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COULD AI INDUCE MIND WANDERING AND VISIONS?

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ABSTRACT

Mind wandering is a daily event. Research reveals that 96% of American adults state that they experience mind wandering on a daily basis (Singer & McCraven, 1961), and it occupies up to 50% of the waking day (Kane et al., 2007; Killings worth & Gilbert, 2010; Klinger, 1999, 2009; Klinger, Miles, & Cox, 1987). Mind wandering is ubiquitous to the human experience and may be the brain's default process (Buckner, Andrews-Hanna, & Schacter, 2008; Christ off, Gordon, Smallwood, Smith, & Schooler, 2009; Mason et al., 2007; Raichle et al., 2001) The process implies the diversion of thought away from immediate tasks and immediate environment. It could also mean reference to task-unrelated thoughts.

The concept could relate to the awareness phase of artificial intelligence. Awareness implies recognition of forces within and without the environment. An individual could become aware of forces, cognitive or otherwise, within himself. And he could also be aware of currents and forces beyond his immediate recognition. This awareness could be tantamount to mind wandering.

A state of awareness could lead to “wandering” as a state of mind as well the conceiving of a future image of things to come or “visions”.

This will be the focus of this article. It is qualitative analysis. Conceptual foundations of both artificial intelligence and mind wandering ere explored and synergy or areas of overlapping are demarked. Research is based on work done on both issues.

The article aims at proposing a set of hypotheses projecting a relationship between the two phenomena.

KEYWORDS: - Artificial Intelligence, psychology, mind wandering, vision.

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1. WHAT IS ARTIFICIAL INTELLIGENCE?

Artificial intelligence is a novel technology-rooted force that is changing the foundations and premises of many concepts and practices. To understand that let us identify the contours and scope of artificial intelligence.

Merriam-Webster defines artificial intelligence as “A branch of computer science dealing with the simulation of intelligent behaviors “As well as “The capability of a machine to imitate intelligent human behaviors.” (Forbes, Feb 14, 2018,). In other words, AI is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using the rules to reach approximate or definite conclusions) and self-correction (adjusting prospective actions to current outcomes). AI relates to many sciences from computing and data to psychology, philosophy and linguistics among others.

AI fragments could acquire a coherent whole if put within a systems theory framework. AI is pictured, then, as a system with inputs, transformations, outputs and a feedback loop. AI could also be viewed in terms of time. Today’s AI constitutes of two parameters recognition and limited memory. Tomorrows or future AI will be based on what is to be known as the State of Mind and Awareness.

AI outputs could extend over a wide front that would include insights, novel sub-system structures and derived and dependent technologies.

- **Insights**

AI processes could lead to insights or a capacity to gain an accurate and deep intuitive understanding of individuals and issues. Data insights could lead to abilities: to solve problems, through logical deduction or reasoning; to set and achieve goals; to understand spoken and written language or communication; and to infer things about the world via sounds, images and other sensory inputs. These abilities are expressed in many present-day applications, such as medical diagnosis, autonomous vehicles and surveillance.

- **Novel sub-systems structures**

AI has the potential to penetrate industries where data are prevalent. Subsystems congruent with the specific conditions of such an industry would, then, emerge and blend with the operating flows of the industry. Early signs of this penetration can be seen in a wide variety of industries from healthcare and banking to retail, logistics and communication. Present-day banking subsystems, for example, include fraud detection and credit analysis, government sub-systems include facial recognition and smart cities, and health and life sciences sub-systems include predictive diagnostics and biomedical images. Several other sub-systems will soon emerge in manufacturing, logistics, marketing and, probably above all, security and defense.

- **Derived and dependent technologies**

A wide array of AI derived technologies is emerging. They vary in penetration but some are already identifiable. These include robotic process automation, biometrics, speech recognition, virtual

agents' decision management, text analytics and natural language processing; these AI technologies are gaining situational significance.

All in all, artificial intelligence induces, ultimately, what we may term “generic disruption”. Generic disruption is a force or a bundle of forces that cut across systems and reconfigure constituent elements. Generic disruption cuts across industries, markets organizations and functions. It does not arise from competitors in the same industry or even from companies with a remotely similar business model but from distant and previously unidentified driving force. It blends forces drawn from separate, seemingly unrelated strands of technology, primarily, in order to create dramatic value enhancing and rule changing propositions (El Namaki, 2014) (El Namaki, 2019).

