

Audience Perception and Cognition towards Moving Images: Review of Short Film Delirium

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ABSTRACT This short paper discusses the creator's video project *Delirium* recorded in India. The video aims to explore the viewer's perception and cognition towards this moving image. Also, the genre was designed in the realm of psychology to explore both complex parts of storytelling and viewers' point of narration. This short film examines the efficiency of storytelling to attain the audience's attention engagement level. The film experimented with questioning the law of physics related to time throughout the film. The film developed with several visual aspects and audios for the same. The results of the study show that the film concept was very effective in maintaining their curiosity. Viewer's perceptions and cognition are essential to explore and understand how moving images engage them as entertainment media. This study suggests the scope of extending the investigation towards the motion picture parameters such as visual and audio in a larger format. We identified that more than 48% of our participants attended physical objects screened in the movie while 28% of participants perceived and recalled more subjective quality of the film (the facial expression of the character, the rhythm of the scene, and syncing of music with visuals, connotative meaning of the plot including the lighting). We recommend further investigation in larger film

format on perception and cognition for the research domain like age and gender categories. We anticipate that our research methodology would aid in understanding how cinema affects the viewer and in designing a film to have a more excellent visual experience.

Keywords: perception, cognition, curiosity, attention, entertainment, visuals and audio

Introduction

When we look at a hill, a visual picture corresponding to the mountain's steepness is formed in our minds. Professor Edward Tolman, one of the pioneers of latent learning theories, calls such a mental process a cognitive representation (Tolman and Honzik). Sensory information around us can affect our perception and emotional level. Similarly, the moving images and media around us have a vital role in moulding a novel culture and a mixed civilization. Film and modern media are capable of affecting human emotional levels. There are numerous socio-psychological factors that affect the emotional level of an individual; gender is one among them. Studies state that the emotional level of both males and females can be affected by moving visuals. Moreover, the emotional intensity of women is higher than men (Gross and Levenson). There are different categories of media and film underlined in the past literature. These film categories or a specific genre has an underlying set of mutually understood norms (either consciously or unconsciously) by the audience for whom the text was created (Downes; Hymes). Our study mainly aims to understand how psychologically categorized short movies (psychological genre films) impact the emotional level of the audience. We developed a short movie titled "Delirium" (see Figure 1) to examine the emotional valence and arousal of the audience.

The total duration of the film clip is 9 minutes 18 seconds. The main idea of our short film was taken from a documentary film by a well-known Canadian psychiatrist Dr. Heinz Edgar Lehmann. He did a series of video documentation of schizophrenic patients while working as a consultant at Verdun hospital in Montreal (Lehmann and Ban). In his interviews, Dr. Lehmann explored human mental stress and depression and filmed the consultation as a document (Figure 2). In our study, we are trying to expose schizophrenia through a fictional movie and examine the personal viewpoint of our audience using an online survey towards such schizophrenic conditions.

Furthermore, we designed the film genre by plotting the delusion condition, which gives a feel of time stretching to the audience, which is against the natural laws of physics related to time. This condition might give the audience a different experience to understand the concept of film from a third-person viewpoint. Similar to their gender, the experience of viewers is also based on their age.



Figure 1: “Delirium (short film, 2020).” YouTube, uploaded by Shynu Robert, 20 Dec, 2019, www.youtube.com/watch?v=TT8rA7mPI-I&t=1s



Figure 2: “Psychiatric Interview 1950s Hebephrenic Schizophrenia.” YouTube, uploaded by Pika Grape Snack, 29 Jul, 2019, www.youtube.com/watch?v=rPAfEm5iovY&t=2s

Different ages might have different viewpoints and different perceptions (Bucks et al.). Hence to get a stable set of data, we randomly select our participants from a group of younger adults (age ranging from 18–25). We place some notable objects in the plot to catch the attention and sustain the curiosity of our audience. We use objects such as a swinging pendulum, fire on the matches, and a partially filled glass of water. Moreover, we try to deconstruct the physical laws in the audience’s mind by screening the swinging pendulum in the entire film. Also, it provided with its ticking sound and showed the fire flame on the fire matches for a long time.

