

TABULA

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ABSTRACT

Tabula is a critical design project exploring how we form bonds with objects through one of the most primitive objects imaginable: a table. As consumers, we have come to view our relationships with belongings as disposable encounters, easily replaced with more compliant alternatives that blend into our lives effortlessly. Yet, a strong relationship demands effort – it requires respect, compromise, patience, understanding, and time. This project explores these dynamics through material temporality, using a surface made of kinetic sand that captures and reflects users' interactions. Through a week-long first-person ethnographic study, the surface served as a tool to examine how material affordances influence self-reflection, compromise, and communication in a human-object relationship. By combining reflective writing with systematic forensic analysis of physical traces, the project weaves a layered narrative. The table is no longer a passive object designed to serve us, but an equal participant, one that collects, holds, and reflects memories of care and conflict.

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01. Introduction

What does it take to form an emotional bond with an object? In our consumerist culture where products are designed for replacement by better, smoother, shinier versions, why should we invest time and care in things we own? Tabula began as a critique of our shallow relationships with belongings, driven by the hypothesis that the absence of conflict and friction in interaction might be the root cause.

This personal interest in human-object relationships found its stage with the “Living Tables” brief. The word “living” suggested agency, growth, and reciprocity: the table is not merely a passive object designed to facilitate our lives but an equal in this relationship. The word “table,” on the other hand, reduced the experiment to one of the oldest artifacts we know—a stable surface raised above ground. By focusing on such a basic object, I was able to investigate what it takes to form an emotional bond without relying on complex technology or anthropomorphism.

Therefore, Tabula is a project where I conducted a first-person ethnographic study for a week, committing to explore the implications of material temporality by using a table surface made from kinetic sand as my primary workstation. This experiment was documented with overhead photographs taken at 5-minute intervals, examining the state of the surface and my actions, as well as reflective journaling focusing on my

emotional insights. The imprints left behind on the end state of the surface were then investigated in a forensic-inspired systematic analysis. This analysis, combined with emotional reflections, created a layered narrative on the impact of a material’s affordances — one that can collect, hold, and reflect memories of connection — on the depth of emotional relationship formed with an object.

The pages that follow present the design process that led to the final version of Tabula from a research-through-design perspective as its methodological ground, generating knowledge and direction through iterative cycles of making, use, and reflection in a search for what is necessary for us to develop emotional depth towards an object. The following chapters describe in detail the theoretical background, the design journey from early iterations with outcomes to the final prototype, and the findings of the systematic analysis as well as a reflective analysis of personal relationship with Tabula. In doing so, the paper argues that material temporality — an interface that collects and displays physical traces of exchanges, the development of relationship routines, and memories of conflict and care — can reopen the space for self-reflection, compromise, understanding and, with it, the possibility of a richer human-object relationship.

02. Related Work

The literature review systematically explores five interconnected themes that together build the theoretical foundation for Tabula. It begins by examining critical design tactics, which provide the conceptual lens through which the central question is approached and analyzed. From there, we delve into a comprehensive review of friction-free design, carefully assessing the initial critique of modern product design philosophy. The review then advances to investigate temporality as a potential remedy, exploring in depth why the dimension of time plays such a crucial role in human-object relationships. Building on this temporal foundation, we explore the intricate interplay between material agency and trace, examining how the passage of time manifests itself in physical form and becomes tangibly visible through use. Finally, the review culminates in an examination of ownership and care, investigating how these visible traces of interaction and temporal change contribute to creating meaningful attachment between users and objects. When considered together, these five thematic explorations reveal a carefully constructed logical progression that ultimately led to the development and implementation of Tabula.

2.1. CRITICAL AND SPECULATIVE DESIGN

“Critical design is critical thought translated into materiality. It is thinking through design rather than through words and using the language and structure of design to engage people.”

— Dunne & Raby, [8:35]

Critical design approaches artifacts as questions rather than answers. Rather than optimizing behavior, it exposes underlying assumptions about technology and daily life. Dunne and Raby define the practice as “speculative proposals that challenge narrow assumptions about the role products play in everyday life” [8]. At its core, the approach is investigative: each product serves as a small fiction that invites audiences to imagine alternative ways of living.

Critical design works through provocative examples. The Drift Table, for instance, responds to weight by scrolling aerial photographs, prompting users to reconsider their understanding of distance rather than simply providing an improved map [11]. This approach has evolved into new domains, including soft robotics [4] and data-responsive café furniture [15]. These projects

embrace ambiguity as a design resource—leaving meaning open-ended enables users to develop their own interpretations [26].

Tabula follows this tradition. Instead of incorporating sensors or human-like features, it presents a simple yet powerful gesture: a tabletop made of kinetic sand that silently captures every interaction. The table’s memory serves as a material question: Can visible, accumulating traces lead a user to care, negotiate, or even experience jealousy? Through its record of grains and impressions, the project embodies Dunne and Raby’s principle that critical design “thinks through design rather than through words,” transforming the object itself into the argument.

2.2. FRICTION-LESS DESIGN

Modern design strives for seamless, frictionless interaction. Dunne and Raby [8] argue that this polished approach reduces experience to bland positivity, leaving no space for reflection or meaning. Cultural theory offers a parallel insight: in Brown’s Thing Theory, objects only become meaningful “things” when they resist our use [5]. Chapman demonstrates that effort, maintenance, and visible wear—what he terms emotional durability—are precisely what make products cherished [6]. Research supports this connection between effort and value: people value IKEA furniture more highly when they assemble it themselves compared to identical pre-built pieces [20], and individuals form stronger attachments to radios and chairs they’ve repaired [24]. From a sociological perspective, [2] cautions that frictionless consumption creates a “liquid” mindset where even our belongings become disposable.

Tabula builds on this critique by deliberately introducing subtle, accumulating resistance through material affordances. Kinetic sand serves as an intentionally suboptimal desk surface—unstable, messy, and malleable. By making effort and traces impossible to ignore, the design transforms what would be a replaceable surface into a memorable companion.

2.3. TEMPORALITY

People rarely develop an emotional connection with an object right after purchase—affection develops gradually through repetition, memory, and shared experiences. Psychologists Csikszentmihalyi and Rochberg-Halton observed that cherished household items serve as “carriers

of a personal past” [7]; their significance lies in their ability to capture multiple moments in a single form. Belk later conceptualized possessions as part of the extended self, arguing that objects become anchors of identity by “enduring through time and space with the individual” [3].

Design research supports these findings. Chapman’s concept of emotional durability shows that products retain their value when their surfaces capture long-term use, creating a narrative their owners can interpret [6]. Odom found that digital keepsakes with gradual change—like photos that slowly fade or counters that tick once per day—encourage deeper reflection than instant updates [21].

