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Music with a Mood Opposite to the Movie Scene and its Effects on Emotions

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ABSTRACT

Music with a mood that does not match the movie scene is a form of film music that has been experimented with and explored over time. It has been recognized to have varying effects on audiences, specifically on mental processes like perceptions and moral judgement. One goal of this research was to explore a more underexplored aspect of this kind of film music: the emotions of the audience. Furthermore, the main goal was to determine if music with a mood opposite to the movie scene would convey and amplify emotions of the audience. To study how emotions of audiences are impacted by music with a mood that does not match the mood of the movie scene, multiple clips from movies with either music that matched or mismatched their original scenes were chosen to have new music edited onto them. This led to two groups: matched and mismatched mood clips. From this point, a survey with questions about emotions felt per each clip was distributed to participants, who watched the clips live. After participants responded about emotions that they felt and the intensities of those emotions, their results were analyzed to determine that music with a mood opposite to the movie scene does amplify emotions of the audience and can convey new emotions, though results for newly conveyed emotions varied from clip to clip.

Introduction

From the very beginning of the film industry to its continued popularity in recent times, one thing has always consistently been involved in the industry's output: music. The combination of audio elements and visual elements in a traditional film results in a joint effort of the two to present the viewer with essential details and messages. In 2019, acclaimed director Quentin Tarantino was interviewed on his use of music in his films, where he described film soundtrack selection as "doing what movies do better than any other art form; it really works in this visceral, emotional, cinematic way that's just really special," even going on to claim that correctly using music in films is "about as cinematic a thing as you can do" (Thomas-Mason, 2019).

Tarantino's mention of the impacts of film music on the emotions of the audience is not a new concept. Aside from its accompaniment in film, people listen to music in general for a multitude of reasons, including to heighten emotions and to surround themselves with background noise (Lonsdale, 2011). Film music, similarly to how people choose to listen to music to heighten emotions, has been identified and associated with its effects on the emotions of audiences over the years. In fact, Annabel Cohen made the observation that the music in films automatically attaches itself to its accompanying visuals, and thus the film's visual aspect is an object of emotion to the music (2011). Music and visuals joining forces to heighten the emotional presentation in films suggests films often have an emotional agenda when trying to make an impact on the audience. Furthermore, because of previous findings on film music's emotional appeal, emotional impacts on the audience can be built through the use of carefully selected film soundtracks. Without music in film, the emotions that are heightened or altered by that music are lost.

As people involved in the film industry experiment by finding new ways to impact their audiences with soundtracks, new methods such as music with a mood opposite to a movie scene spark. In his source "Audio Vision, Sound on Screen," Michel Chion, filmmaker, composer, and writer of several books regarding film music, defines music with a mood that does not match or is opposite to the mood of a movie scene as "anempathetic sound," a term he coined (2019). Chion also suggests this kind of film music can heighten the emotional impacts of movie scenes, implying it potentially has more power than a traditional film score with music matching the scene's mood.

Quentin Tarantino's Reservoir Dogs from 1992 is one of the most well-known films that uses this technique in its soundtrack, playing the pop song "Stuck in the Middle With You" over a scene of torture and violence. Lisa Coulthard analyzes this use of pop music among Tarantino's filmography, including the "Stuck in the Middle With You" torture scene example, to determine what potentially motivates the audience and Tarantino to hold an interest in this use of music. Coulthard theorizes that poppy music used in scenes of violence in Tarantino's films may "articulate a kind of enjoyment in an aesthetically appealing blending of aural complexity (noise, music, and dialogue), imagistic brutality, and rhythmic regularity" (2009). Essentially, all visual elements combined with creative uses of poppy, upbeat music are seen in a different, more unique way, where their effects on the audience are more distinctive; furthermore, scenes of violence, torture, and gore might be seen in an aesthetically pleasing way through this use of music. Based on this theory, the assumption could be made that different pairings of movie scenes and music opposite to the mood will provoke different emotions.

Among both the more common uses of film music and the lesser-known, more innovative use of music with a mood opposite to the movie scene, studies have demonstrated the effects of film music on different mental processes of the audience. One study took shots of neutral faces and edited happy music, sad music, and no music at all onto them, ultimately concluding that different genres of music impact how an audience perceives different shots of faces (Baranowski & Hecht, 2017). From this study, hypotheses regarding different kinds of music's effects over movie scenes that have more elements than just single faces can develop as more is learned about this topic. Psychologist and cognitive scientist Oliver Vitouch performed a study focused on the impacts of film scores on plot and emotional perceptions from the audience, to which Vitouch concluded that expectations of an audience concerning movie scenes are altered and impacted due to the use of film scores (2001). These findings demonstrate film music's impact on the audience's mental processes, especially modifying their general ideas of what occurs in the scenes they are viewing. Another study from the same year demonstrated how music of different variations placed over the same movie scene can alter the plot perception of an audience (Boltz, 2001). Based on the findings of this research, similar thoughts, studies, and predictions regarding music with a mood opposite to a movie scene's impacts on emotions may arise.

