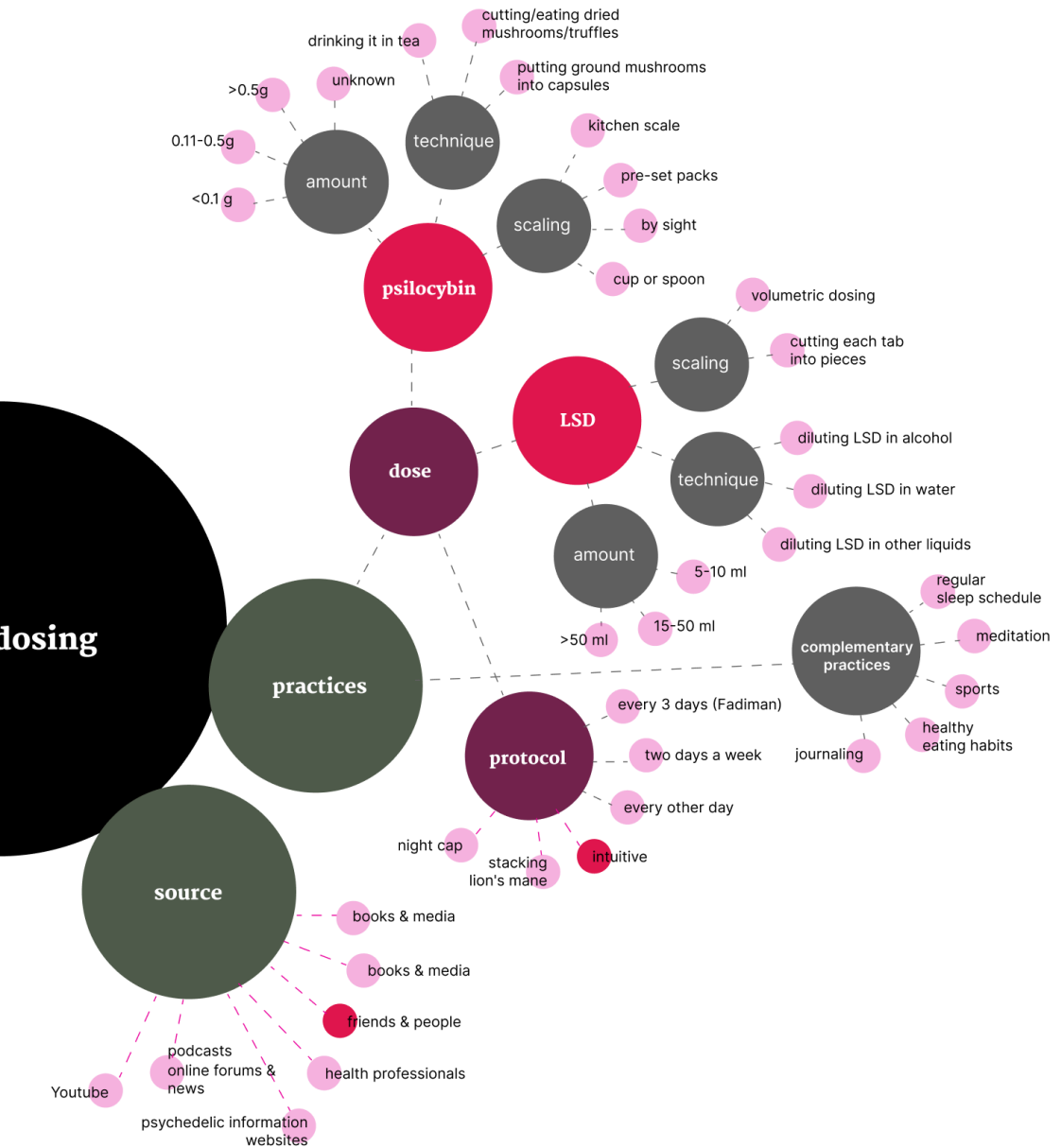disoriented, confusion, loss of
sense of self

Figure 8. Microdosing practices map is created based on the literature review online questionnaire results. Most frequently mentioned responses are marked with this color. See the Appendix "Online_ questionnaire" for detailed results.

2.3 Emerging themes

Grounding research activities yielded in exploring four main overarching themes for microdosing. Themes emerged based on the literature review, together with the interviews, questionnaire results, and observational activities. The first theme, A Paradigm Shift, highlights that there is a transition from spiritual context to utilitarian use of psychedelics. The trending practice of microdosing is the latest point where this shift is observed, turning psychedelics into a tool for optimization and enhancement. The second theme, technologies-of-self, represents the varying purposes of microdosing. While some people are seeking therapeutic benefits by self-medication, there is a trend going on for enhancement and optimization benefits of microdosing, especially in the workplace. The third overarching theme, the role of intuition, is related to the main components of microdosing, the dose, and the protocol. It highlights the fact that microdosing is still a very intuitive practice despite the search for standardization. Finally, the fourth and last theme, evidential basis, explains the lack of rigorous scientific studies on microdosing despite the hype, and yet discusses the ignorance of popular media of this research gap while popularizing microdosing.

theme 1 A PARADIGM SHIFT

The scientific research community is increasingly focused on advocating for the regulation of psychedelic use within a structured, scientific framework, particularly for clinical applications. This is evident in the development of strict protocols and ethical guidelines designed to ensure safety and effectiveness in therapeutic settings (Pilecki et al., 2021). Many individuals approach spiritual experiences with psychedelics with caution and hesitation, as the subjective and transformative effects of these substances often lack a clear, factual explanation and can be difficult to quantify within the scientific paradigm. This caution is partly rooted in the lingering stigma from the 1970s, when psychedelics were closely associated with the counterculture movement and became central to the war on drugs, leading to widespread criminalization and negative public perceptions (Dyck, 2018).

As a result, scientific methods are frequently seen as the only legitimate way to bring psychedelics into a legal and logical framework, which tends to overshadow the spiritual and cultural aspects of their use. This perspective often marginalizes the rich history of psychedelics as sacred tools in indigenous cultures, where they have long been used for transcendental and transformative experiences (Dumit & Sanabria, 2022). Instead, these substances are increasingly being reframed as technologies for therapy and cognitive enhancement in the Western context, reflecting broader societal trends that prioritize clinical efficacy over spiritual significance.

According to interviewee 1, while shamanic and spiritual frameworks can help some individuals make sense of their lives, there is a risk of "spiritual bypassing" when people have intense and unpleasant experiences with psychedelics. In such cases, individuals may avoid confronting uncomfortable feelings by attributing them to external or spiritual causes, leading to an "irrational rationalization" of their discomfort. This approach can undermine the potential of psychedelic therapies, which emphasize understanding and accepting discomfort, fostering a constructive relationship with it, and developing effective coping strategies. For this reason, it is important to have a scientific, logical, and well-founded framework for understanding and integrating psychedelic experiences, as opposed to neo-shamanic and spiritual approaches.

*"A neo-shamanic field is very often very based in **spiritual bypassing** where people are trying to tell others that what you are suffering is not real, it comes from somewhere else."* (Interviews, P1)

*"There needs to be a rebranding of psychedelics from the conventional hallucinogenic and experimental substances to being associated with [the] clinically-proven and scientific evidence that they're demonstrating right now. And that rebranding requires a lot of marketing and advertising efforts … you need to continuously invest in education [and] in basically spreading awareness. You're not just marketing a product, you're marketing a concept. **You're marketing an entire paradigm shift.**"* (Wright, 2022)

theme 2 TECHNOLOGIES-OF-SELF

Based on the literature review and questionnaire, people's motivations for microdosing can be grouped into seven main categories (Figure 8): psychological treatment (or improvement), general well-being improvement, cognitive enhancement, curiosity, spirituality, physical health improvement, and substance use reduction. The first and most frequently cited motive among these seven categories is microdosing as an alternative treatment for psychological problems. Those who microdose for psychological improvement aim to reduce stress, treat anxiety and depression, improve mood, and achieve emotional balance in their daily lives (Austin, 2016). The use of psychedelic substances as an alternative healing method is often attributed to the ineffectiveness of current mental health systems and antidepressants in modern psychology (Lea et al., 2020). In a study by Mason and Kuypers (2018), 62% of participants diagnosed with mental disorders tried microdosing as an alternative treatment to currently prescribed medications and psychotherapy. Interestingly, all studies indicate that individuals seeking psychological benefits from psychedelic use prefer to take psilocybin over other substances used for microdosing, such as LSD, DMT, and ketamine. According to Johnson and Griffiths (2017), this tendency is a result of the current popularity and success of scientific studies on psilocybin for psychotherapy, as well as psilocybin's better media presence for mental well-being.

"I think that there will be two possible future scenarios for people who want to heal and work on their wellbeing. They will either choose to go in the guided direction where they will work with therapists or integration coaches through their journey, or, they will be able to choose to **self-medicate** *themselves with microdosing. Which is more accessible for many."* (Interviews, P2)

"It is like [microdosing] **hacking your brain, you know?** *Like being a better you... I feel like you're generally happier, more upbeat, kind of more open minded also."* (Webb et al., 2019)

The other prominent motivation for microdosing found in current studies is cognitive enhancement. Individuals who microdose for cognitive enhancement expect improvements in memory and problem-solving skills, better concentration and focus, and increased creativity (Anderson, et al. 2019). Although Lea, et al.'s (2020) international online survey of 525 participants and Hutten, Mason, and Dolder's (2019) study of 1116 respondents found fewer people in this category than microdosers using psychedelics as a tool for mental

enhancement, there is growing media attention and anecdotal evidence for microdosing as a productivity and creativity hack, as recently popularized by Silicon Valley users (Glatter, 2015; Webb et al., 2019). Influenced by this trend, individuals who microdose for work describe their substance use as a "cognitive kick" (Johnstad, 2008), aimed at promoting authentic performance and maintaining control at work. For many microdosers, work serves as a platform for self-expression, recognition, and purpose (Grusauskaite & Van Eijck, 2022). The majority of them hold positions in creative or knowledge-based fields, where people work under so much pressure. In this regard, adapting the body and mind with microdosing to increase responsiveness in the pursuit of best performance becomes an accessible strategy.

*"…Now everything goes quickly and you should too… That's sad and it leaves a lot of people out…but **it's either you adapt or you don't***. " (Grusauskaite & Van Eijck, 2022)

These diverse motivations for microdosing can be understood through Michel Foucault's concept of "technologies-of-self," which refers to the various practices individuals engage in to transform themselves in pursuit of specific goals such as happiness, wisdom, or perfection (Foucault, 1988). Whether for psychological treatment, cognitive enhancement, or self-expression, microdosing is a contemporary manifestation of this self-regulation. It allows individuals to navigate and optimize their emotional and cognitive states. However, this adaptation is not simply a response to perceived deficits or lack of control. Given the non-standardized and specialized nature of creative and knowledge-intensive work, there seems to be considerable uncertainty, especially with regard to the recognition and credentials of knowledge workers (Mallett & Wapshott, 2012), resulting in a search for solutions for constant enhancement, functioning, and hyper-productivity. According to Interviewee 1, the idea of microdosing for constant productivity could be dangerous because it leads people to medicalize performance-related problems instead of looking at why they are not feeling well or productive anymore.

*"There is so much pressure, especially the pressure to be productive. In some ways, microdosing has been presented as a solution, you know, that is like you can take it and be productive again. Which is in some ways a bit of a dangerous idea since it is like medicalizing other issues. Instead of focusing on why you do not feel well or not productive, you just try to medicalize it. I think **that is how American culture shaped it, the productivity idea.**" (Interviews, P1)

theme 3 THE ROLE OF INTUITION

Finding the best working dose (also known as the sweet spot) for each individual is a key component of microdosing practice to maximize positive outcomes and minimize adverse effects. Individuals are expected to calculate the right dose for their height, weight, and tolerance that will produce positive effects without producing hallucinogenic or adverse effects (Petranker et al., 2022). Personal experimentation is necessary to find the best working dose because everyone's physiology, psychology, and intentions are different. However, it is possible that daily changes in mood, routine, workload, expectations, or physiological conditions may require a dose adjustment each time. This leads to the question of how people should decide what dose to take and whether they should follow the same calculation each microdosing day.

*"**If I take a little too much** it can be a little distracting visually. The things seem a little too bright and I stare at a computer all day long and that… and also my office area has a lot of blue spectrum lights, and so I don't know if it feels a little funny. That's the biggest downside."* (Webb et al., 2019)

Although the microdosing protocol can vary depending on the user's intentions, microdosing protocols usually include off days (transition days) without substance use (Fadiman, 2011). The key to finding the best protocol is to be aware of the contrasting effects between a transition day and a microdosing day. It is recommended that daily observations be recorded in a journal or tracked with an app to properly study which microdosing works best. However, many people do not follow a specific microdosing schedule, but do it intuitively when they "feel the need" or when they are in the "right mindset". At the same time, regular practice does not guarantee the same positive effects every time due to changing external and internal conditions.

*"I only microdose when I intuitively feel like I could use a boost in mood and cognitive enhancement. This is not necessarily when it's a stressful period, more **when I feel down and feel the need to have a shift in perspective**."* (Online questionnaire, P10)

*"[I increase my dose] when I feel like it now; **when my body and soul are telling me** I need it and it is good for me."*
(Online questionnaire, P12)

During my observations of the events, the dose was determined intuitively rather than using a standard measurement. At the Microdosing Open Day and the Sound Healing workshop, the bartender adjusted the dose based on the general look of the visitors. This method was imprecise because the same dose could have different effects depending on various physiological and psychological factors. The exact amount people consumed and the resulting effects were often unclear. For example, smaller women typically received reduced doses, while larger men could receive up to 5 grams. In addition, visitors could drink multiple cups of tea, effectively doubling the dose, but the effects were not necessarily doubled due to the time periods between servings. This approach is not consistent with the typical practice of finding an optimal microdosing amount. For social events, a dose slightly higher than an average microdose was sufficient to produce subtle effects. At the Mycelium Meetup event, the specific dose was even less important, as the focus was on community building, trust, and openness. In conclusion, the occasional use of microdosing at these events differed from regular, measured microdosing practices.

theme 4 EVIDENCIAL BASIS

Psilocybin microdosers seem to be well aware of current trends based on anecdotal and scientific evidence of psilocybin's efficacy in psychological treatment. However, clinical studies of psilocybin are primarily investigating the use of high doses in psychedelic-assisted psychotherapy to facilitate transformative experiences in patients over a shorter period of time and with greater impact (Aixalà, 2022). Thus, the potential risks and benefits of repeated use of psilocybin over time remain unclear due to the limited clinical research on microdosing. Even in clinical trials, the potential for psychosis, which is one of the risks of psychedelic use, remains a concern (Ross & Peselow, 2012).

Despite this limited scientific research and evidence of long-term use and placebo effects, there is a growing popularity and hype around microdosing. This hype often outpaces the scientific evidence. The lack of sufficient information in the mainstream media contributes to the widespread belief that microdosing is safe for everyone, which is not necessarily the case. While some people report benefits from microdosing, studies have not conclusively proven its effectiveness. Whether the benefits of microdosing are truly effective or merely a placebo effect remains controversial. The existing literature highlights a research gap, as studies of microdosing often show minimal differences between those who microdose and those who do not (Griffiths et al., 2011). Controlled trials with randomized placebo groups have shown that individuals in the placebo groups also report psychological and cognitive improvements, further complicating the understanding of the true effects of microdosing. There are other concerns about microdosing that raise questions about the effects of psychedelics on cardiovascular activity and physical health with long-term use (Kuypers et al., 2019). According to interviewee 1, if microdosing increases serotonin levels, it could even worsen symptoms in people with bipolar disorder or trigger manic episodes in vulnerable individuals. This uncertainty highlights the need for caution.

*"It is a very interesting topic. If it turns out that it is **all placebo** [in micro doses], then it is like, how we can focus on the placebo effect and bring it into people's lives so they would not have to take a substance."* (Interviews, P1)

*"[I Stopped microdosing because] it gave me an awkward physical feeling. **Shaky, slightly sickening**."*
 (Online questionnaire, P18)

Thanks to the ongoing positive portrayal of microdosing in popular media, microdosers claim themselves as scientifically grounded, logical people who are not experimenting with psychedelics just for fun (Webb, et al. 2019). They distinguish themselves from those commonly labeled as "junkies" who use drugs for recreational, escapist purposes (Copes, 2016). Instead, microdosers claim that their substance use helps them become "the best version of themselves". Because microdosing does not result in significant psychoactive effects, microdosers are able to remain functional in their daily lives, and so can maintain their social roles and others' expectations. In this way, as opposed to recreational use as an escape from the mundane, microdosing is seen as a technology that can help them better achieve their daily goals. This reasoning serves as a rationalization tool to justify the practice of microdosing, positioning it as a responsible and appropriate use of substances, similar to taking vitamins as a daily supplement. In this regard, there are even individuals who microdose LSD or psilocybin with their breakfast as a daily supplement before starting their day (Lieber & Merad, 2024; Nye, 2017).

