
Memory as a Universal Thinking Machine

Dan Manolescu

ESL Instructor and Award-Winning Author, USA

Email: Dan.manolescu@att.net

Received: 16/01/2024

Accepted: 26/03/2024

Published: 01/05/2024

Volume: 5 Issue: 3

How to cite this paper: Manolescu, D. (2024). Memory as a Universal Thinking Machine.

Journal of Critical Studies in Language and Literature, 5(3), 14-18

DOI: <https://doi.org/10.46809/jcsll.v5i3.266>

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0). <http://creativecommons.org/licenses/by/4.0/>



Abstract

The present article is designed to reassess the intrinsic values of using memory in the process of language acquisition and language learning, with a focus on the four skills – reading, writing, listening, and speaking – as the building blocks in achieving the best communication goals. According to researchers like Mary Carruthers, Janine Rider, or Lambert Schenkel, there are people who possess a retentive memory, and others who excel in the power of memory. One way or another, memory gives us the ability that generates knowledge, and, by the same token, enables us to speak, read, and write effectively and logically. The sustaining pillars of this monumental edifice are, as touted by medieval thinkers, the concept of memory as a universal thinking machine, as well as (according to more recent researchers) the power of working memory, which can work wonders when we know how to hold and manipulate knowledge. The study of memory from a historical perspective and reflected in world literature can give us an exhaustive frame of reference and the benefits that result in turning accumulated knowledge into accumulated learning.

Keywords: Memory, Thinking, Knowledge, Language Learning, Imagination

1. Introduction

Although the post-modern era has sometimes dismissed the art of memory as a hoax or as a chimerical quest, recent studies have pointed out the undeniable relevance of this huge repository of knowledge. If we take a quick look at the necessary skills that can make verbal and written communication a viable goal, we must start by distinguishing between memory and rote learning. This distinction is germane to the understanding of the real qualities of memory and itself function in acquiring skills and building knowledge concepts. Therefore, we must pay proper attention to what historians have delineated as necessary efforts that might lead us to better comprehend how our civilization has evolved in its quest for art, literature, music, science, technology, and their inter-related subjects of human studies. Whether we examine the power of memory in the preservation of knowledge, or whether we agree with Mary Carruthers in saying that, in fact, we are talking about “a universal thinking machine,” we may also realize that, using proper skills, we finally manage to improve and perfect our basic skills of reading, writing, thinking, and reasoning. Furthermore, we may also add that memory is an essential tool in learning in general, and in language learning in particular. Language learning is a unique human attribute, and language acquisition is innate. When the education process is finally done and it is done properly, we acknowledge at the same time the inexhaustible power of memory and its implications in the process of learning.

2. Memory Is the First Step into the Realm of Self-Knowledge

There are moments in our life when we have to react to things happening around us, and we need to express our opinions using the right language: words, phrases, symbolic images, and - why not? – body language to match the situation. Language,

as a means of communication among people, is an art and a science in itself, which can be taught and handed down from one generation to the next. If we go on a journey of discovery and search for the inherent values of knowledge and learning, let's see first if we can understand language acquisition from the point of a learner, how much they can be expected to understand, process, appreciate, and finally remember.

Our language learning ability is thought to be connected to the creation of specific skills related to reading, writing, listening, and speaking, which create a tapestry whereby communication is developed through the oral and written practice of correct grammar rules, including the development of a rich vocabulary, and other similar listening and speaking skills. One main ingredient that might be necessary in such context is an appetite for reading, where language can be seen in action.

When we learn a foreign language, we usually focus on acquiring all the necessary skills so we can easily communicate with other fellow beings. Such skills are better understood if we realize that elementary language instruction and learning start from our native language and then we transfer them to a completely new language pattern in a culture different from our own.

Whether we translate from our native language or whether we use our imagination to decipher the target language in its own structure, what we instinctively do is that we build a new set of skills. In time, with good instruction and much-needed motivation, we become aware of the necessary intonation, careful expression, and correct delivery of thoughts in a new cultural context. When we assemble all the bits and pieces into our own manner of speaking and writing, we automatically create a screen of memory, wherein we carefully grow from basic sets of phrases to much more complicated and sophisticated collocations, thoughts, and ideas.

