Moving Short Films - The influence of Narrative Complexity on Empathy and Art

Experience

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PSB3E-BT15: Bachelor Thesis

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June 24th , 2024

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Abstract

The intersection of psychology and cinematic arts has garnered significant academic interest, particularly in how narrative structures influence emotional and perceptual responses. The present study investigated the impact of narrative complexity on empathy levels and art experience. In general, we expected affective empathy to be higher than cognitive empathy when watching short films. We also hypothesized that complex short films will elicit less cognitive empathy compared to linear films. Moreover, we expected that linear films elicit more positive experience and enjoyment, while complex films trigger more negative experience and appreciation. To test these hypotheses 35 participants viewed six short films: three with complex and three with linear narratives, and completed questionnaires assessing their empathy levels. Additionally, they provided written feedback on their initial art experiences. Empathy outcomes contradicted the stated hypotheses. Cognitive empathy was higher for all short films compared to affective empathy. Especially, cognitive empathy was significantly higher for narratively complex films. Thematic analysis revealed differences in the art experience - more positive experience, appreciation and enjoyment for linear films. Technical issues during experiment, low internal consistency reliability and other limitations were noted. Recommendations for future research were provided to further explore nuanced interactions between narrative complexity, art experience and empathy in cinematic experiences.

Keywords: affective empathy, appreciation, art experience, cognitive empathy, narrative complexity, enjoyment, short films

Moving Short Films - The influence of Narrative Complexity on Empathy and Art Experience

In the realm of cinematic storytelling, the conventional linear narrative often serves as the cornerstone of cinematic structure, guiding audiences along a straightforward chronological path from the beginning to an end (Kiss & Willemsen, 2017). However, within the art of filmmaking lies a complexity, where narrative plots intertwine, diverge, and converge in a manner that challenges traditional storytelling conventions. Embracing this complexity, filmmakers venture into the realm of intricate and multi-layered narratives, defying linearity to craft stories that demand active engagement and interpretation from their viewers (Kiss & Willemsen, 2017). Reflecting the innate human tendency to assign value based on scarcity or difficulty of attainment (Suri et al., 2007), it might explain why audiences often gravitate towards puzzling films where resolution must be actively sought, finding greater meaning in the journey of uncovering the storyline. By emphasizing viewers' experiences, it is argued that the heart of complexity does not solely lie in intricate narrative structures but in the felt experience and cognitive effect that such compositional disruptions can create (Kiss & Willemsen, 2017). Furthermore, academic literature supports the claim that watching films has a significant effect on empathy (Ahmadzadeh et al., 2019). By navigating intricate narrative structures, films can provoke nuanced empathetic responses, allowing or hindering audiences to empathize with characters' struggles and moral dilemmas. Different artistic reception can be elicited too, encompassing the spectrum ranging from positive to negative experiences as well as feelings of enjoyment and appreciation of art. This study aims to investigate concrete effects of films' narrative complexity on viewers with particular emphasis on empathy and art experience being positive or negative, enjoyment or appreciation.

Empathy

Empathy, defined by the American Psychological Association (APA Dictionary of Psychology, 2023), entails understanding a person from their frame of reference rather than one's own, or vicariously experiencing that person's feelings, perceptions, and thoughts. This multidimensional construct comprises both affective and cognitive aspects.

Affective Empathy

Affective dimension of empathy refers to emotional congruence or affective match, defined as the vicarious experience of another person's emotional state (Wieck et al., 2022). It is the ability to share the feelings of others, without experiencing direct emotional stimulation oneself (Kesner & Horáček, 2017). Research shows that Empathic Concern is positively correlated with narrative engagement (Kaur & Bhatia, 2022). When watching movies, affective empathy typically elicits more response than cognitive empathy (Kaur & Bhatia, 2022). While viewers can certainly analyze and understand characters' motivations and feelings, the primary impact of movies tends to be emotional rather than intellectual. Studies and theoretical frameworks support this differentiation. For instance, the dual route model of empathy proposed by Chi-Lin Yu and Tai-Li Chou suggests that affective empathy is an automatic, rapid process with minimal involvement of consciousness, while cognitive empathy is a more complex, slower process involving higher levels of conscious thought (Yu & Chou, 2018). This model aligns with the way movies typically engage viewers emotionally first and foremost. Films' ability to stir emotions is central to their influence on viewers (Plantinga, 2013). With their blend of visuals and music, films create immersive experiences that evoke strong emotional responses, often inducing more feelings over analytical thoughts (Fernández-Aguilar et al., 2019). This emotional engagement can profoundly influence empathy, making films a potent medium for studying affective responses. Based on that:

Hypothesis 1. We hypothesize that affective empathy elicited by watching short films will be higher compared to cognitive empathy for linear and complex films.

Cognitive Empathy

The cognitive facet, often denoted as emotion perception, emotion recognition, or empathic accuracy, involves the ability to accurately infer another person's emotional state from verbal and nonverbal cues such as facial expressions, vocal tones, or body postures (Aan het Rot et al., 2023)*.* It is considered a key component of social cognition, cooperation, and prosocial behavior, as it enables us to interpret and respond appropriately to other people's behavior (Aan het Rot et al., 2023). Despite empathy's promotion of prosocial behaviour and enhancing survival chances (Deceity et al., 2016), individuals often tend to avoid it due to its cognitive demands (Cameron et al., 2019). Engaging deeply in tasks such as understanding film narratives may deplete cognitive resources, thereby hindering or interrupting other functions, as observed in phenomena like "episodic stopping" (Sarasso et al., 2020). This refers to cognitive processes during which the brain engages in active information processing and consolidation during periods of rest or reduced external stimulation (Sarasso et al., 2020). This phenomenon allows for the integration of new information into existing knowledge structures, contributing to learning, memory consolidation, and overall cognitive function (Sarasso et al., 2020). Building upon this understanding:

Hypothesis 2. We expect that narratively complex films lead to lower levels of cognitive empathy compared to linear films.

Art experience

While empathy relates to the nature of viewers' involvement with the characters, art experiences go beyond, encompassing elements such as overall positive and negative experience, as well as appreciation and enjoyment.

Positive and Negative Experience

Films have the unique power to evoke a wide range of emotions, offering both positive and negative experiences to viewers (Busselle & Bilandzic, 2009). On the positive side, a well-crafted film can provide escapism, inspire creativity, and foster empathy by immersing audiences in diverse stories and perspectives (Fernández-Aguilar et al., 2019). Conversely, a negative experience may arise from poorly designed narratives, dull content or technical flaws, leaving viewers dissatisfied or even disturbed (Fernández-Aguilar et al., 2019). Ultimately, the impact of a film depends on its ability to resonate with the audience (Eekhof et al., 2023). Lars-Olof Åhlberg (1999) suggests that understanding art enhances positive experiences. He posits that cognitive processes, shaped by personal experiences and cultural context, contribute to a deeper engagement with art. While Åhlberg (1999) implies that understanding can lead to more positive experiences, he emphasizes that liking art is multifaceted, involving both emotional and cognitive dimensions. Thus, understanding is a significant, but not the only factor determining whether people like art. Those deeper processes are more likely to take place when comprehension of the storyline is high, which is easier attainable while watching linear films (Branigan, 1992). Following the notion that linear films are more understandable and familiar to viewers:

Hypothesis 3. We hypothesize that linear films elicit a) more positive and b) less negative experiences compared to complex films.

