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The Philosophical Dimensions of Memory in the Digital Era: Technology, Memory and Identity

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ABSTRACT

The present study attempts to map out the philosophical concepts of memory and how these have changed with the march of advanced technology. Because digitization is gradually encroaching into every aspect of people's private and professional lives, it is important to explore its implications for memory and personal identity- the concept of the authenticity of personal memories or 'true self'. The study focuses on the transformation of internal to external memory storage and its implications for cognition and the brain. In the course of the analysis, the paper focuses on how collective memory is being democratized through archives and social media, and how algorithmization impacts memory discourses. Moreover, it also highlights ethical issues that are related to digital memories such as the privacy and right to be forgotten. Finally, using cognitive science, philosophy, and technology studies, the paper suggests a way to comprehend the shifting interplay between human memory and technology along with implications of the digital memory on the individual/societal self in the 21st century.

Keywords: Cognitive processes, collective memory, digital memory, ethical concerns, external storage, personal identity

1. INTRODUCTION

Memory and technology have been entangled since the very beginning of the interaction between human beings and tools which is aimed at an efficient process of exchanging information. These technologies include the use of caves for paintings, the use of tongues and lips as the early means of conveying history, the discovery of writing, and the production of the printing press (Cromer & Thompson, 1980; Luo, 1994) to enrich ways of getting information through space. These advancements not only have helped us in a way of preserving memories but, have also shaped the way that we even remember and envision our past.

This change is especially apparent in relationships with memories in the context of the digital revolution of the past decades. We have seen computers, smartphones, and the internet that serve external memory systems that are becoming more and more an intercalation of our lives. This digital ecosystem provides the capability of storing, retrieving, and sharing large volumes of information with unprecedented simplicity (Keskin, 2020) and speed that could have not been possible a few generations before. The consequences of this change are quite far-reaching as can be seen from the following discussion by Ugar:

"…remembering is forgetting, and forgetting is remembering. Memory does not pose the assumption that the past can be recalled totally but tries to fictionalise the past. The past begins to fade and deviate,

and this deviation requires the act of forgetting. However, the proliferation of technologies and the internet has changed how we conceptualise forgetting and memory. The internet has provided the past with the opportunity to emancipate itself from the present and autonomously own itself and set its own trajectory. The past no longer sits in a space to be forgotten but now has the power to influence and shape the present". (Ugar, 2022, p. 01)

With the help of developing technologies such as digital devices and cloud storage facilities to help us remember for us, we are in fact changing the essence of the cognitive tasks involved in memory (Călinescu, 2024). This is because; the photographs taken by digital cameras and the sharing of the events on social media platforms have altered the way we remember things and how we frame the events in our lives.

This shift has led to the emergence of *"digitalized collective memory"* and *"collective memory in the digital age"* (Yasseri et al., 2022). Furthermore, the presence of collective memory in such contexts as online archives, museums, and platforms is reconstructing history and culture. Some of the factors, which were likely to be prompted by the democratisation of information storage and retrieval, are likely to capture a more extensive diversity of perspectives, but the availability of the same comes into question with issues of reliability and longevity of digital records.

This paper will argue that the emergence of technology has particularly changed the concept and way in which people remember things, leading to questions about people's identity, truth and the process of remembering. When it comes to approaching this new reality, we have to raise numerous philosophical concerns based on such notions as self-identity and time.

The subsequent sections of this paper will discuss how this form of media is revolutionising the formation, storage, and recall of memory, personal as well as collective. As you will recall, there is growing evidence that relying on external memory increases cognitive and neural costs, including the changes in personal and collective memory in the process of digital storage.

Consequently, this paper seeks to explore the impacts of the above-discussed developments in relation to human memory through philosophic, cognitive, and technological approaches. It will contribute not only to an understanding of the current époque but also will enable us to look into the future of memory's development in a more digitalized ecosystem.

2. TRADITIONAL CONCEPTS OF MEMORY

Memory has been a major concern of both bioscience and philosophy since historical times because of its crucial role in human functioning. Given the situation, in order to analyze how the new digital technology is changing the approach to memory, one has to take a closer look at the simple and complex notions, which give a fundamental understanding of the topic.

