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The Alienated Senses: Artificial Stimuli for Sensory Perceptions in Interaction with Infomata

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Abstract
This is a qualitative study of exploratory nature, that investigates the senses alienated by the transformation of domestic objects into media, adding to communication and information technologies a functional meaning of interaction. This article aims to substantiate that environment perception through the senses changes when dealing with media infomata, which that have become ways of both media distribution and information storage. The high-tech revolution brought new questions, while household appliances act as media by providing, actively, interactively, or passively, connections between people, infomata, databases and objects. It bets on the alteration of subjectivities from the modulation of experience by interaction human-technology and, therefore, uses the theory of materialities in communication, of the human mechanization and modulations between bodies, technologies, and environment. The qualitative research evolved personal testimonies from 14 volunteers from Rio de Janeiro e São Paulo, during the first semester of 2023. The sample as non-random, purposive sample, constituted of subjects that are knowledgeable individuals in the context of the study. Analysis reveals layers of alienation about the use and role of domestic digital personal assistants and an imminent artificialization of sensorial perception.

Keywords *Domestic Media, Infomata, Sensorial Capitalism, Sensorial Communication.*

1. Introduction

The focal point of this research is related to the problem of sensory alienation when interacting with "smart" objects and systems which have recently been regarded as media – such as lamps, dolls, washing machines, robot vacuum cleaners, personal assistants. Our hypothesis asserts that, when interacting with this class of domestic media/objects, present-day individuals are mostly incapable of discerning their senses and naming their perceptions; therefore, being subjective to artificial stimuli to gather evidence of their experience – a kind of Sensory Capitalism. According to Erthal (2021), the notion of Sensory Capitalism pervades the commodification of sensory stimuli (demands or objects of consumption) made artificial by (new) technologies and (new) intelligent digital media[i]. It consists of convergent and divergent discourses, either complementary or independent, aiming to connect human senses into consumer experiences through digital technologies. This hypothesis is derived from what Han (2018) calls "emotion capitalism" – the exploitation of emotions through economic processes in which consumers abandon most reasoning to become "sentient creatures" (Han, 2018). According to it, economic exploitation, in order to increase human productivity, would increasingly reduce transparency – of relationships, affections, and objects of consumption – to raise instability, which would cause the emotional transformation of the production process. According to the

philosopher, “communication acceleration also favors emotional transformation, for rationality runs slower than emotionality” (Han, 2018). Thus, modern consumers no longer purchase things. They acquire emotions instead.

This line of thought establishes a consumption environment, in which emotions – instead of things – can be purchased indefinitely. While traditional forms of capitalism expressed emotions to create consumer demands, Sensory Capitalism uses persuasion and the sensory unconscious to establish new and emerging demands.

Common daily life has been managed, monitored, and reported through networked systems. The effects of this new life arrangements in contemporary environments tend to shape most of human experience into adapting one’s perception of self (as a human being), of the lived environment, and most relationships established with the natural world. The popularization of infomata[ii], virtual assistants, artificial intelligence, together with the coupling of digital technologies with mechanical technologies have intensified these changes, therefore changing sensory stimuli and perceptions.

This article has the general aim to substantiate that environment perception through the senses – consequently, the formation of subjectivities – changes when dealing with infomata, which that have become ways of both media distribution and information storage. The adoption of these systems and tools would trigger an alienation of the senses (a deliberate absence of sensory perception) and the institution of a sensory capitalism (in which the senses are used as commodities). We employ the conception of “subjectivity” from the psychological perspective of González-Rey, who theorizes from a historical perspective and states that subjectivity can be regarded as the experience of an historical subject. This way, it expands the meaning of subjectivity beyond a form of rational construction of an external reality, to a system in which both an individual daily chronicle and all meaningful lived social contexts are also considered. Subjectivity is conceived by the author as a complex and multi-determined system, affected by the very course of society and its constituents, within the continuous movement of the complex networks of relationships that characterize social development (González-Rey, 2003).

> *“The concept of subjectivity, from the perspective from which we assume it, opens a zone of meaning in the construction of psychological thought, oriented to signify the complex organization of meanings and meanings that characterize the individual human psyche and the social scenarios in which the subject acts. Subjectivity represents a theoretical construction of ontological value, while it is a concept oriented to generate visibility over the forms of reality that the concept delimits” (González-Rey, 2003, p.XI).*

Being a system affected by the environment and social relations, it would be correct, therefore, to state that subjectivity has been intersected by the transformations brought from technological and digital objects, in the same way which it was transformed in modernity with the acceleration of industrial and urban development according to Simmel [1902]/(1973). Human experience in contemporary everyday life, with technologies and tools connected in net and ubiquitus, consists of a fragmented, dispersed, desynchronized, and alienated combination of natural experiences. As a result, contemporary humans move away from their own nature, renouncing their natural senses while handing interactions over to technological objects. Sensory alienation is this condition of renunciation,

distancing, loss of consciousness about one's own senses, which could be the result of a mechanization of processes, in a way of protecting the perceptual system.

