5

Narrative Resilience

Neurological and Psychotherapeutic Reflections

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Introduction

Western practice separates the body and mind. Modern epistemology tends to integrate heterogeneous data within the same functional set. That is why in this chapter I attempt to associate brain development with the emotional effect of speech (narratives) and to explain the development of a valuable resilience factor.

We human beings are the only species capable of storytelling. By connecting the prefrontal neurons that allow anticipation with the circuits of memory and emotions, our brain enables us to understand time. Throughout our development, these circuits are activated, modified, and shaped by the emotional pressures of both family and social environments.

The words that shape these stories are learned in the early years. As soon as a child has acquired an array of words and some grammar guidelines, he or she has a tool for self-expression and emotional relationships that modify the secretion of neurohormones and impact the functions of the brain. That is why we human beings can suffer twice. The first time, through the sensory world we perceive, and then, a second time, in the world of verbal expression.

The process of developing capacity to understand and contribute to narrative proceeds as follows:

- The preverbal world begins to be built at the time of the fusion of the gametes where epigenetics allows the development of the organism and its capability to see the world. When speech occurs, in the third year, rationalizations give verbal form to a feeling whose origin cannot be understood.

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- Around the age of six to eight years, brain maturation makes it possible to conceive time. Children can then recount the events of their memory. They can tell a story whose destiny depends on relationships. When a listener is trustworthy, a child's storytelling sheds light on the past and gives coherence to the world in which the child feels confident. But when the other (most often the primary caregiver) is not trustworthy, the child expresses a reluctant, fragmented, and incoherent story that makes the child feel uncertain and alters his or her relationships.
- When there is a match between the narratives of self, family, and culture, traumatized people feel supported and can undertake the work of building resilience. But when a discrepancy prevents affected persons from expressing themselves because the stories around them silence them or give an interpretation of the facts that is incompatible with that of the subjects, the work of resilience will then be difficult.

Neurological Traces in the Preverbal World

Epigenetics is an old concept. In animal ethology, it has long been known that the same genetic strip is expressed very differently depending on the nature of the environment. In a peaceful environment, a rat becomes a fat, white, and quiet adult. A rat of the same strain, in a stressful environment, will become a small, brown, hyperkinetic adult with a much shorter life expectancy.

Neurobiology today suggests a notion of generational transmission: when a pregnant mother is stressed by difficult living conditions, the substances of stress she secretes cross the placenta barrier, soak the early stages of cell division in the embryo she carries, and produce methyl radicals (CH3) and histone acetylations that stick to and modify the strands. There is no mutation, but the expression of the future baby's genetic profile is modified. It should be noted that what changed the expression of DNA was the mother's living conditions. What is transmitted is not the trauma; it is the biological adaptability of the parent to her existential crash.

Epigenetics explains why children born to traumatized mothers or mothers in socially precarious situations are born with cognitive impairments. Neuroimaging photographs bifrontal hypoactivity, atrophy of limbal circuits, and hyperactivity of rhinencephalic amygdala. These brain dysfunctions are due to stress substances secreted by the mother in existential difficulty (Lupien, King, Meaney, & McEwen, 2000). These cerebral areas were shaped by the mother's sadness. The protective factors that contribute to resilience at this stage of embryo development are to protect the mother to reduce her secretion of cortisol and catecholamines. In a few hours, as soon as the toxic substances are eliminated thanks to the mother's psycho-emotional support, the embryo's brain construction returns to its normal course, which does not mean that there are no traces left circulating in the child's brain due to the mother's difficulty (Geva, Eshel, Leitner, Valevski, & Harel, 2006). In addition to the hereditary parental DNA, there is the inheritance of their sadness. But, as with stem cells, early cell divisions are so vivid and malleable that supporting the mother is enough to trigger almost immediately a process of embryo resilience.

