

In the Dark Cube: Movie Theater Context Enhances the Valuation and Aesthetic Experience of Watching Films

Kerstin Fröber
University of Regensburg

Roland Thomaschke
University of Freiburg

There is a worldwide increase in feature film releases each year. While a theatrical release is still the primary release form, more and more films are watched via online streaming in home cinemas. Watching films at home is unquestionably high in convenience, but an understudied question is, how this shift in context—from the movie theater to the home cinema—affects the cinematic experience while watching a feature film. To test this, aesthetic emotions and the overall judgment of the cinematic experience were compared between watching a film in a movie theater or home cinema. In line with cognitive models of art appreciation, it was found that a movie theater context leads to a stronger emotional experience and a more favorable judgment. Only boredom was felt stronger in the home cinema. This movie theater effect persisted during a second viewing, regardless of context. These results have theoretical and practical implications for empirical aesthetics, movie fans, and the movie industry.

Keywords: psychocinematics, film, aesthetic emotions, context effects in cinematic experience, context effects in art perception

To see a great film only on television isn't to have really seen that film.—Susan Sontag, American writer and filmmaker.

—Sontag, 1996

There's a romantic notion about the film being on a big screen. . . . We have to get rid of the romantic part.—Ted Sarandos, chief content officer of Netflix.

—Fleming, 2016

Movie theaters are part of our society's cultural life for over a century now. Although the end of cinema as we know it has been predicted ever since TV found its way into our homes in the 1950s, the primary release form of new feature films today remains a screening in the movie theater. The widespread coverage of private homes with TV did, however, drastically reduce the number of

movie theaters (for data on the development in Germany from the year 1946 to 2014 see Castendyk, 2014) and movie theaters were faced ever since with ongoing challenges by the introduction of home entertainment technologies like VHS, DVD, BluRay disks and, last but not least, online streaming (Gaudreault & Marion, 2015). The rapid rise of video-on-demand online streaming services like Netflix recently advanced the discussion about movie theaters versus home cinema to a new level: Netflix is refusing the long-term agreement within the movie industry of an exclusive theatrical window for movie releases before other forms of distribution. Instead the company either releases self-produced films online only or follows a “day-and-date” policy of releasing films at theaters and online at the same time. This development culminated in a ban of Netflix productions from the Cannes Film Festival in May, 2018 (Sims, 2018). The long-established and most-prestigious film festival now requires a theatrical release of all competition films in France, which means by law a 3-year waiting period for distribution via subscription video on demand and, thus, a clear incompatibility with Netflix's policy.¹ So, on the one side, cinephiles like Cannes' director Thierry Fremaux continue to link cinema necessarily with the theatrical experience while, on the other side, people like chief content officer of Netflix Ted Saran-

 Kerstin Fröber, Department of Psychology, University of Regensburg; Roland Thomaschke, Department of Psychology, University of Freiburg.

We are very grateful to the directors Philipp Eichholtz, Vlado Priborsky, and Eike Weinreich for providing their films for this study. Furthermore, we would like to thank Marius Hartung and the entire team of the Arbeitskreisfilm e.V. for permission to use the Filmgalerie movie theater. Last but not least, we would like to thank Robert Torunsky of the Medienfabrik for posting a call for participants in the local newspaper and on www.kult.de.

Correspondence concerning this article should be addressed to Kerstin Fröber, Department of Psychology, University of Regensburg, Universitätsstraße 31, D-93053 Regensburg, Germany. E-mail: kerstin.froeber@psychologie.uni-regensburg.de

¹ Note, that the policy of a 3-year waiting period in France for distribution via subscription video on demand is an extreme example. Theatrical windows in other countries are typically much shorter (Castendyk, 2014). Moreover, even in France other forms of distribution like release on DVD have a much shorter waiting period of only a few months, and new regulations for 2019 also reduce the subscription video on demand waiting period to 17 months, if certain obligations are met by the service (Clover, 2018).

dos refuse this necessity as an outdated, romantic notion. At the heart of the dispute between Cannes and Netflix is the ongoing debate, whether it matters, if you watch a film in the movie theater or at home (Kenigsberg & Bailey, 2018). What is mostly missing in this ongoing debate, however, is an objective, scientific answer to this controversy based on experimental research. Therefore, the present study provides a first investigation of the effect of cinema context (movie theater vs. home cinema) on the aesthetic experience while watching a feature film. Aesthetic experience is used here as an umbrella term for the whole spectrum of emotions that emerges as a response to the aesthetic appeal of, in this case, a feature film (cf., Schindler et al., 2017).

Movie Theater Versus Home Cinema

Large parts of the movie industry (producers, distributors, and movie theaters) have, of course, a strong economic interest in maintaining the well-established practice of theatrical screenings as primary release form for feature films. Especially the distributors make huge profits from movie theater tickets sales, so that theatrical exclusive distribution windows are highly appreciated. Also, movie theaters depend on primary theatrical releases given the ongoing struggle with declining numbers of visitors (e.g., in Germany the year 2018 had been an especially bad one for movie theaters; Filmförderungsanstalt FFA, 2019). Moreover, most cinephiles would agree without hesitation that seeing films in a movie theater is a superior, unique experience (e.g., Sontag, 1996). However, with respect to everyday life, most cinematic experiences in the 21st century are no longer taking place in a movie theater, but instead in our homes or in other places like in transit via mobile devices (Aveyard, 2016; Gaudreault & Marion, 2015; for a recent study about motivations for movie-going in the Netflix age see Tefertiller, 2017).² Viewing films outside of the theater is common practice nowadays and in fact much more frequent and preferred in comparison with going to the movies (GfK, 2015; Northern Alliance & Ipsos MediaCT, 2011; The Economist & YouGov Poll, 2018). Compared with going to the movies, home cinema seems much more convenient: first, one can get a monthly subscription for video-on-demand streaming for little more than the price of a single ticket to the movies. For example, in Germany the average price of a movie ticket in 2018 was € 8.90 (Filmförderungsanstalt FFA, 2019), while a monthly subscription to Netflix for streaming in HD quality was € 11.99. Second, there is no fixed schedule of predetermined viewing times and preselected films. And third, it is less effortful, because one does not have to leave the house and go to the movie theater. However, even before the rise of online streaming, watching films at home has been documented as a highly valued and pleasurable activity. Passionate cinephiles collected movies and enjoyed to rewatch films uninterrupted in their homes already with VCR technology (Dinsmore-Tuli, 2000). This experience should be even more worthwhile nowadays, where home cinemas are much less inferior to the movie theater with respect to technological possibilities than they used to be. Many homes have high-definition televisions (or even projectors) and high-fidelity sound systems. Thus, it is a very valid—but understudied—question, whether going to the movies is indeed a superior experience worth the extra effort and inconvenience.

Films as Artworks, Empirical Aesthetics, and Psychological Models of Art Experience

Films clearly can be a form of art. They are appreciated in the society for their artistic value to a similar degree as music or literature (Northern Alliance & Ipsos MediaCT, 2011), and public programs of cultural promotion are aimed at funding film productions and supporting movie theaters (for Germany see Castendyk, 2014; Filmförderungsanstalt FFA, 2015). Therefore, it is no surprise that empirical aesthetics research is interested not only in more traditional forms of art like paintings but also in films. Most empirical research on movies so far has focused on perceptual and attentional features, narrative elements, and emotions elicited by films (cf., Shimamura, 2013). In those studies, the primary aim was to investigate the film itself and its effect on the perceiver. For example, it has been shown that the film-specific features average shot length and variation in shot length in modern Hollywood films are remarkably similar to naturally occurring patterns of attentional changes in humans, which is assumed to facilitate the immersive experience during film viewing (Cutting, DeLong, & Nothelfer, 2010). However, also more basic low-level features—like color or brightness—that can also be found in other visual art forms have been investigated, emphasizing the importance of style for the aesthetic experience (Brunick, Cutting, & De Long, 2013; Tarvainen, Westman, & Oittinen, 2015).

However, what has only been addressed theoretically so far, is how the aesthetic experience while watching a film is altered by the contexts it is watched in. Based on early formalist art theories (Bell, 1914) context has long been neglected in empirical aesthetics, but is now in most current theories and models (for a recent review see Pelowski, Markey, Luring, & Leder, 2016) acknowledged as an important component (e.g., Leder & Nadal, 2014; Locher, Overbeeke, & Wensveen, 2010; Pelowski, Markey, Forster, Gerger, & Leder, 2017). Therefore, it is not only the artwork itself, and the individual characteristics of the person perceiving it, that determine the aesthetic experience, but also the situational context is assumed to play a crucial role. Empirical evidence for this claim comes from studies on art experience in the lab versus museum (for a recent review see Pelowski, Forster, Tinio, Scholl, & Leder, 2017). A museum context has been shown to enhance the appreciation and aesthetic experience of, to increase viewing duration of, and enhance memory for art (Brieber, Nadal, & Leder, 2015; Brieber, Nadal, Leder, & Rosenberg, 2014; Carbon, 2017a; Specker, Tinio, & van Elk, 2017).

Aesthetic Emotions in the Cinematic Experience and How to Measure Them

Emotions have received much attention in aesthetic experiences in general, and with cinematic experiences in particular (Aurier & Guintcheva, 2015; Bartsch, 2012; Muth, Raab, & Carbon, 2015; Oatley, 2013). Special interest has been given to the paradoxical

² Cinematic experience is used here for the experience of watching a feature film both inside and outside of a movie theater in line with other authors like Gaudreault and Marion (2015), who use the term cinema for the media itself and not its form. To minimize confusion we use the American term movie theater—and not the British/European term cinema—to refer to the building a cinematic experience traditionally takes place.

finding, that movies eliciting negative emotions are nonetheless experienced as very enjoyable (Hanich, Wagner, Shah, Jacobsen, & Menninghaus, 2014; Menninghaus et al., 2017; Oliver & Bartsch, 2010; Vorderer, Klimmt, & Ritterfeld, 2004). Given the complexity of emotions in cinematic and aesthetic experiences in general the question arises how best to measure these emotions (Carbon, 2017b): Methods like the continuous evaluation procedure (Muth et al., 2015) allow a highly dynamic assessment of feelings, but are restricted to only one or two aspects of the emotional experience. More commonly used questionnaires—like the Emotional Gratification Scales (Bartsch, 2012)—cannot capture dynamics that well, but can instead assess a much broader range of feelings. Recent works on aesthetic emotions suggests that a reduction to a single liking versus disliking-dimension is insufficient to describe the emotional experience. Instead at least three factors—positive emotions, negative emotions, and mixed emotions—seem necessary, with the possibility of more fine-grained subclusters within these factors (Hosoya et al., 2017; Menninghaus et al., 2015). A relatively new tool to capture this rich variety of emotions in aesthetic experiences is the AESTHEMOS questionnaire, which assesses aesthetic emotions on 21 scales with two items each (Schindler et al., 2017). The AESTHEMOS has been developed as a domain-general assessment tool applicable to various art forms like visual art, music, film, but also to other aesthetic stimuli like design, architecture or nature, which makes it a very promising tool for studies in empirical aesthetics.

Repeated Exposure to Films

Oftentimes feature films are watched more than once, a phenomenon that is more common for cinematic experiences outside of the movie theater (Dinsmore-Tuli, 2000; Hoffmann, 2006; Russell & Levy, 2012), but also happens within movie theaters (Holmes, 2019). At first sight, volitional reexposure to a film already seen seems like a less desirable experience than watching an unknown film because of the lack of surprise and novelty. However, according to previous studies (Dinsmore-Tuli, 2000; Hoffmann, 2006; Russell & Levy, 2012), repeated watching can be a very worthwhile experience on its own: Exactly because of the well-known previous encounter with the film, it can be used very efficiently for emotion regulation, it is associated with high feelings of security and control, and it can lead to a deeper understanding, resulting in enhanced appreciation. However, on the other hand, there is also empirical evidence for less intensive emotional reactions (Tannenbaum, 1985) and less feeling of transportation (Green et al., 2008) during rewatching, suggesting that it is a less entertaining experience. More important, for the present study, the influence of cinema context (movie theater vs. home cinema) and changes in cinema context on repeated exposure to feature films have so far not been empirically investigated.