Time also shapes behavior. In human-computer interaction studies, Hallnäs and Redström demonstrate that slow unfolding can transform a device from a mere task tool into a contemplative companion [14]. Similarly, Winters, de Waart and Bruns [27] show that dynamic materials with a gentle “tension-and-release” rhythm maintain engagement longer than static or rapidly changing ones.

Together, these studies suggest that emotional attachment develops when an object can accumulate, display, and invite negotiation of its own history. In Tabula, each mark remains until the user chooses to erase it, making time a tangible presence—visible, editable, and emotionally charged—in the relationship between person and table..

2.4. THE READABLE TRACE

Physical materials are never inert—they archive what happens to them. Ingold describes every artifact as “a history in continuous becoming” [17], where grain patterns, bruises, and polish capture the passage of hands, tools, and time. Design scholarship builds on this view. Gross and Bardzell argue for expressive materials whose texture, deformation, or color change serve as a primary communication channel, letting interaction be felt and seen in the material itself [13]. Craft historian Glenn Adamson makes a similar case, calling patina, wear, and repair “material memories” that allow owners to read their own stories back through objects [1].

Why does this matter for attachment? Traces make time visible. A scarred cutting board,

sun-faded armchair, or frayed denim becomes a reminder of repeated use and care, prompting owners to maintain, narrate, or simply notice the object anew. Tabula adopts this principle at furniture scale—kinetic sand records every press and sweep without electronics or display. Each dent is an immediate, legible trace that holds a memory. The table thus converts ordinary gestures into a readable archive, transforming material memory into the driver of human-object dialogue.

2.5. OWNERSHIP, RITUAL AND CARE

Objects enter the personal sphere through a combination of agency, labor, and recurring practice. Psychological-ownership theory identifies control, self-investment, and intimate knowledge as the primary paths to “mine-ness” [22]. Even without labor, mere possession can increase value—the classic endowment-effect experiments demonstrate that simply owning a mug inflates the price its holder demands [18].

Yet attachment deepens when use becomes ritualized. In a landmark home study, Csikszentmihalyi and Rochberg-Halton [7] found that people cherish objects—grandmother’s mixing bowl, a well-worn desk—because daily routines embed autobiography in matter. Belk’s “extended self” thesis similarly argues that possessions anchor identity through the owner’s repeated actions and memories [3].

Care work solidifies this bond: repairing a radio or polishing boots creates what Martin calls “material intimacy,” a felt closeness born of hands-on maintenance [19]. Each act of upkeep not only preserves function but also inscribes new evidence of effort—scratches, sheen, slight misalignments—that the owner can recognize.

Tabula operationalizes these mechanisms at the microscopic level of individual sand grains. Each dent is a mark of control (“I made this”), each preserved impression demonstrates care, and certain spots become sacred through repeated, intentional placement of objects—evolving into micro-rituals. Since these traces persist until deliberately altered, the act of ownership becomes continuous: performed, displayed, and renegotiated. The tabletop transforms into an autobiography etched in sand.

03. Theory & Methods

This project employs research-through-design (RtD) as its methodological framework, generating insights through iterative cycles of creation, application, and reflection [28]. The research methodology integrates three complementary approaches: a photo-ethnographic study to understand the problem space and user behaviors, early material exploration probes to examine various manifestations of friction in interaction, and an in-depth design-led autoethnographic investigation combining personal diary reflections with systematic analysis of interaction traces. While all methodological components yielded valuable insights, the autoethnographic study of the kinetic sand table emerged as the primary focus—creating a rich investigative space where personal narratives and systematically coded observational data illuminate the complex dynamics of emotional attachment formation through sustained interaction.

3.1. PHOTO-ETHNOGRAPHY

A small-scale photo-ethnography established a baseline for how people relate to tables. Following a visual-ethnography practice [23], fifteen volunteers were asked for one unedited photograph of “your table.” The request was deliberately open-ended and low-effort, aligning with the cultural-probe principle that minimal prompts reveal unselfconscious realities [10].

The analysis examined each image for overall configuration, object density, and evidence of individual arrangement habits. Since still photographs capture tacit routines without the filtering of self-report [25], the method provided a quick yet concrete snapshot of domestic table use.

The photo-ethnography served two methodological purposes. First, it supplied situated visual data to ground later design decisions in actual practice rather than assumption. Second, it served as a scoping tool: by revealing which tables people choose and how they inhabit them, the exercise helped determine the focus for the subsequent design intervention.

3.2. MATERIAL PROBES

To explore different types of friction in use, the project employed experience prototypes—simple test objects built “to explore what it might be like to interact with a design” [16]. Each probe examined a specific interaction quality, such as

uneven surfaces, unstable balance, or intermittent mechanical feedback, while maintaining minimal engineering complexity. This approach offered two key benefits:

- **Tangible comparison:** Testing different surfaces hands-on and at full scale showed which forms of resistance were engaging rather than merely frustrating—insights that sketches or simulations couldn’t provide.
- **Fast iteration, low risk:** The probes were quick to make and easy to discard, allowing multiple rounds of physical testing without committing to any specific technical solution.

By treating these trials as experience prototypes, we kept our focus on how interactions felt rather than technical implementation. This ensured that subsequent design decisions arose from direct physical experience rather than theoretical assumptions.

3.3. DESIGN-LED AUTO-ETHNOGRAPHY

To understand whether a slowly changing surface can sustain an emotional bond, I shifted from observational methods to first-person inquiry: only by living with the prototype could I register the subtle emotions that charts or third-person logs miss [9]. A tray of kinetic sand, 66 × 55 cm and 5 cm deep, replaced my usual desktop for five consecutive workdays. A fixed camera captured one overhead photograph every five minutes, producing 496 images. Whenever a thought or feeling surfaced, I wrote an unprompted diary note and time-stamped the entry; seventeen such notes were made. The camera captured what I did, the diary captured how it felt.

The Tabula prototype therefore unfolds through two intertwined strands. First, the diary provides an intimate, situated narrative of how the relationship evolved. Second, The remaining surface was treated as a forensic record. Using trace-ethnography principles [12], I catalogued every imprint with photographic instances, and coded them under five dimensional attributes—Intentionality, Functionality, Multiplicity, Intentional Use, and Alteration. This approach treated the table’s surface as a dataset, revealing how repeated interactions might signal reoccurring themes.

04. Design Process

The initial idea of exploring intentional friction in interaction and its possible implications for how we approach objects had been brewing before this project officially began in February. After receiving the brief of “Living Tables,” I realized it could be a great ground to investigate my initial idea, so I decided to dissect what this brief means to me:

Living: The “living” in the brief evoked terms such as agency, growth, and reciprocity. These concepts tie to the critique I was developing towards the shallow relationships we are forming with our belongings (and later to be realized to temporality as well). It implies that the being (table in this case) is not a product designed to serve us, but an entity with its own agency, opinions, and boundaries to be respected.