*"People tend to say that they do not feel anything, even though they show clear changes in their mood. It is such **a subtle change** that does not affect functioning but changes one's mood."* (Interviews, P3)

However, the lack of research and the ongoing media hype presenting microdosing as a proven solution creates a significant contradiction. Contrary to their claims, microdosers do not appear to base their practices on purely solid scientific evidence, but rather on anecdotal reports from various popular media sources (Figures 8 and 9). When Fadiman published his book in 2011, advocating psychedelic microdosing protocols and sharing positive experiences, including his own, it played a key role in popularizing the practice. Later, Ayelet Waldman's book A Really Good Day: How Microdosing Made a Mega Difference in My Mood, My Marriage, and My Life (2017), in which she discusses using microdoses of LSD to treat her mood disorders, further fueled interest among a wide audience. These works, along with popular internet platforms like Reddit, where users share their microdosing experiences and methods, have become key resources that microdosers rely on.

As people increasingly mistake anecdotal evidence for factual information, managing the risks associated with substance use becomes more challenging, magnified by the spread of misleading information on the Internet. This concern was evident in my observations at the Microdosing Open Day event, where the potential risks of microdosing were a topic of discussion. While some attendees enthusiastically praised microdosing for its benefits in treating various conditions including ADHD, often based on what they had read or heard from others, some attendees expressed significant concerns. These concerns were particularly strong among those who attended with partners or friends. For example, one attendee confided that he was worried that microdosing might make his ADHD worse because he had come across online reports suggesting that it could increase anxiety. Despite his curiosity and willingness to explore microdosing, his health concerns remained unresolved. This discussion highlights ongoing debates in the literature about the lack of scientific evidence and the risks of microdosing. While there is considerable hype and optimism about its potential benefits, these are not yet scientifically proven, and concerns about potential negative effects remain valid and significant among new users.

*"In the capsules it just looks like a multivitamin so **I just keep it in a vitamin bottle**." (Webb et al., 2019)*

*"**So we do not even know whether it is physically healthy** to do microdosing. This whole idea of taking these substances regularly is so new. We do not know." (Interviews, P1)*

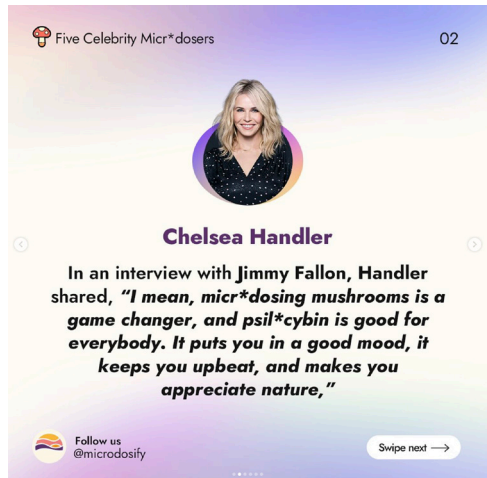Figure 9. (left) Microdosify instagram post, Elon Musk
Figure 10. (right) Microdosify instagram post, Chelsea Handler

2.4 Conclusion

To conclude this chapter, I discuss the initial tensions that occurred based on the overarching themes. Together with these initial tensions, I conducted research through design by using speculative prototypes and explored the topics further. These explorations based on initial tensions were intended to encourage critical awareness and reflection on the audience, and they are presented in Chapter 4.

theme 1 A PARADIGM SHIFT
from spiritual to utilitarian

Theme 1 reveals a paradigm shift from the spiritual use of psychedelics in indigenous cultures to their utilitarian applications in Western contexts. This shift reflects a broader tension between spirituality and materialism, and between collective and individual experience. It also raises questions about how to balance respect for the traditional meanings of psychoactive natural plants with the demand for practical solutions from these plants.

theme 2 TECHNOLOGIES OF SELF
microdosing as a multi-purpose technology

Theme 2 explores how microdosing is also increasingly used for cognitive enhancement and self-improvement, rather than just therapeutic purposes. This shift creates tensions between using microdosing for healing versus optimization, and between personal reflection for finding self versus seeking quick fixes and trying to become more than self, with increased focus, creativity, and productivity. There is also a broader tension between escapist and utilitarian uses of psychedelics, as evidenced by how many microdosers justify their substance use.

theme 3 THE TOLE OF INTUITION
the dose and the protocol

Theme 4 highlights that although microdosing requires consistent and repetitive consumption of a precise dose, many people choose their microdosing protocol and dose intuitively. This need for standardization in the process, as opposed to subjective decisions, creates a tension between the intuitive and logical practice of microdosing, and affects how people decide on their dose and protocol. In addition to intuitive tendencies, it also reveals a contradiction between feeling an intrinsic motivation to microdose and feeling an external pressure or encouragement to microdose.

theme 4 EVIDENTIAL BASIS
ongoing hype but a lack of rigorous scientific research

Theme 3 highlights that despite the lack of scientific research and clinical evidence for the efficacy of microdosing, there is a great deal of hype, amplified by the media and popular culture. This situation creates a tension between hope and hype about psychedelics, overshadowing the alternative therapeutic benefits and positive effects of microdosing in the absence of clear information for risk management. In addition, the uncertainty surrounding the effects of microdosing also creates a tension between the possible healing power of microdosing and the potential risks it may trigger.

"Designers today are expert fictioneers in denial."
Dunne & Raby

chapter 3

APPROACH

Opening Question How to explore the topic deeper and surface tensions in microdosing?

In this chapter, I introduce the main approaches of the project, which is critical and speculative design. These approaches are used to explore the topic for research purposes, to uncover underlying tensions, and to provoke deeper reflection on possible futures, positioning design as a tool for both critique and exploration.

3.1 Critical and speculative design

Critical design has emerged to challenge conventional design practice, which is often concerned with problem-solving, product functionality, and the consumer market. In this discourse, design acts as a form of critique enabled by the artifacts and the narratives of the use of these artifacts (Malpass, 2017). This approach shifts the designer's role from problem-solving to problem-finding and sense-making, prioritizing exploration and subjective expression (Malpass, 2017). In this context, the designer becomes both a creator and a communicator, taking the role of shaping not just the form but also the content of their work, a process DiSalvo describes as 'producing content through the form' (2022).

One approach within critical design is Research through Design (RtD), which provides designers a framework for exploring conflicting situations by using prototypes and allows the research community to reflect on the ethical implications of design (Zimmerman et al., 2010). In RtD, prototypes are not just unfinished artifacts open to interpretation; they are research tools for experiencing future scenarios, telling stories, prompting discussions, and connecting abstract theories with tangible experiences (Stappers, 2013). In this context, speculative artifacts can serve as prototypes to explore alternative possibilities and reflect on our world (Wakkary et al., 2016).

Through provocative design artifacts, speculative design explores and critiques possible futures, building on RtD (Dunne & Raby, 2013). It moves discussions about technology beyond the expert domain, engaging broader audiences to consider the societal, political, and cultural impacts of technological developments (Malpass, 2019). Rather than dictating how technologically augmented futures should be, speculative design invites exploration and imagination of how they could be (Encinas et al., 2023; Figure 11).

In speculative design, the designer's role as a storyteller is crucial. Design objects become tangible representations of alternative scenarios, inviting public inquiry into the desirability of proposed futures. Here, the designer functions as an author or fictioneer, with the concept being enough as the final outcome of the process rather than a step toward mass production as in the conventional design processes (Dunne & Raby, 2013; Šuran, 2019). The designs proposed are complex yet familiar, often evoking a sense of the uncanny, and they operate within the narrative context, resonating with the characters within it.
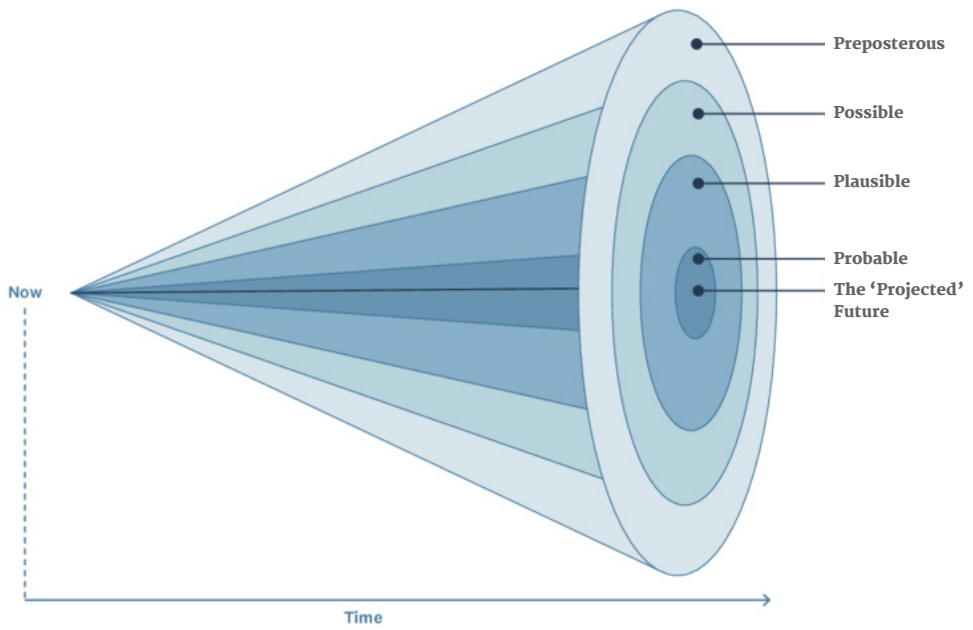
Figure 11. The Futures Cone, adapted from Voros (2003)

3.2 Tensions

Tensions in speculative design serve as conceptual tools that help illuminate and navigate complex issues (Encinas et al., 2023). Based on research, "tension patterns" represent dynamic "interplays between opposing tendencies or forces" (Mitrović et al., 2021) within a given context. Instead of being framed as binary choices, tensions can be understood as spectrums that can be adjusted or 'tuned' to different degrees, allowing for nuanced exploration. As Encinas et al. explains, in practice, tension patterns are used to critically engage with specific issues, such as those in psychedelic use and microdosing practices, by framing them within two opposing sides. This approach fosters critical thinking and reflection, enabling designers to tangibilize complex issues and help people understand and address the nuanced challenges and opportunities within a particular field. While these tensions are meant to be evident, their resolution is intentionally left ambiguous. The open-ended nature of these tensions invites the audience to explore various possibilities rather than seek a definitive solution.

3.3 Conclusion

Building on the mentioned approaches, this project intends to employ a balance between being too fictional and too familiar, pushing the boundaries to evoke a sense of discomfort or confusion. As Dunne and Raby state, "a slight strangeness is the key – too weird and they are instantly dismissed, not strange enough and they're absorbed into everyday reality" (2001, p. 63). By maintaining this balance, I aim to encourage critical thinking and challenge people to question the benefits, risks, and challenges of microdosing as a future social practice through a series of speculative artifacts.
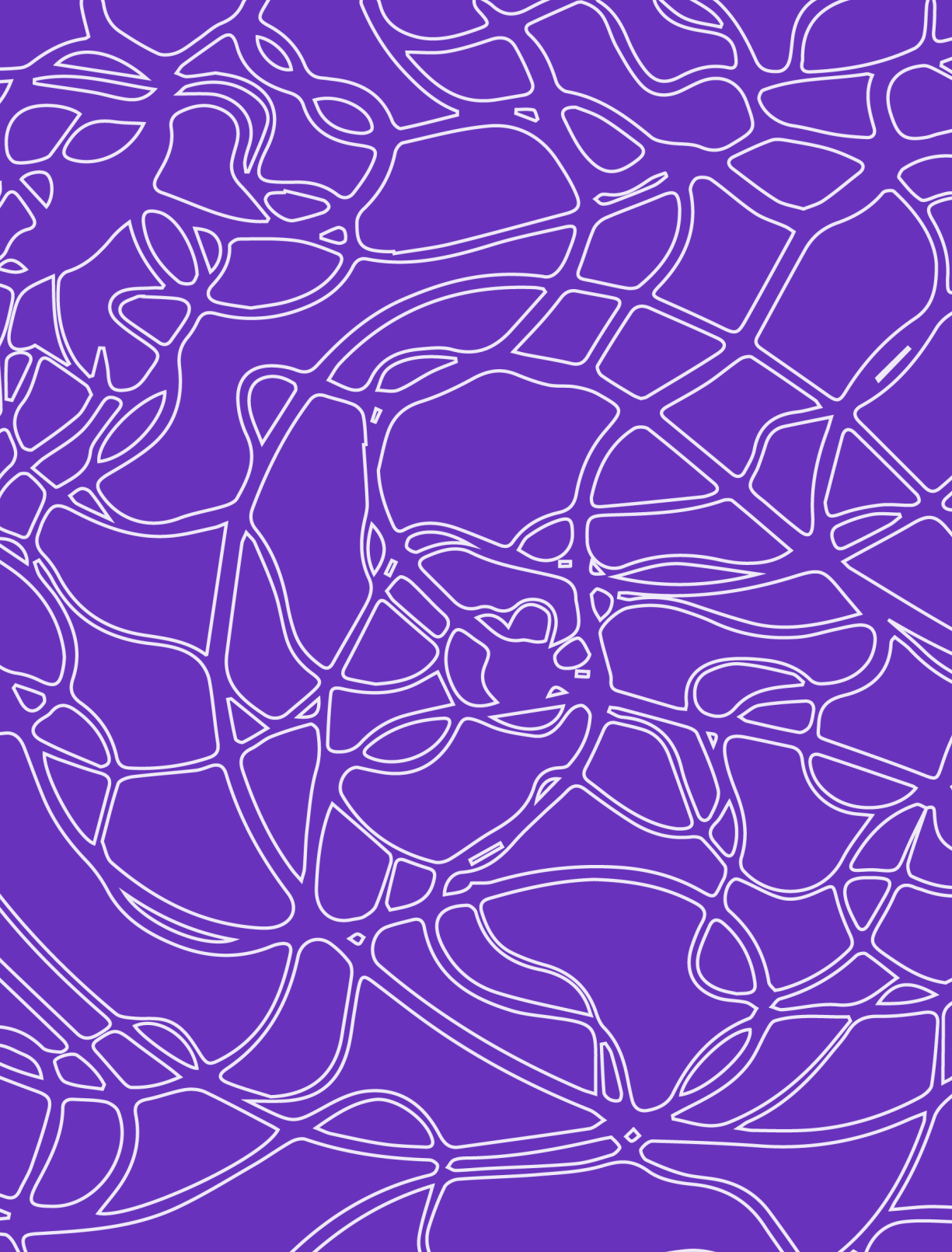
chapter 4

DESIGN EXPLORATIONS

Opening Question How to explore the topic deeper and surface tensions in microdosing by using speculative artifacts?

Based on my initial research activities, I further explored the topic experimenting with speculative artifacts and scenarios, conducting research through design. This approach provided deeper insights into microdosing practices, furthered my understanding of its benefits, risks, and challenges, and provoked critical reflection in both myself and the audience.

By posing "what-if" questions with speculative concepts, I tried to extend the possibilities for different uses of microdosing and surface the tensions in different scenarios. Although some prototypes ended up being too functional or too fictional, materializing the possibilities and critiquing them, whether by myself or with my supervisors, allowed me to assess their effectiveness in encouraging inquiry.

Throughout this phase, I followed an iterative process, continuously reflecting on what I created and its impact on myself and others. Based on the feedback and new insights, I revised the main tensions and designed the final speculative scenarios accordingly.

In this chapter, the reader will find seven different speculative prototypes and scenarios, each accompanied by a brief explanation of the intended experience, the focus tension(s), and key takeaways from the discussions. Some of these prototypes were shared with people and used as conversation starters to explore the topic more deeply. I conducted a public experiment with one of these scenarios in a public microdosing event. This experiment yielded more nuanced results that served as the basis for some of the final tensions.

speculative artifact I (SAI)
self-diagnosis tool

Aim Investigating the theme of "The Role of Intuition" by examining the tension between deciding to microdose based on intuitive, subjective feelings and making that decision through logical reasoning using a tool.

The self-diagnosis tool is designed to check an individual's levels of happiness, productivity, and calmness by being inserted into the body. The color of the liquid inside the tool indicates whether the individual should microdose or not. If needed, the individual can use microdosing patches by placing them on their body.

Key takeaways This diegetic prototype encouraged reflection on what a device could potentially measure to assess an individual's overall well-being and cognitive abilities. By presenting an absurd and speculative concept like "happiness assessment," it raises the question, "Is it possible to measure happiness?" and, subsequently, "Can happiness be increased through microdosing?" However, this artifact offers a practical solution within the scenario by enabling individuals to self-diagnose and medicate in cases of perceived deficiency, which somewhat diminishes its critical and speculative nature.

Figure 12. Selft-diagnosis tool

speculative artifact 2 (SA2)
emergency kit

Aim Exploring the theme of Evidential Basis by focusing on the tension between the healing potential and the triggering risk of microdosing.

The kit is designed to be placed in public spaces for use in emergency situations related to microdosing. It was inspired by responses to a questionnaire and conversations with people who have ADHD and are interested in microdosing but hesitate due to potential side effects. The kit contains two items: (1) emergency face plasters and (2) a pill. The face plasters are intended for situations where individuals are unable to control their facial expressions— whether overly happy or sad—after microdosing, particularly during serious meetings or in contrasting environments. The pill symbolizes the risky side of microdosing, serving as a backup plan for unwanted effects, and is meant to prompt reflection on the potential harmful consequences of microdosing for some individuals.