The Present Study

The main aim of the present study was to test, whether watching a film in a movie theater leads to an enhanced cinematic experience in comparison with watching a film at home, in line with the theoretical assumption of a crucial role of context in common theories of art experience (cf., Pelowski et al., 2016). To this end a random sample of participants watched an unknown feature film

either in a movie theater or at home via online streaming. Current cognitive models on aesthetic appreciation of art mostly agree on emotions and judgment as main outcomes of engagement with art (Pelowski et al., 2016). Therefore, two dependent measures were used to answer the research question, namely an overall judgment of the film's quality, on the one hand, and a questionnaire on aesthetic emotions, on the other hand. If seeing a feature film in a movie theater is indeed an enhanced cinematic experience—similar to the enhanced aesthetic experience of art in a museum (cf., Pelowski, Forster, et al., 2017), we should find a higher overall judgment of the film and a higher intensity of emotions compared with the home cinema context. Furthermore, to investigate the influence of cinema context changes or repetitions a repeated-measures approach was used with a second screening or streaming of the feature film, with either repeating the same cinema context (movie theater or home cinema) or changing to the other context. With respect to the mixed literature (Dinsmore-Tuli, 2000; Green et al., 2008; Hoffmann, 2006; Russell & Levy, 2012; Tannenbaum, 1985), which did not consider cinema context effects, several outcomes are feasible. Reexposure might have either a positive (Hoffmann, 2006; Russell & Levy, 2012) or a negative effect (Green et al., 2008; Tannenbaum, 1985) on the cinematic experience with the possibility of interaction with the repetition or change of the cinema context.

On a more general level, the present study also assessed general film viewing habits, to check how the current sample corresponded with recent surveys (GfK, 2015; Northern Alliance & Ipsos MediaCT, 2011; The Economist & YouGov Poll, 2018). Moreover, the viewing situation during the screening or streaming of the film in the present experiment was assessed to test, if situational differences influence the judgment of the film. These tests exceed the main question of this study as stated above and should, therefore, be regarded as mere exploratory, post hoc analyses aimed at excluding alternative explanations and to inspiring further studies.

Pilot Experiment

Before testing the influence of cinema context (movie theater vs. home cinema) on the cinematic experience, a pilot experiment was conducted. The aim of the pilot experiment was twofold: First, to find the best suited film for the main experiment, and, second, to test the applicability of the AESTHEMOS questionnaire to films (Schindler et al., 2017).

Testing the influence of cinema context naturally requires a between-subjects approach. As between-subjects designs are particularly susceptible to a loss of statistical power by high intersubjective variation, a film should be selected that is judged with relatively little variance in a random sample. To this end, three feature films were compared in the pilot experiment.

Because the AESTHEMOS questionnaire is a relatively new assessment tool, no publication has used it yet with films as stimuli. Therefore, the pilot experiment tested the applicability of the questionnaire to film, and at the same time assessed possible relationships between the emotional experience and the overall judgment of the films.

Method

Participants. Twenty-three out of 26 voluntary participants from the first author's personal network accomplished to watch all

three films of the pilot experiment within a prespecified time period of 3 weeks. The final sample comprised 13 female and 10 male subjects ($M_{\text{age}} = 30.6$ years, $SD = 10.6$ years, range = 19–65 years). All participants had German as their native language. Nine participants were students, six were part of the psychology department's scientific staff (Universities of Regensburg and Würzburg), and the rest had professions outside of academia. All participants signed informed consent before the study and were fully debriefed after the study in accordance with the ethical standards of the German Psychological Society (DGPs) and the 1964 Declaration of Helsinki.

Materials. Three feature films—"Blockbuster: Das Leben ist ein Film" (Independent Works & Priborsky, 2015), "Rückenwind von vorn" (Von Oma gefördert & Eichholtz, 2018), and "Von komischen Vögeln" (Weinreich, 2017), abbreviated as Bb, Rvv, and Vkv hereafter—were selected based on the following criteria: approval of the director and/or producer to use the film for scientific purposes, German language, no theatrical release in Regensburg, and a relatively unknown director.³ The last two criteria were chosen to assure that participants would watch and judge the films as unbiased as possible. Table 1 provides an overview of the chosen films. The genre of all three films was tragicomedy.

Before the experiment, a questionnaire was administered to assess demographic data and individual viewing habits of films. After watching a film another questionnaire served to record the general viewing situation and an overall judgment of the film. For the overall judgment participants rated the film on a scale from 1 (*worst film ever seen*) to 10 (*best film ever seen*). To assess aesthetic emotions elicited by the film participants filled out the AESTHEMOS questionnaire (Schindler et al., 2017). The AESTHEMOS is a relatively new assessment tool that measures the emotional response to aesthetic stimuli on 21 subscales: Feeling of beauty/liking, Fascination, Being moved, Awe, Enchantment, Nostalgia, Joy, Humor, Vitality, Energy, Relaxation, Surprise, Interest, Intellectual Challenge, Insight, Feeling of ugliness, Boredom, Confusion, Anger, Uneasiness, and Sadness.⁴ These scales cover prototypical aesthetic emotions, epistemic emotions, pleasing emotions, as well as negative emotions. Each scale is assessed by two items and items are provided in a randomized order. For each item participants should rate how intensely they felt the emotion during watching of the film from 1 (*not at all*) to 5 (*very*).

Procedure. After completing the questionnaire on demographics and viewing habits, participants were asked to watch all three films in accordance with their individual viewing habits until a given deadline. Each participant was randomly assigned to one of six possible viewing orders to control for order effects. Because three participants dropped out during the pilot experiment, one order (Rvv—Bb—Vkv) was only seen by three participants, all other orders were seen by four participants (Rvv—Vkv—Bb even by five). Films were provided as online stream via password-secured Vimeo links. Participants were free to choose on which device to watch, when to watch and whether to watch alone or in company, but they were asked to watch all three films under comparable conditions. Ratings of each film should be done directly after watching the film.

Results

Raw data files for both experiments are provided online at <http://dx.doi.org/10.5283/epub.41043>. Greenhouse-Geisser corrected values are provided for analysis of variance (ANOVA) results whenever sphericity is violated. Deviating degrees of freedom are because of single missing values in the data.

Viewing habits. Twelve out of 22 participants (52.2%, one missing value) characterized themselves as movie lovers. Most preferred genres in the sample (one answer only) were drama and comedy (five, 21.7%, each). The remaining sample indicated action (four, 17.4%), fantasy/sci-fi (three, 13.0%), thriller (three, 13.0%), or other (three, 13.0%) as preferred genre. Table 2 shows the frequency of watching films in movie theaters and at home.

When going to the movies, most participants (18, 78.3%) preferred going to a traditional or arthouse movie theater. Multiplex theaters were preferred by two participants (8.7%), and the remaining three participants had no preference (13.0%). Only five participants reported watching films at the movie theater also on their own (21.7%), and only four participants go to the movies more often alone than in company (17.4%).

Participants use a variety of options for watching films at home as is summarized in Table 3. Seventeen participants reported watching movies at home also on their own (73.9%). Twelve participants watch films at home more frequently alone than in company (52.2%).

Viewing circumstances during the pilot experiment and prior knowledge of the films. The most frequent arrangement for watching the films was in the evening (see Table 4), on a TV with internal speakers (see Table 5). Fourteen participants (60.9%) watched the film in company and nine (39.1%) alone. Most participants (21–22 per film, 91.3–95.7%) reported taking at least one action to boost the film viewing experience (like darkening the room, turning off the phone or preparing snacks and drinks), but a lot of participants report also at least one interruption during the film (like going to the toilet, technical difficulties or using the phone): Less than half of the participants (Bb: 7, 30.4%; Rvv: 8, 34.8%; Vkv: 11, 47.8%) report no interruption during the film. Only one participant was familiar with the directors of the films before the pilot experiment.⁵ Also the actors in the films were mostly unknown. Familiarity with one or more of the actors was reported from six participants (26.1%) for Bb, six participants (26.1%) for Rvv, and one participant (4.35%) for Vkv.

Overall judgment of the film. Ratings on the 1 (*worst film ever seen*) to 10 (*best film ever seen*) scale were compared with a univariate ANOVA with the repeated-measures factor films (Bb, Rvv, and Vkv). This analysis resulted in a significant main effect, $F(1.97, 43.37) = 11.51, p < .001, \eta_p^2 = .343$. Bb was

³ Rvv had a small theatrical release in selected cities, but Regensburg and the surrounding area was not part of this. Some participants of the pilot experiment did not live in the Regensburg area, but none of them lived in a city, where Rvv had a theatrical release.

⁴ Note that Feeling of beauty and Liking were originally assumed as two separate factors, but a field study with 500 participants resulted in both items loading on the same factor. Therefore, Schindler et al. (2017) combined both to a single scale.

⁵ This participant was a frequent visitor of film festivals, which explains the knowledge of the directors despite no theatrical release of the films in the hometowns of the participants.

Table 1
Feature Films Used in the Pilot Experiment

Original title (English title) [Abbreviation]	Director (production) year, country	Length	First screening	Synopsis
Blockbuster: Das Leben ist ein Film (Blockbuster: A live in moving pictures) [Bb] Official page: http://www.blockbusterderfilm.at/ IMDB page: https://www.imdb.com/title/tt3952452/?ref_=nv_sr_1?ref_=nv_sr_1	Vlado Priborsky (Independent Works) 2015, Austria	107 min	July third 2015 (Votivkino, Vienna, Austria) ^a	12-year-old Vlado arrives with his parents from the Czech Republic in Vienna. He discovers a whole new world in movies. A passion for films awakens resulting in making his own short films. Soon enough, a desire evolves to make a feature film. But life confronts him with quite a few challenges: a cancer diagnosis at the age of 26, loss of a child, loss of friends. But Vlado does not give up.
Rückenwind von vorn (Away you go) [Rvv] Official page: https://pefhmusic.wixsite.com/vonmagefoerdert/ruecken-von-vorn IMDB page: https://www.imdb.com/title/tt775886/?ref_=nv_sr_1?ref_=nv_sr_1	Philipp Eichholtz Von Oma gefördert & Eichholtz (2018), Germany	80 min	February 16th 2018 (Berlin International Film Festival) ^b	They say it is easy to grow up but hard to be a grown-up. Young Berlin school teacher Charlie is certainly finding it damn hard differentiating between her own expectations and those of the people around her. Why is everything changing for those around her and why is she the only one for whom life appears to be at a standstill? What Charlie needs is a breath of fresh air.
Von Komischen Vögeln (Strange Birds) [Vkv] Official page: https://www.facebook.com/strangebirdsfilm/ http://www.heimathafenfilm.de/strangebirds/ IMDB page: https://www.imdb.com/title/tt7879028/?ref_=nv_sr_1?ref_=nv_sr_1	Eike Weinreich Heimathafen Film & Weinreich (2017), Germany	85 min	October 27th 2017 (Hof International Film Festival)	Jockel's life is a catastrophe. He has a lousy job, his daughter Rike alienates herself from him, he does not really know his wife Barbara, and he hates his father Helmuth. After an assault in the heat of passion, Jockel is sentenced to do social work. He is supposed to direct a choir in a sheltered workshop. But the moment Jockel starts to warm up to the people around him, fate puts him to the test.

Note. The title of the film used in the main experiment is printed in bold.

^a First screening in Germany was in October 2016 at the Hof International Film Festival. ^b The film had a theatrical release in Germany, but only in a few selected cities. The city of Regensburg and the surrounding area was not included.

rated significantly worse than both Rvv and Vkv ($ps < .01$), while no significant difference was found between Rvv and Vkv ($p = .119$). The mean rating of Bb was significantly below, $t(22) = 2.49, p < .05$, the mean rating of Vkv significantly above, $t(22) = 4.41, p < .001$, and the mean rating of Rvv did not differ significantly from an average rating of 5, $t(22) = 1.52, p = .144$. Least variance in rating was found for Vkv (see Figure 1), suggesting the most agreement among participants for this film.

As a further test of rating stability, ratings of the three films were analyzed as a function of order (first, second, and third) in univariate, between-subjects ANOVAs. Viewing order had no significant effect on ratings of Bb, $F(2, 20) = 1.48, p = .252$, or ratings of Vkv, $F(2, 20) < 1, p = .716$. Rvv was, however, rated

significantly worst when seen as second film, $F(2, 20) = 8.80, p < .01, \eta_p^2 = .469$. Furthermore, film ratings did not differ between men or women ($p = .645$) and also not between participants watching alone or in company ($p = .721$).

Aesthetic emotions. For each of the 21 AESTHEMOS scales, ratings of the two items per scale were averaged. Each film was associated with a quite unique emotional profile (see Table 6). The greatest differences between films (difference > 1.4) is seen in the Feeling of beauty/liking and the Boredom scale. Bb was associated with the least Feeling of beauty/liking but the strongest Boredom ratings. The reverse was found for Vkv, and intermediate ratings on these scales for Rvv.

