

REFLECTIONS ON CONCEPTUAL AND VISUAL METAPHORS: A NEUROAESTHETIC PERSPECTIVE CONTRASTING POETIC AND CINEMATIC LANGUAGE

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Résumé : *Le présent article explore les similitudes entre les métaphores conceptuelles trouvées dans la poésie et la représentation métaphorique dans un contexte visuel, à la lumière de la recherche scientifique. Il souligne le point commun des deux expressions métaphoriques, l'une des correspondances majeures étant le plaisir esthétique. L'étude vise à fournir une approche interdisciplinaire dans le cadre neuroesthétique sur la manière dont les métaphores créent des expériences esthétiques traduites en engagement émotionnel et intellectuel. L'analyse des métaphores conceptuelles menée dans l'étude de cas ainsi que des métaphores visuelles examine l'interaction de leurs rôles dans la poésie et le cinéma. Il questionne la manière dont les métaphores déclenchent des processus cognitifs et sensoriels en utilisant des exemples tirés de The Tower de William Butler Yeats et du film Tree of Life de Terrence Malick. L'analyse des métaphores linguistiques et conceptuelles a utilisé la procédure d'identification des métaphores (MIP) et la classification des métaphores de Forceville - alignées, hybrides et contextuelles. Les théories du codage double et commun soutiennent l'accent mis davantage sur le rôle des métaphores dans l'engagement émotionnel et intellectuel. De plus, la théorie du mélange conceptuel et les schémas d'images soulignent comment les métaphores faciliteront la compréhension de concepts abstraits qui seront exprimés concrètement et traités à travers des expériences sensorielles simulées.*

Mots-clés : *métaphore conceptuelle, métaphore visuelle, expérience esthétique, engagement émotionnel et intellectuel, représentation imagée, rappel de mémoire.*

Theoretical framework: interdisciplinary approach of metaphors.

The term *neuroaesthetics* was coined by Semir Zeki (1999) and has since evolved into a discipline that explores the brain's role in aesthetic experiences requiring interdisciplinary collective efforts to experimentally test and provide evidence for humanities-based theories,

using advanced biomedical measurements such as Electroencephalography-EEG, Functional Magnetic Resonance Imaging – fMRI, Heart Rate Monitor – HRM and so forth.

Under the neuroaesthetics' umbrella, it enabled an innovative framework for exploring and gaining new insights within humanities disciplines such as linguistics or film studies, by offering transformative structures and a scientific basis to analyze the “perception, production and response to art” (Chatterjee, 2011), explaining the mechanisms underlying aesthetic experience. The aesthetic appreciation occurs since Fechner's pioneering work, which introduced the two converging approaches” aesthetic from above” and “aesthetic from below” comprehensively detailed in the first Neuroaesthetics Textbook in the world, that lays the foundation for contemporary research. (insert) Additionally, we discover here the aesthetic experience defined as “the experience of pleasure of various intensities, pleasure caused by universal biological mechanism specific to human animals, but triggered by non-biological cultural factors, and commensurate with those of our past experiences of the world that can be reported in a language historically validated by consensus.” (Băliușteanu, 2024). Therefore, the interplay between biological predispositions and cultural influences becomes influential for our reactions, leading to different attitudes towards aesthetic stimuli. Likewise, the extensive phenomenon, with various intricacies as art, requires understanding from different discipline lenses, nevertheless essential. Beyond the boundaries of conventional art forms analyses, the cognitive neuroscience of aesthetics should encompass a wide range of sensory phenomena beyond art and include diverse sensations beyond beauty.

The collection of articles *Metaphor and Thought* (Ortony, 1993) welcomes metaphors in the light of a multifaced analysis, by bringing together different fields, concentrating academic writings related to the interpretation of metaphors as well as understanding from various angles such as linguistics, cognitive science, philosophy, and other complementary disciplines. Thus, the interdisciplinary approach brings together the sophisticated nature of the metaphor, demonstrating its applicability and relevance within numerous fields. It starts with the idea that metaphors cross poetic and literary functions and become fundamental for communication between individuals.

In addition, the emphasis is directed at metaphor and its complex and essential mechanism that infuses cognitive functions. It follows the path of how individuals conceptualize abstract notions for representing tangible experiences. Additionally, this volume provides theoretical and empirical research on metaphors, exploring how are they placed in relation to reasoning and how they influence perception.

