



La narratividad como mejora de la memoria

Narrativity as memory enhancement

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DOI: <https://doi.org/10.15366/bp2019.22.005>
Bajo Palabra. II Época. N° 22. Pgs: 119-130



Recibido: 28/02/2019

Aprobado: 02/10/2019

Abstract

In this paper we will defend a new understanding of memory based on the latest neuroscientific research. Then we will expose and elaborate a proposal to understand narrativity -which has usually been considered a certain type of identity, narrative identity- as an antique memory enhancer. To prove our point, we will explain how narrativity reinforces memory, and we will compare narrativity to other memory enhancers

Keywords: Memory, narrative identity, memory enhancement, human identity, neuroethics.

Resumen

En este artículo se defenderá una concepción de la memoria basada en los últimos avances neurocientíficos. Después, se expondrá y elaborará una propuesta para entender la narratividad -que habitualmente ha sido considerada un cierto tipo de identidad, la identidad narrativa- como un inveterado potenciador de la memoria. Para fundamentar esta tesis, explicaremos cómo la narratividad refuerza la memoria y compararemos la narratividad con otros potenciadores de la memoria.

Palabras clave: Memoria, identidad narrativa, potenciamiento de la memoria, identidad personal, neuroética

1. Introduction

NEUROSCIENCE HAS PROGRESSED IMMENSELY in the last decades. The same can be said about brain manipulating and brain investigating technologies. But only recently we have started to discuss seriously about the possibility of memory enhancement. However, in most cases, this memory enhancement discussion has been carried out with old, flawed conceptions of memory. In this paper, we will first try to show why we can no longer operate under old categories regarding memory. We will then propose a new, alternative understanding of memory. Finally, we will explain why narrativity can and should be considered a memory enhancer, the first and original one.

2. A new understanding of memory

MEMORY HAS TYPICALLY BEEN CONSIDERED as a storage system of recollections. We see something, we keep that sight in our head, and we bring it back as a memory when needed. This view of memory matches, to some extent our experience -even though is important to note that our experience is mediated precisely by this conception of memory. Despite this, neuroscience has been demonstrating, now for a long time, that this view of memory doesn't hold scrutiny. For two main reasons: human biological memory doesn't strictly store anything, and what we recall is never the same thing we first saw or experienced.

Humans, as many other biological organism, are concerned with survival, and our memory is focused on that; not on having truthful memories or many of them. In fact, both of these characteristics can be detrimental in many contexts, as cases like the one of Solomon Shereshevsky show (Luria, 1987). Our memory retains very little information and emphasizes creation. Our memory doesn't aim for data, it aims for meaning. As Quian Quiroga explains, memory is “based on the construction of meaning, an interpretation of the outside world that relies on selecting a minimum of information and making abstractions – while discarding a multitude of detail” (2017, p. 48)¹.

¹ Konrad et al. go on more detail explaining that “Organic memory has four different strategic biases. First, people tend to remember more positive than negative events [Walker et al. 2003]. Second, negative details of individual events are forgotten more than positive details [Mitchell et al. 1997]. Third, there is an emotional asymmetry in the time course of past events with negative affect fading more rapidly than positive affect [Walker and

As neuroscience explains (O'Shea 2005), the key to memory are neuronal synapses and their strength (O'Shea, 2005, p. 98). Nobel Prize winner E. Kandel discovered that there are a particular kind of neurons, modulatory neurons, which can strengthen the synapses between the sensory neurons and the motor neurons (O'Shea, 2005, p. 95). What the modulatory neurons basically do is start a process which involves a synaptical serotonin secretion, that triggers cyclic AMP, which in turn activates kinase, which modifies the properties of some particular proteins by adding a phosphate molecule to them (O'Shea, 2005, p. 95-96). This phosphorylation delays the connection between sensory and motor neurons from disappearing, strengthening their connection and making their future connections easier. When this phosphorylation is temporary, it produces short-term memory; when it is stable (because is gene induced), it produces long-term memory. This depends primarily on the number of times the modulatory neurons repeat this process, which in turn depends on the number of times the action triggering the modulatory neuron is repeated (O'Shea, 2005, p. 96-97). This highly technical explanation is set forth in a simpler way by Liao and Sandberg:

Our best present account of how long-term memory works on the biological level says that experiences cause patterns of neural activity among neurons in the brain. Neurons activated at the same time and connected to each other through synaptic connections then become more strongly connected through a process called longterm potentiation (LTP). LTP in turn makes the overall network of neurons that were activated by the original experience more likely to become activated as a whole when given stimulation similar to the original stimuli, enabling recreation of past active states and associations (2008, p. 87)

