Chapter 14
Conclusion. Toward a Generative-Systemic Perspective: A Critical View on the Mind Wandering Arena

Luca Tateo and Nadia Dario

Our joint inquiry effort into mind-wandering (MW) started because we were fascinated by the human capability to generate worlds of possibilities (Dario & Tateo, 2020a, b; Tateo, 2020).

Imaginative processes, generativity, and creativity are ubiquitous and peculiar human capabilities that lure anyone interested in human development, learning, and culture. Very soon during our inquiry, we realized that the generative capability of the human mind was somehow problematic for an idea of schooling and learning which is based on the attention-control-account paradigm. We identified MW as a specimen of such a tension. MW somehow represents the arena in which all the stereotypical ideas about cognition, thinking, and learning that cross psychology, education, and neurosciences become visible and shape the theory. The inquiry about neurologic functioning should not lead to a biological reductionism. Some contributors to this volume pay a lot of attention to the biological dispositive and its functioning. In this sense, the exploration of MW shows that the *bios* must always be in dialogue with the *anthropos*, involving those processes that give rise to the multiform and to the transformation of oneself (Galzigna & Basso, 2008). Hence, there is a need to provide an overview of the dialectics between the conceptions of MW in the current interdisciplinary research, with a particular focus on learning and education. Indeed, by cultivating a dialogue between different perspectives on MW, we want to stress the importance of subjectivity and identification, relational empathy, and affective relationships.

In the definition of MW as task-unrelated and self-generated thought that can cause attention decoupling, for instance, during a school activity, one can see an old idea of learning as retention of information transferred from a source. The student

L. Tateo
University of Oslo, Oslo, Norway

N. Dario (✉)
CNRS, Ecole Normale Supérieure de Lyon, Université Lyon 2, Lyon, France
e-mail: nadia.dario@ens-lyon.fr

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should be focused on one single task at a time and receive and retain information from a teacher, to remember it and perform it correctly later during an assessment. Any deviation from this perception-execution cycle is understood as a distraction and waste of cognitive resources. Likewise, the idea of decoupling and the sharp distinction between hetero and self-generated thoughts reproduces a stereotypical idea of a representational nature of thoughts generated by external stimuli as clearly distinguished by those thoughts who have no referent in the real external world. Finally, the works collected in this volume accept almost unanimously the distinction between spontaneous and intentional forms of MW. Goozli (this volume, Chap. 6) and Ergas (this volume, Chap. 9) elegantly question such a distinction by reflecting upon the relationship between intentionality, agency, and consciousness. The nature of MW seems to lay at the ground of our idea about the nature that "I" as more or less unitary or stable instance that governs the individual. Indeed, MW is also the arena where different conceptions of the Self compete. Is the sense of Self an emerging property of neural networks interaction growing out of preceptor-effector cycles? Is rather the Self an illusionary product of our striving for unachieved desires and unfulfilled regrets? Alternatively, is it the product of a narrative that links experiences with expectations? One can find these alternative ontologies as the more or less explicit starting point for each of the theories about MW presented in this volume. MW seems to be either the product of a misalignment between different brain modules and the environment – the dissolution of a scattered "I" – or the playground in which alternatives are explored, plans are formulated, and memories are reworked (the place in which "I" is in full control). It roughly corresponds to the current distinction between spontaneous and intentional MW. Whether or not we are talking about different phenomena or about two types of MW is an open question. Yet, *how we* talk about MW reveals something about our current conception of the human being.

SART and the Neoliberal Self

One of the common instruments used in the experimental study of MW is the Sustained Attention to Response Task (SART) (Jackson & Balota, 2012; Smallwood et al., 2004). The task is used in the study of different cognitive phenomena, such as working memory, attention, inhibitory control, and mind wandering.[1]

The task in itself is particularly interesting. It consists of a black computer screen on which a series of digits (between 1 and 12) are presented in the center for 250 milliseconds, interspersed with a separator (Fig. 14.1). The task consists of pressing the space bar of the computer every time a digit appears in the center of the screen. Only when the digit presented is "3" that the subject has to avoid pressing the

[1] See https://www.youtube.com/watch?v=OjvW4q0v5AI&t=113s for an example of the running software.