Appreciation and Enjoyment

In addition to the cognitive engagement inherent in complex narratives, another concept rooted in heightened cognitive effort distinguishes between the overall appreciation and enjoyment of artworks. This concept is encapsulated by the Narrative Enjoyment and Appreciation Rationale (NEAR) model, which employs dual-process logic to differentiate these two forms of audience response to media entertainment, shaped by either intuitive or deliberative processing systems (Tamborini et al., 2021). Three critical message features govern how these systems influence response: first, the presence or absence of intuition conflict in the narrative; second, the degree to which different intuitions are emphasized in the plot; and third, the satisfaction or thwarting of these salient intuitions. Satisfaction denotes the reward for actions aligning with intuitions, while thwarting refers to the opposite. When all salient intuitive needs are fulfilled by the entertainment experience, resulting in a positive affect generated by intuitive processes, it is termed enjoyment. Conversely, when the experience satisfies the most salient intuitive needs but not all of them, resulting in a positive affect produced by deliberative processing, it is categorized as appreciation (Tamborini et al., 2021). This distinction highlights an additional dimension of interplay between cognitive processes and narrative complexity, showcasing how viewers navigate and derive meaning from complex cinema. Based on the referenced research:

Hypothesis 4. We expect that viewers will report a) more enjoyment and b) less art appreciation after watching linear films compared to complex films.

Methods

Participants

Participants were recruited via flyers displayed at the Faculty of BSS and Arts, and the USVA, and advertisements on the SONA website. Inclusion criteria were participants being enrolled in BA/MA at the University of Groningen or the Hanze University of Applied Sciences. The original sample consisted of 35 participants (21 females and 14 males). The

study programmes followed by the participants were BAs (91.2%) in Psychology (87.1%), Arts, Culture, and Media (3.2%) or other (9.7%) and MAs (8.8%) in Psychology (66.7%), or other (33.3%), with 32 (94.2%) participants attending the University of Groningen and two (5.8%) attending the Hanze University of Applied Sciences.

Design

This study uses a factorial repeated-measures design using quantitative and qualitative methods. The factor has two levels based on narrative complexity (linear and complex). The outcome variables included in this study are empathy in terms of Cognitive Empathy and Affective Empathy, and Art Experience in terms of positive and negative experiences, enjoyment and appreciation.

Variables

Narrative complexity

The independent variable for this study are short films watched by the participants - more accurately, the type of narrative they follow: linear or complex. The criteria for a film to be established as narratively complex was: puzzling plot, being not understandable to the viewers even after the film concluded, posing more questions and possible interpretations than answers.

For this study, we selected six short films (Table 1). When selecting short films, we controlled for the duration of the short film (five to fifteen minutes) and the genre (Horror, Thriller, Sci-Fi). Besides that, we balanced the number of animation and live-action films by using two animation short films and four live-action short films. Lastly, we balanced language-based and non-language-based short films and chose short films that focused on one main character.

Table 1

Title, narrative type, film style, genre, length and year of release of short films

Title	Narrative Type	Film Style	Genre	Length (min)	Year
Alma	Linear	Animation	Horror	05:30	2009
Mouse X	Complex	Live-action	Mystery/Sci-Fi	15:05	2014
OPAL	Complex	Animation	Horror	12:30	2020
The Ballerina	Linear	Live-action	Thriller	07:45	2021
The Interview	Complex	Live-action	Thriller	09:34	2020
Dirty Machines - "The End of History"	Linear	Live-action	Mystery/Sci-Fi	13:33	2020

Perceived narrative complexity

To check whether participants experienced short films as narratively complex as was expected by the researchers, we measured Perceived narrative complexity. After watching each short film participants were asked to rate it on a scale from 0-100, with zero meaning "Not complex at all (Linear)"and 100 meaning "Very complex (Puzzling)".

Empathy

The first dependent variable is empathy. To measure empathy quantitatively, we used the validated Empathy State Scale; (Shen, 2010) - two items measuring Affective empathy and two items measuring Cognitive empathy were taken. A picture of one of the main characters was shown and participants were asked to rate how much (from" disagree strongly" to "strongly agree", seven point Likert scale was used) they agree with the four statements. An example for Affective empathy is "I can feel the character's emotions". An example for Cognitive empathy is "I can see the character's point of view". List of all items is available in the Appendix (Empathy items). Internal consistency of the items was measured and established Cronbach's alpha values of $\alpha = .644$ for Affective empathy and $\alpha = .617$ for Cognitive empathy.

Art experience

Second dependent variable is art experience. To explore art experiences, participants responded to the following open question: "What is your first impression of the film?". Written answers were coded into two pairs of categories being positive vs. negative experience, and appreciation vs. enjoyment. The levels within each pair were mutually exclusive. Positive or Negative experience (categorized based on the valence of words used e.g. "interesting", "loved it" vs "boring", "it made me sad") and Appreciation or Enjoyment of the film (categorized based on the content of words used e.g. "it was really engaging", "thought and emotion-provoking" vs "fun to watch", "nice animation"). Formed categories correspond directly to posed hypotheses.

Procedure

This study was conducted with approval of the Ethics Committee of the Faculty of Behavioural and Social Sciences at the University of Groningen (EC-BSS), subcommittee Psychology. As previously mentioned, participants were recruited via flyers displayed at the

Faculty of BSS and Arts, as well as the USVA, and targeted advertisements on the SONA website. As compensation, participants could choose between SONA credits or 10€ PIM-vouchers. The data was collected at the Heymans building, Groningen, from 8th of April to 13th of May, 2024. Every session lasted approximately 90 minutes. The participants were given the option to select one of the available time slots after registering for the study. Team members were present in the room for guidance throughout the whole experiment.

Upon their arrival at the laboratory, participants were greeted by the researcher and asked to provide a written consent for participation in the study. Afterwards, they were asked to sit in front of a large screen and were handed over a tablet. They then watched a selection of six short films (Table 1), with the opportunity to take a 5-minute intermission break halfway through. The order in which the short films were presented was randomized for each iteration of the experiment. Subsequently, after each film participants digitally filled out Qualtrics questionnaires (POVO, UT) with questions regarding their reactions to the short films including empathy and art experience (a complete description of all included instruments, along with the original version of post-film questionnaire is included in the Appendix). During the screenings their body movement was recorded using a camera. After finishing watching the six short films, the participants will fill in a brief background questionnaire with eight items about their personal information. Upon successful completion of the experiment, the tablets were collected by the researcher and the participants were rewarded either SONA credits or the PIM-vouchers.

Data Analysis

Quantitative analysis

To check for narrative complexity according to the established categories, mean scores of perceived narrative complexity of short films were compared. The three highest

rated films were then categorized as complex according to the viewers and alignment was inspected. First, to examine whether affective empathy was higher than cognitive empathy across all short films, we used paired t-tests using mean affective empathy and mean cognitive empathy scores across all short films for each participant. To further explore whether affective empathy was higher for both types of narrative complexity, we conducted two separate paired t-tests focussing either on the three linear short films or the three complex short films. Second, to test whether cognitive empathy was lower for complex compared to linear films, we employed a paired t-test using the mean cognitive empathy scores across three linear and three complex films per participant. To further explore whether there was a difference for cognitive empathy between narrative complexity, we conducted a second paired t-test focussing on cognitive empathy. The quantitative analysis was done in the Statistical Package for the Social Sciences (SPSS) software (POVO, UT). We used a p-level of 0.05 as an indicator for significance.

Qualitative analysis

To answer the hypotheses on positive and negative experiences, and appreciation and enjoyment, we employed thematic analysis following three steps: first, we got familiarized with the data by reading all the participants' responses to the open-ended question. Second, in the initial coding, we generated 145 individual codes, accumulating a total of 631 quotations. Additionally, each quotation also received a label complex or linear referring to narrative complexity of the corresponding film. Then, we reviewed the themes relevant for the analysis, and the following four code groups were formed: Positive Experience, Negative experience, Appreciation, Enjoyment. Among the vastness and diversity of the responses other recurrent themes were identified, leading to creation of additional six code groups (Appendix A).

Results

Perceived narrative complexity

To determine whether the films would be considered as linear or complex as previously established, a Perceived narrative complexity scores were averaged for each short film (Table 2). Individual ratings ranged from zero (for "Alma") until maximum of 100 (for "The Interview"). Scores given by participants aligned with researchers expectations. Although "Dirty Machines: The End of History" was rated moderately higher than the other two linear films, it still is the third lowest rated film, placing it therefore in the linear films subgroup. Thus, experience of narrative complexity expressed by participants aligned with the existing predictions and initial categories established by the researchers were confirmed.

