Chapter 13
Is a Wandering Mind an Unhappy Mind? The Affective Qualities of Creativity, Volition, and Resistance

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Introduction

Mind wandering research has seen an exponential rise since the phenomenon's first appearance in the work by Smallwood and Schooler in 2006. During this early period, mind wandering was considered to be an issue that intervened in experimental settings while trying to decipher the functioning of different psychological processes, among these are perception, working memory, and attention, to name a few. Researchers observed that some of the participants, when entering the laboratory setting, got distracted from the task at hand. As of that, bias was being introduced to the study results due to impairments in performance that were driven by unknown factors. Subsequently, with the realization that the described phenomenon was common and cross sectional to participants in laboratory settings, they decided to elevate it to a research topic of its own.

The wandering mind was first defined as "a situation in which executive control shifts away from a primary task to the processing of personal goals" (Smallwood & Schooler, 2006, p. 946). In the same line, a large extent of the literature into the topic so far has proposed mind wandering as an attentional decoupling between external stimuli and an internal focus of attention (Christoff et al., 2016; Seli et al., 2015b, 2017b). This phenomenon has been studied in various contexts, such as education and clinical and labor psychology, among others. In these disciplines, research has often indicated a direct correlation between the presence of mind wandering and negative outcomes such as low academic achievement, attention problems, depressive symptomatology, rumination, and work and domestic accidents, among others (Mooneyham & Schooler, 2013; Seli et al., 2015a, b, 2017a, b; Christoff et al., 2016).

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All of the previous studies have explored the consequences of mind wandering. Among these, one of the most iconic studies that sought to analyze the relation between mind wandering and overall subjective well-being consulted a sizeable sample about their thoughts in different moments during the day (Killingsworth & Gilbert, 2010). The team of researchers developed a phone app which probed participants in regard to (a) what they were doing at that moment and (b) whether their thoughts were focused on the task being carried out at the time or on other unrelated contents. The researchers then correlated these results with the level of subjective well-being reported by the same participants. The results of this study established a link between low levels of subjective well-being and exacerbated off-task mindsets. In other words, people who were focused on the task being carried out in the present showed a higher level of subjective well-being.

On the other hand, scarce studies have highlighted the positive consequences of mind wandering. In this regard, recent studies – however sparse – have evidenced the prominent role that mind wandering plays in creativity (Mooneyham & Schooler, 2013).

Creativity can be defined as a complex and continual psychological process, one that is future oriented and consists of the construction of meaning (verbal or imaginary) in order to redefine a situation. It is also related to the ability to imaginatively project into the future, such that it opens up different possibilities for action and/or creating new social and cultural products (Awad & Wagoner, 2015). However, the creative process is not free of "constraints", and adding to those of external nature – physical or social – a lot of them tend to become internalized, thus able to exert influence from within an intra-psychological space. Therefore, the resistance that a person directs into overcoming different types of restraints is fundamental to the creative process.

Resistance constitutes a form of opposition to representations, practices, dominant institutions, and a person's own internal restraints (Awad et al., 2017). It can be conceived as an intentional process whereby new constructions of meaning in the way of thinking, feeling, acting, or simply living with others arise (Chaudhary et al., 2017). Resistance is both a social and an individual phenomenon and alludes to any form of dissent toward a social phenomenon or practice by a group or individual (Chaudhary et al., 2017). Through the process of resistance, human beings can transform their subjective experience and build meanings that enable the modification of the environment in which they live. In this line, the phenomenon known as resistance constitutes a building block in individual and sociocultural development (Chaudhary et al., 2017).

This chapter's objective is to advocate for the significant role that mind wandering, as an affective expression, plays in the phenomenon of creativity and, additionally, to explicit the function to both serve - creativity and mind wandering - as a form of resistance against environmental demands or "tasks" and personal barriers.

A Task-Oriented Paradigm

Mind wandering has been a subject of scientific studies in psychology for over a decade (Fossa et al., 2018a; Smallwood & Schooler, 2006; Vannucci & Agnoli, 2019; Villena-González, 2019) and, during this time, has become one of the fastest growing topics within the cognitive sciences' branch of knowledge (Irving, 2016), as this period has even been considered to be the "era of mind wandering" (Irving & Thompson, 2018).

The first appearance of the concept in experimental psychology was in Smallwood and Schooler's (2006) work, in light of the observation that study participants exhibited significant amounts of inattention during experimental task's settings. According to the article, mental wandering was defined as a phenomenon in which the focus of attention shifts away from a primary task and is redirected toward the processing of internal information. This would happen due to a deviation of executive control when two competing focuses of attention are simultaneously present (Fossa et al., 2018a). In Smallwood and Schooler's own words: "mind wandering is a situation in which executive control shifts away from a primary task to the processing of personal goals" (Smallwood & Schooler, 2006, p. 946). However, in light of further findings, the authors proposed a revised definition, which considered the phenomenon of mind wandering to be a variation in thought that drifts away from a current task or the external environment and is directed toward self-generated thoughts and feelings, which are internally motivated (Smallwood & Schooler, 2015). Other works have defined mental wandering as an unintended attentional decoupling between an external stimulus and an internal thought (Kopp & D'Mello, 2016; Maillet et al., 2017; Smallwood et al., 2003; Smallwood & Schooler, 2006). Lastly, being one of the most prevalent definitions, stands the notion of mind wandering as task unrelated thought (Fox & Beaty, 2019; Irving & Thompson, 2018; Villena-González, 2019). This definition entails a process by which attention is internally oriented through a neural mechanism of suppression that inhibits the focus on external information (Villena-González, 2019).

Aside from mainstream cognitive psychology and further back from recent years, one of the first authors to approach the topic of discussion was Vygotsky (1934b), who proposed inner speech as the capacity of consciousness to speak to itself. In his work, he attributed a problem-solving function to this feature of human experience.

Mental wandering is an inherent characteristic of human beings (Killingsworth & Gilbert, 2010; Villena-González, 2019) and occupies close to a third of people's waking thoughts (Mills et al., 2018). This phenomenon has such a significant prevalence that some accounts have estimated the number of self-generated thoughts in a single day to be as high as 2000 (Fox & Beaty, 2019).

People tend to wander when the demands of the external world are minimized, for example, during simple or highly practiced tasks (Fox & Beaty, 2019), as well as during long and monotonous tasks when activities lack diversity and scenarios provide little motivation (Villena-González, 2019). This can be explained by humans

having a hierarchy of goals, because of which attention is deviated to an alternate objective that becomes active, thus eliciting an episode of mental wandering (Fossa et al., 2018a). Such episodes of attentional drift have been linked to an individual's motivations (Smallwood & Schooler, 2015), along with the person's present concerns and goals (Vannucci & Agnoli, 2019). Interestingly, the empirical evidence that suggests personal goals play a prominent role in mind wandering lies somewhat opposite to common sense psychology in the belief that the phenomenon seems to be essentially purposeless (Irving, 2016).

From the perspective of neuroscience, evidence has pointed out that the crucial regions involved in the onset of self-generated thoughts are the medial temporal lobe (MTL) – especially the hippocampus – and the default mode network (Fox & Beaty, 2019; Vannucci & Agnoli, 2019), along with prefrontal executive areas (Vannucci & Agnoli, 2019). The activity in these networks explains the tendency toward self-referential processes and the continuous human gravitation toward personal concerns and unresolved issues (Vannucci & Agnoli, 2019). Moreover, lesions in the medial temporal lobe can result in an inability to create new plans and imagine possible simulations of the future. It is to be noted that such lesions do not alter the frequency of mind wandering episodes but only restrain their content, which turns more semantic, verbal, and present centered (Fox & Beaty, 2019).

Due to the fact that mind wandering is a very young field within the cognitive sciences, some fundamental issues still remain unsolved. One of the most crucial problems is evidenced in the diversity of interpretations of the phenomenon, which entails a lack of consensus in the establishment of a definition to serve as a common ground of understanding—thus affecting the validity of constructs in empirical efforts (Christoff, 2012; Irving, 2016; Irving & Thompson, 2018). In this paramount matter, philosophy has come to contribute with a novel and encompassing approach, by proposing mind wandering as a form of unguided thought (Irving, 2016; Irving & Thompson, 2018). That is to say, "When the mind wanders, the focus of attention drifts unguided from one topic to the next" (Irving, 2016, p. 563). However, attention is not deviated purposelessly or randomly, but without guidance (Irving, 2016).

This definition arises as criticism to the traditional notion of mind wandering as task-unrelated thought, due to severe limitations in such an approach. For one, (1) it does not take into account the dynamics of mind wandering episodes and (2) other types of task unrelated thoughts. Also, (3) it does not explain how the content of mind wandering can be related to a main task (Irving & Thompson, 2018). Finally, (4) a shift in the focus of attention might not always mean that a person is engaging in mental wandering. Sometimes it may just reflect that the individual has switched between tasks. The advantages of this new definition are that it captures the dynamics of mental wandering and allows to establish a clear difference between it and other kinds of task unrelated thoughts (Irving & Thompson, 2018).