Memory is a fundamental biological process that enables organisms to store and retrieve information based on prior experiences (Crystal & Glanzman, 2013). Research on memory has progressed significantly over the past forty years, revealing multiple memory systems with distinct functions and anatomical organizations (Kandel, 2009). The hippocampus and related structures play a crucial role in declarative memory, which is essential for explicit and relational information processing (Squire, 1992). Memory formation involves complex molecular and cellular mechanisms, including protein synthesis, gene transcription, and synaptic modifications (Mallakin, 2020). The process of memory consolidation occurs at both cellular/synaptic and systems levels, with mechanisms such as protein kinase activation and CREB transcription factor being conserved across species (Crystal & Glanzman, 2013). Such biological

background shows that there is a close interconnection between our body's cerebral structures and the capacity to memorize.

The analysis of memory as a concept within the framework of philosophy has presented a great many ideas about the involvement of memory in the subjectivity of an individual. The memory theory of personal identity was put forward by John Locke in the 17th century. Piccirillo (2010) writes:

"Memory is therefore, according to Locke, a necessary condition of personal identity. Referring to states of interrupted consciousness or forgetfulness, Locke claims that, "in all these cases, our consciousness being interrupted, and we losing sight of our past selves, doubts are raised whether we are the same thinking thing" (Locke). An abridged version of Locke's memory theory of personal identity would therefore conclude that memory is both a necessary and sufficient condition of self, and, therein, personal identity".

This theory remains highly relevant in philosophical discussions concerning the subjectivity of the self and has contributed significantly to contemporary debates on personal identity in a digital world characterized by the use of technology.

However, in the late nineteenth century, the French philosopher Henri Bergson presented a much more comprehensive picture of human memory in his theory of *pure memory*. There are two types of memories in Bergson's view. The first one is *habit memory* which is taken to be located in the body and is automatic and the second one is *pure memory* which is closely associated with the concept of duration in which he postulated that our total past experiences exist virtually. Bergson considered *pure memory* as a continuous recording of lived experiences, suggesting a multiplicity of coexisting memories rather than linear recollection (During et al., 2023). He critiqued the spatial conception of memory, arguing that memories are expressions of the past's effectiveness in the present, embodying tendencies and dispositions (Allen, 2023). The approach to outline memory not as the simple storage of information but as the active and interpretative process of making meaning out of past experiences is extremely helpful in understanding the basic notions of the constructive and temporal nature of human remembering.

Memory plays an incredibly significant factor in the formation of one's identity as well as that of a society. At the individual level, memories provide the links that create cohesion and unity of the self over the period of the existence or life span. People are able to discover their identities and their roles in society through the different perceptions or recollections of past experiences, relationships, and accomplishments.

Collective, and shared memories are equally important for the construction of group identities and, therefore, for the identification of families, communities and even nations. Such memories are shared within a given community, and these could be in the form of oral traditions, written histories, and cultural practices amongst others. They shape the ways people conceptualise their history, experience the present and imagine the future.

For this reason these traditional concepts of memory – the neurological science, the philosophical perspectives, and the mental construction of a person's self – offer the necessary background against which one can begin to comprehend the profound transformation as we are becoming digital. The very nature of the growth of such capabilities of storing and retrieval of information is now posing a direct threat and consequently, changing or posing a challenge to the concept of memory within the digital revolution.

3. THE DIGITAL REVOLUTION AND MEMORY

The digital revolution has brought an age where technologies have advanced so much that large data can be saved and retrieved with much ease. This change has significant consequences for the ways how we relate to

our memories and, consequently, to ourselves and the world. "In recent debates, there has been a marked tendency to interpret 'digital memory' as a new type of memory, which is radically different from the traditional conceptualization" (Mandolessi, 2024).