Table 2

Initial category, minimum and maximum scores, means and standard deviations

	Initial category	Min. score	Max. score	M	SD
The Interview	Complex	15.00	100.00	59.09	23.04
OPAL	Complex	9.00	91.00	63.41	25.04
Mouse X	Complex	23.00	97.00	64.71	21.89
Alma	Linear	0.00	74.00	30.29	24.09
The Ballerina	Linear	1.00	80.00	39.38	23.77
Dirty Machines: The End of History	Linear	5.00	93.00	50.29	25.80

Empathy

There was a statistically significant difference between the mean Affective empathy ($M = 4.473$, $SD = .668$) and mean Cognitive empathy ($M = 5.077$, $SD = .692$), $t(35) = -5.980$, $p < .001$. Cognitive empathy was significantly higher than affective empathy across all six

short films. Moreover, the significant difference was observed within both conditions: for COMPLEX films, Affective empathy was significantly lower (M = 4.366, SD = .852) than Cognitive empathy (M = 5.25, SD = .817), t(35) = -6.023, p < .001. Similar for LINEAR films, Affective empathy (M = 4.378, SD = .859) was significantly lower than Cognitive empathy (M = 4.903, SD = .858), t(35) = -3.914, p < .001.

Regarding the second hypothesis posed, the difference between levels of Cognitive empathy elicited after watching films with COMPLEX and LINEAR narratives was significant (t(35) = 2.205, p = .034). Cognitive empathy was higher after watching narratively complex films compared to linear films. Subsequently, the difference between levels of Affective empathy elicited after watching films with COMPLEX and LINEAR narratives was investigated, yielding an insignificant result (t(35) = -.078, p = .938).

Art experience

Participants varied in the way they responded to the open questions in terms of length and content of the answers. Some of them formed full sentences, even coherent mini-paragraphs, while others typed out multiple keywords without context, separating them by commas. Some people responded based on their personal preferences, whether they enjoyed the short film or hated it, often reporting if they found it interesting. Comments about artistic experiences and technical components of films were frequently mentioned as well. Full in-depth description of marked observations is available in the Appendix (Identified themes detailed). Table 3 shows the original code groups with their corresponding codes and quotations examples. Additional code groups with their corresponding codes and quotations examples are presented in the Appendix (Table 3). Columns (n) showcase the total number of codes and total number of quotations in the code group. Full list of supplementary code clouds created in software Atlas.ti for better visual presentation is also available in the Appendix (Word clouds).

Table 3

Original code groups

Code group	Individual Codes	(*n*)	Quotation examples	(*n*)
Appreciation	Aesthetics, Artistic, Confusion positive, Cool concept, Creative, Curiosity inducing, Engaging, Filming technique compliment, Good acting, Intriguing, Original, Plot comment, Thought provoking	13	*"Interesting, creative, makes me question the world that they are in"* *"Great concept"* *"I liked the attention to the detail on the dolls overall very nice and charming"*	70
Enjoyment	Charming, Christmas vibes, Comedic, Cute, Enjoyment, Entertaining, Exciting, Fun to watch, Funny, I like it, Loved it, Nice, Satisfying, Silly, Sweet, Want to watch more, Would watch again	17	*"short little spooky spook fun time, yaaay"* *"I really enjoyed it"* *"Was fun to see"* *"Cute animations"* *"I love Jack Stauber"*	68
Negative experience	Meh, Aesthetics negative, Awkward, Boring, Cliché, Disappointing, Distressing, Disturbing, Far fetched, Gross, Hated it, Intimidating, Irritating, Lack of dialogue, Lack of enjoyment, Loneliness, Mixed feelings, Nasty, Not artistic, Obvious, Overwhelming, Personal preference negative, Predictable, Psychological hurting, Sadness, Slow-paced, Storyless, Terrible, The worst, Too long, Ugly, Uncomfortableness, Uneasiness, Uninteresting, Unoriginal, Unpleasant, Unsafe, Unsatisfactory, Vague, Wtf	40	*"That was my biggest fear as a child", "Stressful"* *"Old and grainy quality"* *"Disturbing"* *"Uncomfortable graphics"* *"wtf"*	108

| Positive experience | Artistic, Captivating, Charming, Christmas vibes, Clean, Comedic, Cool concept, Creative, Creepy positive, Cute, Engaging, Enjoyment, Entertaining, Exciting, Filming technique compliments, Fun to watch, Funny, Good acting, I like it, Impressive, Inspiring, Interesting, Intriguing, Loved it, Nice, Original, Personal preference positive, Satisfying, Sweet, Thrilling Want to watch more | 32 | *"I also liked how you could see the mirror in shots in the beginning"* *"Charming in its own way"* *"a bit inspiring also"* *"Good filming"* *"Brings me back to when I was younger"* *"impressive"* | 168 |

Positive vs. negative experience

A Positive experience of art refers to the range of favorable emotional, cognitive, and sensory responses a viewer has while watching a film. This includes emotional enjoyment, where viewers feel happiness, excitement, inspiration, or satisfaction derived from the film's content, storytelling, and emotional impact (captured by codes: "Charming", "Enjoyment", "Entertaining", "Exciting", "Inspiring"). It involves engagement and immersion, with a deep sense of involvement and absorption in the movie's plot, characters, and visual or auditory elements (captured by codes: "Captivating", "Engaging"). Additionally, it encompasses intellectual stimulation, characterized by the enjoyment of thought-provoking themes, clever dialogue, and stimulating narratives that engage the viewer's mind (captured by codes: "Interesting", "Intriguing", "Want to watch more"). Aesthetic appreciation plays a role as well, with viewers valuing the movie's artistic qualities such as cinematography, direction, acting, and special effects (captured by codes: "Artistic", "Cool concept", "Creative", "Filming technique compliments", "Good acting"). Relatability and connection are also key components, as viewers may feel a strong connection with the characters, plot, or themes that

resonate with their personal experiences or beliefs (captured by codes: "Christmas vibes", "Personal preference positive"). Ultimately, a positive experience of films is characterized by a sense of amusement that makes the viewing valuable, enjoyable and memorable.

A Negative experience of art involves various unfavorable emotional, cognitive, and sensory reactions that a viewer might have. Issues with engagement may arise, leading to boredom or disinterest and resulting in a lack of connection with or involvement in the artwork (captured by codes: "Boring", "Uninteresting"). Intellectual dissatisfaction might occur when the narratives that fail to offer fresh insights or provoke thought (captured by codes: "Cliché", "Predictable"). Emotional discomfort can occur when viewers feel sadness or distress due to content that is unsettling (captured by codes: "Distressing", "Sadness"). Aesthetic displeasure can be evident if viewers find the film's visual or auditory elements to be unpleasant or poor execution (captured by codes: "Ugly", "Overwhelming", "Unpleasant"). Feelings of unease may arise from elements that seem out of place, creating discomfort and alienation (captured by codes: "Awkward", "Uneasiness", "Disturbing"). In summary, a negative art experience is marked by a profound sense of lack, leaving viewers with the impression that the experience was far from enjoyable or fulfilling (captured by codes: "Disappointing", "Unsatisfactory").

In the code group *positive experience* the most prevalent code for both films with LINEAR and COMPLEX narratives was "Interesting", appearing 25 and 18 times respectively. Similarly, codes "Engaging" and "Enjoyment" uttered the same scores for both narratives, two and three instances respectively. Comments regarding "Positive personal preference" e.g. "I was interested in it because I like economics" referring to "The Interview" were made at a comparable level, with four quotations for LINEAR films and five quotations for COMPLEX films. However, codes "Fun to watch" and "Nice" were twice as prevalent in

LINEAR films (four) compared to COMPLEX films (two). "Good acting" was mentioned exclusively in regards to COMPLEX films, on three occasions.