Key takeaways Rather than a question for critical reflection, this fictional emergency kit addresses an existing, real issue with microdosing. Additionally, the tension between healing and triggering may not create a conflicting situation here; instead, it highlights a concern that necessitates scientific research, development, and resolution regarding substance use. Nevertheless, this exploration was valuable in raising awareness and encouraging discussion about the triggering risks associated with microdosing.

Figure 13. Emergency kit

speculative artifact 3 (SA3)
self-regulation kiosk

Aim Exploring the theme of "Technologies-of-Self" by examining the tension between using microdosing for self-discovery and using it for self-optimization.

The kiosk is designed to be placed in a workplace, where employees can stop by to regulate their mood by indicating how they currently feel and how they want to feel. Based on their desired state, they receive a pill to help them become the person they wish to be. In a second iteration, rather than quantifying happiness or focus levels numerically, feelings and cognitive skills are represented abstractly through animals. This approach draws inspiration from the concept of spirit animals in shamanic cultures, where animals symbolically represent individuals, embodying and protecting their spiritual powers and self-growth.

Key takeaways The current design of the kiosk does not sufficiently emphasize the tension between quick fixes and self-discovery, lacking a perspective from the self-discovery side. Implementing a mandatory policy for its use in the workplace, rather than offering it as a free choice, could subject individuals to external pressures and raise ethical concerns about such practices. The timing of this interaction is also crucial; for example, employees may want to be productive in the morning or more relaxed—like a sloth—on a Friday afternoon. Therefore, the context in which the kiosk is placed plays a critical role in shaping the experience and outcomes of the interaction.
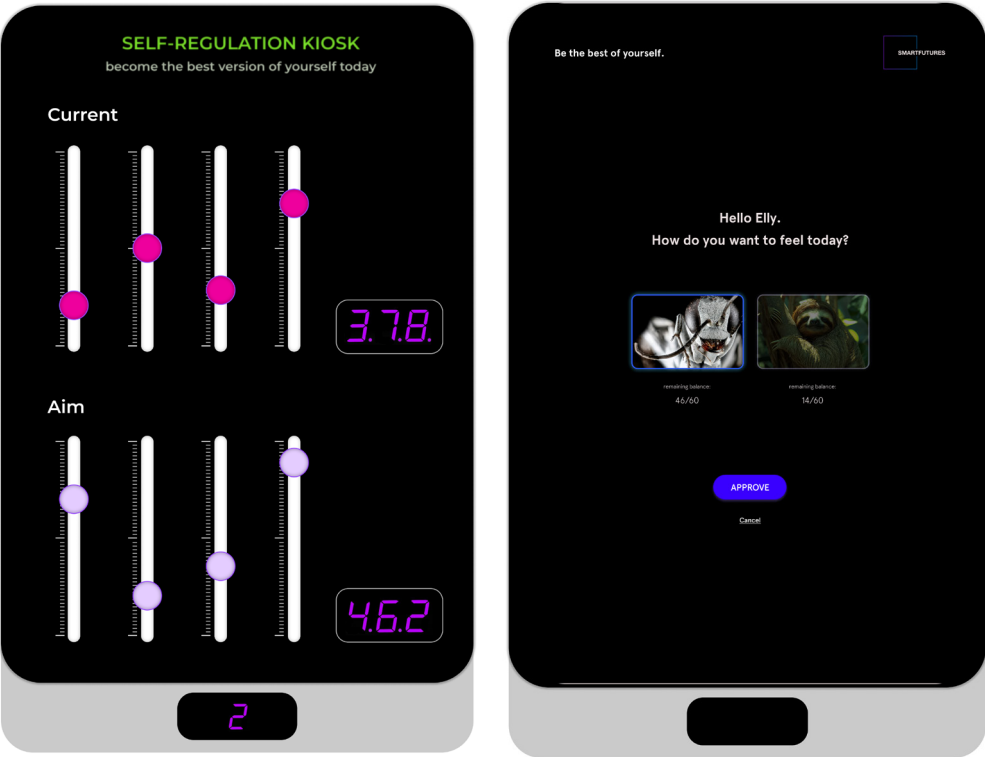
Figure 14. (left) First version of self-regulation kiosk, (right) second version with animals

speculative artifact 4 (SA4)
Future wellness center with trained gurus

Aim Exploring the theme of "A Paradigm Shift" by focusing on the tension between spiritual and scientific approaches to using psychedelics.

The scenario is presented through a video from a patient's perspective, where she is introduced to a future wellness center by a professionally trained guru. The guru reads the patient's "vibe" using a tarot card set and a diegetic vibe catcher. Based on this assessment, the guru determines how the patient feels, and what she needs, and prescribes a microdosing protocol and dosage accordingly.

Key takeaways The concept of trained wellness gurus earning money by conducting "unconventional" assessments highlights the tension between the spiritual essence of psychedelics versus Western utilitarian approaches. It also reveals the risk of commodifying plant-based medicines, therapies, and indigenous rituals within the Western world. Role-playing with others while designing the scenario helped me better envision this future, and the video allowed the audience to better imagine and reflect on the scenario. In general, the scenario raised the question, "What if the future of therapy includes spiritual sessions, integrated with psychedelic use?"

Figure 14. Future wellness center with trained gurus

speculative artifact 5 (SA5)
microdosing ritual in the office

Aim Exploring the theme of "Technologies-of-Self" by focusing on the tension between microdosing as a tool for slow living versus its use for optimization at work. Additionally, the scenario examines the effects of collective microdosing in a professional environment, rather than an individualistic approach.

The scenario unfolds during a typical weekly opening session at an office, where participants begin their week as usual. It involves a kiosk screen, blue and pink pills, and intention stones. The session starts with each employee choosing whether they want to feel like an ant or a sloth for the day, and they receive a corresponding pill—pink or blue. After a team microdosing session, participants engage in a discussion about their individual daily goals while holding their personalized intention stones.

Key takeaways In a group microdosing session with colleagues, some participants felt peer pressure to choose the same animal and corresponding color pill—feeling like an ant and taking a blue pill in this case. Although the meanings of the two animals and colors were not explicitly explained to the participants, they naturally associated the sloth with slow living and the ant with industriousness. Some participants mentioned that even if they preferred to feel like a sloth, they felt compelled to choose the ant option because everyone before them had done so, and they felt the pressure to follow the same choice. However, some noted that microdosing collectively fostered a positive sense of team building as well, as they began the week with a shared ritual and set common goals. Additionally, the use of personalized intention stones helped some participants connect with their inner selves and express their subjective feelings more effectively.
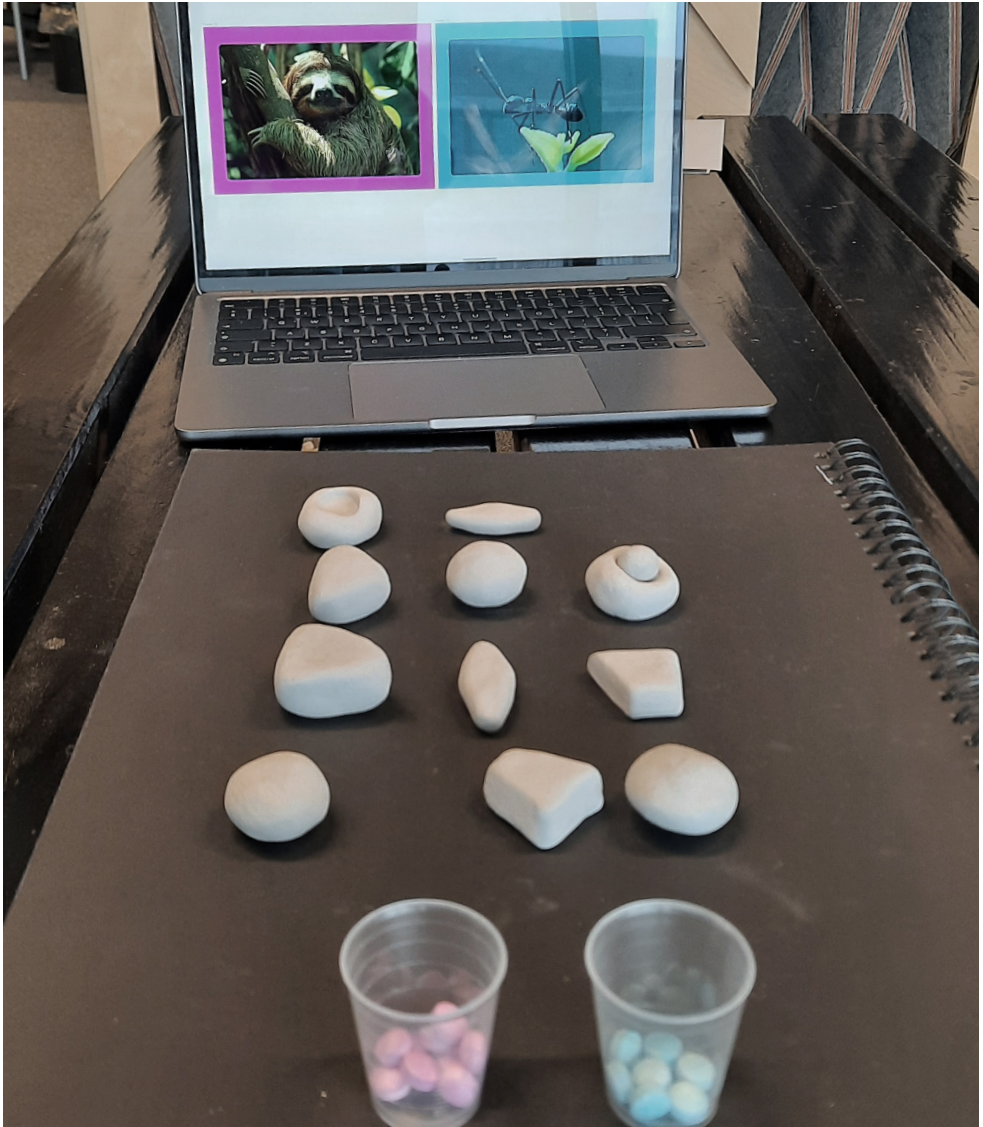
Figure 15. Microdosing ritual in the office

speculative artifact 6 (SA6)
company welcome kit

Aim Exploring the theme of "The Role of Intuition" by examining the tension between using microdosing for personal well-being and using it for constant enhancement based on company assessments.

The Welcome Kit comprises six main items: (1) a smart bracelet to monitor the employee's vital signs and status, (2) a platform that provides light cues based on the chosen animal to remind the employee of their daily intentions, (3) a key card for accessing the microdosing kiosk (a kiosk similar to the one in SS5), (4) pills for emergency situations (see SS1), (5) personal intention stones for use in meetings, and (6) sunflower and lavender seeds associated with specific animals. Each new employee receives a Welcome Kit and is trained by the company Guru on how to use the products. After each project period, the employee and the Guru meet for a progress review, assessing the employee's progress based on the animals chosen for each microdosing day.

Key takeaways To fully integrate and experience all the items in the Welcome Kit, a phased scenario could be developed to introduce them gradually, such as over the course of a week or a single day in the company. While the concept of the smart bracelet is inspired by the smart ring idea from SS1, it could also be expanded to measure more ambiguous factors beyond its primary function, as its current role seems too straightforward and logical. If the bracelet is used, a key card might become redundant. Additionally, the company Guru could potentially be replaced by an artificial intelligence system, which would interact with employees continuously.

Figure 16. Welcome kit

speculative artifact 7 (SA7)
smartdosing app

Aim Exploring the themes of "The Role of Intuition" and "A Paradigm Shift," focusing on the balance between decision-making for microdosing based on intuition versus using smart tracking tools.

The scenario involves three steps: (1) using a stone to reveal the intention behind microdosing, (2) employing a 'smart' ring to track body vitals, and (3) utilizing the SmartDosing app to analyze characteristics and create a personalized page with recommendations for dosage and protocol.

Key takeaways The intention stone serves as a spiritual and reflective element, providing a deeper connection beyond mere technological functionality. This aspect resonated with many users of psychedelics. For some, the scenario felt highly realistic due to its "professional look," leading to positive reactions and appreciation rather than critical analysis of the smart app. Nonetheless, these positive responses offered valuable insights, such as admiration for 'smart' tools and statistical data, even when users did not fully understand the underlying processes. Many participants believed that a smart system, with its ability to gather and analyze personal data, could offer more objective and accurate guidance compared to intuition alone. This trust in technology often overshadowed personal intuition, with some valuing the personalized and data-driven insights provided by the app. For instance, the capability to receive tailored suggestions based on constant tracking made the smart tool appear more reliable and proactive in determining the optimal time and dosage for microdosing. However, by collecting personal data, the scenario also sparked discussions about the potential risks of substance use becoming another avenue for surveillance by authorities.

Figure 17. Participants trying the smartdosing app scenario in a microdosing event

4.2 A public experiment

Aim My goal for this experiment was to learn more about people's microdosing practices, provoke them to question their decision-making process for deciding on the dose and protocol and explore the boundaries of how smart, standardized, or intuitive this practice can be.

Study design The experiment took place at a Microdosing Open Day event organized by a microdosing organization based in Amsterdam, where I asked visitors to try my scenario, followed by a short (15–20 minutes) discussion. 9 people wanted to experience the scenario and the whole experiment took about 25 minutes per person. As a formal procedure, I gave each participant a consent form and explained the scenario at the beginning. I recorded all sessions –with permission– and later transcribed them for further thematic analysis.

Prototype The main inspiration from the basic research that prompted this speculative scenario was the intuitive driver to microdose on random days for some people versus trying to find a logical explanation for the time of performance enhancement. The tensions I chose for the first speculative prototype are: **(1) Who do people trust, themselves or others? (2) How do people decide on their dosage, with their intuition or with standard suggestions? And (3) What would happen if spirituality and logic were mixed?** Based on these questions, I designed a three-step scenario that asks: What if there was a technology that could track the vital signs and analyze individuals' personalities through an online test to help them find their dosing (sweet spot) and protocol? The speculative scenario includes an intention stone, a 'smart' ring, and an AI tool that helps individuals find the dose and protocol they need by asking ambiguous questions and making belief tracking their body's vital signs with the smart ring.
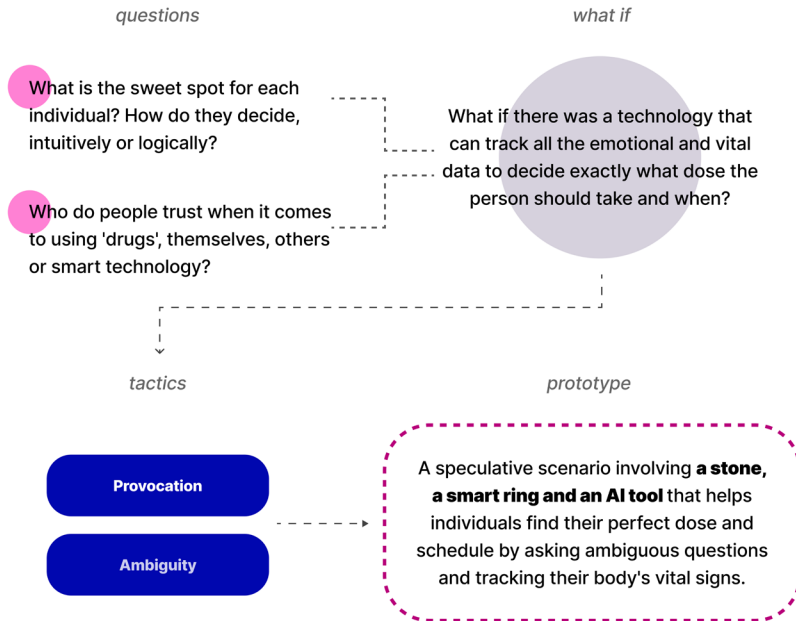
questions

what if

What is the sweet spot for each individual? How do they decide, intuitively or logically?

What if there was a technology that can track all the emotional and vital data to decide exactly what dose the person should take and when?

Who do people trust when it comes to using 'drugs', themselves, others or smart technology?

tactics

prototype

Provocation

Ambiguity

A speculative scenario involving **a stone, a smart ring and an AI tool** that helps individuals find their perfect dose and schedule by asking ambiguous questions and tracking their body's vital signs.

Figure 18. Prototyping process

intention stone
channeling the intention

Figure 19. Intention stone

Holding an intention stone prior to the test was intended to be a small ritual that encourages people to have a reflection moment and think about their intentions for microdosing. By including this ritual, I intended to provide a contrast between spiritual and "scientific" meanings, which are represented by the "smart" ring and the AI tool.
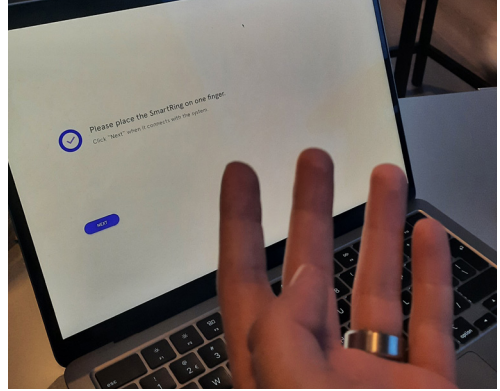
'smart' ring
measuring the body vitals

Figure 20. Connected 'Smart' ring

Two "smart" rings, which are ordinary metal rings decorated with some LED stickers to act as a technological tool, used for "tracking" people's body vitals such as blood pressure, heart rate, or body temperature during the scenario (Figure 22).

smartdosing app
personalizing the protocol

Figure 21. Smartdosing app welcome page

The SmartDosing app, which presents itself as a genuine AI tool, helps people find the perfect dose and protocol they need (Figure 21). The App consists of 6 questions; **(1) Which of the following do you think looks more like you?, (2) Which eye color is closest to yours?, (3) How many times yesterday did you think someone was being stupid?, (4) Which vibe would you prefer for your bedroom?, (4) Which statement is more true than the others?, (5) Last question. Do you have a cat?**

In the end, the results of the test are calculated with the 'input' from the 'smart' ring. According to the results, the App creates a personalized page with the protocol (Figure 23). Users can see how their emotional and cognitive levels are compared to 'normal' levels and the average. They can check what they need to boost, and how much or what kind of substance they should take for improvement.

