Social and Education History
E-ISSN: 2014-3567
hse@revistashipatia.com
Hipatia Press
España

Bietti, Lucas
The Memory Process: Neuroscientific and Humanistic Perspectives
Social and Education History, vol. 2, núm. 3, octubre, 2013, pp. 341-344
Hipatia Press
Barcelona, España

HSE Historia Social y de la Educación | Social and Education History

Hipatia Press
www.hipatiapress.com

Instructions for authors, subscriptions and further details:

http://hse.hipatiapress.com

The Memory Process: Neuroscientific and Humanistic Perspectives

Lucas Bietti[1]

1) Institute for Advanced Study in the Humanities (KWI), Essen, Germany

Date of publication: October 23rd, 2013
Edition period: October 2013-February 2014

To cite this article: Bietti, L. (2013). The Memory Process: Neuroscientific and Humanistic Perspectives [Review of the book]. *Social and Education History*, *2*(3), 341-344. doi: 10.4471/hse.2013.18

To link this article: http://dx.doi.org/10.4471/hse.2013.18

HSE – Social and Education History Vol. 2 No. 3 October 2013 pp. 341-344

Reviews (I)

Nalbantian, S., Matthews, P.M & McClelland, J. L. (eds.). (2011). *The Memory Process: Neuroscientific and Humanistic Perspectives*. Cambridge, MA: MIT Press.

ISBN: 9780262014571

Nalbatian, Matthews and McClelland's edited book is based on an interdisciplinary memory symposium on neurosciences and the humanities that was held at the Cold Spring Harbor Laboratory in 2007. In *The Memory Process*, Nalbantian, Matthews and McClelland put together many contributions from cognitive neuropsychologists, neurobiologists, psychiatrists, philosophers, and literary and cultural scholars, all of which were based on distributed and constructionist approaches to memory processes in the brain and the social and cultural world.

The book begins with an overarching introduction written by one of the editors, Suzanne Nalbantian, in which she presents the general subject matter of the volume, that is, the distributed and constructionist features of cognitive memory processes that make memory a "multifaceted" process "prompted by inputs from different levels of functioning" (p.1). She asserts that new memory research lies in the convergence of neuroscience and the humanities. Hence, she claims that "the aim of the book is to forge

ISSN: 2014-3567
DOI: 10.4471/hse.2013.18

connections between the latest findings in scientific memory research and insights from various sectors in the humanities" (p. 1). The book's aim is particularly in line with Nalbantian's long-term literary and neuroscientific memory research agenda, the bridges the disciplines. In order to better organize the multidisciplinary nature of the distributed and constructivist perspectives on remembering presented in the book, the editors divided the book into five major sections: (1) Scientific Foundations, (2) Scientific Phenomena and Functioning, (3) Crossroads to the Humanities, (4) Literary Data for Memory Studies, and (5) Manifestations in Arts.

In the first section, Yadin Dubai provides evidence against traditional approaches to "engrams", which are defined as mental impressions of the residual trace of an adaptation made by an organism in response to a stimulus. These "engrams" are considered to be discrete, well-defined long-term memory traces in the brain. Dubai maintains that brain plasticity allows the generation of "mental time travel and particularly the imagination of future events rather than storing information of past events" (p.37). Brain plasticity and imagination make "engrams" lose much of their singularity because they may be added to a "distributed, large and dynamic society of engrams that come to constitute our memory" (p.38).

In the second section, James McClelland presents his Parallel Distributed Processing (PDP) framework for memory research. His "connectionist" framework also advocates for a constructivist approach to memory in the brain. Memories are not stored individually in separate locations in the brain, but rather in synaptic connections between neurons across different brain regions. Hence, McClelland asserts that remembering is a constructive process which operates as an integrated system that employs "connection adjustment between neurons participating in distributed representation" (p.139).

The third section introduces a neurophilosophical approach to cognition and memory. This section presents an on-going ethical discussion in memory research that is, the ways in which memories can pharmacologically altered. Walter Glannon maintains that memory manipulation may affect our moral judgment by blocking emotions such as shame and regret that are associated with past experiences. The author concludes the chapter with a few interesting reflections about the problems that the legal system has to

face when resorting to brain-imaging as a tool to dig into "repressed" memories. The author is in favor of using empirical data obtained through neuroimaging in criminal law, but he stresses that "neuroimaging should complement and not replace behavioral criteria of normative judgments of negligence and responsibility"(p. 247).

In the fourth section, Suzanne Nalbantian takes a look at how autobiographical memory appears conceptualized "as a dynamic process, often with fixed elements that become transformed in the crucible of creative construction" in the literary works of major 20th century writers (p. 255). By analyzing literary data from the works of Virginia Woolf, James Joyce, and William Faulkner (among many others), Nalbantian claims that these authors thought of remembering as a creative and constructivist phenomenon, in line with the actual theories proposed by leading memory researchers in the neurosciences.

In the fifth and final section, Fernando Vidal deals with the way in which memory and the brain have been represented in movies, e.g. how popular culture assimilates and incorporates, or rejects new scientific findings on the malleability of memory. He provides compelling evidence that backs up the view that movies (form the 80's to the present) generally depict a mix of discredited and widely accepted theories of how memory works. Although movies about memory deficits (e.g. amnesia) and their relation to personal identity are likely to have the effect of emotional arousal on encoding, storage and retrieval, these movies tend to assume "a storehouse model of memory, which has the virtue of being a recognizable commonplace, avoiding complicated explanations" (p. 409). The storehouse metaphor reproduced in movies implies, to a large extent, the "indestructibility of memory", that its discrete locations and authenticity are the criteria for a genuine self. Vidal asserts that these representations stand against current theories on brain plasticity and the connectionist and constructivist models of memory.

Nalbantian, Matthews and McClelland's edited book represents a remarkable attempt to develop an inter- and trans-disciplinary framework which could enable us to better understand how human memory works on different levels (e.g. molecular, neurobiological, ethical, and cultural) and in different time-scales. Sections I and II provide compelling evidence of how the patterns of connectivity between neurons, and between different neural

networks indicate that remembering is a more constructive activity, rather than a reproductive one. Thus, remembering needs to be thought of as a process that does not represent, but rather "constructs" reality. Although it is not explicitly stated in the book, this idea is fundamentally illustrated in Bartlett's influential book *Remembering* (1932), in which he investigated the constructive character and progressive rationalization of exotic stories in a series of re-narrations by English participants according to their cultural schemata. I believe that sometimes the transitions between the different sections of the book *The Memory Process* are not clearly motivated. To state that literary texts should be considered to be relevant data to explore how memory works at the brain level or to simply point out that some key novelists and playwrights from the 20th century intuitively advocated for a constructive nature of memory does not provide solid arguments for the necessity of the creation of interdisciplinary research agendas between the neurosciences and the humanities. I am not denying the multiple connections between disciplinary fields, that are, for instance, convincingly presented by Vidal in the concluding chapter of the book. However, more inter and trans-disciplinary investigations are needed to claim, for example, that literature may provide adequate data to examine bio-memory in human brains. By bringing together leading international scholars in the neurosciences and the humanities, *The Memory Process* is undoubtedly a wonderful first step towards an integrative and synthetic trans-disciplinary perspective on human memory.

References

Bartlett, F. (1932). *Remembering*. Cambridge: Cambridge University Press

Lucas Bietti, *Institute for Advanced Study in the Humanities (KWI), Essen.*
lucas@bietti.org