In code group *negative experience* the most prevalent code for both LINEAR and COMPLEX films was "Disturbing", appearing four and 10 times respectively. Code "Boring" was majorly describing COMPLEX films, being mentioned seven times, compared to two instances for LINEAR films. The same holds true for codes "Distressing" and "Overwhelming", which described COMPLEX films four times each, without applying to LINEAR films. There were more codes tied exclusively to COMPLEX films for example: "Far fetched", "Intimidating", "Irritating", "Ugly", "Lack of dialogues" or "Psychological hurting". When it comes to codes exclusively ascribed to LINEAR films, codes: "Disappointing", "Cliché" and "Slow-paced" were quoted two times each and codes: "Gross", "nasty", "obvious", "storyless", "terrible", "unoriginal" and "the worst" once. Codes "Predictable", "Unsatisfactory" and "Vague" were each quoted three times for LINEAR films, compared to one time for COMPLEX films. Codes "Hated it", "Sadness" and "Uneasiness" were mentioned the same amount of times for both levels of narrative complexity, respectively one, three and four times.

Overall, there were 168 quotes indicating Negative experience, and 108 quotes indicating Positive experience. COMPLEX narratives were described with 58 Negative experience quotes (e.g. "Overwhelming with imagery and emotions") and 68 Positive experience quotes (e.g. "The way humans were animated in it was hilarious"), suggesting participants' mixed feelings and general slightly more positive experience. Meanwhile LINEAR narratives were described with 50 Negative experience phrases (e.g. "I got irritated by the man") and 100 Positive experience phrases (e.g. "I like ballet and dance, so I liked the start"), doubling the positive experience.

Figure 1

Positive experience word cloud for LINEAR films (top) and COMPLEX films (bottom)
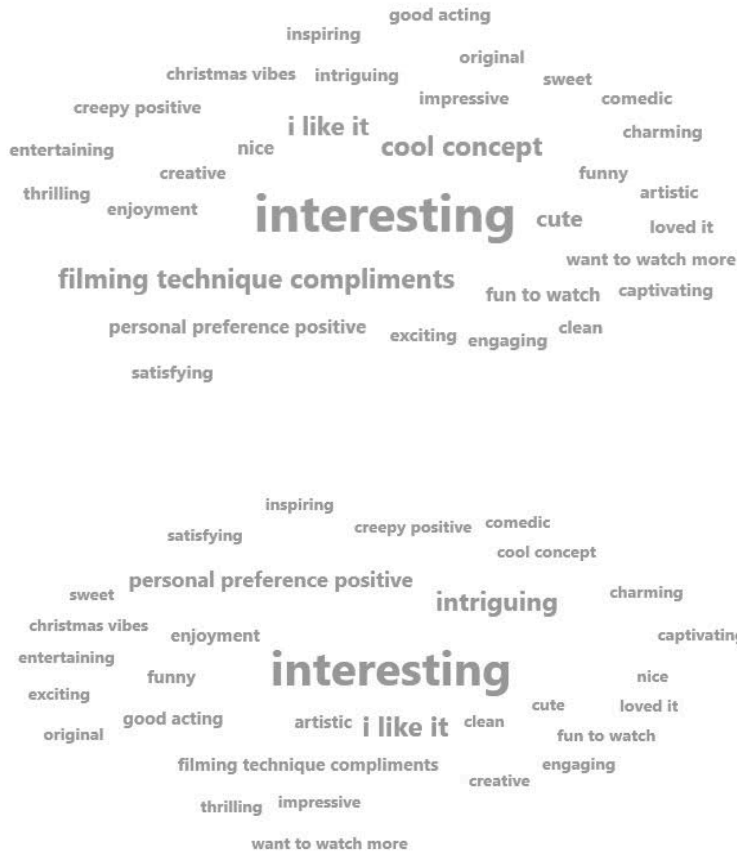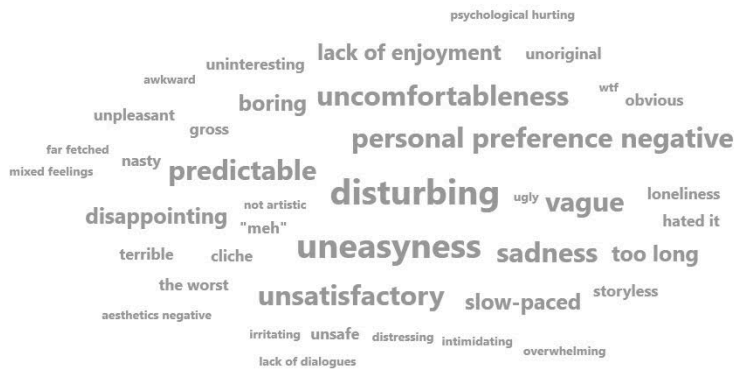

Figure 2

Negative experience word cloud for LINEAR films (top) and COMPLEX films (bottom)

Appreciation vs. enjoyment

Appreciation of art encompasses the recognition and valuation of various attributes that contribute to the overall significance and impact of a work. This includes an acknowledgment of the aesthetic qualities of the piece, such as its visual appeal and the sophistication of its cinematographic techniques (captured by codes: "Aesthetics", "Filming technique compliment"). It also involves an appreciation for innovative and original elements that demonstrate the artist's creativity and distinct vision (captured by codes: "Artistic", "Creative", "Original"). The appreciation is further deepened by engagement with a thought-provoking or intriguing narrative that fosters intellectual stimulation and reflection (captured by codes: "Thought provoking", "Intriguing"). Additionally, a well-conceived concept or plot that generates curiosity can significantly enhance the viewer's appreciation (captured by codes: "Cool concept", "Curiosity inducing"). Positive recognition is also accorded to strong performances and engaging features that contribute to the work's overall effectiveness (captured by codes: "Good acting", "Engaging"). Notably, a comprehensive understanding of the artwork is not always requisite for appreciation; rather, the ambiguity or complexity of the work can sometimes enhance the experience by stimulating creativity and encouraging deeper contemplation. Thus, appreciation is characterized by a profound respect

for both the artistic and intellectual dimensions of the work, independent of the viewer's level of understanding.

Enjoyment of art encompasses the positive emotional and sensory responses that contribute to an overall gratifying experience. Satisfaction is often achieved when viewers' expectations and intuitions about the plot align closely with what is presented, leading to a sense of pleasure and fulfillment (captured by codes: "Enjoyment"). This includes deriving pleasure from elements that are delightful or evoke a festive atmosphere, such as scenes that bring to mind holiday cheer (captured by codes: "Charming", "Christmas vibes"). The experience is often enriched by humorous or amusing aspects that make the artwork engaging and entertaining (captured by codes: "Comedic", "Funny", "Fun to watch", "Entertaining"). A sense of fulfillment is further enhanced when the content is perceived as adorable, heartwarming, or thrilling, which fosters personal enjoyment and encourages continued interest (captured by codes: "Cute", "Sweet", "Exciting"). Positive responses such as feeling pleased or enthusiastic about the work often lead to a desire to experience more or revisit it (captured by codes: "I like it", "Loved it", "Nice", "Want to watch more", "Would watch again"). Overall, enjoyment is characterized by a profound sense of satisfaction and pleasure derived from the engaging and enjoyable qualities of the art.

In the code group *appreciation* dominant codes were different for the two levels of narrative complexity. Codes "Cool concept" and "Filming technique compliment" were most prevalent for LINEAR films, uttering nine quotations each, compared to one and three quotations for COMPLEX films respectively. The most prevalent code for COMPLEX films was "Intriguing" quoted seven times, compared to two quotations for LINEAR films. Code "Engaging" was used two times for both LINEAR and COMPLEX films each. There were more quotations for LINEAR films favorably commenting on aesthetics of the piece (code "Aesthetics"), uttering six instances, compared to fours for COMPLEX films. Similarly, code

"Plot comment" was mentioned five times in the context of LINEAR films and three times for COMPLEX films. Reversely, codes "Artistic" and "Thought provoking" were ascribed more to COMPLEX films, three and four times respectively, compared to one time each for LINEAR films. Codes "Good acting", "Curiosity inducing" and expressing "Confusion positive" were used exclusively for COMPLEX films.