The results are presented in a statistical manner, in line with the quantified self-movement, in which individuals use technology to collect data and gain insights into personal behavior, habits, and health, with the ultimate goal of self-improvement. In this way, happiness or focus levels are quantified in a numeric way.
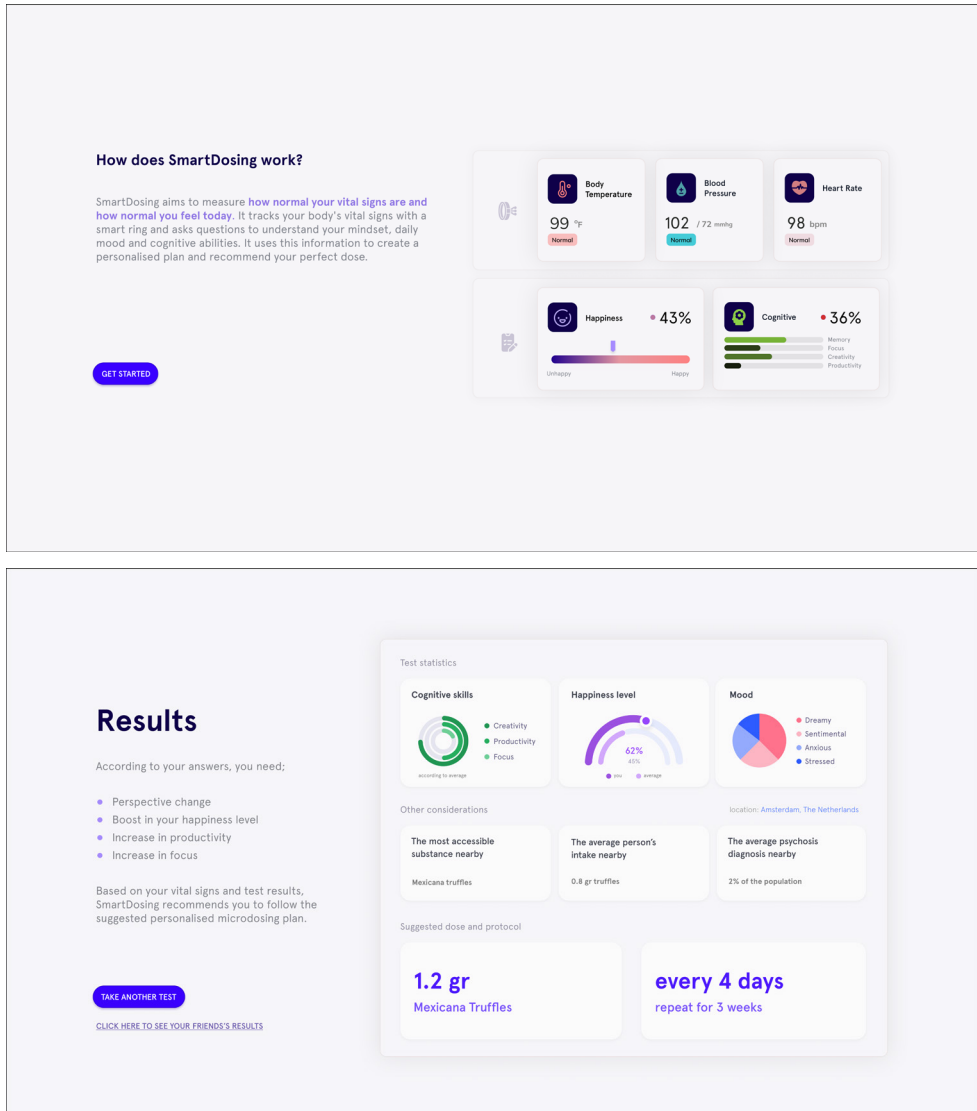
Figure 22. (top) Smartdosing app working system
Figure 23. (bottom) Smartdosing app results page

Scenario At the beginning, the audience is given an intention stone and asked to think about their intention for microdosing that day. Later, the audience is asked to place the 'smart' ring on one of their fingers. When the ring is put on, the app 'connects' to the ring and allows the audience to start the test. At the end, the app creates personalized pages with recommendations. Based on the generated page, I discussed the results and their trust in using such AI tools for dosing with the participants in 25-minute discussions.

Figure 24. A participant answering the test questions

4.2.1 Emerging themes

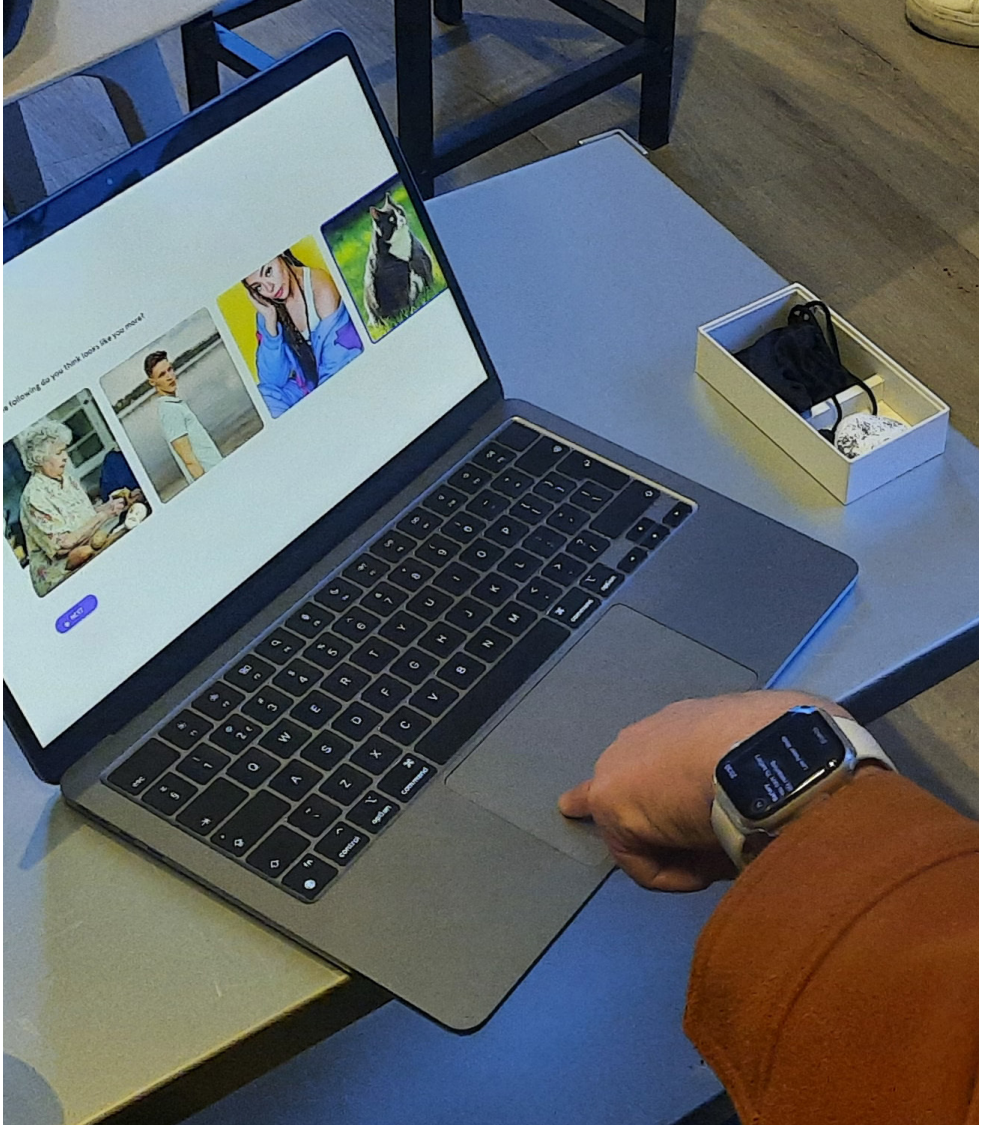**Analysis method** In order to analyze the reflections obtained from this experiment, I used reflexive thematic analysis (Braun & Clarke, 2021) (more) inductively in order to interpret the data and identify themes. I chose this method because it allowed me to deeply engage with the data, helping me discover unique patterns and insights that are meaningful to my research. In the initial phase, I uploaded audio recordings from the test to an encrypted drive platform Proton securely, and then transcribed them into text using an open-source AI model called Whisper. The transcripts were subjected to a cross-check for validation with the original audio recordings in order to ensure accuracy. In order to maintain the confidentiality of the participants, I anonymized all data and labeled all documents with corresponding user numbers. Lately, I imported all the transcripts to Atlas. ti for thematic data analysis.

Each statement from the participants was carefully analyzed, resulting in the identification of a total of 66 initial codes in the first round. Following the initial coding, I did a second iteration in which I reviewed all comments and refined the codes. After this second iteration, I transferred the codebook into FigJam, to facilitate grouping and visualizing them into cohesive themes. While grouping codes into themes, a third iteration occurred, during which some of the codes were refined again. I generated a map of this analysis to visualize the relationship between themes and codes, supported by direct quotes and comments from the transcripts. I summarized the initial findings from this analysis by synthesizing the data, which led to the generation of insights for the further stages. Finally, I compared all the insights from the experiment with the existing insights from the grounding activities.

theme 1 TRUSTING 'SMARTNESS'

Even though participants were informed that the tool was not a well-functioning AI system, almost all reacted as if the persona presented on the final results page was almost accurate (Figure 23). The app's use of terms like "smart" and "AI," along with its feeling of evaluating psychological factors, created an impression that there was a scientific method behind the system for many. This sense of artificial intelligence may have led participants to trust the technology blindly and rationalize the peculiar questions it posed. When asked about their trust in sources of information on psychedelic use, many felt that the smart system, with its data-driven approach and collection of personal data (e.g., body vitals, psychological tests), was more objective and accurate in giving personal recommendations than anecdotal experiences or their own intuitive feelings. The continuous tracking provided by smart wearables made them appear more effective for determining optimal timing and dosage for microdosing.

[Me: Would you trust such a tool if it was working well?]

*"I think, is cool because, like, technology and **you kind of think there's some science behind it**." P5*

[Me: What do you think about the results?]

*"**I agree. I agree with them**. I'm definitely a very-- I see myself as a creative person rather than anything else. And yeah, I think the happiness is pretty good. And I'm definitely dreamy and sentimental." P7*

[About having smart tools for deciding the 'right' microdosing time]

*"This would allow me to, for example, react sooner to when I need to microdose. So … **It will allow me to be proactive** … So I'm just going to give you anaorange for you to be proactive and to be like, reduce it, or to be conscious about it. **That's very useful**." P4*

*"Having something like this is also **pretty good because it's like personalized**." P9*

theme 2 AMBIGUITY AND BELIEF

Similar to the trust placed in smart technologies discussed in Theme 1, participants were inclined to justify the credibility of the test questions for personal evaluation, even though the questions were random and ambiguous. Some participants perceived these ambiguous questions as yielding more authentic and personalized results, believing that the system might track moods and reactions in a seemingly "magical" way through a brief psychological test. As a result, some participants found this approach more reliable for assessing emotions and moods than traditional structured surveys used for microdosing. The ambiguous nature of the questions also encouraged introspection, prompting participants to think beyond standard categories, unlike traditional clinical surveys. Reactions indicated that subjective feelings were often valued more than objective factors such as physiology in the context of substance use. For instance, questions like "Which of the following do you think looks more like you?" led some participants to base their responses on personal interpretation rather than objective characteristics or physical appearance.

[Regarding the test question: Which one looks more like you?]

"Okay, I feel like this [old lady in the picture], but I look like this [young lady in the picture]. But I'll go with this [old one]." P9

"Objectively thinking maybe that this guy would look more like me... I'm gonna answer with the cat." P1

[About how the app measures happiness, etc.]

"And obviously it's always constructed in a way that's not that sort of are you happy one to ten because that's not that reliable instead of like, you know, having these kind of questions that you've stated." P4

[Me: Why do you think that the app asks you if you have a cat?]

*"I mean, **having a cat also gives a lot of different information**, right? It's like how are your social connections? What's your financial situation? People who have animals have more partnered." P4*

"I think people who like cats and who have cats are more emotional or something, like intuitive, I always think, because you have to know how to read a cat, because cats are so on and off." P7

theme 3 THE ROLE OF INTUITION

Some participants expressed concerns about adhering to a strict microdosing schedule, noting that mood fluctuations can make it challenging to follow a rigid protocol consistently over time. They emphasized the importance of being present and fully aware of one's current mental state when deciding on a microdosing protocol, as microdosing typically requires increased self-awareness and reflection. According to participants, microdosing should occur at the "right moment" and when the individual is in the "right headspace" to maximize its benefits. The initial step of the scenario, which involved holding an intention stone, seemed to help participants ground themselves in the present, fostering awareness and introspection from the start. Additionally, microdosing protocols can vary based on personal intentions—whether for productivity, relaxation, or socialization. Smart systems may struggle to capture the nuances of each unique situation, highlighting the need for self-assessment alongside such tools or a constantly tracking smart system for dose adjustment.

[Me: How would this system go wrong you think?]

*"Like the system could fuck up and tell you to do a point eight gram because you're very stressed because you're about to do like a meeting that's like pretty important. And instead of, you need, **you also need that stress, right?** And then doing point eight grams, it's not going to be very good for a meeting, you know?" P4*

[About the importance of having a goal, an intention in the beginning]

*"So it's [microdosing] kind of **more looking at where I am and where I want to go**." P9*

"Because otherwise you're not microdosing, you're just doing little truffles." P6

[About trusting another agency]

*"Just because, yeah, it's the same with a doctor, I would say. You know, i**f you don't feel like following the recommendation, you don't do it.**" P5*

"Like, it's like telling somebody to be in a diet. It's like, well, they'll follow it, but they'll also do what they want to do, right?" P4

theme 4   QUANTIFIED-SELF

In line with the trending quantified self movement, most participants placed significant trust in the statistical data presented, even if they did not fully understand how the system measured and evaluated their values, such as happiness. Participants generally appreciated the evaluation and sought to validate the statistical data with their own explanations. This highlights the influence of numbers and purported science-based evaluations in convincing people of their need for specific interventions for well-being or self-growth.

[Me: What do you think about the scores on happiness and cognitive skills?]

*"It's **nice to have a number** because it's hard to kind of… maybe it's hard to tell otherwise. So the statistics are helpful." P8*
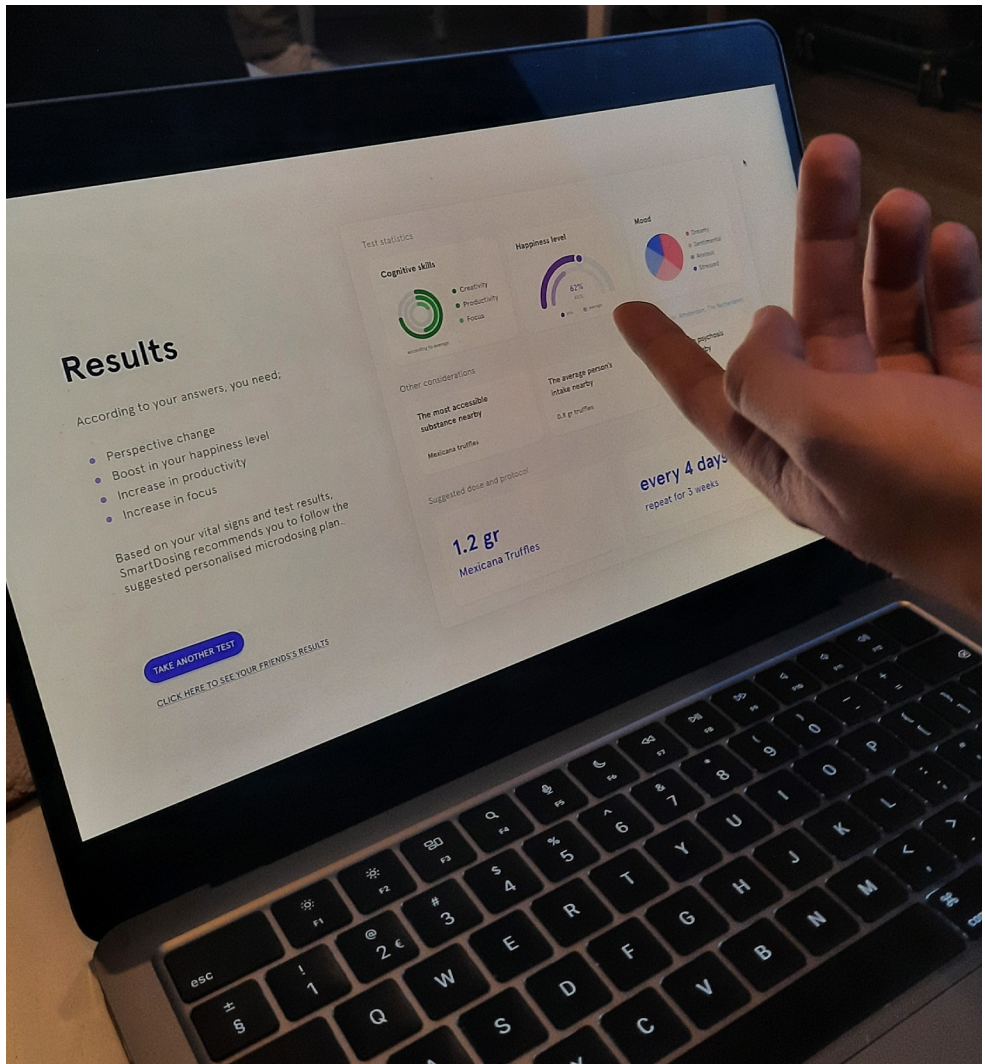
*"**Happy to see that I'm so happy**." P7*

Figure 25. Participants reviewing the results

4.3 Discussion

Design explorations allowed me to embody tensions in designed artifacts, helping people experience the conflicting tendencies associated with microdosing practices and psychedelic use. During this phase, I reflected on each concept I developed, often collaborating with others for feedback. At times, I revisited the findings from the grounding activities for validation or conducted additional literature reviews to refine the tensions.