Table: Focusing this project on tables led me to ask what a table is. Upon separating the table

from its form, I came to realize the sole purpose of a table is to offer a stable surface above ground. This simple premise allows for an incredible freedom of use, enabling the user to form their own interaction with the object. The primitive nature of tables also allows me to search for what it takes to form an emotional connection with an object in its rawest form, without resorting to complex technology or anthropomorphism.

My initial hunch on what was causing this lack of depth in the modern human-object relationships was the lack of mystery and that “getting-to-know” phase in products with over-engineered interactions that leaves no space for discovery or freedom. I believed a healthy struggle and conflict were necessary to build a strong relationship, mostly inspired by real-life relationship dynamics.

4.1. PHOTO-ETHNOGRAPHY

To understand how people interact with tables in daily life, I conducted a small-scale photo-ethnographic study with fifteen acquaintances. I asked each person to share one unedited photograph of “their table.” Remarkably, without any specific guidance, every participant photographed their personal desk. This unanimous choice revealed a key insight: desks are the most intimate category of tables in people’s lives. This intimacy arises from two factors: desks typically serve as individual territories rather than shared spaces, and they’re where people spend most of their time and focus their attention.

Analyzing the photographs revealed diverse

personal expressions in how people inhabited their desk spaces. As seen in Figures 1 and 2, the arrangements ranged from densely cluttered workstations to minimalist surfaces—each configuration revealing its owner’s unique habits and preferences. Interestingly, when asked about these deeply personal arrangements, participants showed little awareness of their distinct patterns of use and organization. This disconnect between the intimate nature of desk relationships and users’ unconsciousness of them led to a crucial decision: to focus the project specifically on desks, where human-object relationships appeared strongest yet least understood.

Figure 1 (left). A cluttered desk reflecting its owner’s daily use patterns.



Figure 2 (right). An example of a minimal desk setup



4.2. PHYSICAL EXPLORATION

To investigate how friction in interaction could prompt reflection, I constructed a small-scale table with interchangeable surface modules. The Base module can be seen in Figure 3. These experience prototypes helped me compare different interaction qualities and their effects on stimulating engagement. I tested three modules:

1. **The Uneven:** A surface with ridges that challenged the fundamental purpose of a table (Seen in Figure 4).
2. **The Seesaw:** An unbalanced surface that tilted when objects were placed on its edges (Seen in Figure 5).
3. **The Lamp:** A table lamp that turned away in response to rough handling (Seen in Figure 6).

Through testing of the prototypes, several key insights emerged about friction in interaction. The Uneven and Seesaw modules, which provided

constant physical resistance, proved ineffective at fostering the desired qualities of patience and understanding in users. These surfaces created immediate barriers that users found frustrating rather than engaging. The Lamp module, while successful in maintaining user interest through its responsive behavior, ultimately strayed too far from the fundamental nature of a table by incorporating anthropomorphic qualities that felt artificial and forced. The moving parts and electronic components needed for this behavior added unnecessary complexity that contradicted the project's core aim of maintaining the table's essential simplicity and primitive functionality. These early experiments proved invaluable in revealing that meaningful interaction should develop gradually over time rather than through constant resistance or obvious responsiveness. The key insight was that changes in the interaction dynamic needed to unfold naturally through extended use rather than through immediate feedback mechanisms.

Figure 3 (top left). Base component of the modular prototype



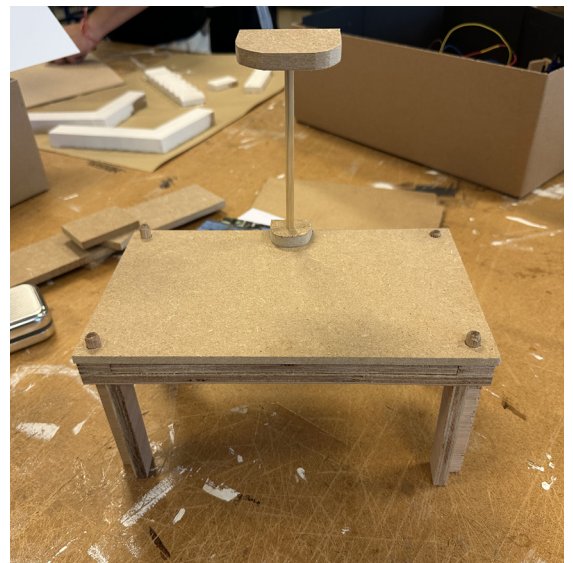
Figure 4 (top right). The Uneven Module



Figure 5 (bottom left). The Seesaw Module



Figure 6 (bottom right). The Lamp Module



4.3. MATERIAL EXPLORATION

After establishing the importance of temporality in relationship dynamics, I redirected my investigation from immediate interactions to examining how relationships develop and deepen over extended periods. Drawing inspiration from the way cherished possessions like well-worn jeans naturally develop distinctive patterns of use that foster a profound sense of personal connection and ownership, I sought to explore how object relationships could manifest visually and tangibly through the passage of time. While maintaining a deliberately minimalist design approach, I conducted an extensive investigation into materials capable of recording and displaying their history of use. This exploration led me through various possibilities, including photosensitive papers that could gradually document patterns of interaction through

cumulative light exposure, and non-Newtonian fluids whose unexpected behavioral properties created intriguing moments of tension and discovery in user interaction. After careful consideration of these options, I ultimately selected kinetic sand as the ideal medium—a material whose unique properties serve multiple purposes in the context of relationship building. Not only does it possess the capacity to faithfully capture and maintain traces of each interaction, creating a living record of use patterns, but it also requires users to invest time and effort in understanding its distinct characteristics and behaviors. This combination of properties creates an environment where meaningful relationships can develop through ongoing interaction and discovery.

4.3. FINAL DESIGN & STUDY SETUP

To validate the concept, I began with an initial prototype using 5 kg of kinetic sand that can be seen in Figure 7. This preliminary testing phase revealed crucial design considerations regarding the container's interaction with the sand material. Most importantly, I discovered that the container's edges should not impede or restrict the natural movement and malleability of the kinetic sand. Two critical factors emerged from this testing: the sand required adequate depth to maintain its characteristic properties, and the surface needed to remain perfectly flush with the container walls to enable uninhibited interaction across the entire area. These insights proved invaluable for the final prototype's development.