In the code group *enjoyment* the most prevalent code for both LINEAR and COMPLEX films was "i like it", uttering eight quotations each. Code "Fun to watch" was mentioned twice as much for LINEAR films (four times) compared to COMPLEX films (two times). Code "Cute" predominantly ascribed LINEAR films (seven quotations) compared to COMPLEX films (one quotation). Similarly, codes "Exciting" and "Want to watch more" were quoted exclusively for LINEAR films (three times each). Code "Nice" however was quoted twice as much for COMPLEX films (four times) compared to LINEAR films (two times). Moreover, code "Silly" was ascribed exclusively to COMPLEX films. Codes "Would watch again" and "Charming" were both mentioned once for LINEAR and COMPLEX films. Similarly, codes "Loved it" and "Enjoyment" were mentioned the same amount of times for both types of narratives (two and three quotations respectively).

Overall, 70 quotations for Appreciation and 68 quotations for Enjoyment were made. LINEAR films scored 38 quotations (e.g. "Really cool idea") and COMPLEX films scored 32 quotations (e.g. "Intriguing story line") for appreciation. Simultaneously, LINEAR films were described with 42 quotations (e.g. "I thought it was pretty cool") and COMPLEX films with 26 quotations (e.g. "Not necessarily made sense but I liked watching it") expressing enjoyment. There is also a higher prevalence of terms from code group Cognitive stimulation in COMPLEX narratives – 40, than LINEAR narratives – 29 (Appendix), suggesting that increased level of Cognitive stimulation seems to lead to lower levels of both Appreciation

and Enjoyment. Results showcase that LINEAR narratives are described as both slightly more appreciated and considerably more enjoyable.

Figure 3

Appreciation word clouds for LINEAR films (top) and COMPLEX films (bottom)

Figure 4

Enjoyment word clouds for LINEAR films (top) and COMPLEX films (bottom)

Discussion

Inversely to our expectation, linear and complex short films elicited significantly more cognitive empathy than affective empathy. A potential explanation for this finding could be the selected genres**.** Horror and thriller films often present mysteries and complex scenarios that require active problem-solving and critical thinking. This mental immersion fosters deeper engagement with the characters' thoughts, which in turn enhances cognitive empathy. Viewers may also emotionally detach from the characters due to fear or struggle to emotionally identify with the characters e.g. caused by awareness of fiction, due to the weirdness of the plot or lack of common characteristics with characters (which could have been further caused by the animation style) (Petraschka, 2021). Another factor to consider is the format of the films. The brevity of the short films might not allow for the development of emotional engagement necessary for experiencing affective empathy. Furthermore, the genres of the films - horror, mystery sci-fi, and psychological thriller - might inherently involve more abstract and less relatable scenarios (Bunce et al., 2014). All this can potentially hinder development of affective empathy. Contrary to our expectations with regard to the second hypothesis, cognitive empathy levels were higher after watching narratively complex films. Based on this finding, the second hypothesis was rejected. It is possible that the effort required to understand a complex narrative fosters a deeper cognitive connection with the characters, as viewers invest more mental energy into interpreting their actions and motivations. This increased cognitive engagement could have enhanced their ability to empathize with the characters on a cognitive level (Eekhof et al., 2023).

In line with the first part of our third hypothesis, films following linear narratives elicited more positive experiences compared to complex films. However, negative experiences were similar for both types of narrative complexity. Similarly, in agreement with the first part of the fourth hypothesis, linear films elicited more enjoyment than complex

films. However, linear films also received more appreciation, which was not anticipated. Therefore third and fourth hypotheses are partially supported. Similar level of negative experience for both narrative complexities can be potentially attributed to the nature of the films - participants found all movies equally scary and disturbing, regardless of how puzzling they were. A possible explanation for the increased number of quotations expressing appreciation may also be directly related to the genres of the short films - viewers value novelty and surprise, and horrors and psychological thrillers often provide a wide range of plot twists, leading to higher levels of appreciation (Tamborini et al., 2021). Average viewers also tend to enjoy horror films and thrillers less than e.g. comedy, therefore organically leading to higher levels of appreciation (Davis et al., 1987).

Limitations

This study has several limitations that need to be acknowledged. First, the nature of the sample. Convenience sample was used, consisting solely of bachelor and master students from Groningen limits the generalizability of the findings. Additional limitation is the cultural specificity of the sample; it remains uncertain whether the results are applicable to other cultures and non-Western populations. Secondly, the nature of the short films. The study's focus was restricted to horror, mystery sci-fi, and psychological thriller genres, leaving out other genres that might evoke different emotional and empathetic responses. Furthermore, academic literature indicates that men generally prefer horror films more than women, suggesting that gender-based artistic preferences might have influenced the levels of empathy measured (Wühr et al., 2017). Thirdly, the nature of the measurements. The reliability of the empathy scales used in the study is questionable, as indicated by the Cronbach's alpha values of less than 0.7 ($\alpha = .644$ for Affective empathy and $\alpha = .617$ for Cognitive empathy), suggesting that the internal consistency of these measures may be inadequate. Moreover, the method of capturing participants' first impressions may not fully

represent their complete opinions and interests (Greenwald et al., 2022). Lastly, there were eighteen instances where participants' responses were cut off mid-sentence, likely due to the 60-second time constraint, which may have obscured valuable data and led to the omission of important information.

Directions for future research

Expanding the sample to include diverse demographic groups is essential to understand the generalizability of the findings. Empathy might be experienced and expressed differently across various cultures, and exploring these differences could enrich understanding of empathy in media consumption. Additionally, investigating whether people feel more empathetic towards characters of their own gender or the opposite gender could provide valuable insights into the role of gender in empathy. The level of masculinity or femininity displayed by characters should also be examined to see if these traits influence viewers' empathy, as a relationship between gender and empathy is already well established by current scientific literature (Karniol et al., 1998; Langford et al., 2006; Schulte-Rüther et al., 2008). Moreover, future research should explore a broader range of film genres to determine if different types of films elicit varying levels of empathy. For example, genres such as romance, drama, or comedy might evoke different emotional and cognitive responses compared to horror, mystery, and psychological thrillers. Researching if similar results are found after watching feature films is another crucial step in understanding these relationships. Furthermore, to increase level of internal consistency additional items measuring affective and cognitive empathy should be added. Moreover, future studies should consider using implicit measures of empathy, such as physiological responses or eye-tracking, instead of relying solely on self-reported data. This approach could provide a more nuanced and accurate assessment of empathy, capturing subconscious reactions that participants may not be able to articulate. It could also prove beneficial to give participants unlimited time to

answer the question "What was your first impression of the film?". Lastly, exploring further the influence of empathy on art experience (particularly with focus on appreciation and enjoyment), a relationship hinted by Davis et al. (1987) but extending beyond the scope of this thesis, would supply a supreme added value to the multidisciplinary field of psychology and arts. By addressing these directions, future research can offer a more comprehensive understanding of the factors influencing empathy and art experience in response to films.

Conclusion

The aim of this study was to examine the effect of narrative complexity, being linear and complex short films, on empathy and art experiences. In contrast to our expectations, cognitive empathy was significantly higher across all conditions. Similarly, against our hypothesis, narratively complex films elicit more cognitive empathy compared to linear films. Art experience of short films differed across conditions. Participants reported more positive experiences with linear films, while narratively complex films showed a mixed experience profile, with slightly more positive than negative experiences. Linear narratives were slightly more appreciated and considerably more enjoyable. Further studies applying more statistically reliable methods and testing larger, more diverse sample sizes are needed to render these findings conclusive.