The study of metaphors represents a comprehensive theme reaching various domains. Being an ample topic, metaphors are directly influenced by cultural specificity and should be contextualized considering their socio-cultural valences (Lakoff & Johnson, 1980; Kövecses, 2005). On the other hand, recent discoveries within the experimental research pointed to the cognitive and physiological implications, demonstrating that metaphors are rooted in bodily experiences (Wilson & Golonka, 2013). Theories attributed to perception, mental imagery, memory and language processing such as embodied cognition (Gibbs, 2006), conceptual blending theory (Fauconnier & Turner, 2002), multimodal metaphors (Forceville, 2009), image schemas (Johnson, 1987), perceptual symbol system (Barsalou, 1999), dual coding theory (Paivio, 1986) were studied and analyzed resulting in explanations that clarify how do we conceptualize the world around us and how we relate and perceive it. The theories mentioned will be applied in the study case elaborated further in this paper, linking the language used in poetry as well as in film as one of the primary elements of an aesthetic experience generated by the interaction with metaphorical expression.

Among the most influential works on the subject of metaphors, *Metaphors We Live By* (Lakoff, 1980), sets an innovative and accessible approach for analyzing and reconsidering the definition of metaphors. They emphasize the idea that metaphors are represented by mapping concepts from one domain (source domain) to another (target domain) based on a systematic cognitive mechanism. Through an extended comparison, the principles of the theory of conceptual metaphor (CMT) (Lakoff, 1980) converge with the visual metaphor, the latter being attributed to the capacity to convey meanings and evoke similar degrees of impact and cognitive processing (Forceville, 2009). Since the CMT, cognitive linguistics gained relevance within the academic community exploring the intersection of different discipline interests. Many considerations related to the functions of metaphors converge into the idea that one of the fundamental roles of metaphors is to enable individuals to express or understand abstract concepts in terms of tangible or familiar experiences. This process increases the sharpness of the ideas and promotes deeper understanding. Also, concepts are used to gain more flexibility by their nature of being dynamically adjusted according to the receiver's experience and adaptation (Lakoff, 1992).

Metaphors: theoretical context, key terms and concepts

One of the earliest theoretical analyses of the metaphor offered the perspective of approaching it as a rhetorical strategy that enhances the transfer of meanings. It provides as well as facilitates the comprehension of a message, creates clarity, and beauty, and improves persuasion. Additional developments that established the theoretical foundation for the next metaphor research were carried out by Ivor Armstrong Richards (1936), since the 20th century, who introduced in his work two notable concepts – “tenor” and “vehicle” – as main parts of a metaphor. The first one represents the concept expressed, the latter being the form that conveys the metaphorical meaning. He is also pointing to the ambiguity that retrieves from the terminology, using the example of “meaning” and “expression” which misleads frequently the study of metaphors as the terms are used inconsistently.

Classification and labels of metaphors

The following section will focus on the theories that lay the foundation for metaphor processing and visual representation. The cognitive framework serves in this research as a tool for analysis and understanding of one's aesthetic experience while interacting with metaphors.

The primary metaphor theory (TPM) was included in a further study as an extended analysis of metaphors, defining the non-verbal and multimodal metaphors. The studies on representations of metaphors provides us with various investigations from the past 30 years, anticipating the emergence of a new discipline: Metaphors Study (Forceville, 2009). According to Grady's TPM (Grady, 2005), conceptual metaphors are frequently expressed through an experiential or physical pattern, forming a primary metaphor. Their function is to express recurrent correlations in our embodied experiences. In addition, various studies review the importance of TPM (El Refaie, 2003; Lima, 2006; Forceville, 2006, 2007, 2008; Yu, 2008b; Joy et al., 2008).

Monomodal and multimodal metaphors

Forceville (2002) introduces a distinction between multimodal and monomodal metaphors. But prior to establishing the nature of the metaphors we should formulate two questions:

1. Which are the two terms of the metaphor?

2. Which of the two terms is the metaphor's tenor/target and which is the metaphor's vehicle/source?
3. Which feature(s) is/are mapped from vehicle to tenor?

Additionally, significant developments pursuing the identification of multimodal metaphor theory were made, examining how metaphors operate across different modes of communication, including visual, auditory, and textual. Visual metaphors are a key component of this theory, showing how meaning is constructed through various sensory modalities, therefore metaphors can be classified as follows.

