

To the Lighthouse: Memory and Art Therapy

Parvin Ghasemi, Samira Sasani & Jafar Abbaszadeh

Department of Foreign Languages and Linguistics, Faculty of Humanities,
Shiraz University, Eram Square, Shiraz, Iran

Email: pghasemi@rose.shirazu.ac.ir

Email: samira.sasani21@yahoo.com

Email: jeff.abbaszade@yahoo.com

Abstract This paper is devoted to the issues of memory, art therapy and creation and their contributions to the survival and well-being in Virginia Woolf's *To the Lighthouse*. Suzanne Nalbantian's ideas are employed to investigate the memory in *To the Lighthouse*. Nalbantian's theories are based on Jean-Pierre Changeux's neuroscientific theories which would be linked with Antonio Damasio's proposition concerning the nature of the arts. Therefore, as the consciousness and memory are some means to contribute to the well-being and quality of life, the arts follow this similar path to, first, argue that Woolf's long term memories of her childhood, which helped her to create *To the Lighthouse* led to her well-being and optimal life through modulating her emotions and feelings concerning her mother; and, second, to abolish the gap, the feud, the so-called difference, between literature and science through tracing the roots of the arts to the biological notions of consciousness and memory. Simply, this paper argues that *To the Lighthouse* and Lily's painting in the novel are both engendered through the long term memory. These creations, consequently, led to the well-being of their creators because art has a therapeutic nature due to consciousness and memory.

Key words *To the Lighthouse*; Memory; Antonio Damasio; Suzanne Nalbantian; Art Therapy

Author **Parvin Ghasemi**, Ph.D. is emerita Professor of English Literature in the Faculty of Humanities, Shiraz University, Iran. Her teaching and research interest and activities cover modern fiction, African-American Literature, and Gender Studies. She has published numerous articles on 20th and contemporary fiction and Gender Studies. Books published include *Novel, Essay Writing*, is a contributor to *Negotiating Boundaries*; **Samira Sasani**, Ph.D. is Assistant Professor of English Literature in the Faculty of Humanities, Shiraz University, Iran. Her teaching

and research activities and interests cover world literature, 20th and contemporary drama, and cultural studies. She has published numerous articles on Modern Drama, postcolonialism in world literature and 20th and contemporary fiction. Articles published include “The Colonized (the Other) and the Colonizer’s Response to the Colonial Desire of ‘Becoming Almost the Same but Not Quite the Same’ in *M. Butterfly*”; “‘The Elephant in the Dark Room’: Merrick and Menacing Mimicry in Bernard Pomerance’s *The Elephant Man*”; “*Mrs. Dalloway*: Consciousness, “Social Homeostasis,” and Marxism”; “A Discourse of the Alienated Youth in the American Culture: Holden Caulfield in J.D. Salinger’s *The Catcher in the Rye*”; “The ‘I’ against an ‘Other’”: Gender Trouble in *The Edible Woman*”; **Jafar Abbaszadeh** is M.A. Graduate of English Literature, in the Faculty of Humanities, Shiraz University, Iran. His research activities and interests cover 20th and contemporary fiction and world literature. Articles published include “*Mrs. Dalloway*: Consciousness, “Social Homeostasis,” and Marxism”.

Introduction

Literature and science carry such a feud with each other that their borders are marked with a red line, to the extent that trespassing of each field to the other is considered heresy. This literature/science dualism has resulted in a gap between the scientific and literary fields that almost hindered the exploration of new vistas for novel researches and ideas in both cultures. C. P. Snow in 1959 by delivering his lecture “The Two Cultures” provoked the debate about the separation between the humanities and the sciences as a major hindrance for the growth of knowledge. This debate was climaxed by E.O. Wilson’s book *Consilience: The Unity of Knowledge*, published in 1998. In this book, he endeavors, among many things, to unite the sciences with the humanities. Wilson uses the term “consilience” for the unification of all knowledge: “A ‘jumping together’ of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork of explanation” (8). Although Wilson’s book “does not attempt systematic argument” (Easterlin 4), it was an effective call for interdisciplinary researches. In literary study “committing to consilience means making our theories of literature and culture consistent with the best scientific understandings” (Gottschall 21).