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Appendix

Demographic Questionnaire

1. Which film genres do you prefer to watch? You can pick and rank up to 5 genres that you prefer most: Action, adventure, animation, arthouse, comedy, documentary, drama, experimental, fantasy, horror, musical, romance, science fiction, thriller, Western

2. In the past three months, how often have you watched a film?: More than 4 times a week, 2-3 times a week, once a week, 1-2 times a month, less than once a month, I did not watch a film in the past three months

3. How old are you?

4. What is your gender?: Male, female, non-binary/third gender, prefer not to say

5. Once a scale from 0 to 100, how feminine or masculine would you describe yourself? By masculinity and femininity we refer to the relatively enduring characteristics encompassing traits, appearances, interests, and behaviors that have traditionally been considered relatively more typical of women and men, respectively.

0. What study are you enrolled in?

0. I see myself as …. Extraverted, enthusiastic: disagree strongly to agree strongly (Ten-Item Personality Inventory; Gosling et al., 2003)

0. I see myself as …. Reserved, quiet: disagree strongly to agree strongly (Ten-Item Personality Inventory; Gosling et al., 2003)

Post-Film Questionnaire

Immersion (Narrative Engagement scale; Busselle & Bilandzic, 2009)

Rate the following items on a scale of 1 to 7 (strongly disagree to strongly agree):

1. While viewing I was completely immersed in the world created by the film

2. While viewing I found myself thinking about other things

Cognitive stimulation (Scale of Aesthetic Appreciation of Film; Doicaru, 2016)

Rate the following items on a scale of 1 to 7 (strongly disagree to strongly agree):

1. It is stimulating to make sense of this film

2. While watching this film, I felt curious at times

Emotional resonance (Geneva Emotion Wheel; Tinio & Gartus, 2018)

1. Which emotion(s) did you feel while viewing the film clip?

Choose up to two emotions in the wheel that you feel (indicated by a particular spoke) and its intensity (the further away from the center the more intense the emotion).
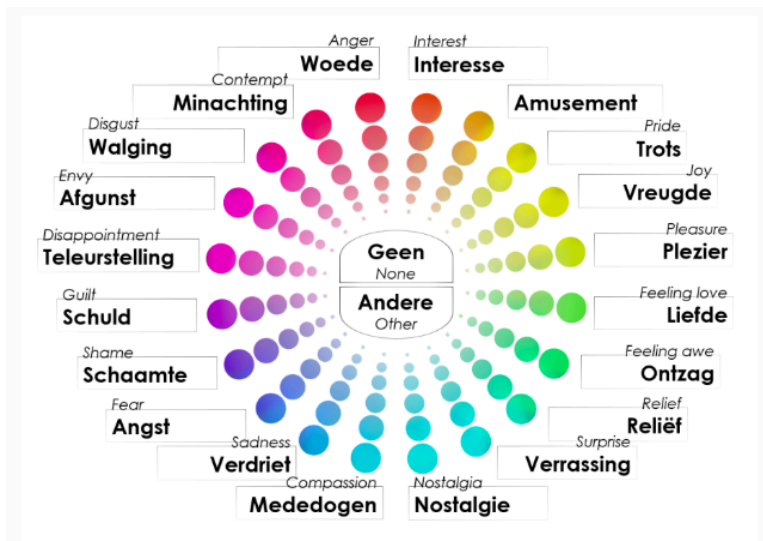
Bodily sensations (Bodily Sensation Maps; Schino et al., 2021, 2022)

You will be displayed with two body silhouettes. On the left body silhouette, please, indicate where in the body you feel stronger, that is with more energy (e.g.: muscles tensing, flushed face, pounding heart, etc.) when experiencing the artwork in front of you. On the right body silhouette indicates where in the body you feel weaker, that is with less energy (e.g.: woozy body parts, lightheadedness, numbness in the extremities, etc.) when experiencing the artwork in front of you. For both silhouettes, you can click up to 10 times. Try to be as accurate as possible. If necessary, use more clicks to stress a particular zone where the feeling is more intense. You can point to any region of the body you feel

appropriate, from the head to the toes. If you made a mistake, drag the dot to move it somewhere else; or just press on the dot you want to remove.
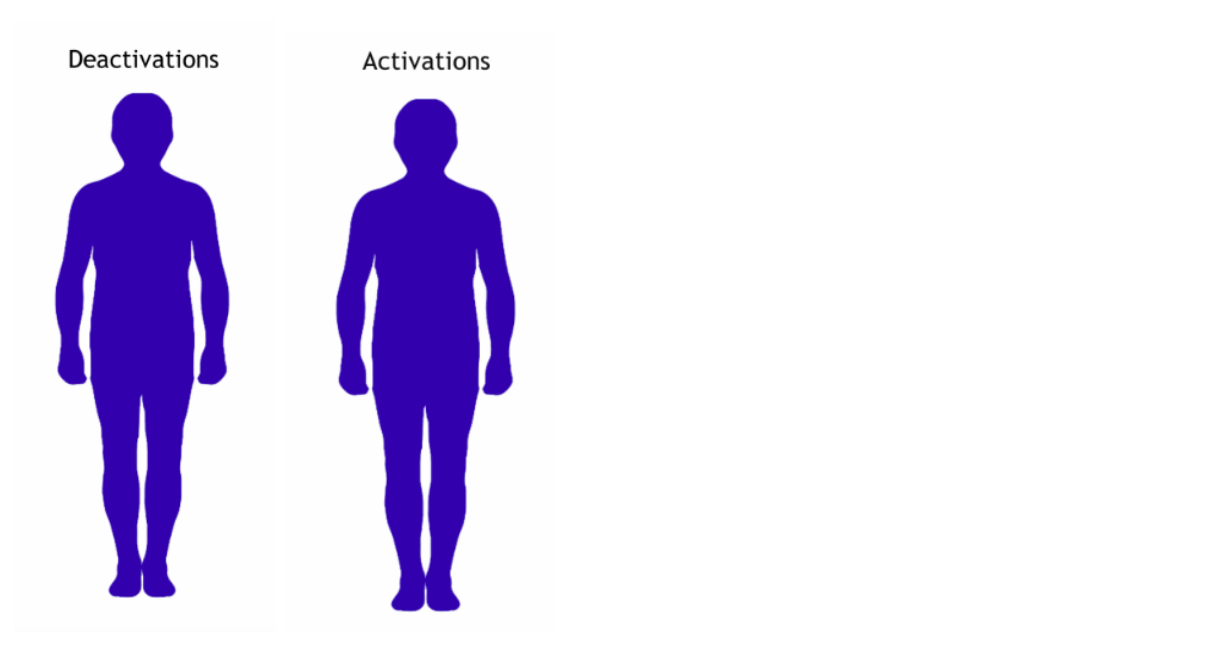
Affective and Cognitive Empathy (Empathy State Scale; Shen, 2010)

Rate the following items on a scale of 1 to 7 (disagree strongly to agree strongly):

1. I experienced the same emotions as the character when watching this film

2. I can feel the character's emotions

3. I can see the character's point of view

4. The character's reactions to the situation are understandable

Instruments

Narrative Engagement Scale (Busselle & Bilandzic, 2009)

To measure Immersion, we use two items adapted from the Narrative Engagement Scale by Buselle and Bilandzic (2009). The scale measures the dimensions which are fundamental for the experience of engagement through narrative. Four dimensions of engagement were identified being, Narrative Understanding, Attentional Focus, Emotional Engagement, and Narrative Presence. One of the items used came from the theoretical

construct of Narrative Involvement which is related to the Narrative Presence dimension. The original item of the scale is NI3 "While viewing I was completely immersed in the story" which we adapted to "While viewing I was completely immersed in the world created by the film". The second item will be a reversed question and was adapted from the theoretical construct concerning Distraction, which is related to the Attentional Focus dimension. The original item from the scale is D2 "While the program was on I found myself thinking about other things", which has been changed to "While viewing I found myself thinking about other things". We changed the items slightly to fit our research which is focused on film watching and movie narrative specifically. Participants have to answer these items on a scale of one to 100 whether they agree with this statement or not while watching the short film. The Attentional Focus dimension (Cronbach's alpha > .79), the Narrative Presence dimension (Cronbach's alpha > .70), and the Narrative Engagement Scale overall (Cronbach's alpha > .80) have good internal consistency and are therefore a reliable scale for this data (Buselle & Bilandzic, 2009).