1. Monomodal Metaphors – a single mode of representation of the source domain and target domain. The mode refers to: visual, auditory, tactile, gestures. For example, imagine a painting representing a storm in the sea that suggests emotional turmoil. This is labelled as a monomodal metaphor – visual mode. An auditory mode, would translate the same example as “a sea of troubles”.
2. Multimodal Metaphors – multiple modes of representing (audio-visual, verbovisual, verboaudiovisual)
3. Structural – Structural being rooted in cultural or cognitive structures and depicts an abstract concept through a more familiar and concrete term. The structural metaphor relates rather on a common linguistic and cognitive framework (e.g. *Life is a journey*)
4. Creative Metaphors – By contrast, the creative metaphors which are directly dependent on the context and commonly used as artistic expressions in literature, poetry, visual arts, etc. They impose a deeper engagement from the audience as they require a proper understanding of the intended meaning, being isolated from the pre-existing cultural structures.

Moreover, Forceville develops an improved method of identifying creative metaphors based on the criteria formulated in his earliest studies (1996). Thereby, in order to label a metaphor as creative metaphor, it should contain the following characteristics:

- Between the two elements there is a similarity or identity relationship, which is spontaneously created, not pre-existent.
- The two elements/events could represent “literal” target while the other the “figurative” source.
- The connotations, emotions or features are linked with the source or target, and they are transformed by this mapping indeed. The understanding is produced by the new perspective created within this association.

Forceville goes further with examples crossing into the moving images realm, applying the four types of pictorial metaphor in film affirming that “can the four variants all occur in film? Since all, the examples discussed in Forceville could be imagined as film frames, or freezes, the answer cannot but be affirmative” (1996). Hence, he proposes the following classification on the pictorial metaphors in four main types, inquiring them after in moving images. In the next section, three of the pictorial metaphor will be applied on film sequences analysis.

1. MP1s (Type A) – it includes 1 term visually and the other is deduced from the pictorial context (contextual)

2. MP2s (Type B) – both terms are visually represented (or represented in the same medium (hybrids))
3. Pictorial similes (Type C) - both terms (tenor and vehicle) juxtaposed (aligned)
4. VPMs (Type D) – verbo-pictorial metaphors (both terms are represented in different media)

Case Study

In poetry, linguistic and conceptual metaphors are used as a means of expression, usually essential for transmitting abstract concepts, designed and transmitted through tangible imagery. The hypothesis evoked in this study, previously formulated by Lakoff and Johnson (1980), points to the level of emotional engagement the reader reaches while encountering conceptual metaphors that transfer intangible concepts such as time, love, or mortality within more familiar sensory sensations. In the present paper, four examples of linguistic and conceptual metaphor were extracted from an extensive study of metaphors¹ extracted from the poetry volume *The Tower*, written by William Butler Yeats (1928) administering The Metaphor Identification Procedure (MIP) (Pragglejaz, 2007).

The Tower				
But/ I/ have/ found/ an/ answer/ in/ those/ eyes/				
Word	Contextual meaning	The basic meaning	Contextual vs. basic meaning	Type of metaphor
answer (noun)	In this context, the “answer” is used in a figurative way to indicate the key that unlocks the chains of the suppressed mind. A concept cannot be seen, especially in someone’s eyes except metaphorically speaking.	A reaction or reply to a question or request a solution to a problem.	The contextual meaning contrasts with the basic meaning.	Linguistic metaphor
Plunge, / lured/ by/ a/ softening/ eye, /				
plunge (verb)	It refers to an action associated with a dip into water. It is about the process that begins with the jump, continuing with the sensations that ones have by falling, and ending with impact between the body and water. This is compared with one’s thought that can trigger our mind in this type of process.	A leap or dive as into water, a dip.	By comparison, the contextual meaning is more complex than the basic meaning.	Conceptual metaphor
plunge (verb)	Source domain	Target domain		

¹ The study of linguistic and conceptual metaphors was conducted in the Neuroaesthetics Laboratory, at the University of Suceava, within the Poetic Arts project, RO-NO-2019- 0091, Norway Grants, in 2022, where I ran the analysis on the entire volume *The Tower* by William Butler Yeats.