All the previous exposition was aimed at showing how flawed the common conception of memory is. When a new memory is formed, our brain doesn't store it in any sort of container. As Liao and Sandberg explain, "While it is common to speak of memory's being "stored", memories are not spatially localized. They are spread across different structures, likely as distributed networks of potentiated synapses" (2008, p. 87). What our brain does when we remember is much closer to a group of hikers that traverse a forest thanks to signalled trees and rocks, signals that were made precisely to make sure they could move along the forest without getting lost. Remembering, from this perspective, is not collecting some stored thing, but re-walking a previously signalled path. Therefore, the "signalled trails in the forest"

Skowronski 2009]. Finally, the ways that people view past events become less self-focused over time, indicating adaptive distancing from negative experiences [Campbell and Pennebaker 2003]" (Konrad et al. 2016, p. 2)

metaphor gives a much better account of human memory. As we will see, narrativity is also a key human capacity that matches perfectly this new, more accurate, conception of memory.

3. Narrativity as memory enhancement

NARRATIVITY HAS USUALLY BEEN TREATED as a type of identity, narrative identity. Philosophers who have studied this topic (Schechtman, 1996; Lindemann Nelson, 2001) have noted the importance of narrativity in the constitution of human identity. In a sense, philosophers as Ortega y Gasset (1935) or Ricoeur (1991; 1995) were even more radical proposing that all human life, not only identity, is directly affected by this human narrative constitution. In any case, we will leave aside this discussion about the scope of narrativity, focusing on the proposal we announced of considering it a memory enhancer.

Personal identity discussions often revolve around “psychological continuity”. This concept, rediscovered and elaborated most notably by Derek Parfit (1984), is the basis of the psychological view on identity. The central idea of the psychological view is that personal identity consists in the “continuity of a mental history over time, where present and past transient moments of awareness are connected by memory” (DeGrazia, 2005, p. 14)². We have no other choice than to leave aside the vast bibliography regarding this topic. However, it is clear that the psychological view and the idea of psychological continuity are firmly based on the old, flawed conception of memory we previously criticised. This could make us discredit the psychological view on identity; and while I would definitely say that psychological identity is a far from perfect theory, I believe psychological continuity points to a shared and common experience that, nonetheless, can be better explained with the elements we have been gathering.

What I propose is that what has usually been called “psychological continuity” is the experience produced by an inveterate memory enhancer: narrativity. Thanks to narrativity we create a memory reinforcement loop by which we can “remember” much more than what we can do by pure biological means; we can (re)identify ourselves in time and project us from the past to the future. Of course, capacity for narrativity is biologically rooted; but just the same as capacity for any other tool usage. If we didn’t have hands like the ones we have and the neurological features that

² For some relevant literature on identity: Shoemaker (1963); Wiggins (1967); Williams (1970); Parfit (1984); Ricoeur (1995); Schechtman (1996); Olson (1997); Martin (1998); Baker (2000); and McMahan (2002).

allow us to move them adequately, we could not use a hammer. Using language, our most fundamental tool, requires these same conditions: a voice tract composed of the laryngeal cavity, the pharynx, the oral cavity, and the nasal cavity; and the neurological features that enable our use of it.

Narrativity is our original and most important memory enhancer, which also functions as a (re)identifier. These memory enhancers are also, in some way, identity enhancers, or even identity enablers. But we should not confuse the enhancer, even the enabler, with the enhanced/enabled thing itself: narrativity is an aid for memory and, particularly, for identity, but narrativity is not identity itself. For this reason, I prefer not to talk about “narrative identity”, but to consider our narrative as a pillar of our identity. Delving on narrativity, especially on its connection with brain processes would require a much longer article and would raise many other issues³. What we can do is refer to a couple of authors very relevant to this matter: Stiegler and Clowes. Stiegler developed his proposal regarding memory in his three volume monumental work *Technics and time* (1998; 2009; 2010). In this work the French philosopher develops his comprehension of technics as an externalization of memory, considering language the first and most fundamental technique. Clowes has also worked on this topic giving very interesting insights. This author establishes the difference between E-memory (electronic memory) and O-memory (organic memory), and how one interacts with the other. And, very importantly for our argumentation, he defends that memory enhancement technologies are much older than what we are used to think:

If there is little doubt that we have seen a technical E-Memory revolution, then should we expect that our O-Memory systems will change and adapt to accommodate it? Before tackling this question directly, however, it is worth asking whether what we are seeing is really novel. E-Memory is far from being the first technology to change how we use our organic systems. Arguably, the history of the human race is in part of