Sensory experience, including visual and auditory, can develop curiosity in people’s minds, which helps them recognize and remember such events. Music and audio stimuli can inspire and motivate the viewers to see movies without boredom (Lang and Bradley; Bolivar et al.). Hence we integrated interesting background sounds into our shot film. Both audio and visual stimuli could influence the mood of the audience. In their influential article, Bolivar and collaborators at Dalhousie University (1994) found that using different background music could change the meaning of a visual presentation. We are also interested in doing a similar research line, and we also expect our audience to have their interpretation of this storyline (Bullerjahn and Gldenring). It is also more evident from the previous research of Marilyn Boltz et al. 2001 that one can easily connect and recall a visual when listening to a film song or any other audio they experienced before. We’re also curious about how people associate audio with visuals and recall audio when they see the visual registered on their minds. Since we focus on the exploratory part of audience cognition, integrating sensitive music or sounds might enhance audience perception and memory (Boltz et al.). To enhance the attention towards the movie, we had also highlighted the character using a dark background and high contrast focus lights. We created a neutral appearance by reducing the colour tone and gradation of the character on scenes (Figure 3).



Figure 3: Neutral appearance of character appearance in film
Source: “Delirium (short film, 2020).”

To maintain audience's interest and focus, we introduce colours like red to the selected scenes where it is required. To interpret the inner emotion and feelings of the character, we used different lighting compositions, including butterfly lighting, loop lighting, Rembrandt lighting, and split lighting, which varies from shot to shot. For example, composition using butterfly lighting renders a triangle of light on the cheek. Schizophrenic genre films generally show the depth of confusion that the character was going through. We aim to know how our audience responds to this kind of genre of movies. We are more curious to study the emotional and stress factors developing in our audience and how they react to those genres of film. Hence we expect that emotionally stressful visuals and sensitive motion pictures can create anxiety in the human mind (Lazarus et al.).

Participants

Twenty-eight undergraduate students and one graduate student (20 female and one person not willing to express gender) with a mean age of 20.89 years from different universities of India participated in the study. The participants with psychological issues were excluded from the study. Data of three participants were eliminated as they were having more than 2 cups of caffeine drinks (tea, coffee, cola, etc.); such substances might affect the arousal and valence level of response. A total of 25 participants appeared in the final sample with a mean age of 20.40 years (SD = 2.12). All of them were Indian and whoever was able to follow the English language.

Apparatus

We asked eighteen emotional response questionnaires to evaluate the participants' emotional reaction to the film. The Self-Assessment Manikin (SAM) was administered to examine the emotional valence of these 18 emotional responsive questions. The standard assessment tools could analyse human arousal, pleasure, and dominance based on emotionally sensitive visuals (Bradley and Lang). Our study uses both 5-point and 9-point self-rating scales to evaluate the emotional state of audio and visuals stimuli in both pre and post-screening respectively (see figure 4 showing an image of a 9-point Likert self-rating manikin scale). Both 9-point and 5-point manikin scales are self-rating standardized scales where the participants can choose from at least five selections of manikin to report their emotional status. For more accurate measurement, researchers use a 9-point SAM, which has nine sections of manikin indicating three ("Pleasure," "Arousal," and "Dominance") affective dimensions (Bradley and Lang). We use a 9-point SAM scale to examine the valence and arousal of our participants as a pre-test criterion. The ranking for the emotional state "Pleasure" ranges from a positive, happy manikin to an unhappy, frowning one. In the "Arousal" dimension, the aroused pole diagrammatically represents a highly energetic manikin. In contrast, the other pole diagrammatically represents a calm and eyes-closed manikin. In the "Dominance" dimension, the regulated and