	Suddenly immerse, declension, fall.	Dipping into water.		
Sailing to Byzantium				
Consume/ my/ heart/ away/; sick/ with/ desire/				
Word	Contextual meaning	The basic meaning	Contextual vs. basic meaning	Type of metaphor
consume (verb)	The verb “consume”, an imperative, is the expression of an urgent desire. It means the need of being devoured. The emotional part of the poet’s being, is to be replaced with wisdom and serenity.	To eat or drink large amounts of something.	The contextual meaning is more complex than the basic meaning.	Conceptual metaphor
consume (verb)	Source domain	Target domain		
	“consume” suggests the act of eating greedily.	To be eaten or to disappear /being destroyed by burning.		
heart (noun)	The noun means the physical center of life and being. It stipulates the dynamics of life. It also refers to affectivity and emotion. It is fragile and vulnerable. It is finite, opposed to the soul, which seems to be infinite.	The organ in the chest that pumps and sends the blood around the body.	The contextual meaning is slightly larger than the basic one.	Linguistic metaphor

In this context, emotional and intellectual engagement is generated by the processes of understanding and reasoning while reading the metaphors. The theory of image schemas unfolds the mechanism implied while the patterns of sensory and motor experiences structure our understanding of concepts. These schemas are fundamental to how we perceive and make sense of metaphors (Johnson, 1987). For example, “plunge” was used as a metaphor that articulates an emotional or existential decline through a basic meaning of the term that indicates an act of movement. Thus, a somatic understanding is required to access a specific emotional state, through the sense of falling.

Yet, image schemas, representing a division of the prodigious embodied cognition theory, facilitate the process of understanding an abstract concept by decoding the meaning thorough physical and spatial associations, making them emotionally reasonable (Kövecses, 2010). While, poetry employs language, the film uses actual images to produce emotional or intellectual engagement, but on the same principles of the cognitive mechanism. The idea will be exemplified further in this paper.

Cognitive linguists propose conceptual blending theory (Turner, 1997; Fauconnier, 2002), that explores how individuals blend elements from different mental spaces to create new meaning. This theory reveals the possibility of a rich interpretation and integration of a message transmitted in poetry, allowing the blending of ideas in behalf of new subjective

meanings. The leverage of the conceptual blending theory's application results in coherent visual representation of metaphors.

The following section of the metaphor analysis will be focused on Malick, T. (Director). (2011) *The Tree of Life* [Film], where four visual metaphors were identified according to the blend of Forceville's and Grady's theories related to visual metaphor – "correlation-based metaphors" "(the source domain is sensory-motor, the target domain is not)" and "resemblance metaphors" "(based on physical or conceptual perception by association of concepts having similar characteristics) applied as an innovative methodology used in a previous study (Ortiz, 2011).

Forceville recalls the formula, lengthily exemplified by Lakoff and Johnson, A is B and bridges the pictorial metaphor and the conceptual metaphor by mentioning their similarities which are:

- Both of them use a tenor and a vehicle that is tangible/concrete in order to be depictable;
- The pictorial metaphor usually contains objects or persons – and linguistically, conceptual metaphors usually are embodied in noun/verbs.



Fig.1 *The tree and the ladder* – aligned metaphor represented in one shot

In figure 1, the shot represents a tree, that reminds of the universal symbol of the analogy of life and death. It has no leaves, an aspect that reinforces the idea of death. It is strongly connected with the topic of the film which creates a family portrait, after the death of one of the three children. Due to the light conditions, the cloudy atmosphere triggers the sensation of coldness, congruent with the main theme. The filming angle used suggests a powerful force that is rather uncontrollable, and the camera movement is consistent with the idea of ascension, or even the transcendence of the soul, in the context of a metaphorical death.



Fig.2 *Children and woman playing with the curtain* – hybrid metaphor represented in two shots