Scale of Aesthetic Appreciation of Film (Doicary, 2016)

Aesthetic Appreciation was measured with two slightly adapted items from Doicaru's (2016) Scale of Aesthetic Appreciation of Film (SAAF). Both items were selected from the subscale Cognitive Stimulation, since this factor was particularly relevant for assessing participants' engagement with short films with varying complexity. The item "It is stimulating to make sense of this film" had the highest item/total correlation in the original validating study, and the item "While watching this film, I felt curious at times" had the highest factor loading (Doicaru, 2016). Therefore, we opted for these items as the most representative of the subscale as a whole in terms of reliability and validity, respectively. Both items were measured on a 7-point Likert-type scale ranging from 1 ('disagree strongly') to 7 ('agree strongly') to match the phrasing of the other 7-point items on our questionnaire.

For the original questionnaire, Doicaru (2016) used the following formulation: 1 ('completely disagree') and 7 ('totally agree'). Since this slight alteration is unlikely to lead to meaningfully different interpretations and consequent responses by the participants, we prioritized consistency./Since this slight alteration is unlikely to be interpreted by, and responded to differently by the participants in any meaningful sense, we prioritized consistency.

Geneva Emotion Wheel (Tinio & Gartus, 2018)

Bodily Sensation Maps (Schino et al., 2021, 2022)

Empathy items (from Empathy State Scale; (Shen, 2010))

- I experienced the same emotions as the character when watching this film

- I can feel the character's emotions

- I can see the character's point of view

- The character's reactions to the situation are understandable

Ten-Item Personality Inventory (TIPI, Gosling et al., 2003)

To measure the variable Personality (Extraversion) we will use the TIPI by Gosling et al., (2003). The TIPI is a very brief questionnaire based on the Big Five personality domains for researchers that have limited time. The TIPI had satisfactory results regarding the convergence with the widely used Big-Five questionnaires (mean $r = 0.77$) showing good construct validity, the test-retest reliability (mean $r = 0.72$), and the patterns of predicted external correlate ($r = 0.90$) which shows good external validity. Extraversion had the best results among these criteria in contrast to the other dimensions when compared to other Big Five personality measures. Nevertheless, the TIPI has lower reliability values compared to the standard and longer questionnaires often used e.g. the 240-item NEO Personality Inventory, Revised (NEO-PI-R, Costa & McCrae's, 1992), because it is meant to measure the

personality domains broadly. However, this study is not primarily interested in personality, therefore, we do not need an extensive questionnaire high in specificity for personality in order to answer our research question. The participants will fill in the entire ten-item questionnaire (See Appendix X, Table X), however, we are interested in the two items regarding the personality dimension Extraversion, being "I see myself as: 1. _____ Extraverted, enthusiastic" and "I see myself as: 6. _____ Reserved, quiet." The participants have to fill in based on a 7-Likert scale whether they disagree strongly (1) until agree strongly (7) with the statements.

Table 1

Measured Variables and Materials

Variable	Between-subject or Within-subject Factor	Material	Description
Movement Energy (ME)	Within-subject	Movement Energy Analysis (Tschacher et al., 2018, Ramseyer, 2019)	A frame-differentiating method is applied to the raw data to generate a time series for each short film.
Immersion	Within-subject	Narrative Engagement Scale (Busselle & Bilandzic, 2009)	2 items from the Attentional Focus subscale rated on a 7 point Likert scale from strongly

			disagree to strongly agree
Cognitive Stimulation	Within-subject	Scale of Aesthetic Appreciation of Film (Doicaru, 2016)	2 items from the Cognitive Stimulation scale rated on a 7 point Likert scale from strongly disagree to strongly agree
Emotional Resonance	Within-subject	Geneva Emotion Wheel (Tinio & Gartus, 2018)	Participants select from 20 emotion types and rate the emotion with regards to five intensity levels.
Bodily Sensations	Within-subject	Bodily Sensation Map (Schino et al., 2021, 2022)	Participants visually identify body areas that are activated during emotional arousal.
Affective and Cognitive Empathy	Within-subject	Empathy State Scale (Shen, 2010)	2 items from the Affective Empathy subscale and 2 items from the Cognitive Empathy subscale rated on a 7 point Likert scale from strongly disagree to strongly agree

Artistic Experience	Within-subject	Thematic Analysis	Participants think aloud about their film watching experience and their words are organized into the clusters of appreciation or enjoyment.
Personality	Between-subject	Ten-Item Personality Inventory (Gosling et al., 2003)	2 Items from the Extraversion Scale on a 7 point Likert Scale from strongly disagree to strongly agree

Table 2

Title, narrative type, film style, genre, length and year of release of short films

Title	Narrative Type	Film Style	Genre	Length (min)	Year
Alma	Linear	Animation	Horror	05:30	2009
Mouse X	Complex	Live-action	Mystery/Sci-Fi	15:05	2014
OPAL	Complex	Animation	Horror	12:30	2020
The Ballerina	Linear	Live-action	Thriller	07:45	2021
The Interview	Complex	Live-action	Thriller	09:34	2020

| Dirty Machines: The End of History | Linear | Live-action | Mystery/Sci-Fi | 13:33 | 2020 |

Table 3

Additional code groups

Code group	Individual Codes	(*n*)	Quotation examples	(*n*)
Artistic experience	Abstract, Accents Aesthetics, Aesthetics negative, Artistic, Clean, Cliffhanger, Color, Cool concept, Dreamlike, Filming technique compliment, Goosebumps, Lack of dialogues, Music, Not artistic, Old fashioned, Perfectionism, Plot comments, Random, Realistic, Reference to other medias, Surreal, Suspenseful, Tension, Trippy, Unorthodox, Vague	27	*"I like the colors and the setting"* *"I liked the dreaminess of it"* *"a bit adult swim randomness but in a nice way"*	119
Cognitive stimulation	Advice, Curiosity inducing, Engaging, Guessing the plot, Hard to sustain attention, Intriguing, Miscongruence, Mysterious, Perplexing, Surprise, Thought provoking, Wondering, Worry	13	*"Makes me question the meaning or trying to give it my own meaning"* *"Maybe trapped in society or by yourself?"* *"Most interesting and thought provoking"*	69
Complex narrative expressions	Black mirror resemblance, Complicated, Confusion, Confusion positive, Hard to sustain attention, Incoherent, Perplexing, Puzzling	8	*"Makes me really confused but also curious because I want to know what the job is about."* *"I have no clue what's happening and where is Claire but hoppa oppa"*	51
Fear	Creepy, Fear, Freaky, Haunting, Horror, Ominous, Terrifying	7	*"Scary and unnerving"* *"It's cute but scary at the same time"*	62

Linear narrative expressions	Coherent, Easy to sustain attention, Predictable, Silly, Simple, Straightforward	6	*"I got an eery feeling about everything"* *"Frightening"* *"A bit boring and predictable"* *"Very simple", "Coherent"* *"Easy to keep your attention on the movie"*	62
Weirdness	Awkward , Bizarre, Weird	3	*"Felt like a weird, uneasy dream on some weird type of psychedelic", "bizarre"*	39

Identified themes detailed

Expressive Language

There was a difference in how participants answered the open question. Some of them formed full sentences, even coherent mini-paragraphs, while others typed out multiple keywords without context, separating them by commas. Participants were very expressive in their comments, e.g., one experimenter prolonged the word by spelling "Loveddddd" with 5 d's to emphasize their love for "OPAL," and another used repetition, "That was very very very very strange," regarding the same film. Using expressive words like "yay" was also observed, e.g., "short little spooky spook fun time. Yayy" about "Alma." On the other side of these expressions were words like "meh," stating the movie was rather mediocre, or "wtf," highlighting confusion. Several participants also used emojis in their answers.