³ As we stated, this is an extremely complicated field, in which even the specialists admit their ignorance: “Even if we know something about neurophysiology, we know almost nothing about how neurophysiology gives rise to concepts, judgments and reasonings, that is, the higher mental functions. It follows that any time we are discussing about them in correlation with human identity and brain (or a part of it) transplantation, we are discussing something we do not know enough about.” (Boniolo, 2005, 51). I consider one of the best insights on this matter Gallagers words: “The autobiographical or narrative self emerges in reflective awareness and involves longer-term processes of memory and language. There is good reason to think that narrative aspects of self relate to parts of the brain known as cortical midline structures (CMSs), which have been associated with processing information related to self-reflective processes. The CMSs, however, cover quite a number of brain regions and involve a multitude of connections with subcortical areas that may relate reflective processes to a sense of embodied self. The widespread nature of the CMSs suggests that there is no specialised brain area responsible for generating the self.” (Gallagher, 2016, p. 124). However, a thorough discussion with this approach and its terminology is impossible to carry out in this paper.

the history of how our O-Memory systems have been undergoing a constant process of elaboration and adaptation as we have created wave after wave of extended memory technologies (Donald 2001; Vygotsky 1978). From spoken language—if it can be counted a technology (Donald 1993)—through drawing and painting (Mithen 1996), to the development of counting systems, knots in rope, to writing systems (Olson 1994; Ong 1982), the development of record-keeping bureaucracies, the whole history of human art and technology can be seen as a history of revolutions in memory. And that is not even to make mention of techniques which have sought to reorganise (generally, upgrade) human memory, from classical training in mnemotechnics, to the medieval use of memory palaces (Olson 1994), to the rote-learning systems practiced in twentieth-century schools. All of these inventions can be seen as important historical moments when our relationship with the technology of memory has undergone fundamental changes. (Clowes, 2015, p. 266)

Clowes doesn't mention narrativity, but I believe it could and should be included as a memory enhancement dispositive. The "psychological continuity" which narrativity produces, is an internal process; but narrativity itself has many traces of being an external, artefactual reality. Narratives shape our brain in the sense that they conform and pave the neural pathways that constitute memories. And in the same way shoes help us walking, but also modelate our feet in the process; narrativity similarly is shaped in the form our biological memory really is (not as a container but as a recurrent loop), and also transforms in subtle ways how our memory functions.

By narrating and re-narrating our story, neural pathways are strengthened, creating memories that ultimately constitute our identity. When we need to remember something, we unconsciously start telling ourselves a story. "Where are the car's keys?" makes us start a story along the following lines: "The last time I took the car was yesterday, when I went to the supermarket; I came back home carrying bags and I left the keys on my coat, instead of leaving the keys in the entrance bowl". When we recall these events, the elements we actually are reproducing are minimal. Our visual, tactile impressions are long gone in our brain; but thanks to narrativity, it doesn't matter, and we can recreate the story that gives us the information we need (in this case, where can the keys be)⁴.

⁴ In this regard, it is very interesting to think about memory in babies and childs. Why don't we remember anything, or almost anything, from those first years of our life? If our memory was some sort or receptacle, we should be able to retrieve memories old and new. But this is not the case. The explanation we can elaborate from what we are exposing, is that babies and childs cannot remember because they hadn't fully developed the memory enhancer that narrativity is. They only do this after a neverending practice in form of bedtime tales, an appetite for stories that can only be explained as a evolutionary inclination implanted because of the utility and importance of narrativity (of memory enhancement) for human life.

4. Conclusion

To sum it up, we have criticised the common understanding of memory, showing that storage and fidelity are not really characteristics of human memory. Then, we explained what neuroscience tells about memory, showing that memory is the strengthening of neuronal synapses that create neural pathways that are easier to recreate. This more accurate and updated comprehension of memory was then put in relation with narrativity, arguing that narrativity is not a form of identity, but a memory enhancement dispositive that created the experience of “psychological continuity”. By telling and retelling our story, we create the memory (strengthened neural pathways) that constitutes our identity.

Of course, changing the way we usually think and talk is very difficult. Making ordinary people stop talking about memory as a container could prove simply impossible. However, applying this new understanding of memory, and understanding the role of narrativity in human life, would bring many benefits. We would understand ourselves better, some identity problems would be solved and, presumably, we would live fuller lives. Especially in the case of narrativity, understanding its role and power in human life could change our mentality, making us more proactive in the stories we tell ourselves. Also, the view of narrativity as a memory enhancer should change our view on the latest, technological memory enhancers, showing that they aren't a novelty, but only the latest step in the very long history of memory enhancers -a history almost as old as humanity itself.

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DOI: <https://doi.org/10.15366/bp2019.22.005>

Bajo Palabra. II Época. N° 22. Pgs: 119-130

