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THE COLLEGE STUDENT STUDY PLAYLIST: A COMPARISON OF GENRES

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by

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Dedication

I would like to dedicate this paper to not only my family but to my SEU professors as well. Both sets of people have given me the skills I need to prepare for the future. They all want me to succeed as the best teacher that I can be. Thank you all!

Acknowledgment

I would like to thank Dr. Sheila-Prabhakar Abraham for not only being a wonderful science professor but a great encouragement in my endeavors as a science teacher. I would also like to thank her and Dr. Mark Belfast for showing me how to conduct this experiment and to do a study. It was a challenge, but I am grateful for the experience. Thank you to all the SEU professors as well for encouraging me to become the best teacher I can be and for me to see that as well. Thank you for always being willing to listen. I cannot express my gratitude for all that you do, thank you.

Abstract

Music has played a significant role in the lives of students. Various genres of music have been studied to determine their specific effects on human behavior. Christian Praise and Worship music is a normal piece of service, whether it is in the chapel and or the church. Wolfgang Amadeus Mozart is a renowned classical music composer whose music has been shown to have positive effects in improving concentration. A student's emotions are critical when it comes to studying. When a student is studying, they need to concentrate and work on their assignment with confidence, inspiration, and excitement while managing their anxiety and stress. The purpose of this paper is to compare and analyze the effects of two genres of music on student emotions. The findings on the effects of the two genres of music on positive and negative emotions including academic emotions are presented. Overall, the results of the study showed that Instrumental Praise and Worship music was the most effective in reducing anxiety and fear as compared to Mozart.

KEY WORDS: Instrumental music, Praise and Worship, Academic Emotions, Studying, Study habits, Classical music

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Introduction

Music is in every part of life. Pep bands play music in football games and students in music class. Some teachers like to incorporate background music when students are working independently or even in groups. Music helps make a comfortable atmosphere that is suitable for the learning environment. Music also has a superpower to stir the emotions of people. Exciting and intense music may make people either fearful or excited while slower music may calm and ease anxiety and fear. The purpose of music use is imperative in that it impacts emotions.

I chose these two genres because I like listening to praise and worship music whenever I do work. This study used Classical music because researchers conducted other studies about using it in the classroom. I like to listen to music depending on current emotions to help me process emotions. I enjoy listening to music while doing schoolwork, but it does depend on the assignment. Sometimes, I see that if I am completing a math assignment, I can listen to music with lyrics, while when reading, I get frustrated and distracted.

I decided to use college students, because not only am I in college myself, but I wanted to see how music affected students in my age group. Many college students go to coffee shops, restaurants, and other environments that typically have background music in the background. They do this not only to socialize with friends, but many college students go to these places where music is played in the background to study and do coursework.

This thesis compares the effects on the emotions of college students when they are listening to two specific genres of music while they are studying. It focuses on instrumental Praise and Worship music (IPWM) and Classical music.

This thesis tests the hypothesis that IPWM has a higher effect on college students' emotions as compared to Classical music. This study had included subjects from a private Christian university.

Literature Review

The purpose of this thesis is to focus on comparing the effects of listening to two selected genres of music while studying, specifically Classical and Instrumental Praise and Worship music. Music of various genres has been shown to influence physical, emotional, and spiritual health. The objective of this literature review is to survey the biological, psychological, and academic effects in response to listening to various genres of music.

Biological Effects

There are numerous studies and reviews on the effects of music on the human body and mind. Studies report that music affects the human body in positive ways including cardiovascular health of people.

Extensive research has been done studying the effects of classical music on physical health and well-being. A recent study focused on testing the effects of different types of music including Mozart, Strauss, and ABBA (Trappe & Voit, 2016). The participants in the study were all healthy and were between the ages of 25 and 75 (Trappe & Voit, 2016). The researchers found that the participants who listened to Mozart or Strauss experienced a decrease in blood pressure (Trappe & Voit, 2016). These results were compared to those who listened to ABBA, who showed no significant effects (Trappe & Voit, 2016). According to the researchers, it was a similar result with the heart rate (Trappe & Voit, 2016). They concluded that Mozart was shown to have the greatest impact (Trappe & Voit, 2016).

Listening to the classical music genre has been shown to impact human health. In another study, people were assigned songs that were chosen at random from a pool of four different genres of music (Bell & Akombo, 2017). The variables included no music, classical, classic jazz, or classic rock and roll (Bell & Akombo, 2017). The results showed that the classical music

group had the highest effects on lowering blood pressure, heart rates, depression, and anxiety scores while increasing higher mindfulness scores (Bell & Akombo, 2017). According to Bell & Akombo (2017), mindfulness is defined as a state of mind that is receptive, and when used by an attentive person, they are made sensitively aware of what is occurring in the present. Bell and Akombo's hypothesis that classical music can improve one's health wellness and enhance cognition, was supported by the study (Bell & Akombo, 2017).