The description of two variations of the phenomenon has been one of the breakthrough contribution related to mind wandering, deeply influencing the trajectory of the research field (Agnoli et al., 2018; Fossa et al., 2018a; Vannucci & Agnoli, 2019; Villena-González, 2019). As to these two types of wandering, the main difference resides in the degree of purposefulness and cognitive control over the start of an

episode. That is to say, the difference regards the underlying mental dynamic at the beginning of the experience (Vannucci & Agnoli, 2019). The first one, known as unintentional mental wandering, has been described as being caused by a failure in the executive control of the attentional focus and, due its nonintentional characteristics, appears suddenly in what literature sometimes refers to as unsuitable situations (Villena-González, 2019). In other words, there is a change in an individual's mental state in which the focus of attention drifts from external stimuli to internal thoughts in a spontaneous, uncontrolled manner (Agnoli et al., 2018; Vannucci & Agnoli, 2019). Some accounts have described costs associated to these types of episodes (Fossa et al., 2018a; Villena-González, 2019) and unintentional mental wandering has even been linked to outcomes such as ADHD, OCD, self-reported anxiety, the tendency to act impulsively, distraction, and other attentional difficulties (Agnoli et al., 2018). The second type, called intentional mind wandering, refers to the cases in which the focus of attention intentionally drifts away from an ongoing task toward internal thoughts. This references a process that happens under the individual's control (Vannucci & Agnoli, 2019) and that enables a certain kind of guidance in the content of thoughts, unlike the case of unintentional mind wandering (Villena-González, 2019).

Intentional mind wandering is often associated with benefits due to the individual's capacity to control its occurrence (Villena-González, 2019). For example, it has been shown to improve the capacity to describe internal experiences, which in turn is a predictor of creative achievement (Agnoli et al., 2018).

For that reason, being a heterogeneous phenomenon that can take numerous forms, and thanks to its capacity to create diverse and complex mental scenarios, mind wandering does not always entail negative costs (Villena-González, 2019). Specifically, some authors have suggested that the costs and benefits rely upon the individual's capacity to regulate the content of thought itself and the occurrence of mind wandering in regard to the context (Villena-González, 2019). In relation to the above, "neurocognitive research has clearly shown that MW is far more than a failure to constrain attention to perception, but it is instead a remarkable mental activity, which entails complex higher-order functional and neural mechanisms" (Vannucci & Agnoli, 2019, p.247). All things considered, cognitive research has been keen on accentuating the phenomenon's negative features, due to the fact that mental wandering tends to be only useful or appropriate for the persons experiencing the thoughts themselves (Fox & Beaty, 2019).

The Affective Mind

As has been stated, a large body of research has focused on the mind wandering phenomenon in recent years. This movement has been unveiling – or rediscovering, if one takes into account the traditional branches of psychological knowledge – multiple dimensions of thought. For the past two decades, the nuances of thought in everyday life have been scrutinized, and mind wandering has stepped into the

spotlight of current scientific efforts. With it, serious debate topics have emerged among scientific communities regarding the conceptual understanding of the phenomenon and the conclusions that can be supported by available empirical data. One of the most controversial topics in question has been the emotional correlate of the mind wandering phenomenon.

This controversy is quite understandable, emotion being such a complex and ubiquitous aspect of human experience. Within the subject of mind wandering, recent findings and literature reviews have made it possible to assert that around two thirds of self-generated thoughts are emotion related in some form (Fox et al., 2018).

So how exactly does the affective experience reflect on mind wandering? And equally important, how does the wandering mind reflect on affective experience?

Do note that in the previous questions the focus of this section and chapter was elevated from emotion to affectivity as a broader and more comprehensive phenomenon. Affective experience can be better understood under the scope of Vygotsky's perspective. In his work, he advocates for the existence of a volitional-affective tendency behind every thought. Due to this proposition, he coined the notion of a volitional affective sphere of consciousness (VASC) (Vygotsky, 1934b).

The concept of a volitional affective sphere of consciousness has served psychology by providing an answer to the ultimate "what?" in the analysis of thought and its underlying process. Following this logic, the VASC refers to the motives that constitute thought's foundations in consciousness, namely, physical and affective needs, impulses, and interests, among others (Vygotsky, 1934b).

Over this framework, the current section draws on research and conclusions of the wandering mind literature in two main topics – emotional valence and volition – to elucidate the relationship between the mind wandering phenomenon and affective experience.

Emotional Valence

Research in mind wandering made its way into cognitive literature by trying to explain and account for task-unrelated thoughts or "noise" in experimental settings (Smallwood et al., 2003; Smallwood & Schooler, 2006). In essence, the phenomenon was conceived as an undesirable byproduct of human experience from the onstart. In this line of thinking, strong claims have been made along the years as to the role of mind wandering in affective experience. Among these, one of the most sentencing conclusions reached was from the experiment by Killingsworth and Gilbert (2010), whose article stated unequivocally that "a human mind is a wandering mind, and a wandering mind is an unhappy mind" (p.932) – quite a hopeless conclusion to reach and also one with serious consequences to the understanding of mental health. The results from this paper's experiment showed that people were only equally or less happy when thinking about something other than their ongoing or current activity, regardless of the nature of the activity in question and the content of the task-unrelated thought itself. It also determined that people's thoughts were a better

predictor of their happiness than the activity they were engaged in, since it accounted for a larger portion of the happiness' variance. Moreover, the article goes as far as to propose a causal relationship between mind wandering and unhappiness (Killingsworth & Gilbert, 2010). However, since the release of this paper close to a decade ago, a large number of studies have come to shed new light to the misunderstood phenomenon of the wandering mind.

In 2018, Fox et al. published a comprehensive literature review – covering a dozen independent studies which involved more than 5000 participants – assessing the role of emotion in self-generated thought, such as mind wandering. In this review, a couple of major conclusions are drawn from the available empirical data. The first point that should be addressed is how TUTs (task-unrelated thoughts) have been exposed as poor measures of mind wandering during recent years, given they don't capture the most relevant aspects of the phenomenon and the qualities of thought, such as its freedom of movement (Andrews-Hanna et al., 2017; Fox et al., 2018; Irving, 2016; Mills et al., 2018). Further on, equating mind wandering to TUTs or an attentional decoupling also ignores other critical dimensions of self-generated thought. One of such is intentionality, which is predictive of clinical symptomatology, goal relatedness, and the affective valence of thought (Fox et al., 2018; Seli et al., 2015a, 2017a, b). One of the best documented findings in literature so far is the ubiquity of emotional content in self-generated thoughts, it being present in between 50 and 67 percent of wakeful SGTs (self-generated thoughts). Additionally, SGTs can have a wide spectrum of emotional content, comprising most – if not all – human emotions (Fox et al., 2018). In addition, experimental paradigms that induce specific types of emotions have been shown to affect the overall frequency of mind wandering episodes, thus reinforcing the close relationship between emotion and self-generated forms of cognition (Fox et al., 2018).

Regarding the conclusions by Killingsworth and Gilbert (2010), it has been found that there is actually little evidence to support the assertion that TUTs are a causal factor of subsequent negative mood. New evidence has shown that the relationship between TUT and subsequent moods is dependent on different factors, such as the content of thought – temporal orientation and emotional valence of the TUT itself – and other clinical or subclinical symptomatology of the individual. Furthermore, one of the most robust findings in SGT literature is a notable bias of it toward positive or pleasant affect (Fox et al., 2018). Instead, the relationship between the affective content of self-generated thoughts and an individual's affective state has recently been shown to be bidirectional in nature, since both are able to bias the other one. Different studies have effectively revealed that the affective qualities of SGTs rest on multiple factors. Among these factors, innate predispositions, paradigm context, individual affective traits, clinical conditions, and deliberate mental training have been found to exert a significant influence (Fox et al., 2018).

The Volition Dilemma

For quite some time, mind wandering was presumed to be an unintended attentional decoupling or drift away from a task at hand. This stereotypical way of understanding the phenomenon was most likely rooted on the youth of the field in cognitive literature and in the predominance of task-oriented scientific paradigms of study (Kopp & D'Mello, 2016; Maillet et al., 2017; Smallwood et al., 2003; Smallwood & Schooler, 2006, 2015). However, major breakthroughs have been made since the phenomenon started getting attention close to 20 years ago. The topic has, since then, been expanded to address other critical features of spontaneous thought and its dynamics in more comprehensive and accurate conceptualizations (Andrews-Hanna et al., 2017).

Arriving at the topic of this section, the unintended nature of mind wandering was first challenged in the works by Seli, where the notion of intentionality in spontaneous thought was invited into scientific discussions (Seli et al., 2014, 2015a, 2016, 2017a, b). By advocating for the existence of intentional and unintentional types of mind wandering, the authors of these papers started differentiating between mind wandering episodes in terms of their process. The first of the mentioned processes refers to a deliberate mechanism, in which the focus of attention is directed by what the authors consider to be willful or volitional action. The second, on the other hand, refers to a spontaneous mechanism, in which attention is "captured" either by internal or external forces (Seli et al., 2016). Intentional and unintentional types of mind wandering have been, in this perspective, homologated to voluntary and non-voluntary kinds of cognition (Fossa et al., 2018a).

So, is unintentional mind wandering completely lacking volition?

Irving (2016) proposed an interesting perspective that gets closer to the reveal of this plot. In his article, he states that the central features of agency – motivation and guidance – come apart when the mind wanders. In his theory, the distinction between motivation and guidance in thought is that the first concerns its causal antecedents, while the second concerns how it unfolds over time. Motivation, in this sense, includes the agent's beliefs and desires or goals, while, on the other hand, guidance implies how thought is monitored and regulated in a conscious manner. According to Irving's theory, mind wandering stands in a middle ground between controlled mental agency, such as reasoning and planning, and unconscious automatic cognitive processes. The latest explanations of mind wandering are formulated in this line of thinking, referring to how thoughts unfold over time given the constraints, both deliberate and automatic, that dynamically influence its contents (Andrews-Hanna et al., 2017).

But the main topic of this discussion still seems to be somewhat eluding the argument, which is affectivity, right? So how exactly is volition related to affectivity?