Stepwise, linear multiple regressions were conducted to test which (if any) AESTHEMOS scales predicted the overall judgment of the films on the 1–10 scale. For Bb the best model included two predictors, explaining 78.0% of the variance, $R^2 = .80, F(2, 18) = 36.46, p < .001$. Feeling of beauty/liking ($\beta = .70, p < .001$) and Humor ($\beta = .30, p < .05$) positively predicted the overall judgment. For Rvv the best model also included two predictors, explaining 75.3% of the variance, $R^2 = .78, F(2, 18) = 31.54, p < .001$. Feeling of beauty/liking ($\beta = .58, p < .001$) and Insight ($\beta = .45, p < .01$) positively predicted the overall judgment. For Vkv the best model included only one predictor, explaining 56.1% of the variance, $R^2 = .58, F(2, 18) = 25.32, p < .001$. Feeling of beauty/liking ($\beta = .77, p < .001$) positively predicted the overall judgment.

Table 2
Pilot Experiment: Frequency Count (Percentages in Parentheses) of Watching Films for Going to the Movies and Watching at Home

Frequency	Movie theater	At home
More than once a week	0	8 (34.8%)
Once a week	1 (4.3%)	5 (21.7%)
Once every 2 weeks	1 (4.3%)	4 (17.4%)
Once a month	3 (13.0%)	3 (13.0%)
Less than once a month	18 (78.3%)	3 (13.0%)

Table 3

Pilot Experiment: Used Options for Watching Films at Home With Absolute Frequency Count and Percentages in Parentheses (Multiple Answers Possible in Each Category)

Picture	Sound	Medium
TV (18, 78.3%)	Internal sound device of laptop or PC (10, 43.5%)	Online stream (22, 95.7%)
Laptop or PC (14, 60.9%)	Internal sound device of projector or TV (nine, 39.1%)	DVD (10, 43.5%)
Tablet or smartphone (four, 17.4%)	External speakers, stereo (seven, 30.4%)	Offline files (seven, 30.4%)
Projector (0)	External speakers, surround (seven, 30.4%)	BluRay (six, 26.1%)
	Internal sound device of tablet or smartphone (four, 17.4%)	Free or pay TV (three, 13.0%)
	Headphones (two, 8.7%)	

For all three films, Feeling of beauty/liking was the strongest predictor of the overall judgment. Therefore, another univariate ANOVA was conducted with the repeated-measures factor films (Bb, Rvv, and Vkv) and the Feeling of beauty/liking rating as dependent variable. A significant main effect was found, $F(1.97, 41.37) = 15.30, p < .001, \eta_p^2 = .421$. All films differed significantly from each other ($ps < .05$). Least variance in rating was found also in this measure for Vkv (see Table 6 for descriptive statistics), suggesting the most agreement on this scale among participants for this film.

Discussion

The viewing habits of the pilot experiment sample are perfectly in line with findings of recent surveys (GfK, 2015; Northern Alliance & Ipsos MediaCT, 2011; The Economist & YouGov Poll, 2018): There is a similar diversity with respect to preferred genres in the present sample, and films are watched more often at home than in a movie theater. It is noteworthy, that watching films via online streaming seems even more predominant in the present sample, suggesting a rising trend of this medium.

More important, with respect to the research question of this study, the pilot experiment demonstrated that the AESTHEMOS questionnaire is indeed applicable to the art form film. Each film was characterized by a specific profile of emotional experience, while the overall judgment of the film was best predicted by the rating on the Feeling of beauty/liking scale for all three films. For the main experiment, the film Vkv was identified as the best suited film. It was associated with the most stable ratings in terms of

lowest variance in participant's ratings and no difference in ratings depending on the viewing order. Moreover, Vkv was the most unknown film to participants in terms of familiarity with the director or actors.

Main Experiment

Primary aim of the main experiment was to test, whether the cinematic experience while watching an unknown feature film would be enhanced by a movie theater context in comparison with a home cinema context. To this end the film Vkv was shown to one half of the participants in a movie theater and to the other half via online streaming at home. About 2 weeks later the same film was watched again, either in the initial context (movie theater or home cinema) or in the other context.

Method

Participants. Participants for the main experiment were recruited by notes on the Regensburg University campus, in local movie theaters and in grocery stores, by newspaper ad, and online ad on the local page www.kult.de. Eighty-three participants entered the experiment and were randomly assigned to one of four groups: movie theater-movie theater (MT-MT hereafter; $n = 20$), movie theater-home cinema (MT-HC hereafter; $n = 23$), home cinema-movie theater (HC-MT hereafter; $n = 17$), and home cinema-home cinema (HC-HC hereafter; $n = 23$).⁶ The sample comprised 51 female and 32 male subjects ($M_{\text{age}} = 32.2$ years, $SD = 13.35$ years, range = 18–64 years, three missing values). All participants had German as their native language. Forty-three participants were students, five participants were part of the scientific staff of the University of Regensburg, four participants were already retired, and the rest had professions outside of academia (three missing values). From the initial sample, 70 participants returned for the second screening or streaming of the film ($n_{\text{MT-MT}} = 19, n_{\text{MT-HC}} = 18, n_{\text{HC-MT}} = 17, n_{\text{HC-HC}} = 16$). All participants signed informed consent before the study and were fully debriefed after the study in accordance with the ethical standards of the DGPs and the 1964 Declaration of Helsinki.

Movie theater. The Filmgalerie (Regensburg, Germany) served as movie theater for the screenings. It is equipped with a 12 m² screen, 91 seats, a Barco DP2K-8S digital projector and a Dolby 5.1 digital sound system. The movie theater is headed by the

Table 4

Pilot Experiment: Time of Day the Movie Was Watched

Time (24 hr)	Bb	Rvv	Vkv
12	1		2
13	2	2	
14		1	1
15			
16	1		
17	2		2
19	1	1	3
20	2	5	1
21	9	7	8
22	5	5	5
23			1
24		2	

Note. Bb = Blockbuster: Das Leben ist ein Film; Rvv = Rückenwind von vorn; Vkv = Von komischen Vögeln.

⁶ Participants were reassigned, if they were not able to make it to the movie theater screening at the scheduled time, so that the MT-HC and HC-HC group ended up being slightly overrepresented.

Table 5
Pilot Experiment: Used Options for Watching the Three Films With Absolute Frequency Count (Percentages in Parentheses) per Film (Only One Answer Possible in Each Category)

Viewing options	Bb	Rvv	Vkv
Picture			
TV	15 (65.2%)	15 (65.2%)	14 (60.9%)
Laptop or PC	6 (26.1%)	7 (30.4%)	7 (30.4%)
Tablet or smartphone	2 (8.7%)	1 (4.3%)	2 (8.7%)
Sound			
Internal sound device of projector or TV	10 (43.5%)	8 (34.8%)	7 (30.4%)
Internal sound device of laptop or PC	3 (13.0%)	5 (21.7%)	4 (17.4%)
Internal sound device of tablet or smartphone	2 (8.7%)	1 (4.3%)	2 (8.7%)
External speakers, stereo	4 (17.4%)	6 (26.1%)	6 (26.1%)
External speakers, surround	4 (17.4%)	3 (13.0%)	4 (17.4%)

Note. Bb = Blockbuster: Das Leben ist ein Film; Rvv = Rückenwind von vorn; Vkv = Von komischen Vögeln.

nonprofit association Arbeitskreis Film e.V. as part of the cultural center Leerer Beutel located in a historic building in the old town of Regensburg.

Procedure. Like in the pilot experiment participants started by completing a questionnaire on demographics and viewing habits. Depending on the group they were either invited to a screening of Vkv at the movie theater on a specific day at 6 p.m. or asked to stream the film via password-secured Vimeo link in accordance with their viewing habits within 5 days around the date of the movie theater screening. Note, that participants were not informed before the screening or streaming what kind of film they will be seeing. After watching the film participants rated Vkv on a 1 (*worst film ever seen*) to 10 (*best film ever seen*) scale and they rated their emotional experience during watching

with the AESTHEMOS questionnaire. Furthermore, some additional questions on the viewing situation were assessed by questionnaire. Two weeks later participants of the MT-MT and HC-MT groups were invited for the second screening of Vkv at 6 p.m. in the Filmgalerie, while participants of the MT-HC and HC-HC groups were asked to stream the film within 5 days around the second movie theater screening. Participants were not informed before the screening or streaming that they would be seeing the same film again. Instead of rating the film afterward a second time on a 1–10 scale, participants were asked, whether they liked the film Vkv better when watching it for the first or for the second time. In addition, participants filled out the AESTHEMOS again, and provided information on the viewing situation.

Results

Raw data files for both experiments are provided online at <http://dx.doi.org/10.5283/epub.41043>. Deviating degrees of freedom are because of single missing values in the data.

Viewing habits. Three participants did not provide information about their viewing habits. Fifty-seven (68.7%) participants of the remaining sample characterized themselves as movie lovers. Most preferred genres in the sample (one answer only) were comedy (18, 21.7%), drama (14, 16.9%), and thriller (13, 15.7%). The remaining sample indicated fantasy/sci-fi (eight, 9.6%), documentary (five, 6.0%), action (three, 3.6%), music (three, 3.6%), romance (two, 2.4%), or other (five, 6.0%) as preferred genre. Nine participants (10.8%) indicated no preferred genre. Table 7 shows the frequency of watching films in movie theaters and at home.

When going to the movies, most participants (44, 53.0%) preferred going to a traditional or arthouse movie theater. Multiplex theaters were preferred by 12 participants (14.5%), and the remaining 24 participants (28.9%) had no preference. Twenty-nine participants (34.9%) reported watching films at the movie theater also on their own, but only seven participants (8.4%) said to go to the movies more often alone than in company.

Participants used a variety of options for watching films at home as is summarized in Table 8. Sixty-seven participants (80.7%) reported watching movies at home also on their own. Fifty participants (60.2%) watched films at home more frequently alone than in company.

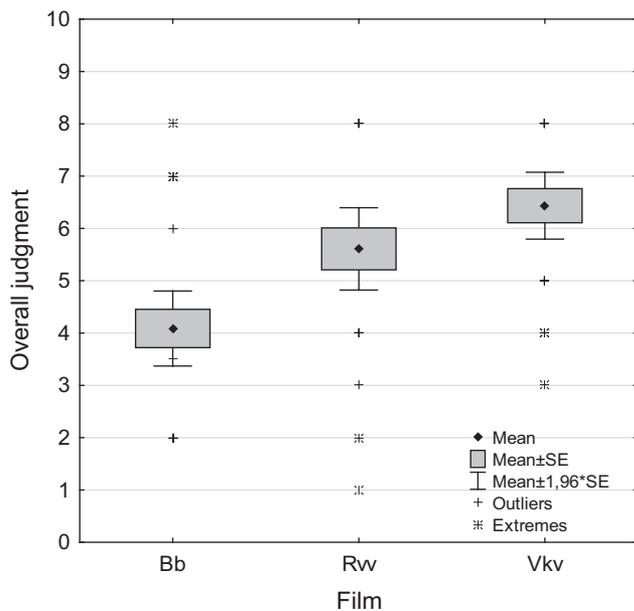


Figure 1. Pilot experiment. Mean overall judgments on a scale from 1 (*worst film ever seen*) to 10 (*best film ever seen*) as a function of film (Blockbuster: Das Leben ist ein Film, Bb; Rückenwind von vorn, Rvv; and Von komischen Vögeln, Vkv).

Table 6
Pilot Experiment: Mean AESTHEMOS Ratings of the Films (SD in Parentheses)

Scale	Bb	Rvv	Vkv
Feeling of beauty/liking	2.48 (.92)	3.30 (1.04)	3.91 (.65)
Fascination	2.18 (.88)	2.48 (.98)	2.89 (.98)
Being moved	2.55 (1.03)	3.43 (1.21)	3.48 (.96)
Awe	1.45 (.91)	1.43 (.60)	1.7 (.88)
Enchantment	1.50 (.84)	2.02 (1.01)	2.20 (.92)
Nostalgia	2.09 (1.02)	2.61 (.99)	2.41 (.96)
Joy	2.00 (.85)	2.55 (.92)	3.02 (.87)
Humor	2.41 (.70)	2.27 (.86)	3.24 (1.14)
Vitality	1.68 (.89)	1.98 (.84)	2.24 (.94)
Energy	1.59 (.93)	1.77 (.70)	2.02 (.99)
Relaxation	1.82 (.72)	2.09 (.89)	2.36 (1.01)
Surprise	2.04 (.81)	2.11 (.98)	2.14 (1.16)
Interest	2.25 (.99)	2.66 (1.03)	2.89 (.92)
Intellectual challenge	2.18 (.93)	2.02 (.96)	2.02 (.84)
Insight	2.13 (.92)	2.65 (.93)	2.70 (.81)
Feeling of ugliness	1.50 (.51)	1.41 (.75)	1.36 (.64)
Boredom	2.95 (.96)	1.86 (1.16)	1.52 (.82)
Confusion	2.00 (.98)	1.91 (.93)	1.43 (.69)
Anger	1.5 (.50)	1.93 (1.17)	1.30 (.72)
Uneasiness	2.11 (.83)	2.30 (.96)	1.95 (.92)
Sadness	2.52 (1.10)	3.26 (1.04)	2.87 (1.19)

Note. Bb = Blockbuster: Das Leben ist ein Film; Rvv = Rückenwind von vorn; Vkv = Von komischen Vögeln.