Current works in the field of film music and its effects on an audience often focus more on how film music changes varying perceptions of the audience. Baranowski and Hecht's study on audience perceptions of neutral faces and the studies from Vitouch and Boltz all focus on varying perceptions and goals. Hyun Ju Chong and her colleagues focused on how viewers of film scenes perceive the emotional goal of different film scores, concluding as a result that viewers of movie scenes are able to recognize the emotion of presented film scores (2013). Additionally, Jochen Steffens studied the effects of film music on moral judgment and audience perceptions, further demonstrating the array of studies focused on audience perceptions (2020). The varying studies regarding mental processes, especially different forms of perception, show the needed areas to study regarding music with a mood opposite to a movie scene and its impacts on the emotions of an audience.

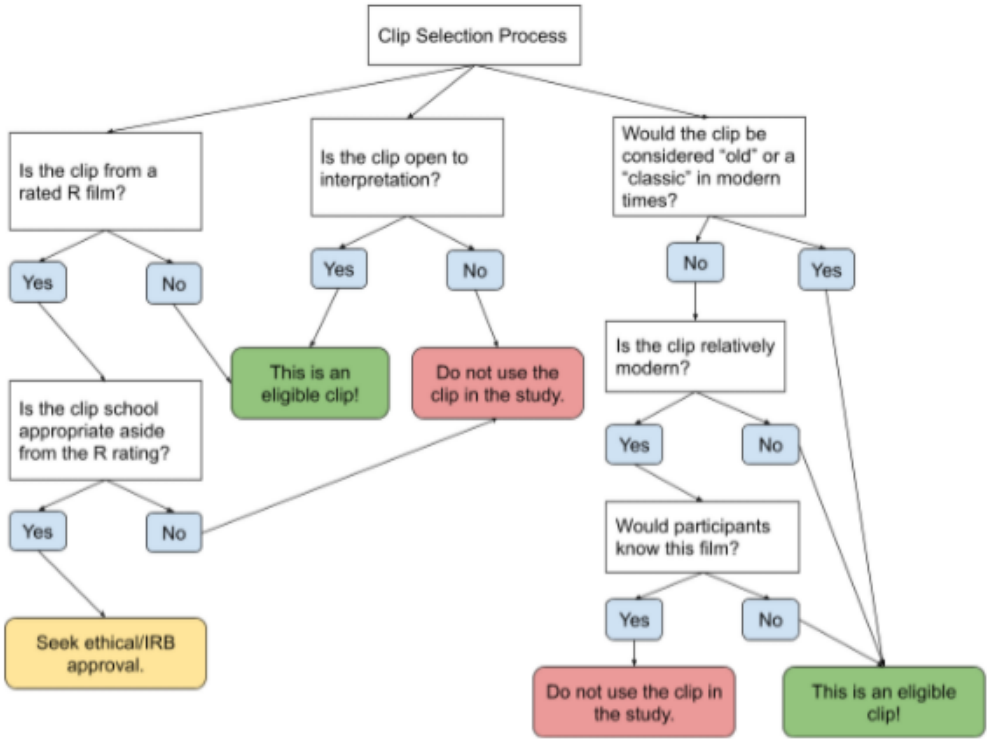
Existing studies regarding varying film music's effects on the audience mention its emotional impacts on the audience either minimally or not at all. As defined by film composer Joel Douek, the reason film music's effects on emotions is so interesting to study is the main purpose of film music: affecting emotions (2013). Thus, based on these observations, film music is often attempting to convey some sort of emotion, and further research on varying uses of film music will provide more information to filmmakers when selecting the best

pieces of music to touch their audiences' emotions. While Douek describes film music with such a strong emotional impact and purpose, the emotional aspect of film music techniques is underexplored in this field of knowledge. The understanding that film music has an effect on emotions suggests there might be a more unique impact from music with a mood opposite to the movie scene, but there is a need for more exploration on audience emotions due to the limited research in the field.