This question can be addressed by resuming Vygotsky's cultural-historical theory. Vygotsky states that the division between the intellectual and affective aspects of consciousness is one of the most serious misconceptions of all traditional psychology. In his work, he strongly advocates for the indivisible nature of the bond

between volition and affectivity in thought. As was mentioned at the beginning of this section, Vygotsky describes a volitional-affective sphere of consciousness that keeps on challenging today's conceptualizations regarding the volitive aspect of thought (Vygotsky, 1934b). The foundational tendency of thought proposed by Vygotsky, both volitional and affective at the same time, becomes more evident as the depth of the analysis reaches closer to the genesis of thought and consciousness (Vygotsky, 1934b).

Even in a very basic example, it could be argued that the act of a person taking a break from an assignment, standing up, and walking to the fridge to pick up and eat a piece of fruit does not represent a single instance of willful action. The action is more like a culmination of a physical and mental process whose initial stage begins with the feeling of hunger and the craving for a food of personal enjoyment. This would be the thought's foundation in consciousness, which is, from this perspective's point of view, already volitionally charged. Afterward, the process does arrive at more executive levels of thought, in which the person might check the watch to see if it is an appropriate time for a snack, or recall what they bought on the last trip to the supermarket.

While not immediately apparent to the observer, the person's will has already begun manifesting in the first steps of the process, for a number of choices have been made at its very origin. By the time a fruit pops up in the person's mind as a thought, their "decision" to not desire any other of the vast number of foods out there in the world was already half made. And so, by the time they deliberately decides to mentally entertain the possibility of leaving their current task aside and focusing on getting something to eat, a great deal of their will in that process has already been exerted.

What if the person in the example was actually in the middle of a diet, trying to lose weight, and perceived the physiological hunger signal in a positive way? Like a signal of their goal being achieved. In this case, the perception of the affect was previously primed along with the willful decision of not having food in spite of being hungry. How can affect be isolated from volition in such a case?

And what if the same example was traced the furthest back into genesis?

Take a newborn that cries when feeling hunger (affect). Most people would argue, with reason, that the infant's cry is an experience completely driven by their survival instinct and thus lacks any form of willfulness. Nevertheless, the quality of that affective experience of hunger and its corresponding physiological correlate can, indeed, be very different for another child. Consequently, the quality of the mental presentation or image – if any – and the reaction is also subject to the idiosyncrasy with which the baby experiences the affect. In certain infants, the physiological correlate of fear might be intensified due to the sensitivity in the functioning of a specific neural network, while in others the experience might be biased toward the other end of the spectrum.

Whether these types of idiosyncrasies can be considered as a form of volitive exercise or not is a philosophical debate that exceeds the grasp of this section. But the previous example allows to introduce another factor or ingredient to the mix, which is: What happens after a little learning kicks in?

Fast forward to the scenario when the same baby's mother has breastfed her child over a couple of weeks or months when she starts perceiving a side preference by the infant. Perhaps she notices it because it takes the child longer to accept one side over the other. From the baby's perspective, it is plausible that the grip of the mother's arms on one side causes latching on to feel better and more comfortable overall, and thus the experience is more rewarding. Or maybe even perceives the taste or temperature of the milk to be so slightly different.

What is to be highlighted from this example is how the behavior of infants at this point reflects that they are somehow aware of the differences between the two experiences and, as of that, have developed a desire (affect) not just for nourishment but for the better experience that the one side provides. This is evidenced in the behavior of waiting to see if they get switched to the favorite side when not placed there initially. A preference was established between two simple choices, and the volitional aspect of the behavior is now intertwined with the corresponding affect in consciousness through learned experience.

Another crucial concept by Vygotsky finds its way into the argument at this point, which is the internalization of the outside world into the human psyche. As was explained, it is this phenomenon that best accounts for the indivisibility between affect and volition in thought (Vygotsky, 1934b). That is, as the learning process and the internalization of the external world take place, the relation between affectivity and volition becomes increasingly complex. This means that an affective experience – in the broad sense of the word – may carry along decisions of greater or lesser complexity with it.

What is volition then?

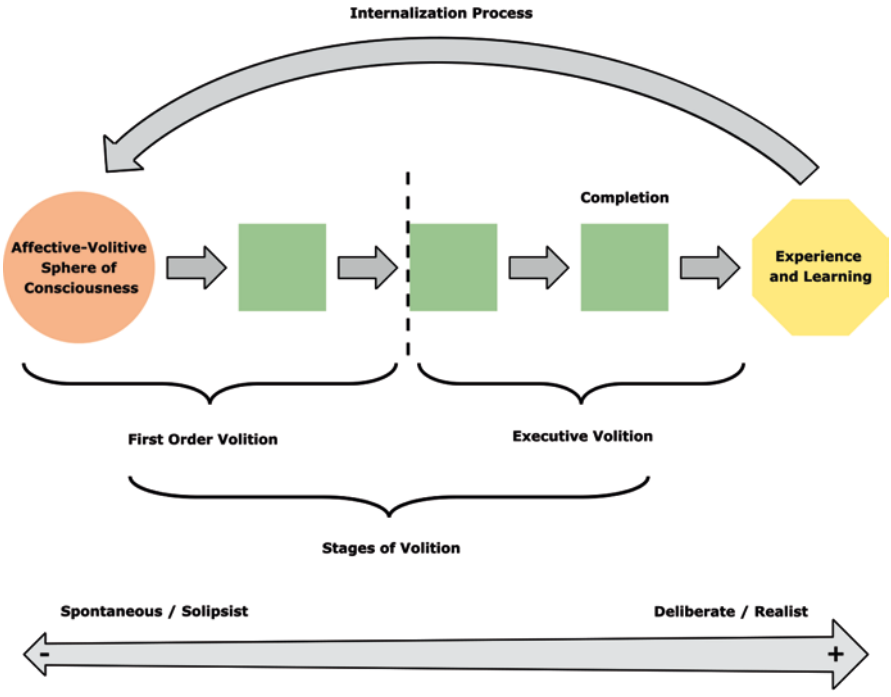
A Matter of Choice

The simplest definition for what constitutes a volitive action should be constructed around the metric of choice. Where there is choice, or any more than one possible mental and physical response to an affect or stimulus – in spite of how automatic or ingrained it might be – there is some form of volition. There are, therefore, enough arguments this far to draw a line between instinct and the volitional nature of affective experience. Thus, it could be argued that the first instance of learning signifies the transition between a pure instinct and any other thought/action with an affective-volitive tendency, as described by Vygotsky (1934b) in his work. This raises the question of "what are the implications of this definition to the notion of mind wandering with and without intention?"

Two Levels of Volitive Action

It is more or less clear what volition means for cognitive literature: the deliberate, controlled, or executive guidance of thought's content in a certain direction, topic, or task. This type of thought is arguably cultural and modern in its origin, for it can

be conceived of as a product of socialization and schooling. Yet, in the light of the present argument, another level of voluntary action comes off and needs to be accounted for. This non-executive volitional-affective tendency described by Vygotsky (1934b) could be thought of as a first order kind of volition. This new – or perhaps older – level of analysis lays the ground for some interesting questions and insights regarding spontaneous thought and mind wandering, as currently understood in cognitive research. It could be proposed, for example, that during involuntary mind wandering in task-oriented activities, there is a struggle of wills between the socially constructed and externally demanded executive level and the more primary affective willfulness. On the other hand, intentional spontaneous thought would present itself as a subtle integrative or convergent process between cognitive control and affective willfulness. One of the best examples to illustrate this point would be people waking up only to deliberately attempt to fall back asleep to a joyful dream they were having.



Note. Self elaboration.

Fig. 13.1 Cicle of Volition

A Continuum of Volition

There is, however, a second reading into the two levels of volitive thought/action. This possibility is to understand volition as a continuum with different stages and sequential orders of magnitude. Recapitulating Vygotsky's work, much like the word isn't merely the representation of thought, but the final stage which completes it; it could also be argued that deliberate action or thought is not a single instance of volitive exercise, but the culmination of the process of volition to a higher order or degree (Vygotsky, 1934b).

Figure 13.1 illustrates this cyclical process of volition, how it is related to a control dimension of thought, and how the affective-volitive sphere of consciousness relates to learning through the process of internalization. In the figure, each square accounts for a stage within the volitive process, which can be divided between orders of magnitude as they correspond to a specific location in a control continuum of thought.

The Deliberate Against the Spontaneous: Polarities of Control

There is solid scientific evidence supporting the depiction of a continuum between the spontaneous and deliberate nature in the display of psychological phenomena, specifically regarding the wandering mind topic (Andrews-Hanna et al., 2017; Seli et al., 2014, 2017a, b). While in early definitions of mental wandering the phenomenon was considered as an "unintended" deviation of thought, recent research and conceptualizations have described a deliberate dimension to it (Seli et al., 2015a). Correspondingly, various theoretical and empirical studies have modeled deliberate, spontaneous, and also intermediate types of mental activities (Andrews-Hanna et al., 2017; Fossa et al., 2018a). This continuum between spontaneous and deliberate thought adds complexity to the understanding of mind wandering as a dynamic phenomenon that can take numerous forms. The notion of a continuum becomes fundamental when addressing mixed types of thought phenomena, where spontaneous and deliberate elements intertwine to produce a multiplicity of experiences that call for nuanced explanations and interpretations. This perspective emerges from the fact that, taking its trajectory into account, any given thought can hardly be considered as being either completely deliberate nor completely spontaneous (Andrews-Hanna et al. 2017; Fossa et al., 2018b).

In this field of research, efforts have been mainly focused on describing the features of controlled, opposite to spontaneous, thought. Deliberate thinking has been described as task-oriented, presenting greater extent of words, less emotionally charged, denotative, propositional, realist, and a core attribute in problem resolution (Fossa, 2017; Fossa et al., 2018b). On the other hand, spontaneous thought has been described as contemplative or self-contemplative, affective, imaginative, pre-verbal, and non-propositional (Fossa, in press; Fossa et al., 2018b).