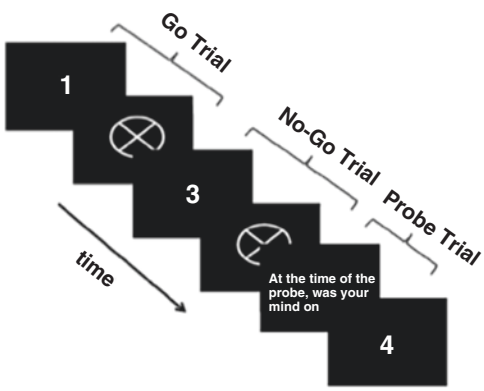

Fig. 14.1 An example of START screen sequence

spacebar. The overall task duration is 20 minutes, starting with a practice block of digits followed by four rounds of 5 minutes each. In total, the subject is presented with 1040 trials containing 72 "targets," randomly distributed.

After each block, two probe questions are presented: "Where was your attention focused during this block of trials?" "How aware were you of where your attention was during this block of trials? The idea is that the subject must be focused on the task of "inhibiting" the habitual response (pressing the spacebar).

Now, we would like to invite you to figure out yourself as SART subject, participating in an experiment. At the beginning, you will be given the following task instructions: "Please, sit comfortably approximately 57 cm from your computer display and turn off all software programs that may be running in the background. In this task, you will see a series of numbers appear on the screen, separated by the "⊗". Your job is to push <SPACE> when you see any number EXCEPT for the number 3. When you see the number 3, do nothing. We want to give you equal emphasis to accuracy and speed during this task."

Imagine yourself starting the practice block (160 trials with 8 probes). You want to do well and maybe please the experimenter. You may even want to look "smart" and diligent during the task. You feel evaluated of course. You try to understand the functioning and the logic of the task. Then, the test begins and you will go through 1040 trials in four blocks with 72 random "targets." At the beginning, your attention is focused on the screen, trying to react accurately and rapidly to the digits appearing on the black background. However, it is not difficult to imagine that after some trials you will start thinking how does the task "really" work. "Is there any hidden logic behind the order of the digits?" "Can I improve my performance by predicting and anticipating the next digit?"

You may start exploring different strategies mentally. *Are* you mind-wandering now? Is it spontaneous or intentional? Is your thought related or unrelated to the task? Where is your attention directed? To what extent will your performance be affected? What if MW *is part* of our way to solve the task? Maybe, after hundreds of trials, boredom of the task can emerge, and you may start thinking about "something else," which researchers find regularly. Then, you may think about something

more or less loosely associated with the digits, to the black screen, etc. What is the difference between this latter MW and the former type? What happens if the experimental subject is younger and very familiar with digital devices and social media? How easily her mind will wander after a few minutes before a black screen? How much will the familiarity with some tools and the personal background affect the meaning and understanding of the task?

It is not by coincidence that the SART task is so simple to result artificial and far from most real-life experiences, except maybe the most repetitive work-chain actions of Fordism factories. It may be that the SART, which is itself designed to require a focused attention, generates a MW in order to solve the task. If one restricts the definition of MW to "task unrelated thought," then we must admit that a wide range of phenomena that we consider MW experiences are left out. Yet, what does "task unrelated" mean? In the SART example, as well as in the discussion by Goozli (2022), one can see how our experience is more complex than a single task-off task alternation. Of course, when it comes to specific complex tasks, such as flying an airplane, operating a dangerous machinery, or performing a surgery (Galéra et al., 2012; Smallwood et al., 2011), *too much* MW is a threat to survival. However, the task-off task distinction is hard to apply even to the simplest activity such as the SART test.

The idea of a single-minded and single-task focused performative self is the outcome of a "neoliberal self" approach to learning (Miller, 2016). The neoliberal self, focused on the here-and-now full performative, controlling, and productive thinking, is transferred to the field of teaching/learning with the effect of making MW experiences a deviation from the norm. Similarly, the structure of the academic curricula in higher education after the Bologna Process tend to set clear and straight goals, tasks, and achievements in a defined timeframe. Any subject-wandering, curriculum assemblage, curiosity, and multidisciplinary exploration is considered a deviation from the path. The subject must find her purpose, fulfillment, and meaning (Bendassolli & Tateo, 2018) in a rigid framework of performativity. "Wandering" is neither an attribute of productive life nor a privilege of "leisure time" that is also characterized by a series of tasks to achieve well-being (meditation, fitness, etc.) in which MW can interfere. The idea of a passive attitude of the mind that wanders in contrast to mental actions, like reasoning and planning, dates back to Hobbes and the birth of capitalism itself (Irving & Glasser, 2020), and it is today reinforced by the idea of "learning by doing," which also sees the passive wandering of mind as a waste of resources. One must go back earlier in time to find a different appreciation of the time spent "doing nothing."

