

Article

The Brain in Diapers. Can a Brain be in the Wrong Body?

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ABSTRACT

The aim of this paper is to critically analyze Antonio Guillamón Fernández's book *Gender identity. A psychobiological approach* (2021). In order to do so, the book is contextualized within the current "brain-centric" wave, and I also discuss the theoretical framework underlying the presentation of empirical material. From a constructivist point of view, I suggest that Guillamón assumes a monistic ontology and a reductionist approach that blocks the interpretation of this empirical material, which could be better understood by including psychosocial identification processes that, in turn, depend on specific historical and cultural phenomena.

El Cerebro en Pañales. ¿Puede Estar un Cerebro en un Cuerpo Equivocado?

RESUMEN

En este trabajo se intenta analizar críticamente el libro de Antonio Guillamón Fernández *Identidad de género. Una aproximación psicobiológica* (2021). Para ello se contextualiza su publicación dentro de la oleada "cerebrocentrista" contemporánea y se discute el marco teórico que subyace a la presentación del material empírico que se realiza en sus capítulos. Se sugiere, desde un punto de vista constructivista, que el libro asume una ontología monista y un enfoque reduccionista que lastran la interpretación de dicho material empírico, el cual podría interpretarse mejor incluyendo procesos psicosociales de identificación que, a su vez, dependen de fenómenos históricos y culturales concretos.

Palabras clave

Constructivismo
Identidad de género
Monismo
Psicobiología

The British documentary series *A Child's World*, broadcast in 2001, was translated into Spanish under the title *La mente en pañales* [The Mind in Diapers]. One of its excerpts shows, through a well-known experiment, how adults treat babies differently depending on whether they think they are boys or girls: boys are attributed physical strength and bravery, and are moved around more; girls are attributed tranquility and beauty, and are talked to more.¹ The purpose of the images is to convey that, assuming the hormonal processes that affect the sexual dimorphism of the fetus—including the brain—, upbringing and socialization affect this difference from the very moment of birth. The purpose of Antonio Guillamón's book is, in a way, the inverse: assuming the processes of upbringing and socialization, the aim is to search for the biological bases—especially the brain-based ones—of gender identity.

What gets us into the heart of the matter is what is meant by biological basis. To narrow it down, I will situate the book within the contemporary brain-centrist wave (Pérez, 2011; cf. also Vidal & Ortega, 2017; Rose & Abi-Rached, 2013; Ongay, 2011) and point out that the psychological part of the psychobiological approach announced by its subtitle entails theoretical and ontological assumptions that are neither the only ones possible nor indeed the best. My thesis could be summarized as follows: Guillamón's book jumps on the bandwagon of the trans phenomenon (Alarcón, 2022; Errasti & Pérez, 2022; Lora, 2021; Shrier, 2021; Vázquez, 2019), providing a neurobiological justification of transsexuality that is indebted to a conception of the psychological which, curiously but significantly, neglects the specific psychosocial processes that account for the formation of the gender identity, thus incurring in reductionism. Needless to say, this does not mean that the information it offers is irrelevant or uninteresting.

Cerebrocentrism and Activism

As for the brain-centrist wave, suffice it to recall that in 1989 the President of the United States signed a resolution—promoted by the National Advisory Council of the Institute of Neurological Disorders—according to which the 1990s were declared the "decade of the brain", which would bring with it resources for research into the most diverse issues related to this organ (Goldstein, 1990). The wave soon crossed the Atlantic and in 1992 the European Commission launched the Decade of the Brain Plan (Rogers, 1992). Since then, the prefix "neuro" has been applied to virtually any discipline or practice: neuropsychiatry, neuroeconomics, neuroethology, neuroethics, neuroaesthetics, neuroarchitecture, neuromarketing, neurotheology, neurofinance, neuroeducation, etc. There has even been talk of a *neural turn* in the human sciences.