This process did not just result in a final product or concept; it also served as a learning phase in which I explored various microdosing practices and the associated benefits, risks, and challenges through conducting design research. Additionally, I practiced using these tensions to create speculative and provocative scenarios that stimulate critical awareness and reflection on future possibilities.

USING EFFECTIVE TENSIONS Initially, I selected the most compelling primary tensions that emerged from the overarching themes of the grounding chapter to begin prototyping. Through iterations, I either rephrased these selected tensions or decided that they were not suitable for fostering critical reflection. Some tensions, for instance, turned out to be general concerns that need to be addressed or researched carefully when regulating psychedelics. One example is the emergency kit (SA2), which was intended to spark a discussion about the healing power and triggering effects of microdosing. The prototype aimed to raise awareness of the potential risks of losing control after microdosing. However, instead of prompting people to question these risks, it ended up offering a solution for emergency situations where the effects of microdosing needed to be reversed. As a result, the kit raised a practical health concern rather than making people experience tension and feel two opposing tendencies. It suggested that one side—the triggering risks of microdosing—is not, or should not be, supported, preferred, or desired.

Similar to the emergency kit, some prototypes ended up functioning more as practical tools for microdosing resonating in the relevant fictional scenarios, such as the self-diagnosis tool. This diegetic prototype was designed to measure cognitive and mood levels. Depending on the changing color of the diagnosis device, individuals would use microdosing patches to balance their levels. While the tool is provocative in its continuous pursuit of solutions for "decreased happiness" or "decreased inner peace", its practical nature meant it didn't inherently address tension or encourage significant criticism.

Additionally, some prototypes were only experienced from one side of the tension, which did not offer nuanced feelings across the spectrum of the issue. For example, the self-regulation kiosk in the workplace (SA3) was conceptualized to highlight the tension between microdosing as a tool for personal reflection and lifestyle change versus its use as a cognitive hack for optimization. In the scenario, company workers could adjust parameters in the kiosk to optimize their mood and cognition, enabling them to become the best version of themselves for the day. Based on their calculations, they would receive microdosing pills tailored to their desired daily self. While this prototype allowed people to question the constant drive for enhancement and optimization, it didn't encourage discussion or evoke feelings related to the other side of the tension. Therefore, in the final concept for the project, this optimization kiosk was combined with the AI SmartDosing test, presenting the tensions between discovering self and losing self, as well as between intuition and logic.

MORE AMBIGUITY Some prototypes offered valuable insights into the concept of tangible tensions, which informed the development of the next prototypes. By incorporating ambiguous and contradictory elements, these prototypes provided more engaging experiences and created open spaces for imagination. Ambiguity, as seen in SA3 and SA7, allowed for subjective interpretation, sparking imagination and leading to more diverse opinions. By not explicitly explaining how the products worked or detailing the purpose of every element, the audience had the opportunity to critique and develop their own reasoning. Contradictory elements representing opposing sides of tensions—such as a smart tracking wearable and an intention stone in SA7—enhanced the experience of those tensions. Similarly, SA4, based on the question, "What if the future of therapy is guided by trained spiritual gurus?" is a strong example of bringing two contradictory sides together within the same scenario, creating a thought-provoking and absurd situation.

4.4 Conclusion

Through each design exploration, I gained valuable insights into the potential benefits, risks, and challenges of microdosing, as well as the diverse expectations and practices of different individuals. These insights are presented in the key takeaways section of each speculative artifact. Accompanied by these new insights, I revised the tensions to more accurately represent the opposing yet not necessarily resolvable tendencies associated with psychedelic use. To effectively convey these tensions, I decided to create a holistic scenario that highlights key moments, allowing the tensions to build up and come alive in a more experiential manner, rather than focusing on isolated interactions with individual prototypes. This approach not only deepens the understanding of these tensions but also enhances the potential for meaningful and rich discussion and reflection on the future of microdosing.
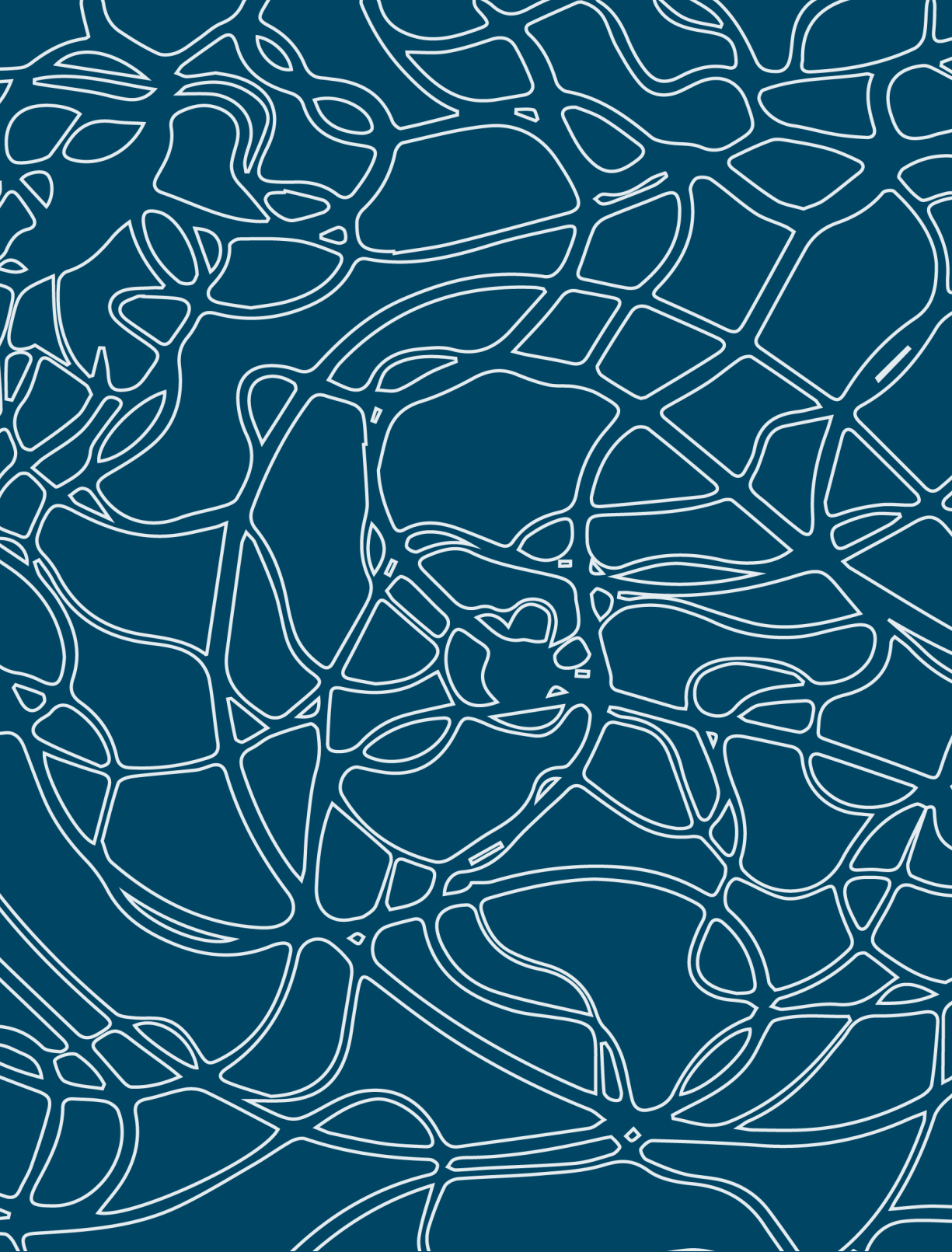
chapter 5

TENSIONS

Opening Question What are the main tensions in psychedelic microdosing?

Over the course of this project, I identified four overarching tensions, each of which emerged from the initial grounding research and was subsequently refined through the design exploration phase. These tensions, which represent core conflicts and dilemmas inherent in the practice of microdosing, are further explored through a final concept film.

During the exploration phase, the workplace naturally emerged as a compelling context with a unique and dynamic nature where various tensions and challenges naturally arise. Within this environment, many rituals, contradictions, and frictions coexist, making it an ideal context to observe the impact of a new corporate activity: microdosing. Here, the demand for quick solutions to unproductivity often leaves little room for reflection, discovery, and healing. The pressure to maintain high levels of productivity, creativity, and efficiency often clashes with the need for holistic well-being. These competing demands create an ethically complex landscape in which the implications of using psychedelic substances to enhance performance and cognition are profound and multifaceted. In this world, microdosing is not just an individual practice for self-growth, but a corporate activity intertwined with the broader goals and expectations of the company. The tensions surrounding microdosing are thus amplified and provide rich ground for exploration. By situating these tensions within the workplace, I aim to push them to their limits, revealing complex and sometimes conflicting tendencies.

In this chapter, each tension is examined in detail, supported by relevant citations, and contextualized within the workplace to illustrate how these dynamics can be played out in a professional setting.

5.1 tension 1 PERSPECTIVE
spiritual vs. utilitarian

In the evolving discourse on psychedelics, a central tension exists between two opposing perspectives: the spiritual approach, which views these substances as gateways to profound personal and communal transformation and growth, and the utilitarian approach, which focuses on their empirical, functional benefits, particularly in clinical and workplace settings.

The spiritual perspective is deeply rooted in indigenous traditions and ancient practices, where psychedelics have long been revered as sacred tools for connecting with higher states of consciousness, healing, and community bonding (Harner, 1980). This approach advocates for a broader understanding of psychedelic experiences, emphasizing the importance of spiritual, communal, and environmental elements, which should be considered alongside social and structural factors to truly appreciate the transformative potential of these substances (Dumit & Sanabria, 2022).

On the other hand, the utilitarian perspective, shaped by modern scientific inquiry and technological advancements, treats psychedelics as tools for achieving measurable outcomes. This approach emphasizes their potential for treating mental health disorders, improving cognitive performance, and enhancing workplace productivity. This perspective dominates contemporary research and policy discussions, often sidelining the spiritual and holistic dimensions of psychedelic use.

In the workplace, this tension becomes particularly evident. In a future with socially accepted microdosing practices, employers, driven by a utilitarian mindset, might view microdosing as a means to boost employee productivity and efficiency. This contrasts sharply with the spiritual ethos, where the focus is on self-growth and communal well-being. The result could be a paradoxical scenario where employees are encouraged to seek 'self-growth' through practices that ultimately serve the company's profit motives, leading to a superficial integration of neo-shamanist practices that conflict with the relentless demands for performance.

This tension between the spiritual and utilitarian approaches has significant implications for how society perceives, researches, and integrates psychedelics. As the debate continues, the challenge lies in finding a balance that honors both the profound, transformative potential of these substances and their practical, evidence-based applications, ensuring that neither perspective is diminished in the quest for understanding and utilizing psychedelics.

"We should be ever more careful how the very frame of technology contains some worlds and delegitimates others. If set and setting are ever to have any real-world value, then they would have to include not just structural determinants of health and inequality, but spirits, community, time, the forest and equitable forms of inhabiting the world, for humans and More-than-humans." (Dumit & Sanabria, 2022)

5.2 tension 2 REASONING
intuitive vs. logical

The tension between intuitive and logical approaches to microdosing centers on how individuals determine their dosing strategies. On the one hand, some people rely on personal intuition and anecdotal evidence, trusting their feelings and experiences to guide their decisions (Grusauskaite & Eijck, 2022). This intuitive approach is highly personal and allows for flexibility based on individual experience, but can be inconsistent and influenced by bias.

In contrast, others prefer a logical approach that emphasizes the use of scientific and informed methods (Webb et al., 2019). Based on insights from the design research phase, this approach may also include data-driven methods, such as smart wearables and detailed analytics, to make informed decisions. Scientific evidence provides a foundation for understanding the effects and optimal use of psychedelics, providing a more structured and objective basis for decision-making. While this method aims for precision and consistency, it can sometimes overlook individual variation and the nuanced personal experience of microdosing.

The workplace context stretches the tension to the logical side. As microdosing becomes more mainstream, companies may increasingly adopt data-driven tools to monitor and optimize its impact on employee performance. This trend reflects a broader societal movement toward quantifying productivity and optimizing efficiency. However, it contrasts with the more personal and subjective nature of intuitive approaches, potentially creating conflicts between personalized experiences and standardized metrics.

"This (the app) would allow me to, for example, react sooner to when I need to microdose. So … It will allow me to be proactive … That's very useful." (Public experiment, P4)

"Having something like this is also pretty good because it's like personalized." (Public experiment, P9)

5.3 tension 3 OUTCOME
discovering self vs. losing self

Approaches and intentions for using psychedelics can vary widely. On one side, some individuals use plant-based substances to explore and connect with their inner self, seeking to slow down, reflect, and increase self-awareness. For these individuals, microdosing serves as a tool for introspection and personal growth, aimed at discovering their true identity and understanding their genuine desires.

In contrast, another approach views microdosing as a means to stay functional, hyper-productive, and creative in high-pressure environments like the workplace. Here, psychedelics are promoted as a "magic" quick fix to enhance performance and prevent individuals from falling behind in a fast-paced world with high expectations. Even in the absence of significant issues, microdosing is used as an optimization tool to push abilities beyond their natural state.

This tension explores the contrast between these two approaches: the self-discovery method, which focuses on understanding one's true self and fostering personal growth, versus the enhancement approach, which centers on constant self-optimization and meeting external performance standards. The latter can create a cycle where the pursuit of improvement leads individuals to become increasingly disconnected from their core identity, as they strive to meet ever-rising expectations and standards.

In workplace settings, this tension becomes particularly pronounced. The practice of microdosing for optimization may encourage individuals to lose touch with their true selves, as they prioritize performance over personal values. This continuous drive for improvement can overshadow core identity and unique qualities, leading to a fragmented sense of self as employees seek to become "better" versions of themselves, often at the expense of their personal authenticity and core values.

"There are so many people who at some point are so exhausted. Their lifestyle is so out of balance, it is so maladaptive. They become constantly exhausted. Those people cannot work anymore. They have either burn-out or they are on the edge of burn-out. And they cannot afford to have a burn-out, they are just looking for solutions to keep working." (Interviews, P1)

5.4 tension 4 POTENTIAL
hope vs. hype

While there is widespread optimism about the potential benefits of microdosing – such as improved well-being, cognitive function, and creativity – these benefits are not yet scientifically proven. The excitement surrounding microdosing is often amplified by popular literature, media coverage, and endorsements by celebrities and public figures who promote it as a "miracle" solution that is good for everyone. This hype can lead to misinformation and the spread of false hope, complicating harm reduction and responsible use efforts.

This tension examines the balance between fostering hope in microdosing as a potential alternative treatment and addressing the dangers of over-hyping it without sufficient scientific evidence. The pervasive hype may create external pressure to microdose, driven by constant exposure to alleged benefits through social media and various internet platforms. Thereby, this tension also explores the conflict between internal curiosity – motivated by a personal interest in self-enhancement – and external influences such as social media trends, peer pressure, or even directives from authority figures such as employers.

In the workplace, the potential benefits of microdosing may be framed by optimistic expectations of improved cognitive skills and productivity, which are appealing in a competitive work environment. However, actual outcomes may not match these high expectations, revealing discrepancies between the promise of microdosing and its real-world effects. This tension highlights how workplace pressures and hype can shape employees' perceptions and daily practices of microdosing, resulting in a dilemma between microdosing by free choice for perceived benefits and microdosing because of the external hype and pressure.