Through an extended comparison, figure 2, representing a visual metaphor, points to one of the metaphors identified in Yeats poem *From 'Oedipus at Colonus'* (1928), in the

verse I/ celebrate/ the/ silent/ kiss/ that/ ends/ short/ life/ or/ long/. The contextual meaning of the noun "kiss" expresses more than the union of the two bodies as a symbol of harmony. It points to the archetypal dialogue of "life-death". Along with the "kiss", something will be changed. It is unclear if it marks a beginning or an end or both. The basic meaning of the "kiss" suggests the action of touching with the lips or pressing the lips against as an expression of love, greeting, respect, etc. Hence, the noun "kiss" is metaphorically used, as the contextual meaning is larger than the basic meaning. The source domain in the verse as well as in the image from fig.2 indicates the touch of the lips as an expression of love, while the target domain points to the death encounter. This idea is strongly linked with the death of the older brother, that is one of the main narratives of the film. Also, the woman from the fig.2 images appears in a distinct sequence that represents the birth of the brother who is now dead, strengthening the life-death analogy. Hence, images' tangibility may make them more effective as stronger tools in metaphorical thinking and communication. According to Grady (2005), "the nature of our conceptual system manipulates images, of any modality and in any complexity level, more easily than the kinds of concepts that serve as target domains".

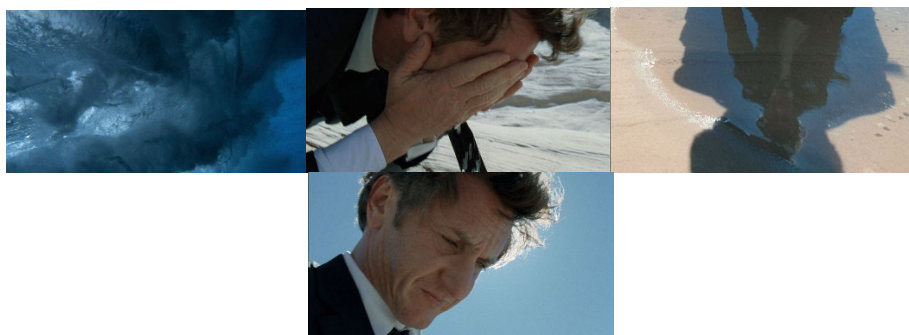


Fig 3. *Water waves, man washes his face* – contextual metaphor represented in 4 shots

In this case, the water waves represent the turmoil of thoughts. In the first image from figure 3, water symbolizes Jack's state of mind, bridging the character's two worlds: the physical and the imaginary one. His process of memory recall and internal tumult is visually expressed through the juxtaposition of the first three images. The waves from the first image can also symbolize the contemplation of the past, the concept of suffering that becomes overwhelming, like the sensation triggered by the water's unsettlement. In the next shot, he washes his face as a sign of facing the memories, of waking up. The third shot consists in a visual representation of reflection. He projects himself both physically and figuratively in the past, and he looks at it in the last shot, as a translation of integration of the process.

In the film studies domain, Terrence Malick's approaches on films are considered poetical, historical and philosophical due to their cinematic language (DeLay, 2023), the film *Tree of Life* being one of his works that is highly complex in editing styles as it manages a series of visual representation of the mind wandering. The sequences evoked above refers to Jack's memory recalls. Figure 2 and figure 3 illustrates a moment of introspection, of grief and longing after the death of his brother. A remark that concludes the analysis of the visual metaphor in figure 2 and figure 3 reveals the idea that the Jack's imagery is depicted through metaphorical means and divided in two types: imagery depicting atmospheres that elicit sensations, with high symbolic meaning and imagery as a memory illustration. In addition,

when we experience something, our brain codes the information into smaller units, not as a whole memory. It breaks down a story into distinct parts so it can be stored and the brain uses selective attention. Within an extrapolation of this theory on film perception, the juxtaposition of shots would represent the components of an entire story that is expressed by the creator as well as integrated in viewer's mind (Zacks, 2020).

Discussion

The filmmakers aim to build another reality through film and we as the audience agree to experience the illusion of it as being something real. They select from the common, immediate reality, and encode again the essential elements within the film, through a story that is aimed to transmit a message and create emotions. In other words, a piece of reality is reconstructed with new valences of time and space. In this context, we start from the idea that "cinema is also a language" (Bazin, 1967).

