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RESEARCH ARTICLE

NEUROSCIENCE: MIRROR NEURON AND FILM NARRATION

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ABSTRACT

Neuroscience and film study is an interdisciplinary domain in which the discovery of mirror neuron in the brain has influenced film study scholars towards this new field of study, offering an unbelievable narrative paradigm in this emerging field. This study is an attempt to map the relation and its narrative location in the presence of mirror neuron particularly in the context of Indian Films. The present work depends on the existing literature and analysis of visual sequences in films.

INTRODUCTION

Realizing a film is an amazing feat of neural and cognitive processing. A series of still pictures are projected quickly on a screen, accompanied by a stream of sound and a viewer has an experience that can be as engaging, emotionally affecting, and memorable as many experiences in real life. Film, is a possible target of investigation for cognitive neuroscience, and for a variety of very good reasons. The present work is an attempt to map narrative linkage of film and *mirror neuron* in the brain. There are a number of neurons in our brain which functions in different purpose in brain. Mirror neurons are neurons whose response mirrors what one observes, and makes one feel what the other person is feeling or doing on screen.Mirror neurons have been linked to many behaviors and abilities from empathy to learning by imitation. Vittorio Gallese and colleagues discovered mirror neurons accidentally in 1991 while working with macaque monkeys. They noticed that when one monkey observed other monkey grasping a peanut, the same neurons fired in his brain, as if he were performing that very action. This led Gallese and colleagues to conjecture a new model of inter-subjectivity: we "connect" to another human being before us because our brain mimics or creates a bodily representation of what that other person is doing (Badt; 2013). The bodily representation of cinematic narrations highly influenced by mirror neurons. These mirror neurons are also present in the human brain, and are activated when we perceive others performing goal-oriented activities as well as when we perform the activities ourselves.Gallese is specifically interested in how mirror neurons affect our cinematic experiences.His notion of mirror neurons opened up an entirely new way to see cinema: what he call "the embodied simulation" approach (ES). "It is our body that is at the movies: our body in the complete sense of the word, with its motor-sensorial reactions" (Badt; 2013). The "Theory of mind" positsthat things or people are understood by sense of reflection. But the mirror mechanism suggests that it is not a matter of reflection. When aperson watches afilm, reaction of the character is as though it is happening to the spectator in this sense, film and mirror neuron have fascinating connection in the narrative process.

Neuroscience and film

During the past decade, there has been a growing interest in how cognitive neuroscience will influence films studies. As a result of recent discoveries and technological advancements within neuroscience, interest in the brain and its functions permeates the cognitive film studies paradigm (Stijernholm; 2011). Contemporary film studies do not deal with neuroscience from joint perspective; but rather, theorists with different starting points stress diverse areas where neuroscience might prove valuable. A highly influential voice in the field of film and neuroscience, Patricia Pisters, argues that today's popular fascination with our minds within cinema highlights how Hollywood films have developed a 'neuroaesthetic' style (Elliot; 2010). Within film studies, the influence of cognitive film theory gained ground through the past decade, especially in relation to the social constructionist paradigm emphasizing psychoanalytical and cultural analytical model. The film theoretician, David Bordwell question through his book on "In

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Narration in the fiction film from 1985" how one could explain the cinematic experience and its narrative structure without brain relation (Bordwell; 1985). These sound argument made great impact among the film study paradigms and new discoveries in the film fraternity by David Bordwell and Noell Carroll paved the ways for new dimensions of neuroscience and film. However, Bordwell, expanded the very gigantic relations and its notion of films and cognitive aspect. After the continues research followed by the cognitive and neuroscience film scholar create new domain for film study

The founder of neuroaesthetic studies SemirZeki in his *Science Magazine* article 'Artistic creativity and the brain' (2001) has popularized the idea of artists as neurologists, who unknowingly study the brain with techniques unique to them. Further Zeki points the way to a convergence of the critical studies of the philosophical, aesthetic, and ethical functions of cinema *with* discoveries in neurosciences and cognitive sciences. Movies could easily become more effective at fulfilling the expectations of their particular genre. Theatrical directors can go far beyond the current limitations of market research to gain access into their audience's subconscious mind. "The filmmakers will be able to track precisely which sequences/scenes excite, emotionally engage or lose the viewer's interest based on what regions of the brain are activated" (Silver;2009, p.106). This kind of different mapping offer tremendous ways in cinema on the brain influence. In the modern innovative platform also contribute different aspect of the cinematic magic in the human brain.

Some authors have speculated that the cognitive component (P3) of the Event-Related Potential (ERP) can function as a psychophysiological measure of sexual interest. The aim of this study was to determine if the P3 ERP component in a workload task can be used as a specific and objective measure of sexual motivation by comparing the neurophysiologic response to stimuli of motivational relevance with different levels of violence and arousal (Carvalho,Leite, Galdo-Álvarez,&Gonçalves; 2011).

In the study of watching TV news and its memory task, demonstrate the feasibility of assessing brain activity underlying declarative memory using a natural stimulation paradigm with high ecological validity. The preliminary result of greater brain activation with increasing age might reflect an attempt to compensate for decreasing episodic memory capacity associated with aging (Frings, Mader&Hüll**;** 2010).The brain response in the amygdala to watching scenes from the horror film *Pop Skull*. For those that don't know, the amygdala is the emotional center of the brain. It's involved in feelings of disgust, anger, lust and fear — all emotions especially elicited during a horror film. In the analysis of neuro-scientific and its evidence shows that how much the amygdala has been activated during the horror film, that much of fear who feel on screening.