When a baby is born, its brain is already shaped by the developmental conditions in the womb. It is with this neurological acquisition that the brain will continue to weave an attachment bond, extracting from the environment some familiarized sensory information, such as the low frequencies of the mother's voice, the brilliance of her saccade, and her way of handling the newborn when giving care. When the sensory niche of the first few months is stable, regular stimulation can revive synaptic boiling and rewire a previously altered brain. But when the sensory niche is not reorganized, the impoverishment of stimuli reinforces acquired disorders.

The main causes of niche depletion are

- The emotional neglect of a mother who is sick, isolated, impacted by sadness, or has died without putting an emotional substitute in place.
- Domestic violence, which, even if the baby's body is not affected, overwhelms the child's brain with an emotional onslaught that the child does not yet know how to control.
- Social precariousness, as when parents devote their efforts to survival, which means they are less available for their newborn.

The causes of impoverishment are heterogeneous, but the cerebral impact is the same: hypotrophy of the two prefrontal unstimulated lobes, atrophy of the limbal circuits when the isolated baby has nothing to store and hypertrophy of the rhinencephalic amygdala, which are no longer hindered by the prefrontal lobes (Cohen, 2012).

A dysfunctional brain has thus been shaped by an environmental failure (e.g., isolation, marital conflict, or social precariousness). Under such conditions, the baby acquires a particular way of processing the information he or she extracts from his or her environment. The hypertrophy of the amygdala, the neurological foundation of unbearable emotions (e.g., anxiety, rage, panic), explains that, for a child thus shaped, the slightest information will have the effect of an aggression. Any encounter will be, for the child, a hostile relationship, and it is with this way of feeling the world that he or she will arrive, around the 20th month, in the world of words.

Resilience, at this preverbal stage of development, is possible if a stable sensory niche surrounds the child. The child can then create familiarity and weave new attachments that can gradually calm the emotional reactions of the amygdala. Early interactions have a stimulating effect on the prefrontal and temporal lobes. Playing repeated motor games or singing nursery rhymes with the child stimulates the child's ability to anticipate and prepare the child for speech and, later, narrative.

When children reach the sensitive period of language, they acquire a verbal relational tool that facilitates socialization (Nelson et al., 2007). They can form short sentences to establish a relationship ("Nadine is mean") but not yet a story. It will be necessary to wait until brain maturation establishes connections between the prefrontal lobe (the basis for anticipation) and the limbic system (the basis for memory) for the representation of time to be neurologically established. The child, around the age of six to eight years old, can finally collect memories and arrange them into a story for someone else to hear.

If a child is left alone, with his or her acquired brain defect due to a failure of the environment, the work of resilience will not be possible. Isolation can only reinforce the child's

feeling of an aggressive world to which he or she responds with inhibition, evasion, or aggression. Such a relational style evokes borderline states, with a very painful intimate world and a disconnected relational style. In this population, suicidal thoughts are common (Bateman & Fonagy, 2010).

The verbal form that these young people give to their bitterness, rejection, and despair is a rationalization and not a reason. It is a process by which the youth seeks to give a coherent explanation from a logical point of view or one that is morally acceptable, to an attitude, an action, or an idea whose true motives are not perceived (Laplanche & Pontalis, 1973, p. 387). The unhappy young person, for example, gives a coherent appearance of verbal form to a feeling whose origin he or she does not know. The young person experiences an unpleasant emotional connotation and assigns a negative attribution to what he or she perceives, but he or she does not have the scientific knowledge that would allow him or her to hold systemic reasoning. Such a young person cannot say: "Everything makes me angry, because my brain is dysfunctional, because of my mother's misfortune, which impoverished the sensory niche of my first months as soon as my father was put in prison." Such reasoning is simply not yet possible.