For all we know, as a resonance from the hyper stimuli of modernity (Singer, 2004), we are creating symbolic and sensory filters for everyday objects, attenuated by their triviality. In addition to the struggle to appropriate the senses, the absence of an adequate vocabulary for sensory expressions could also be a counterpoint to explore (Erthal, 2018). The inability to describe sensory experiences permeates the unconsciousness of perceptions and stimuli, for there is no attention dedicated to sensory landscapes, since they would be synesthetic arrangements – a web of data coming from each sense – in which the world is presented by the convergence of this information. But one can easily define with precise language what is seen, heard, inhaled, tasted, or touched. In the movement of alienation of the senses, the sunset on a beach is replaced by a simulation of a sunset on a beach created by a smart lamp connected to a virtual assistant.

1.1. Infomata Cartography

Domestic computer systems are versions designed for use in a domestic private environment, and for the sole use of its inhabitants. In the age of technology consumption, the need for connected objects becomes a hallmark of contemporary culture. Repeatedly, speech highlights the relevance of their presence in human life, the power to free the individual from the burden of memory and logical effort, and the promise of a more organized, more productive, and pleasurable life. Minimal scales have transformed technologies into digital objects, rich on utilities and playful seduction. Computers created from the high-tech revolution for domestic and individual use are celebrated. With every launch, or each system update, technophiles are overwhelmed, eager for new things. They legitimize the idea that technology exists to make life easier and free up work. In general, appreciated devices and media constitute an inseparable part of contemporary culture. However, people's understanding of the media that inhabit their private domestic space is overlooked by a veil of alienation.

When connected to the Internet, Infomata initiate communications with people, connected devices, and non-device digital agents (data, algorithms, artificial intelligence systems). In their cartography there are refrigerators sending messages about shopping lists; washing machines finishing their cycles right before their owners come home, while also updating their maintenance status; lights turning on and off in separate environments, at different schedules and intensities, according to residents visual demands; surveillance cameras recording movements and changes in monitored environments; personal assistants organizing and managing the lives of their users, providing and storing all information for later review; robot vacuum cleaners carrying out personalized cleaning routines; and many other connected appliances, objects and dolls that inhabit domestic environments tampering silently with everyday life. Information systems are perceptive artifacts among people, practically invisible in their discretion, communicating with human agents, with other media in the environment, with other computers via the Internet and with large databases. The electronic and digital revolution takes the form of personal and domestic objects connected to cloud computing,

promising human beings the ability to control homes remotely, therefore liberating them from the constraints of space and time, allowing them to become Homo Mobilis (Lipovetsky, 2016).

This structure of segmented communications can act like a small sample of most social relations of the 21st century, in which people communicate with other people and with technology, technology communicates with itself and other technological manifestations, and back with people. The condition for the existence of technology would be expressed in the same way as that of the human condition: the ability to relate. According to Domingues (2019), objects initially not perceived as media have become parts of the most complex media in the history of communication, as they spread information while capturing data for surveillance, control, and marketing purposes: a system in which the user is outside the central core of the mediation.

The long conversion of household objects into media was addressed by Silverstone in the 1980s, who added to communication and information technologies a functional meaning of interaction among family members. The high-tech revolution brought new questions forward, as household items started to behave as media, providing – actively, interactively, or passively – connections between people, computers, databases and other information sources. It entails complex remodeling of subjectivities based on the modulation of experience through the interaction between human and technology.

Silverstone [1988]/(2007) addressed the media moral significance as a primary way of understanding the world by individuals, a crucial object in human life inscribed in social, cultural, political and economic processes. According to him, this happens because: a) technologies are absorbed into everyday life and daily practices; b) technology users and environments are constantly changing, adapting to technologies; c) the reaction to technological adaptations creates opportunities for the creation of new technologies and services; and d) lastly, technology reflects domestic cultures based on their uses and demands.

The modulation between technologies and domestic life constituted a problem for Silverstone because technological objects such as “televisions, telephones, videos and computers”, “are not just objects: they are media” (Silverstone; Hirsh, 1992). In this way, the theory of domestication considered practical and symbolic aspects of media technologies adoption in daily life and how this modulation could be linked to a transactional system of values, production and exchange of goods, and the symbolism that supports the economy.