The effects of listening to music during a workout in terms of boosting muscle performance have also been investigated (Moss et al., 2018). During the low and moderate-intensity exercises of explosive power and repetition, the music overall boosted the number of repetitions to failure as compared to no music at low intensities (Moss et al., 2018). In the higher intensities, there were no benefits (Moss et al., 2018). With music, the vigor in the exercises increased; while with no music it remained unchanged (Moss et al., 2018). In conclusion, the researchers agree that music could be an ergogenic aid and that the genre that may bring the most benefits for the listener would be those that were self-selected (Moss et al., 2018).

Van Criekinge et. al (2019) analyzed the effects of listening to music on patients with neurological impairments, specifically pyramidal and extrapyramidal hypertonia (Van Criekinge et al., 2019). MLI or music listening interventions were used in helping treat patients with Hypertonia (Van Criekinge et al., 2019). The purpose of this study was to see if MLI was an effective treatment to decrease muscle tension (Van Criekinge et al., 2019). According to the researchers, Mozart K.448 and general relaxing music were both beneficial in decreasing muscle spasticity after a total of 8 weeks (Van Criekinge et al., 2019). In the study, researchers also incorporated MLI with conventional therapy. The results showed that while there was no significant difference between the two groups, there was a decrease in spasticity levels after 3

sessions of 1 week on patients' hip abductors and ankle plantar flexors (Van Criekinge et al., 2019). The experiment showed that listening to music helped patients with pyramidal hypertonia to relax their muscles (Van Criekinge et al., 2019). The results show that music can be used in the background of the patient's rehabilitation and during rest. Musical preferences played an imperative role in the study (Van Criekinge et al., 2019). However, there was no effect on people with extrapyramidal hypertonia (Van Criekinge et al., 2019). This study shows that music can have a positive physical effect on the muscles of the human body.

In a study researching the psychological effects of low or high uplifting music on immune system functions, endocrine responses after the subject have done a stressful task (Hirokawa & Ohira, 2003). This was specifically focused on college-aged Japanese students (Hirokawa & Ohira, 2003). The finding showed that high-uplifting music increases Norepinephrine levels, including the rate of NK cell recovery (Hirokawa & Ohira, 2003). High-uplifting music was also shown to decrease depression as compared to silence (Hirokawa & Ohira, 2003). The findings also revealed that low and high uplifting music did have different effects on the students (Hirokawa & Ohira, 2003).

These are just a few of the many studies that have demonstrated the positive effects of music on physical health.

Psychological Effects

Improving Mood, Memory, & Behavior

Improving mood and memory are important psychological effects of listening to music. Lemaire (2019) did a study that focused on the presence of relaxing or stimulating background music on episodic memory (EM) while considering the IQ of students (Lemaire, 2019). The study showed that the stimulant group lists scored the same EM scores as the other groups on the

first and second memorization lists (Lemaire, 2019). However, on the third list, they tended to do better than the relaxing and noise groups (Lemaire, 2019). Results showed that there was a tendency for the subjects listening to stimulating music to perform better on EM tasks (Lemaire, 2019). The results did not support background music's effect to improve EM due to a lack of variability between equally pleasing songs (Lemaire, 2019). However, the author concludes that the presence of background music may affect people in diverse ways which may include their preferences (Lemaire, 2019).

The researchers in another study focused on how background music can impact different attentional states on students (Kiss & Linnell, 2020). These attentional states included mind-wandering, task-focus, and external distraction (Kiss & Linnell, 2020). The researchers measured the students' sustained attention in both a silent environment and one with preferred music (Kiss & Linnell, 2020). The results showed that while the students' task-focus states increased, their mind-wandering states decreased, and external distractions states were not affected (Kiss & Linnell, 2020). The researchers concluded that background music can enrich low-demanding sustained tasks (Kiss & Linnell, 2020).

According to Ferreri & Verga (2016), some studies show that compared to having silence, having background music significantly improves the behavior, performances, and source memory for verbal learning and memory. Music, according to Ferreri, can be like a rewards system (Ferreri & Verga, 2016). Especially, when there is a pleasant musical experience, the mesolimbic reward system activates. Ferreri also mentions that it is often thought that this activation process often comes before memory creation during reward-motivated learning (Ferreri & Verga, 2016). Also, due to people's musical preferences, it still may show variability among people's behaviors (Ferreri & Verga, 2016).

The effect of background music and cognitive processes is often a controversial topic. Music is shown specifically in driving vehicles, there is a reduction in driver stress and aggression, but it can impair drivers when attention is needed (Mado Proverbio et al., 2015). In this study, Mado Proverbio et al. (2015), tested subjects to determine if music influences episodic memory and facial recognition. The researchers used many musical variables including joyful music, touching music, rain sounds, and silence. The results showed that there was a quicker response time with touching music. There was also a higher amount of correct facial recognition with the music that was touching emotionally.