The neurosciences have generated an enormous amount of scientific production that often assumes a unidirectional causality from the nervous system to behavior, as if the former were more real than the latter. Neuroscientists compete with psychiatrists and psychologists to manage human behavior, and citizens tend to consider themselves as a kind of brain with legs, which would allow them both to exempt themselves from responsibility ("it's not me, it's my brain") and to take responsibility for their own lives by self-constructing through *neurotraining* or neuroasceticism. Basically,

this paradox—that serves for one thing and for the opposite—runs through the modern history of *psy* disciplines (psychiatry, psychology, pedagogy, psychoanalysis, criminology, etc.) and impacts on the waterline of the book in question. Since the shift that took place in the 19th century from theological-moral discourses to techno-scientific ones, issues related to subjectivity raise powerful tensions about responsibility, imputability, and personal identity (Jiménez, 2007; Rose, 1996), which in many cases are intertwined with activism and, of course, with political decisions and legislative measures. Two excellent examples are found in homosexuality (Cleminson & Vázquez, 2007; Greenberg, 1988; Vázquez & Moreno, 1997) and autism (Ortega, 2009; Vidal & Ortega, 2017). Allow me to make a few brief remarks in this regard, by way of an excursus that will immediately bring us back to the book.

Francisco Vázquez and Andrés Moreno (1997) point out that, since its constitution at the end of the 19th century, sexology often doubted the distinction between masculine and feminine understood as a primary distinction, with a biological basis. Rather, it conceived it as a differentiation based on a sort of more basic undifferentiated desire, androgynous in nature. And androgyny or hermaphroditism were psychologized: they were no longer so much a deformation or a degeneration as a character, a condition that, moreover, provided the key to homosexuality, with which it had ambiguity in common.

Until the 19th century, the sexual deviant was sinful or wicked, but not sick. In the 19th century it was a matter of deciding whether he was a madman or a criminal. According to Cleminson and Vázquez (2007), the legal tradition of Protestant countries persecuted homosexual practices more vigorously, but the psychiatrization of homosexuality naturalized them as something that was abnormal although not necessarily punishable, while in Catholic countries the legislation tended to be more liberal in this respect, although psychiatrization was more complex there. In Spain, homosexuality was included in the penal code in 1928 after intense discussions between jurists, doctors, psychiatrists, hygienists, criminologists, etc. A typical tension, which crossed these specialties, was between the moral approach, usually linked to religion, and the scientific approach, which naturalized homosexuality. However, the scientific approach also pathologized it. In fact, it was generally considered a disease, although precisely for this reason it was believed that it should not be punished.

At the beginning of the 20th century, urban homosexual subcultures flourished in Europe, usually clandestine, with origins dating back to the middle of the previous century. In these subcultures, many activists rejected or *redefined* the medical terms referring to homosexuality, although they sometimes resisted pigeonholing and identity essentialization (the writer Álvaro Retana, for example, referred to "those who understand" and seemed to advocate a somewhat undefined form of bisexuality). In understanding the emergence of these subcultures, Greenberg (1988) stresses the importance of new forms of production and labor insertion in the Western world. The decline of family farms and apprenticeships, together with the rise of factory and office jobs, generated a distancing of male youth cultures from the adult world, weakening the sexual connection between generations. Homosexuality was thus cultivated among peers and became detached from practices such as pederasty. On the other hand, male homosexual subcultures found in medicine a kind of substitute for religion. Members of these subcultures often sought something that

¹ Available on YouTube: <https://www.youtube.com/watch?v=w2lvAR5VGRE> (accessed on 11/17/2022). The excerpt to which I refer begins at minute 4:30.

was not historically new either: the biological justification of homosexuality, which became an innate or inevitable personal condition, and therefore no longer a vice or perversion. Thus, at the crossroads between science and activism, (male) homosexuality ceased to be a practice linked to sodomy, as in the Middle Ages, and became a biomedically endorsed and internalized identity for those who cultivated it. Within activism, the pioneer was the German sexual liberation movement. At the end of the 19th century, drawing on the ideas of the jurist Karl-Heinrich Ulrichs—himself a uranist and activist—, many members of this movement argued that homosexuality should no longer be persecuted as it was a congenital condition. Incidentally, this defense was opposed by some of the movement's anti-feminists, for whom homosexuality was an expression of male superiority.

Jumping to the end of the last century, we come across another interesting cross between science and activism that also raises complicated psychological, neurological, medical, and political issues: the neurodiversity movement, which has similarities with the gay liberation movement. It has its roots in the Anglo-Saxon *disability studies* of the late 1970s, with Marxist roots and immediately influenced by post-structuralism. According to [Francisco Ortega \(2009\)](#), its classic version distinguishes between *impairment* and *disability*, the former being natural and the latter sociocultural—an obvious parallelism with the concepts of sex and gender—, so that people with *disabilities* would constitute oppressed groups. Disability is not a personal problem, but a political one. It is the sociopolitically imposed normalization that makes the disabled abnormal.