Orgad (2007) suggested the inclusion of the Internet in Silverstone's theory, for it is an intrinsic part of the contemporary environment, it is made of connections and interconnections with other media, and it is inseparable from human life, constantly formatting it and being formatted by it. These propositions show that technologies – especially networked ones – have been gradually assimilated by the individual in such a way that the body and mind have become modulated to them, adjusting perceptions to new stimuli, while also altering the subjective constitution of individuals, and reprogramming the senses, in a way that they can adapt and be adapted to emerging technologies. For each technological innovation, gestural codes are created that the body learns, adjusts its sensorialities to perform and absorbs as ordinary daily acts, so automated that it forgets them. It has become natural, for example, to talk to Alexa to adjust your schedule, to program the washing

machine cycle or turn off the light in the room that was left on. Individual and machine are domesticated by omnipresent and ubiquitous digital media technologies.

According to Csikszentmihalyi and Rochberg-Halton (2002), things that people interact with are not just tools for survival or to make survival easier and more comfortable.

> *"Things embody goals, manifest abilities, and shape the identities of their users. Man is not just homo sapiens or homo ludens, he is also homo faber, the maker and user of objects, himself an extension of the things with which he interacts. Thus, objects also create and use their creators and users. To understand what people are and what they can become, it is necessary to understand what goes on between people and things" (Csikszentmihalyi & Rochberg-Halton, 2002, p. 1).*

As the authors advocate there is a misunderstanding about the true nature of things, their symbolic dimensions, and their effects. Most current research in diverse fields of investigation query the autonomy (especially after the spread of Artificial Intelligence) of information and media. Expanding this thought would demand researching on how these new technological objects challenge and condition their users, how they adjust the very concepts of time, space, body, subjectivity, sensoriality and affectivity[iii]. This would be the new topic for debate.

1.2. Artificial stimuli

Any debate on pleasure and well-being disguises the continuous incorporation of technologies, which satisfy the human senses, and with which we relate as "servomechanisms" to McLuhan [1964]/(2003). For McLuhan, the body would be "perpetually" modified by technology, extending its senses and natural abilities and, while simultaneously finding new ways to change technology itself. This continuous modulation, according to him, can be regarded as one of the main reasons for the creation of clothing (a survival technology); the wheel (a mobility technology); of books (a storage technology); and of the electric light bulb (a technology for life to be enjoyed 24 hours a day, seven days a week). The lights transgress the darkness. In the symbolic dimension, they are backers for productivity, security, and surveillance, for there is no need to stop any productive activity, nor to make it unavailable, always in a "state of uninterrupted needs" (Crary, 2016). Consumption also does not need to stop. A surgery, a football match, a classroom, can be regarded as byproducts of electric light. A technology that expands human capabilities, light can be defined as an artificial stimulus device, created by and for the demands of capitalist modernity. The industrial era established a constant rebuilding of the conditions for all sensorial experiences, in which vision performed a major role, becoming linked to scientific rationalism, capitalist expression and even an agent for the expansion of the visual field, with the emergence of printing technologies, scientific and technological instruments.

There are rare, noteworthy moments in human existence that have not been pervaded or appropriated by electric light. It once showed that there were people in an environment, and something was happening there. In a situation which someone reads, this environment must be lit, for there could be light directed onto the pages of the book, highlighting the contrast of the printed letters. However, this sensory experience will be completely changed if whoever is reading does so on a screen, which also is a light source. Therefore, reading on a screen removes the need for lighting in

an environment. Despite the harmful physiological consequences that the interruption of essential metabolic patterns for the human body implies, research shows that the use of screens gradually increases during the night, replacing books and face-to-face relationships (Crary, 2016).

The abundant artificial stimuli resulting from technology have reset the sensory experience. Music on wireless speakers or wireless headphones is now able to create soundscapes qualified to modulate emotional states. Textures that touch the skin, whether in coverings or fabrics, allow for welcoming and comfortable experiences. Smells spread in closed environments carry information to neurotransmitters that motivate emotional states such as calm, attention, excitement. Chemically prepared seasonings promote pleasant taste sensations. Lights and images create a continuum of transformation of visual regimes and a pattern of adaptability to new technological relations and social configurations (Erthal, 2018).

The smart light bulb stands out in an infomata cartography. With its expansion provided by the creation of technology-led artificial conditions, vision became alienated from a layer of virtuality in the real world. Smart bulbs (like Philips Hue) can provide distinct lighting conditions to welcome different emotional states. They not only shine in the dark, but also provide light for reading, relaxation, sleeping (simulating a soft candle flicker), and partying (flashing intense colored lights). They can simulate dawn or dusk lights, simply by being programmed. Like most information systems, they connect to personal assistants (like Alexa) and cell phones, which interact with and control them. It is possible, for example, to turn them on as the sun sets. It is not necessary to be in the room to turn them on or off, but merely by activating them via phone or assistant. This allow for a great amount of customization. It can be determined, for example, that lights turn on at 6 pm, lower their intensity down to 50% until 9 pm, then turning off. It is also possible to choose the light hue during this period: white, yellow, orange, red, green, blue, purple. Or choose from a pre-programmed range of natural lighting conditions, like a sunset in California or Rio de Janeiro. The smart lamp comprises a sophisticated set of artificial stimuli, as it not only artificializes the environment, but simulates nature.