As the field of film and its accompanying soundtracks and scores continues to grow and explore new possibilities of experimentation, there is more of a need for research on the varying effects of film music implementation on audiences. Many existing studies focus on mental processes that are not specifically emotions, and additionally, a small number of studies regarding music that does not match a scene's mood exists. The lack of research on music opposite to the mood of a scene and emotional impacts of film music in general represent a need for more studies to further understand film music techniques' effects on audiences. Given the existing studies, theories, and observations over the emotional effects that film music has on an audience from the minds of those like Coulthard and Chong, and theories, definitions, and considerations over this music from authors like Chion, music with a mood that does not match a movie scene and its effects on emotion would be a new topic to bring into multiple pre-existing fields that would consequently advance the understandings of researchers. With the current lack of studies on this film music's emotional impacts, more research must be performed to further define the technique's emotional influences. In this research, music with a mood opposite to that of a movie scene will be studied, ultimately finding if and how the technique amplifies and conveys emotions to the audience.

Methods

The type of study design used was quantitative, as the study consisted of an experiment gathering numerical data as well as worded responses from participants. In said experiment, participants watched movie clips accompanied by music, whether it was a score to the movie, which is an instrumental track, or a soundtrack with verbal lyrics (the study mostly used scores, but some songs had lyrics in them). In preparation for the experiment, potential movies for use in the study were viewed, attempting to find two variants of clips regarding music usage: music that matched the mood of its scene and music that did not match the mood of its scene. The preparation stage of the method was inspired by a study performed by Claudia Bullerjahn, where a short film was created and composed under four different genres, to which four different groups of participants viewed one version, containing the same video paired with a different score of the clip (1994). This built inspiration for one goal of the study: finding existing movie clips and editing music onto them to find the emotional impact of mismatched music on audiences.



Note. Clips were selected that could be considered "old" or "classics" in modern times so participants would be less likely to recognize the films they were viewing. Clips of all different genres were used so there would be a higher probability of appealing to the audience. If the audience was more likely to enjoy at least one clip, their interest levels would be higher, leading to more elaborate responses.

Figure 1. Clip Selection Process.

Clips were open to interpretation because of inspiration from the aforementioned study by Boltz, which similarly studied movie clips but made the important choice of keeping clips open to interpretation, ensuring more thought-out and detailed responses from the audience and more elaboration on feelings (2001). If a clip was not open-ended and instead had a clear and closed plot, participants' emotions could be guided by the clip's events versus by the music and its accompanying visuals.

The selection of clips resulted in three final clips, two with their original scores opposite to the mood of the scene and one matching the mood of the scene. All clips were relatively open to interpretation, varied in genre, and came from the early 1980s or older, with all of these factors focused on collecting the best data possible. One clip came from Dr. Strangelove, a dark war comedy from 1964, one from Casablanca of 1942, a classic romance and drama film, and another from a montage of action scenes from Halloween II, a horror and thriller film from 1981. The footage from Halloween II contained violent actions and blood, but the clip was sent out for IRB approval with a document justifying its usage, including comparisons to PG and G films containing similar amounts of violence in hopes of keeping the study ethical (Appendix A).

Following the selection of clips that matched and mismatched the mood of the movie scenes, pieces of music opposite to the original clip's music were self-selected. After editing, the two clips with music that originally did not match the mood of the scene had music that matched the mood of the scene, and the one with music originally matching the mood of the scene had music mismatched to the mood of the scene. All selected pieces of music came from YouTube Audio Library, which contains primarily royalty-free or free-to-use music;

this was chosen to avoid and comply with copyright issues in the most efficient way. This database of music also contains filters for narrowing down search results, such as genre and mood, which were specifically used to find the best pieces of music for each clip.

Title of Film	Original clip's mood	Original mood of music	New Song: Name/Mood (as defined by YouTube Audio Library)	Personal description of new music
Casablanca	Sad but romantic	Romantic and sappy	"No.8 Requiem"; dark/cinematic	Sad
Dr. Strangelove	Dark	Happy	"No.6 In My Dreams"; sad/classical	Sad
Halloween II	Dark and thrilling	Happy	"Dangerous Toys"; Ambient/Dark	thrilling/cinematic

Note. The songs "No.8 Requiem" and "No.6 In My Dreams" were produced by the same composer, Esther Abrami, and the song "Dangerous Toys" was produced by the artist SefChol. The filters and tags of YouTube's Audio Library were heavily utilized in clip selection and descriptions in order to select the most appropriate pieces of music to use in the study.