Most arguments against consilience revolve around Wilhelm Dilthey’s notion that the human studies “cannot be a continuation of the hierarchy of the natural sciences, because they rest upon a different foundation” (qtd. in Freeman 22). In other words, the knowledge in the humanities is incommensurate with the sciences. Dilthey believes in “the autonomy of the human sciences” and bases his notion on

two arguments (Mantzavinos 11-12). The first argument states: “The method of the natural sciences consists in explaining the regularities in nature with the help of law-like statements. The method of the social sciences consists in comprehending social reality on the basis of understanding. Understanding is thus the means available to the researcher to apprehend the meaning of texts, actions, and social phenomena” (Mantzavinos 12).

The second argument that Dilthey relies on for the difference between social and natural sciences “postulates the primacy of the object of inquiry over the method of inquiry”; in other words, “in the natural and social sciences, this means concretely that the difference in the structure of the natural and social ontology forces the researcher to employ respectively different methods to research different objects” (Mantzavinos 13). Therefore, Dilthey believes in an impassable line between social and natural sciences.

Most opponents of consilience believe in Dilthey’s arguments. For example, Tony Jackson contends that literary study is “a kind of inquiry that is relatively distinct in method and aim from empirical-scientific inquiry” (322). Gottschall believes that this difference-in-foundation argument has been the most important impediment to consilience: “The most important impediment is the old and largely unexamined assumption that the objects literary scholars study, and the questions we ask, are of a fundamentally different kind than those addressed in all nonhumanities disciplines” (57).

Mantzavinos in his book *Naturalistic Hermeneutics* rejects Dilthey’s arguments by following statements: First, self-consciousness does not always lead to valid and true understanding of our conditions, like in anosognosia disease (16). Anosognosia is a condition that a person with a special disability is unaware of having that disability. In this disease a person is going to be tricked by his/her self-consciousness; therefore, understanding is not a good methodological tool to lead to the validity of theories in the social sciences and the humanities. Second, Mantzavinos argues that “developments in modern brain research indicate that natural scientific methods can, in principle, be applied to human behavior” (17). For example, FMRI technology, which is a technique of brain imaging, can tell us about the function of the brain and, consequently, human behavior. Thus, the knowledge produced in the scientific fields is not necessarily incommensurate in other fields, such as the humanities, because the objects literary scholars study and the questions they ask are not necessarily different from the sciences.

Therefore, Mantzavinos proposes the unity of method: “There is no fundamental methodological difference between the natural sciences, on the one

hand, and the social sciences and humanities, on the other” (ix). A note of caution is necessary here: “The idea of the unity of the method is to be confused neither with the demand for a universal language nor with the demand for a unified science; instead it is a minimalistic requirement to set up hypotheses whenever one attempts to acquire knowledge and to test them critically using empirical evidence” (Mantzavinos xi).

Thus, by expanding the method of trial and error into the humanities, scholars can use the potentialities of their respective fields to make sound and valid hypotheses and theories that could, even, be utilized in other fields, such as the sciences. Aside from Mantzavinos’ arguments, this paper endeavors, through analyzing *To the Lighthouse*, to depict that there is no literature/science dualism because the arts are the extension of the biological and neuroscientific notions of consciousness and memory.

Damasio and Memory

Memory is one of the properties that are indispensable for consciousness in order to record and recall. Damasio contends that it is due to this mechanism of recording and recalling that we are able “to maneuver the complex world around us” (*Self* 91). For example, our ability to recognize people and things and “our ability to imagine possible events” depend “on learning and recall”; therefore, recording and recalling “is the foundation of reasoning and navigating the future and, more generally, for creating novel solutions for a problem” (91).

The mechanism of memorizing is as follows. The brain does not simply record the shape or structure of something, but “the memory of an object is *the composite memory of the sensory and motor activities related to the interaction between the organism and the object* during a certain period of time” (Damasio, *Self* 92). In addition, it is the values of things or events to be recorded or remembered that specify “the range of the sensorimotor activities” (92); for example, “the memory of unique entities and events, namely, those that are both unique and personal, requires high-complexity contexts” (97).