Cinema serves the interest of social neuroscience because it simulates life by its very nature, neurocinematicsreferred to neuro imaging experiments that use cinematic stimuli to study human behavior. So far, neurocinematicexperiments shown that different viewers' attention to socially determining aspect of the story, often communicates by facial expression and bodily gestures, which are highly co related (Bartels and Zeki;2003).In a pragmatic sense, two major research findings—along with technological advancements—constitute the primary influence within the field of film studies: the discovery of mirror neurons, and Antonio Damasio's research on emotions.However, the narrative impact of cinema has been understood in different neuro aesthetic and neuro scientific ways. The present work is limited to the existing literature, because of the scientific nature of methodological approach. This research has beendon with the following research questions: a). In what ways the Mirror Neurons engage in film narration? b). How Mirror Neurons make relations while watching films?.

Mirror Neuron and films

Film is a great medium to engage with human emotions, in this sense "cinema is a place to feel something", this feel is made possible by the representation of reality in cinema. The film study scholars and researchers of film have studied the different discourses in films. However, with the discovery of Mirror neurons these has been great influence within the field of film studies because cinema depends on audio-visual stimuli. But this audio-visual stimuli is particularly narrated from the point of view of the director. The audio-visual perception is made by direct sensory engagement and is an automatic process. Automatic process might induce emotional contagion when we observe other emotions (Coplan; 2006). In this sense, contemporary scholar researching on emotional contagion are strongly relate to the mirror neuron and narration. In general, film narration invests in emotions which expresses through character position, action, feelings, voice, touch and so on. The main function of mirror neuron is mimicking. Similarly a character's emotional reactions aremirrored by neuron the spectator's in our brain. That is how empathy created.Studies based onpornography has proven that there is relation in mirror neuron and the porn discourse. While watching porn visuals the spectator not only views, but also feels the pleasure from the visuals. This probably possible by the motor action of mirror neuron. Similar, a sad sequences upper in the screen we create empathy.This relations also made possible by neuro mechanism. But whether in case of all sequence of narration, this is made possible is questionable. When a person watching the commercial film, it's not similar classical or porn. In contrast, different kinds of neurons works while watching cinema.

Action intention logic has create great influence in the cinematic meaning making Mirror neurons emphasize the way the mirror neuron system in the pre motor cortex elicits action and mirrors the actions and the intentions of the character. Film narrationprogresses with the help ofsuspense logic. Thislogic is leadsthe spectator to active participate in the side of spectator. The spectator is always curious to the next events on the screen. For instance, a hero chasing the villain, or a hero walking to propose to his love, the spectator is involved in prediction. In this sense the spectator mirrors the actions and the intentions of the character. During the screening of Satyajit Ray film *PatherPnchali* (1955),for instance, specific sequences appear on the screen , old lady having food in traditional way, leading to thea spectator coming out from the theater and vomiting. This kind of narration is the logic of film which is prompted by the mirroring mechanism in the brain.

CONCLUSION

Cinema is elitebecause it engages with human sense. When a person watches film there are multiple sensual process happening in our mind, to create the meaning of narrative frame. Among this Mirror Neuronsact as effective stimuli. Mirror neurons are a uniqueneuron which highly influencethe watching of film. These unique neurons deeply engage in creatingsense f when other person is feeling of what the character is doing on screen because the same thing is happening "in" you" (Galles; 2014).However, the logic of film narration and the mirror neurons are the great influence of cinematic meaning making and also the creation of sympathy while watching is made possible by mirror neuron.

References

Gallese,V&Guerra,M (2014). Embodying Movies: Embodied Simulation AndFilm Studies. Cinema 3 article. Retrieved from: hhp//www.huffingtonpost.com

Silver, C (2009). Neurocinema Aims To Change The Way Movies Are Made

Frings L, Mader I, &Hüll,M (2010). Watching TV news as a memory task – brain activation and age effects, *BMC Neuroscience* 11: 106.

Carvalho S, Leite J, Galdo-Álvarez S, and Gonçalves (2011). Psychophysiological correlates of sexually and non-sexually motivated attention to film clips in a workload task, *PLoS One* 6 (12): e29530.

Badt, K (2013). Mirror Neuron and Why We love Cinema: A Conversation with VittorioGallese and Michele Guerra in Parma. The Blog. Retrieved From: http;//www.huffingtonpost.com

Watson, F (2014) Mirror Neurons at the Movie, Making connections between theory and reality.

Shaw, C, D (2013). Mirror Neurons and Simulation Theory: A Neurophysiological Foundation for Cinematic Empathy, Abstact,Film-Philosophy Conference, Beyond Film. Retrieved: http://www.film-philosophy.com

Behrens,R. R (2013) Art, Design and Brain Research: Non-Scientific Thoughts about Neuroaesthetics, Gastalt Theory, Vol.35, No.2

Elliott, P (2010). The eye, the Brain, the screen: What neuroscience can teach film theory, Excursions, Vol.1, 1-16.

McCluer T, Siegal. J, (2015) Neuroaesthetics: An introduction to Visual Art, Impulse: The Premiere Undergraduate Neuroscience Journal. Pp.1-7.

Uricaru,M. I (2011) Intimate beyond word: reconsidering the cinematic subject in light of neuroscience, PhD Thesis. Umi dissertation publishing

Huang. M (N.D) The Neuroscience of art,Review and Future, Stant ford journal of Neuroscience.

Views (2006) A quarterly newsletter for small and mid- sized art museums, summer.

Fadiga, Luciano, and GiacomoRizzolatti. "Motor Facilitation During Action Observation: A Magnetic Stimulation Study." Journal of Neurophysiology, 73 (1995): 2608-2611. Print.

Bartels, A., &Zeki, S. (2004). The neural correlates of maternal and romantic love. Neuroimage, 21, 1155-1166.

Zeki, S. (1999), Inner Vision: An Exploration of Art and the Brain. Oxford: Oxford University Press.

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