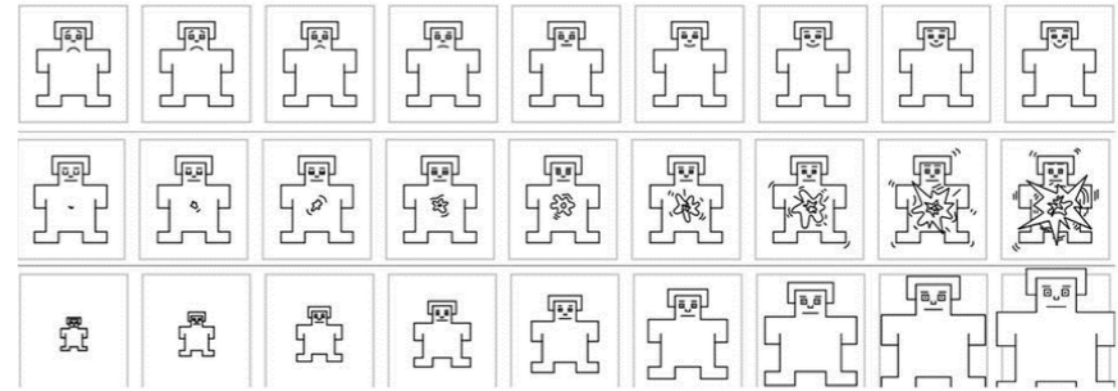


Figure 4: SAM Scale on a Nine -point scale to assess for the valance, arousal and Dominance/ Source: Tsonos and Kouroupetroglou. "A Methodology for the Extraction of Reader's Emotional State Triggered from Text Typography." Tools in Artificial Intelligence, 2008, p. 443