Over the years, research on mind wandering has also proposed an intentional or voluntary form of the phenomenon, which adds nuances to its classical depiction as an unintended or involuntary type of experience (Seli et al., 2015a). Research has shown that the onset of an episode of mind wandering is mainly a spontaneous and unintentional event, but its continuity or sustain over time can be intentional and controlled (Seli et al., 2015a). An example of this is a study that proved people's capacity to modulate the occurrence of mind wandering when a cognitive task was impending, which evidences a decision to stop wandering as cognitive resources need to be recruited for the execution of another pressing activity (Seli et al., 2017a, b).

The dialectic between the deliberate and the spontaneous in mind wandering may also be appreciated in creative processes. Even if creative thinking might appear to be completely free, unconstrained and spontaneously presented in consciousness at first sight, its development and execution can certainly have a deliberate, directed, or controlled component to it. As described by Vygotsky (1934a), for creative thinking to be manifested, a preparatory stage of stepping away from reality is required, that is to say, a certain degree of spontaneous and less constrained wandering. However, this stage can't disregard the constitutive principles of reality if it is to have any sort of transformative impact over it.

In this sense, due to its functional dynamics and expressive features, mind wandering and creativity appear to be processes directly related to each other.

Imagination, Thought, and Creativity

In the conferences on psychology, specifically in the conference n°5 – *imagination and its development in childhood* – Vygotsky (1934a) sheds light into the existing relationship between thought, imagination, and creativity. Even though in several of his previous works (Vygotsky, 1934b, 1982) he highlights the importance of inter-functional connections, explicitly stating that all psychological processes must be studied in their dialectic and dynamic interactions and not in an isolated manner, it is in the conference n°5 where he approaches the problem between the three mentioned specific functions. Inter-functional connections, from this perspective's point of view, refer to the units of analysis that lie in between of psychological processes.

To Vygotsky, the main difference between imagination and other forms of mental activity lies in the following: imagination does not repeat previously accumulated isolated impressions but builds new series from them (Vygotsky, 1934a). In Vygotsky's words:

> That is to say, the new that is contributed to the development of our own impressions and the changes in them that result in a new image, previously nonexistent, constitutes, as is known, the basic foundation of the activity we call imagination (Vygotsky, 1934a, p. 1).

To Vygotsky, social or realist thought is different from egocentric or solipsist thought. The first is a form of thought oriented to the knowledge of reality – the

task – while the second is an "autistic" form of thought, oriented to the self and the pursuit of pleasure. Mental images are present to a lesser extent in reality-oriented thought, while pleasure-oriented thought is directly related with what is known as imagination.

In the named conference, Vygotsky (1934a) states:

> It is understandable that every step in the conquest of a deeper penetration of reality is accomplished simultaneously with the freedom, to a certain extent, from the more primitive form of knowledge of reality that the child used to have. Every deeper penetration into reality demands a freer attitude of consciousness towards the elements of that reality, a distancing from the apparent external aspect of reality given immediately by the primary perception, the possibility for evermore complex processes, with the help of which cognition of reality is complexified and enriched (Vygotsky, 1934a, p. 11–12).

In the previous quote, Vygotsky alludes to a complex process between connection and disconnection of reality as a fundamental basis for the process of imagination. Paradoxically, that is to say, the process of imagination is only possible through a process of distancing from reality to then be able to understand it in a more complex and dynamic way.

From Vygotsky's (1934a) perspective, imagination is divided between a reproductive and a constructive kind. Reproductive imagination enables the use of previous images within consciousness, knowingly what is known as memory. On the other hand, constructive imagination enables the integration of new combinations from previous elements. This last process is what has been called creative imagination or, more directly, creativity.

Creative imagination has a considerable affective basis, which means this type of thought is affectively motivated at least to a greater extent than a realist thought (Vygotsky, 1934a). Notwithstanding, in occasions where an individual must perform a vital or motivating task, a heavily affectively charged type of directed-controlled thought may also be present (Vygotsky, 1934a). This last type of thought, under the mentioned conditions, may generate far more powerful emotional effects than creative imagination, for example, in the argumentation of a political discourse or the drafting of a project in which the person has absolute conviction. In Vygotsky's words:

> Realist thought, when related to a task that is important to the individual, that lies in one or other way in the center of his personality, provokes and awakens a series of emotional sensations, with a far more considerable and true character than imagination and the ability to dream. If we take the realist thought of a revolutionary, who reflects upon a complicated political situation or studies it, who penetrates into it, in a word, if we take a thought oriented to the resolution of a task of vital importance to the individual, we see that emotions related to such a realist thought are frequently immeasurably deeper, stronger, more mobile and more significant in the system of thought, than emotions related to visions. What is important here is a procedure of union between emotional and thought processes (Vygotsky, 1934a, p. 10).

However, due to the multiple inter-functional forms that human's consciousness takes, realist thought has an intersection point to creative imagination. Creativity cannot fully and freely display when every element of reality is stripped from the

process. If it was, the phenomenon would lack any sense and creative power in reality. Creativity implies and requires, to a certain extent, realist thought (Vygotsky, 1934a). In creativity the borders between realist thought and imagination dilute. For thought to be truly creative, imagination and realist thought must be integrated. Or, put in another way, imagination needs to appear as a necessary and inseparable moment with realist thought (Vygotsky, 1934a). Only then that the emergence of new connections between previous elements may have a space in reality and be qualified as creative.

From Alessandroni's (2017) perspective, creativity is a superior psychological process whose ontogenetic origin is cultural-historical and is related to contexts of everyday activities where instruments of semiotic mediation come into play. Creativity is a developing function that ranges from social interactions to self-regulation and relates both to cognitive processes and to the affective aspects of people's lives.

Vygotsky arrives at the conclusion that imagination and creativity, characterized by being able to freely process the elements of experience, require the inner freedom of thought, action, and cognition as a precursor (Alessandroni, 2017). Hereby, the problem of creativity meets the problem of volition in the execution of thought. Imagination and realist thinking, fundamental aspects to the development of creativity, are placed in a continuum between controlled and non-controlled forms of thinking. This is the voluntary, directed, and controlled against the involuntary, not directed and spontaneous. This constitutes a fundamental aspect in the understanding of the phenomenon of creativity and mental wandering, as is explained by Vygotsky at the end of his lecture:

> I wish to say that the inner connection existent between imagination and realist thought is complemented by a new problem, closely related to *willfulness* or the freedom of human activity in consciousness. The possibilities to act with freedom, that arise in human consciousness, are very closely related to imagination, which is to say, to a such peculiar disposition of consciousness in regard to reality, that arises thanks to the activity of imagination. Three great problems of current psychology come together: the problem of thought, the problem of imagination and the problem of *will* (Vygotsky, 1934a, p. 12).

The Creative Wanderer

Throughout the history of mankind, creativity and innovation have been among the main driving forces of development within the human genome. They have allowed the self-determination of the species and the shaping of the world (Fernández et al., 2019) from multiple disciplines, such as education, psychology, medicine, sports, and arts (Chacón-Araya, 2005; Fernández et al., 2019; Valqui Vidal, 2009). This implies that creativity is an ability with presence in various dimensions of human lives and society (Fernández et al., 2019). Due to this multifaceted nature as a construct – with cognitive, biological, and social components – there is no

consensus in its definition within academic literature (Goldberg, 2018; Edwards-Schachter, 2015).

Creativity is a complex phenomenon that eludes unequivocal approaches and, as of that, any attempt to encompass it as a whole from just one theory is likely doomed to be proven incomprehensible (Kaufman & Glăveanu, 2019; Goldberg, 2018). Thus, it is common to find approaches to creativity from different angles. Some definitions conceptualize it as a process that is susceptible to development over time (Ivet et al., 2009) and that implies a series of steps into the production of an idea or the solving of a problem (Chacón-Araya, 2005). More specifically, it could be understood as a process that involves agency and is oriented toward exploring a potential future scenario that redefines social reality (Awad & Wagoner, 2017).

Other perspectives define creativity as an ability that is transversally present, to a larger or lesser extent, in all of human beings (Casado et al., 2015; Franco, 2006; Ramírez et al., 2017). This notion entails that creativity is deeply rooted and reaches across all of human and society's endeavors (Delgado et al., 2016; Garín et al., 2016) and that it carries the potential for self-enhancement and the transformation of the world (Castillo et al., 2016; Fernández et al., 2019).

Creativity may also be understood as a product, alluding to the fact that it results in something new being created (Chacón-Araya, 2005; Edwards-Schachter, 2015). Some authors focus on the underlying structure of creativity, where theories such as the "Five A's" of Glăveanu (2013), the "Four C's" Beghetto and Kaufman (2013), or the "Multiple Intelligences" of Gardner (1993, 1999) may be found. Meanwhile, other authors have focused on what is needed in order to be creative. Among these theorists, works such as the "Creativity Inversion" from Sternberg and Lubart (1995) and the "Model of Creativity Components" from Amabile (1983, 1996) – later complemented by Amabile and Pratt (2016) – may be mentioned. The previous perspectives share as a common feature the essential role that motivation plays in creativity (Kaufman & Glăveanu, 2019).

There are also authors that enquire into the motives that drive people to be creative, among which the "Systems in Evolution" approach by Gruber and Wallace (1999), the concept of "Flow" by Csikszentmihalyi (1996), or the "Matrix Model" by Unsworth (2001) appear as prominent representatives. These three approaches highlight the relevance of reason as a propellant of creativity and study the way it displays encountering a given situation (Kaufman & Glăveanu, 2019). And so on, different authors adventure into the topic of creativity from other perspectives, such as how an individual creates, how creativity is born of the interaction between people, and how to make a creative work endure the test of time (Kaufman & Glăveanu, 2019).