In the wake of infomata working to expand human senses interfacing with the world, personal assistants play an important role. Embedded in digital devices such as smart speakers (Alexa), which enable some virtualization of the real, physical, and material environments. People talk to them, and they talk back. Therefore, a relationship is established, an intervention, in which they also manage objects and systems using programming, decoding the technological language for ordinary people. Their users pay attention to them when they say something like “the wash cycle is finished, please remove clothes from the laundry basket”. Hearing is pure perception: one attributes meaning to sounds heard. Sounds are present in full. Whether human, natural, mechanical or indicators (Schafer, 2001), everyday sounds can express, individually or collectively, the most unique demonstrations of human feeling and most intimate states, in a complex, semantic way. They are also engaging, even when their meanings are unknown. They would awaken and arouse emotional associations, enough to convey meaning, like a gesture, act, word, or touch. Humans are dependent on sounds like these to clarify, communicate and assign meaning to the world around (Ackerman, 1991). In the soundscape of sensorial capitalism, sounds work in a semiotic system, helping people to locate

themselves spatially and interacting with them. Personal preferences also set the tone for sound signatures, discriminating, and creating peculiarities for each environment. Contemporary times are marked by sonic chaos, and therefore, silence has also become a commodity. It can also be experimented with in artistic or commercial propositions.

The flood of artificial stimuli that everyday life routinely provides is an apt metaphor for the 21st century. We live on an abundance of stimuli, information, data, memories, experiences, virtual space, products, consumer goods, objects, and technology. In the era of hyperconnection and hyperstimulation we observe that the senses act connected: taste is supported by sight and smell, smell by touch, touch by vision and hearing, hearing by vision, vision by touch, in various combinations. In a split-second, they present what the brain believes to be the best possible perception of the real world, even in its contemporary virtualities, which are also artificial stimuli and perceptions. The sensorial surplus and its power would legitimize the senses as merchandise, contributing to an “efficient perception”, as postulated by Han (2022) and the existence of an economy of the senses, a Sensory Capitalism, which supports the arguments defended in this text. The sunset on the beach has been replaced by Philips Hue. It does the same thing, in the comfort of one’s home.

2. Method

This exploration paper aims to analyze and contextualize some partial data gathered in the research carried out in 2022-23, presenting results based on personal statements from 14 volunteers about their relationships with the domestic information based on the perceptions of artificial stimuli. The sample as non-random, purposive sample, constituted of subjects that are "specialists" or "knowledgeable" individuals in the context of the study. Our exploring methodological approach took qualitative data resulting from the collection of Personal Statements. The purpose of the method is not to guarantee representative results for a given population, but to have participants who: a) have experience on the researched topic; and b) are capable of accurately and sensitively describing their lived experiences.

Adrian van Kaam, (1989, in Polkinghorne) proposes six criteria for determining participants: (1) ability to express oneself easily with words; (2) ability to express intimate feelings and emotions without shame or indirectness, (3) ability to notice and express organic experiences that accompany these feelings; (4) relatively recent experience with the experiment being studied; (5) spontaneous interest in their experiences and (6) ability to write or report on what happens over time. This last skill also requires an environment in which matters can be thought about with sufficient time for ordering and recording. The collection of personal statements requires the establishment of a receptive environment, for it does not require the use of a probabilistic sampling process. It also recommends the use of 10 to 20 participants.

The material used for this collection method were notebooks: the researcher sent blank notebooks to the respondents, accompanied by a script, a suggested question, or a set of keywords that could help the respondent find the terms that could mean the experience, avoiding personal reports. With

digital communication systems, the mechanism used was the instant messaging application Whatsapp. For 15 consecutive days, the interviewees sent written or spoken messages, commenting on their experiences as in a diary of interactions with their household information.

The content was presented for content analysis using Bardin's (2016) thematic analysis technique, which consists of breaking down the text into thematic axes, in search of core meanings. To select among all available themes, following the research goal, a "floating reading" was carried out, indicating core statement meanings (structural decipherment). Subsequently, relationships between the statements were established, when applicable, keeping in mind the proliferation of important themes. This first reading made it possible to determine, using clinical criteria, the predominant topics in the statements, which were related to the description of the experience with the information.