Next we set ourselves a new goal, and that is how we manipulate our behavioral patterns so that the acquisition of skills can be embroidered and reinforced in dialogues, debates, short or long pieces of writing, and any other types of language practice. This is how we blend together personal opinions, answers to challenging questions, arguments for or against a certain topic, morality, rituals, and history. The complexity of such an endeavor can only be related to the values created in our schools and our cultures.

3. It Was Memory that Made Knowledge into Useful Experience

What better starting point than a quick incursion in the realm of memory, as viewed by researchers and scientists like Mary Carruthers? The modern tests of whether we really know something rests in our ability to use what we have been taught in a variety of situations (American pedagogy calls this 'creative learning'). In this characterization of learning, we concur with medieval writers, who also believed that education meant the construction of experience and method (which they call 'art') out of knowledge. They would not, however, have understood our separation of memory from learning. In their understanding of the matter, it was memory that made knowledge into useful experience, and memory that combined these pieces of information-become-experience into what we call 'ideas,' what they were more likely to call 'judgments.' (*The Book of Memory*, pp. 1-2)

To start from the beginning, ancient orator/philosophers discussed the importance of memory as a storehouse of knowledge. In their view, memory was considered an important rhetorical faculty and an art, not just a skill for memorizing speeches. Linguists and researchers went even further and argued that memory should be considered the origin of knowledge. General statements can be made about the power of memory:

Memory generates knowledge as well as preserving it. Through memory we reconstruct our past experience and make new knowledge. [...] Memory is activated by innumerable stimuli, from visual images to smells to words. This fact becomes important as our vehicles of communication and storage change. We must ask if the means of remembering affects the kinds of knowledge we make from those memories. Memory thus defined sparks the human imagination and kindles inspiration and discovery. From memory comes the muse that inspires us to regenerate ideas and discover new connections and, therefore, write. Memoria, the thing remembered, is all we have. Upon memory rests our ability to think, speak, and write. (Rider, 2013, p. 4)

This is how an opinionated teacher like Janine Rider makes her contribution to the revival of interest in the canon of memory, but a quick look at history can reveal how much memory has done over centuries to "to integrate a great deal of information and to show that in all fields of humanistic thought and in all efforts to write, memory is key." (ibid.)

4. Two Concepts of Memory

Aristotle, considered the Father of Western philosophy, is quoted to say that "memory, even memory of the objects of thought, is not without an image," which can be interpreted to mean that memory belongs to the same part of the soul as imagination. He also makes it very clear that we need to differentiate between memory and remembering. In his own words, "For the persons who possess a retentive memory are not identical with those who excel in their power of recollection; indeed, as a rule, slow people have a good memory, whereas those who are quick-witted and clever are better at recollecting."

If we segue to St. Augustine, we find his concept of memory. He says that thinking is not possible without memory, and therefore memory may well depend on reading. We can't remember everything and we can't understand everything, but reading is touted as the best way of accumulating knowledge in action, where every little detail can be appreciated, analyzed, and accessed whenever needed. Here we find the best plea for developing the reading skill as part of the learning process.

5. Memory as a Universal Thinking Machine

According to Mary Carruthers, mediaeval practitioners thought of memory as “a universal thinking machine.” Even in later centuries, researchers returned to the ideas propounded and preserved in the sixteenth centuries and thereafter. The art of memory was widely spread in Germany and England, where several anthologies of mnemo-technical works were published as well.

The Renaissance took the art of memory to a higher level through the artists, philosophers, and statesmen who continued the work of their predecessors but at the same time added their own contributions based on the perceptions of their times. When Giordano Bruno, Italian philosopher, entered the convent of San Domenico Maggiore in Naples, the Dominicans were known for their expertise in their art of memory. From his own testimony we know that Bruno was acquainted with the art of memory at an early age, and was probably soon recognized by his mnemonic feats. He also gained access to the French court by attracting the interest of Henry III with his art of memory. The philosopher later pursued a career as a renowned mnemonic teacher.

Over time other famous people came on board and they made their own impact by building on what was already known. Lambert Schenkel, who taught mnemonics in France, Italy and Germany, advanced the idea that memory could be used in learning languages in a very short period of time, or that memory provides the ability to dictate several letters on different subjects at the same time. When Giordano Bruno developed his own philosophical projects, he adopted and made good use of this art.

Bruno’s core concept was to look for a tradition in the art of memory. In the *Ars memoriae*, his art is described as following nature’s perfection and emulating its industry, but also perfecting its shortcomings. Its central doctrine is, “All is in all in nature. So in the intellect all is in all. And memory can memorize all in all.”