"There is so much interest and so little knowledge and a realistic viewpoint. We really want to have a balance between the hype and the hope that microdosing has." Hein Pijnnaken, Founder of the Microdosing Institute (EXISTENTIA, 2024)

"The presence of the designed artefact in popular culture allows for the viewer to project its presence into his or her own life. Then they effectively become the protagonist in the story, playing out individual and informative roles. Their reactions become the true products of this form of design research." (Auger, 2013)

FINAL FILM

Opening Question How can a film make the tensions tangible and explore the potential benefits, risks, and challenges of microdosing in a future corporate environment?

Based on the findings from the design exploration phase, I created a nine-minute film that attempts to convey all four of the overarching tensions detailed in the previous chapter. Through the short film, I try to build up the tensions and make them come alive in an experiential way, thereby provoking critical reflection on a future scenario of socially accepted microdosing practices.

In addition to making the tensions experiential, the film scenario draws on some key insights from the design explorations, particularly the emphasis on "smartness" and the "quantified self" that emerged. By integrating these elements with psychedelics and spiritual practices, the film explores the implications of quantifying self-growth in the workplace. It raises critical questions: What if microdosing becomes a daily practice in the workplace to support employee "self-growth"? In the workplace, this leads to a scenario where "self-growth" is monitored to optimize productivity and creativity, using substance use as a balancing tool. This raises further questions about how data-driven insights and external pressures might reshape our understanding of the effects of microdosing, potentially transforming subjective experiences into measurable work-related outcomes.

In this chapter, I introduce the main elements and characters of the film and explain the intentions behind each aspect of the scenario. I also detail how the scenario makes the overarching tensions experiential, breaking down each significant moment from the storyteller's perspective.

Before diving into these details, readers can scan the QR code to watch the film.

6.1 Shaman in the office

In the near future, work and psychedelics use have become closely intertwined. Microdosing psychedelics is now a common practice, widely embraced for its ability to unlock creativity, boost energy, and sharpen the mind. Companies are installing microdosing machines in offices, offering employees mental and cognitive enhancement as naturally as a cup of coffee.

This future offers more than just productivity boosts. Many companies have incorporated ancient traditions into their corporate rituals. They hold ceremonies, embrace spirit animals, and facilitate morning manifestations to help employees grow.

At the center of this story is Nova, an employee who lives in this world. The film puts the audience in Nova's shoes, allowing them to build empathy and question her decisions and struggles throughout the day. The first scene opens with Nova at home, opening the box of her work identity bracelet as she gets ready for work, puts on the bracelet, and heads off to work (Figure 26). This bracelet, a smart wearable made of special gemstones, is one of the main elements that helps employees develop themselves by tracking their growth and allowing them to regulate their growth through timely notifications.

Figure 26. Nova is putting on her bracelet and activating it by taking a breath her eyes shot.

moment 1
morning manifestation

Upon arriving at the office, Nova heads to the "Morning Manifest" room – a room decorated with natural objects and plants, with a large area and a small kiosk on the floor (Figure 27). She scans her bracelet and the kiosk begins to interact with her. It asks about the dreams she had the night before and checks her self-growth progress (Figure 29).

After reviewing her work plan for the day, the kiosk asks one final question: "How do you want to be today?" It offers six options–bee, ant, dolphin, wolf, eagle, and lion (Figure 30). Nova chooses the bee and receives a yellow pill from the machine (Figure 31). With guidance from the kiosk, she states her intention for the day aloud: *I am committed to diligent work.*

This "Morning Manifest" room serves as an analogy for the morning routines practiced by microdosers, who set their intentions and microdose with mindfulness. In this corporate setting, the routine is adapted into a sophisticated system designed to provide employees with a refreshing start to each day. By providing a small mood boost and cognitive enhancement, the kiosk supports personal development and allows employees to align their mindset with their chosen spirit animal.

Animals hold significant spiritual value and serve as symbols and guides for the spiritual journey of individuals and communities in various shamanic cultures. These animals are believed to embody unique qualities and energies that aid in healing, protection, and personal growth. In this future, the corporate world incorporates these animal qualities into its daily tasks and roles.

Moment 1 more or less combines all the tensions. However, the Perspective and Reasoning tensions are particularly prominent. The Perspective tension arises from the integration of spiritual elements into the corporate environment, where they are actually used for utilitarian and pragmatic purposes. The incorporation of spirit animals, manifestation routines, dream analysis, and self-growth assessments highlight this blend of spirituality. However, the functionality of the kiosk also emphasizes a utilitarian and practical approach, as it manages daily schedules and offers a selection of animals associated only with traits such as diligence, collaboration, vision, creativity, or courage.

The use of advanced systems for tracking and quantifying self-growth is intended to make the tension of Reasoning experiential by demonstrating the trust in measurable and numeric data.

Figure 27. Morning manifestation corner

moment 1
morning manifestation
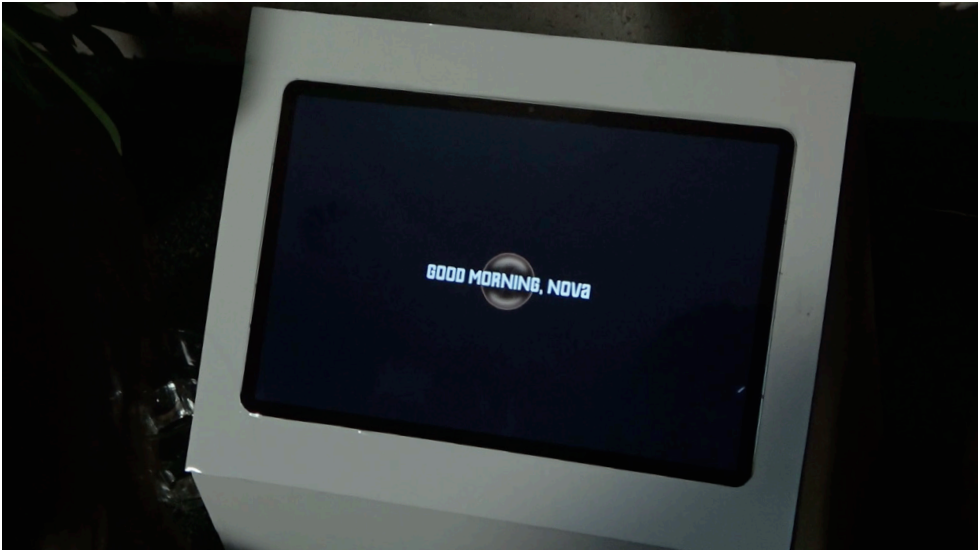

Figure 28. (top) The first screen after scanning the bracelet.
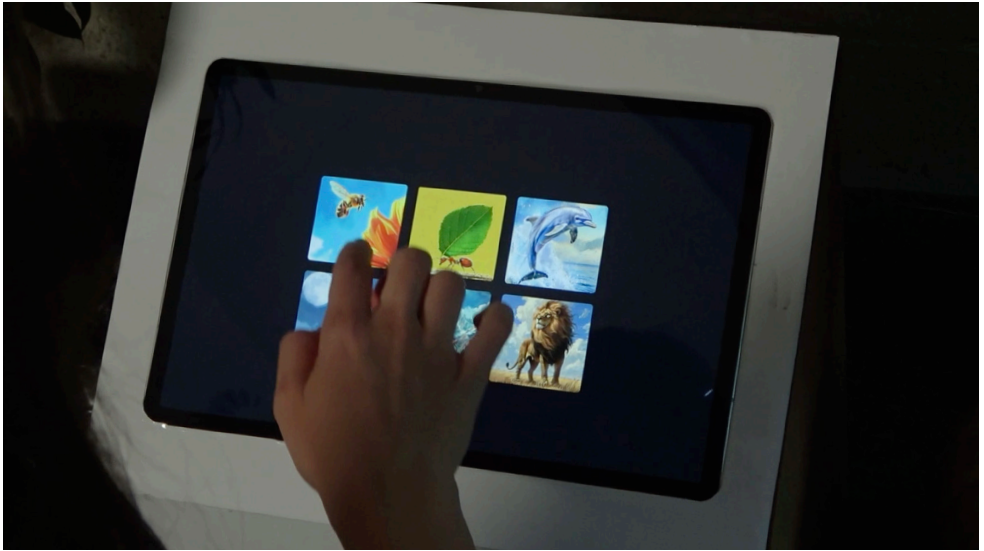Figure 29. (bottom) Growth status after checking the last night's dreams.

chapter 6 final film

Figure 30. (top) Nova clicking on the 'bee' option
Figure 31. (bottom) A yellow pill drops from the kiosk.

moment 2
notification

In the second moment, Nova is at work in her office. As time passes, she begins to look a bit tired. While trying to write, she receives a notification on her bracelet. We see the stones light up one by one, but the reason for the notification remains unclear. At first, she doesn't pay much attention to it, but when a second notification comes through, she decides to take a break.

This short scene shows that the bracelet is continuously tracking Nova's condition, though it's still unknown to the audience exactly what it's monitoring or how. The integration of the smart bracelet suggests that in this world, individuals might not need to track their mental or physical health themselves, instead relying on technology to monitor and inform them of every small change.

Moment 2 builds on the tension of Reasoning by diminishing the role of self-awareness and replacing intuition with a smart tracking wearable.

Figure 32. (top) Nova is working, the time is passing and she look like she is getting tired.
Figure 33. (bottom) Nova is receiving the first notification on her bracelet.

moment 3
power boost tea

Nova enters the break room, where two other employees are already sipping tea and chatting. As she approaches the tea station, she notices a machine, a box of tea powder, and a visual guideline for the powders on the wall. After looking at the guide, she decides to scan her bracelet into the machine, which displays the message, "Find what I need" (Figure 3).

Based on the input Nova's bracelet provides – details that remain unknown to us – the machine suggests two different powders, each represented by a different icon. She selects the powders from the box and adds them to the machine, one at a time. Moments later, the machine makes her tea ready.

As this happens, we begin to overhear the conversation between the two employees. One of them mentions that someone saved his pills for days, took them all just before an important meeting, and was subsequently sent to an "integration week". This person is Neo Osman, who we learn has been promoted to "wolf" by his employer. Employees speculate that he is going through a "transformation process". Not coincidentally, a poster for "Ant of the Month," featuring Neo Osman's name, is displayed on the wall.

Within a minute, Nova's tea is ready and she begins to sip. At the end of the scene, she gazes into her cup, lost in thought.

Moment 3 intends to primarily evoke the tension Outcome. Here, instead of addressing the underlying problem that the bracelet might have detected or that Nova herself might feel, she turns to the machine for a quick fix, even relying on it to determine the right blend of tea. This moment also serves as a metaphor for coffee consumption, where substance use represents a quick solution to productivity dips, with psychedelics replacing coffee in this future context. Despite her awareness of her tiredness, Nova chooses a boost tea to overcome her productivity dip. With no time to stop, take a break, or reflect on her own needs, she turns to psychedelics as a tool for self-optimization in order to meet the external performance standards of the company.

As the conversation between the two employees continues:

> **Oma:** *I guess it is good for him. I guess, he needs some rest.*
> **Otto:** *Rest? He needs some sort of new inspiration.*
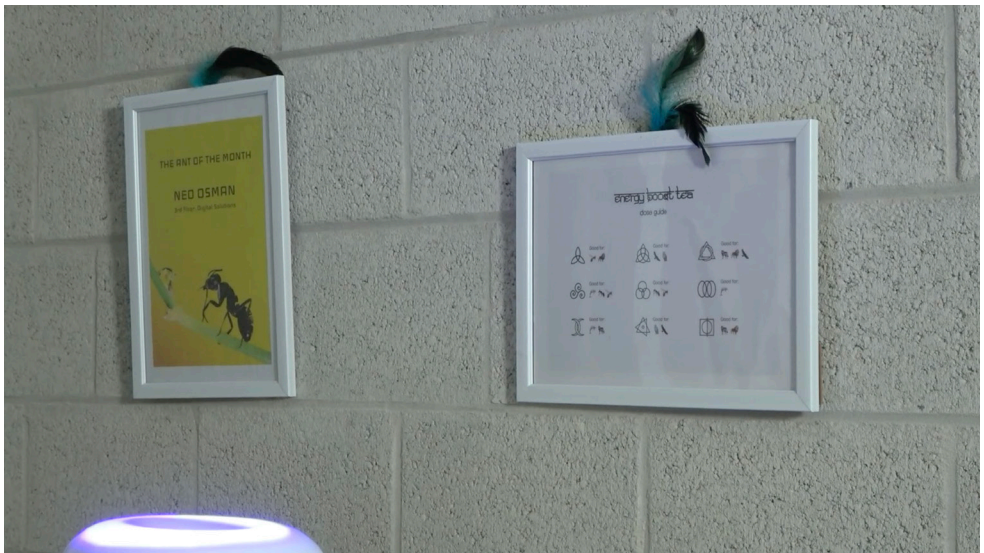
Figure 34. (top) Nova is checking the energy boost tea guide on the wall.
Figure 35. (bottom) "The Ant of the Month" poster and energy boost tea guide. The tea guide shows all the different powders with the icons representing them and the spirit animal each powder is good for.

moment 3
power boost tea

Figure 36. (top) Nova scanning the bracelet on the screen.
Figure 37. (bottom) Nova mixing two different powders, right in front of the "Ant of the Month" poster.

chapter 6 final film

Figure 38. (top) Oma and Otto are talking about Neo Osman, his transformation process and the misuse of the morning pills. The question arises, does he need a rest or some other inspiration?
Figure 39. (bottom) Nova is thinking while drinking her boost tea after overhearing the others' conversation about Neo Osman's case.

moment 4
project meeting

In the final office scene, we see the shamanic manager seated at the table, waiting for the employees to arrive. He greets each one personally, asking about how they are doing, while discreetly checking his screen for real-time updates on their status.

Once everyone is gathered, he introduces the "regular ceremony," beginning the meeting with an invocation. Drawing inspiration from shamanic traditions, the manager calls upon spirits, universal energies, and divine beings to seek guidance and wisdom, articulate intentions, foster collective energy, and manifest the desired outcomes for the meeting, specifically to generate innovative ideas for their new application project. He calls upon the spirit animals within the group, including his own, the eagle.

After the invocation and project introduction, the manager mentions a creativity boost that "can help them on their journey". Otto and Oma eagerly take the pills provided. When it is Nova's turn, she hesitates, looking at the pills, then at the manager, then at the other employees. After this brief pause, she takes the pills and, along with the others, contemplates their collective intention for the meeting as they digest them.

Without revealing whether the pills actually helped generate innovative ideas, Moment 4 focuses on the tension of Potential – the balance between hype and hope. This scene also highlights the ongoing tension of Perspective, in which shamanic elements are used for utilitarian purposes. It builds on the external pressure from the company and gradually increases this tension from the morning ritual onward, leaving the audience to wonder:

Are these practices part of corporate policy, or are they truly a matter of free choice?

Invocation

To The Winds of the South
Great Wolf,
Guide us with loyalty and purpose,
Teach us teamwork and unity.

To The Winds of the North
Industrious Bee,
Bless us with diligence,
Teach us hard work and collaboration.

To The Winds of the West
Wise Owl,
Illuminate our path with insight,
Help us see with clarity and wisdom.

To The Winds of the East
Majestic Eagle,
Inspire us with vision,
Show us the way to innovation.

Thank you wolf, owl, bee, and eagle.
We honor your presence and wisdom.
With gratitude, we release your energies.

Figure 40. 'Shamanic' manager, waiting the employees and checking his screen. Three stones, a bowl and boost pills placed on the table.

moment 4
project meeting

Figure 41. (top) The screen of the shamanic manager, showing the growth status of each employee with their spirit animals.
Figure 42. (bottom) Traditional 'shamanic' opening the ceremony with invocation.

chapter 6 final film

Figure 43. (top) 'Shamanic' manager serving 'creativity boosts'.
Figure 44. (bottom) Nova taking the creativity pills.

the end

At the end of the film, Nova completes her day and returns home, visibly exhausted despite the energy boost options available to her throughout the day. She washes her hands and carefully places her bracelet back in its box, a small but significant act that marks the end of her corporate identity for the day. The scene highlights the contrast between the day's relentless pursuit of productivity and the deep fatigue that Nova feels, leaving her (and the audience) to reflect on the burden of constant self-optimization and enhancement. The cycle ends, but the unresolved tensions remain.

Figure 45. Nova putting the bracelet back in the box.

"With a 9-minute movie without saying many words, you gave us many things to think about." (P22, online survey)

chapter 7

PUBLIC DISCUSSION

Opening Question "I am just thinking... Is this future positive or negative?"

I organized a film screening followed by a discussion session to fulfill the main goal I set for this project, to stimulate public discussion and surface the benefits, risks, and challenges of microdosing as becoming a socially accepted practice. I invited viewers with a verity of experiences and attitudes towards microdosing. To be able to include enough employees, film screening time was planned after working hours, and the whole session took 1 hour and 15 minutes.

In the first 10 minutes, the film is screened. Right after the screening, before people start discussing and influencing each other, I asked the audience to fill in an online anonymous survey, including 4 small questions: (1) Do you have any experience in microdosing? – multiple choice question, (2) Which sector do you work in? –multiple choice question, (3) To what extent do you agree with the following statement: The movie has changed my opinions on microdosing – scaling from 1 (not at all) to 7 (very much so), (4) What did the movie make you think about the benefits, risks, or challenges of microdosing as a socially accepted practice? – Open-ended question. Before answering the questions, all the responders had to give consent for their input to be used anonymously.