Taking everything into account, creativity can be conceptualized as a future-oriented, complex, and continuous psychological process. It consists of the construction of meaning – verbal or imaginary – that is aimed at redefining a situation. In other words, creativity involves projecting into the future and opening up possibilities for action and/or creating new social and cultural products (Awad & Wagoner, 2015). However, the creative process is not exempt of external and

internal restraints. Because of this, the resistance that a person exerts into overcoming those constraints is considered fundamental to the creative process.

As a cognitive attribute, creativity can be thought of as a more derivative than a primary type, considering its various forms, temporalities, and levels of manifestation. Adding to this, there are also different domains and problem-solving scenarios within which it can be exerted. As a correlate, a substantial amount of fundamental underlying neural processes involved – in dynamic interactions – speak for the different paths that creativity might traverse. Also, these multiple neural networks account for the varying proportions of cognitive attributes that are activated due to process-specific requirements (Goldberg, 2018).

Research on mind wandering and creativity has rendered somewhat opposite or inconsistent results. On the one hand, there are studies that report an increase in creativity as a result of the augmented unconscious associative processing during mind wandering. Yet, on the other hand, some evidence points to the prejudicial effects of mind wandering during idea generation periods, due to the fact that it takes up valuable cognitive resources much needed for the creative process (Agnoli et al., 2018; Vannucci & Agnoli, 2019).

In this matter, an interesting approach is brought forward by Goldberg (2018), who proposes the process of creativity as a phenomenon of bistable nature. This means that its behavior is characterized by transitions between two states. Neurofunctionally, these two states are anti-correlated and have been referred to as hyperfrontality and hypofrontality, given the activation patterns they express in the prefrontal cortex of the brain.

Hyperfrontality, on the one hand, refers to the instances of executive, deliberated, controlled, task-positive, or goal-directed thought. As the name reveals, the prefrontal cortex is more physiologically active than the rest of the cortex in this state. Within the creativity framework, this process has also been called perspiration or mental focus, accounting for the ability to systematically pursue a logical train of thought and to commit to a sustained effort toward a goal (Goldberg, 2018).

The foundations for a creative idea are laid in a process driven by the frontal lobe in joint activation with various other disparate regions of the posterior association cortex. According to the presented model, this is a labor-intensive and necessary preparatory stage for a creative insight to take place. It is most unlikely that a person who has never pondered a subject matter before will stumble across a truly innovative idea in that domain by accident. It was certainly not by chance that it happened to be a renowned physicist who came up with the groundbreaking theory of relativity or an accomplished artist who conceived a masterpiece like the Sistine Chapel (Goldberg, 2018).

On the other hand, when the central executive network is no longer engaged, the relationship between activity in the prefrontal cortex and the rest of the cortex may be reversed. This is known as hypofrontality and reflects that the default mode network has become active instead. Hypofrontality has been identified as the neural correlate of inspiration in the context of a creative task. Opposite to mental focus, hypofrontality has been linked to mental wandering as an explanation for the sudden

phenomenon whereby an effortless flow of thoughts leads to the solution to a problem or the emergence of a new idea, as if appearing out of nowhere.

In these instances, the activity in the posterior – temporal, parietal, and occipital – regions of the association cortex, which were previously directed by the executive network during hyperfrontality, is no longer subject to deliberate guidance and monitoring. Thus, the activation in these regions – which become anchoring points for subsequent mental wandering episodes – shifts to be driven by the internal connectivity within the posterior cortex. This means that mental wandering becomes somehow constrained following a period of hyperfrontality, and the phenomenon has been homologated to an orchestra of musicians suddenly finding themselves without the conductor in the room, still holding an instrument in their hands, yet free to improvise and experiment with their own tempo and embellishments for the music (Goldberg, 2018).

This process could be interpreted as a residual and divergent pattern of activation in the association cortices, once no longer under control of the executive network. It is this new pattern of activation within the neural circuitry that would allow for the emergence of different – and sometimes novel – perspectives in the scope of a creative task. As of that, hypofrontal activity serves creativity by finding pathways and filling the gaps between initially disjointed neural anchoring points (Goldberg, 2018).

Ultimately, the complex interplay between both phenomena – one deliberate and the other spontaneous – has been argued to be responsible for the success of a creative process in the intraindividual dimension (Vannucci & Agnoli, 2019; Goldberg, 2018). On its own, mind wandering lacks any productive direction and can be seen in certain forms of schizophrenia, along with cases of massive damage to the frontal lobes (Goldberg, 2018). Mind wandering has even been associated negatively with creativity in contexts that lack some form of thought guidance, which has been identified as requisite for the creative insight (Agnoli et al., 2018; Vannucci & Agnoli, 2019). Yet, on the other hand, the presented framework implies a major functional and evolutionary role of mind wandering and most likely other forms of spontaneous thought in everyday life (Goldberg, 2018; Fox & Beaty, 2019; Vannucci & Agnoli, 2019).

Phenomenologically, intentional or situated mental wandering can be seen as a positive predictor of creativity due to the fact that it increases the capacity to describe inner experiences with words, which has been identified as a core feature to the creative effort. That is to say, that deliberately wandering might help describe the external world with the added complexity of language, thus internally enriching the external. (Agnoli et al., 2018; Vannucci & Agnoli, 2019).

In review, it is interesting to note that the content and intrinsic nature of a mind wandering episode are the dimensions that have captured most of the attention of the scientific community. However, one of the most definitive answers to the long-sought resolution regarding the psychological implications of the phenomenon could lie far beyond that matter. Instead, the answer might simply be found in the context surrounding the mental process itself.

Resistance: Barriers Within the Psychological and Cultural Dimensions

The world is characterized by the dividing presence of abundant physical and psychological barriers. Yet, no matter how rigid these barriers might be, they will always be subject to the possibility of being destroyed, transformed, or negotiated (Awad & Wagoner, 2017). In this regard, human beings have been defined by their capacity to actively shape their environments, creating or granting new meanings through forms of resistance (Chaudhary et al., 2017).

From the perspective of social psychology, resistance is understood as an exercise of power in which an individual or group opposes something external, be it an object, idea, image, person, or other groups (Chaudhary et al., 2017; Molina Valencia, 2005). This is a vital and functional strategy to any living organism (Chaudhary et al., 2017), which aids in preventing the naturalization of dominant bonds and power asymmetries through spaces of freedom (Molina Valencia, 2005). It allows the building or emergence of new forms of thinking, feeling, acting, and living with others (Chaudhary et al., 2017).

However, in spite of the possibilities for improvement that arise through the exercise of resistance, it is often considered to be something detrimental, immature, and irrational. It has been, for example, stereotypically homologated to defiant childish behavior (Chaudhary et al., 2017). A clear example of the expression of resistance can be found in street art, specifically in the form of wall art and graffities. These expressions can be interpreted as tools that manifest a form of opposition or challenge to traditional social structures through symbolisms, which in this case are meant to mobilize pedestrians into a cause (Awad et al., 2017; Awad & Wagoner, 2017). The artistic manifestations are usually situated in a particular temporal context that is related to a controversial issue and are oriented toward future imaginaries (Awad et al., 2017). Thus, street art can be proposed as an instrument that is oriented to the opening of spaces for thought and social introspection. In this sense, as an instrument that challenges the status quo and promotes social change through creative activism (Awad & Wagoner, 2017).

Nevertheless, the notion of resistance implies multiple meanings that may also be interpreted as the attitude toward keeping certain aspects of reality intact or whole, that is to say, the resistance to change itself (Briñol et al., 2008). Simply put, a known example of this would be the attributed connotation of the term resistance in classical psychoanalytic theory, where it is interpreted as the actions and words that obstruct the analysis and treatment of the patient (Vildoso, 2019). Consequently, resistance is viewed as a phenomenon that articulates both the preservation and also the change of meanings within and between people. Thus, it is present both in the societal and individual levels of analysis (Awad et al., 2017; Awad & Wagoner, 2017; Chaudhary et al., 2017).

Mind Wandering, Creativity, and Resistance

It used to be thought that a wandering mind was an unhappy mind, due to the notion that having task-unrelated thoughts carried an emotional toll upon the person experiencing them (Killingsworth & Gilbert, 2010). Additionally, mind wandering has been repeatedly associated with low task performance, decreases in executive control and attention, and lower working memory capacity (Agnoli et al., 2018). However, a growing body of research has recently found that mind wandering is also a valuable cognitive asset and has reported numerous beneficial consequences, such as future planning and simulation of future events (Vannucci & Agnoli, 2019), keeping individuals on track of their most relevant goals and also contributing to the resolve of pressing concerns in people's lives (Agnoli et al., 2018).

If resistance is understood as a change-enabling phenomenon that is present within individuals (Awad et al., 2017; Awad & Wagoner, 2017; Chaudhary et al., 2017), that is to say, as an intrapsychic capacity that is oriented toward personal change, it is possible to interpret mental wandering as a phenomenon that allows the occurrence of this type of resistance. When thought is oriented internally and focused on the individual's goals, mind wandering has the ability to enhance self-awareness. Consequently, this aids in the process of personal growth, as thoughts navigate around goals and intrinsic motivations (Batalloso, 2019). These can be proposed as a first type of individual resistance to the person's own psychological "status quo," as internalized and crystalized in the inner structure of the mind (Vygotsky, 1934b). On the other hand, inquiries into one's own mind to find new perspectives and address problems toward their resolution can also be thought of as a form of personal development that is intimately related to the creative potential of the person in the emotional domain (Alessandroni, 2017; Fox & Beaty, 2019). In this type of effort, however, a second form of intrapsychic resistance is manifested. This phenomenon references the resistance to change as the main psychological force that acts against the achievement of personal growth.