Thus, memories of specific objects and events are affected by their past conditions of recording: “Our memories are *prejudiced*, in the full sense of the term, by our past history and beliefs” (Damasio, *Self* 92). However, because “memories are not stored in facsimile fashion and must undergo a complex process of reconstruction during retrieval,” they “may not be fully reconstructed, may be reconstructed in ways that differ from the original, or may never again see the light of consciousness” (Damasio, *Feeling* 286-87). It is also possible that when we recall

a memory, it may trigger a chain of other memories that may seem unmotivated or unexplained “although a web of connections does indeed exist sub rosa, reflecting either the reality of some moment lived in the past or the remodeling of such a moment by gradual and unconscious organization of covert memory stores” (287).

For now, the question is, biologically, how does the brain record, store, and recall an event? “Does it create a facsimile of the thing to be memorized, a sort of hard copy placed in a file? Or does it reduce the image to code — digitize it, as it were? Which? How? Where?” (Damasio, *Self* 95). We hold our memories in dispositional form: Dispositions are “know-how formulas that code for something” (93). Dispositions are efficient because they are capable of storing a large number of memories in a limited space to be remembered rapidly and almost precisely; in sum, “we . . . never had to microfilm various and sundry images and store them in hard-copy files; we simply stored a nimble formula for their reconstruction and used the existing perceptual machinery to reassemble them as best we could” (94).

It is in the dispositional space that “dispositions hold the knowledge base as well as the devices for the reconstruction of that knowledge in recall” (Damasio, *Self* 100). Dispositional space is located in association cortices and consisted of convergence-divergence zones. The function of: “CDZs consists of re-creating separate sets of neural activity that were once approximately simultaneous during perception — that is, that coincided during the time window necessary for us to attend to them and be conscious of them. To achieve this, the CDZ would prompt an extremely fast sequence of activations that would make separate neural regions come online in some order, the sequence being imperceptible to consciousness” (Damasio, *Self* 102).

In order for dispositions to become maps and, consequently, images for recalling a memory, they should “act on a host of early sensory cortices [the image space] originally engaged by perception. The dispositions would do so by dint of connections diverging from the disposition site back to early sensory cortices” (Damasio, *Self* 98). Based on the above hypothesis, several arguments would follow. First, “the dispositional space guides the image making but is not involved in displaying images itself” (107). Second, dispositions, in other words, are “implicit formulas for how to reconstruct maps in the image space” (109); therefore, the contents of the image space are accessible consciously while in the dispositional space “*the contents of dispositions are always unconscious*. They exist in encrypted and dormant form” (100). Third, where the recalled memories are “played back would not be that different from the locus of original perception [the image space]” (98). Finally, the dispositional space and the image space “point to different ages

in brain evolution, one in which dispositions sufficed to guide adequate behavior and another in which maps gave rise to images and to an upgrade of the quality of behavior. Today they are seamlessly integrated” (109).

Woolf and Memory

While scientists investigate data detached from the experience of that data, the neuroscientific investigation of memory in literature provides crucial information about subjective experience of memory beyond experimental restrictions: These studies “provide a new kind of empirical data for understanding memory in its phenomenological expressions” (Nalbantian “Autobiographical” 255). Aside from contributing to science, consilience is beneficial to the humanities as well: For example, this collaboration contributes to literary studies by updating or amending the stale, invalid, and indeterminate theories and methodologies of literary criticism; in sum, “biocultural criticism and theory strengthen the aims and practices of literary studies” (Easterlin 5).