After giving 5–7 minutes to the audience to fill out the survey, we started discussing the future scenario depicted in the film. After very briefly mentioning the project, I asked people what they thought about the scenario and how they felt during the film. I recorded the discussion, and later transcribed the audio.

In addition to the film screening, I uploaded the film to YouTube and sent the link together with the survey to 20 people, including the ones who earlier completed the online questionnaire about their microdosing practices, and who left their contact for further participation. 12 people in total responded to the online survey. In the end, I analyzed 23 survey responses and the discussion session text. In this chapter, the readers can find the emerging themes in chapter 7.1 and my discussion on the insights in chapter 7.2.

7.1 Emerging themes

To discover emerging patterns and insights, I did a small thematic analysis by combining the responses from the online survey and discussion session recording. Firstly, I transcribed the session's audio file to text by using an open-source AI model, Whisper. I took notes from the transcribed text to Figma, under the categories that I already defined with the main research question of the thesis: benefits, risks, and challenges. While transferring the text to Figma, I anonymized all the participants by giving them numbers.

Later, I downloaded all the responses from the online survey platform TypeForm, combined them in one sheet, and gave each response a participant number to be able to mention them later. After engaging with the data, I matched the survey responses with the existing themes and discussion session findings. Although I intentionally asked about participants' professions and microdosing experiences in the online survey, I did not find any significant correlation between substance use, profession, and how the film affected the individuals' perceptions.

Finally, I compared all the insights from the film screening and survey results with my initial intentions for making the film and discussed them in the discussion.
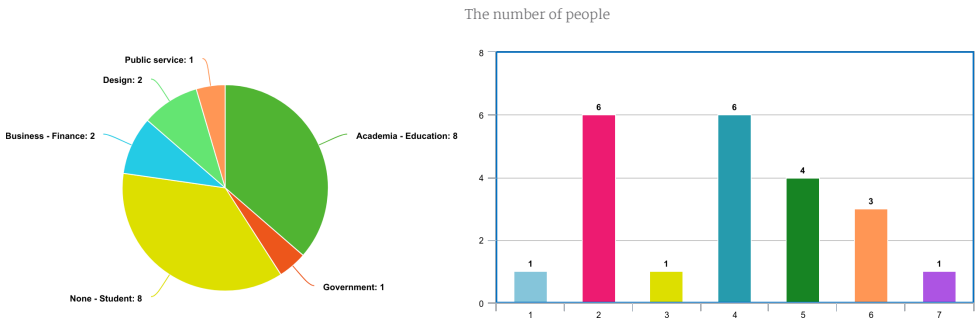

Figure 46. (Left) Distribution of the sectors that the participants work in, (right) The distribution of participants' ratings on a seven-point Likert scale, the avarage answer is 4.

theme I BENEFITS

More attention to well-being with the integration of microdosing There could be a potential for companies to enhance employee well-being through the integration of microdosing. For some participants, the company in the film seems to prioritize well-being, suggesting that microdosing might be part of a broader initiative to improve health.

*"On the other hand, it seems like wellbeing is an important topic in this company, and maybe **the integration of microdosing is also accompanied by heightened awareness** of and dialogue on what can contribute to wellbeing." (Online survey, P17)*

Bringing more creativity For some participants, people could benefit from microdosing to have out-of-the-box ideas and creative conversations.

*"[On benefits of microdosing] More **creative conversations and outcomes** with weird and out of the box products to use." (Online survey, P6)*

More controlled and regulated use With the integration of technology and the involvement of institutions, microdosing in the workplace could become more controlled, potentially reducing the risks associated with substance use. This regulation might ensure that microdosing is carried out safely and responsibly. However, despite these controls, the pervasive social pressure within the workplace remains a significant concern.

*"In a way, it felt like **it would become a more controlled way of microdosing**, but I also felt that there was quite some social pressure to do it as everyone in the company did it." (Online survey, P10) (tension POTENTIAL)*

theme 2 RISKS

Health related risks

Dependency and addiction The microdosing routine for creativity depicted in the film made some participants draw parallels with current practices such using AI for creative tasks and coffee consumption, leading to some concerns about the potential for addiction or dependence on psychedelic use in the future. Some participants speculated about the possibility that individuals might come to rely on microdosing to maintain constant creativity and productivity.

*"It made me feel like it makes life monotonous and without it **we cannot be creative or think broadly**." (Online survey, P9) (tensions POTENTIAL)*

*"It made me think like, **it is like using Chat-GPT and AI**, you may become dependent on it." (Discussion session, P10)*

*"It may be challenging if it becomes (or feels) mandatory and that we can not function without it. This may propose a health-related risk in a scenario where microdosing has become an essential part of our lives, **like if we only use a part of our brain with stimulants**, our mental abilities can decrease as it may not function on its own." (Online survey, P13)*

Risk of losing self-awareness and control The depiction of using smart tools like the wristband and morning manifestation app in the film raised concerns among some participants about the potential loss of self-awareness. Some worried that reliance on such technologies, combined with substance use, might encourage a quick-fix mentality, masking deeper issues rather than discovering and addressing them.

*"The risk of becoming unaware of what your body is telling you, by **"ignoring" the signals and compensating them with [substance] usage.**" (Online survey, P4) (tension REASONING and OUTCOME)*

Ethical risks

Worker exploitation and the quick‑fix illusion One of the key ethical concerns that emerged from the survey responses was the potential for microdosing to be misused as a quick fix by companies, pressuring employees to rely on it for continuous productivity and enhancement. This approach risks overlooking the underlying issues of poor performance or well‑being, with microdosing being touted as a convenient solution rather than addressing the fundamental human need for genuine care and support in the workplace.

*"I have always seen it as a healing process, which is i**n contrast with a Silicon Valley view**." (Online survey, P11) (tension PERSPECTIVE)*

*"The substances may be used as **an excuse to make people work harder**, for instance, giving a power boost instead of taking a nap." (Online survey, P17) (tension OUTCOME)*

*"I worry that microdosing will turn into **a tool for efficiency**, instead of a life‑/mental health‑improving decision." (Online survey, P16)*

"Basically in 80s, it was very much like in an office, it was like, "OK, you are working 9 to 5, you've been on this boring work, and people are like, "Oh, I feel like I'm being alienated from my work, and this is terrible." And if anything like that, because capitalism was just trying to do whatever it was, it would make it as efficient as possible. The workers were not happy, so they pushed back on that. And then this whole second wave of people were like, "OK, the workers are not happy with that. They want to express their creativity more, they want to have more social things, and not just feel like dead inside. So how are we going to make more profit for our offices or for our companies? We're going to incorporate those things the way they want, and then use it to our advantage." And then there were a whole lot of things coming out with it, these wellness things, the offices, and this whole different way of becoming, that was still an aspect of just trying to make the company profit as much as possible, by just trying to take everything from work, not only if it's their time, but also their creativity, and their social life and everything within the company also using this approach at the same time." (Discussion session, P6)

Ethical risks

The commodification of psychedelics By focusing on microdosing as a tool for economic growth, there is a risk of diminishing psychedelics' inherent value and the genuine creativity it can offer. As some participants noted, this commodification could strip away the transformative aspects of psychedelics, reducing them to mere instruments for productivity.

*"I fear that microdosing will be used only **as a tool for capitalism and growth**, removing the joy and magic of intuitive human creativity without any specific goal." (Online survey, P15) (tension PERSPECTIVE)*

Social risks

Becoming a new social dogma Some participants expressed concerns about a scenario where microdosing becomes a norm rather than a choice. Some stated that microdosing became embedded in office culture like a new social dogma in the film, where adherence is similar to religious practice. As a result, this shift could place excessive pressure on employees, making the practice a pervasive and potentially harmful aspect of workplace culture.

*"I think that microdosing itself doesn't have that many health risks, **rather, the office culture and motivational dogma which is like religion is more harmful**." (Online survey, P1)*

theme 3 CHALLENGES

Cultural appropriation Some participants in the discussion session and some survey respondents stated the challenge of using cultural elements related to psychedelics respectfully without appropriation, highlighting the need for sensitivity in integrating cultural wisdom, and ensuring that practices are honored and not exploited for personal or corporate gain.

*"I am curious about possible implications of being culturally appropriative. I wonder about **possible ways of using the wisdom from other cultures, while still being respectful**."
(Online survey, P2) (tension PERSPECTIVE)*

From socially accepted to pressured or mandated During the discussion session many participants expressed concern about the risk of microdosing moving from a socially accepted practice to a mandated company policy for continuous enhancement. Many worried about microdosing becoming a mandatory practice compelled by the surrounding environment rather than a free choice to engage in it truly. The discussion highlighted the potential for employees to feel pressured to microdose because of prevailing norms, even if they are hesitant or uncomfortable – as they felt with the main employee in the film.

*"It sparked reflections on **whether this practice could become mandatory** and be used in a company to boost productivity." (Online survey, P11)*

*"I think about the question: **"What if microdosing becomes obligatory in the workplace?"**, themes as peer pressure come to mind as well. The moment people are forced to do something is the moment something becomes a risk." (Online survey, P22)*

*"Performance enhancement should never be done by artificial means **especially when perceived to be socially accepted**." (Online survey, P14)*

*"The look on the actress's face at the session made me think she was very hesitant but was doing it because everyone else was doing it. **It made me reflect on macro dosing and how young people sometimes feel the same thing with other drugs**." (Online survey, P12) (tension POTENTIAL)*

Power dynamics and inequality Concerns about power dynamics and inequality emerged from the survey responses, highlighting the ethical challenges associated with widespread microdosing. Some worried that unequal access to microdosing could amplify inequalities by creating unfair competition among individuals for the mental benefits of microdosing.

"Ethical challenges may arise where **certain people would have access to it when some people can't***. This may cause unfair competition because microdosing gives a mental advantage to the person using it." (Online survey, P18)*

New work ethics In a future where microdosing becomes more widespread and socially accepted in the workplace, the concept of work ethics would need careful reevaluation.

"It made me reflect on what a **"normal" work ethic** *might be and if i would feel comfortable in such an environment" (Online survey, P20)*

7.2 Discussion

In general, the film screening and survey responses indicate that the film was effective in stimulating public debate about the potential benefits, risks, and challenges of future microdosing practices in the workplace. Although some discussion participants and survey respondents mentioned the benefits of microdosing, particularly for performance purposes, the audience was more concerned about the risks and challenges of socially accepted substance use. One reason for this may be the "dystopian" atmosphere of the film, which was mentioned by several participants. Some specifically mentioned the TV series "Black Mirror" when commenting on the story, saying that the film made them feel uneasy about the depicted future.

THE PROBABILITY AND PLAUSIBILITY OF THIS FUTURE Although my main intention was not to depict a "dystopian" future per se, the audience clearly builds empathy with the main character Nova in the film, feeling her "tiredness" and "hesitation" to cover up the performance or creativity decline with substance use, and feeling the mundane life cycle that she was stuck in. According to some participants, the morning scene began with a more positive feeling, where Nova had a chance to make a fresh start with an AI assistant and free psychedelics dosing for cognitive and well-being enhancement. However, as the story progressed, first with the drinking of the power boost tea and finally with the meeting scene, the feeling of hesitation or questions about "is this a mandatory company policy forcing the employee to take the pill?" increased among the participants, leading to long discussions about whether microdosing has already become a company policy in this future scenario, if it is still a common socially accepted activity like coffee consumption in our current world, and what could be the challenges following such a reality. Since the film depicts a scenario where the main character is not truly convinced or enjoying microdosing, most of the participants of the discussion session mentioned the risk of microdosing becoming a routine driven by external expectations. While participants acknowledged that microdosing in the workplace is not yet a widespread practice, they saw this scenario as a possible future, drawing parallels with existing examples of substance use.

[From the discussion session]

P6: I am just thinking... Is this future positive or negative?
P3: I think from the company perspective, it's a positive one, because they try to make their employees more productive.
P2: But the [main] employee looks very miserable!
P7: The whole shot when she was just doing it for her own... I think when the corporate aspect was not ingrained, when it was just like, **"Oh, it's a nice start of the day, getting reflections or like AI assistant, and figuring out..."** *But then when the corporate aspect got entangled, that became sad.*

REFLECTING ON CURRENT PRACTICES In addition to prompting discussion of the risks and challenges that could arise if microdosing became a routine or mandated corporate practice for performance enhancement, the film drew a parallel to current social practices where people feel compelled to consume substances such as coffee to increase productivity or socialize. Although coffee is not a psychedelic, it is a psychoactive substance that is regularly consumed to enhance performance in the workplace. By using coffee consumption as a metaphor, the film created a perceptual bridge (Auger, 2013) that helped the audience imagine a future where microdosing could become as common and accepted as coffee rituals that exist today. This analogy made the scenario more relatable by connecting the unfamiliar concept of socially accepted (or even pressured or mandated) psychedelic use to the familiar practice of coffee consumption, thereby deepening the audience's engagement with the narrative and helping them imagine this future coming true. Through this connection, the audience reflected on the use of substances for constant enhancement or societal pressures in general.

In contrast, one international participant with a non-Dutch background mentioned that she could not relate to the scenario of people microdosing at work because of her cultural background and the high level of taboo and strict legal restrictions on psychedelics in her home country. This response suggests that different cultural contexts affect the ability to build these perceptual bridges and suspend the audience's disbelief, and that different bridges may need to be built for different socio-cultural and political contexts.

[From the discussion session]

P2: *It's about* **the tracking and the monitoring, I think, when it becomes harmful.** *Like if they were tracking our coffee consumption, for example. Or hosting coffee ceremonies where we have to attend. We sort of have them, but they are social meetups.*

P1: *Yeah, and also in those meetings, we don't get like some, like someone does not just give you a cup of coffee, like just expecting you to drink it. Like it feels more voluntary.*

P4: *Yeah, but* **in the social circumstances, it happens.** *So it's not like people push each other to drink but you feel the pressure.*

P3: *But you can always say no to coffee.*

P4: *Yes, but even in the social circumstances, it has consequences. So* **if you keep saying no to things in certain groups, then you get excluded.**

P2: *But there are no group moments, right? Like they're all going to drink coffee now. So then, you can drink something else instead.*

P4: *No,* **there are moments that we do group thing,** *we all get together to drink tea and so on.*

P7: *My company is quite well-informed, I would say. It is mandatory every Monday before starting the day… It's in my calendar that half an hour, I have to have a coffee break. And that is when you talk about your weekend and social life. So it's not an optional thing, it's kind of mandatory because that is allocated to me every Monday. And that is when you kind of get new tasks, as well as you show your interest in projects. So,* **it is the social aspect that is completely engraved into the coffee. I never thought of it, but subconsciously it is a very capitalistic thing** *now.*

P8: *What if coffee was not like ages old? It existed in maybe 1990, and then researchers concluded that coffee is making people more efficient. What do companies want? They want their people to be as efficient as possible, you know? So what if they design their whole office around to leave people into drinking coffee? I mean, that would be… kind of…* **this [microdosing] sounds similar, you know**? *But that's because coffee is already accepted, there is no problem. Would it be the same… Would we get the same thing as with microdosing? Or not? Just because microdosing is a new thing and coffee is ancient.*

P3: *I think it would be the same. I think there is* **no difference that the substance being microdosing, or a coffee.** *I think the environment itself makes it questionable.*

P1: *And monitoring.*

P3: *And then you have... you feel like you have to use it,* **you feel like you have to fit in***. It feels like a company policy, because also at your job, like maybe there is some stuff that you don't want to do, but then to be able to fit in the environment do those things. And also that substance being that way, I think makes it... questionable.*

P8: *For microdosing, which is now like another round thing, seems like a big step for an office, but coffee is old. So what if you give microdosing ages of time. And it would be like the tea.* **So next to the coffee machine, there is a microdosing machine?** *Not that unimaginable.*

P6: I definitely kind of imagine this future happening, because I think so many examples have already been said where you can compare it to*, like, you were saying AI and like the pressure, like, there's more AI in things, and also what you guys were talking about, like, the social pressure about drinking coffee, and if you don't drink coffee, like, you're just saying, then maybe you're excluded from certain things. I do think that all of these substances that are at this moment acceptable and non-acceptable are socially constructed, and they change from time to time, and this is for the future, so it could be that microdosing in that way. If you think, like, 20, 30 years ago, smoking was really normal, and if you didn't go and smoke on breaks with your colleagues, then you wouldn't get promoted. Now that's totally different, but in that time, that was just what was normal, and that would have a big effect on your job. And it's obviously really bad for me physically. But I feel like there's a lot of concerning things of this potential idea of what would happen in the future, like, from monitoring and things like that, which is already happening now, so it's a possibility, but it's very concerning.*

AMBIGUITY SPARKS IMAGINATION According to the discussion and survey responses, the main dystopian or uncanny element in the story was the social pressure to use drugs, or the speculation that microdosing will become a mandatory policy to increase employee productivity and creativity, and ultimately the company's profits. There was a long discussion behind this possibility to find out if the main employee, Nova, in the film was forced to microdose or not. The manager's screen, showing the employees' self-growth status are monitored by the company, strengthened the feeling of the possibility of being forced to microdose according to some discussion session participants. However, it was still part of the discussion whether or not Nova could choose not to take the pill.