Conclusion

There are a number of relevant conclusions that can be drawn from this chapter's review in regard to the different domains of thought and current research branches. For a start, it has now become evident how the task-oriented experimental paradigm has hampered a comprehensive understanding of the mind wandering phenomenon, tainting its definition, understating its functional role in consciousness, and oversizing its negative psychological consequences until recently (Mills et al., 2018; Fox et al., 2018; Goldberg, 2018; Andrews-Hanna et al., 2017; Irving, 2016; Vygotsky, 1934b).

As has been argued, the notion of mind wandering as task-unrelated thought fails to capture the phenomenon's most relevant features, such as dynamics and intentionality. In this matter, research that has articulated mind wandering along

with other phenomena of thought, such as rumination and creativity, has been crucial in the consolidation of an integrative framework with a more stable and accurate definition (Andrews-Hanna et al., 2017). Adding to this, findings concerning the nuances and fundamental aspects of mind wandering have also contributed to moving past the stereotyped notion of the phenomenon. Thus, it is currently possible to differentiate the phenomenology of mental wandering from other factors that exert a negative influence over its contents and outcomes. One of the most controversial factors in question has been the psychological symptomatology of a person (Fox et al., 2018).

Closely related to the trajectory of the definition of mind wandering during the last couple of decades, one of the most consistent, relevant, and transversal agreements across theories stands on the existence of a control dimension of thought. This dimension constitutes a continuum that ranges from spontaneous or self-generated on one end to deliberate or executive on the other. Virtually every phenomenon of thought has been analyzed and conceptualized as standing a ground or moving through this dimension. This notion has resulted in a key construct to compare and differentiate between phenomena of thought, given their specific constitutional dynamics and their complementary or interdependent nature (Goldberg, 2018; Andrews-Hanna et al., 2017).

In the cultural-historical tradition, parallel constructs have been known as egocentric or solipsist thought on the one hand and social or realist thought on the other (Vygotsky, 1934b).

Within developmental psychology, it has been stated that this continuum of thought is consolidated through maturation and social experience. From the onset of life, a child's mind is predominantly wandering in nature, with very little episodes of task-oriented actions. It isn't until exposure to socially demanding scenarios that kids start to develop a sense of realist or social thought (Piaget, 1923). In this sense, ontogenetically speaking, mind wandering and spontaneous thought in adults could even be understood as a foundational form of thinking. This type of thought might serve an exploratory role in childhood development that then translates into the adult brain in a similar quality.

It might even be hypothesized a step further in that the education system, instead of harnessing the adaptive potential of spontaneous thinking for superior mental processes such as creativity and flexibility, consistently undermines and punishes off-task thinking. This, in an ill-conceived effort to subjugate attention into absolute obedience. This might as well be one of the main reasons why mind wandering, as a form of spontaneous thought, has been referred to as a source of discomfort by many adults in empirical studies (Killingsworth & Gilbert, 2010). As a consequence of the task-oriented educational paradigm, adults end up lacking the strategies to effectively manage and seize the benefits of this inherent aspect of psychological experience. Traditional educational systems have been known for centering more on results than on individual processes, therefore neglecting the function that self-generated thoughts serve to the person experiencing them and the opportunity to employ them to an educational advantage. This, due to the fact that the focus of attention is deviated from external tasks during such episodes, which has been considered as a

nuisance and a defiance against learning itself. Contrary to this perspective, educational development in later years has placed emphasis on the notion that the purpose of education goes beyond the plain transmission of information reflected in most evaluation methodologies. Instead, educational institutions are starting to be recognized as guarantors in the development of key skills for the XXI century, where creativity and innovation are highlighted (Reimers y Chung, 2016).

The phenomenon of mental wandering has emerged as a subject of study within a task oriented cultural context. In an educational and social system where unguided thinking is seen as an obstacle to learning that has to be fought against in the classroom. In a system where its functional nature has been consistently overlooked and undervalued, and where narrow focus is praised and perceived as the most adaptive and desirable trait. Notwithstanding, research has recently shown just how common and pervasive the experience of mental wandering really is on a day-to-day basis—present while performing all different kinds of other "tasks". Thus, it is becoming ever clearer that mind wandering should be taken into account and put to the service of the learning process.

This change implies a broadening in the understanding of the phenomenon, to more than a distraction and an obstacle. Rather than off task, it may be better conceived as a shift from an external to an internal task, and it might open the window to a yet unexplored dimension of the learning process inside the classroom. Mind wandering could be an act of resistance to the status quo in formal educational processes, and this resistance may prove to expand the limits of learning and creativity. Accounting for and incorporating mental wandering in the learning process might lead to different benefits to the academic experience inside the classroom.

As has been stated, mind wandering is an affective experience and should be seen as a naturally occurring and intermittent human phenomenon. As such, it should be put to the service of learning, development, and cognitive transformation. Future educational processes might benefit from leaning away from a model of linear knowledge transfer and steering towards integral development approaches that comprise all aspects of human experience. One of the first steps in this transition involves addressing and knocking down negative stigmas and connotations commonly associated with the mind wandering phenomenon. This would enable new educational strategies to be thought, developed, tested and implemented in the classroom.

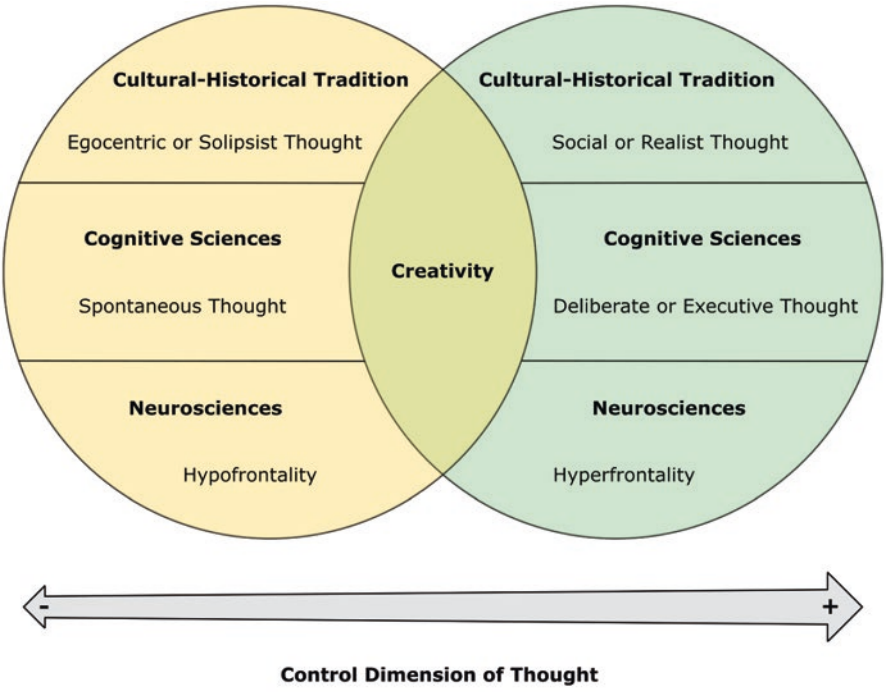
For one, mind wandering may prove to be a useful metric—a gauge of student engagement—in the assessment of educational practices. In this sense, mind wandering would act as a measure of the phenomenon of resistance in the educational context. A second field of intervention could be associated with strategies aimed at promoting the development of skills in the self-regulation and emotional domain. Perhaps improving the student's own understanding of their mental processes could help reduce anxiety over their capabilities to focus and over what is expected of them, and thus lead to a more efficient management of their efforts in the learning process. Finally, mind wandering based interventions and exercise programs might promote the development of abilities where the phenomenon plays a constructive role, such as creativity.

With the advent of massive online or virtual education, it is becoming increasingly important to think about the mind wandering phenomenon in various

educational settings. Nowadays, students find themselves in different contexts with unforeseen educational challenges. In this scenario, how to best deal with mind wandering through pedagogical tools and strategies—in order to serve the acquisition of knowledge and the development of new functions and skills—appears to be the question that will guide future research in mind wandering and education.

Addressing the topic of creativity, a remarkable convergence has to be mentioned in its understanding between the cultural-historical's perspective and the modern cognitive sciences and neuroscience's perspective. It is surprising that, even in spite of their epistemological differences, the two takes on creativity share a core argument. Both theories consider the creative process to be an intermediate or integrative psychological instance between the spontaneous or egocentric and deliberate or social polarities of thought. In other words, a complex and interactive process of connection and disconnection from the social or external context. This, however, without clarifying the magnitude that each of the psychological states plays in the creative phenomenon itself, given its multiplicity and derivative nature.

Figure 13.2 shows a parallel of the different theories' nomenclatures and how they all reflect a core argument regarding the relationship of creativity to the control dimension of thought.



Note. Self elaboration.

Fig. 13.2 Transversal theory convergence in creativity research

What is utmost impressive about this is how findings in modern neuroscience match the ideas already developed in the cultural-historical tradition. In other words, neuroscientific evidence has begun corroborating ideas first proposed by Vygotsky almost a century ago.

Complementary to the conclusions on creativity, the notion of imagination could be understood as a morphological dimension of thought, for it references how thought is presented in experience and the quality of the images that constitute consciousness (Fossa et al., 2018a). Imagination implies a process of meditation about the world and the self, all within the psychological space of a person's mind. It is another vivid expression of the process of internalization described by Vygotsky (1934b). What is especially interesting to this concept is that it unravels yet another dimension to the creative process, for it mediates in its occurrence. Nonetheless, in spite of its relevance, this morphological dimension has been paid little attention by the cognitive sciences and neurosciences in current research efforts.