To the lighthouse is the optimal choice for investigating memory because of several reasons. First, it is based on the autobiographical memory of Woolf’s childhood; therefore, its “autobiographical basis gives a factual frame of reference against which to judge the authenticity or veracity of the memory episodes whose truth is embedded in their fictional rendition” (Nalbantian, “Autobiographical” 256). Second, as Suzanne Nalbantian contends, *To the Lighthouse* is a “metacognitive or *process-oriented*” novel; it means that this autobiographical work covers “subjects, revelatory metaphors, and dramatic scenes that bring to life in vivid, specific terms the workings of physiological memory in different phases of encoding, consolidation, and retrieval”; simply, this novel “reveal[s] how memory is constructed, helping us to understand different kinds of memory processing” (“Autobiographical” 256). For example, the process of associative memory plays an important role in Woolf’s art. Associative memory focuses “on the physical and cognitive environments that initiate retrieval, where a cue may have symbolic form” (“Autobiographical” 261). In *To the Lighthouse* the process of associative memory is widespread; in this novel, the “emotional memories are attached to material objects and places by association; they are dependent upon the exterior world to be revived. This is quite different from the Romantics, for whom memory may be projected upon a locale yet remains independent of it” (Nalbantian, *Memory* 85).

Third, in *To the Lighthouse* the investigation of memory is facilitated because of Woolf’s use of the stream of consciousness technique: “The stream of consciousness is the conveyer of memories, perpetually linking the past and

the present” (Nalbantian, *Memory*, 99). This presence of the past in the present is more intensified in Woolf’s works because of her particular style: “I dig out beautiful caves behind my characters; . . . The idea is that the caves shall connect, and each comes to daylight at the present moment” (qtd. in Nalbantian, *Memory* 83). Therefore, in Woolf’s novels, the past always haunts the present: Nalbantian believes that, “contrary to a Proustian return to the past, where the present seems to be temporarily effaced, the Woolfian memory process integrates the past and present in the search for a definition of selfhood” (*Memory* 85). Moreover, Woolf’s other technique in treating memory is to reverse “the teleological shape of memory, so that the present is always already opening out into the future as a moment of the past to be looked back on”; by this technique, “Woolf builds a store against the riskiness of living” for self to protect “itself against the risk of a traumatic forgetting that would leave it, like Septimus, at the mercy of the roar of outside forces” (Waugh 39).

Encoding and Storage

To the Lighthouse is divided into three parts which corresponds to three levels of memory processing, “the encoding, the storage and the retrieval of memory” (Nalbantian, *Memory* 80). It is in the first part, “The Window,” that the memory of Mrs. Ramsay “is encoded in the brains of the family and friends by her association with the guiding light of the lighthouse whose ‘long steady stroke, was her stroke.’ This lighthouse ‘stark and straight’ becomes the stable embodiment of a memory that will persist over time” (Nalbantian “Autobiographical” 257). This fictitious lighthouse reflects Godrevy lighthouse where Woolf’s family summer-house resided; Woolf as a kid encoded the memory of her mother, Julia Stephen, through the association with this actual lighthouse. In sum, in *To the Lighthouse*, “the encoding, which originally introduces the links of association, are the basis for the retrieval in a similar environment” (Nalbantian *Memory* 82).

The second part of the novel, “Time Passes,” corresponds to the second level of memory processing, the storage. In the second part where there is no participation by primary characters and when ten years have passed and Mrs. Ramsay is dead, senses of darkness, sleep, and forgetfulness pervade the atmosphere; this atmosphere reflects the processes of consolidation and storage of memory through which the short memory transforms to the long term memory:

Part II of the novel is a metaphorically long night which proliferates into ten years of night and darkness, involving the First World War, three deaths in the

family (Mrs Ramsay and two of her children), despair, vacancy, bad weather and apparent oblivion, with no allusion to any “thinking” or “feeling” subjects. This atmosphere can also suggest a long span of sleep and the unconscious atmosphere with no remembering subjects or artistic creation. But from the neuroscientific standpoint this ten-year period might very well represent the consolidation of memory through this so-called dormant stage of “sleep.” It may support the hypothesis that emotional arousal, highly operative in sleep states, strengthens memory storage. (Nalbantian, “Neuroaesthetics” 363)

Retrieval and Creation

After strengthening the memory storage in such a long span, part three, “The Lighthouse,” which reflects the retrieval of memory, starts. Lily Briscoe, the artist in *To the Lighthouse*, involves herself in a process of creating that Nalbantian calls “the memory painting” (*Memory* 1). It takes ten years for Lily to finish her painting after returning to the abandoned summer-house where her inspiring figure Mrs. Ramsay is no longer alive. Lily’s return to the place where her memories of Mrs. Ramsay are first shaped is crucial for their retrieval: “The contextual element is significant for this type of long-term episodic memory, where there is similarity between engraphy (the encoding of information into memory) and ecphory (automatic retrieval from memory triggered by a specific cue)” (Nalbantian, “Neuroaesthetics” 363). After executing the first necessary act for retrieval of memories, returning to the same place where memories are first encoded, Lily immerses herself in the process of remembering through physical associations and cues available in the external environment.