Lastly, according to Bowels et al. (2019), music was shown to improve motivation to continue rehabilitation programs. Over nine weeks, the researchers analyzed the effects of music on the motivation, mood, and exercise performance of patients in phase III of cardiac rehabilitation. The results showed that there were no differences in the mood of the patients in weeks two through eight; however, there were higher scores on the BMIS happiness scale and lower scores on the unhappy scale (Bowels et al., 2019).

Effect on Stress Level

Music is an activity that people tend to gravitate to when they are seeking relief from anxiety and stress or to enhance positive moods and social bonding (Granot et al., 2021). Especially in the COVID-19 Pandemic, balcony singing became a unique way of creating a sense of unity as well as a mood-regulating and bonding activity that people could do (Granot et al., 2021).

In another study about the emotional effects of music, researchers sought to discover how much time it takes for people to experience the stress-reducing benefits after listening to music. The researchers also tested if the music does have an acute or time-delayed effect on stress. The

results showed that over seven days, there was still a similar stress level from before and after listening to music (Linnemann et al., 2018). Their findings suggested that their subjective data was associated with lower subjective levels of stress (Linnemann et al., 2018). This was because the subjects were re-engaged with the music both cognitively and emotionally and that they were listening to music outside of the smartphone/iPod application (Linnemann et al., 2018).

Academic Effects

Music is in academia in many forms, from music classes to being used as background music. This section surveys some of the numerous effects that music has in academics.

One study analyzed the academic achievement of students who listen to music while studying. The researchers took note of the type of music that the students listen to and if students were studying either numerical or social courses (Serpil, 2015). According to the researcher, most of the students were studying numerical courses and saw that the genre of Turkish pop was the most popular type of music that students listened to (Serpil, 2015).

Another study analyzed the effect of music on the academic performance of college students. The author mentions how music can help students in reading as well as speech. It also included a study that served 80 college-aged students to see if they listen to music while studying and if they thought it would help them. The results showed that the students who did listen to music performed well in their academics. The authors also discuss how music may not be a single solution to the opportunity gap of empirical research and education; however, it can help people relax, therefore, increasing their efficiency and ability to refocus on their academics (Antony et al., 2018).

Another study dove into the actual and perceived effects of background music on creative writing in a primary classroom. The students were divided into three groups with one as a control

to her experiment with calm music and exciting music. Results showed that exciting music had the worst effect on the streets and distracted them. Another correlation that seems to come about is that exciting music correlates with students creating violent stories during creative writing (Hallam & Godwin, 2015). Although the study was conducted on primary school students, the fundamentals can be applied to studies like this thesis study using students of all ages including college students.

Blackburn (2017) investigated how background music students in the classroom, and how it affects students physiologically. A situation in which the author also talked about using Mozart in the classroom showed that when a teacher played Mozart in the classroom there was an improvement in behaviors as well as body temperatures and blood pressures. The author also mentions how well music can be a learning tool (Blackburn, 2017).

Music also affected students with ADHD, in that study was conducted that measured the effects of music on the focus on-task behavior of students with ADHD (Parker III, 2020). The study showed that Baroque music, at a 55 beats per minute tempo, can affect the on-task behavior of students (Parker III, 2020). Baroque music is just above the human hearing threshold. The students had an increased amount of time they were able to be on-task (Parker III, 2020). However, the author also mentioned that it would have been more reliable if they had more kids involved and an increased amount of time (Parker III, 2020).

Academic Emotions

Academic emotions are emotions that are expressed while participating in academic-related work. Emotions, in general, are found frequently in the academic setting (Pekrun & Linnenbrink-Garcia, 2012). An example these authors give is that of pride or shame. People can be proud or ashamed of their achievement in the academic setting or even lack thereof. People

can be proud of the work they have done on a project. The object focus on emotions is important because it helps determine the relevance of the emotions and to see if they play a role in academic tasks (Pekrun & Linnenbrink-Garcia, 2012). Emotions play a predominant role in motivation, effort, and learning strategies. This shows that emotions have a critical role in the realm of academia. There is plenty of research supporting the effects of music on anxiety, but not much on the other types of emotions including "...anger, frustration, confusion, boredom, shame, hopelessness, enjoyment, hope, relief, contentment, and pride" (Pekrun & Linnenbrink-Garcia, 2012).

Now that the effects that music has on human health, the researcher will review two specific genres of music that will be used in this study.

Praise & Worship Music

Praise & Worship Music is a genre under the umbrella of the Contemporary Christian Music genre. It is a 'movement' that has impacted the global church. Tönsing et al. (2015) states that songs need to be balanced both emotionally and cognitively (Tönsing et al., 2015). This means for songs to help strengthen and foster one's faith and help one go through life. Tönsing et al. (2015) also mentions that music has a powerful effect on stimulating human emotions. This is important in that Praise & Worship music could help people grow closer to God both spiritually and emotionally.