One of the first phenomena to join this trend was that of deafness, which had historical antecedents (at the end of the 19th century, the creation of states for the deaf in North America was even considered). There has been talk of a "deaf culture" as opposed to a "hearing culture", as well as "deaf pride". Today the deaf are often considered a linguistic minority. Once the identity is established, the act of identifying as disabled is equivalent to "coming out of the closet". It is a personal transformation that is often experienced with pride and often involves a rejection of medical intervention, which would be tantamount to a repression of diversity.

Autism joined this wave at the turn of the millennium. As [Ortega \(2009\)](#) reminds us, until the 1960s, the psychodynamic interpretation of autism predominated, which indirectly blamed families—with the famous theory of refrigerator mothers—although at the same time it enabled us to think about better parenting methods. The displacement of this interpretation in favor of neurocognitive and genetic interpretations favored the spread of groups of parents and professionals who demanded that therapeutic strategies not be forgotten, while highlighting the inevitable nature—not attributable to cold parenting styles—of the disorder. Judy Signer—herself diagnosed with Asperger's—radicalized the argument by coining in 1999 the term "neurodiversity" and arguing that autism is a personal characteristic like any other (race, sex, etc.), an atypical neurological condition and not a disorder, an identity rather than a disease. Curing an autistic person would be like curing a left-handed person or a homosexual.

Thus, as in the case of homosexuality, in the case of autism we find that what first appeared as an anomaly ends up becoming an identity, even an identity to be claimed (June 18 is autistic pride day, as June 28 is gay pride day). It is easy to see the convergences

between these historical and social phenomena and the phenomenon of transsexuality. If one of the effects of naturalizing a stigmatizing condition is to neutralize the stigma, how can we not look for the biological basis of this condition? If, in addition, there are already movements that *make it visible* and, on top of that, have a growing socio-political force, how can we not provide them with scientific arguments, from the "hard sciences" if possible. This is basically what Guillamón's book does, presenting transsexuality—or, to put it more correctly, gender identity—as a matter of the brain.

Nowadays, gender identity is often given a psychological justification, in the sense that it is assumed to emanate from the most authentic depths of the self. This is what underlies the famous Spanish "trans law". The truth about oneself is truly known only to oneself, and one would not even need, according to activists, the help of a professional to discover it. Performing the historically well-known procedure of referring the psychological to the neurological in order to make it more scientific, Guillamón looks for the psychological truth in the cerebral truth. In both cases, the psychological and the neurological, a behavior—or an identity—is naturalized, one that, if it were not natural, would fall under the suspicion of being pathological.

The problem is that, as happened with homosexuality at the beginning of the last century, naturalization does not necessarily imply depathologization. The same phenomenon, reduced to the scale of a given concept, and the same concept—which aims to account for a given phenomenon—can serve both to exonerate oneself from responsibility ("it is neither a vice nor a sin") and to empower oneself ("being X is a source of pride, or at least requires visibility") or even to victimize oneself ("I am sick, it is not my fault"). Guillamón expressly warns that trans brain endophenotypes² are not pathological: "Trans variants are not disorders or diseases but different forms of differentiation of brain structure" (p. 144). Accordingly:

"It is sometimes said that a trans man has a man's brain trapped in a woman's body or, conversely, that a trans woman has a woman's brain trapped in a man's body. This widespread perception is not scientifically true and facilitates a pathological view of transgenderism. [...] Trans women have a brain with its own endophenotype, characterized by a mixture of masculine, feminine, and demasculinized morphological features. Conversely, the endophenotype of the brain of trans men consists of a mixture of masculine, feminine, and defeminized traits. The endophenotypes of cis men and cis women are dominated by masculine and feminine traits, respectively" (p. 144).

The point is that these claims probably do not go beyond their own assertion. There are as many reasons to consider trans endophenotypes pathological as there are not. From a strictly biological point of view, nothing is pathological; it simply exists and, if anything, may be statistically abnormal (gender identity does not correspond to genitalia in between 0.002% and 0.014% of cases). Things are pathological from the medical point of view, which necessarily incorporates a valuation, an axiology, and a norm regarding what is a healthy body ([Bueno, 1999](#)).