2.1. Participants

Following the recruitment of the participants selected from an open invitation on the Instagram and Linkedin networks, 24 volunteers manifested interest in collaborating with the research. Researchers contacted each of the volunteers directly, informing them of the method of collecting statements, stating the criteria for participation in the collection: having at least one infomata and the personal assistant Alexa, used daily. Eight people withdrew from participating, allegating: lack of time, inability to make daily reports, inconsistent relationship with information systems, not having Alexa. The 14 voluntary respondents consented to continue with the research, provided that their identities were kept anonymous.

After confirming their participation, respondents who met the modality criteria received an open script validated by the Lawshe method (1975), in which they were invited to reflect on the relationships they were building with their information and the perception biases of this interaction, considering a replacement of natural experiences by artificial ones and the level of consciousness of these experiences.

People of ages ranging between 22 and 65 years old took part, most of them were women, with two or more “smart” household appliances, used daily. Among the five respondents aged 22 to 35, there was less recognition of artificialized stimuli, they were tagged as “curious” (DC) for the research. For the five respondents who had an analogue youth and are between 36 and 64 years old, a contrast was noted between sensitive natural experiences and those artificialized by virtual technological network systems (which contributed with positive derivations), this group was called “analytical” (DA). The four respondents over 65 years of age were more sensitized to anthropomorphic cues, personalizing their information with doses of affection, and were tagged as “experienced” (DE).

Most respondents reported that they started to use information systems more after requesting testimonials and daily interactions, as if it were an opportunity to get to know the systems better and explore their skills, which can be seen as a deviation from the standard response, since that disqualify involuntary experiences.

2.2. Theme Axes

Reading the testimonies of the volunteer respondents, six thematic axes emerged, with categories E and F – Awareness to anthropomorphic cues and Emergence of the economy of the senses – having been analyzed in another paper (Table 1).

Table 1. Theme Axes

	Theme Axes	Description
A	Infomata as body extensions	How the skills, capabilities and limitations of information systems are defined. Comparisons with users skills, capabilities and limitations.
B	Adaptability to infomata	How the adjustment to information systems occurred. How the automation of their presence developed.
C	Perception of sensory stimuli	How natural sensory stimuli are perceived and qualified.
D	Artificial pleasures	How are artificial stimuli capable of creating emotional states identified.
E	Sensitization to anthropomorphic cues	What are the relationships with infomata that present anthropomorphic clues and developed affections
F	Emergence of a sensory economy	How technologies involving sensory experience commoditize the senses.

2.2.1. A) Infomata as Body Extensions

This theme axis indicates the analysis of the statements that addressed the abilities, capabilities, and limitations of information systems, as well as making comparisons with human abilities, capacities, and limitations. These reports refer to how the use of computers extended body possibilities, partially replacing tasks in general. There is a realization that infomata need to be programmed, but once it is done, subjects report that there is rarely a need for reprogramming, just minor adjustments (Table 2 and Table 3). “Not having to get out of bed to press a button” was the most celebrated example, emphasizing a relationship in which technology acts through and frees the body for other activities.

Table 2. Sense Cores for Infomata as Body Extensions

	Group	Structural Interpretation
1	Curious	The recognition of skills happens through exploration, search for alternatives and errors. There is a large demand for requests, which the infomaton does not always respond to accurately. Subjects consider that the technology does not always understand their requests, but they acknowledge that they did not seek information or manuals to understand capabilities/skills and limits. Subjects regard computers as allies in everyday life, which most consider to be “chaotic, insane, full of tasks”. Between studying and working, subjects report little time available for too many tasks. Also, in most testimonies subjects point out that “the – information system – does it for me”.
2	Analytical	Subjects seek information about digital systems before purchasing them, mostly through reviews on shopping websites and YouTube videos, comparing and analyzing features and how they can meet everyday needs. On average, subjects ask younger people for help with the initial configurations. Subjects seek assertive ways of communicating with infomata and report a higher level of satisfaction with the relationship with the machine. Subjects also report a busy daily life and the infomaton’s role as an ally. For this reason, infomata are programmed to carry out tasks alone, sending phone notifications when tasks are completed, scheduled, or unsuccessful. For this group, infomata resemble a double, like the myth of the mechanical maid (Erthal, Radfahrer, 2023). Most of the testimonials

		point out that “the – infomaton – does it for me, which is great because I could not do it without it”.
3	Experienced	Subjects are usually presented with all information needed, and are trained by people close to them to help with the first interactions. They do not dedicate time to explore infomata capabilities/skills, mostly acting by trial and error. Subjects believe to be the sole responsible for most unsuccessful routines, crediting a lack of skill and limitations in understanding the technology. Only one report assigned blame to the information system – even though it was an user error. Subjects usually give names to the infomata, talk to them, have fun with the possibilities (like using the robot vacuum cleaner to bring coffee) and attribute a proximity to the “human” to anthropomorphic characteristics. Most of the statements point to “the – computer – is a companion, there is life in it”.