In addition, participation in praise and worship could help in the development of youth groups' religious development and experiences (Tshabalala & Patel, 2010). Praise and worship activities were shown to help youth members cope with difficult circumstances; however, the music was shown to "…be uplifting and transforming…" (Tshabalala & Patel, 2010). This implies that music, specifically from the Praise & Worship genre, affects the emotions of people.

Classical & Wolfgang Amadeus Mozart

There are numerous studies of the effects of classical music. According to McCraty et al. (1998), a study was conducted, and classical music was played (McCraty et al., 1998)**.** If the surgeons enjoyed the music, performance improved. (McCraty et al., 1998). There was even some research on the "Mozart effect" in which people "become smarter"

Another study analyzes the effects of Mozart and how it affects learning anxiety and processing information from ebooks (Su et al., 2017). This study shows that Mozart does have promise in that it helps lower anxiety, however it was found that students struggled with attention during the interpretation process (Su et al., 2017).

For classical music, a study was conducted to analyze the role of classical music in the creative thinking process for university students (Guan, 2021). The study found that the students with classical music lost a sense of personal control and a slight loss in the sense of reality (Guan, 2021). This could be interpreted as a loss in the sense of time.

The purpose of the study is to discover if there is a significant difference in the emotions of college students while they are studying and listening to either Instrumental Praise and Worship Music and Classical Music (Wolfgang Amadeus Mozart). Both genres have a positive effect on the lives of people whether in the classroom or elsewhere. However, the study will compare those effects and determine which genre is the most useful in helping college students regulate their emotions while they are studying their coursework.

Conclusion

The purpose of this literature review was to analyze background information about the authors' studies on the different effects of listening to different types of music. The analyses

suggest that various genres of music influence people biologically, psychologically, and academically. It is also shown that music in academic settings also affects students.

Therefore, a test must be conducted to identify the genre of music that impacts the emotions among college students while they study. There is a general trend that specific music genres like classical and those genres that people prefer, do tend to have significant effects (Su et al., 2017; Van Criekinge et al., 2019). However, there were very few articles on the effects of Praise and Worship music. Studying the emotional effects of more musical genres can help future research become more inclusive of other genres including Praise and Worship music. A study on the influence of Christian Praise and Worship music such as the findings reported in this study may help provide insight into how Praise and Worship music affects the emotions of students.

Methodology

In this study, two selected genres of music were tested in an academic setting where college students completed a task while music was played in the background. The hypothesis being tested is that Praise and Worship Instrumental music will have a higher positive impact on the emotions of college students as they are studying in comparison to the effects of Wolfgang Amadeus Mozart's compositions.

The proposal for this study was presented to the Institutional Review Board (IRB) and received IRB approval. The subjects who were participating in the study were students at a private Christian university in the southeast region of the United States, who were representative of various majors. They were recruited via announcements in the primary investigator's classes with the professor's permission. A QR code to a Google Form was available for the students to scan at the beginning of class. Emails with a link to the interest form were also sent to professors of different departments within the university. The students who were interested and were recruited had filled out a questionnaire with their names and email.

Once subjects were recruited, they were sorted randomly into 3 groups. This was done to streamline the process and organization of the control and experimental groups. Each student's name was plugged into a random group generator. The student researcher replaced the names of the genres of music by labeling them with a color. Each color corresponded to a specific room. The subjects received a Google Calendar invite and an email for specific instructions of what rooms they will be placed in. This also included the time that they will need to be there. Within the email was a link to another Google form in which the subjects were required to fill out and sign off their consent.

The study was conducted in three separate rooms, each with a proctor. Each group was unaware of the variables that were being tested in the other groups. The proctors each were prepared with a laptop and with a projector screen available and ready. The independent variables were the music genres that were being played, specifically Classical (Mozart) and the Instrumental Praise and Worship music genres. One playlist consisted of an instrumental version of *Graves into Gardens* from the Worship Initiative that was played on repeat. The other playlist contained a version of Wolfgang Amadeus Mozart's Composition of *Piano Concerto No. 20 in D Minor, K. 466: II. Romance* was also on repeat. Both songs and playlists were used from Spotify. The control group had no music played in the background while the subjects performed the task.

Subjects in all three rooms were asked to choose a current academic assignment (such as reading a textbook or completing homework) as the task they would complete during the study. At the end of the 10 minutes, they were to write a bullet point summary of what they learned.

The subjects were required to use their own devices to complete the task as well as to fill out the questionnaires. Once the subjects were sent to their rooms, a proctor read aloud a scripted description of the task assigned to let the subjects know that they needed to have their assignments ready. The proctors made sure the subjects understood that the time was allotted for listening to music while reading, as well as for the writing portion.