Taken together, the sample comprised a majority of movie lovers, who watched films more often at home than in a movie theater. The most frequent arrangement for watching films at home was via online stream on a TV.

Viewing circumstances during the first screening or streaming of the main experiment and prior knowledge of the films. About half of the participants in the movie theater group (23, 56.1%) were at the Filmgalerie for the first time. Only three participants (7.3%) did not rate the picture and sound quality during the first screening as very good or good, indicating excellent viewing conditions in general. Fifteen participants (36.6%) had a familiar person sitting next to them in the movie theater. Only six participants (14.6%) reported one or more interruptions during the screening (like going to the toilet, using the phone, or falling asleep).

The most frequent arrangement in the home cinema group for watching the film was in the evening (see Table 9), on a laptop or PC with internal speakers (see Table 10). Eleven participants (26.2%) watched the film in company and 29 (69.0%) alone. Most participants (35, 88.1%) reported taking at least one action to boost the film viewing experience (like darkening the room, turning off the phone, or preparing snacks and drinks), but 26 participants (66.7%) reported at least one interruption during the film (like going to the toilet, technical difficulties, or using the phone).

None of the participants (both groups) was familiar with the film or the director of the film before the first screening or streaming. Interestingly, no participant of the home cinema group reported familiarity with an actor of the movie while nine participants (22.0%) of the movie theater group reported familiarity.

Overall judgment of the film in the first screening or streaming. Ratings on the 1 (*worst film ever seen*) to 10 (*best film ever seen*) scale were compared with an independent measures

t test between the movie theater and the home cinema group, $t(78) = 3.11, p < .01, d = 0.69$. Vkv was rated about one point better after watching in the movie theater than after watching at home (see Figure 2). The standard deviation of the rating was very similar in both groups and also remarkably similar to the rating variance in the pilot experiment.

Some additional, exploratory analyses were conducted to exclude alternative explanations for the significant cinema context effect. First, a 2 (cinema context: movie theater, home cinema) \times 2 (gender: female, male) ANOVA with age as a covariate was conducted. This resulted again in a significant main effect of cinema context, $F(1, 72) = 6.07, p < .04, \eta_p^2 = .078$. There was no significant main effect of gender ($F < 1, p = .449$) or interaction of Cinema Context \times Gender, $F = 2.12, p = .150$, and also no significant influence of age, $F = 2.88, p = .094$. A second analysis tested, whether watching the film in company with a familiar person makes a difference. A 2 (cinema context) \times 2 (familiar person sitting next: yes, no) ANOVA revealed only a significant main effect of cinema context, $F(1, 76) = 7.90, p < .01, \eta_p^2 = .094$ (all other effects: $F < 1, p > .677$). Third, a 2 (cinema context) \times 2 (movie lover: yes, no) ANOVA revealed significant main effects of cinema context, $F(1, 73) = 11.61, p < .01, \eta_p^2 = .137$, and movie lover, $F(1, 73) = 5.44, p < .05, \eta_p^2 = .069$, but no interaction ($F < 1, p = .780$). Movie lovers rated the film worse ($M = 5.90, SD = 0.20$) than nonmovie lovers ($M = 6.77, SD = 0.31$). Lastly, a reanalysis of the cinema context effect was done after excluding participants with interruptions during the film. Because more interruption took place in the home cinema group, the cinema context effect might have been because of the majority of participants with an interrupted film experience in the home cinema group. The film was still rated significantly better by the movie theater group when only participants with an uninterrupted experience were included, $t(46) = 2.50, p < .05, d = 0.79$. Taken together, the context of watching the film in a movie theater led to a better rating of the film, which was not moderated by sex, age, familiar persons sitting next, or being a movie lover.

Regarding the two groups separately, no significant difference between first time visitors of the Filmgalerie and repeated visitors was found within the movie theater group only, $t(39) = 0.27, p = .786$. For the home cinema group exploratory ANOVAs were conducted to investigate the influence of picture and sound device on the overall judgment. To analyze the influence of picture device the single case "Projector" was excluded leaving the three levels "Tablet/smartphone," "Laptop/PC," and "TV." No significant effect was found ($F < 1, p = .694$). To analyze the influence of sound device data was summarized into the three categories "In-

Table 7
Main Experiment: Frequency Count (Percentages in Parentheses) of Watching Films for Going to the Movies and Watching at Home

Frequency	Movie theater	At home
More than once a week	3 (3.6%)	34 (41.0%)
Once a week	3 (3.6%)	25 (30.1%)
Once every 2 weeks	6 (7.2%)	6 (7.2%)
Once a month	15 (18.1%)	9 (10.8%)
Less than once a month	53 (63.9%)	6 (7.2%)

Table 8

Main Experiment: Used Options for Watching Films at Home With Absolute Frequency Count and Percentages in Parentheses (Multiple Answers Possible in Each Category)

Picture	Sound	Medium
TV (55, 66.3%)	Internal sound device of projector or TV (44, 53.0%)	Online stream (67, 80.7%)
Laptop or PC (51, 61.4%)	Internal sound device of laptop or PC (40, 48.2%)	Free or pay TV (48, 57.8%)
Tablet or smartphone (15, 18.1%)	External speakers, stereo (29, 34.9%)	DVD (45, 54.2%)
Projector (seven, 8.4%)	Headphones (20, 24.1%)	BluRay (17, 20.5%)
	Internal sound device of tablet or smartphone (14, 16.9%)	Offline files (15, 18.1%)
	External speakers, surround (seven, 8.4%)	VHS (one, 1.2%)

ternal device,” “External speakers,” and “Headphones.” A marginally significant effect, $F(2, 36) = 3.01, p = .062, \eta_p^2 = .143$, was found with the lowest ratings associated with an internal sound device ($M = 5.11$) and the highest ratings with headphones ($M = 6.80; M_{\text{external_speakers}} = 6.00$).

AESTHEMOS ratings in the first screening or streaming.

A multivariate ANOVA with the between-subjects factor cinema context (movie theater vs. home cinema) and the 21 AESTHEMOS scales as dependent variables was conducted to test, whether the cinema context influenced the emotional experience during film watching. This analysis resulted in a significant main effect of cinema context, $F(21, 53) = 1.80, p < .05, \eta_p^2 = .416$, indicating that the context indeed altered the emotional experience. Significant differences were found in 16 of the 21 scales (see Table 11 and Figure 3). The movie theater context increased the intensity of a variety of aesthetic emotions including also the negative emotion sadness. Only the Boredom scale showed a reversed significant difference with increased intensity in the home cinema context.

Like in the pilot experiment, a stepwise, linear multiple regression was conducted to test which (if any) AESTHEMOS scales predicted the overall judgment of the films on the 1–10 scale. Confirming results of the pilot experiment, the best model included only one predictor, explaining 42.1% of the variance, $R^2 = .43, F(1, 73) = 54.78, p < .001$. Feeling of beauty/liking

($\beta = .66, p < .001$) positively predicted the overall judgment. A complete table of results with all 21 AESTHEMOS scales can be found in Table 12.

Viewing circumstances during the second screening or streaming of the main experiment. Interestingly, almost all drop-outs in the experiment were in the two groups with home cinema context during the second screening or streaming with the most drop-outs found in the HC-HC group (–7 participants).

Ten of the 17 participants (58.8%) in the HC-MT group were at the Filmgalerie for the first time. Only six participants (MT-MT and HC-MT group, 16.7%) did not rate the picture and sound quality during the second screening as very good or good, indicating again excellent viewing conditions in general. Eleven participants (30.6%) had a familiar person sitting next to them in the movie theater. Only three participants (8.3%) reported one or more interruptions during the screening (like going to the toilet, using the phone, or falling asleep).

Like in the first streaming, the most frequent arrangement in the home cinema group for watching the film was in the evening (see Table 9), on a laptop or PC with internal speakers (see Table 10). Seven participants (20.6%) watched the film in company and 27 (79.4%) alone. Most participants (29, 85.3%) reported taking at least one action to boost the film viewing experience (like darkening the room, turning off the phone, or preparing snacks and drinks), but 24 participants (70.6%) reported at least one interrup-

Table 9

Main Experiment: First ($n = 40$) and Second Streaming ($n = 34$); Time of Day the Film Was Watched (Home Cinema Group Only, the Screening at the Movie Theater for Both Screenings Was at 6 p.m.)

Time (24 hr)	1. Streaming	2. Streaming
8		1
9		2
10		2
13		1
14		1
15	3	1
16	2	1
17	2	
18	1	1
19	2	5
20	8	5
21	13	10
22	4	4
23	3	
24	1	
1	1	

Table 10

Main Experiment: First ($n = 40$) and Second Streaming ($n = 34$); Used Options for Watching the Three Films in the Home Cinema Group With Absolute Frequency Count Given (Percentages in Parentheses; Only One Answer Possible in Each Category)

Viewing options	Percentages in Parentheses	
	1. Streaming	2. Streaming
Picture		
TV	13 (31.0%)	5 (14.7%)
Laptop or PC	21 (50.0%)	22 (64.7%)
Tablet or smartphone	5 (11.9%)	7 (20.6%)
Projector	1 (2.4%)	
Sound		
Internal sound device of projector or TV	7 (16.7%)	3 (8.8%)
Internal sound device of laptop or PC	15 (35.7%)	16 (47.1%)
Internal sound device of tablet or smartphone	4 (9.5%)	5 (14.7%)
External speakers, stereo	7 (16.7%)	7 (20.6%)
External speakers, surround	2 (4.8%)	1 (2.9%)
Headphones	5 (11.9%)	2 (5.9%)

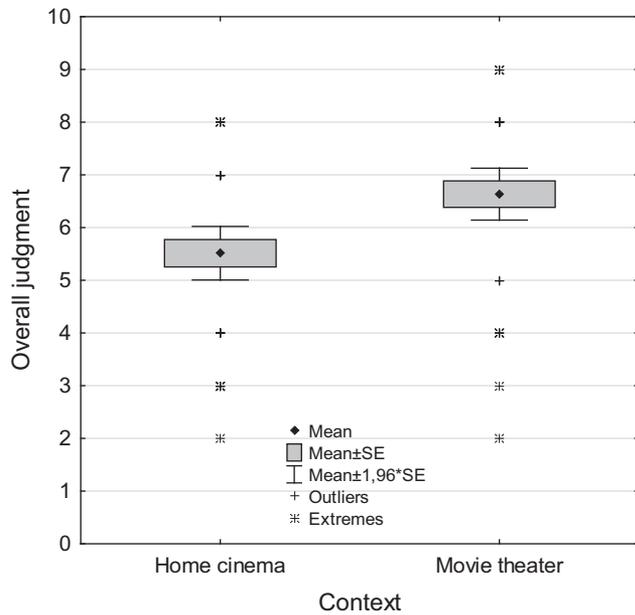


Figure 2. Main experiment, first screening or streaming. Mean overall judgments on a scale from 1 (*worst film ever seen*) to 10 (*best film ever seen*) as a function of group (Home cinema vs. Movie theater).

tion during the film (like going to the toilet, technical difficulties, or using the phone).

Feeling of beauty/liking in the second screening or streaming. No overall judgment of the film was collected after the second screening or streaming, because the initial judgment

Table 11

Main Experiment: First Screening or Streaming; Univariate Effects for the Influence of Cinema Context (Movie Theater vs. Home Cinema) on Mean AESTHEMOS Ratings

Scale	F	η_p^2
Feeling of beauty/liking	8.32**	.102
Fascination	22.92***	.239
Being moved	14.83***	.169
Awe	11.64**	.138
Enchantment	16.36***	.183
Nostalgia	4.24*	.055
Joy	7.65**	.095
Humor	4.88*	.063
Vitality	13.50***	.156
Energy	15.53***	.175
Relaxation	9.50**	.115
Surprise	4.24*	.055
Interest	11.94**	.141
Intellectual challenge	.37	.005
Insight	4.25*	.055
Feeling of ugliness	2.57	.034
Boredom	6.47*	.081
Confusion	.71	.010
Anger	.67	.009
Uneasiness	.19	.003
Sadness	5.58*	.071

* Significant with $p < .05$. ** Significant with $p < .01$. *** Significant with $p < .001$.