Table 3. Testimonials for Infomata as Body Extensions

	Group	Literal testimonials
1	Curious	**DC2:** “*My air conditioning isn’t smart, so I bought an adapter and worked around it to make it smart. I can control it via an app or Alexa. So, it's very comforting when I don't have to get out of bed at night to turn the air conditioning on, or off, you know? I don't even need to open my eyes, I just talk to Alexa and everything is fine. There’s nothing worse than getting out of bed in the middle of the night, to turn on the lights, to turn on the fan or air conditioning.*”
2	Analytical	**DA4**: *“As it was just me and my daughter, I always counted on the help of everything that was intelligent. I started with a light in her room and now I have it throughout the house. Then, I bought the vacuum cleaner, which helped a lot, because he works all day. Since we have a cat, it saves a lot of time and work, because I can do other things. And it vacuums properly, comes back to recharge and restarts. When it's out of schedule, I activate it via Alexa and there it goes...Another great thing was the washing machine, which we put clothes in and program it to finish close to the moment we get home. I can’t live without them anymore”.*
3	Experienced	**DE1**: *“I named my washing machine Doris. There was a program on TV where the girl said ‘ready for a program with Doris?’ As the machine has so many programs she should call Doris. She sings a song when she finishes washing the clothes, and I understand that she is happy because she finished her work. She also says everything: if the door is not closed, if there are more clothes than it can hold, if there is a lot of soap, if she understands that it needs to be left drying longer... For me it was great because I don't even wash hand clothes anymore.”* **DE4**: *“I fought with Alexa for a week because she stopped responding to me. I thought she was angry with me and complained to my grandson. He told me I had to say ‘Alexa, such and such’. And I was saying 'such and such, Alexa'. After that everything went fine. And that's how I discovered that my grandson also talks to Alexa through the security camera. I understood that everything is connected and that I can just sit there and ask Alexa for things”.*

2.2.2. B) Adaptability to Infomata

This theme axis indicates the analysis of the statements on how the adaptation to infomata occurred and how the automation of their existence developed. The statements are very close to the core meanings of Axis A – some are even repetitive, reflecting the research demand: “think about the relationship with information systems”, as something that is not usually done. The analysis shows that there is no resistance to the novelty of infomata (Table 4 and Table 5). It also reveals how they are assimilated as part of life and subsequently automated. People barely remember their presence. This phenomenon is part of the idea of a perpetual – gradual – transformation of the modalities of

perception, in which the human being incorporates patterns of adaptability for the relationship with technology in continuous modeling between bodies and objects.

Table 4. Sense Cores for Infomata Adaptability

	Group	Structural Interpretation
1	Curious	Subjects in general do not know how long the information systems were present in their lives, even when recently started operating. Subjects show little understanding of computer programming rarely shared devices with their families, mostly assigning responsibility for configuration and adjustments to third parties. Subjects rarely remember infomata at home, or that the machines work without the need for direct commands. They consider information systems to be discreet and silent, carrying out their tasks without the need for intervention. A common statement would be "The – information system – is automatically coupled to everyday life".
2	Analytical	Subjects seek to explore most connection possibilities among home computers and smart devices, usually with careful programming to automate the infomata on their own, without any need for adjustment or intervention. They declare spending a lot of time to completely automate the system, considering the dynamics of their routines, the demands of the house and the other people with whom they share computer systems. Subjects usually configure other users information systems, considering this detailed planning. They devote much attention to checking whether the computers are operating as desired and whether they carry out tasks correctly. Subjects can observe the information while carrying out tasks. They have had experiences in which they forgot about information (such as travel) and paid more attention to them. A common statement would be "The – information system – is automatically coupled to everyday life under surveillance"
3	Experienced	The relationship with information systems is basic. Subjects learn trivial relationships that are repeated from time to time, but these commands are also frequently forgotten. Subjects usually rely on other people to operate the computers. Automation comes as a surprise, a playful element. It is fun to see infomata working alone and silently. Subjects usually talk to the informants and congratulate them or thank them for their action. A common notion would be: "my friend – computer – is part of my daily life".