Armed with these findings, I proceeded to calculate the optimal dimensions for the final prototype. Construction plans and sketches are shown in Figure 8. The design called for a

significantly larger quantity of kinetic sand - 20 kg in total - which I contained within a precisely constructed wooden frame measuring 70×80 cm, with a calibrated depth of 5 cm. These specifications were chosen to create an ideal balance between usable surface area and material depth. Figure 9 shows the construction process of the final prototype.

To ensure rigorous documentation throughout the study, I engineered a specialized camera mounting system, shown in Figure 10. This custom-built rig was designed to accommodate the exact specifications of the camera equipment while maintaining absolute stability. The design effectively eliminated unwanted camera movement, ensuring consistent and reliable image capture from an unchanging vantage point throughout the entire observation period.

Figure 7 (top left). Initial prototype



Figure 8 (top right). Notebook sketches showing prototype plans

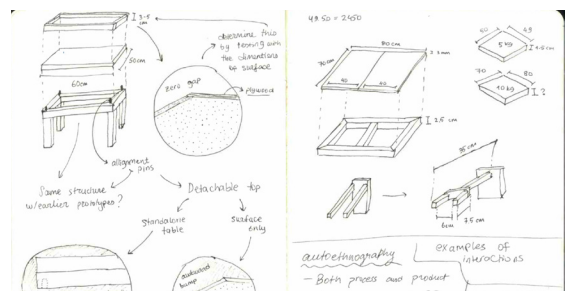


Figure 9 (bottom left). Construction of the final prototype



Figure 10 (bottom right). Camera mount used for documentation during the study



05. Findings

After five consecutive days of living and working with Tabula, two complementary data sets emerged: a forensic-inspired systematic analysis of every imprint left in the sand and a reflective analysis drawn from in-the-moment diary notes. Together they reveal how slow, visible friction reshapes both behavior and feeling.

5.1. SYSTEMATIC ANALYSIS

The 5-minute interval overhead images produced 496 high-resolution frames. Inspecting the final state of the surface, each discrete imprint was dissected to be inspected separately, resulting in a total of nine elements as shown in Figure 11: Elbow, Headphone Cord, Laptop, Book, Cup, Pen, Phone, Notebook, and Headphone. Each element was catalogued with time-stamped photographs of important instances such as first use or first appearance. These were then triangulated with related diary entries and coded along five dimensions:

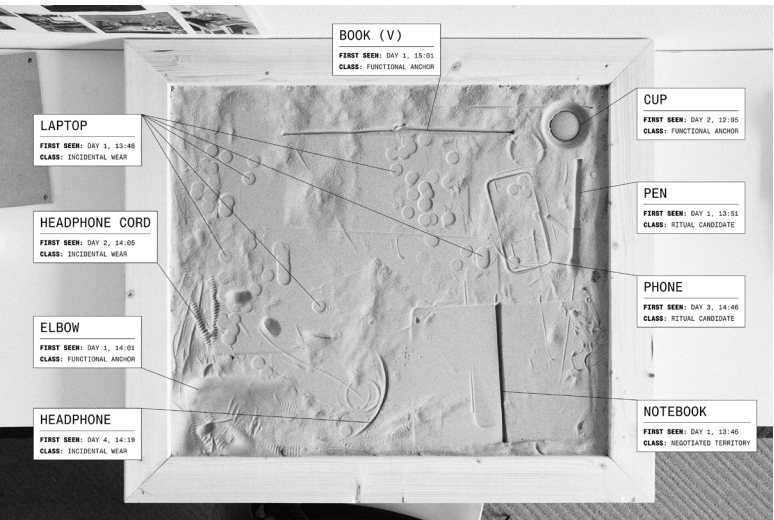
- **Intentionality** (accidental ↔ intentional):
Was the mark made on purpose?
- **Functionality** (functional ↔ not functional):
Does the spot aid stability or comfort?
- **Multiples** (yes ↔ no):
Are there several of the same imprint type?
- **Intentional use** (yes ↔ no):
Is the object consistently returned to this spot?

- **Alteration** (yes ↔ no):
Has the imprint been reshaped or erased by the user?

With nine elements, dimensional patterns clustered these into four higher-order themes:

1. **Functional Anchors:** Intentional or accidental marks that facilitate use cases by serving stability or comfort. Elbow, Book, and Cup are examples of this theme, with Elbow being accidental and the other two created intentionally.
2. **Incidental Wear:** Repeated, scattered marks that arise from careless handling; they do not help a task and are tolerated until they get in the way. Laptop, Headphone Cord, Headphone, and Notebook (Pre Day 3) are examples of this theme.
3. **Ritual Candidates:** Intentionally created but non-functional imprints. Typically created through playful experimentation, later to be respected as a designated spot for the related object. Pen, Phone, and Notebook (Post Day 3) are examples of this category.
4. **Negotiated Territory:** With Notebook being the sole example of this theme, negotiated territories start their journeys as Incidental Wear, until the accidental imprints are erased for a commitment to more mindful handling, transitioning into Ritual Candidates.

Figure 11. Catalogue of the nine imprints observed during the study.



5.2. EMOTIONAL REFLECTION

As the emotional side of the relationship being the main focus of the study, emotional insights were also captured through reflective journaling. After continuing to use the table for another two weeks after the termination of the autoethnographic study, I wrote an extensive letter to Tabula, reflecting on my experiences, noticing parallels with my own patterns of social interactions in real life.

5.2.1. FIRST DAY ANXIETY

When I first began the study, setting up the camera and sitting down at the pristine surface, I felt anxious and self-conscious about my behavior. This anxiety stemmed partly from knowing the research study had officially started—I didn't want my awareness of being observed to affect my actions. But I was also hesitant to disturb the spotless surface for the first time, worried that I might "mess it up." Yet what did messing it up really mean? Was I harboring preconceived notions about how I should use the table, or hoping for an aesthetically pleasing end result? Perhaps I was simply concerned about the table's first impression of me. Ultimately, I was able to remind myself that the goal was to create an equal relationship with this table and examine my honest approach to it, I needed to be genuine and true to myself.

Looking back, I can characterize the first day as a "getting to know" phase. I experimented with different approaches, tested the material's limits, explored its affordances, and discovered what was acceptable. I found myself hyperaware of how I used the surface, actively seeking ways to create imprints. I questioned whether I was leaving marks purely for the study or genuinely searching for practical uses of the material before me. By the end of day 1, I had established several intentional spots for my pen and book, while also noticing unintended marks—the elbow imprints, laptop marks, and most notably, the notebook creases.

5.2.2. THE NOTEBOOK

Initially, I hadn't expected the notebook to leave such deep imprints on the surface. Unlike my deliberate handling of objects like the pen, I was

careless with the notebook—and the table's surface clearly reflected this negligence. Over the next two days, I contemplated erasing these marks to start anew with my notebook usage. Yet I hesitated, wondering if erasing the marks would compromise the study's integrity. This dilemma persisted: were my interactions with the table authentic, or were they influenced by knowing I was under observation? By day 3, I realized that suppressing my natural instincts would be dishonest. I erased the messy notebook imprints and created an intentional spot for it, adjusting my behavior accordingly.