Narration of Memories

Community support (secular, religious, political, athletic or artistic) is the best way to support a developmental recovery for a child who has early experiences of neglect or violence. In a project-oriented group, these unstructured young people learn to make sense of their rationalizations: "I am unhappy because society is unfair. I will make a political commitment to fight against injustice." You can also hear: "I can't say what happened to me. I will form an association to denounce incest and find ways to get back to living well" (Thomas, 2004). These commitments, by coordinating projected-oriented meetings, eventually form links and provoke reflections that calm the subject and can initiate an evolutionary recovery. It is not uncommon to see these young people in difficulty become educators, political actors, or writers. By using their past dysfunctions to make it a theoretical creation or written work, they rework their memories into a socially shareable narrative. While their spoken words could not establish a peaceful relationship because they were too impulsive or because their entourage could not bear to hear them, written words facilitate impulse control by keeping emotion at a greater distance. For these young people, spoken speech is an act, a blow to which they respond. They give this impulsive reaction a rationalizing form, a logical appearance, a moral argument, and a justification to explain their emotional discharge.

The developmental conditions of these young people do not allow them to acquire the three regulators of emotions:

- The brain dysfunction set up during the emotional failure of early interactions leads them to feel any information as an alert.
- This impulsivity prevents them from acquiring the mastery of speech that controls emotion.

- This kind of "talking-punching" becomes an act that alters their relationships with others.

To restore speech to its function as a mental tool, it is first necessary to provide a sense of security to the speaker (this security is derived from the resources available to the now older child at multiple systemic levels). When the listener (e.g., psychotherapist, priest, confidant, friend) acquires the function of a trusted source, the speaker ends up no longer feeling attacked. The previously abused child's words lose their defensive function to become a tool for reflection (Bowlby, 2011). But when the listener is not trustworthy (e.g., an intimidating police officer who asks intrusive questions or a brutal psychotherapist), the speaker remains on the defensive and may even become worse emotionally. Fortunately, when the person who is listening is a source of trust and safety, the speaker calms down and is better able to elaborate the narrative of his trauma. By searching for words, by arranging the images of his traumatic memories, he creates a narrative of them, a script of images and words that he addresses to the other in a relationship of trust. This work of speaking in a safe relationship calms the emotions and helps reshape a child's representation of past trauma into an experience that is compartmentalized and less of a negative influence on the child's pattern of attributions about the world.

When memory is healthy, the story is not the return of past events; it is a representation or description of past events. It is from the present that we shed light on the past. This evocative and relational work does not bring back the past, as is the case in psychotraumatic syndrome where the past is imposed on the present. It redesigns the representation of this past. Such work sets up a factor of resilience and then, when the process is triggered, is enough to elaborate on and contribute to emotional and psychological progress.

Spoken speech requires a secure relationship to reshape memory to escape the prison of the past. The intentional aspect of memory makes it possible for representations to evolve. Neuroimaging explains this idea. An experimenter asks someone to recall a memory: "What did you do last Sunday?" Quickly, the two prefrontal lobes consume energy. This neurological foundation of anticipation will seek information. When it is found, images "light up" the two occipital lobes that process visual information. "I was fishing by boat," says the subject while the limbal circuits turn red, revealing that this evocation provokes an emotion. Further, when the subject says, "I was fishing by boat," his left temporal lobe also gives off energy.

If then we ask, "What are you going to do next Sunday?" we can see that almost the same circuits light up in the same sequence. This means that the memory of the past requires an effort close to that of the imagination of the future. We anticipate our past to shape our present but the two remain separate, whereas in the case of a psychotraumatic syndrome it is the past that invades the present. We can deduce from this that the work of speech and imagination is opposed to repetition and instead remodels memory.

Emotion is always associated with this work. The experimenter asks a teacher to read a text in a monotonous tone. A month later, he tests the students and finds that they have learned almost nothing. Then he asks the teacher to read the same text, in the same way, but the experimenter adds a ringing tone at irregular intervals. A month later, the students retain many more memories. The simple act of awakening consciousness by provoking a small emotion improves memory (Schacter, 1999, p. 39). In safe psychotherapy, emotions sharpen

memory. With a nonsecuring psychotherapist, the patient adapts by fleeing, inhibiting, or assaulting the therapist. Talking, thinking, and being moved in the presence of a security base are not just statements of facts. You must analyze your own reactions, give them meaning, and arrange the words to make a story that can be shared with the person who makes you feel secure to overcome experiences of earlier trauma.