2. WHAT IS MIND WANDERING???

Mind-wandering is loosely defined as thoughts that are not produced from the current task. Mind-wandering consists of thoughts that are task-unrelated and stimulus-independent. Thoughts then are task unrelated and stimulus independent. Brain resources shift away, then, from processing immediate tasks to exogenous forces and drivers.

It could be the outcome of a variety of conditions and a myriad of stimulants. It could, to start with, relate to the measure of difficulty of the task at hand. Difficult tasks could induce spontaneous mind wandering while easy tasks could induce intentional mind wandering. Task difficulty could produce different mind wandering types: spontaneous and intentional. Spontaneous mind wandering could relate to difficult tasks, whereas intentional mind wandering could be the outcome of easy tasks. Mind wandering does not only, therefore, take a spontaneous shape but could also be a deliberate process too (Seli, Risko, Smilek & Schacter, 2016).

Spontaneous mind wandering has been understood mostly as a failure in executive control of attention instead of a controlled reorienting attention process. This means that inhibition of distractions is disrupted during task performance (McVay & Kane, 2010). Based on this, some recent work has hypothesized that “an executive control dysfunction can lead to excessive and spontaneous mind wandering in attention-deficit hyperactivity disorder” (Bozhilova, Michelini, Kuntsi, & Asherson, 2018).

Figure: Dimensions of mind wandering

	Task related	Task unrelated
Consciously guided	[Working...]	Is my phone ringing?
Self-generated	What's the point of this task?	I can't wait to go out tonight!

Source: Bozhilova, Michelini, Kuntsi, & Asherson, 2018.

Mind wandering could also induce creativity.

Mind wandering could also generate creative results through metaphor and association by recombining the raw material stored in memory and external stimuli. This brings us to another deliberate method by which mind wandering can make the creative process more productive: increasing the range and variety of external stimuli. Creative thinking is typically described via a *dual-process model* involving the generation of creative ideas or products followed by their subsequent evaluation and refinement.

The mind is most likely to generate its own mental content when the demands of the external world are minimized, for instance during simple or highly-practiced tasks (e.g. [20,21]). If the reduction of external stimulation is carried further, even more intensive and immersive forms of self-generated thought tend to result, for instance during sensory deprivation or dreaming (Roger E Beaty 2019) (*Smallwood et al, 2015*) (*Mrazek et al, 2013*)

3. WHAT IS VISION?

According to El Namaki (1992: 25): “A vision is a mental perception of the kind of environment an individual, or an organization, aspires to create within a broad time horizon and the underlying conditions for the actualization of this perception”. It could also be a “concept for a new and desirable future reality that can be communicated throughout the organization” (ibid: 25). A vision belongs to what we may term a process of direction setting. Direction setting connotes the identification of a vision and a strategy for getting there (Nutt and Backoff, 1997). It requires challenging con- vocational wisdom and analytically looking for patterns that answer very basic questions about the business we are involved into (El Namaki, 1992).

Individuals perceive their visions and do not ask themselves whether they have one. Having a vision implies involvement, commitment and total immersion (Collins and Porras, 1996). All efforts stem from it and all forces and structures are seen in terms of their relevance to its existence. Issues as rest and reward become secondary as attention is focused on the prime target, i.e. vision fulfillment. A vision has also been realistic and feasible; simple and clear, far but close and derived from a sense of direction (Nutt and Backoff, 1997).

Visions are driven by a need to control an organization's destiny. Contemporary business environments are volatile and carry in them the seeds of disruption (El Namaki, 2018), a process that could lead to the disappearance of a company's competitive advantage overnight. The faster a top management can conceive a future vision where new products and industries are positioned within emerging product- market constructs, the greater is the ability of the firm to control its destiny and affirm a sense of direction.

A vision is finally formulated by explicitly identifying a domain for competitive behavior, a set of sources of competitive strength and a profile for resource capability.

4. POSSIBLE SYNERGY

It is the author's contention, or hypothesis, that artificial intelligence data inputs whether biological or artificial could lead, through machine and deep learning analytics, to a process of mind wandering. The medium are insights. AI analytics deliver outputs and those outputs take a variety of shapes from sub systems and novel technologies to insights. (El namaki, 2019). Those insights constitute a capacity to gain an accurate and deep intuitive understanding of events, individuals and issues They, on their turn, could induce a process of mind wandering.