Digital storage technologies have gone through several changes for the last few decades. While it is easy to get caught up in the technological advancements that have resulted in this increased storage density, power density and speed of memory, it is reasonable to admit that memory has evolved tremendously from the days of magnetic tape and floppy disks. Today's smartphones contain tens of thousands of high-quality photographs, hours of video and countless text documents – a volume of data that would have been inconceivable a generation ago. Such storage services as Google Drive, OneDrive, Dropbox, and iCloud have provided even consecutive possibilities of storing and accessing information from any point of the world with internet access. Digital photography, in particular, has even evolved from a mere mnemonic device to a tool for self-presentation and identity creation (Keskin, 2020).

It has led to a relative movement from internal memory to external, particularly through this technological invention. It was earlier understood that human memory, particularly biological memory, played a major part in information storage; however, now, there is a strong dependence on the external environment and special digital devices as part of human memory. This is a process that is also known as *cognitive offloading* and this enables us to transfer huge amount of information outside our heads so that we can use the brain capacity for other functions. "Cognitive offloading is the use of physical action to reduce the information processing requirements of a task" (Cognitive Offloading, 2024). It is important on the other hand to understand how this use of external storage is perhaps altering the species' ability to store and process information in their brains.

Indeed, the availability and retrievability of digital memories have changed in how people engage with history. People use social networks as personal archives too; each of those platforms tends to sort out our new photos, posts, and interactions right on the date they were posted. Through search engines one is able to find information at the drop of a hat; information which might have taken ages to recall. Virtual personal assistants help in notification of events, meetings, birthdays, or any other tasks of daily life.

These availabilities and convenience of our past memories have developed the practice of reflecting on or reproducing the past as more frequent and instantaneous. Everyone can easily read through the previous conversations, or look through docs from previous work done. However, this comes with issues of privacy, the right to be forgotten, or the possibility of having a distorted memory that could be manipulated digitally with the help of newly emerging groundbreaking technologies like AI. Baltezarević et al. (2020) have rightly pointed out that "forgetting is significant, because it removes parts of memory that, if remembered, can be harmful or useless, both to individuals and society".

4. ALTERATIONS IN PERSONAL MEMORY

Personal memories in the age of digital technology are completely different and have changed the process of remembering. The most noticeable shift is that the use of external storage has become even more pronounced with memory being transferred to electronic gadgets. People today use mobile phones, laptops, tablets, and any other portable devices to store not only phone numbers and appointments but also photographs, official documents, and much more information. Smartphones and social media platforms enable real-time documentation of experiences, potentially affecting attention and memory formation

(Eliseev & Marsh, 2021). It is an external memory which is a kind of augmentation to memory, to a body memory beyond what could be normally carried in the biological memory.

As a result, the very process of remembering has been transformed in a rather profound manner. In the past, remembering has commonly at least partly been characterized by effortful retrieval – the process in which information is actively retrieved from memory. But in the digital environment, we are gradually shifting to the model grounded on recognition rather than on recall. While in practice, instead of recalling a fact or an event, we become aware of the correct fact or event as soon as it is shown to us by the gadgets we own. Such a move from recall to recognition may be changing the manner in which our brain stores information. As people increasingly outsource memory to digital devices, there are implications for intergenerational memory transfer and how we perceive and present ourselves (Arthur, 2015).

The term *"Google effect"* which was first studied by psychologists Betsy Sparrow, Jenny Liu, and Daniel Wegner in 2011 (Sparrow et al., 2011) is another typical example of a shift in memory processes. This one is about how people do not remember certain details that they can easily search on the internet. Instead of storing the actual information in one's memory, one stores the location of the information. This form of adaptation enables the handling of a lot of data that is available to us but also poses a possibility of how it might impact the internal handling of data or knowledge in individuals.

Most of them affect our thinking process and brain in one way or the other. Scholars have tried to point out that, since we are shifting the responsibility of remembering to machines that then present such results to us, we are able to optimize other types of thinking, which may include advanced problem-solving and creativity. However, others argue that in our increasing reliance on external memory might have hampered the creation of long-term memories in our brains and can therefore affect our critical thinking abilities.