Table 5. Testimonials for Adaptability to Infomata

	Group	Literal testimonials
1	Curious	**DC3:** "*I never knew the refrigerator made shopping lists. When my parents went away, my mom set the fridge to text me. It was very funny. I was curious to know how and downloaded the app. For 40 days, I, alone, communicated with her via Alexa: the refrigerator and me sending her a grocery shopping list. I ended up getting used to it and today I don't even talk to Alexa anymore. The refrigerator already knows what I want*".
2	Analytical	**DA1**: "*I have two young children and three dogs. During the pandemic we didn't have time for anything. What saved us was the integration of the lamps, the robot vacuum cleaner and Alexa. The lights would come on when it was time to wake up, then go off an hour later. They turned on at six in the afternoon and reduced the intensity until bedtime. The house is very big, with a huge yard... The robot (vacuum cleaner) was always somewhere... I only noticed it when it felt like it needed to recharge and the base was close to my desk in the office. Only then did I remember it and check the filter. As for the lamps, I always had to monitor them using the app, because as the house is big, some of them didn't respond to the Wi-Fi connection. I was so tired that sometimes my wife would just say 'Alexa, turn off all the lights'. It was difficult, but today we got used to it".*
3	Experienced	**DE3**: *"I'm very warm, living here on the beach it's sunny and hot most of the time. My son made an Alexa call to the fan so it could turn on by itself. I do not know how!! (laughs). But it's like this: every time the temperature*

		reaches 26 degrees the fan turns on by itself. And it only turns off if the temperature drops. When I look at it, it's working and I just think it's over 26 degrees". **DE4**: *"Every single day I get scared. At eight she tells me what the weather will be like today and if it's going to rain and tells me who's birthday is – people I don't even know – and who the saint of the day is. I always get scared and go close to her to listen. She is always very cute".*

2.2.3. C) Sensory stimuli perception

This axis dwells upon the analysis of statements about how natural sensory stimuli are perceived and qualified from an automated relationship with the information. Respondents perceive their presence or adjust their senses to perceive the sensory stimuli they emit, usually sounds or text messages (Table 6 and Table 7). This phenomenon constitutes a generalized dullness regarding perceptions and sensory stimuli (Erthal, 2018). These perceptions emerge into consciousness usually only upon request. In ordinary everyday life, regardless of the environment, people do not pay attention to their senses, unless it is an unusual situation such as an extremely strong odor, for example.

Table 6. Sense Core for the Perception of Sensory Stimuli

	Group	Structural Interpretation
1	Curious	Subjects have little knowledge about their sensory landscape and their own ways of feeling. They are usually surprised by the discoveries they make about the senses based on the research questions. They tend not to establish synesthetic connections. A general idea would be "I never thought about it, but I get pleasure when I pay attention to my senses."
2	Analytical	They have little knowledge about their sensory landscape and their own ways of feeling. They are surprised by the discoveries they make about the senses based on the research questions. Respondents who are parents showed more synesthetic connections based on the experiences and demands of children. A general idea would be "I never thought about it, but I feel pleasure when I pay attention to my senses."
3	Experienced	The difference for the "curious" group would be the amount of sensory experiences accumulated throughout life. Unconsciousness and surprise would be practically the same. A general idea would be "I don't think about it, but I feel pleasure when I pay attention to my senses."

Table 7. Testimonials for Perception of Sensory Stimuli

	Group	Literal testimonials
1	Curious	**DC5:** "*I pay zero attention to these things, but I started paying attention after I started reporting. To do the experiment, I turned off the lights, to see how natural light would determine my pace. I realized that I don't need as much light on in the morning and I feel less rushed at night when the house is darker. It was bizarre*". **DC1:** "*I noticed that the vacuum cleaner makes a little noise, in fact it makes several different noises for each action. I also noticed sounds that I hadn't noticed, from the streets, from the car. I became more open to these perceptions. It's a different kind of attention. I traveled over the weekend and noticed that the city had a different smell".*
2	Analytical	**DA3**: "*In a chaotic day-to-day life, I really value these experiences, I know they are present all the time, but we don't notice because our heads are always full of things".* **DA4**: "*I grew up in a place and for me the sensory experience is very important. Listen to the birds or the sound of the bustling metropolis, smell*

		the rain or the smell of a subway car full of people wet with rain, taste a fruit at the market or pick it from the tree, watch the sun rise or the sun set in somewhere very open – like on the beach, touching the beach sand or the earth with your feet... it's always a moment of great pleasure and awareness of the act, even appreciation".
3	Experienced	**DE3**: *"Living on the beach, it's great to observe nature, its smells and colors. I also remember many moments when we stopped to admire the sky, the moon, the gardens, the squares. Everything was different and we don't think about it much. It was pleasant. But the body ages and we can't stand the heat, we can't sunbathe, we can't be calm...".*

2.2.4. D) Artificial pleasures

This thematic axis reflects the analysis of statements about how artificial stimuli capable of creating emotional states are recognized. In comparison to natural sensory stimuli, what would be the forms of artificialization of the environment used to promote pleasure? The implications would be the sensory economy, in which technologies are created that simulate sensory stimuli. The analysis repeats the unconsciousness about the senses and a more accurate observation after the beginning of the research (Table 8 and Table 9).