This interaction became a form of dialogue—the surface revealed what wasn't working, and I adapted in response. This exemplified one of the key dynamics I hoped to observe in the development of object-human relationships and their impact on emotional connection. While previous iterations hadn't evoked such responses, Tabula's material temporality successfully fostered this compromise through reflection. Seeing how my actions affect what initially seems like an inconvenience or source of friction in this dialectical relationship leads to meaningful self-reflection.

5.2.3. OWNERSHIP AND JEALOUSY

Towards the end of the study, I pondered the question "How would I feel if someone else started using the table?" The surface had molded into a shape unique to our relationship, with its ups and downs. It reflects me in ways I'm still figuring out, and someone else would develop an entirely different relationship with it. I realized I had developed a strong sense of ownership towards the surface—the mere idea of someone else using it bothered me. In the final state of the surface, there are several intense fingerprints that I didn't mention in the catalogue. They came from a curious friend during day 1, who touched the surface before I could stop them. Although I tried to convince myself it was part of the process, I never truly accepted these marks as part of my relationship with the table. This feeling of ownership, almost reminiscent of jealousy, is unfamiliar to me regarding my belongings—an interesting insight into the relationship I formed with Tabula.

06. Discussion & Future Work

This project set out to explore whether slow, material friction could nurture emotional attachment to an otherwise ordinary table. Conducting the work as a one-week auto-ethnography yielded rich, first-person detail, but it also introduced several limitations. Because I built the prototype myself, my expectations inevitably filtered what I noticed; small inconveniences may have been reinterpreted as “moments of dialogue” simply because I wanted the relationship to feel meaningful. The presence of an overhead camera, clicking every five minutes, almost certainly shaped my behavior as well. Even after the initial self-consciousness eased, I may have smoothed the surface more often—or pressed a little harder—because I knew each action would be documented. In addition, a single-participant study can offer depth but not width: the traces reflect one body, one routine, and one emotional baseline. Another temperament, context, or even a different week in my own life, might have produced a very different landscape of dents and ridges. The work also lacks a true third-party perspective. Finally, the temporal scope remains short. Five intensive days, followed by a fortnight of casual use, hint at longer-term attachment but aren’t enough to identify routines or rituals, nor can they reveal seasonal patterns of wear, material fatigue, or the slow fading of novelty.

Despite these constraints, the study offers three provisional insights. First, friction that lingers and can be groomed—rather than remaining constant or vanishing instantly—holds attention and invites care and understanding. Second, the moment of negotiated maintenance, when

an accidental notebook trench was deliberately leveled and redrawn, proved decisive for both behavior and emotion, suggesting that acts of repair serve as turning points in human-object relationships. Third, the kinetic sand’s ability to store interactions through visible material memory can spark reflection, compromise, and even a flicker of jealousy.

The natural next step is to move beyond the single-user scenario by placing Tabula in public settings like shared studio desks, library tables, or small cafés. This would test whether the personal findings scale or dissolve under communal use. Multiple users might create new dimensions of interaction through the surface, potentially enabling forms of communication between participants. The deployment would require time-lapse capture combined with brief exit interviews or trace diaries to compare individual actions against collective patterns. It would be crucial to observe whether informal care protocols emerge—do users develop rituals for smoothing the surface at closing time, or does the sand descend into chaos? The study must also address long-term durability. Extended periods of heavy use, accidental spills, and potential vandalism will determine whether kinetic sand can withstand public environments, revealing if the concept should remain a speculative artifact or become a viable piece of furniture. Through these concrete extensions, the project evolves from a self-reflective exercise into a broader inquiry: can a surface with memory foster not just individual attachment, but also shared responsibility in public spaces?

07. Conclusion

This project explored a simple question: if a table could visibly remember how it's used, would that memory strengthen our connection to it? By replacing the desktop with kinetic sand, every press, sweep, and accidental gouge became a time-stamped trace—each paired with first-person reflection. Over five intensive days, the surface transformed from a pristine plane into a personal landscape. The study revealed how gradual, negotiable friction can foster respect, compromise, and even spark a sense of ownership strong enough to trigger jealousy.

The work offers two main contributions. First, it shows how material temporality creates emotional attachment through low-tech means—the material itself serves as an archive, requiring no sensors, algorithms, or anthropomorphic cues. Second, it

demonstrates a novel methodological approach: pairing auto-ethnographic diary entries with forensic trace coding to reveal how subjective feelings and objective residue complement each other as evidence.

The limitations are clear: the findings come from a single participant over a short timeframe and haven't yet addressed the complexities of shared use. Future iterations will place Tabula in public settings to observe how multiple users negotiate, ignore, or collectively care for the same slow-changing surface. Yet even now, the study suggests something compelling: when an object records our everyday negotiations, it transcends mere furniture to become a partner—one grain of sand at a time.

08. Acknowledgements

As I approach the end of one of the most stressful and rewarding periods of my academic life, I want to thank Atacan Tutulmazay, Zeynep Uğur, and Omar Heuves—incredibly talented designers whom I feel fortunate to call my best friends—for their tremendous help when I felt lost and overwhelmed. I'm especially thankful they know me well enough to provide occasional sanity checks during moments of self-doubt.

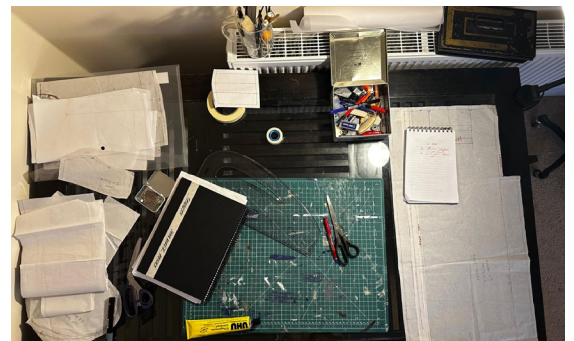
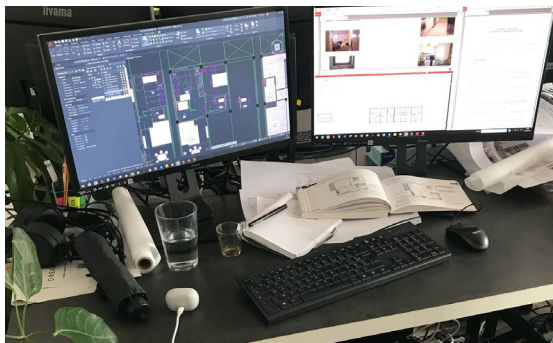
I also want to thank my coach, Amy Winters, whose patience and guidance helped me navigate what felt like an extremely messy design process. Her consistent feedback and suggestions helped transform this project from a loose collection of ideas and ambitions into something with clear direction. I am grateful that she believed in the vague vision I had at the beginning of the project and helped me turn the curiosity I had towards human-object relationships into a project that I feel proud of.