The initial questionnaire was adapted from the Positive and Negative Affect Schedule (PANAS) (Watson et al., n.d.). This questionnaire had a range of questions with options being rated on a scale from 1 to 5 much like the Likert scale. This was on the intensity of the specific emotion that the subjects felt. The scale was done with 1 being "very slightly" while 5 being "extremely." There was also a question to determine which group students were in. Once the

subjects were seated, they were instructed to fill out the PANAS questionnaire that was provided via a scannable QR code, and Google Forms. To access the questionnaire, the subjects were required to have their mobile device ready. They had to hold their device to the projector screen after opening their camera app or scanner app to scan the QR code. This code then automatically directs them to the questionnaire. Each group completed their activities simultaneously but was in three different rooms to assure that there was no musical interference among all groups.

During the study, the blue group room was playing Praise and Worship instrumental music over the speakers. In the pink group, the room had music playing from the speakers; however, the subjects were listening to Wolfgang Amadeus Mozart's music. In the green group room, the subjects were not listening to any music at all. This group was the control.

The subjects in the experimental groups listened to the assigned playlist for ten minutes while reading a passage from their course work. Once the ten minutes were up, the proctor, while the music was still playing, instructed the subjects to write five main point summaries of what they just read. This was done to justify the emphasis on music affecting students' emotions while they are studying.

Once the five minutes were completed, the subjects showed their work to the proctor, and another QR code appeared on the projector screen. This code took the subjects to an identical PANAS Google form, which they had to complete. The second questionnaire was also adapted from PANAS; however, it was completely separate from the initial questionnaire to prevent a mix-up of data. This is also done purposely to measure the improvement or decline of subjects' emotions. The final questionnaire also included open-ended questions that gathered qualitative data. The purpose of this study was to determine if one of the two genres being tested had a significant influence on academic emotions than the other.

The PANAS questionnaire is associated with a formula to calculate the average positive affect score and the negative affect score.

$$[\sum(all\ positive\ or\ negative\ PANAS\ average\ scores)/(number\ of\ questions)]$$

The average positive affect score was calculated by adding all the scores of specific questions that correlate to positive emotions. Once the scores were summed, the average was found by taking the total sum and dividing it by the number of people in the group (Watson et al., n.d.). The negative affect score was done with the same procedure; however, it was only done for the questions that correlate to the negative emotions. These calculations were done specifically to provide a baseline for the subjects' emotions during study time.

The purpose of using the Positive and Negative Affect Score questionnaire before and after the music was played was to gauge the base emotions that subjects had. These initial results were then compared to those after the musical treatment. This is done to show the positive or negative correlation between IPWM and Classical Music (Mozart). This questionnaire is the main tool for gathering the data of the emotional effects of IPWM and Classical Music to see if there was a significant difference with using these two genres.

Analysis of Data

The scores obtained from the PANAS questionnaires administered to all three groups before and after were computed into positive and negative affect scores and averaged as per the formula described above. This formula described above was used to compute the scores.

The findings from comparing the effects of two genres of music on positive and negative affect scores are summarized in Figure 1. As compared to the other two groups, the IPWM group's average negative affect score significantly decreased after IPWM was played. In the Classical group, there was a slight decrease in the negative emotions, however, it was not a significant decrease.

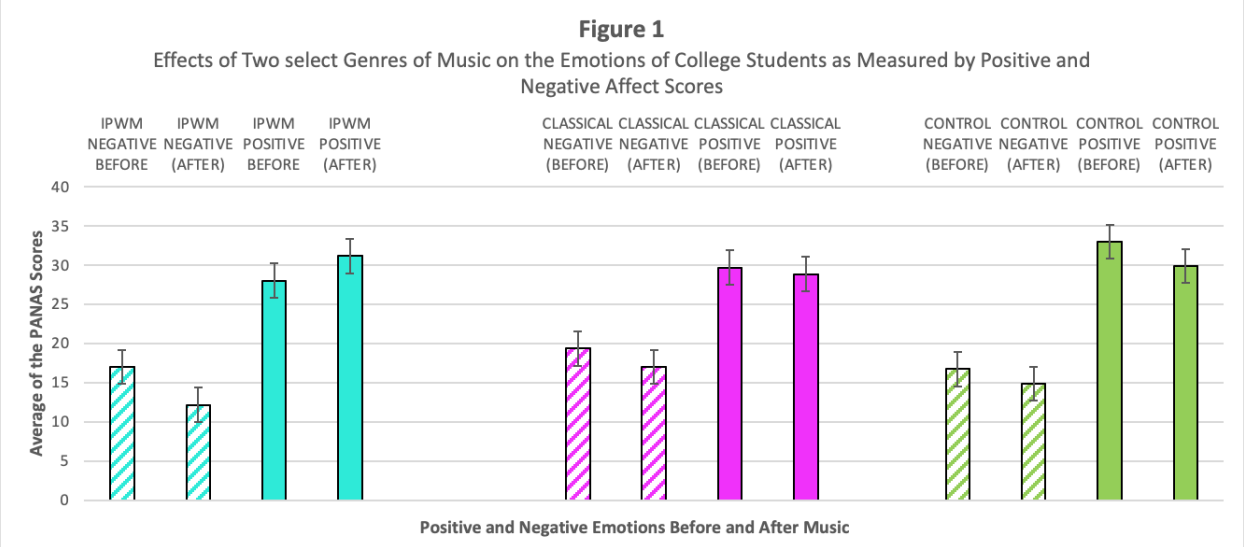


Figure 1: Effects of two select genres of music on the emotions of college students as measured by positive and negative affect scores.