Table 8. Sense Cores for Artificial Pleasures

	Group	Structural Interpretation
1	Curious	Because they know little about the sensory landscape and their own ways of feeling, they also do not express elaborate analyzes of artificial stimuli, showing surprise at the discoveries based on the research questioning. There is confusion about natural and artificial, which is corrected in the testimonials. A general idea would be "I never thought about it, but I recognize that I create these environments to get more pleasure".
2	Analytical	The difference between them and the "curious" is that they establish contrasts between natural and artificial experiences. Unconsciousness, surprise, and the general idea can be considered the same.
3	Experienced	Despite having little knowledge about their sensory landscape and their own ways of feeling, they demonstrate more sensitivity to artificializations and compare based on the contrast with past experiences. "I notice the increase in artificial stimuli in contrast to natural ones".

Table 9. Testimonials for Artificial Pleasures

	Group	Literal testimonials
1	Curious	**DC2:** "*There's one thing that I can only sleep with the air on. Even if it's winter, I need the noise, that constant frequency, that calms me to sleep*". **DC4:** "*I catch waves every morning and when it rains I get really discouraged, so I program the bedroom light to look like the sun rising on the beach and ask Alexa to play a surf playlist".* **DC5:** "*Headphones are essential for me. I know it's risky to create this bubble of the world, but I can't live without music all the time, even if it's just a headphone. My behavior adapts to the music".* **DC1:** "*I learned that there are smells that can help us concentrate, for example. I bought an electric diffuser and two essential oils: one for focus and one for relaxation. It's been great. Not to mention that it isolates other odors".*
2	Analytical	**DA2**: "*One day I started to realize that everything had sound: when I turned on the TV, when I turned on the computer, when I turned on the stove, when the machine finished washing, when I maneuvered the car. Before, there was nothing like that. And now we know what is happening through this sonic 'feedback system'. I started customizing the sounds on*

		my phone to recognize my interactions and differentiate myself from other devices". **DA5:** "*I am very visual and for me, the most interesting thing is to create this environment that refers to different emotional states. At home I have an armchair for reading, for example, and the lamp has a special setting to read comfortably. The lights in the room are yellow, always dimly lit, so as not to reveal too much of the environment. To watch television, I create a bluish-purple environment: zero interfere with the screen brightness".*
3	Experienced	**DE2**: *"Home appliances are the best examples. At home, the refrigerator sends a message to my daughter telling her what's missing. The washing machine sends a message to my secretary letting me know that the cycle is over. The stove turns off by itself, I add the rice and it turns off after 15 minutes with the rice ready. I don't pay attention to the noise of the washing machine because it barely makes any noise. The sound of the stove is annoying, it sounds like a fan, but I don't need to watch the pan. The lights are incredible, they turn on and off by themselves. I think they could come up with a way to heat or cool the floor too.".*

3. Inferences

The reports provided by the respondents show that infomata are potential vehicles of communication. As such, they can alienate, collect data, and transit that data through the Internet of Things (IoT). The research examined a specific and ubiquitous contemporary cultural context: the domestic environment inhabited by infomata that establish dynamics in the daily life of the house and in family relationships.

There is a modulation between habits, values, and the impact of technology on daily life, which can make media essential in daily routines. In the investigation, we identified the way in which these practices are incorporated and transmitted by the "habit" that makes them natural, common, and even necessary. The culture of a time is learned through participation, and the phenomenon explored in this research demonstrates that the way of appropriation of the culture of virtualization and technological "home" transformation is a product of interactions with objects, things, systems, and people connected in a network. A set of relationships, negotiations and dialogues that give new meanings to the field of communication.

Sensory perceptions can be modeled and lead to emotional states by providing soundscapes, visuals, and tactiles. It is possible to artificialize an environment, creating spheres dissonant from natural conditions, which is a process of alienation of the senses by technology. The body also needs to learn the codes of interaction with the infomata by programming and reprogramming the devices. An advanced process of mechanization proposed by McLuhan (2003) in which sensory experiences are artificialized by technology.

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[i] Considered electronic, digital objects and household appliances connected in a network and configured as media and not just devices with the function of serving the domestic environment.

[ii] Infomata is the attribution used by Han (2022) for technological objects – or things – that are previously programmed and frequently updated and that relate to people and other objects connected in a network. He cites cars and their ability both to dialogue about their own operating and mechanical conditions, and to recognize the conditions (or lack thereof) of the driver according to his driving performance.

[iii] According to Pereira (2006), "Sensorialities should be understood as the cognitive and synesthetic aptitudes that a body can achieve when it comes into contact with a certain expression of culture" and "Affectivity should be thought of as this force that drives the body in the transformation of its sensorialities and materialities, as a strategy to better act in the face of certain messages/stimuli/context".