² As we will see in the next section, brain endophenotypes are a set of morphological and physiological characteristics that define the brain and that, although unobservable in themselves, are postulated to account for the relationship among genes, nervous system, behavior, and environment.

Brain Endophenotypes

Antonio Guillamón is a (medically-trained) professor of psychobiology at the National University of Distance Education in Spain, where he has developed his career researching sexual dimorphism of the nervous system. For several years he has been directing this research towards gender identity in cisgender and binary transgender men and women. The book—whose shortcomings, we must note, are poor binding and insufficient orthotypographic revision—gathers the results of these studies and structures them in five chapters among which are interspersed autobiographical extracts about Carla, a transgender woman that the author met and whose testimony fulfills the function of reinforcing the conception of transsexuality as a natural personal condition that is discovered.

Brain centrism and reductionism are detected from the very first line. The book begins like this: "Brain activity produces a subjective experience of identity, the conscious process of unity, of being oneself in time and space. This experience, which we might also call the self, is gendered" (p. 17). Further on: "it is the brain that organizes behavior" (p. 65). As we can see, the brain is identified with the self, to which gender is also presupposed, and the sociocultural mediations abundantly studied by psychology, sociology, and anthropology are left in the shadows, especially those that have to do with processes of upbringing, with the construction of the self, and with acts of identification (see, e.g., [Wertsch, 1993](#)), three central areas in the construction of sexual gender. Neurobiological categories are given priority because:

"It is highly improbable that the formation of gender identity, of the gendered self, is a function without a strong biological foundation, because it is the cornerstone of the survival of our species, which [...] reproduces sexually and requires the interaction of two sexes. This fact leads us unflinchingly to the sexual differentiation of the organism, including the brain" (p. 17).

The ontological priority of physical matter is taken for granted. What is not strictly physical-neural enters into the "global theory of gender identity" (p. 18) that is presented, but it does so through the biological or biochemical reality: "It is not that the genesis of gender identity is alien to the influence of the environment. [...] Gender identity is the consequence of a process in which genetic, epigenetic, and hormonal mechanisms are involved in brain differentiation" (p. 17). These mechanisms are activated at critical prenatal, neonatal, and pubescent moments.

The first chapter is devoted to defining gender identity ("a stable cognitive-emotional conviction of being male or female, or the awareness of being male or female", p. 7) and other concepts of the same constellation, such as gender assignment, gender role, or sexual orientation. It includes a brief historical overview of modern ideas about transgender people and provides data on the prevalence of the phenomenon, referring to its emergence in children, adolescents, and adults, and how to address it. It also includes some considerations on stigmatization and cases of detransition. Finally, Guillamón explains the methodology of his own research, based on "comparing genotypes, endophenotypes, and phenotypes of cisgender and transgender people from the perspective of the sexual differentiation of the brain" (p. 25). The hypothesis is that this differentiation predisposes the brain to be male or female even if

the genitalia are not. The causal arrow is assumed to go from genotype to behavior, the latter being considered as part of the phenotype. It is not a strict causal arrow, in that the existence of mediations in the passage from genotype to phenotype is admitted. The gonads, hormones, and the brain act as intermediaries. And this type of intermediary makes it possible to resort to a concept that comes from psychiatry: the endophenotype, which incidentally calls to mind the intermediate variables of methodological behaviorism. Endophenotypes are the phenotypes of the elements that, like the gonads or the brain, intervene in the process that goes from the genotype to the behavioral phenotype. They are not directly observable; their action is inferred through histological, biochemical, neuroimaging, etc. techniques. And they are postulated to give input to environmental factors in "the genes > gonads > hormones > brain > behavior process" (p. 27), assuming that behavioral variability may be due to that produced by the environment acting on the gonads, hormones, or brain.

The theoretical framework of the book excludes not only the inversion of the causal arrow—i.e., that behavior, and therefore the sociocultural mediators linked to it, influences the process in some specific way, instead of acting in terms of just another physical component—but the possibility that the very categories of classification that are used to speak of gender identity (male, female, non-binary, fluid, etc.) function as cultural artifacts that allow the subjects to identify themselves ("I am a man", "I am a woman", "I am non-binary", etc.). If we forget this possibility, the reasoning ends up being circular: differences in the brain endophenotypes of cis and trans men and women are detected because they are based on the categories of men and women.