This statement can only further validate the relevance of memory and its overall pervasive prowess in traditions that covered centuries in a process of re-working and re-assessment. From what we know now, the “universal thinking machine” has come a long way and we can only appreciate it and its values as we delve into the minutiae of memory in the education context.

6. Working Memory - The Ability We Have to Hold and Manipulate Information

In contemporary verbiage, education deals with terms like working memory, which can be defined as “the ability we have to hold and manipulate information in the mind over short periods of time.” (https://www.google.com/books/edition/Working_Memory_and_Learning/)

A very good example would be mental arithmetic, when we need to multiply numbers (let’s say 43×67) without the use of a calculator, or a pen, or paper. “To do this, you would first need to store the two numbers in working memory. The next step would be to use the multiplication rules you have already learned to calculate the products of successive pairs in numbers, adding to working memory the products as you go. Finally, you would need to add together the products held in working memory, arriving at a final solution.” (*Working Memory and Learning*, 2008, p. 2)

A similar example would be following directions such as “when you pass the church on the left, turn immediately right and then take the second left.” In vocabulary, researchers say that “Sequences of words that are distinct such as *bus*, *clock*, *spoon*, *fish*, and *mouse* are much easier to remember than a list of words that sound very similar such as *man*, *cat*, *map*, *mat*, *can* and *cap*, because we are much less likely to confuse their sounds in working memory.” (p. 5) Along the same lines we find recommendations that “the best contents of working memory are best preserved in silence,” because background noise can affect the retention of information that needs to be stored.

7. The Power of Working Memory

Working memory best works as short term memory, where we accumulate information such as numbers, words, or even sentences – all of them supported by the left hemisphere of the brain. Short term memory can also retain images, pictures, and information about locations – all to be stored in the right hemisphere of our brain. The most important part of our working memory is related to controlling attention, including higher-level mental processes, and is often called the ‘central executive.’ They are all involved in all mental activities related to how we coordinate storage and effortful mental processing absolutely necessary in all activities in the classroom.

If we switch to long-term memory, we find several types of information that make up an integral part of the education process. First and foremost, we find autobiographical information some researchers call affective memory. Students always resort to their own life experience when they tackle challenging questions and tasks, which language instruction can use when we tap into the learners’ unknown reservoir of knowledge. Knowing how to drive car (procedural knowledge) can be given as a good example when students learn how to write an essay. The most frequent type of long-term memory that can last a lifetime is called semantic because it includes general knowledge and that can be encouraged, supported, and appreciated.

Language learning is a unique human attribute, and language acquisition is innate. Since all languages have, more or less, the same principles, the Language Acquisition Device in our brain will naturally help children of all ages learn a foreign language. If taught properly, languages can be learned in all their complexities, from vocabulary to word order, from intonation to sentence stress, and memory is all pervasive and necessary to build a solid background in the development of all the basic

skills in listening, reading, writing, and speaking. Our sensory register – supported by a working memory - accumulates step by step, beginning with sounds and words, and ending with sophisticated concepts rendered in speaking and writing.

Whether we talk about learning in general or language learning in particular, memory plays an essential part in the process. The accumulation of the necessary skills is also intricately intertwined with a life-long building of knowledge concepts masterfully displayed in our brain. Recent studies have re-assessed the connection between memory and the process of education:

Without memory we would be lost in the present with no sense of who we are. Memory is also an essential component of learning. Our memory of past educational experiences creates the schemas and knowledge structures we use to make sense of current lessons. Education is a cumulative process, building on the past and making future understanding possible. Memory is the cornerstone of education. (Zheng, R. Z., Gardner, M. K., *Memory in Education*, 2019)

In other words, we can also postulate that good education can and should emphasize the values of such knowledge-based memory not only in the classroom but also in extra-curricular activities, eventually in the community, and in our society as well.