Table 1. Music Choices of the Three Movie Clips

The Casablanca clip originally displayed two lovers parting, making for a romantic yet sad scene. The clip from Dr. Strangelove displayed a montage of explosions from the end of the film, originally scored with a happy, partially choral song titled "We'll Meet Again." This originally had music opposite to the movie scene, as happy music played over dark visuals. The final clip, a montage of action sequences from Halloween II found on the internet, showed scenes of violence and action from the film played over the happy song "Mr. Sandman," which created a heavy contrast between the visual and audio elements. "Mr. Sandman" was originally used in the film's credits and was used in the montage because of its relation to the movie.

Using two different versions of each movie clip produced two different groups of participants in the study; one group of participants would view all of the original, unedited clips, and the other group would view all of the edited clips. This would result in data for the control group (music that matched the mood) and the experimental group (music that did not match the mood), demonstrating whether music with a mood opposite to the movie scene conveys and amplifies new emotions. With all of the original clips in one group and all of the edited clips in another, the editing style could also be determined as an unintentional factor in results.

To coincide with each group's combination of movie clips, two surveys were made, each completely identical but organizing the results of each group into separate databases. Upon opening the surveys, participants were immediately greeted with the instructions of the survey. The instructions explained that participants would watch clips accompanied by music and that they should focus on the music and its relation with video, preparing to answer questions regarding their emotions for each of the three movie clips. Before moving forward to the main portion of the survey, participants were required to answer basic secondary questions including age, gender, Likert scales from one to five regarding interest in film and interest in music, and a selection of up to three favorite film genres. Peter Wühr and his colleagues inspired which genres to include in the favorite genre selection, with their source exploring gender stereotypes over preferred genres of film (2017). Along with

the other introductory questions, participants were asked if they had previously seen any of the movies that were used in order to understand if there was a pre-existing exposure to content prior to the study.

The portion of the study that focused on the movie clips' effects on participant emotions contained four questions per clip, each clip's section containing the same questions as the others. First, the survey asked what emotions the participants felt the strongest. Examples of potential responses, specifically scared, disturbed, thrilled, happy, upset, and in awe, were also listed to give an understanding of the focus of the question. The next question contained a Likert scale; students ranked their emotions on a scale from low, very subtle (1) to high, very extreme (5). This Likert scale of intensity of emotions was provided after the first question to help demonstrate mismatched music's effect on amplification of emotions. After the Likert scale, participants were asked to answer why they felt their given emotions, defining what was a factor in emotional influence. Finally, participants were asked to list any additional emotions they felt might have been too subtle to answer on the first question. This would help in understanding more emotions aside from the strongest ones the audience felt, which could also lead to an understanding of whether or not mismatched mood music has an effect on the audience. The original formatting and wording of each question can be found in Appendix B.

Teachers in the music department at a Northeast Ohio high school, where the study was performed, were contacted asking to perform the study in their classes. Every teacher who responded wanted to perform the study in their class instead of the alternative, which would be to send their students a Google Form where they could choose to participate outside of class time. The alternative outside of class method would result in less participation as participants would be taking free time out of their days versus time out of class to be involved in the study, hence the benefits of not needing this alternative. The music department was contacted partially because of how music courses typically focus on classical pieces, which are involved in the study. This meant the teachers potentially had more of an interest in the study from its direct relation to their courses. Furthermore, choir students at the school at that time were coincidentally being introduced to a film music unit, so the study aligned with the new material they were being exposed to. This also gave more reason for teachers to be interested in my study, as they could have an alternative to a lesson plan or allow a new potential interest to develop in students within the music field.

The study was performed in classroom settings at the selected high school, where participants were first introduced to what the study would contain, how participation was completely voluntary, and how they could opt-out at any point. A general explanation of the study was also stated, which explained that participants would watch movie clips and answer questions about emotions; however, there was no mention of how they would be answering questions about mismatched and matched mood music to ensure participants did not know the main goal of the study. Participants were also verbally informed that they should focus on the connection between the movie clips and their accompanying music, which was also stated in the survey's instructions. After explaining the study, participants were asked to choose whether they wanted to participate in the study or not.