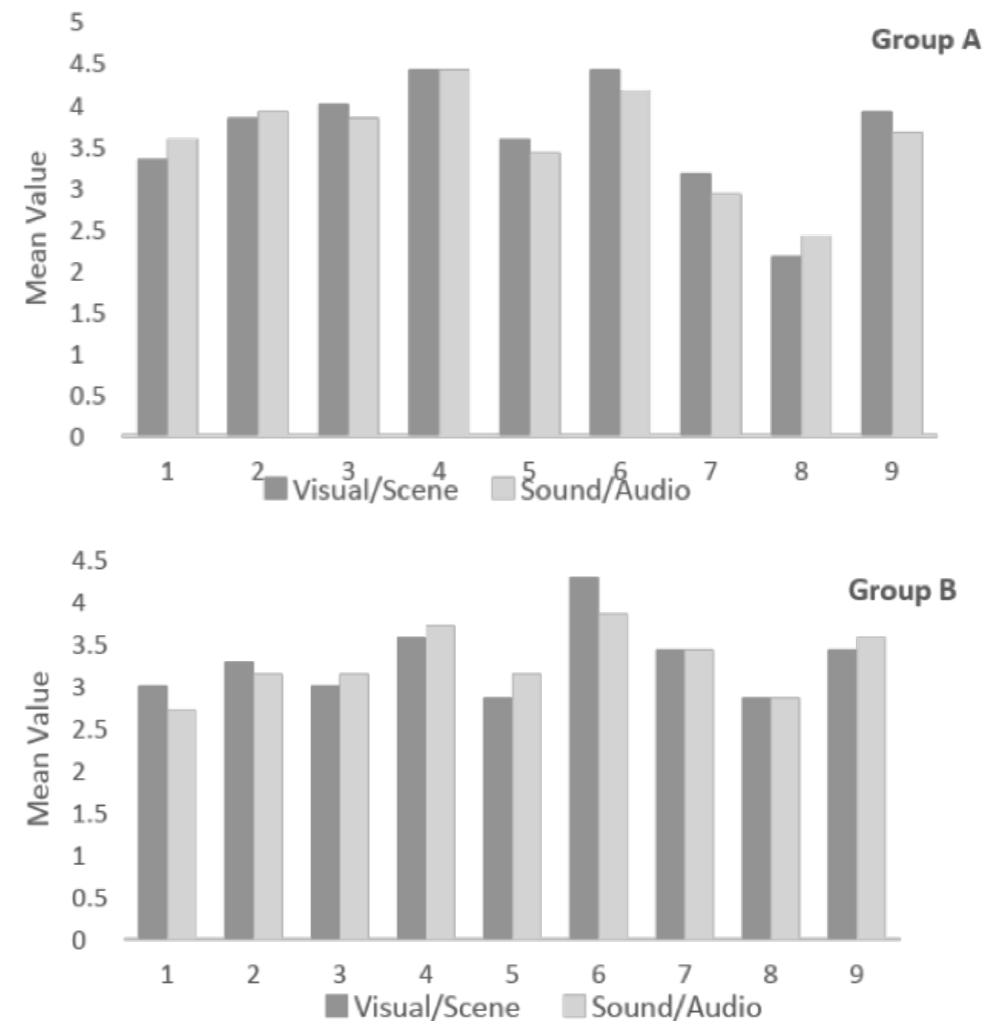


Figure 5 (above) and Figure 6 (below): Rating the Visual/Scene 1-pleasant/unpleasant, 2-Not interesting/highly interesting, 3-Lazy/Lively, 4-weak/strong, 5-slow/fast, 6-bad/good, 7-negative/positive, 8-nice/terrible, 9-fun/horror

in-control bars diagrammatically represent a small and large manikin, respectively (Tsonos and Kouroupetroglou). The participants' responses converted from a 1-5 point scale (or 1-9 point scale, etc.) into a dimensional space of [-1, 1] or [-100%, 100%]. Using the percentage method, we can determine how much an emotional state has deviated from neutral (the value "zero" reflects uninterested in both spaces).

Design and Procedure

We conducted an [online survey](#) using a Google form to examine our audience, which consists of a pre and post-screening test. Participants were informed about the purpose of the research, including the film genre. It was advised to the participants to watch the short film in a calm and comfortable environment. Moreover, we requested them to use a headphone for better audio and full-screen mode for a better visual experience while watching the film using mobile devices. The pre-test data were collected to analyse the state of the emotional level using a 9-point Likert self-rating manikin scale. After collecting the informed consent and basic demographic details with the pre-test questionnaire, the participants got a chance to see the short film. Post questionnaires were also collected after the movie to analyse the emotional state reflected by the film on the audience. The pre and post questionnaires used a 9-point Likert self-rating manikin scale as a pre questionnaire and a 5-point self-rating scale as a post-screening questionnaire. We considered individual valence and arousal before and after watching the video clip. We instructed the participant to close their eyes to recognize a visual/scene and audio/sound that strikes them first after watching the short film.

Similarly, we documented the participants' perception of the visuals and audio based on a 5-point rating scale. We expect that people see the same object differently. To identify and categorize the taste and perception of our participants, they were instructed to recognize and report the visual/scene and audio/sound that strikes them. Hence we identified two groups of 12 participants (Group A) who register similar events from the time frame of between 02:55 -03:40 minutes, and 8 participants (Group B) recognize and report identical visuals from the time frame between 08:25 -08:40 minutes.

Result and Discussion

The result shows that in the pre-test, the mean value of excitement level falls gradually and found an increment in the level of calmness with a mean value of 6.62 (SD = 1.66). The happiness and sadness scale showed a neutral result by a mean value of 4.92 (SD = 1.44). According to the study result, post-film screening shows a slight rise in the level of calmness compared to the excitement level (Mean value of 5.84, SD = 1.97). Moreover, participants reported a small increment in their sadness level with a mean value of 5.64 (SD = 1.25) than happiness.

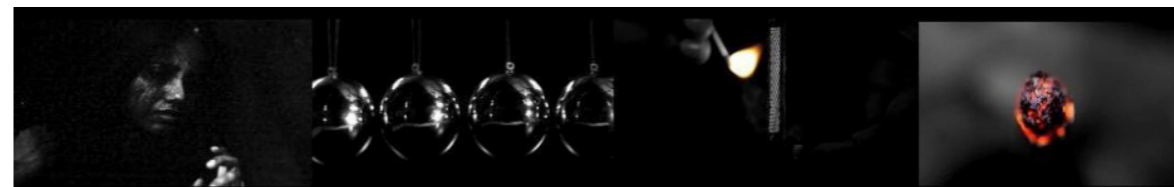


Figure 7: Image from video clip showing object available on the visuals
Source: "Delirium (short film - 2020)."