This work, unlike repetition, leads to the activation of new brain circuits (Fontenelle, de Oliveira-Souza, & Moll, 2015) and the resilience required to live a good life despite a difficult beginning. We free ourselves from the past when we organize the safe and stimulating conditions of speech and imagination.

The Surrounding Stories

In the usual conditions of development, a child is immersed every day in family and cultural stories that constantly narrate tragedies and celebrations (Miller & Sperry, 1988). These compelling stories build a moral sense by telling the child who he or she is, where he or she comes from, what the values of his or her group are, and what to expect from life. These stories compose a verbal environment that permeates a feeling in the child's soul. Depending on the context, the child will experience a world of euphoria or despair, confidence or distrust. Preverbal memory can be said to trace unconscious circuits in the brain (Lejeune & Delage, 2017) that create an ability to perceive a type of world, soothing or stressful depending on the surrounding stories. The world is not perceived as it is; what we feel is the impression it gives us. These stories, by being inscribed in memory, compose a hyperconscious mental world that participates in the formation of the person.

When the child grasps the concept of time, the stories presented to her (like fairy tales) tell the child about the existence for which he or she must prepare. To illustrate, if a child is told a story in which every morning a donkey's droppings turn into a golden shield, the child learns that it is possible to metamorphose, to see disgusting things differently. When the same story tells of a princess dressed in a time-colored dress that becomes subject to her father's sexual gaze, the child learns that it is necessary to respect the forbidden and protect herself with donkey skin.

To tell a horror story is to tame it, to control the fear of the unknown, to fill a void with a discovery. This is how creation is opposed to repetition. When his mother disappears, the child loses the familiarity with his world and unknown objects become worrying. Then a scarf, teddy bear, or drawing is put in the mother's place to wait for her return. The creation of a symbol, an object placed there to fill the absences, also fills the distressing void. It is the child who attributes a reassuring effect to the object; he lures himself by inventing a transitional object (Winnicott, 1958).

Is that how works of art evoke emotions? Orphans deprived of real role models experience the anguish of emptiness when left alone, but as soon as they are surrounded, they invent a dream family and write its history to share it with their new family environment. These stories become mechanisms for resilience, protective artifacts of a child's world. Wagner, the 19th-century German composer and musical director, experienced the death of his father when he

was just five months old. It may be thought that the child's sensory niche was impoverished when his mother was bereaved. But when Wagner enters the world of stories, he invents an imaginary filiation coming from a model proposed by his culture: "I Richard Wagner, I am the son of Shakespeare the bard." This identification with a cultural model became a grandiose compensatory response to a huge past loss. Wagner is not alone in this trait. By writing our dreams, we put existence where there is nothing left. Mary Shelley invented Frankenstein, a monster who depicts the immense losses of her life. Her mother died giving birth to her at the age of 16. Mary gave birth to three children who died one after the other. By inventing a monster, Shelley gave written form to the four dead who remain in her, as in a living tomb.

When these spoken or written accounts, testimonies or fictions are received, shared with the family and cultural environment, injured persons feel understood. They are no longer alone in the world; they can speak quietly or write a compensatory story. This alignment between the narratives of oneself and the surrounding narratives constitutes a precious factor of resilience since the subject accepts his or her wound and can speak authentically about the pain. People can also make narratives fictions to interest their entourage and invite them to share mental worlds. The shared stories thus take on a basic security effect: "I feel liberated since I wrote." Resilience is on the move.

When there is a discrepancy, however, between what subjects need to say and the cultural portrayal of their experience, the traumatic tear is aggravated. Often, the stories around the wounded can silence them: "The war is over, stop talking about it" or "If this man raped you, it's because you provoked him." Such a discordance induces a divide, not an intrapsychic one, but rather a gap between subjects and their families or cultural environments. The traumatized person can only say what his or her environment expects to hear. This discrepancy puts a tomb in the soul of the wounded. The people around them feel a sense of ambivalence: "Why does he suddenly become dark and silent when moments before he was joyous?"