Therefore, after ten years of encoding and consolidating, Lily’s memories are triggered on a September morning — which suggests “the alert state of the prefrontal cortex and the enabling condition of vigilance. . . . In the early morning hours, they [characters] are indeed ‘alert’ and ‘vigilant’” (Nalbantian, “Neuroaesthetics” 363-64) — by different things, most importantly, the lighthouse. Lily has attached the figure of Mrs. Ramsay to the lighthouse through the process of association: The “stroke of the Lighthouse . . . was her [Mrs. Ramsay’s] stroke, for watching them in this mood always at this hour one could not help attaching oneself to one thing especially of the things one saw” (Woolf 225). The sight of the lighthouse, among other things, provokes Lily’s emotion to remember the memories of Mrs. Ramsay after ten years in order to finish her painting. Thus, emotions play an important role in the mechanism of memory: It is “the evocation of those

emotional memories associated with Mrs Ramsay” that leads Lily to finish her painting (Nalbantian, “Neuroaesthetics” 363). Woolf in her diaries wondered: “I feel that strong emotion must leave its trace; and it is only a question of discovering how we can get ourselves again attached to it” (qtd. in Nalbantian “Autobiographical” 259). Through her art, especially through *To the Lighthouse*, Woolf provides the answer: Emotions leave their imprints on the memories, and retrieval of those emotional memories almost attaches us to the original emotions. For example, Virginia as a kid “tied the ‘deep emotion’ of the loss of her mother to the visual image of the real Godrevy lighthouse in St Ives, Cornwall — an actual view from the summer house (called Talland House) that her family enjoyed over the years of her happy childhood” (Nalbantian, “Neuroaesthetics” 363). Therefore, through the lighthouse in the novel (which reflects Godrevy lighthouse in St Ives, Cornwall), Lily (Who reflects Woolf) remembers the memories of Mrs. Ramsay (who reflects Julia Stephen, Woolf’s mother).

Jean-Pierre Changeux believes that “artistic and scientific creation are part of an individual history which itself stems from an anterior historical evolution” (“Creation” 4). Hence, *To the Lighthouse* is a tangible proof of Changeux’s statement because both the novel and Lily’s painting are based on Woolf and Lily’s individual histories respectively. The painting, which reflects the novel, relates Lily the character to Woolf the author because “there is the retrieval of memory through the means of their respective art. . . . The memory is materialized in the painting, just as Woolf’s memory of her mother is materialized in her novel” (Nalbantian *Memory* 81). Simply, each of them uses their past experiences in order to create an art. According to Changeux, the process of creation, especially in the painting, follows the following path:

During the “mental experience” of creative work, these multiple evolutions overlies and connect with each other. Beginning with the first “confused shapes” (Leonardo da Vinci), randomly born bits on which, according to the French poet and essayist Yves Bonnefoy, “the imaginary rests,” one can distinguish the “first idea,” a still crude outline that is nevertheless importantly connected to the subject’s own definition. Then this mental object, sifted through the filter of reason, becomes reality on paper by multiple “external drawings” of the graphic sketch, or *disegno*. Representations from the “internal circuit” give way to precise movements of the hand and fingers (often acquired after a long period of practicing one’s art) that finally direct the pen or the paintbrush. A cascade of activity in premotor, then motor areas extends the internal, implicit

evolution of mental creation. (“Epigenetic” 66-7)