8. The Memory Palace

In 1557 Matteo Ricci left Italy and went to China, where he taught the Chinese how to build a memory palace:

He told them that the size of the palace would depend on how much they wanted to remember: the most ambitious construction would consist of several hundred buildings of all shapes and sizes. [...] In summarizing this memory system, he explained that these palaces, pavilions, divans were mental structures to be kept in one's head, not solid objects to be literally constructed out of 'real' materials.' Ricci suggested that there were three main options for such memory locations. First, they could be drawn from reality – that is, from buildings that one had been in or from objects that one had seen with one's own eyes and recalled in one's memory. Second, they could be totally fictive, products of the imagination conjured up in any shape or size. Or third, they could be half real and half fictive, as in the case of a building one knew well and through the back wall of which one broke an imaginary door as a short cut to new spaces. (pp. 1-2)

Language learners can do the same: build mental spaces to store all kinds of new information, and use their own imagination to visit this ever-growing repository of knowledge when tackling challenging issues, or simply broadening their horizons in new territory.

9. History and Literary Figures

Literature, if understood and taught properly, can give us food for thought and here are some examples of the priceless value of lessons to be remembered from historical and literary figures:

Who can read about King Midas and his golden touch without desiring to always put people before possessions?

Who can read *A Christmas Carol* without desiring like Scrooge to honor Christmas in his heart and keep it there?

Who can read *To Kill a Mockingbird* without wishing to be a little more like Atticus Finch – a little braver, kinder, wiser? (William Kilpatrick, Gregory Wolfe, and Suzanne M. Wolfe, 1994)

These are relevant examples that prove the inestimable qualities that come with role models beautifully portrayed in literature, which can be handed down from generation to generation.

Remembering also means making connections with similar life experiences, and they all add a special touch to our classroom activities. Here is a short passage written by a good colleague of mine who shared a moment of such combinations when remembering accumulated knowledge can also develop the power of deduction:

Sometimes there is serendipity.

This semester I had a class on Greek Literature. We did the myth of Sisyphus, who as punishment had to roll a large rock up to the top of a hill, but whenever he got the rock close to the top, the rock rolled back down so he had to start again. I explained that today we use the phrase 'Sisyphean task' to mean one that is so difficult it can never be completed. Some students didn't get the meaning right; they just used it as a synonym for 'hard or difficult,' without the impossibility part. Then there was an article in the local paper about the Sisyphus task of trying to make all houses hurricane proof, and the students got it. (John Egan)

In this context, reading and talking about reading can function as stepping stones towards understanding how information stored and explained properly can lead the way to knowledge.

10. Conclusion

In conclusion, we need to be reminded that memory has an important role in education. Teachers and their students are information seekers and together they teach each other and learn at the same time. Teaching is how we learn our own lessons

and then hand them over to the next generations. Information used in the teaching and learning process enters our mind through our senses and then is retained briefly in our sensory memory. Storage is crucial to the whole process and that involves memory.

As such, the study of memory and its uses in the classroom will definitely benefit not only the educators but also the language learners, who will become aware of the memory skills and techniques that will become indispensable for dedicated teachers and motivated students. If we add the ability to create, we get a better picture of what students can be expected to understand, absorb, appreciate, and finally remember and turn accumulated knowledge into accumulated learning.

References

- Carruthers, M. (2008). *The Book of Memory: A Study of Memory in Medieval Culture*. United Kingdom: Cambridge University Press.
- Gathercole, S., & Packiam Alloway, T. (2008). *Working Memory and Learning: A Practical Guide for Teachers*. United Kingdom: SAGE Publications.
- Kilpatrick, W., Wolfe, G. & Wolfe, S. M. (1994). *Books That Build Character. A Guide to Teaching Your Child Moral Values through Stories*. New York: Simon & Schuster.
- Long, S. (2021). *Excavating the Memory Palace: Arts of Visualization from the Agora to the Computer*. Chicago and London: University of Chicago Press.
- McKeon, R., Aristotle. (2008). *The Basic Works of Aristotle*. (n.p.): Baker & Taylor, CATS.
- Randall, M. (2007). *Memory, Psychology and Second Language Learning*. Netherlands: John Benjamins Pub.
- Rider, J. (2013). *The Writer's Book of Memory: An Interdisciplinary Study for Writing Teachers*. United States: Taylor & Francis.
- Spence, J. D. (1985). *The Memory Palace of Matteo Ricci*. United Kingdom: Penguin Publishing Group.
- Tagliatela, S. (2017). *Ars Memoriae and Scriptura Interna: Nature, Language and Creativity in Giordano Bruno*. Germany: Freie Universität Berlin.
- Working Memory and Education*. (2006). Netherlands: Elsevier Science.
- Zheng, R. Z., Gardner, M. K. (2019). *Memory in Education*. United Kingdom: Taylor & Francis.