By not openly describing whether employees were microdosing by choice, peer pressure, or even force, the film could open some doors for personal interpretation. This sparked several discussions and even made some participants appreciate the things the film did not clearly say, encouraging them to analyze the details in the film and speculate about hidden choices.

[From the discussion session]

P9: So to me, it feels like because of the monitoring and we don't see anyone who is not microdosing, it feels forced. And the whole thing is by the company, you know, it's socially forced. Because the character you're portraying doesn't seem very happy she's there. So that's what I'm not sure about yet. It feels very like a very black-mirroresq to me.

P10: I think that it is a policy because when you enter the office, the first thing you do is... You give an update about what you're feeling and when you mark about what you want to feel today. And if I'm an employee and I don't do that, I would feel like I'm not being checked in today. It felt like it is a sort of attendance. Also maybe they would increase the doses based on what I feel or what I do. I don't trust that.

P9: I think, I think the film's strongest points or strongest aspects are the things it doesn't show. The ambiguity in it if it is forced or not. Because this whole discussion has sparked by the things you did not show. So if everyone is forced to do this... or if everyone just wants to do. That ambiguity is a part of this discussion and that is the strongest point.

MAIN RISKS AND CHALLENGES One key theme that emerged from the film screening is microdosing as a tool for optimization and cognitive enhancement. Concerns were raised about the possibility of addiction to microdosing for its enhancement benefits and the risk of exploitation by corporate entities seeking to boost productivity and creativity. Another significant theme was the risk of social pressure to consume psychedelic substances. Most of the participants of the discussion session mentioned the risk of it becoming a routine driven by external expectations. While participants acknowledged that microdosing in the workplace is not yet a widespread practice, they could imagine this scenario as a possible future, drawing parallels with existing examples of substance use. These concerns showed that no matter whether the media portrays microdosing as a magical solution for performance-related deficiencies or expectations, developments, and regulations on psychedelics should be approached carefully, considering the ethical and social consequences of popularizing microdosing practices for enhancement purposes in the workplace.

"It also reminded me the netflix series Carol & End of the world. Even if it was the end of the world, she was waking up every morning going to work and following what everyone else was doing because she did not know what else to do as it was her routine." (Online survey, P12)

EXPERIENCING THE TENSIONS The discussions and survey responses confirmed that the film was effective in making people feel the build-up of these tensions as a holistic experience, and sparked an inquiry into the possibility and plausibility of the future portrayed (or interpreted). One example is the project meeting scene with the opening invocation of the meeting and the 'shamanic' manager character (Figure 41). This scene led some participants to raise concerns about the potential risks of cultural appropriation, mentioning how indigenous rituals involving psychedelics could be stereotypically and disrespectfully implemented by the corporate world like the film shows. This reflection shows that the tension 1 "Perspective" was evident in the film, exploring the conflict between spiritual and utilitarian approaches. This tension made the audience question the challenges of applying spiritual practices for utilitarian purposes. Additionally, several participants mentioned "capitalism," with some noting the risk of turning psychedelics into a "tool for economic growth" or "tool for efficiency". These responses indicate that some audience members were concerned about the potential risk of commodifying such practices and substances, overshadowing their transformative and healing potential and cultural value.

Another striking moment where tensions are evident was the scene where the main character, Nova, is notified by her bracelet and heads to the tea machine for an energy boost (Figure 34). This scene was designed to highlight the tension between intuition and logic ("Reasoning"), as well as the conflict between discovering the self and losing the self ("Outcome"). Through this future scenario, the film encouraged reflection on the potential loss of self-awareness that can occur when making decisions based on statistical data. It also encouraged a critique of the practice of covering up perceived deficiencies – such as low energy or unproductivity – by consuming substances without truly understanding the underlying causes of these conditions. One respondent to the online survey mentioned this tension by stating, "[There is] a risk of becoming unaware of what your body is telling you by "ignoring" the signals and compensating with [substance] use." Another response also drew attention to the use of substances to solve productivity problems by saying: "The substances may be used as an excuse to make people work harder, for instance, giving a power boost instead of taking a nap". For the tension "Outcome", another concern was expressed as follows: "I worry that microdosing will turn into a tool for efficiency, instead of a life –mental health– improving decision".

Finally, tension 4, "Potential," was the most mentioned and discussed tension in the film. Much of the discussion revolved around whether the people in the film were microdosing because of external pressure or because they chose to do so for its potential benefits. According to the survey responses and the discussion session, the narrative ended up emphasizing the "hype" side more than the "hope" side of the tension – focusing on the potential of microdosing for well-being and self-growth. For the hope side of the tension, microdosing for creativity enhancement was one of the few benefits perceived by the audience. However, these potential benefits also led to some concerns about the risk of addiction to these creativity enhancing substances. Some audience members even speculated whether an unfair advantage in access to psychedelics might lead to inequality in the future due to their enhancement potential.

Looking at the reactions to the film, my original intention of creating a sense of "desirable discomfort" (Dunne & Raby, 2001) to provoke people to question and explore the possibility of corporate pressure to microdose was effective in making the audience feel unsettle, but in the right balance to keep them believing in the future presented. The audience's comments indicated that this discomfort led people to be more critical on the risks and challenges of microdosing in the workplace.

7.3 Conclusion

Audience reflections on the film highlight that while microdosing has the potential to offer benefits such as enhanced creativity and productivity, it also raises significant concerns about its future applications. The film's "dystopian" portrayal of a future in which microdosing is socially pressured – or even forced – to meet performance expectations invited critical reflection on issues such as social dogma, drug addiction, worker exploitation, social inequality, and the potential erosion of personal authenticity. However, this dystopian tone may also be a limitation of discussions on the benefits of microdosing, as it tends to evoke negative feelings rather than providing a balanced discussion of the positive potential of microdosing.

The ambiguity of whether microdosing was voluntary or enforced in the film left some participants uncertain about future practices, leading them to speculate and discuss historical and existing parallels with substance use.

In conclusion, although the risks and challenges were more considered and discussed, the film effectively sparked the imagination and provoked critical thinking about the kind of future the audience envisioned for microdosing practices in the workplace.

chapter 8

CONCLUSION

Opening Question How effective has this project been in exploring the benefits, risks, and challenges of microdosing and encouraging public discussion?

The primary goal of this project was to spark discussions and gather public opinions on the trending topic of psychedelic microdosing, focusing on its potential benefits, risks, and challenges as a socially accepted practice. By doing so, I aimed to challenge the sense of inevitability and media hype surrounding microdosing, aiming to provoke critical thinking about its future implications. I encouraged the audience to ask a key question: What kind of future do we want if microdosing becomes more widespread and accepted?

Exploring speculative futures resulted in interesting insights into the possible ethical dilemmas, risks, and implementations of microdosing which contribute to the ongoing conversation and research about psychedelics in many ways.

In this chapter, I reflect on the main findings and methodology while making recommendations for further research. Following that, I reflect on my journey in this project timeframe.

FINDINGS OF THE PROJECT While microdosing is not yet a widely accepted social practice, it has recently gained attention from organizations, public figures, and institutions that advocate for its perceived benefits. And recently, there has been growing interest in the workplace regarding the potential of microdosing to improve cognitive function and productivity. Despite this growing interest, research on microdosing remains limited, particularly regarding the risks and challenges this emerging trend may pose in the future. Existing studies mainly focus on investigating current practices, perceived benefits, and health-related risks, which I have detailed in the grounding chapter. Consequently, there is a gap in research addressing the potential ethical and social risks of microdosing, as well as its future applications and trajectories.

From a design research perspective, this project aimed to stimulate public discourse on these issues by using speculative artifacts to explore the potential benefits, risks, and challenges of future microdosing practices. Speculative design proved to be particularly well suited to this topic, allowing for a critical and experimental approach that challenged mainstream narratives while exploring the potential outcomes of widespread psychedelics use in everyday life. By using this approach, the project provided unique insights into public concerns and expectations regarding future microdosing practices.

One of the key insights emerged from this project is the challenge of microdosing becoming normalized as a means of constant enhancement and hyper-productivity in the workplace. While increased creativity, productivity, and focus are often cited as benefits of microdosing in cases of underperformance, the use of microdosing as an optimization technology could pose significant social and ethical risks in the future.

One such risk highlighted by the project is the potential for microdosing to empower those in power. The workplace already offers limited opportunities to focus on individual well-being due to profit motives and time constraints. With the potential of microdosing, employers and authorities could be encouraged to control and regulate employee performance. It is evident that the current media promotion of new microdosing products for cognitive enhancement is already creating the illusion of quick fixes for deeper problems. By speculating on future scenarios and presenting an alternative reality in which this illusion is fully embraced, this project raises critical awareness of the trajectories being shaped by certain technology companies and the market today. In doing so, it provides a space for the public to critically reflect on these trends before microdosing becomes the norm or routine in corporate life.

Another concern highlighted by this project is the appropriation and commodification of indigenous traditions for purely utilitarian purposes in the Western world, often with little regard for the cultural background and knowledge surrounding plant-based medicines and traditions. This issue is already evident in existing literature and ongoing debates, and remains a significant obstacle to the clinical acceptance of psychedelic-assisted therapies. This project places this debate at the center of the "perspective" tension by creating a speculative scenario in which indigenous knowledge and rituals around psychedelics are applied in the most utilitarian and capitalist context – the workplace culture, where capitalist expectations are paramount.

Given the lack of comprehensive medical research on the physical effects of microdosing, this project aims to draw attention to both concerning and promising future scenarios of socially accepted microdosing practices. I hope that the findings generated by this project will contribute to ongoing debates and developments, and encourage people to recognize that, despite media portrayals of microdosing as a magical solution to performance deficits, any developments and regulations regarding psychedelics should be approached with caution, adequately considering the ethical and social consequences.

EMBODYING TENSIONS In order to effectively address the research question of the study, the speculations focused on the main tensions that I had identified in the initial stages of the project. However, not all tensions proved to be effective or promising for creating speculative artifacts for critical reflection. Selecting tensions that could be made tangible through speculative scenarios was challenging. Although I tried to make the tensions experiential, I sometimes ended up designing functional products that addressed only one side of the tension. Initially, I thought that exaggerating one side of a tension might provoke stronger criticism. However, this approach often failed to evoke the intended tension. An example of this is the self-regulation kiosk I designed during the design exploration phase. Although the intended tension was between microdosing for healing versus optimization, the kiosk's focus on optimization and self-regulation alone did not effectively embody the tension, and it did not provoke discussion about the perceived healing benefits of microdosing.

Through design explorations, I discovered that tensions are most compelling when both sides are combined and presented in an exaggerated and sometimes absurd way. For example, in the final scene of the film, a 'shamanic' manager facilitates a strategic meeting using spiritual rituals and psychedelics. This scene depicts a future in which spiritual approaches are integrated into microdosing practices, but for purely utilitarian and practical purposes that serve corporate profits. This juxtaposition, rather than a one-sided approach, more effectively embodied the tension and ultimately encouraged more meaningful reflection on the issues at hand.

USING FILM AS A MEDIUM As the final concept for this project, I chose film as the medium, which provided both benefits and challenges. First, the process of making a film allowed me to practice communicating complex ideas through storytelling. It allowed me to make the tensions in the project tangible, making them more understandable and relatable to the audience. During the scenario creation process, I went through multiple iterations of the artifacts and characters, which forced me to critically evaluate and refine these ideas to ensure they were communicated effectively, thus deepening my understanding of the project and my imagination of the world in which it takes place. Second, by presenting the project as a film, I was able to evoke emotions and make speculative scenarios feel more real and immersive, allowing for a deeper connection and reflection from the audience. This was evident in several participants' reflections, where they expressed empathy for the main character and analyzed the scenario from her perspective. Finally, the medium of film allowed me to distribute the scenarios I created widely, both online and offline, reaching a more diverse audience for reflection.

Yet there were also challenges to making a film. Unlike open-ended speculative scenarios or prototypes, a film has a fixed narrative and structure, which can limit the audience's range of interpretation and reflection. In addition, making a film was particularly challenging and time-intensive, requiring a wide range of skills and complex project management. The process required me to accomplish many different tasks in a limited amount of time, including: finding a suitable location, assembling cast and crew, setting up equipment sufficient to produce a quality film, writing the script, planning all shots and scene transitions, creating props (functional or otherwise), sourcing or making sets, costumes, and accessories, conveying the intended emotions and atmosphere to other actors in the film, coordinating schedules, shooting all scenes, post-production, showing an initial draft to people, and making revisions, all while acting in the film I was creating.

Despite these challenges, the experience provided significant learning for me. In order to leave the film open to subjective interpretation and multiple reflections, I intentionally left certain issues in the scenario unexplained. This helped me work on my storytelling and critical thinking skills, as well as my ability to intentionally create ambiguity rather than solve problems as a conventional product designer. To manage the complex process of creating the movie, I assembled a small team that included a director, actors, and other collaborators to help bring the characters and story to life. This collaboration helped develop my teamwork and time management skills.

OPPORTUNITIES FOR FURTHER RESEARCH Reflecting on the process and impact of the project, and recognizing the need for a critical, forward-looking approach, I believe that psychedelic studies could benefit significantly from incorporating speculative design methods. These methods could facilitate the exploration of alternative possibilities and engage a broader range of public groups in discussions about scientific and regulatory developments. In doing so, they could help regulatory bodies and authorities develop more inclusive and anticipatory regulations.

Given the complexity of psychedelics, which includes a rich historical background, associated political and legal challenges, and societal stigma, there is significant potential for further exploration using similar research methods in other areas of psychedelic research. An intriguing area for future research could be the community-building and healing potential of psychedelics. This could involve examining shamanic rituals and indigenous practices and comparing them to Western adaptations such as neo-shamanism, the New Age movement, and modern psychedelic integration practices.

Due to the lengthy preparation, execution, and post-production of the film, I had limited time to arrange multiple film screenings with a broader group, including the research associations and microdosing organizations I had initially communicated with at the beginning of the research. I believe that sharing the film with individuals who are particularly interested in psychedelic research and its applications could provide diverse opinions and perspectives that would be valuable for further research.

PERSONAL REFLECTIONS From the beginning, my main motivation for this project was to use a critical speculative design approach to open up an emerging, controversial socio-technical issue for public discussion and to learn more about the field. In this respect, I can say that the project has been successful in engaging people (including outside the university environment) and stimulating imagination and discussion of alternative scenarios through the use of speculative enactments. Even before the prototyping phase, the people I have interacted with for research/networking purposes from the academic and business worlds have had the opportunity to be introduced to the goal of using speculative design for imagination and social commentary. This has also been educational for me in terms of explaining what speculative design is actually for, what I do, and why. In this regard, I have to say that I was so surprised to see how comfortable I felt approaching people and attending events where I did not know anyone, where I had to play the role of a design ambassador to introduce people to design research. I hope I did a good job and did not confuse anyone.

As I delved deeper into the project and had many conversations with people around me about drugs and what they thought about the subject, I realized the richness and diversity of people's opinions and understandings of psychedelics. This diversity was something I was not aware of. I come from a country where psychedelics are not used as freely and safely as in the Netherlands. Not that people don't have experiences, but in terms of social acceptance, access to the substance, information and the culture around it, there are huge differences between the country I come from and the country where I did this research. However, this lack of scientific and social culture made me more enthusiastic about researching the topic and dedicating myself to exploring it further.

The project topic was not only new and exciting for me, but also for the other design students around me at our design faculty, IDE. I saw many surprised faces and heard reactions like "Wow, really? Can you really work on this? How?" when I told people about my project. The interest from others was greater than I expected, and I had dozens of people asking if I needed participants for a user test (no, I did not). This interest shows that psychedelics are a topic that intrigues many and is still an ocean waiting to be explored, especially from different disciplines like design.

In terms of my initial ambitions to conduct critical research in a relevant context and to improve my prototyping skills, I can say that I have gained lots of experiences. The first prototyping test at the open microdosing event, where people interacted with my speculative scenario, helped me work on my ambitions to conduct my research in a real-world context. The design exploration phase, where I conducted research through rapid prototyping, allowed me to explore different research activities and improve my iterative prototyping skills. For the final stage of the project, I had the opportunity to create a film

and contribute to the process with my previous experiences, expressing different skills I have beyond design research, including prop and set design, scenario writing, and acting.

I have to say that the process was not easy at all. Speculative design is like building a character. It may seem easy and fun, just imagining some fictions and playing with some materials from a distance, but anyone who has gone through such a process would agree that the journey is a mess. It is full of uncertainties that require the use of gut feeling, subjective expression, and still keeping the ability to have fun with what you are doing. To be able to do all, I believe that one needs a huge amount of trust in the process and oneself. I have not always been able to build that trust in many of the things I have done during this process. Although the project itself is critical, I was also too critical of everything I was doing – which is not a bad thing if managed carefully. However, looking back now, I am so glad I went through this journey and challenged myself to deal with internal insecurities and the messiness of the project. I learned a lot about myself and how to work with uncertainty, and I look forward to taking those lessons with me in my future career.

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Appendices

The appendices can be found here in this link
https://drive.google.com/drive/folders/1uEtH53CYQNxzpZoX6ZnM5IoLdDYmNEkM?usp=sharing
or by scanning the QR code.