Both Lily and Woolf, respectively, after ten and thirty-one years (Woolf’s mother died when Virginia was thirteen years old, and *To the Lighthouse* was written when she was forty-four years old) of experiencing confused shapes and processing them unconsciously, gave birth to their mental creations. Unconscious processing is essential for solving problems and initiating creativity. Conscious processing is only able to focus on a limited number of thoughts for a limited time while the range of nonconscious processing is vaster. The list of nonconscious processing includes:

All the fully formed images to which we do not attend; 2. all the neural patterns that never become images; 3. all the dispositions that were acquired through experience, lie dormant, and may never become an explicit neural pattern; 4. all the quiet remodeling of such dispositions and all their quiet renetworking — that may never become explicitly known; and 5. all the hidden wisdom and knowhow that nature embodied in innate, homeostatic dispositions. (Damasio, *Feeling* 288)

Thus, the second part of the novel corresponds to the unconscious processing of the data gathered in part one to be implanted consciously in Lily’s painting in part three. The unconscious processing, by gathering a flood of data to process, reflects wholeness and contributes to creativity: “She rammed a little hole in the sand and covered it up, by way of burying in it the perfection of the moment. It was like a drop of silver in which one dipped and illumined the darkness of the past” (Woolf 307). Here the little hole reflects unconsciousness, which is buried beneath consciousness, that contains the complexity and wholeness of the moment to be processed in order to arrive at better comprehension of the past. This is the reason that remembering an experience is almost more enlightening compared to experiencing a new one because memories are backed by unconscious processing. It is also interesting that readers, like Lily, participate in the creation of the painting by gathering the data in the novel in order to manipulate them consciously and unconsciously to shape a whole picture of the novel in their minds, which reflects the painting: “As no such painting actually exists, readers are prompted to imagine the painting, thereby totally participating in its creation with the memory fragments that are offered in the text” (Nalbantian, “Neuroaesthetics” 364).

In sum, Lily’s “memory painting,” which reflects Woolf’s memory novel, shows that “how explicit declarative memory involving the conscious retrieval

of life facts and events can be closely linked to the artistic process” (Nalbantian “Autobiographical” 258). Retrieval of memories in *To the Lighthouse* occurs through the following mechanism: “Once an experience is stored, simple visual cues can stimulate the recall of those old memories” (258). It is the sight of the lighthouse, as well as the tablecloth, that triggers the retrieval of memories; therefore, sight plays an important role in the retrieval of memories for Woolf: “Whatever the reason may be, I find that scene-making is my natural way of marking the past” (qtd. in Nalbantian *Memory* 79). Scene-making of the past is related to the visual memory. It is creativity that transforms this visual memory and “with characteristic parsimony, embodies it in metaphor, metonymy, analogy, and other devices of literary expression. When memory is productively ‘distorted,’ its component of creativity becomes more visible for analysis” (Nalbantian “Autobiographical” 271). Rather than their literary disguise, the actual retrieved memories “are not direct recall of past events, but reconstructions from physical traces stored in the brain in latent form” (Changeux, “Epigenetic” 64).

Finally, in *To the Lighthouse*, the existence of different things as physical associations such as the lighthouse, the tablecloth, and even the place itself — which collaborate with the mind and the body to resurrect the past memories — challenges: “The view of creativity as a teleological process that involves the transference of an already formulated *mental* ‘vision’ onto or into a suitably receptive *material* medium, realised as ‘design.’ This is the conception of the creation of art that reaches back to the poetics of Aristotle and forward to Romantic and Idealist theories of inspiration. A version of the dualist account of the soul” (Waugh 39).

Thus, Woolf, by *To the Lighthouse* and through Lily’s character, depicts that creation is related to the history of the interaction between a person’s entire organism and his/her external environment: “Mind, intention, ‘vision,’ are not the cold blueprints of an architect, purely mental acts of initiation, but a living bioculturally distributed process that emerges through a complex autopoietic emergence out of the mutually interconnected relations of body, mind and world” (Waugh 41).

Creation and Well-being

To the Lighthouse is considered an autobiographical novel because it corresponds to Woolf’s long term memory of her childhood. Through this novel, Woolf intends to retrieve the memory of her mother, Julia Stephen. In other words, she, like Lily, uses her art to dip “into the past there” (Woolf 307) or to tunnel “her way into her picture, into the past” (308) to retrieve the memory of her mother figure, but why?