In such a relationship, resilience is chaotic, the environment has lost its reassuring effect, and the injured suddenly feel betrayed by their silence. They falsely come to believe: "My beliefs are invalidated" (Rimé, 2005, p. 375).

Mature Narration

When we reach the age of reasoning, we look back on our past and finally understand the direction of our lives. But the old memory modifies the representation of past events. A recounted memory is clearer than a memory never expressed (Croisile, 2008, p. 133) because the mere fact of having spoken it increases the poignancy of the memory—the memory of the story that one has made of it. The traumatized person who has developed a trauma by talking to a trusted source or writing to an imaginary reader has altered the representation of his or her past.

Working memory deteriorates from the age of 40, while semantic memory is maintained for a longer time (provided that you do not have Alzheimer's; Eustache & Eustache-Vallée, 2016, p. 47). When the trauma has been encysted without being altered by relationship and speech, it can resurface with age. Some outbursts of delirium can be explained by this phenomenon. An elderly lady suddenly says: "You hear the tanks passing through the street . . . I hear the soldiers' steps on the stairs." Her daughter answers with a logical

explanation: "Mom, calm down, the war has been over for 70 years." But the war still exists, buried in the mother's memory as if it had just happened, as a psychotraumatic syndrome that has never been altered. The intense emotion of the trauma of the war has been neurologically imprinted into the elderly woman's brain and this imprint, never altered, reappears when the working memory can no longer bury it beneath daily actions.

This neurological imprint of the past is regularly observed in the case of polyglot aphasia (Botez, 1987, p. 322). As a child, our first language is learned in 10 months, between the 20th and 30th month, without books and without school, because of the sensitive biological period of memory. The determinism of this intellectual prowess is chronobiological since it always occurs at the same time, regardless of the culture, and corresponds to a peak of synthesis of neuromediators of memory, such as acetylcholine. It is not uncommon for a person who has spent his or her life in several languages to forget them in the reverse order of learning. The mother tongue, acquired first, remains the most deeply imbued. That is why we can see immigrants who have spent their entire lives in the United States, becoming unable to speak English from the age of 70, while still speaking Italian or Polish learned in their early childhood years.

This classic phenomenon in neurogeriatrics explains that a trauma is never forgotten; it remains imprinted like a trace in the depths of the self. It can be intentionally reworked, by talking about it, writing it, forming a relationship, or through psychotherapy, but when this work of resilience cannot be done, the past suffering that we thought we had forgotten can arise again.

Discussion

The word *resilience* refers to a natural phenomenon: how to get back to a life lived well after a trauma? The Latin word *re-salire*" gave rise to "projection," and "respill." The flow of life can resume even after it has been obstructed by a trauma. Used in agriculture since the 17th century, this word defines resilient soil when, after a disaster such as a flood or fire, new flora or fauna reappear.

For mental health practitioners, it is important to discover the factors that allow this return to another facet of life. It is therefore a neodevelopmental psychology that is required to understand resilience, where the word *evolution* organizes our thoughts. Some traumatized people easily recover, which defines resilience. But others are unable to do so because of their psychotraumatic alterations. As with any type of development, one that is neodevelopmental lasts as long as life itself. It is constantly retriggered by family pressures, friendships, and the sociocultural environment.

To discover the factors that allow the resumption of resilient development, the method consists of

1. Analyzing the protective factors put in place during development before the trauma. These factors characterize the acquisition of internal resources, imbued in memory by the community. These factors help the subject to cope with the incident. It is more of a resistance than resilience.

2. Analyzing the structure of the trauma, acute or insidious, family or foreign, natural or cultural, short or long lasting. The impact of the event, its traumatic effect, is a result of the person he or she is at this stage of organic development and what is around him or her (at this moment in time).
3. Support and meaning are the main resilience factors that characterize the external resources arranged around the traumatized victim. This developmental recovery can only be new, since the trauma has inflicted a scar that leaves a trace in the implicit memory or in the individual's history.