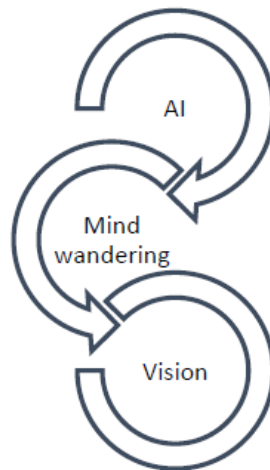
Yet artificial intelligence seen from a functional point of view could also lead to a process of mind wandering. Functional phases of artificial intelligence start with the "reactive" and proceed to the "corrective" through a "limited memory" construct. An advanced phase of those functions constitutes the "theory of mind" function and, ultimately, the "awareness" functions. Theory of mind is a psychology term that refers to individual's understandings, beliefs, desires and intentions that impact upon the decisions that they make (Friedlander and Franklin, 2008). Awareness, on the other hand, constitutes comprehensive and accurate perception of the state and characteristics of self and the environment. Self-awareness refers to the realistic and accurate perception of one's interests, values, skills, limitations, and lifestyle preferences. Environment awareness is characterized by an accurate and realistic perception of opportunities, constraints, and challenges relevant to the individual's function and environment.

It is the authors' contention, again, that theory of mind as well as awareness, could deliver a state of mind awareness. It is a state where the one moves away from immediate task related events to distant and remote events, frameworks or images, triggered by those state of mind and awareness forces. Amorphous contexts and blurred constructions could become the output.

Those advanced functional phases of artificial intelligence could, also introduce an attempt at simulating, to an extent, the cognitive competencies of the human mind. And they introduce, at a more developed stage, the concept of "awareness". AI systems with a sense of self and consciousness understand their current state and can use the information to infer what others are feeling (Lewis et al., 2011). This is awareness. Conscious beings are aware of themselves, conscious about their internal states, and are able to predict feelings of others.

This type of AI does not yet exist (Hintze, 2016).

Figure: From artificial intelligence to mind wandering and vision



Traditional computing equipment will not provide a source for this data-triggered mind wandering. That is most likely to become the outcome of data sets trained and stored into virtual AI rooted virtual think tanks. Those virtual think tanks will do their own mind wandering and, if provided with an output medium, express this wandering in a great variety of ways. This output could vary from the visual to the literary.

5. COULD VISION BECOME A MIND WANDERING OUTPUT?

Forms of synergy highlighted above could bring analysis very close to the process of conceiving of visions. Visions, as we stated earlier, are “mental perceptions of the kind of environment an individual, or an organization, aspires to create within a broad time horizon and the underlying conditions for the actualization of this perception”. It could also be a “concept for a new and desirable future reality. (El namaki, 1992).

A vision is formulated by pointing to a domain for competitive behavior, a set of sources of competitive strength and a profile for resource capability. All three elements could emerge from a process of mind wandering.

A domain for competitive behavior could emerge from an imagination of where the individual or the pertinent environmental forces stand within a time horizon. An imaginative profile of his or her competitive profile and parameters of this profile. Competitive strength could reflect a measure of competitive intelligence, yet a mind wandering output. Resource profile may compliment those other mind wandering dimensions, admittedly in vague terms and ambiguous boundaries.

A future “silhouette” could emerge from these minds wandering process. This could constitute a vision.

6. SUMMARY AND CONCLUSIONS

Mind wandering is a daily event. Research reveals that 96% of American adults state that they experience mind wandering on a daily basis, and it occupies up to 50% of the waking day (Mind wandering is ubiquitous to the human experience and may be the brain's default process The

process implies the diversion of thought away from immediate tasks and immediate environment. It could also mean reference to task-unrelated thoughts.

The concept could relate to the analytical dimension of AI. Machine and deep learning deliver insights and insights could trigger mind wandering. The other face of AI, the state of mind as well as the awareness constructs could also lead to mind wandering. Visions could emerge from these AI driving forces.

Virtual think tanks based on trained data sets may lead to a process of “data triggered” mind wandering. And visions.

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