As shown in Figure 1, the IPWM group showed a slight increase in the average positive affect score, however, it was not significant. It was also observed that the positive affect score across all groups was much higher than the negative affect score across all groups both before and after the study. It should be noted that while positive emotions were not significantly

affected by the genres of music, the negative emotions were impacted by one genre of music, the IPWM.

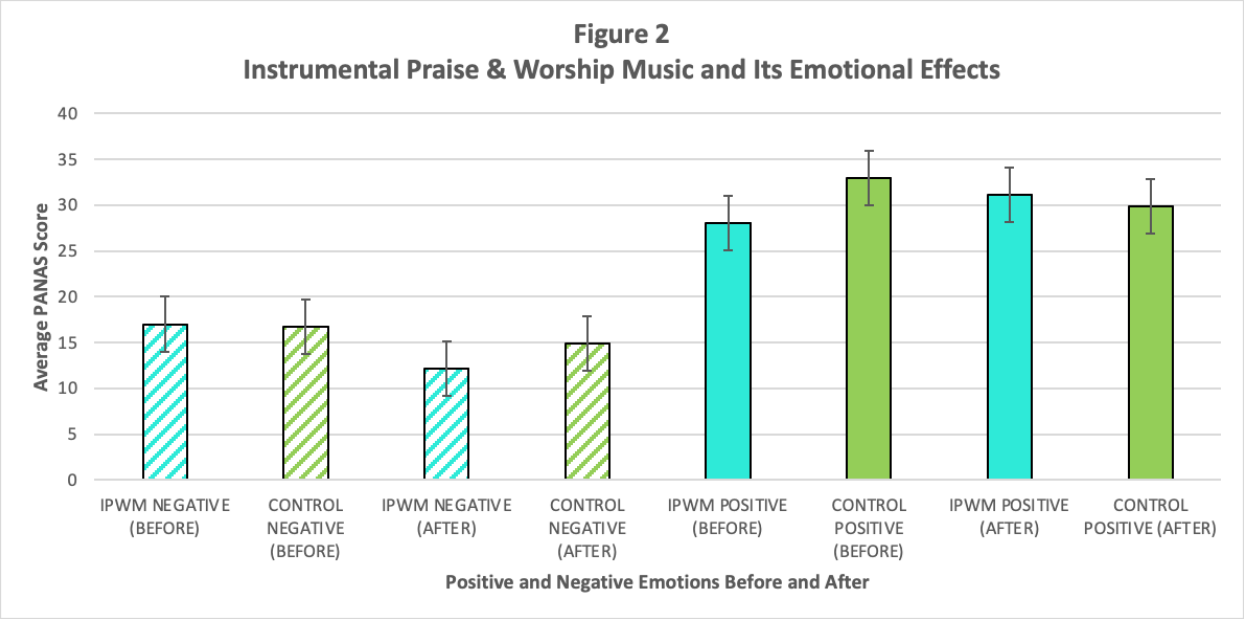


Figure 2: Effects of instrumental praise and worship music on college student emotions before and after the study.

This is in Praise and Worship Music shows the greatest decrease of average scores for negative emotions as seen in figure 2. The percentage decreases around 29%. The control's negative emotions scores also decreased slightly; however, it was not as high as the IPWM group. The positive emotions are shown to have increased slightly after the IPWM was played, while the control group's positive emotion scores dropped slightly.