Woolf describes the initiation of *To the Lighthouse* as follows:

It is perfectly true that she [Woolf's mother] obsessed me, in spite of the fact that she died when I was thirteen, until I was forty-four. Then one day walking round Tavistock Square I made up, as I sometimes make up my books, *To the Lighthouse*; in a great, apparently involuntary, rush. One thing burst into another . . . I wrote the book very quickly; and when it was written, I ceased to be obsessed by my mother. (qtd. in Nalbantian, *Memory* 80)

Woolf also emphasizes the role of her mother in constituting her childhood memories: "Certainly there she was, in the very centre of that great Cathedral space which was childhood; there she was from the very first. My first memory is of her lap" (qtd. in Nalbantian, *Memory* 79). These quotations show that Woolf's memory of her mother haunted her until she retrieved and turned them into a work of art by recreating "her mother both through the character of Mrs Ramsay (who also dies) and through the Godrevy lighthouse which becomes a fictional lighthouse on an island in the Scottish Hebrides" (Nalbantian, *Memory* 80). After finishing the novel, Woolf feels: "When it was written, I ceased to be obsessed by my mother" (qtd. in Nalbantian *Memory*, 80); "I suppose that I did for myself what psychoanalysts do for their patients. I expressed some very long felt and deeply felt emotion" (qtd. in Nalbantian, "Neuroaesthetics" 362). How is creation capable of such a therapeutic act?

We are predisposed to creation because: "The human brain proceeds in a direction opposite to the 'input-output' mode long proposed by cybernetics. It always projects onto the world, in a spontaneous and internally generated fashion, mental representations that it tries to test against an external reality that is intrinsically devoid of meaning. This projection, as a generator of mental forms, represents an essential predisposition of the human brain toward creation" (Changeux, "Creation" 1). Therefore, we, humans, through the extended ability of our mind, are capable of projecting meaning onto the meaningless world. In other words, humans compensate for the so-called meaninglessness of the world through their creations. For instance, Woolf tries to compensate for the cruelty, transience, and meaninglessness of the world, which separated Woolf as a child from her mother, by retaining the memory of her mother in *To the Lighthouse* forever: "Both the novel itself and the painting within the novel represent the artistic work which lodges the memory of the mother figure in permanent fashion" (Nalbantian, "Neuroaesthetics" 362).

Damasio suggests that “the arts prevailed in evolution because they had survival value and contributed to the development of the notion of well-being” (*Self* 211). The question is: How can the arts contribute to survival? “They helped cement social groups and promote social organization; they assisted with communication; they compensated for emotional imbalances caused by fear, anger, desire, and grief; and they probably inaugurated the long process of establishing external records of cultural life” (211). For example, concerning the therapeutic nature of creation and memory, Waugh contends that in *To the Lighthouse* “Woolf explored that apparent loss of centre by writing a novel about the transmutation of grief into the form of a work of art”; by doing so, “memory might therefore be the final ingredient for recovering and securing a weighted and profound sense of “me,” as an individual soul” (38).

In addition to the compensation for emotional imbalances, Woolf uses her art for communication. Communication seems to be one of the origins of the arts: “At the birth of arts such as music, dance, and painting, people probably intended to communicate to others information about threats and opportunities, about their own sadness or joy, and about shaping social behavior” (Damasio, *Self* 210). Clearly, Woolf communicates, in *To the lighthouse*, the catastrophic and evil nature of war to be reflected upon, the imbalances in the family relationship to be reconsidered, and the difficulty of being a female in a patriarchal society to be reformed; this is how Woolf’s art contributes to survival and well-being. Woolf uses narratives for her creation and communication. Damasio contends that one of the manifestations of communication is storytelling. Endowed with consciousness to improve the quality of life, we have:

Invented forms of consolation for those in suffering, rewards for those who helped the sufferers, injunctions for those who caused harm, norms of behavior aimed at preventing harm and promoting good, and a mixture of punishments and preventions, of penalties and praise. The problem of how to make all this wisdom understandable, transmissible, persuasive, enforceable—in a word, of how to make it stick—was faced and a solution found. Storytelling was the solution. (Damasio, *Self* 208-9)

Conclusion

The survival-oriented nature of the arts is due to its origin: The arts are “the remarkable gifts of consciousness to humans” (Damasio, *Self* 211). Thus,

first, the arts are made possible because of consciousness and memory: “Once autobiographical selves can operate on the basis of knowledge etched in brain circuits and in external records of stone, clay, or paper, humans become capable of hitching their individual biological needs to the accumulated sapience” (206). Second, because the aim of consciousness and memory is to contribute to the well-being and quality of life, the arts follow this similar path. For instance, Lily’s act of transferring her long term memories of Mrs. Ramsay into her painting reflects Woolf’s use of her childhood memories for creation of *To the Lighthouse* in order to decrease the harmful emotional imbalances caused by the loss of her mother: “I [Woolf] suppose that I did for myself what psychoanalysts do for their patients. I expressed some very long felt and deeply felt emotion [concerning my mother]” (qtd. in Nalbantian, “Neuroaesthetics” 362). In addition, by tracing the roots of creation — in *To the Lighthouse* — to the biological and neuroscientific notions of consciousness and memory, this paper substantiates that the gap, the feud, the so-called difference, between literature and science is nothing, but a fiction.

*all italics are original

Works Cited

- Changeux, Jean-Pierre. “Creation, Art, and the Brain.” *Neurobiology of Human Values*. Eds. Changeux et al. Berlin: Springer, 2005. 1-10.
- . “The Epigenetic Variability of Memory: Brain Plasticity and Artistic Creation.” *The Memory Process: Neuroscientific and Humanistic Perspectives*. Eds. Suzanne Nalbantian. Cambridge: The MIT Press, 2011. 55-72.
- Damasio, Antonio. *Self Comes to Mind: Constructing the Conscious Brain*. New York: Pantheon Books, 2010.
- . *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. New York: Harcourt Brace & Company, 1999.
- Easterlin, Nancy. *A Biocultural Approach to Literary Theory and Interpretation*. Baltimore: The Johns Hopkins UP, 2012.
- Freeman, Derek. *Margaret Mead and Samoa: The Making and Unmaking of an Anthropological Myth*. Cambridge: Harvard UP, 1983.
- Gottschall, Jonathan. *Literature, Science, and New Humanities*. New York: Palgrave Macmillan, 2008.
- Jackson, Tony. “Questioning Interdisciplinarity: Cognitive Science, Evolutionary Psychology, and Literary Criticism.” *Poetics Today*, 21.2 (2000): 319-347.
- Mantzavinos, C. *Naturalistic Hermeneutics*. Translated by Darrell Arnold. Cambridge: Cambridge

UP, 2005.

Nalbantian, Suzanne. "Autobiographical Memory in Modernist Literature and Neuroscience." *The Memory Process: Neuroscientific and Humanistic Perspectives*. Eds. Suzanne Nalbantian et al. Cambridge: The MIT Press, 2011. 255-275.

—. *Memory in Literature: From Rousseau to Neuroscience*. New York: Palgrave Macmillan, 2003.

—. "Neuroaesthetics: Neuroscientific Theory and Illustration from the Arts." *Interdisciplinary Science Reviews* 33.4 (2008): 357-368.

Waugh, Patricia. "'Did I not Banish the Soul?' Thinking Otherwise, Woolf-Wise." *Contradictory Woolf: Selected Papers from the Twenty-First Annual International Conference on Virginia Woolf*. Eds. Derek Ryan and Stella Bolaki. South Carolina: Clemson University Digital Press, 2012. 23-42.

Wilson, Edward. O. *Consilience: The Unity of Knowledge*. New York: Knopf, 1998.

Woolf, Virginia. *Collected Novels of Virginia Woolf: Mrs. Dalloway, To the Lighthouse, The Waves*. Ed. Stella McNichol. Macmillan: Basingstoke, 1992.

责任编辑：柏 灵