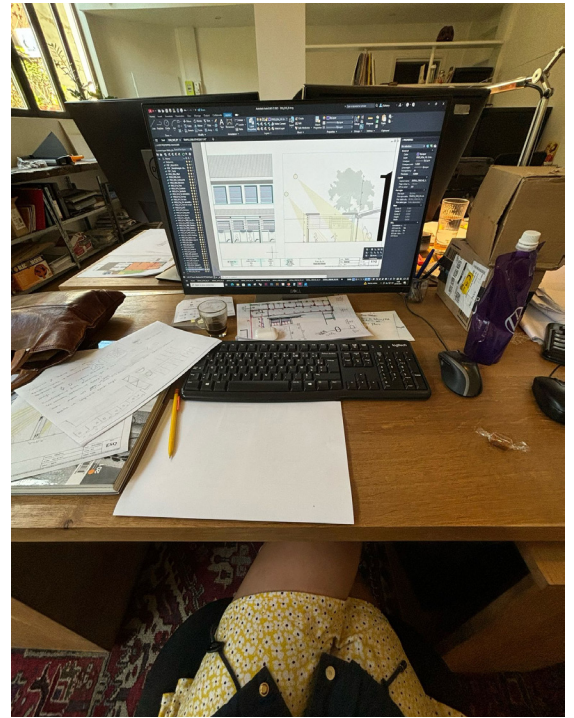
09. References

- [1] Glenn Adamson. 2007. *Thinking through craft*.
- [2] Zygmunt Bauman. 2001. Consuming life. *Journal of Consumer Culture* 1, 1: 9–29.
- [3] Russell W. Belk. 1988. Possessions and the vextended self. *Journal of Consumer Research* 15, 2: 139–168.
- [4] Harvey Bewley and Anna Vallgård. 2017. Provoking performing objects. *Association for Computing Machinery, Inc*: 243–248.
- [5] Bill Brown. 2001. Thing theory. *Critical Inquiry* 28, 1: 1–22.
- [6] Jonathan Chapman. 2015. *Emotionally durable design: objects, experiences and empathy*.
- [7] Mihaly Csikszentmihalyi and Eugene Halton. 1981. *The meaning of things*.
- [8] Anthony Dunne and Fiona Raby. 2014. Speculative everything: design, fiction, and social dreaming. *Choice Reviews Online* 51, 10: 51–5390.
- [9] Carolyn Ellis, Tony E. Adams, and Arthur P. Bochner. 2015. AUTOETHNOGRAPHY: AN OVERVIEW. *DOAJ (DOAJ: Directory of Open Access Journals)*.
- [10] Bill Gaver, Tony Dunne, and Elena Pacenti. 1999. Design: Cultural probes. *Interactions* 6, 1: 21–29.
- [11] William W. Gaver, Andy Boucher, Albrecht Schmidt, et al. 2004. *The Drift Table: Designing for ludic engagement*. ACM.
- [12] R Stuart Geiger and David Ribes. 2011. Trace Ethnography: Following Coordination through Documentary Practices. *HICSS-44*: 1–10.
- [13] Shad Gross, Jeffrey Bardzell, and Shaowen Bardzell. 2013. Structures, forms, and stuff: the materiality and medium of interaction. *Personal and Ubiquitous Computing* 18, 3: 637–649.
- [14] Lars Hallnäs and Johan Redström. 2001. Slow Technology – designing for reflection. *Personal and Ubiquitous Computing* 5, 3: 201–212.
- [15] Sjoerd Hendriks, Mafalda Gamboa, Mohammad Obaid, Interaction Design, Chalmers University of Technology, and Göteborg, Sweden. 2024. *The Undertable: a design remake of the mediated body*.
- [16] Stephanie Houde and Charles Hill. 1997. What do Prototypes Prototype? In *Elsevier eBooks*: 367–381.
- [17] Tim Ingold. 2013. *Making*. Routledge.
- [18] Daniel Kahneman, Jack L. Knetsch, and Richard H. Thaler. 1990. Experimental tests of the endowment effect and the COASE theorem. *Journal of Political Economy* 98, 6: 1325–1348.
- [19] Emily Martin. 2014. Table. *Somatosphere*. Retrieved from https://somatosphere.com/2014/table.html/#_ednref1.
- [20] Michael I. Norton, Daniel Mochon, and Dan Ariely. 2011. The IKEA effect: When labor leads to love. *Journal of Consumer Psychology* 22, 3: 453–460.
- [21] William T. Odom, Abigail J. Sellen, Richard Banks, et al. 2014. Designing for slowness, anticipation and re-visitation. *CHI 2014*.
- [22] Jon L. Pierce, Tatiana Kostova, and Kurt T. Dirks. 2003. The State of Psychological Ownership: Integrating and extending a century of research. *Review of General Psychology* 7, 1: 84–107.
- [23] Sarah Pink. 2007. *Doing visual ethnography*.
- [24] Daniela K. Rosner and Alex S. Taylor. 2011. Antiquarian answers. *Association for Computing Machinery*: 2665–2668.
- [25] Sharon Schembri and Maree V. Boyle. 2012. Visual ethnography: Achieving rigorous and authentic interpretations. *Journal of Business Research* 66, 9: 1251–1254.
- [26] Phoebe Sengers, Cornell Information Science and Science & Technology Studies, and Goldsmiths College, University of London. 2006. Staying open to interpretation: engaging multiple meanings in design and evaluation. *ACM*: 99.
- [27] Amy Winters *, Simone De Waart, and Miguel Bruns. 2022. Tension-and-Release: a design principle for dynamic materials. *International Journal of Design* 16, 2: 1–14.
- [28] John Zimmerman, Jodi Forlizzi, and Shelley Evenson. 2007. Research through Design as a method for Interaction Design Research in HCI. *CHI 2007*: 493–502.

10. Appendices

APPENDIX 1: PHOTO-ETHNOGRAPHY





APPENDIX 2: JOURNAL TRANSCRIPT

12/05/25

---- 12:43

- Elbow have nice spot

---- 13:56

- Notebook leaves marks
- I have the urge to place the notebook at the same spot everytime to not disturb the imprint

---- 14:56

- I am actively looking for ways of creating imprints
- with pens, books etc.
- Is this a concious effort of leaving marks, or looking for practical use cases?