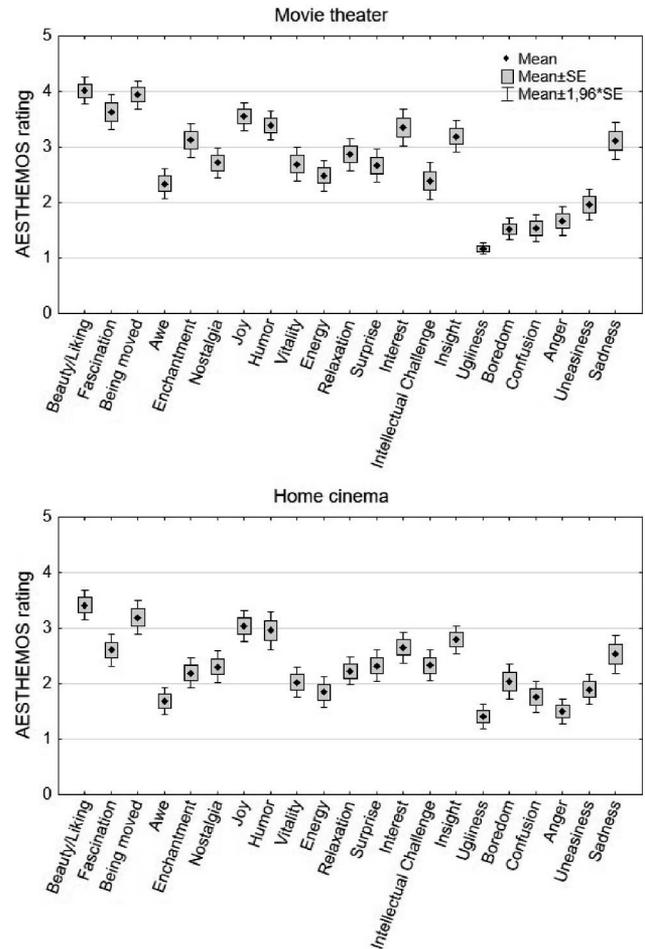


Figure 3. Main experiment, first screening or streaming. Mean AESTHEMOS ratings as a function of group (Movie theater vs. Home cinema).

was done only 2 weeks before and most likely participants would just have remembered their first rating. For the 42 items of the AESTHEMOS questionnaire, it seemed less likely that participants memorized each and every single rating. Because the Feeling of beauty/liking scale of the AESTHEMOS has been found as a positive predictor of the overall judgment, the rating of this scale was used as a proxy for the overall judgment. A 2 (Cinema Context 1: movie theater, home cinema) \times 2 (Cinema Context 2: movie theater, home cinema) univariate ANOVA revealed a significant main effect of Cinema Context 1, $F(1, 66) = 4.57, p < .05, \eta_p^2 = .064$, indicating a stronger Feeling of beauty/liking, if the movie was first seen in the movie theater (see Figure 4). The main effect of cinema Context 2 did not prove reliable, $F(1, 66) = 0.32, p = .574$. Descriptively, seeing the film in the movie theater after first seeing it at home (HC-MT group) was also associated with a higher Feeling of beauty/liking rating, but the interaction of Cinema Context 1 and 2 did not prove reliable, $F(1, 66) = 1.15, p = .288$. Compared with the first screening or streaming, participants mean Feeling of beauty/liking ratings was generally somewhat lower, but the difference between the two initial cinema context conditions remained quite similar (about 0.5 on the AESTHEMOS

Table 12

Main Experiment: First Screening or Streaming; Complete Results of the Best Fitting Model in the Stepwise, Multiple Linear Regression With Overall Judgment as Dependent Variable and the 21 AESTHEMOS Scales as Independent Variables

Scale	β	t	p
Feeling of beauty/liking	.66	7.40	<.001
Fascination	.06	.51	.609
Being moved	.04	.34	.732
Awe	-.01	-.13	.894
Enchantment	.05	.51	.615
Nostalgia	-.01	-.14	.892
Joy	.07	.56	.577
Humor	.05	.46	.649
Vitality	-.002	-.02	.982
Energy	-.03	-.26	.792
Relaxation	-.02	-.17	.870
Surprise	-.06	-.67	.503
Interest	.11	1.01	.317
Intellectual challenge	.12	1.29	.201
Insight	.08	.86	.392
Feeling of ugliness	-.05	-.55	.582
Boredom	-.08	-.70	.498
Confusion	-.07	-.76	.449
Anger	-.05	-.55	.585
Uneasiness	-.04	-.39	.696
Sadness	.05	.59	.559

rating scale). Like for the absolute judgment of the first screening or streaming, we conducted an additional control analysis with exclusion of participants with an interrupted film experience. This analysis still resulted in a significant main effect of Cinema Context 1, $F(1, 39) = 5.54, p < .05, \eta_p^2 = .124$, no significant main effect of Cinema Context 2 ($F < 1, p = .846$), and no interaction, $F = 1.01, p = .322$.

AESTHEMOS ratings in the second screening or streaming.

For the remaining scales of the AESTHEMOS analyses of the second screening or streaming focused only on the subscales with a significant cinema context effect in the first screening or streaming.⁷ According to Schindler et al. (2017) the emotions assessed by the AESTHEMOS can be clustered into the categories prototypical, aesthetic emotions, pleasing emotions, epistemic emotions, and negative emotions. Therefore, separate 2 (Cinema Context 1: movie theater, home cinema) \times 2 (Cinema Context 2: movie theater, home cinema) multivariate ANOVAs for each emotion category were conducted. The emotion scales Enchantment and Nostalgia cannot be clustered in one of these categories and will be analyzed separately with univariate ANOVAs.

Prototypical, aesthetic emotions. The multivariate ANOVA including the Fascination, Being moved and Awe scale revealed a significant main effect of Cinema Context 1, $F(3, 63) = 4.11, p < .05, \eta_p^2 = .164$, with stronger feelings expressed by participants having seen the film in the movie theater first. The main effect of Cinema Context 2 as well as the interaction did not prove reliable ($F_s < 1, p_s > .599$). Significant Cinema Context 1 effects were found in all three scales (see Table 13 and Figure 5).

Pleasing emotions. The multivariate ANOVA including the Joy, Humor, Vitality, Energy, and Relaxation scale showed no significant main effect of Cinema Context 1, $F(5, 59) = 1.95, p =$

.10, or main effect of Cinema Context 2, $F(5, 59) = 1.19, p = .324$. Also, the interaction did not prove reliable ($F < 1, p = .574$).

Epistemic emotions. The multivariate ANOVA including the Surprise and Interest scale showed no significant main effect of Cinema Context 1, $F(2, 64) = 1.50, p = .232$, or main effect of Cinema Context 2, $F(2, 64) = 0.68, p = .511$. Also, the interaction did not prove reliable ($F < 1, p = .955$).

Negative emotions. The multivariate ANOVA including the Boredom and Sadness scale revealed a marginal significant main effect of Cinema Context 1, $F(2, 64) = 2.94, p = .060, \eta_p^2 = .084$, as well as a marginal significant interaction, $F(2, 64) = 2.58, p = .084, \eta_p^2 = .075$. Specifically in the HC-HC group, Boredom was strongest and Sadness lowest (see Figure 6). The main effect of Cinema Context 2 did not prove reliable ($F < 1, p = .392$).

Enchantment and nostalgia. The univariate ANOVA on mean Enchantment ratings revealed a significant main effect of Cinema Context 1, $F(1, 66) = 8.21, p < .01, \eta_p^2 = .111$. The main effect of Cinema Context 2 and the interaction did not prove reliable ($F_s < 1.95, p_s > .167$). Stronger Enchantment was found, when the film has first been seen in a movie theater (see Figure 7). Another univariate ANOVA on mean Nostalgia revealed no significant effects (all $F_s < 1.11$, all $p_s > .297$).

Change in AESTHEMOS ratings from the first to the second screening or streaming.

For most AESTHEMOS scales participants reported less intense feelings after the second screening or streaming compared with the first screening or streaming of the film (see Table 14). In the MT-MT group six scales (Fascination, Being moved, Enchantment, Energy, Surprise, and Interest) showed a decline of more than 0.5 on the scale from 1 to 5. In the MT-HC group four scales (Fascination, Vitality, Surprise, and Interest) showed a decline of 0.5 or more. No scale in the HC-MT group declined by 0.5 or more (strongest decline was 0.46 in the Surprise scale), and in the HC-HC group only the Surprise scale declined by 0.5 or more. Exceptions from this general trend for less intense feelings were found for the Boredom scale—showing increased ratings in all groups with the strongest increase (0.69) in the HC-HC group and the weakest increase (0.03) in the HC-MT group—and the Relaxation scale—showing indifferent (MT-MT group) or increased ratings in all groups with the strongest increase (0.68) in the HC-MT group. The HC-MT group also had an increase in feeling—instead of a decline like in all other groups—in the Feeling of beauty/liking, Enchantment, Joy, and Humor scale, and a decline—instead of an increase like in all other groups—in the Feeling of Ugliness scale.

Preference for first or second screening or streaming. Ten participants in the MT-MT group (55.6%), 11 in the MT-HC group (55.0%), six in the HC-MT (40.0%), and five in the HC-HC group (31.3%) liked the film better in the first screening or streaming.

⁷ This procedure was chosen, because we did not expect to find any significant differences in AESTHEMOS scales that had not shown a significant difference in the first experimental phase. Nevertheless, for completeness, we additionally conducted a post hoc multivariate analysis of variance (MANOVA) including all 21 scales. This resulted in no significant effects (no main effect of Cinema Context 1, $p = .192$, no main effect of Cinema Context 2, $p = .462$, and no interaction, $p = .762$).

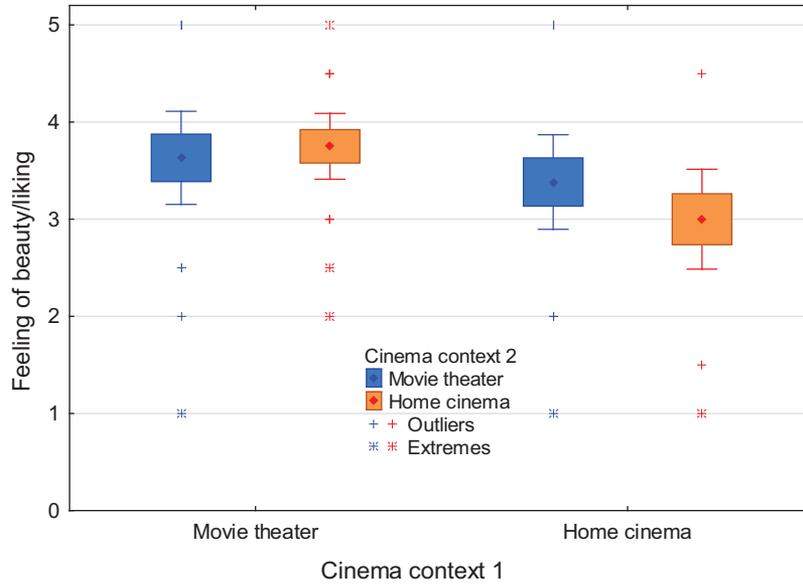


Figure 4. Main experiment, second screening or streaming. Feeling of beauty/liking as a function of Cinema Context 1 (Movie theater vs. Home cinema) and Cinema Context 2 (Movie theater vs. Home cinema). The box represents the mean $\pm 1 SE$, the whiskers represent $\pm 1.96 \times SE$. See the online article for the color version of this figure.

Discussion

The most important finding of the main experiment is that watching a film for the first time in a movie theater indeed seems to enhance the cinematic, aesthetic experience compared with watching the same film at home. Interestingly, this cinema context effect persisted during a second viewing of the same film: Though the second screening or streaming of the film was accompanied by a generally dampened emotional experience, affective ratings were still significantly higher on the AESTHEMOS scales Feeling of beauty/liking, Fascination, Being moved, Awe, and Enchantment, when the film was first seen in a movie theater—an effect that was independent from the second screening or streaming context. Furthermore, there was a marginally significant trend toward an interaction between Cinema Context 1 and 2 for the negative emotions Sadness and Boredom. Specifically in the HC-HC group, the lowest ratings for Sadness but the highest ratings for Boredom were found compared with all other groups. A specific influence of the second cinema context was also suggested by descriptive data on the change in AESTHEMOS ratings: Rewatching the film in a movie theater after having seen it first at home seemed to have a

generally positive influence on the cinematic experience. In contrast, watching the movie at home twice was followed by the strongest increase in Boredom compared with all other groups. Moreover, the HC-HC group also had the highest drop-out rate, suggesting that participants were less motivated to rewatch the film in this condition.