The film's syntax is about creating a visual cinematic language that the audience can understand intuitively. It provides a structure for filmmakers to tell stories in a way that is visually comprehensible and emotionally engaging. It's like the grammar of a language, providing a set of guidelines for creating a coherent and understandable visual and auditory narrative. But for linking to the intuitive creation and understanding it must be grounded in the natural and biological processes that define us as human beings. In other words, the cognitive processing while watching a film is founded by perceptual experiences. The viewer mentally simulates the actions seen on the screen (the perceptual symbols) which activates the representations of the sensory-motor experiences (like sight or sound). Hence, the cognitive approach on film analysis reinforced the interdisciplinary hypothesis related to the viewer's emotional engagement while watching a film, conscious and unconscious perception mechanisms, film narratives and constructing meaning. (Bordwell, 1985, 1989; Carroll, 1998)

In regard to poetry, the processes of the perceptual system when metaphors occur are similar to the visual ones. Perceptual symbol system theory focuses on the transition from perceptual theories that emerged before the 20th century to the after theories that were called perceptual theories of knowledge (Barsalou, 1999). The latter proposes a different approach, where the perception theory is defined by the brain's association of areas responsible for sensory-motor activations that makes possible in the end the simulations of what is seen. The simulators are memories of sensory components stored and organized that lead to complex cognitive functions and conceptual thinking, and supports understanding of abstract concepts.

A distinct theory called *dual coding*, underlines the importance of using sophisticated cinematic language, film being an efficient and powerful mode of expressing ideas, due to the memory that improves when exposed to double codes (words and images). Hence, psychological evidence proves that it is highly probable that the viewer is highly engaged in both intellectual and emotional processing while watching a film. The nonverbal content produces a stronger connection especially when it is accompanied by visual metaphors or symbolic imagery, generating cognitive and emotional synchrony indeed (Paivio, 1969, 1971). The dual coding theory explains the process of cognition as being governed by the picture superiority effect meaning that images have more impact on the viewers than words, in the process of recalling a memory.

On the one hand, information is represented through two channels – verbal and nonverbal – and verbal information and non-verbal/visual information are processed separately through two different systems. It was demonstrated that if somebody tries to

recall a memory, it is highly probable that person to remember more easily if the words are accompanied by an image. This means that a visual metaphor would have a greater impact on the viewer an attempt to create emotional engagement. (Paivio, 1990)

On the other hand, an alternative theory challenges the principles of the dual coding theory. It is called common coding theory and it was formulated by Wolfgang Prinz (1984). While dual coding theory postulates the two channels that effectively interact for coding the visual and verbal information towards better recall and recognition, the common coding theory focuses on the perception and integration of information. The latter indicates that the information is encoded by the brain as motor processes, in a common representational code, and there is not a defined limit between an action and its perception. For example, while watching a film, one can have an intense emotional response as the visual stimuli are strongly linked to the mental simulation of what is visually perceived, supporting the evidence that common coding theory proposes.

Conclusion

This paper investigated the function of conceptual and visual metaphors, trying to follow their shared process of creating emotional and intellectual engagement, one of the dominant similarities between them is determined by the sensory experience mechanism evoked in understanding and producing meanings.

Neuroaesthetics explains through an interdisciplinary approach how metaphors are processed in the brain through imaginary and sensory levels and prove their effects within experimental research. This approach offers an overview of how similarities of conceptual and visual metaphors are related to the involvement of sensory-motor, emotion-valuation, and knowledge-meaning systems in aesthetic experience (Chatterjee, 2011). Also, it underscores to what extent the cinematic language of a film, akin to poetic language, uses metaphors as a means of expression, stimulating the imagination and consequently fostering the power of transformative engagement, by producing valuable subjective and stimulative interpretations.

One of the limitations in analyzing metaphors' effect on the audience's reaction evoked by the stimuli, especially when talking about visual metaphors, is yet unclear where the transition from a temporary emotional response to a deeper emotional or intellectual engagement is produced and by what determining factors.

Further experimental research will be conducted on this topic. It will be focusing on visual stimuli and testing the distinction between transitory emotional reactions and lasting emotional and intellectual engagement, as well as investigating the aesthetic experience while watching a film. To measure the audience reactions in real-time, a multidisciplinary approach is needed, using various bio-signals, including quantitative studies using electroencephalography (EEG) and heart rate variability (HRV).

Therefore, by expanding our understanding of metaphor as an elementary cognitive tool, future research can highlight how metaphors shape our perception of universal existential themes and exceed linguistic phenomena. The aesthetic experience of the reader or the viewer is enriched when metaphors challenge them to resolve the paradigm and hence the meaning, providing a sense of fulfilment.

In the end, knowing the brain and psychological foundations of metaphor will deepen our understanding of its function in human creativity and offer important new perspectives on the transformational potential of aesthetic experiences through the audience's involvement in dealing with the puzzle of meaning.

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