The process of narrative resilience is the result of the convergence of several heterogeneous narratives that can be combined to form a representation of the self. For example, the earlier, more intense and long-lasting sensory isolation has occurred, the more the baby's brain is altered. The acquired dysfunction explains his inability to plan an action program because of his frontal hypotrophy. The baby can only respond to the stimuli of the context. Since the atrophied prefrontal lobes can no longer inhibit the rhinencephalic tonsil, the slightest information is felt as a real aggression. As the representation of time is impossible, the child can only respond to the world he or she experiences as an aggression.

Resilience would be possible, provided that the child is offered, as soon as possible, an emotional substitute that will stimulate prefrontal neurons and inhibit the amygdala. When the child has been left alone, he cannot tell a story of himself, he can only respond to the violent world with frightened immobility, fearful silence, avoidance, escape, or a violent response against others or against self.

When an emotional substitute is provided later, the partial resilience that results is not of good quality. The child calms down, his emotional responses are less violent, but he keeps in his implicit memory the trace of what was previously lacking. To express the world he feels, he gives a verbal form, a logical appearance to the feelings that invade him and whose origin he ignores: "Everyone is evil. . . . I have rage inside me. . . . I have to defend myself." A sect or a radical commitment that allows him to express himself can exploit this need to defend against a past wound. The French novelist and political activist Jean Genet illustrates the low resilience of his intimate world dominated by the emotional desert he inhabits and his attraction to garbage cans, the pleasure of stealing, and hurting those he loves (White, 1993). Abandoned and isolated from birth, placed in an adorable foster family, he was unable to perceive the warmth of his new parents. His frozen soul, barely warmed, remained attracted by waste, rot, and evil.

Alice Miller, the great psychologist, has also been very helpful to the cause of children. After a traumatic childhood in Poland where anti-Semitic persecution was immense and incessant, she lacked the reassurance of a stable mother and instead experienced an untrustworthy caregiver. Miller opposed the theories of resilience because she had developed a fully explanatory rationalization: men are violent because they have been abused. Hitler is anti-Semitic because his father physically abused him, and the wars in the Middle East will never cease because men are circumcised. Such rationalization gave a logical form to a feeling of a hostile world, imprinted in her memory during her childhood and never terminated.

Each example shows that an organism cannot develop elsewhere than in its environment. A psyche cannot learn to love and think outside its emotional and cultural context.

Such an epistemological attitude cannot be linear; it can only be systemic. It is a convergence of heterogeneous factors, a harmony of endogenous and exogenous pressures that allow or prevent a resilient evolution. This method of collecting information, which is usual for a practitioner (doctor, psychologist, educator), is different from that of a laboratory researcher but is not opposed to it. Scientist must reduce their field of knowledge to make a hypothesis and propose a repeatable and refutable method to validate or invalidate their hypothesis. While a practitioner (e.g., a pulmonologist) will have to analyze how external factors such as oxygen in the air can pass through the solid wall of a pulmonary alveolus and float on the plasma fluid carried by the red blood cells, the respiratory system is composed of totally heterogeneous elements (gaseous, solid, and liquid), which constitute a functional unit. It is enough that only one subsystem is altered (hypoxia, silicosis, anemia) for the whole system to malfunction. But it is also enough to act on a single altered subsystem for the whole system to start working again. This is why the notion of *multisystem* is almost a pleonasm since, in a single functional unit, several subsystems coordinate.

Conclusion

By this logic, the definition of resilience is simple: resilience is a neuropsychosocial process that allows a new development to be resumed after a psychological trauma. The factors of this new evolution are so numerous and heterogeneous that they require teamwork where researchers work together to analyze and harmonize these heterogeneous determinants.

Since this research and this new epistemological attitude entered the realm of the mental health clinic, we can see that trauma is no longer a fatality that cannot be treated.

Key Messages

1. The brain, sculpted by its environment, during early interactions, acquires protective or vulnerable factors.
2. Having acquired a particular sensitivity to the world, rationalization gives a verbal form to a feeling whose origin is unknown.
3. When the stories the traumatized person hears are consistent with his or her memories, resilience is an easy process. However, when they are discordant, the cleaved subject achieves only partial resilience.

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