Participants of the study were given access to a Google Form via a link posted through Zoom, a live video platform used to present the study to a portion of the participants, and through the selected high school's learning management system, "Schoology." School-provided MacBooks were used to fill out this survey, so everyone had the opportunity to participate. Additionally, no participant was put to a disadvantage because everyone had a similar device to complete the survey for the study. I was the only person who delivered the experiment to students aside from technical assistance and general introductions from school teachers as there was no need for extra help. There was no way for participants to select which group they wanted to be a part of and they were not informed that there were two different groups, which was done so the study would sound simplified and straightforward to participants. When selecting participants and performing the study, no incentives were used, and the only potential advantage that could have come from the study was exposure to new paths of musical study. No incentive was used to ensure that participation was completely voluntary and no

participants chose to do the study simply because of an incentive or reward. Finally, every participant spoke English, so there was no language barrier and no need to recreate the study in different languages to gain more participation.

Due to COVID-19 and safety precautions issued under the school, some participants of the study were at home on a Zoom meeting, while some participants were in school at the same time. This created a difference in viewing of the clips as the in-school participants viewed the clips on a large projection on the wall while the at-home participants watched the clips on the Zoom meeting via screen share and sound share of the computer containing the clips.

Each clip was shown to the at-home and in-school participants for each class at the same time, starting with the first clip from Casablanca, followed by the clip from Dr. Strangelove, and ending with the final clip, from Halloween II. After each clip, the participants answered the same set of questions for each clip, labeled as "Clip 1," "Clip 2," and "Clip 3." This was to ensure minimal confusion and ease of question navigation for participants.

Results and Analysis

Early in the editing process, after selecting clips and pieces of music that would be used together in the experiment, Adobe Premiere Pro was used to edit the audio and visuals together. Because of prior experience with the program, clips were edited with relative ease. One clip, however, took a large amount of effort to edit, which was the clip from Casablanca. This clip contained dialogue and music combined, so the challenge of isolating the dialogue from the music was difficult; the vocals were eventually isolated through Adobe Audition, which is an audio editing software created by Adobe. The dialogue quality became slightly worse than the original clip after editing but most of the background music was removed, making a simple process when adding different music to the clip. Adobe Premiere Pro and the entire Adobe Creative Cloud, including access to Adobe's most popular applications, is provided by the school I attend, so there was quick and easy access to these resources without needing to spend any outside funding on the study.

Technical difficulties occurred to a more extreme extent one day when online participants could not hear the displayed audio over the Zoom screen share. This issue was resolved by playing the audio from a loudspeaker into the computer microphone, which distorted the audio and thus made a weaker viewing experience for those at home.

The four main questions of the survey collected information to answer the research question, those being the strongest emotions felt, the intensity of those emotions, elaborations on why those emotions were felt, and emotions that were still prominent but less strong. The two main pieces of data from these results that were used in analysis, however, were the questions that asked for the strongest emotions and the intensity of those emotions.

The introductory questions helped to demonstrate the demographic of participants as well as factors that could have influenced the finding. First, 19 participants had seen Casablanca prior to the study, 12 had seen Dr. Strangelove, and 88 had seen Halloween II. Ages of participants ranged from thirteen to eighteen. The highest interest in film on a scale of one to five was a four, and the highest interest in music was a five, most likely due to the study's strict focus on music students. The top preferred genres in participants were comedy, action, and horror; action and horror were both incorporated into the study, meaning most participants likely had some interest in the content.

While the two primary pieces of data that helped to answer the research question were the strongest emotions and the intensity of those emotions, secondary questions were used to guide the new understanding. The data from the first secondary question on emotional elaborations was not categorized, but showed the majority of the responses focused on clips' plots and the music underscoring them, as well as some comments on

visual elements. The other question asked for secondary emotions, which tended to present similar emotions to the first responses.

The two main pieces of data helped to answer both parts of the research question; the Likert scales on intensity answered the amplification portion of the question, and the open-ended questions about the strongest emotions answered the "conveying new emotions" aspect.

The first primary question, about the strongest emotions felt, provided example responses, such as disturbed or thrilled (Appendix B). While they were provided to guide participants to answer the question properly, the examples could also have influenced participants to choose one of the example responses without coming up with their own answer. Given the examples' straightforwardness and simplification, participants may have decided to choose one of them. This would therefore make the responses less about emotions felt and more about the generalizations of emotions provided in the survey. The results for this part of the survey are shown in Tables 2 to 4.

Emotions	Percentage of Responses for Matched Mood	Percentage of Responses for Mismatched Mood
thrilled/scared/in awe	16.1	12.2
sad/upset	43.6	49.6
nothing/unamused	5.4	3.8
worried	3.4	3.1
mysterious/curious/intrigued/interested	7.4	6.9
happy/wholesome/sweet/calm	5.4	4.6
disturbed	2.0	3.1
confused	3.4	1.5
angry	0.0	1.5
nostalgia	0.0	3.1
other	13.4	10.7

Note. The original clip from *Casablanca* clip originally had a piece of romantic music to match the mood of the scene, and the mismatched mood presented a darker piece of music.