However, the easy access to valuable and worthless data and the daily tradition of checking one's device multiple times per hour might be changing the way we pay attention and analyze information. While we get the increased speed of knowledge retrieval, we seem to lose the capacity for long and intense concentrative thinking which many a time is required to solve problems or to generate ideas.

As we continue to allow technology to become intertwined with our lives it becomes paramount that these alterations to the processes of personal memory and their cognitive effects are fully understood. It raises a question as to how we might wish to proceed in using what technology is already presenting us in the way of enhanced digital memory, whilst at the same time maintaining and fostering those aspects of the mind that are so celebrated as being uniquely human.

5. TRANSFORMATION OF COLLECTIVE MEMORY

The change in personal memory as a result of the influence of the digital revolution can therefore be described as revolutionary. The digital revolution has also impacted collective memory; a pool of knowledge and information that is embodied in the memories of two or more members of a social group. "On the one hand, the Internet has had strong impacts on memory and the processes of remembering and forgetting, and on the other hand, it has converted collective memory into an observable phenomenon that can be tracked and measured online at scale" (García-Gavilanes, 2017). It is altering the ways that societies record history, make sense of it and analyse it for present use. In light of this, digital archives have turned out to be agents of change that are used for the storage of cultural heritage and making it accessible. Other centres such as libraries, museums, and universities are scanning

documents, photographs and other artefacts for the purposes of creating an online version that can be accessed by anybody on the internet. Projects like *iremember.ru* illustrate how digital platforms can serve as vital elements in contemporary memory landscapes, providing insights into historical experiences and shaping political discourse (Glisic & Edele, 2019). This is likely as it democratises who can access history and contribute to as well as interpret it. This allows the researchers, students, or persons who are interested in certain issues, to access the primary sources which were previously available only in physical archives, and can lead to new discoveries or new interpretations of certain historical events.

Thus, social networks can be considered to be rather unexpected and even accidental collective memories. Now, everybody is recording different events of his or her life as well as different events that happen in the world. Social Media like Facebook, X (Twitter), and Instagram among others act as a large and disordered store of individual and collective memories. Such platforms enable the dissemination of information and the construction of social narratives about an event in a short period; however, they pose doubts as to the validity and stability of such memories.

It is quite imperative to admit that algorithms play a crucial role in constructing and maintaining the memories in common. Companies such as Google, Yahoo, Facebook, and X (Twitter) among others employ a set of formulas that decide which information to make readily available to the users. These algorithms, driven by engagement, tend to rank more, on what is new or what abstract the user agrees with. By so doing, it might cause filter bubbles and echo chambers that promote selective information or opinions on certain historical events, or social matters. The selection of memories in the algorithmized society poses some questions regarding ownership of the past narratives and the possibility to open minorities' voices.

Further, the changeability of digital information can be primarily viewed as the advantage or the disadvantage of the concept of collective memory. On one side it disposes the possibility to correct mistakes and update the information that has been collected as new evidence rises. At the same time, it poses some criticism about historical bias and distortion of collective memories.

6. PHILOSOPHICAL IMPLICATIONS

These changes in memory resulting from the new media are very deep and set important philosophical questions regarding what it means to be an individual, what is real, and what is moral in today's culture.

This brings us to another major philosophical theme, which is the change of personal identity. The two eminent authors, Andy Clark and David Chalmers (Clark, 1998), came up with the extended mind thesis which highlights the fact that the mind is not only enclosed in the human skull. In the advanced technological world we find this concept assuming a richer meaning where in fact, our gadgets are parts of our very thought processes. Recent research suggests that smartphones and other digital devices can be considered extensions of our cognitive processes, aligning with the concept of the *"extended mind"* (Wheeler, 2015; Sprevak, 2019). The issue, thus, does not lie in the volition of the technology or in fact, in the volition of any of the individuals involved; instead, it lies in the very fact that such a distinction is even theoretically possible.