Personal Preferences

Participants reported interest in films, sometimes specifically related to personal preferences, e.g., "I was interested in it because I like economics" referring to "The Interview." Participants reported feelings of dissatisfaction regarding the movie "Dirty Machines: The End of History" - specifically, they experienced feelings of disappointment, as viewers wished the vision of time travel presented in "Dirty Machines: The End of History" was true in real life and they got to experience it. On occasion, they reported personal information that

did not contain an evaluative component like "I would never touch that doll." When describing their physiological state, experimenters said they experienced goosebumps as well as "being kept on the edge." One participant reported having to yawn while watching "OPAL," even though the beginning of the clip reminded them of their childhood.

Empathy and Judgement

Affective empathy was exhibited directly in the quotes, for example: "Also felt it when she broke her ankle and her fingers, not so much the neck" referring to "Ballerina." Cognitive empathy was also presented in experimenters' answers, with "because it was just wrong what he did go him", expressing judgment and resentment towards one of the characters in the face of perceived injustice. One participant went as far as to address the character directly and gave her advice: "Dolls are always scary, never trust them. Be carefully, anima" (supposedly mistaking anima with the titular Alma). Another participant also seemed drawn to comment on the rationale of kids based on actions presented in "Alma" - "I would've hoped it be common sense to child to not go j to the store that has a doll in their exact likeness that keeps moving. But I guess children don't understand horror /mystery logic." Another example of seemingly giving advice can be seen in the answer after the "Ballerina" projection: "Don't mess with the mirror monster, sadly deserved by the ballerina." Another example of disclosing judgment: "I don't think it's for children" or "I thought the girl was a bit stupid for not trying to leave right away." An example of a participant describing the plot of the movie instead of showing their personal experience with the movie: "A contemporary take on how ballerinas strive for perfection and break themselves in doing so." Sometimes respondents would comment on the characters directly, calling them cute or stupid, or that they didn't like them. Sometimes participants described characters in more detail, e.g., "crazy characters, big eyes." When giving their experience of "The Interview," a few participants noted that they

recognized the actor(s) and that they really enjoyed their accents. One of the participants even noted that characters "Both had misaligned teeth."

Artistic and Technical Comments

Experimenters reported incidences of cliffhangers, jump scares, or plot twists, especially at the end of the films - which by some were experienced negatively, and by others positively. Sometimes respondents would comment on the plot, stating it's an interesting concept (or boring, unoriginal, etc.). Comments on the way the movies were produced were also present - with the lighting, animation quality, and the colors used mentioned in the comments. Lastly, in a few instances, participants did not disclose their subjective opinion or experience of the movies but rather summarized the story in a few words. Participants commented on aesthetic experiences and beyond, often referring to technical components of the films, for example, that they liked the editing of the movie. Some participants were commenting on the artistic properties of the short films. It could be in the form of one word, merely stating the dominant color like white or green. They also frequently commented on sound and music, exactly 28 times, stating their properties and often role in the movies: sometimes complimenting it as a good choice, sometimes saying they hated the shrieking sounds, other times the musical parts of "OPAL" were found relieving the tension of the movie, and even the absence of sound at the beginning of "Mouse X" was reported as "adding to the creepiness." Several participants related that they liked the movies managed to be scary without using violence or gore scenes. Both animations "OPAL" and "Alma" were frequently described as "cute and scary" or "creepy, yet charming" at the same time.

Cultural References and Intertextuality

There were references to other works of art, like, for example, highlighting the resemblance of one of the characters to "a man from 'Saw.'" Numerous participants also stated that the watched movie(s) reminded them of the TV show "Black Mirror." It was also noted by one of

the participants that "Ballerina" was heavily inspired by the movie "Black Swan." One participant also expressed that a theme of time travel is a heavily used concept, but they still found "Dirty Machines: The End of History" interesting. A few participants also expressed that Adult Swim is great, dark, and creative, and that they love Jack Stauber.

Cognitive Efforts, Confusion, and Interpretation Challenges

Some participants were also hypothesizing what the story was about and what the movie's meaning was, as well as what the characters could do next. We can see that they were actively engaged cognitively by quotes like "I was wondering," "I could not make much sense of it," or "I was trying to make sense of what I am seeing" - showcasing the movies were engaging. They were stimulated, "Wondering what happens when the room is full" or "I kept trying to figure out the same thing as the main character" or "Was constantly interested or figuring out what was going to happen," said about "Mouse X." "Very creative and intriguing, makes me question the meaning or trying to give it my own meaning" is another example. The cognitive experience of the movie was also directly described in the quotes like "easy to keep your attention on the movie."

Expectations and Experience Incongruence

Participants also expressed their hopes regarding the films: "The movie made me feel sad, I had hoped for a more cheerful movie after the first few seconds, judging by the music and a type of animation" - we can observe that in this case the incongruence of one's prediction of what the movie will be about with the actual state of the plot didn't lead to appreciation of the artwork as hypothesized in the scientific literature. Another participant experienced incongruence in the storyline more positively: they found characters' behavior in "Dirty Machines: The End of History" to be the opposite of what they expected, but they found it surprising and stimulating. Reporting on disparities between expectations and reality further, one participant believed that "the end was supposed to be scary but it wasn't." We can

observe seemingly mixed feelings or experience of incongruence in the following statement as well: "Complicated and simple storyline at the same time." When it comes to feelings of confusion, two different approaches can be seen: people who state that they were personally confused, e.g., "I was confused" or "got stuck trying to figure out what the message and point was by looking for the little details but I still don't succeed," versus people who were attributing the confusion to the properties of the films themselves, e.g., "Plot not understandable."

Narrative Complexity and Viewer Satisfaction

When it comes to narrative complexity and experience of the films, although some participants seemed to be positively surprised by the puzzling films, describing them among others as very interesting, intriguing, and "emotions and thought-provoking," the majority of the participants didn't enjoy them, as seen in this comment "Hard to enjoy as no explanations for anything" or "I really didn't understand the story they wanted to tell and it was not catchy or interesting." Another example showcasing that lack of understanding might be linked with undermined interest: "also I didn't get the clue it's not very interesting" (regarding the film "Ballerina") or "I didn't like the film actually. I didn't understand the ending and I just didn't like the whole storyline" about "Dirty Machines: The End of World." At the same time, a few participants were seemingly enjoying this sense of confusion: as shown in this about the film "Mouse X": "Very unsettling, sense of confusion and the unknown. SATISFYING." Another comment, "I don't understand what the mouse did and the symbol of the cross as well to be honest. This one was my least favorite so far, but it was still interesting and fun to watch," showcases a trace of enjoyment regardless. Another example of this phenomenon is a comment on "The Interview": "not necessarily made sense but I liked watching." Another quote showcasing enjoyment amidst confusion regarding "OPAL" goes, "Have no clue what was happening and where is Claire but hope opa."

Word clouds

Figure 1

Appreciation

Figure 2

Artistic experience

not artistic
lack of dialogues

old fashioned
random cliffhanger

plot comment

suspensful
aesthetics negative

color accents
cool concept

perfectionism
abstract
vague

artistic

surreal clean tension
music
aesthetics
goosebumps

filming technique compliments
dreamlike

trippy

reference to other media/ art

realistic
unorthodox

Figure 3

Cognitive stimulation

hard to sustain attention

curiosity inducing

advice

perplexing intriguing miscongruence

suprise

mysterious
wondering
engaging

worry
guess of the plot
thought provoking

Figure 4

Complex narrative expressions

Figure 5

Enjoyment

Figure 6

Fear

Figure 7

Linear narrative expressions

Figure 8

Negative experience

Figure 9

Positive experience

Figure 10

Weirdness

Bizarre

weird

awkward

Narrative complexity

Document group COMPLEX included 37 quotations from code group Complex narrative expressions and two quotations from code group Linear narrative expressions, confirming that complex films were indeed complex. However, document group LINEAR included 14 quotations from code group Complex narrative expressions and 10 quotations from code group Linear narrative expressions, suggesting that even the linear films were found to be quite complex by participants. Moreover, singular code "Confusion" was ascribed 31 times to COMPLEX films and 13 times to LINEAR films, further highlighting the distinction between puzzling and linear movies.