Mind-Wandering as a Method

One of the recurrent common places about MW is that such a ubiquitous and frequent phenomenon must be survived for its evolutionary value. If during the evolutionary process human species has preserved MW, it should have provided some

advantage to the survival of the species. This is not a pointless argument in favor of MW. Indeed, humankind has changed for many reasons but has also evolved in a cultural sense. Thus, our main evolutionary feature is the capability of building cultural conditions that promote or inhibit inherited characteristics. It would be the same to say that human species practice violence because it has some evolutionary advantage. Shall we then simply accept violence in our societies forever? Shall we not pursue the banning of wars and weapons among human beings? Hence, while trying to understand the origins and the characteristics of the MW process, the interesting questions to ask are: "under which circumstances" and "for what purpose" MW can be desirable/undesirable, and "how can it be purposefully cultivated and educated"?

Is one really "doing nothing" or "being off-task" when the mind wanders (Metzinger, 2018)? There was a time in which "doing nothing" was a privilege of the ruling classes and an integral part of citizenship (Arendt, 2013). The Greek concept of *schole* and its Latin correspondent *otium* were the hallmark of free citizenship. The opposite condition, being tied down to a mundane task – the negation of *otium*, that is, the *nec-otium* – was proper of lower classes and slaves. This was one of the main points of attack by the Christian theology to the "pagan" philosophy and ethics. Being idle and wandering in the agora paved the way to vice and sin. The good Christian is the believer who does not waste her life in idleness and pleasures rather is focused on using fruitfully her time on Earth trying to gain her way to afterlife. To do so, the meditative technique that Christians called prayer and the focus on work tasks were the best ways: *ora et labora*. Western educational systems are largely based on the Christian monastic model of education; thus, idleness and mind-wandering have always been seen in a negative way. The wandering mind is neither directly "observable" nor "punishable" by a supervisor. Any kind of sinful thoughts can emerge in a wandering mind already told us by Saint Augustine, whose conversion on the contrary was a huge process of mind-wandering, actually. He wrote:

> "Afterward I began to laugh—at first in my sleep, then when waking. For this I have been told about myself and I believe it—though I cannot remember it—for I see the same things in other infants. Then, little by little, I realized where I was and wished to tell my wishes to those who might satisfy them, but I could not! For my wants were inside me, and they were outside, and they could not by any power of theirs come into my soul" (Augustine, 1955, p. 14).

MW is presented as an attention problem, but it has a clear ethical value (Irving & Glasser, 2020; Thompson, 2005). When the Christian-based education meets the capitalistic value-system based on efficiency and productivity of labor, there is no escape or salvation for MW.

Does neoliberal value-system sanctions imaginative thinking altogether? Certainly not. As several authors in this volume point out, creativity is a positive value in contemporary societies. Thus, imagining is allowed to the extent that it leads to "innovation" and "creativity" with a purpose. Generative thinking is admitted in education unless it is accountable and visible.

Miriam McCormick (2020) had the intuition of the revolutionary character of purposeless and unaccountable MW:

> "there is, or ought to be, a domain of the mind that is completely free of normative assessment, where you are safe to let your thoughts and images go wherever they take you without concern that you are doing anything wrong" (p.270).

The phenomenon of MW is usually provided with a negative value in the narrative of a struggle for the mind's limited cognitive resources. Thus, who must prevail? The idle production of self-generated, task-unrelated, and inner-focused thoughts, or the useful and efficient production of task-focused and accountable thoughts? One cannot sanction others' mind-wandering content; the teacher can only detect it and try to foster the internalization of a self-inspector in every student with the task of inhibiting any thought which is not task-related (McCormick, 2020).

What can one learn from the chapters collected in this volume about the liberatory and revolutionary role of MW? What can be the consequences of thinking about MW as a non-normative form of thought? What can education obtain from the cultivation of MW as a *method*?