The second chapter is devoted to explaining the sexual dimorphism of the brain. It describes the genetic and hormonal mechanisms that act in certain critical periods inducing structural differences in this organ. It also considers epigenetic mechanisms, considered as those that account for gene expression that is not due to the DNA sequence, but to chemical compounds adjacent to the genes. This introduces environmental factors, but—once again—such factors are considered physical realities, realities produced at the scale of what Gustavo Bueno (1972) has called the first genre of materiality.³ References are made to "external variables", understood as "the chemical, physical, and social environment in which one lives" (p. 59). These variables influence epigenetic processes such as gene methylation and demethylation.

Be that as it may, it is from an initial sexual indifferentiation—remember that late 19th century sexology also tended to assume the original indistinguishability—that the behavioral and morphological phenotype can be inclined towards the masculine or the feminine. Significantly, Guillamón does not refer to this indifferentiation in terms of asexuality or polysexuality, but of bisexuality: "Behavior, both in the male and in the female, has masculine and feminine bipotentiality. It is potentially bisexual" (p. 59). Whether morphological and behavioral expression is ultimately male or female depends on inhibitory genetic and epigenetic processes. In Aristotelian terms: starting from the original bipotentiality, if the

³ This is neither the time nor the space to develop this, but suffice it to say that Bueno's ontology distinguishes among the first genre of materiality, which relates to organoleptic and physical realities such as trees or molecules, the second genre of materiality, which relates to psychological realities, and the third genre of materiality, which relates to abstract realities such as scientific laws or cultural structures. A use of this ontology to criticize brain-centric reductionism is found in [Pérez \(2011\)](#); cf. also [Ongay \(2022\)](#).

masculine potency is deactivated, the organism is actualized as a female, and if the feminine potency is deactivated, the organism is actualized as a male.

The title of the third chapter is "The genetic basis of gender identity". This chapter reviews family studies (investigating the frequency of cases of transsexuality in a family, without it being clear, it seems to me, how the effect of recurrent parenting patterns is neutralized), twin studies (many of which, it must be warned, include such fragile methods as questionnaires or parent interviews) and molecular genetic research (based on the analysis of the genome and genetic polymorphisms or that of genome expression and the epigenome). Overall, the picture is one of enormous complexity in terms of the processes directly involved in the relationship between genes and gender identity; a complexity expressly recognized by Guillamón himself:

"The molecular studies we have reviewed [...] open up an immense world of possible mechanisms that may be involved in the genesis of a person's gender identity within the framework of sexual differentiation of the brain. [...] To complicate matters further, not only do some genes regulate, through methylation, the gene expression of other genes, but so do the physical environment and the behavior that a child receives. All these experiments, studies, and data that we have provided point to an immense complexity in the process of sexual differentiation of the brain, which [...] we can intuit in turn presents degrees and differences that will affect gender variants" (p. 97).

In the fifth and last chapter, which is where the author adds his own two cents' worth, a model for organizing this complexity is presented. But before that, in chapter four, even more data are reviewed, this time about gender identity in intersex subjects, that is, those with ambiguous genitalia. More precisely, the topic is that of what are known as the disorders of sexual development, which are "congenital conditions in which the chromosomal, gonadal, or anatomical sex shows variations" (p. 93); variations from the statistical norm, it is understood (they have a prevalence of between 0.1% and 2% of the population). Examples are androgen insensitivity syndrome and congenital adrenal hyperplasia. At the end of the chapter, the relevance of sex hormones in brain *genderization* is highlighted, even counter to socialization, at least in some of the disorders.

The last chapter, as I have just indicated, offers Guillamón's theory on the relationship between neurobiology and gender identity. Against the background of the previous chapters, the author reviews the studies on sexual dimorphism concerning two variables directly related to the brain: volume (both total intracranial volume and that of the gray matter, white matter, and cerebrospinal fluid) and connectivity patterns (structural, functional, and dynamic). To conclude the book, he presents some reflections on— and this is the title of the epigraph—the effects of hormone affirming treatment on brain tissue.