13/05/25

---- 12:05

- Glasses/cups interacts very nicely. Very secure and stable
- I wonder what happens when something spills.

---- 12:10

- I see that imprints of the notebook are all over the place. How I use my notebook doesn't work with the table. I need to be more careful.
- Thinking if I should erase the marks or continue like this.

---- 12:36

- I realize that I respect the spot of the pen. I intentionally place it in that exact spot every time.
- I love that the objects I use on the table also participate in the relationship between

me and the table. They claim their spots on the surface. It's almost like an ecosystem.

---- 13:30

- I was leaning on the notebook with my elbow, and realized that it created a pretty intense imprint. I don't know how I feel about it yet.
- I need to find a way of using the notebook that works for me and the table.

14/05/25

---- 15:33

- I've decided to reset the imprints of the notebook, preparing for a more careful/precise use pattern. Committing to an organised use with all elements having their own space is something I'm trying to adopt.

15/05/25

---- 13:09

- I realize that I place every object in their space before starting to study.

16/05/25

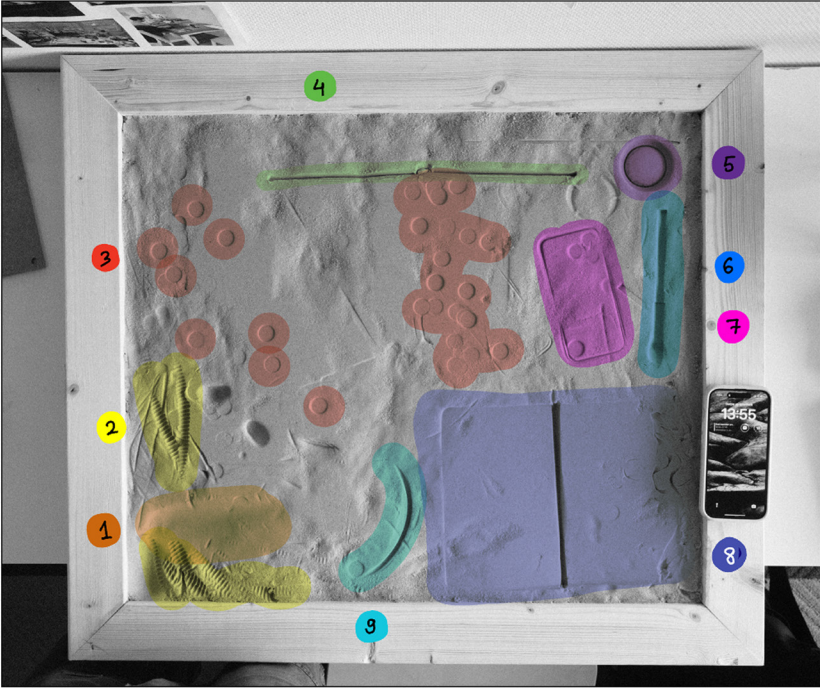
---- 05:33

- Jealousy? I've been thinking of the question "What if someone else were to use the table?" and I think it would make me uncomfortable. We have built this system by now and it highly personal and intimate? The spot of the notebook is perfectly convenient for me and the elbow spot is molded by my elbow. What if this was in a shared environment? Am I jealous?

All 496 source photos, 1.7 GB, publicly available at <https://we.tl/t-krIsn9beOH>

IMPRINT CATALOGUE

TABULA



D5
13:55

1_EL BOW

2_HEADPHONE CORD

3_LAPTOP

4_BOOK (VERTICAL)

5_CUP

6_PEN

7_PHONE

8_NOTEBOOK

9_HEADPHONE

1_EL BOW

TABULA

INSTANCES

RELATED DIARY ENTRIES



FIRST INSTANCE
OF IMPRINT

D1
14:01



FIRST INSTANCE
OF USE

D3
15:36

"ELBOW HAVE NICE SPOT"

- D1, 13:43

DIMENSIONAL CODES

INTENTIONALITY	UNINTENTIONAL	ACCIDENTAL
FUNCTIONALITY	FUNCTIONAL	COMFORT
MULTIPLES	NO	
INTENTIONAL USE	YES	
ALTERATION	NO	

Tabula

17

2_HEADPHONE CORD

INSTANCES



FIRST INSTANCE
OF USE

D2
14:05



FIRST INSTANCE
OF USE

D2
14:20

RELATED DIARY ENTRIES

N/A

DIMENSIONAL CODES

INTENTIONALITY	UNINTENTIONAL	ACCIDENTAL
FUNCTIONALITY	NOT FUNCTIONAL	
MULTIPLES	YES	SLOPPY USE
INTENTIONAL USE	NO	
ALTERATION	NO	

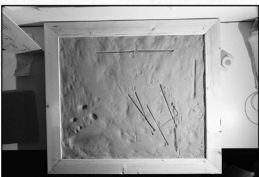
3_LAPTOP

INSTANCES



FIRST INSTANCE
OF USE

D1
13:46



SIGN OF
SLOPPY USE

D1
16:11

RELATED DIARY ENTRIES

N/A

DIMENSIONAL CODES

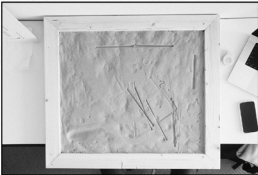
INTENTIONALITY	UNINTENTIONAL	ACCIDENTAL
FUNCTIONALITY	NOT FUNCTIONAL	
MULTIPLES	YES	SLOPPY USE
INTENTIONAL USE	NO	
ALTERATION	NO	

INSTANCES



FIRST INSTANCE
OF USE

D1
15:01



FIRST INSTANCE
OF IMPRINT

D1
15:11

RELATED DIARY ENTRIES

N/A

DIMENSIONAL CODES

INTENTIONALITY	INTENTIONAL	
FUNCTIONALITY	FUNCTIONAL	STABILITY
MULTIPLES	NO	
INTENTIONAL USE	YES	
ALTERATION	NO	

5_CUP

INSTANCES



FIRST INSTANCE
OF USE

D2
12:05



FIRST INSTANCE
OF IMPRINT

D2
12:25



INSTANCE OF
MISUSE

D4
16:28

RELATED DIARY ENTRIES

"GLASSES/CUPS INTERACTS VERY NICELY. VERY SECURE AND STABLE. I WONDER WHAT HAPPENS WHEN SOMETHING SPILLS." - D2, 12:05

DIMENSIONAL CODES

INTENTIONALITY	INTENTIONAL	
FUNCTIONALITY	FUNCTIONAL	STABILITY
MULTIPLES	YES	MISUSE
INTENTIONAL USE	YES	
ALTERATION	NO	

INSTANCES

FIRST INSTANCE
OF USED1
13:51FIRST INSTANCE
OF IMPRINTD1
14:01

RELATED DIARY ENTRIES

"I AM ACTIVELY LOOKING FOR WAYS OF CREATING IMPRINTS
• WITH PENS, BOOKS ETC.
• IS THIS A CONSCIOUS EFFORT OF LEAVING MARKS, OR LOOKING FOR PRACTICAL USE CASES?" - D1, 14:56