Regarding the general viewing habits of the sample, results were again by and large in line with recent surveys (GfK, 2015; North-

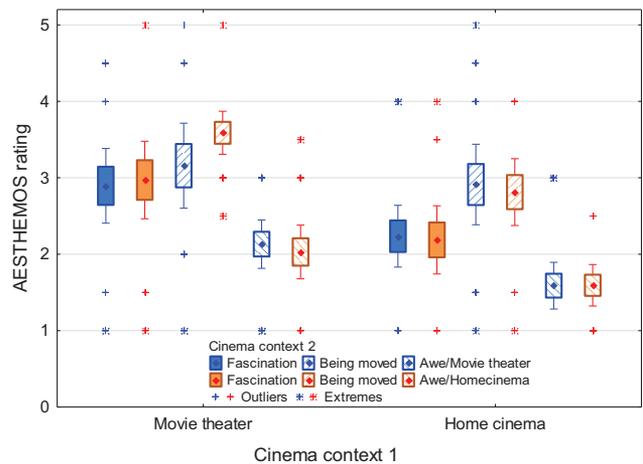


Figure 5. Main experiment, second screening or streaming. Prototypical, aesthetic emotions (Fascination, Being moved, and Awe) as a function of Cinema Context 1 (Movie theater vs. Home cinema) and Cinema Context 2 (Movie theater vs. Home cinema). The box represents the mean $\pm 1 SE$, the whiskers represent $\pm 1.96 \times SE$. See the online article for the color version of this figure.

Table 13

Main Experiment: Second Screening or Streaming; Univariate Effects for the Influence of Cinema Context 1 (Movie Theater vs. Home Cinema) on Prototypical, Aesthetic Emotions Ratings

Scale	F	η_p^2
Fascination	9.15**	.123
Being moved	4.51*	.065
Awe	9.27**	.125

* Significant with $p < .05$. ** Significant with $p < .01$.

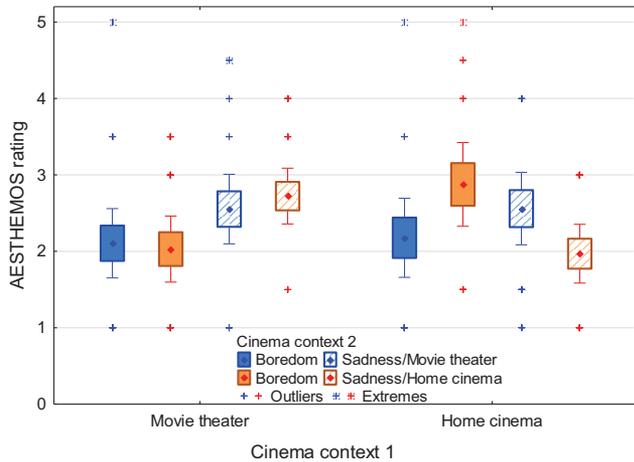


Figure 6. Main experiment, second screening or streaming. Negative emotions (Boredom and Sadness) as a function of Cinema Context 1 (Movie theater vs. Home cinema) and Cinema Context 2 (Movie theater vs. Home cinema). The box represents the mean $\pm 1 SE$, the whiskers represent $\pm 1.96 \times SE$. See the online article for the color version of this figure.

ern Alliance & Ipsos MediaCT, 2011; The Economist & YouGov Poll, 2018) and confirmed findings from the pilot experiment: Participants watched films more often at home than in a movie theater, predominantly using online streaming. Going to the movies seems for most participants to be a social event (i.e., only few participants stated to go to the movies on their own), whereas watching films alone at home is done more frequently compared with watching alone at the movie theater and also compared with watching in company at home.

With respect to additional descriptive data from the screening or streaming of the film *Vkv* it seems noteworthy, that although most of the participants of the home cinema groups did take actions to boost

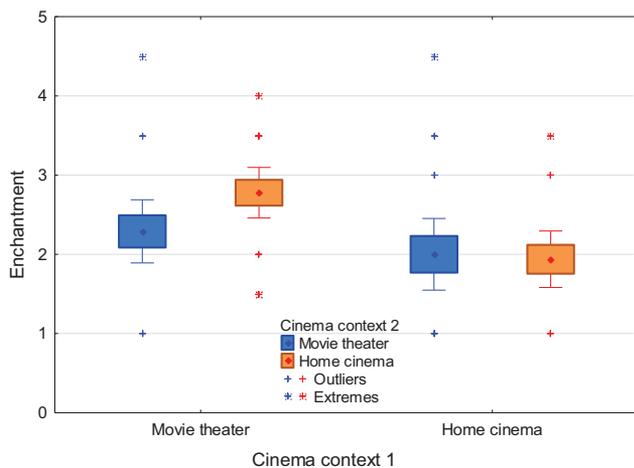


Figure 7. Main experiment, second screening or streaming. Enchantment as a function of Cinema Context 1 (Movie theater vs. Home cinema) and Cinema Context 2 (Movie theater vs. Home cinema). The box represents the mean $\pm 1 SE$, the whiskers represent $\pm 1.96 \times SE$. See the online article for the color version of this figure.

Table 14
Main Experiment: Second Screening or Streaming; Mean Difference in AESTHEMOS Ratings in the Four Groups (SD in Parentheses)

Group	MT-MT	MT-HC	HC-MT	HC-HC
Feeling of beauty/liking	-.24 (1.32)	-.25 (.73)	.06 (.66)	-.28 (.91)
Fascination	-.63 (1.16)	-.56 (.93)	-.25 (.94)	-.22 (.77)
Being moved	-.76 (1.19)	-.24 (.61)	-.20 (.84)	-.19 (.68)
Awe	-.37 (1.13)	-.15 (.61)	-.07 (.39)	.06 (.75)
Enchantment	-.55 (.62)	-.36 (.72)	.03 (.57)	-.18 (.81)
Nostalgia	-.11 (1.33)	-.36 (.66)	-.09 (.69)	-.03 (.81)
Joy	-.24 (.98)	-.22 (.77)	.13 (.74)	-.22 (.84)
Humor	-.13 (1.00)	-.44 (.70)	.23 (.86)	-.17 (.94)
Vitality	-.47 (.86)	-.50 (.73)	-.10 (.69)	-.06 (.57)
Energy	-.53 (.96)	-.32 (.66)	-.10 (.54)	-.28 (.75)
Relaxation	.00 (.80)	.08 (.75)	.68 (1.12)	.22 (.68)
Surprise	-1.0 (.71)	-.55 (1.42)	-.28 (.60)	-.69 (.95)
Interest	-.92 (.87)	-.50 (1.37)	-.46 (.90)	-.28 (.71)
Intellectual challenge	-.08 (1.11)	.00 (.73)	-.38 (.98)	-.09 (.90)
Insight	-.47 (1.17)	-.36 (.90)	-.32 (.81)	-.19 (.51)
Feeling of ugliness	.16 (.73)	.09 (.36)	-.13 (.69)	.13 (.67)
Boredom	.45 (1.21)	.50 (.92)	.03 (.68)	.69 (.79)
Confusion	-.24 (.59)	-.19 (.63)	-.25 (.80)	-.13 (.97)
Anger	-.08 (1.00)	-.22 (.75)	.00 (.88)	.31 (.70)
Uneasiness	-.13 (1.08)	-.26 (.89)	-.40 (.81)	.13 (.79)
Sadness	-.71 (1.33)	-.25 (.97)	-.28 (1.05)	-.38 (.83)

Note. Positive values mean stronger feeling reported after the second screening or streaming.

the film viewing experience, much more disruptions during the film were reported at home compared with the movie theater groups.

General Discussion

The present study was aimed to answer the question, whether watching a film in a movie theater is indeed a superior cinematic experience than watching at home—as generally claimed by cinephiles (e.g., Sontag, 1996)—or just a romantic notion to get rid of—as suggested, for example, by chief content officer of Netflix Ted Sarandos (Fleming, 2016). The present results provide clear-cut empirical evidence that a movie theater context is indeed boosting the cinematic experience in terms of an increase in a variety of aesthetic emotions. Moreover, the film was also rated about one point better on an overall judgment scale from 1 (*worst film ever seen*) to 10 (*best film ever seen*). This suggests that both output components in models of art experience (Pelowski et al., 2016)—emotions and judgments—were affected by the cinema context. These results are especially remarkable given that participants in their everyday life watched movies more often at home than in a movie theater. Therefore, it cannot be concluded that participants just preferred whatever they are more used to do.

The AESTHEMOS results confirm previous findings that not only positive emotions, but also negative and mixed emotions like being moved are of importance in the aesthetic appreciation of films (Aurier & Guintcheva, 2015; Hanich et al., 2014; Menninghaus et al., 2017; Oliver & Bartsch, 2010). Theoretically important, specifically the negative emotion sadness was boosted in the movie theater, while boredom was more pronounced in the home cinema context. Maybe the latter effect is a consequence of a generally less intense experience of other emotions while watching the film at home.

How to Explain the Cinema Context Effect?

According to current psychological models of art experience (Pelowski et al., 2016) emotions elicited by and judgment of artworks result from an interplay of the artwork itself, the individual characteristics of the person, and the situational context. In case of the cinema context effect, the movie theater context has some inherent characteristics, which might contribute to the enhanced cinematic experience: First, movie theaters are typically built as dark cubes that shield many potentially disturbing influences of the outside world (e.g., daylight, noise, and weather).⁸ This should facilitate focusing on the film itself and might be one reason, why fewer disruptions during the film have been reported by the movie theater groups. Second, the large auditorium in a movie theater usually makes the cinematic experience also a social experience. Descriptive data on the general viewing habits of our sample support that going to the movies is more often a social event, while watching a film at home is more often an activity done alone. While results of the present study showed no indication for an influence of the person sitting directly next, there might still be an effect of watching in a crowd (movie theater) versus watching alone or in a small group (home cinema). For example, a recent chemistry study found that scene-specific emissions of airborne chemicals can be measured from crowds in a movie theater, which might have psychological effects on individuals in the audience (Williams et al., 2016). In addition, more direct forms of communication—like laughter, crying, or conversations—among the audience could influence the cinematic experience, an aspect that has already been addressed in a phenomenological study of the audience effect (Hanich, 2018) and received some attention in empirical studies from the related field of museum psychology (Carbon, 2017a; Tröndle, Wintzerith, Wäspe, & Tschacher, 2012). Third, a movie theater context might elicit a positive, cognitive bias because of specific expectations associated with this cultural context (Leder, Belke, Oeberst, & Augustin, 2004; Leder & Nadal, 2014). We live in a time where more and more films are produced and released every year: according to the Internet movie database *imdb.com* 3,727 feature films were produced in 1998, 6,277 in 2008, and 11,729 in 2018, demonstrating an increase of more than 200% of films produced over the last 20 years. While the number of theatrical releases per year is rising as well, the increase is smaller, resulting in an increasing overweight of produced films compared with theatrically released films. For example, in the United States around 300 films were theatrically released in 1996 and 736 in 2016, demonstrating an increase of about 150% over 20 years (Follows, 2017). Taken together, this means that less than each 10th film produced will get a theatrical release. This strict selection might have led to the general assumption in public knowledge that only the best films are theatrically released, causing an association between movie theaters and seeing a good film. For visual artworks, it has already been demonstrated that contextual framing—for example, as artworks from a gallery or as work by a grandmaster—increases appreciation, valuation, and likeness of the artworks (Kirk, Skov, Hulme, Christensen, & Zeki, 2009; Locher, Krupinski, & Schaefer, 2015; Seidel & Prinz, 2018). A first hint for contextual framing effects in the present study might be seen in the incidental finding that about 20% of participants in the movie theater groups reported familiarity with actors in *Vkv*, whereas this was not the case for any participant in the home

cinema groups. Therefore, maybe seeing the actors on a big screen in a movie theater worked as a contextual cue for a higher degree of felt popularity. More empirical work is clearly needed to further investigate these possibilities.