What, then, is the author's theory of gender identity? According to his hypothesis, there are at least four brain endophenotypes: cis woman, cis man, trans woman, and trans man. Here are his words:

"It is legitimate to hypothesize that the differences in the cerebral cortex and in the fascicles connecting different brain regions may be due to the different functioning of these genes [those related to estrogen and androgen receptors] causing different sexual development of the brain for each

genotype, and this produces four brain endophenotypes that are associated with each of the four binary variants of gender identity [cis woman, cis man, trans woman, and trans man]" (p. 142)."

Reductionism, Psychobiology and Identity

It seems obvious that the book opts for a reductionist conception of psychobiology which, although perfectly legitimate insofar as it constitutes one more theoretical tradition among those available, is not the only one that exists nor the most powerful when it comes to coordinating brain and behavior. This, of course, does not undermine the technical rigor of its research and the interest of its empirical results. There are other conceptions whose constructivist, or at least non-reductionist, theoretical background allows for a better coordination. Instead of understanding the brain as the repository of the biological bases of behavior, these conceptions understand it as an organ in its strictest sense (*organum*, tool, instrument), inseparable from its functions; functions that occur on a scale that is no longer actually physical, but psychological.

There is nothing new or strange in this approach: classics such as Lev Vygotsky or Alexander Luria considered that individual assimilation of cultural practices enables the integration of different brain functions and, ultimately, the cortical control of behavior, always inseparable from the effects that the behavior itself produces in the environment in which the subject develops. In the contemporary neurosciences there are neuroconstructivist approaches from which it is possible to propose that behavior and brain are shaped reciprocally from initial constrictions of a phylogenetic root (Baltes, Rösler, & Reuter-Lorenz, 2006; Deacon, 1997; Doidge, 2008; Edelman, 1987; Wexler, 2006; Wilson, 1999; cf. also Sánchez, 1998).

There is a whole ontology involved in these questions, as I noted in passing above. The reductionist point of view resorts to an architectural or stratigraphic scheme according to which the foundations of behavior are to be sought in the physical place from which, so to speak, this behavior is supposed to emanate: the brain, a tangible, corporeal, physical organ. From a constructivist point of view, on the other hand, it makes as much sense to speak of biological bases as to speak of psychological bases. When it comes to understanding behavior, the brain is as basic as the biography of the subject in question, the patterns of upbringing and education that have surrounded him or her, or the institutions and practices typical of his or her cultural environment, although not all of these are tangible, corporeal, or physical—I refer again to Pérez (2011) and Ongay (2022).

Here is the reductionist explanation of gender identity as summarized by Guillamón:

"When an individual is born, depending on the male or female appearance of his or her genitalia, he or she is assigned a sex that predicts a future gender identity of male or female. The absence or presence of certain concentrations of testosterone during gestation and in the first months after birth *prepare* a male or female brain endophenotype respectively. This child in interaction with the environment is *coupled* to a male or female model for which his or her brain is prepared. The coupling makes the gender identity

emerge in him or her. In the vast majority of cases, the coupling takes place in congruence with the genitalia. This is what happens in cisgender men and women.

"What happens in binary transgender people? They have a brain that is prepared to "couple" as a boy or a girl, but with incongruence with respect to the genitalia. The biological influence is so strong that the brain's *preparation* overwhelms attempts at correction by family and society" (p. 154).

A constructivist, non-reductionist explanation would begin by taking into account that male and female identity patterns themselves possess phylogenetic, ontogenetic, and historiogenetic dimensions; dimensions that are dependent—albeit indirectly—on behavior, by virtue of the Baldwin Effect,⁴ and are therefore dependent on enculturation frameworks and patterns of upbringing and socialization. These dimensions have had to do with the organic—morphological—stabilization of the individuals of each species, including in this stabilization the gonads and other anatomical elements and physiological functions that are directly related to sex and reproduction.

As far as transsexuality is concerned, from the reductionist point of view it is no longer that the soul or the mind is born in the wrong body, but rather that—following the tradition of identifying the brain with the self (Vidal & Ortega, 2017)—the brain is born in the wrong body. Or better: a part of the body—to which we grant the privilege of being the seat of the self, of personal identity, which we in turn consider linked to gender identity—is uncoordinated with other parts of the body, as if an assembly error had been made. The concept of error, however, does suggest pathologization.