It is of most importance to understand thought as a phenomenon simultaneously cognitive and affective in its foundations. In this sense, and contrary to cognitive literature's preconceptions, the affective quality of all thought phenomena can't be overstated. As has been extensively reviewed, spontaneous thought and mind wandering constitute processes indented and inherent to human psychic activity. In this topic, the evidence is clear on the predominance of affective content during episodes of self-generated thoughts. These types of thoughts present and express the affective dimension of human experience, both in its positive and functional manifestations, such as creativity, and also in the expression of conflict and mental illness. When addressing deliberate or executive thought, however, the evidence is dimmer as to the relationship to affectivity. In this matter, the present chapter reveals a key point in the analysis of volition and willfulness. It is concluded, that in its volitional nature, executive or deliberate thought undeniably carries an affective component that must be taken into account as well – an affective component that is substantiated upon the notion of indivisibility between affectivity and volition in human experience, as described by Vygotsky in his theory of a volitional affective sphere of consciousness (Vygotsky, 1934b).

Closely related, it is relevant to reflect upon the relation between mind wandering and the individual's whole psychological organization. The notion of mental wandering has generally been stripped of any relationship to other psychological processes. It has not yet been understood as part of a holistic or whole psychological organization. Mind wandering is a complex cognitive-affective phenomenon in constant relationship to other functions of the psyche, knowingly, volition, imagination, thought, language, memory, affectivity, perception (inner and outer), and creativity. This is what Vygotsky (1934b) termed inter-functional connections.

The referred notion of inter-functional connections also raises the fundamental question of how different psychological functions are organized in experience. If such an articulating role indeed exists, it could be argued that affectivity, as a phenomenon of its own, is the instance situated in the space of interaction between

different mental processes. In its generative nature, affects are the engine at the very base of consciousness and mediate in the occurrence and the interaction between psychological functions (Vygotsky, 1934b).

Consciousness should be studied as an integrative unit instead of as vessel containing isolated cognitive phenomena. In this sense, mind wandering is a good example of how a collection of psychological processes and systems in dynamic interactions – within an affective matrix – converge into the vividness of a single experience. As such, mental wandering is an expression of consciousness in its full complexity. This type of perspective is greatly missed in modern literature on the topic.

Another important remark to be made is the relationship to temporality. Time being irreversible and consciousness flowing in a permanent steam, or "stream of consciousness" (James, 1890), the question about the functional role of mental wandering is still in order. Whether this function is to serve as a game, as a resting state, as a self-contemplation strategy, or as a preparation or mental "rehearsal" that transgresses the temporal barrier into the future. Evolutionarily, the first assumption that comes to mind is that as a phenomenon inherent to consciousness, it must serve a purpose.

But are there purposeless aspects to consciousness? Or perhaps has the purpose yet to be encompassed into a less explored function of mental activity? Could it be that mind wandering is really just a byproduct of other mental processes or the repercussion of a malfunction in the cognitive machinery? Or, from another perspective, are we in a moment in history where evolution needs to catch up with society's advances and cultural dynamics?

An interesting question to be asked at this point is: What would the consequences of being deprived of mental wandering be? Would individuals be in a socially instructed continual task-positive frenzy? It might as well be that, without wandering, fundamental individual and social processes such as resistance and creativity could cease to exist.

Whatever the case, the importance of the question into the role of mind wandering and spontaneous thought in all domains of knowledge cannot be overlooked. Whether in the individual level of consciousness or in social dynamics and culture, a comprehensive understanding of the phenomenon must undoubtedly take its function into account.

In synthesis, there is literature over the last decade that proposes a relationship between mind wandering and a decrease in subjective well-being or satisfaction with the individual's own life (Poerio et al. 2013; Ruby et al. 2013; Smallwood & O'Connor 2011; Ottaviani & Couyoumdjian 2013). This evidence is congruent with the findings by Killingsworth and Gilbert (2010). However, other works have recently established a nexus between the phenomenon of mind wandering and future thinking, planning, imagination, and the creative process, raising new fundamental questions into the phenomenon's role in regard to other phenomena of thought and consciousness as a whole (Mooneyham & Schooler, 2013).

References

Agnoli, S., Vannucci, M., Pelagatti, C., & Corazza, G. E. (2018). Exploring the link between mind wandering, mindfulness, and creativity: A multidimensional approach. *Creativity Research Journal, 30*(1), 41–53. https://doi.org/10.1080/10400419.2018.1411423

Alessandroni, N. (2017). Imaginación, creatividad y fantasía en Lev S. Vygotski: una aproximación a su enfoque sociocultural. *Actualidades en Psicología, 31*(122), 45–60. https://doi.org/10.15517/ap.v31i122.26843

Amabile, T. M. (1983). The social psychology of creativity: A componential conceptualization. *Journal of Personality and Social Psychology, 45*, 357–376. https://doi.org/10.1037/0022-3514.45.2.357

Amabile, T. M. (1996). *Creativity in context: Update to "The Social Psychology of Creativity"*. Westview Press.

Amabile, T. M., & Pratt, M. G. (2016). The dynamic componential model of creativity and innovation in organizations: Making progress, making meaning. *Research in Organizational Behavior, 36*, 157–183. https://doi.org/10.1016/j.riob.2016.10.001

Andrews-Hanna, J., Irving, Z., Fox, K., Spreng, N., & Christoff, K. (2017). The neuroscience of spontaneous thought: An evolving, interdisciplinary field. In K. C. R. Fox & K. Christoff (Eds.), *The Oxford handbook of spontaneous thought. (s.f)*. Oxford University Press.

Awad, S. H., & Wagoner, B. (2015). Agency and creativity in the midst of social change. In C. W. Gruber, M. G. Clark, S. H. Klempe, & J. Valsiner (Eds.), *Constraints of agency* (pp. 229–243). Springer.

Awad, S. H., & Wagoner, B. (2017). Introducing the street art of resistance. In N. Chaudhary, P. Hviid, G. Marsico, & J. Villadsen (Eds.), *Resistance in everyday life: Constructing cultural experiences* (pp. 161–180). Springer.

Awad, S. H., Wagoner, B., & Glaveanu, V. (2017). The street art of resistance. In N. Chaudhary, P. Hviid, G. Marsico, & J. Villadsen (Eds.), *Resistance in everyday life: Constructing cultural experiences* (pp. 161–180). Springer.

Batalloso, J. M. (2019). Autoconocimiento. *Sevilla*. Retrieved from: https://www.academia.edu/40525314/AUTOCONOCIMIENTO. Accessed May 04, 2021.

Beghetto, R. A., & Kaufman, J. C. (2013). Fundamentals of creativity. *Educational Leadership, 70*, 10–15.

Briñol, P., Blanco, A., & De la Corte, L. (2008). Sobre la resistencia a la Psicología Social. *Revista de Psicología Social, 23*(1), 107–126.

Casado, Y., Llamas-Salguero, F., & López-Fernández, V. (2015). Inteligencias múltiples, Creatividad y Lateralidad, nuevos retos en metodologías docentes enfocadas a la innovación educativa. *Reidocrea, 4*(43), 343–358. https://doi.org/10.30827/Digibug.38548

Castillo-Delgado, M., Ezquerro-Cordón, A., Llamas-Salguero, F., & López-Fernández, V. (2016). Estudio neuropsicológico basado en la creatividad, las inteligencias múltiples y la función ejecutiva en el ámbito educativo. *Reidocrea, 5*(2), 9–15. https://doi.org/10.30827/Digibug.39528

Chacón-Araya, Y. (2005). Una revisión crítica del concepto de creatividad. *Actualidades Investigativas en Educación, 5*(1), 1–30. https://doi.org/10.15517/aie.v5i1.9120

Chaudhary, N., Hviid, P., Giuseppina Marsico, G., & Waag Villadsen, J. (2017). Rhythms of resistance and existence: An introduction. In N. Chaudhary, P. Hviid, G. Marsico, & J. Villadsen (Eds.), *Resistance in everyday life: Constructing cultural experiences* (pp. 1–9). Springer.

Christoff, K. (2012). Undirected thought: Neural determinants and correlates. *Brain Research, 1428*, 51–59.

Christoff, K., Irving, Z., Fox, K., Spreng, N., & Andrews-Hanna, J. (2016). Mind-wandering as spontaneous thought: A dynamic framework. *Nature Reviews, 17*, 1–10. https://doi.org/10.1038/nrn.2016.113

Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention*. HarperCollins.

Delgado, Y., Delgado, Y., Giselle de la Peña, R., Rodríguez, M., & Rodríguez, R. M. (2016). Creativity in Mathematics for first-years students of Anti-Vector Fight/Control. *Educación Médica Superior, 30*(2), 1–12.

Edwards-Schachter, M. (2015). *Qué es la creatividad*. https://doi.org/10.13140/RG.2.1.4861.1043

Fernández Diaz, J. R., Llamas-Salguero, F., & Gutiérrez-Ortega, M. (2019). Creatividad: Revisión del Concepto. *Reidocrea, 8*(37), 467–483. https://doi.org/10.30827/Digibug.58264

Fossa, P. (2017). The expressive dimension of inner speech. *Psicología USP, 28*(3), 318–326. https://doi.org/10.1590/0103-656420160118

Fossa, P. (In press). *Lo representacional y lo expresivo: Dos funciones del lenguaje interior*. Psicología: Teoría e Pesquisa.

Fossa, P., Awad, N., Ramos, F., Molina, Y., De la Puerta, S. & Cornejo, C. (2018a). *Control del pensamiento, esfuerzo cognitivo y lenguaje fisionómico organísmico*: Tres manifestaciones

Fossa, P., Gonzalez, N., & Cordero Di Montezemolo, F. (2018b). From inner speech to mind-wandering: Developing a theoretical model of inner mental activity trajectories. *Integrative Psychological & Behavioral Science, 53*(1), 1–25.