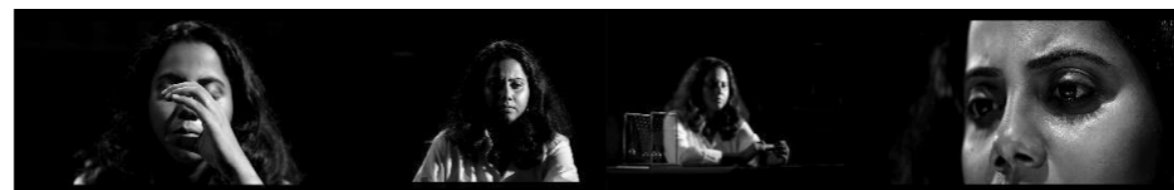


Figure 8: Image from the video clip showing character behavioural performance
Source: "Delirium (short film - 2020)."

This data shows that overall film experience might provide a good overview of the psychopath film genre, especially Schizophrenics related films. However, there is only a slight difference, which is not significant for drawing an inference that whether the film could influence their emotion in terms of cognition. Hence, we are looking into our sub criteria to explore the audience's emotional level and memory. Group A's perception towards visual and audio shows the same pattern (Figure 5), but for Group B, there is a significant difference in its standard deviation (Figure 6).

Our result shows that the first group (Group A) was attracted to the physical objects (Figure 7) in the plot, such as the portrait of the girl, cigarette, matchbox, and pendulum. Moreover, they recalled the unique sound of the matchbox and ticking pendulum from the same time frame. This result shows that 48% of participants actively attended to the objects and sound available in the same frame of this film. Similarly, the second group (Group B) recalled the subjective quality of scenes (Figure 8), represented by gestures and performance of the character. They also reported that the sound influenced them significantly.

This research triggered us to investigate Group A and B separately to understand what factors lead to such categorization. This approach might explore the data to better understand the audience's perception and cognition in this moving image. Finally, out of 25 participants, 15 reported that they are curious about this short film. Eight participants expressed that they don't know whether the film felt curious, and only 2 participants said that the film was not interesting. Similarly, 13 candidates out of 25 reported that they like to explore the concept of our short film. Three participants reported that they might be able to examine the film concept. Nine of them registered that they don't want to explore the idea.

In contrast to the earlier findings of Gross and Levenson 1995, however, we didn't find much significant difference in the emotional experience of male and female participants. The reason might be the number of participants in our studies are comparatively lesser (N= 25), which is a limitation of our research. In the pandemic situation of COVID -19, it is not easy to conduct and manage an experimental study even using an online platform.

Conclusion

We found two categories of audience among this research who have a different way of experiencing and enjoying the film. One group was interested in the objects on the visuals, and the other groups were interested in the character behaviour. The music influenced both groups since music might experience different meanings and interpretations of the storyline. Music is a powerful medium that can deliver assertive nonverbal communication (Hung). These results show that the film has to design exciting objects relevant to the storyline and better character performance for a better film experience. This design method might enhance the audience's perception and cognition towards the moving images. However, our research participants are low in number. We recommend extending the research on this domain with a large film format and a large group audience. Devices like eye-tracker and electroencephalogram (EEG) record humans' physiological measures for understanding behavioural studies (Schupp et al.). EEG devices can measure and document the inner dynamic changes in electrical activities on the brain to understand physiology (Liu et al.). At the same time, eye-tracking devices can evaluate the eye fixation towards the visuals (Szajerman et al.). We want to continue our further investigation using such devices to monitor and access psychological and physiological markers of participants while screened to these film genres.

Moreover, similar studies can be conducted with different age groups and with different genders. A mixed methodology that analyses quantitative and qualitative (mixed research design) aspects in film studies will help further researchers to understand how audiences respond to a specific film genre. Such data might allow filmmakers to understand the taste and perception of their audience.

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