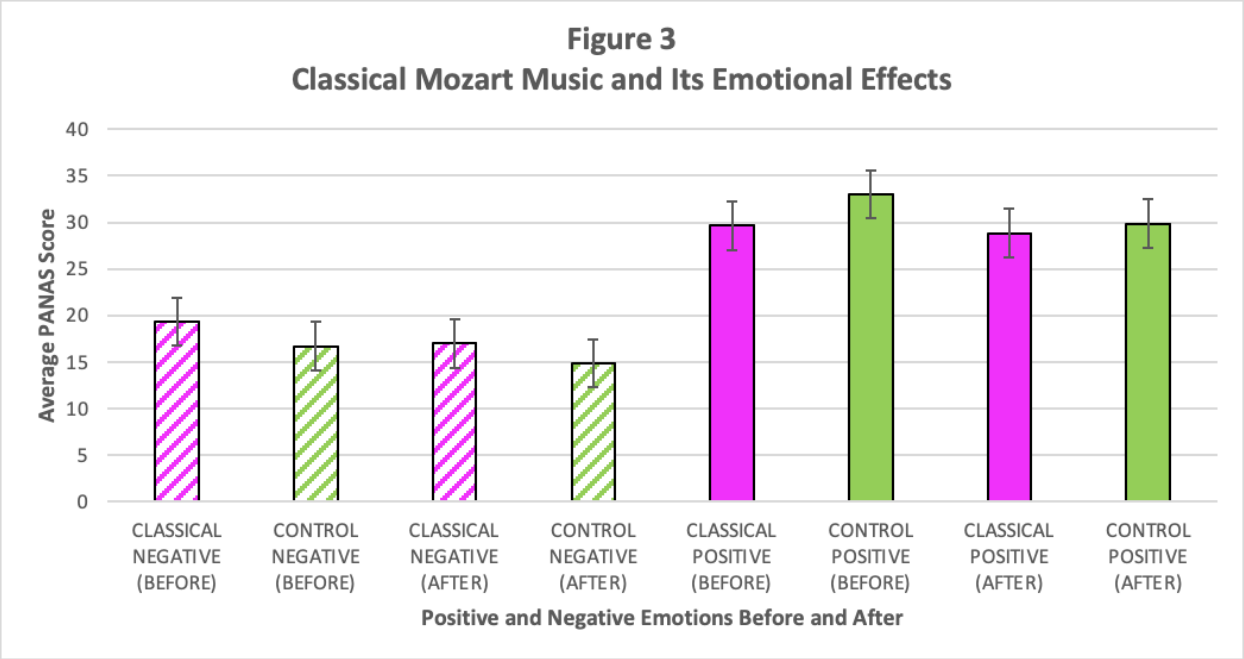


Figure 3: Effects of classical instrumental music on college student emotions before and after the study.

The negative emotion affect scores for the Mozart group slightly decreased as seen above with Figure 3. There are no significant differences in positive and negative emotions from before and after the music was played. As compared with the control group, Classical music showed a lower positive emotion affect score and a higher negative affect score after music was played. Both groups also experienced a drop in negative emotion affect scores. However, Classical music shows a smaller decrease in positive emotions in comparison to that of the control (see Table 1).

Table 1

	Control (POSITIVE)	P&W (POSITIVE)	Classical (POSITIVE)	Control (NEGATIVE)	P&W (NEGATIVE)	Classical (NEGATIVE)
BEFORE						
AVERAGE PANAS SCORE	33	28	29.6666667	16.71428571	17	19.3333333
AFTER						
AVERAGE PANAS SCORE	29.85714286	31.14285714	28.83333333	14.85714286	12.14285714	17
PERCENTAGE CHANGE	-10%	11%	-3%	-11%	-29%	-12%

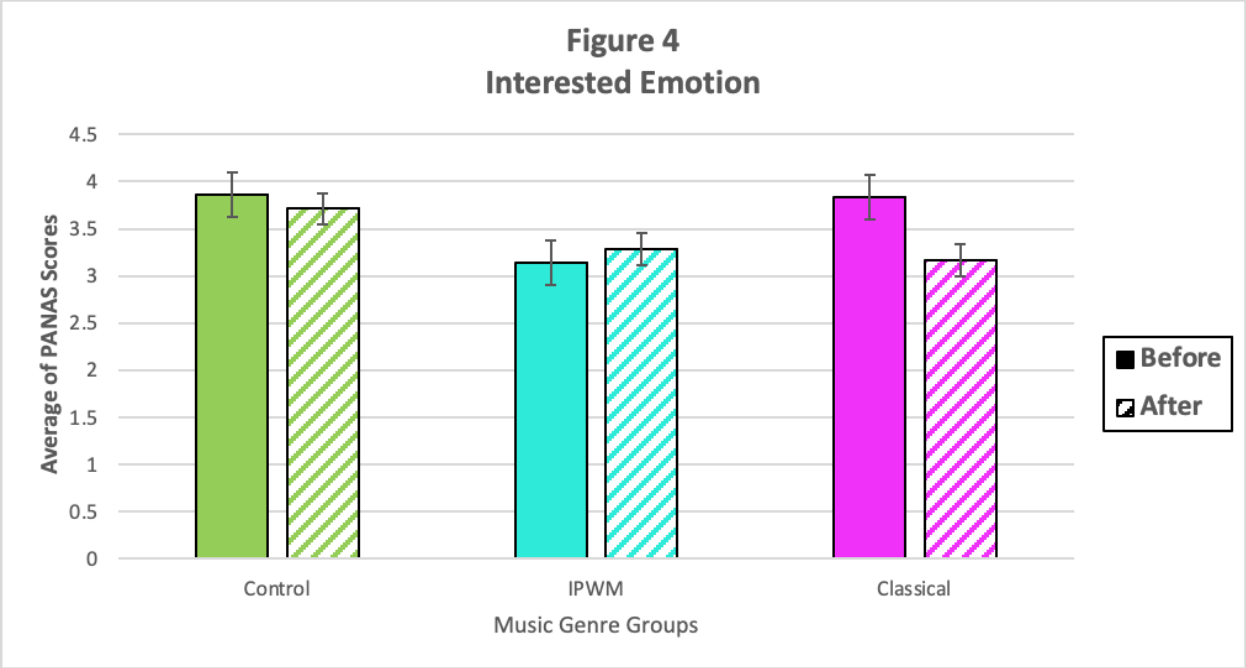
Table 1: Effects of classical instrumental music on college student emotions before and after the study.