Furthermore, the movie theater context not only has effects on its own, it also alters the physical appearance of the film itself in comparison with a home cinema: The picture on the screen is bigger in size and farther away, and also the sound comes from a larger distance, is usually louder and equipped with more surround-sound channels. The importance of the sound device was indicated in this study in findings of the home cinema groups. Participants rated the film better, when they used external, multi-channel speakers, and best, when they used headphones. One reason might be that headphones, similar to the dark cube of the cinema, have a shielding function, which leads to a more immersive cinematic experience (Bracken, Pettet, Guha, & Rubenking, 2010; Kallinen & Ravaja, 2007). No effect of picture device was found within the home cinema groups.⁹ However, because the difference in screen size was much larger between the two contexts than within the home cinema context, the difference between movie theater and home cinema might still be a consequence of screen size. This would be in line with recent evidence that larger physical magnitude in paintings is associated with increased aesthetic value (Seidel & Prinz, 2018). Also with respect to film, there is some evidence that, within rather small screen sizes, a larger screen can lead to more immersion and increased emotions (Bracken et al., 2010; Grabe, Lombard, Reich, Bracken, & Ditton, 1999; Lombard, Reich, Grabe, Bracken, & Ditton, 2000; Reeves, Lang, Kim, & Tatar, 1999), but studies are missing that systematically investigate the impact of screen sizes with inclusion of dimensions used in movie theaters.

Implications for the Movie Theater Industry and Movie Fans

The movie theater industry is struggling with a decreasing frequency of movie theater visits, especially by the critical target group of 16–39 year-olds (Filmförderungsanstalt FFA, 2019; GfK, 2015). One reason seems to be that going to the movies is not perceived as ecologically worthwhile compared with the more convenient alternative of watching movies at home. One response of the movie theater industry is to invest in more luxurious and technologically advanced equipment. For example, extra-large screens with higher resolution (e.g., IMAX), sound systems with many more channels (e.g., Dolby Atmos), and 4D/5D cinemas can be found in more and more modern movie theaters (Scheffer, 2018; St Leger, 2018). While such measures might indeed have a positive influence on the cinematic experience (see subsection How to explain the cinema context effect?), the present study demonstrates that even a rather small movie theater, equipped with

⁸ The term dark cube is inspired by an essay by Roland Barthes (1989) as translated by Richard Howard.

⁹ Screen size was not explicitly assessed in the present study. However, it can be assumed that on average a smartphone or tablet screen should be smaller than a laptop or PC screen, while a TV screen should be largest. However, furthermore problematic is that the viewing distance from the screen is unknown. Therefore, a small screen like a smartphone held in the hand could result in the same picture size in terms of degrees of visual angle than a large TV screen watched from 5 m away.

basic standard technology results in a superior cinematic experience. This evidence might be used in advertisements to promote the attractiveness of movie theater visits. Yet, more research is clearly needed to investigate, if supposedly superior technology indeed results in a superior cinematic experience. For example, a recent study found that films projected in analog 35 mm-technique resulted in increased emotional responses and more immersion than films projected with up-to-date digital technique (Loertscher et al., 2016), suggesting that more advanced technology does not necessarily result in a better cinematic experience. A further hint toward this assumption can be seen in the fact that in 2018 the largest decrease in movie theater visits was found for 3D screenings (Filmförderungsanstalt FFA, 2019; Hanich, 2018).

The present results can also be seen as an empirical backup for the common practice of a primary release of films in a movie theater: with respect to the viewer, having watched a film for the first time in a movie theater not only enhances the initial cinematic experience within the movie theater, but it also enhances the cinematic experience of rewatching the film a second time at home. In contrast, watching the same film twice at home seems a less pleasurable experience (cf., Green et al., 2008). Furthermore, present findings suggest that rewatching a film first known from the home cinema context subsequently within a movie theater is a worthwhile experience. This might explain the continuing success of evergreen movies on the big screen, like seen at the example of “The Rocky Horror Picture Show” (Twentieth Century Fox & Sharman, 1975), which successfully runs for over 40 years now in Munich in the movie theater Museum Lichtspiele (Crone, 2017). Admittedly, “The Rocky Horror Picture Show” is an extreme example because of the highly ritualized active attendance of the audience (Hanich, 2018). However, not only such highly ritualized cult films, but also other well-known films without such active audience attendance are successfully rereleased in movie theaters, leading to the continuation of series like the Big Screen Classics by Fathom Events and Turner Classic Movies (Samoylov, 2018).

Last but not least, it should be clarified that this study by no means wants to discourage people from watching films at home, since the present results confirm that this is an enjoyable experience. Instead, we just want to emphasize that watching a film in a movie theater seems to be an even *better* experience, with positive aftereffects even if rewatching the same film at home.

Limitations

The present study was a first step in investigating context effects on the cinematic experience. Therefore, the reliability of the present results remains to be tested, preferably with a larger sample size providing higher power. Because of the procedural choices made in this study, there are furthermore some limitations regarding the generalizability of the present findings: Only one film—and consequently only one genre—and one movie theater was used in the main experiment. Therefore, it should be tested in future studies, whether the cinema context effect is modulated by the genre of a film and/or the type of movie theater (e.g., arthouse theater vs. multiplex theater). With respect to an exploratory study using surveys and hypothetical scenarios, certain combinations of film content with specific coviewers might even result in a reversed cinema context effect (Harris & Cook, 2011).

According to a recent review on aesthetic emotions (Menninghaus et al., 2019), a mandatory feature of aesthetic emotions is that they are an important predictor of resultant liking or disliking. While not all 21 AESTHEMOS scales are supposed to be *prototypical* aesthetic emotions (Schindler et al., 2017), it still seems odd with regard to Menninghaus’s definition that only one scale—the Feeling of beauty/liking—was a positive predictor of the overall judgment of the film *Vkv*. One explanation might be that the overall judgment is just not equivalent to a measure of liking or disliking. In fact, the AESTHEMOS scale Feeling of beauty/liking seems to be a more obvious measure in this respect. When the other 20 AESTHEMOS scales are used as predictors in a stepwise, linear regression to predict the Feeling of beauty/liking rating, the best model for the first and second screening or streaming included indeed three significant predictors each.¹⁰ Furthermore, it might be a film-specific phenomenon. In the pilot experiment, two AESTHEMOS scales predicted the overall judgment of the other two films (Feeling of beauty/liking and Humor for *Bb*, Feeling of beauty/liking and Insight for *Rvv*). Taken together, we believe that the AESTHEMOS questionnaire is indeed a valid tool to measure emotions occurring during an aesthetic experience.

We found a clear-cut cinema context effect in the main experiment with higher overall judgment ratings in the movie theater compared with the home cinema group. What needs an explanation, however, is the comparison with the overall judgment rating in the pilot experiment. Although the pilot participants watched the films at home, the mean *Vkv* rating was more similar to the movie theater than the home cinema group. Given the fact that all three samples (the pilot participants, the movie theater group, and the home cinema group) showed remarkably similar variance in ratings, we believe that an additional context effect might be the reason for this discrepancy. The pilot experiment was conducted several weeks before the main experiment, so that a seasonal effect might have affected both the movie theater and the home cinema group. The main experiment took part in the middle of summer during a high heat period (around 40 °C), and most German homes as well as the Filmgalerie movie theater do not have air conditioning. Therefore, these stressful environmental circumstances might have had a general moderating effect on the ratings during the main experiment.

Conclusion

The present study showed that watching a film for the first time in a movie theater results in a superior cinematic experience compared with watching at home. This cinema context effect persisted over time, even when the film was watched for a second time at home. Future research is needed to clarify, which aspects of the movie theater context contribute to this effect.

¹⁰ The best model for the first screening or streaming explained 65.3% of the variance, $R^2 = .67$, $F(3, 71) = 47.33$, $p < .001$. Joy ($\beta = .47$, $p < .001$), Being moved ($\beta = .46$, $p < .001$), and Uneasiness ($\beta = -.19$, $p < .05$) predicted the Feeling of beauty/liking. The best model for the second screening or streaming explained 81.4% of the variance, $R^2 = .82$, $F(3, 66) = 97.48$, $p < .001$. Joy ($\beta = .57$, $p < .001$), Ugliness ($\beta = -.29$, $p < .001$), and Being moved ($\beta = .24$, $p < .001$) predicted the Feeling of beauty/liking.

References

- Aurier, P., & Guintcheva, G. (2015). The dynamics of emotions in movie consumption: A spectator-centered approach. *International Journal of Arts Management, 17*, 5–18.
- Aveyard, K. (2016). Film consumption in the 21st century: Engaging with non-theatrical viewing. *Media International Australia, 160*, 140–149. <http://dx.doi.org/10.1177/1329878X16642851>
- Barthes, R. (1989). Leaving the movie theater. In R. Howard (Trans.), *The rustle of language* (pp. 345–349). Berkeley: University of California Press.
- Bartsch, A. (2012). Emotional gratification in entertainment experience. Why viewers of movies and television series find it rewarding to experience emotions. *Media Psychology, 15*, 267–302. <http://dx.doi.org/10.1080/15213269.2012.693811>
- Bell, C. (1914). *Art*. New York, NY: Frederick A. Stokes. Retrieved from <https://archive.org/details/ArtByCliveBell/page/n0>
- Bracken, C. C., Pettey, G., Guha, T., & Rubenking, B. E. (2010). Sounding out small screens and telepresence. *Journal of Media Psychology, 22*, 125–137. <http://dx.doi.org/10.1027/1864-1105/a000017>
- Brieber, D., Nadal, M., & Leder, H. (2015). In the white cube: Museum context enhances the valuation and memory of art. *Acta Psychologica, 154*, 36–42. <http://dx.doi.org/10.1016/j.actpsy.2014.11.004>
- Brieber, D., Nadal, M., Leder, H., & Rosenberg, R. (2014). Art in time and space: Context modulates the relation between art experience and viewing time. *PLoS ONE, 9*, e99019. <http://dx.doi.org/10.1371/journal.pone.0099019>
- Brunick, K. L., Cutting, J. E., & De Long, J. E. (2013). Low-level features of film: What they are and why we would be lost without them. In A. P. Shimamura (Ed.), *Psychocinematics: Exploring cognition at the movies* (pp. 133–148). Oxford, England: University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199862139.003.0007>
- Carbon, C.-C. (2017a). Art perception in the museum: How we spend time and space in art exhibitions. *i-Perception, 8*, 2041669517694184. <http://dx.doi.org/10.1177/2041669517694184>
- Carbon, C.-C. (2017b). Measurement problems and measurement strategies for capturing the rich experience of art. *Electronic Imaging, 2017*, 242–247. <http://dx.doi.org/10.2352/ISSN.2470-1173.2017.14.HVEL-151>
- Castendyk, O. (2014). *Kinobetriebsstudie*. Retrieved from https://www.hdf-kino.de/fileadmin/hdfkino/media/Downloads/07_Service/05_Kinobetriebsstudie/Kinobetriebsstudie_korrigiert_ONLINE.pdf
- Clover, J. (2018). *France collapses movie windows*. Retrieved from <https://www.broadbandtvnews.com/2018/12/26/france-collapses-movie-windows/>
- Crone, P. (2017). *Wie München die Rocky Horror Picture Show feiert* [How Munich celebrates the Rocky Horror Picture Show]. Retrieved from <https://www.sueddeutsche.de/muenchen/museum-lichtspiele-wie-muenchen-die-rocky-horror-picture-show-feiert-1.3545614>
- Cutting, J. E., DeLong, J. E., & Nothelfer, C. E. (2010). Attention and the evolution of Hollywood film. *Psychological Science, 21*, 432–439. <http://dx.doi.org/10.1177/0956797610361679>
- Dinsmore-Tuli, U. (2000). The pleasures of 'home cinema', or watching movies on telly: An audience study of cinephiliac VCR use. *Screen, 41*, 315–327. <http://dx.doi.org/10.1093/screen/41.3.315>
- Filmförderungsanstalt FFA. (2015). *Evaluierungsbericht zur Entwicklung des Abgabeaufkommens vor dem Hintergrund der wirtschaftlichen Situation des Filmmarktes in Deutschland gemäß § 75 Abs. 1 FFG* [Evaluation report on the development of tax revenue against the background of the economic situation of the film market in Germany pursuant to Section 75 (1) FFG]. Retrieved from <https://www.ffa.de/evaluierungsbericht-zur-entwicklung-des-abgabeaufkommens.html>
- Filmförderungsanstalt FFA. (2019). *Kinobesucher 2018: Strukturen und Entwicklungen auf Basis des GfK-Panels* [Cinema Visitors 2018: Structures and Developments based on the GfK Panel]. Retrieved from <https://www.ffa.de/der-kinobesucher-20172.html>
- Fleming, M. J. (2016). *Deadline disruptors: Ted Sarandos on Netflix's "bright" feature future*. Retrieved from <https://deadline.com/2016/05/tk-netflix-ted-sarandos-bright-screening-room-mike-fleming-interview-1201752057/>
- Follows, S. (2017). *How many films are released each year?* Retrieved from <https://stephenfollows.com/how-many-films-are-released-each-year/>
- Gaudreault, A., & Marion, P. (2015). *The end of cinema? A medium in crisis in the digital age. Film and culture series*. New York, NY: Columbia University Press.
- GfK. (2015). *Critical cinema target groups*. Retrieved from <https://www.ffa.de/kritische-kino-zielgruppen-kompodium-der-ergebnisse.html>
- Grabe, M. E., Lombard, M., Reich, R. D., Bracken, C. C., & Ditton, T. B. (1999). The role of screen size in viewer experiences of media content. *Visual communication quarterly, 6*, 4–9.
- Green, M. C., Kass, S., Carrey, J., Herzog, B., Feeney, R., & Sabini, J. (2008). Transportation across media: Repeated exposure to print and film. *Media Psychology, 11*, 512–539. <http://dx.doi.org/10.1080/15213260802492000>
- Hanich, J. (2018). *The audience effect: On the collective cinema experience*. Edinburgh, UK: University Press.
- Hanich, J., Wagner, V., Shah, M., Jacobsen, T., & Menninghaus, W. (2014). Why we like to watch sad films. The pleasure of being moved in aesthetic experiences. *Psychology of Aesthetics, Creativity, and the Arts, 8*, 130–143. <http://dx.doi.org/10.1037/a0035690>
- Harris, R. J., & Cook, L. (2011). How content and co-viewers elicit emotional discomfort in moviegoing experiences: Where does the discomfort come from and how is it handled? *Applied Cognitive Psychology, 25*, 850–861. <http://dx.doi.org/10.1002/acp.1758>
- Heimathafen Film (Producer), & Weinrafen, E. (Director). (2017). *Von Komischen Vögeln*. Germany: Heimathafen Film.
- Hoffmann, J. (2006). "Play it again, Sam". A differentiating view on repeated exposure to narrative content in media. *Communications, 31*, 21. <http://dx.doi.org/10.1515/COMMUN.2006.024>
- Holmes, M. (2019). 'We saw Bill and Ted 17 times': films that drew readers back to the cinema. Retrieved from <https://www.theguardian.com/film/2019/jun/12/readers-cinema>
- Hosoya, G., Schindler, I., Beermann, U., Wagner, V., Menninghaus, W., Eid, M., & Scherer, K. R. (2017). Mapping the conceptual domain of aesthetic emotion terms: A pile-sort study. *Psychology of Aesthetics, Creativity, and the Arts, 11*, 457–473. <http://dx.doi.org/10.1037/aca0000123>
- Independent Works. (Producer), & Priborsky, V. (Director). (2015). *Blockbuster: Das Leben ist ein Film*. Austria: Independent Works.
- Kallinen, K., & Ravaja, N. (2007). Comparing speakers versus headphones in listening to news from a computer—Individual differences and psychophysiological responses. *Computers in Human Behavior, 23*, 303–317. <http://dx.doi.org/10.1016/j.chb.2004.10.014>
- Kenigsberg, B., & Bailey, J. (2018). *Does it matter if you see a film in a cinema or at home?* Retrieved from <https://www.independent.co.uk/arts-entertainment/films/features/film-movie-cinema-home-viewing-cannes-netflix-streaming-debate-a8350686.html>
- Kirk, U., Skov, M., Hulme, O., Christensen, M. S., & Zeki, S. (2009). Modulation of aesthetic value by semantic context: An fMRI study. *NeuroImage, 44*, 1125–1132. <http://dx.doi.org/10.1016/j.neuroimage.2008.10.009>
- Leder, H., Belke, B., Oeberst, A., & Augustin, D. (2004). A model of aesthetic appreciation and aesthetic judgments. *British Journal of Psychology, 95*, 489–508. <http://dx.doi.org/10.1348/0007126042369811>
- Leder, H., & Nadal, M. (2014). Ten years of a model of aesthetic appreciation and aesthetic judgments: The aesthetic episode—Developments and challenges in empirical aesthetics. *British Journal of Psychology, 105*, 443–464. <http://dx.doi.org/10.1111/bjop.12084>