Conclusion: Toward a Pedagogy of "Trans"

Within the complex network mind-brain-learning-nature-culture-training, at the junction between *bio-educational* and *anthropo-formative* perspectives, pedagogy cannot be limited to the conditions of *educability* (the child learns only if attentive) but must focus on the whole of human development (one does not learn only from school lecturing and testing). It is time to overcome the idea of cognitive educability defined by the constraints of biological potential and the influences of environmental patterns. We need an education that supports developmental processes of transformation, transition, and transaction that characterize the anthropos. We need a vision of human beings as an autonomous entity, able to be self-representing (Foucault, 1990; Moscovici, 1972). Across evolution, humans developed freedom and motivation, overcoming the organic and instinctual equipment. Indeed, humans acted on their environment, very often creating it. In this sense, we need a pedagogy that looks at the "trans," that is, the human subject's ability to pass from one condition to another, from one change to another, from one belonging to another. It is not only necessary living in the existence *here-and-now* but also projecting oneself ahead and postulating alternative possible existences. By discussing the different understandings to MW and their educational implications, we have tried to open a new path of potential theoretical and methodological discussion. Indeed, we are tempted to imagine that MW is one of the higher mental processes through which human beings can attain a free space of potentiality: one of the ways we explore the transcendence that gives meaning to our existence.

References

Arendt, H. (2013). *The human condition*. University of Chicago Press.
Augustine. (1955). In A. C. Outler (Ed.), *Confessions and enchiridion*. Westminster Press.
Bendassolli, P. F., & Tateo, L. (2018). The meaning of work and cultural psychology: Ideas for new directions. *Culture & Psychology, 24*(2), 135–159.
Dario, N., & Tateo, L. (2020a). A new methodology for the study of mind-wandering process. *Human Arenas, 3*(2), 172–189.
Dario, N., & Tateo, L. (2020b). The positive side: An inquiry into mind-wanderingùin teaching-learning situations. *Formazione & Insegnamento. Rivista internazionale di Scienze dell'educazione e della formazione, 18*(3), 255–276.
Foucault, M. (1990). *Les mots et les choses* (p. 314). Gallimard.
Galéra, C., Orriols, L., M'Bailara, K., Laborey, M., Contrand, B., Ribéreau-Gayon, R., & Lagarde, E. (2012). Mind wandering and driving: Responsibility case-control study. *BMJ, 345*, e8105 https://doi.org/10.1136/bmj.e8105
Galzigna, M., & Basso, E. (Eds.). (2008). *Foucault, oggi [Foucault today]*. Feltrinelli.
Irving, Z. C., & Glasser, A. (2020). Mind-wandering: A philosophical guide. *Philosophy Compass, 15*(1), e12644.
Jackson, J. D., & Balota, D. A. (2012). Mind-wandering in younger and older adults: Converging evidence from the sustained attention to response task and reading for comprehension. *Psychology and Aging, 27*, 106–119. https://doi.org/10.1037/a0023933
McCormick, M. S. (2020). The value of a free and wandering mind. In *The ethics of belief and beyond* (pp. 270–288). Routledge.
Metzinger, T. (2018). Why is mind wandering interesting for philosophers. In *The Oxford handbook of spontaneous thought* (pp. 97–110).
Miller, E. R. (2016). The ideology of learner agency and the neoliberal self. *International Journal of Applied Linguistics, 26*(3), 348–365.
Moscovici, S. (1972). *La société contre nature* (pp. 10–18). Union générale d'éditions.
Smallwood, J., Davies, J. B., Heim, D., Finnigan, F., Sudberry, M., O'Connor, R., & Obonsawin, M. (2004). Subjective experience and the attentional lapse: Task engagement and disengagement during sustained attention. *Consciousness and Cognition, 13*, 657–690. https://doi.org/10.1016/j.concog.2004.06.003
Smallwood, J., Mrazek, M. D., & Schooler, J. W. (2011). Medicine for the wandering mind: Mind wandering in medical practice. *Medical Education, 45*(11), 1072–1080.
Tateo, L. (2020). *A theory of imagining, knowing, and understanding*. Springer.
Thompson, C. (2005). The non-transparency of the self and the ethical value of Bildung. *Journal of Philosophy of Education, 39*(3), 519–533.s.