Fox, K., Andrews-Hanna, J., Mills, C., Dixon, M., Markovic, J., Thompson, E., & Christoff, K. (2018). Affective neuroscience of self-generated thought. *Annals of the New York Academy of Sciences, 1426*(1), 1–27. https://doi.org/10.1111/nyas.13740

Fox, K., & Beaty, R. (2019). Mind-wandering as creative thinking: Neural, psychological, and theoretical considerations. *Behavorial Sciences, 27*, 123–130. https://doi.org/10.1016/j.cobeha.2018.10.009

Franco, C. (2006). Relación entre las variables autoconcepto y creatividad en una muestra de alumnos de educación infantil. *Revista Electrónica de Investigación Educativa, 8*(1), 1–16.

Gardner, H. (1993). *Creating minds: An anatomy of creativity seen through the lives of Freud, Einstein, Picasso, Stravinsky, Eliot, Graham, and Ghandi*. Basic Books.

Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. Basic Books.

Garín-Vallverdu, M. P., López-Fernández, V., & Llamas-Salguero, F. (2016). Creatividad e Inteligencias Múltiples según el género en alumnado de Educación Primaria. *Reidocrea, 5*(2), 33–39. https://doi.org/10.30827/Digibug.40068

Glăveanu, V. P. (2013). Rewriting the language of creativity: The five A's framework. *Review of General Psychology, 17*(1), 69–81. https://doi.org/10.1037/a0029528

Goldberg, E. (2018). *Creativity: The human brain in the age of innovation* (Illustrated ed.). Oxford University Press.

Gruber, H. E., & Wallace, D. (1999). The case study method and evolving systems approach for understanding unique creative people at work. In R. J. Sternberg (Ed.), *Handbook of Creativity* (pp. 93–115). Cambridge University Press.

Irving, Z. C. (2016). Mind-wandering is unguided attention: Accounting for the "purposeful" wanderer. *Philosophical Studies, 173*(2), 547–571. https://doi.org/10.1007/s11098-015-0506-1

Irving, Z. C., & Thompson, E. (2018). The philosophy of mind-wandering. In K. Christoff & K. Fox (Eds.), *The Oxford handbook of spontaneous thought: Mind-wandering, creativity, and dreaming (s.p)*. Oxford University Press.

Ivet, B., Zacatelco, F., & Acle, G. (2009). Programa de enriquecimiento de la creatividad para alumnas sobresalientes de zonas marginadas. *Electronic Journal of Research in Educational Psychology, 7*(2), 849–876. https://doi.org/10.25115/ejrep.v7i18.1366

James, W. (1890). *The principles of psychology*. Dover Publications.

Kaufman, J. C., & Glăveanu, V. P. (2019). A review of creativity theories: What questions are we trying to answer? In J. C. Kaufman & R. J. Sternberg (Eds.), *Cambridge handbook of creativity* (2nd ed., pp. 27–43). Cambridge University Press.

Killingsworth, M., & Gilbert, D. (2010). A wandering mind is an unhappy mind. *Science, 330*, 932. https://doi.org/10.1126/science.1192439

Kopp, K., & D'Mello, S. (2016). The impact of modality on mind wandering during comprehension. *Applied Cognitive Psychology, 30*(1), 29–40. https://doi.org/10.1002/acp.3163

Maillet, D., Seli, P., & Schacter, D. (2017). Mind-wandering and task stimuli: Stimulus-dependent thoughts influence performance on memory tasks and are more often past- versus futureoriented. *Consciousness and Cognition, 52*, 55–67. https://doi.org/10.1016/j.concog.2017.04.014

Mills, C., Raffaelli, Q., Irving, Z. C., Stan, D., & Christoff, K. (2018). Is an off-task mind a freely-moving mind? Examining the relationship between different dimensions of thought. *Consciousness and Cognition, 58*, 5820–5833. https://doi.org/10.1016/j.concog.2017.10.003

Molina Valencia, N. (2005). Resistencia comunitaria y transformación de conflictos. *Reflexión Política, 7*(14), 70–82.

Mooneyham, B. W., & Schooler, J. W. (2013). The costs and benefits of mind-wandering: A review. *Canadian Journal of Experimental Psychology, 67*(1), 11–18. https://doi.org/10.1037/a0031569

Ottaviani, C., & Couyoumdjian, A. (2013). Pros and cons of a wandering mind: A prospective study. *Frontiers in Psychology, 4*(524). https://doi.org/10.3389/fpsyg.2013.00524

Piaget, J. (1923). *The language and thought of the child*. Routledge Classics.

Poerio, G. L., Totterdell, P., & Miles, E. (2013). Mind-wandering and negative mood: Does one thing really lead to another? *Consciousness and Cognition, 22*(4), 1412–1421. https://doi.org/10.1016/j.concog.2013.09.012

Ramírez Villén, V., Llamas-Salguero, F., & López-Fernández, V. (2017). Relación entre el desarrollo Neuropsicológico y la Creatividad en edades tempranas. *International Journal of Humanities and Social Science Invention, 6*(1), 34–40.

Reimers, F., & Chung, C. (2016). Enseñanza y aprendizaje en el siglo XXI: metas políticas educativas, y currículo en seis países. *Fondo de Cultura Económica*

Ruby, R., Smallwood, J., Engen, H., & Singer, T. (2013). How self-generated thought shapes mood—the relation between mind-wandering and mood depends on the socio-temporal content of thoughts. *PloS one, 8*(10), e77554. https://doi.org/10.1371/journal.pone.0077554

Seli, P., Carriere, J. S., Thomson, D. R., Cheyne, J. A., Martens, K. A. E., & Smilek, D. (2014). Restless mind, restless body. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 40*(3), 660–668. https://doi.org/10.1037/a0035260

Seli, P., Carriere, D., & Smilek, D. (2015a). Not all mind wandering is created equal: dissociating deliberate from spontaneous mind wandering. *Psychological Research, 79*, 750–758. https://doi.org/10.1007/s00426-014-0617-x

Seli, P., Smallwood, J., Cheyne, J. A., & Smilek, D. (2015b). On the relation of mind wandering and ADHD symptomatology. *Psychonomic Bulletin & Review, 22*(3), 629–636. https://doi.org/10.3758/s13423-014-0793-0

Seli, P., Risko, E., Smilek, D., & Schacter, L. (2016). Mind-wandering with and without intention. *Trends in Cognitive Sciences, 20*(8), 605–617. https://doi.org/10.1016/j.tics.2016.05.010

Seli, P., Ralph, B., Konishic, M., Smilek, D., & Schacter, D. (2017a). What did you have in mind? Examining the content of intentional and unintentional types of mind wandering. *Consciousness and Cognition, 51*, 149–156. https://doi.org/10.1016/j.concog.2017.03.007

Seli, P., Risko, E., Purdon, C., & Smilek, D. (2017b). Intrusive thoughts: Linking spontaneous mind wandering and OCD symptomatology. *Psychological Research, 81*(2), 392–398. https://doi.org/10.1007/s00426-016-0756-3

Seli, P., Carriere, J. S., Wammes, J. D., Risko, E. F., Schacter, D. L., & Smilek, D. (2018). On the clock: Evidence for the rapid and strategic modulation of mind wandering. *Psychological Science, 29*(8), 1247–1256. https://doi.org/10.1177/0956797618761039

Smallwood, J., & Schooler, J. (2006). The restless mind. *Psychological Bulletin, 132*(6), 946–958. https://doi.org/10.1037/0033-2909.132.6.946

Smallwood, J., & O'Connor, R. C. (2011). Imprisoned by the past: Unhappy moods lead to a retrospective bias to mind wandering. *Cognition and Emotion, 25*(8), 1481–1490. https://doi.org/10.1080/02699931.2010.545263

Smallwood, J., & Schooler, J. (2015). The science of mind wandering: Empirically navigating the stream of consciousness. *Annual Review of Psychology, 66*(1), 487–518. https://doi.org/10.1146/annurev-psych-010814-015331

Smallwood, J., Baracaia, S., Lowe, M., & Obonsawin, M. (2003). Task unrelated thought whilst encoding information. *Consciousness and Cognition, 12*(3), 452–484. https://doi.org/10.1016/S1053-8100(03)00018-7

Sternberg, R. J., & Lubart, T. I. (1995). *Defying the crowd*. Free Press.
Unsworth, K. (2001). Unpacking creativity. *Academy of Management Review, 26*(2), 289–297. https://doi.org/10.2307/259123
Valqui Vidal, R. V. (2009). La creatividad: conceptos. Métodos y aplicaciones. *Revista Iberoamericana de Educación, 49*(2), 1–11. https://doi.org/10.35362/rie4922107
Vannucci, M., & Agnoli, S. (2019). Thought dynamics: Which role for mind wandering in creativity. In R. Beghetto & G. E. Corazza (Eds.), *Dynamic perspectives on creativity* (pp. 245–260). Springer.
Vildoso, J. P. (2019). The transference resistances in the psychoanalytic therapy of Freud and some posfreudian conterpounts. *Bricolaje*. Retrieved from: https://revistas.uchile.cl/index.php/RB/article/view/54237/56976. Accessed May 04, 2021.
Villena-González, M. (2019). Huellas de una mente errante: un terreno fértil para el florecimiento de la creatividad. In R. Videla (Ed.), *Pasos para una ecología cognitiva de la educación* (pp. 59–72). Editorial Universidad de la Serena.
Vygotsky, L. (1934a). *Conferencias sobre psicología. En Obras Escogidas II*. Machado Libros.
Vygotsky, L. (1934b). *Pensamiento y Lenguaje. En Obras Escogidas II*. Machado Libros.
Vygotsky, L. (1982). Sobre los sistemas psicológicos. Obras Escogidas. *Pedagogía*.