- Locher, P., Krupinski, E., & Schaefer, A. (2015). Art and authenticity: Behavioral and eye-movement analyses. *Psychology of Aesthetics, Creativity, and the Arts*, 9, 356–367. <http://dx.doi.org/10.1037/aca0000026>
- Locher, P., Overbeeke, K., & Wensveen, S. (2010). Aesthetic interaction: A framework. *Design Issues*, 26, 70–79. http://dx.doi.org/10.1162/DESI_a_00017
- Loertscher, M. L., Weibel, D., Spiegel, S., Flueckiger, B., Mennel, P., Mast, F. W., & Iseli, C. (2016). As film goes byte: The change from analog to digital film perception. *Psychology of Aesthetics, Creativity, and the Arts*, 10, 458–471. <http://dx.doi.org/10.1037/aca0000082>
- Lombard, M., Reich, R. D., Grabe, M. E., Bracken, C. C., & Ditton, T. B. (2000). Presence and television. *Human Communication Research*, 26, 75–98.
- Menninghaus, W., Wagner, V., Hanich, J., Wassiliwizky, E., Jacobsen, T., & Koelsch, S. (2017). The Distancing-Embracing model of the enjoyment of negative emotions in art reception. *Behavioral and Brain Sciences*, 40, e347. <http://dx.doi.org/10.1017/S0140525X17000309>
- Menninghaus, W., Wagner, V., Hanich, J., Wassiliwizky, E., Kuehnast, M., & Jacobsen, T. (2015). Towards a psychological construct of being moved. *PLoS ONE*, 10, e0128451. <http://dx.doi.org/10.1371/journal.pone.0128451>
- Menninghaus, W., Wagner, V., Wassiliwizky, E., Schindler, I., Hanich, J., Jacobsen, T., & Koelsch, S. (2019). What are aesthetic emotions? *Psychological Review*, 126, 171–195. <http://dx.doi.org/10.1037/rev0000135>
- Muth, C., Raab, M. H., & Carbon, C.-C. (2015). The stream of experience when watching artistic movies. Dynamic aesthetic effects revealed by the Continuous Evaluation Procedure (CEP). *Frontiers in Psychology*, 6, 365. <http://dx.doi.org/10.3389/fpsyg.2015.00365>
- Northern Alliance, & Ipsos MediaCT. (2011). *Opening our eyes: How film contributes to the culture of the U.K.* Retrieved from <https://www.bfi.org.uk/about-bfi/policy-strategy/opening-our-eyes-how-film-contributes-culture-uk>
- Oatley, K. (2013). How cues on screen prompt emotions in the mind. In A. P. Shimamura (Ed.), *Psychocinematics: Exploring cognition at the movies* (pp. 269–284). Oxford, England: University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199862139.003.0014>
- Oliver, M. B., & Bartsch, A. (2010). Appreciation as audience response: Exploring entertainment gratifications beyond hedonism. *Human Communication Research*, 36, 53–81. <http://dx.doi.org/10.1111/j.1468-2958.2009.01368.x>
- Pelowski, M., Forster, M., Tinio, P. P. L., Scholl, M., & Leder, H. (2017). Beyond the lab: An examination of key factors influencing interaction with ‘real’ and museum-based art. *Psychology of Aesthetics, Creativity, and the Arts*, 11, 245–264. <http://dx.doi.org/10.1037/aca0000141>
- Pelowski, M., Markey, P. S., Forster, M., Gerger, G., & Leder, H. (2017). Move me, astonish me . . . delight my eyes and brain: The Vienna Integrated Model of top-down and bottom-up processes in Art Perception (VIMAP) and corresponding affective, evaluative, and neurophysiological correlates. *Physics of Life Reviews*, 21, 80–125. <http://dx.doi.org/10.1016/j.plrev.2017.02.003>
- Pelowski, M., Markey, P. S., Luring, J. O., & Leder, H. (2016). Visualizing the impact of art: An update and comparison of current psychological models of art experience. *Frontiers in Human Neuroscience*, 10, 160. <http://dx.doi.org/10.3389/fnhum.2016.00160>
- Reeves, B., Lang, A., Kim, E. Y., & Tatar, D. (1999). The effects of screen size and message content on attention and arousal. *Media Psychology*, 1, 49–67. http://dx.doi.org/10.1207/s1532785xmep0101_4
- Russell, C. A., & Levy, S. J. (2012). The temporal and focal dynamics of volitional reconsumption: A phenomenological investigation of repeated hedonic experiences. *Journal of Consumer Research*, 39, 341–359. <http://dx.doi.org/10.1086/662996>
- Samoylov, M. (2018). *TCM to bring back multiple classic films through fathom events in 2019*, Ex. “Ben Hur”, “To Kill a Mockingbird”, “Lawrence of Arabia”, “Alien” and others. Retrieved from <https://www.rereleasenews.com/2018/11/24/tcm-to-bring-back-multiple-classic-films-into-cinemas-in-2019-ex-ben-hur-to-kill-a-mockingbird-lawrence-of-arabia/>
- Scheffer, M. (2018). *Die Zukunft des Kinos* [The future of cinema]. Retrieved from <https://www.pressreader.com/>
- Schindler, I., Hosoya, G., Menninghaus, W., Beermann, U., Wagner, V., Eid, M., & Scherer, K. R. (2017). Measuring aesthetic emotions: A review of the literature and a new assessment tool. *PLoS ONE*, 12, e0178899. <http://dx.doi.org/10.1371/journal.pone.0178899>
- Seidel, A., & Prinz, J. (2018). Great works: A reciprocal relationship between spatial magnitudes and aesthetic judgment. *Psychology of Aesthetics, Creativity, and the Arts*, 12, 2–10. <http://dx.doi.org/10.1037/aca0000100>
- Shimamura, A. P. (Ed.). (2013). *Psychocinematics: Exploring cognition at the movies*. Oxford, England: University Press. <http://dx.doi.org/10.1093/acprof:oso/9780199862139.001.0001>
- Sims, D. (2018). *What’s at stake in Cannes’s battle with Netflix*. Retrieved from <https://www.theatlantic.com/entertainment/archive/2018/04/cannes-netflix-battle/558026/>
- Sontag, S. (1996, February 25). The decay of cinema. *The New York Times*, p. 60.
- Specker, E., Tinio, P. P. L., & van Elk, M. (2017). Do you see what I see? An investigation of the aesthetic experience in the laboratory and museum. *Psychology of Aesthetics, Creativity, and the Arts*, 11, 265–275. <http://dx.doi.org/10.1037/aca0000107>
- St Leger, H. (2018). *Go big or go home: IMAX and the future of cinema*. Retrieved from <https://www.techradar.com/news/go-big-or-go-home-imax-and-the-future-of-cinema>
- Tannenbaum, P. H. (1985). “Play it again, Sam”: Repeated exposure to television programs. In D. Zillmann & J. Bryant (Eds.), *Selective exposure to communication* (pp. 225–241). Hillsdale, NJ: Erlbaum.
- Tarvainen, J., Westman, S., & Oittinen, P. (2015). The way films feel: Aesthetic features and mood in film. *Psychology of Aesthetics, Creativity, and the Arts*, 9, 254–265. <http://dx.doi.org/10.1037/a0039432>
- Tefertiller, A. (2017). Moviegoing in the Netflix age: Gratifications, planned behavior, and theatrical attendance. *Communicatio Socialis*, 30, 27–44.
- The Economist & YouGov Poll. (2018). *econTabReport*. Retrieved from https://d25d2506sfb94s.cloudfront.net/cumulus_uploads/document/5qt1ka60gv/econTabReport.pdf
- Tröndle, M., Wintzerith, S., Wäsp, R., & Tschacher, W. (2012). A museum for the twenty-first century: The influence of ‘sociality’ on art reception in museum space. *Museum Management and Curatorship*, 27, 461–486. <http://dx.doi.org/10.1080/09647775.2012.737615>
- Twentieth Century Fox (Producer), & Sharman, J. (Director). (1975). *The Rocky Horror Picture Show*. USA: Twentieth Century Fox.
- Von Oma gefördert. (Producer), & Eichholtz, P. (Director). (2018). *Rückwind von vorn*. Germany: Von Oma gefördert.
- Vorderer, P., Klimmt, C., & Ritterfeld, U. (2004). Enjoyment: At the heart of media entertainment. *Communication Theory*, 14, 388–408.
- Williams, J., Stöner, C., Wicker, J., Krauter, N., Derstroff, B., Bourtsoukidis, E., . . . Kramer, S. (2016). Cinema audiences reproducibly vary the chemical composition of air during films, by broadcasting scene specific emissions on breath. *Scientific Reports*, 6, 25464. <http://dx.doi.org/10.1038/srep25464>

Received April 7, 2019

Revision received November 14, 2019

Accepted November 14, 2019 ■