Dealing with ethical dilemmas concerning digital memories, one can note numerous considerations that are very complicated. Ownership and the right to privacy are some of the primary issues which span across them. "With the spread of digital media and their spread into almost every area of our lives, data is collected everywhere and is permanently stored" (Baltezarević, 2020). What are actually being stored are personal memories that are being hosted by these tech companies and this issue brings to light the considerations of who actually owns

these memories and who has the right to use them. However, in the age of big data where data becomes a sellable product, it creates more problems with our memories turning into assets.

Of course, the ethical concern served up by some legal systems under the term *"right to be forgotten"* is another issue. The right allows individuals to demand his or her data to be removed from internet searches and other directories within some conditions. It brings into focus the conflict between the right to privacy and an individual's right to manage his or her avatar on social media, and the public's right to information and creation of archives.

These philosophical issues pose a profound question on important notions of subjectivity, self, and morality based on these new definitions of reality. They make us think about how we conceive ourselves in a society where our recollections and brain representations are being outsourced and encoded. When confronting these questions we have to work at creating new philosophies that will fit into the agenda of memorization and identity in the context of the Social Media Age and not lose sight of the advancement that comes with technology while not forgetting the importance of human dignity and value.

7. THE FUTURE OF MEMORY IN THE DIGITAL AGE

Considering the future of memory in the context of post-humanism, new possibilities of the interaction with memories are offered by further advances in technologies. Some of the most promising are so-called brain-computer interfaces (BCIs) and augmented reality (AR), both set to redraw the limits of human memory.

A "brain computer interface (BCI) is a system that determines functional intent - the desire to change, move, control, or interact with something in your environment - directly from your brain activity" (What Is BCI, 2023). It may put into question what is memory in another level as it provides for new means for storing and finding data.

As such augmented reality can enhance the possibility of putting digital information over the physical world hence creating an environment where memories and real-time data blend. This may change the way people encounter and engage memories and supersede prior ways of remembering through interaction with the current context. For instance, one area could be the modification of what is commonly referred to as memory, in which AR can allow the users to 'relive' past experiences in a way that does not strictly adhere to a linear perspective on memory.

The advancement also has great philosophical and ethical implications. While BCIs and AR technologies grow more advanced, people's rights to privacy and self-determination become acuter. Roesner et al. (2014) worry that "these technologies may also bring unforeseen computer security and privacy risks". The possibility to write and even erase memories makes a new question concerning mental self-determination and the rights of an individual to control his or her own thoughts. Furthermore, if external factors are to gain control of such technologies as well as use them inappropriately then numerous issues to do with safety and honour could come into threat.

8. CONCLUSION

There is no doubt that digital technology has extensively influenced how memory is constructed and apprehended in the current world. The first step of the present study involved reflecting on the traditional concepts of memory; its neurological foundations and views held by Locke and Bergson. These bases enabled one to appreciate how the entire digital revolution presents new approaches to the issues of memory and access.

The transition from the past to present from internal to external memory storage has been one or the biggest changes and has impacted not just the entire process of remembering but also the very notion of memory. The constant reminders through

technologies like cloud storage and social media have made memories easily accessible and available at an individual's fingertips through technological invention, but at the same time, the reality and credibility of such memories are put under debate. Recent memory practices such as the ability to *offload* our memory to technological devices have altered the process of memory from active remembering to passive recognition which is further exacerbated by the *"Google effect"*.

Memory storage has also been changed with the help of digital archives and social networks, which opened history to the public but at the same time posed new questions concerning the fabrication and sharing of memory. These changes have philosophical dimensions erasing the concepts of individualism and authenticity and raise ethical questions on the concept of ownership, privacy, and the right to be forgotten.

Looking into the future, BCIs and Augmented Reality are some of the technologies that will shape how human beings deal with memory. Storm and Soares (2024) postulate "the digital world of tomorrow is likely to be very different from the digital world of today, pushing the study of human memory into a constant state of flux." Such advancements may well enhance the possibility of erasing the distinction of memory as a post-human digital substrate and memory as an innate biological attribute. It is this kind of convergence that is going to bring philosophical and ethical questions that will open a new period of human existence with pure references to the highly combinatorial integrated ties.

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