Table 2. Participant Emotions Felt in Casablanca Clip

The table above represents the results from the Casablanca clip, which resulted in trending categories for percentages of participant emotions for the sad/upset, disturbed, and nostalgic emotional categories.

Emotions	Percentage of Responses for Matched Mood	Percentage of Responses for Mismatched Mood
thrilled/scared/in awe	20.0	31.4
happy/wholesome/sweet/calm	6.7	16.4
confused	8.9	11.4
sad/upset	30.4	8.6
disturbed	17.0	16.4
nothing/unamused	1.5	0.7
worried	2.2	2.1
mysterious/curious/intrigued/interested	2.2	2.1
angry	1.5	0.0
nostalgia	0.7	1.4
other	8.9	9.3

Note. The original *Dr. Strangelove* clip showed explosions in a montage-style sequence with happy music playing over dark, more intense content, and therefore was a mismatched mood clip; the matched mood clip had a more sad, dark piece of music playing.

Table 3. Participant Emotions Felt in Dr. Strangelove Clip

This table represents the results from the *Dr. Strangelove* clip, which shows trends in the mismatched mood clip's categories for percentages of participant emotions for the thrilled, happy, and confused emotions.

Conclusion

The results of the study demonstrate not only that music with a mismatched mood to the movie scene amplifies emotions and potentially conveys new emotions, but they also pave the way to new advancements in the field. With more research on this topic, specifically on conveyed emotions with this technique, more conclusions might arise regarding impact on conveyed emotions, including effects of different genres, different levels of contrast between visual and audio elements, and the way the technique is used. These findings would establish the potential emotional effects of this technique even further, making more of an appeal to filmmakers who have an intent to affect audience emotions. In fact, with more evidence on the technique, filmmakers might be more interested in its use, especially if they are making a film that deals heavily with audience emotions.

The findings presented depict that music with a mood opposite to the movie scene has more of an impact on the film industry than has been previously considered. The sheer effect on the intensity of audience emotions demonstrates the technique might be underutilized when attempting to creatively impact audience emotions, and there might be more of a need for the technique as the industry continues to grow and desire new film techniques.

Now that the findings demonstrate an effect on the emotions of the audience, the technique can be recognized as an established film technique that can affect audience emotions, as compared to being a more experimental incorporation of music in film. Proper findings for this technique will continue to establish its ability to affect audiences. While the technique was previously recognized as more experimental, filmmakers now have a new and ensured way of amplifying audience emotions and therefore this use of music will be more

cemented as an actual technique and less of an experimentation. Consequently, because the technique is recognized to have emotional impacts, filmmakers might unintentionally affect audience emotions without a proper understanding of the technique's effects. Filmmakers also have a new means of conveying new emotions to their audiences, but the newly conveyed emotions results were scattered in terms of significant differences between matched and mismatched mood clips and therefore will have varying effects on audiences. Since these results were more scattered, further research might need to be conducted to confirm what truly affects audience emotions when this technique is used; an outside influence like the aforementioned genre or contrast factors might play a large role in the variations of newly conveyed emotions to the audience.

Going into movies, audiences have emotional expectations, experience emotions, and hold those experienced emotions into further conversation, discussion, and reflection (Aurier & Guintcheva, 2015). The entire viewing process of film is heavily influenced and involved with emotions; audience emotions are driven by the film they are watching and the film itself is driven by the intended conveyed emotions to the audience. Given the results suggest that music with a mood opposite to the movie scene can convey emotions to the audience and does amplify audience emotions, filmmakers may be more successful when choosing how to affect audience emotions, especially when doing so with the intent of including creativity. With more powerful and established methods and techniques of affecting emotions of the audience, filmmakers will be able to carry out their emotion-related goals to an even stronger extent, ensuring to make the strongest possible emotional impact on audiences.

Limitations

Instead of focusing on specific genres, this study focuses on music with a mood that does not match the movie scene as a whole. Specific genres might have specific impacts and influences on the audience, and therefore there is a need for more research on the topic. More research could show where the technique is most beneficial, which would, once again, establish the technique's emotional impacts even further. Work based around these findings expanding into more specific aspects of the film technique could refine and raise its appeal, making its way to directors, filmmakers, and editors, all collaborating to accomplish the goal of impacting audiences and their emotions in new and creative ways.

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