"I REALIZE THAT I RESPECT THE SPOT OF THE PEN. I INTENTIONALLY PLACE IT IN THAT EXACT SPOT EVERY TIME.
• I LOVE THAT THE OBJECTS I USE ON THE TABLE ALSO PARTICIPATE IN THE RELATIONSHIP BETWEEN ME AND THE TABLE. THEY CLAIM THEIR SPOTS ON THE SURFACE. IT'S ALMOST LIKE AN ECOSYSTEM." - D2, 12:36

"I REALIZE THAT I RESPECT THE SPOT OF THE PEN. I INTENTIONALLY PLACE IT IN THAT EXACT SPOT EVERY TIME." - D3, 13:09

DIMENSIONAL CODES

INTENTIONALITY	INTENTIONAL	
FUNCTIONALITY	NO	
MULTIPLES	NO	
INTENTIONAL USE	YES	RITUALISTIC (?)
ALTERATION	NO	

INSTANCES

FIRST INSTANCE
OF USED3
14:46FIRST INSTANCE
OF IMPRINT
AND MISUSED3
14:51

RELATED DIARY ENTRIES

N/A

DIMENSIONAL CODES

INTENTIONALITY	UNINTENTIONAL	ACCIDENTAL
FUNCTIONALITY	NO	
MULTIPLES	YES	MISUSE
INTENTIONAL USE	YES	RITUALISTIC (?)
ALTERATION	NO	

8_NOTEBOOK

INSTANCES



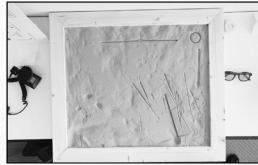
FIRST INSTANCE
OF USE D1
13:46



FIRST INSTANCE
OF IMPRINT D1
13:51



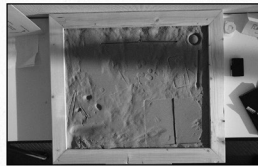
SIGN OF
SLOPPY USE D1
16:11



SIGN OF
SLOPPY USE D2
15:30



INSTANCE OF
RESETTING D3
15:31



NEGOTIATED
TERRITORY D3
19:06

RELATED DIARY ENTRIES

"NOTEBOOK LEAVES MARKS
• I HAVE THE URGE TO PLACE THE NOTEBOOK AT THE SAME SPOT
EVERY TIME TO NOT DISTURB THE IMPRINT" - D1, 13:56

"I SEE THAT IMPRINTS OF THE NOTEBOOK ARE ALL OVER THE
PLACE. HOW I USE MY NOTEBOOK DOESN'T WORK WITH THE TABLE.
I NEED TO BE MORE CAREFUL.
• THINKING IF I SHOULD ERASE THE MARKS OR CONTINUE LIKE
THIS." - D2, 12:10

"I WAS LEANING ON THE NOTEBOOK WITH MY ELBOW, AND
REALIZED THAT IT CREATED A PRETTY INTENSE IMPRINT. I
DON'T KNOW HOW I FEEL ABOUT IT YET.
• I NEED TO FIND A WAY OF USING THE NOTEBOOK THAT WORKS
FOR ME AND THE TABLE." - D2, 13:30

"I'VE DECIDED TO RESET THE IMPRINTS OF THE NOTEBOOK,
PREPARING FOR A MORE CAREFUL/PRECISE USE PATTERN.
COMMITTING TO AN ORGANISED USE WITH ALL ELEMENTS HAVING
THEIR OWN SPACE IS SOMETHING I'M TRYING TO ADOPT." - D3, 15:33

DIMENSIONAL CODES

BEFORE D3 RESET		AFTER D3 RESET	
INTENTIONALITY	UNINTENTIONAL	INTENTIONALITY	INTENTIONAL
FUNCTIONALITY	NO	FUNCTIONALITY	NO
MULTIPLES	YES MISUSE	MULTIPLES	NO
INTENTIONAL USE	NO	INTENTIONAL USE	YES RITUALISTIC (?)
ALTERATION	RESET	ALTERATION	NO

9_HEADPHONE

INSTANCES



FIRST INSTANCE
OF USE

D4
14:19



FIRST INSTANCE
OF IMPRINT

D5
13:35

RELATED DIARY ENTRIES

N/A

DIMENSIONAL CODES

INTENTIONALITY	UNINTENTIONAL	ACCIDENTAL
FUNCTIONALITY	NO	
MULTIPLES	YES	SLOPPY USE
INTENTIONAL USE	NO	
ALTERATION	NO	

THEMES

FUNCTIONAL ANCHORS		INCIDENTAL WEAR		NEGOTIATED TERRITORY		RITUAL CANDIDATES	
INTENTIONAL OR ACCIDENTAL MARKS THAT FACILITATE USE ON THE SURFACE BY SERVING STABILITY OR COMFORT.		REPEATED, SCATTERED MARKS THAT ARISE FROM CARELESS HANDLING; NON-FUNCTIONAL AND TOLERATED UNTIL THEY GET IN THE WAY.		STARTS AS CLUTTER, IS CONSCIOUSLY ERASED OR REPOSITIONED, THEN RE-APPEARS AS A SINGLE, ORDERLY EVIDENCE OF MUTUAL ADJUSTMENT.		A LONE, REPEATED GESTURE WHOSE PURPOSE IS SYMBOLIC (KNOWING WHERE THE PEN "BELONGS") RATHER THAN STRICTLY FUNCTIONAL.	
INTENTIONALITY	-	INTENTIONALITY	NO	INTENTIONALITY	NO → YES	INTENTIONALITY	INTENTIONAL
FUNCTIONALITY	YES	FUNCTIONALITY	NO	FUNCTIONALITY	NO	FUNCTIONALITY	NO
MULTIPLES	-	MULTIPLES	-	MULTIPLES	YES → NO	MULTIPLES	-
INTENTIONAL USE	YES	INTENTIONAL USE	NO	INTENTIONAL USE	NO → YES	INTENTIONAL USE	YES
ALTERATION	NO	ALTERATION	NO	ALTERATION	YES	ALTERATION	NO
• ELBOW • BOOK (VERTICAL) • CUP		• LAPTOP • HEADPHONE CORD • HEADPHONE		• NOTEBOOK (PRE D3)		• PEN • NOTEBOOK (POST D3)	
				• NOTEBOOK		• PHONE	