From a constructivist point of view, it is evident that transsexuality occurs. The phenomenon is there, it is objective. But it does not occur in nature understood as something given; it does not occur in the psychic or cerebral interior—except from an *emic* perspective, which is what Guillamón's book comes to validate by converting it into *etic*—, but through acts of identification that require a certain cultural framework. Therefore, rather than an objective phenomenon in the sense of pre-existing or natural, it must be considered objectified, made objective, using the term "made"⁵ here in the same sense in which it has been used, referring to psychic disorders in general, by Héctor González & Marino Pérez (2007). Transsexuality has become objective because it has been constructed as such, it has been categorized. Especially in the USA and its area of influence—which is virtually the whole planet—, a whole clinical, educational, media, political, legal, etc., apparatus has been institutionalized that allows acts of identification with categories that accumulate indefinitely: bigender, demigender, two-spirit, fluid, neutral, pangender, etc. José Errasti & Marino Pérez (2022) list, depending on the source, between two hundred and fifty-one and more than four thousand possible sexual genders for the human species, mixing orientations and identities. Will there be as many brain endophenotypes?

The logic of these acts of personal identification is similar to that of a performative effect that is well known in the social sciences and philosophy, which Ian Hacking (1995) called the "looping

effect", according to which the behavior of subjects is substantially and not accidentally affected by the categories used to describe it, which can thus function as a sort of self-fulfilling prophecy (see also Pérez, 2021; the effect had already been described in other terms since the 1960s within social reaction or labeling theory). The description of processes that take place on a neurobiological scale is essential, but the explanation of transsexuality—or, if you will, gender identity—is not exhausted in that description, which is unspecific. The explanation of transsexuality requires a coordination of scientific categories—biological, psychological, sociological, anthropological, etc.—that shows how the subcultures of gender identities and "non-normative" sexualities, the institutionalization of sexology, and identity *carnivalization* (Castro & Loredo, 2018), as well as the patterns of upbringing, socialization, and genetic, epigenetic, maturational, and psychogenetic processes mesh with each other.

First of all, there is no mystery in the fact that many subjects—virtually all of us do it—internalize labels such as medical or psychiatric ones and practice a kind of examination of conscience that allows them to find out whether their behaviors, desires, or thoughts conform to them. If so, can they accept that deviations from the norm are part of their subjectivity or do they rather reject them and, in doing so, reject themselves, thereby internalizing opprobrium? Be that as it may, identity empowerment, which is what seems to predominate today, is the reverse of the acceptance of opprobrium: it consists in accepting that what was the object of shame is part of oneself and, moreover, feeling proud of it, manifesting it publicly instead of hiding it. Today it is a matter of discovering one's own identity within oneself, the authenticity of the self, and revealing it to oneself and to others, who function as a mirror in which the self is recognized—the theory of the psychosocial construction of the self is by no means foreign to developmental psychology either. Let us listen to the words of Carla, the transsexual whose first-person testimony is included in Guillamón's book (I include my own comments in curly brackets):

"Thanks to the Internet, it is very easy to obtain information on any subject or to resolve doubts. [...] Finally I came to the conclusion that what was happening to me was called 'gender dysphoria' {She finds the label within the available scientific and cultural baggage}.

"[...] My life had to begin to change because everything was based on a very basic principle: I wanted to be myself and I wanted to be happy {She seeks her personal authenticity in a cultural context that considers happiness as the highest value and as something linked explicitly to self-discovery}" (p. 30).

And further on:

"I saw I could really achieve what I intended: to be me, both inside and out {She leaves behind the pathologizing label and acts in accordance with the new identity, including in clothing and anatomy}" (p. 62).

"What does it feel like to be a woman? In my case, I feel an inner peace, a peace that I had not managed to feel until now, I am fully myself {She has completed the process, she assumes the new identity, which she experiences as an authentic identity that was hidden, and achieves a happy equilibrium; in reductionist psychobiological terms, the brain has reconciled with the rest of the body}" (p. 121).

⁴ It is generally known that the Baldwin Effect or organic selection refers to the fact that learning throughout the life of individuals—which may also be culturally and institutionally structured—conditions the type of environment with which they interact and, therefore, the selective pressures to which they are subjected; so that, in the long term, behavior influences biological evolution (see Sánchez & Loredo, 2007).

⁵ Translator's note: The original version of this article uses the Spanish term "hecho" which is a play on words in Spanish as it has a double meaning: "made" and "fact".

Conflict of Interest

There is no conflict of interest.

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