Therefore, there was a general drop in negative emotions overall for the study. Please refer to Table 1 to the section that is highlighted in yellow. Table 1 reports the percentage change in positive and negative emotions as calculated by the average PANAS scores across all three groups before and after the study. The average PANAS score refers to the scores that were taken from individuals, averaged, and summed to give a group average for each emotion type. From the three groups being studied, the percentage changes in IPWM showed the most significant increase in positive emotion, while showing the most significant decrease in negative emotions.

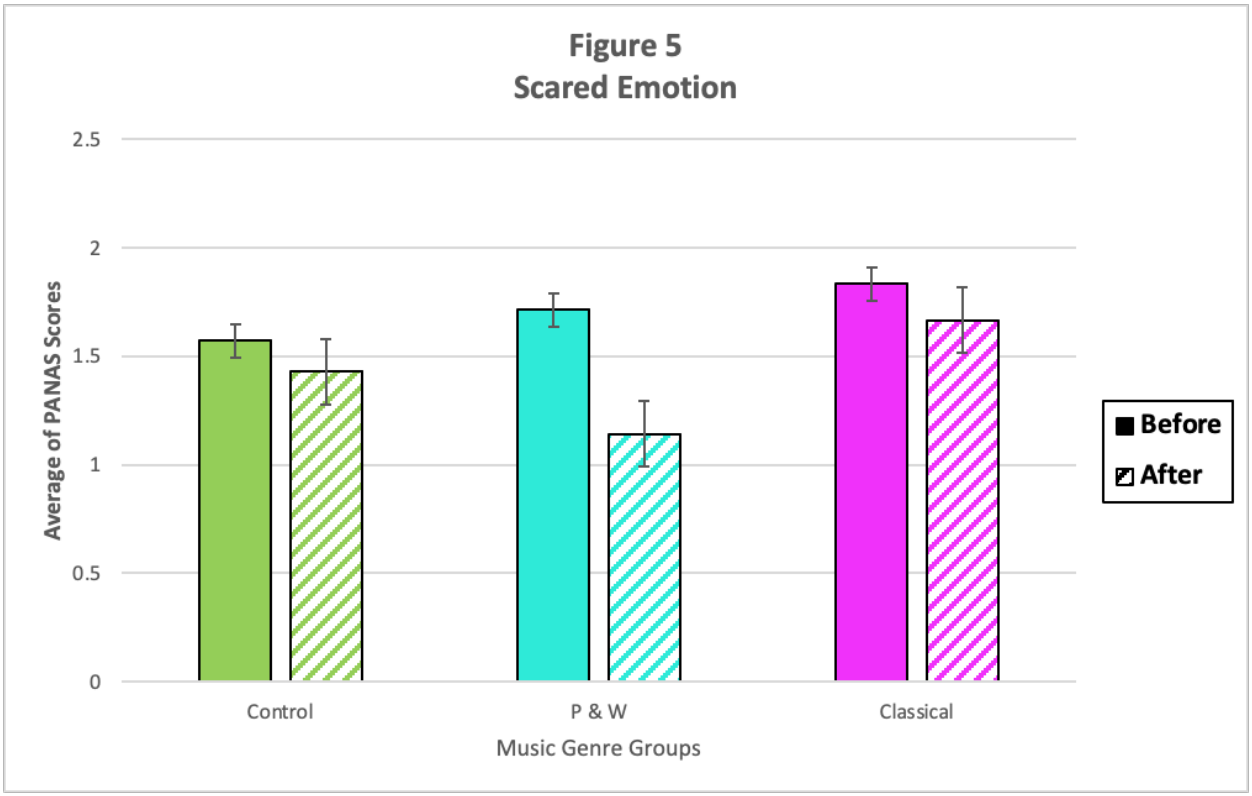
For the positive emotions, the IPWM was the only group that showed a slight increase in the average scores compared to the other two groups. As seen in Table 1, the group with praise and worship experiences an 11% increase in overall positive emotions. They also are shown to have a large decrease in negative emotions as shown in Table 1 and highlighted in orange.

Classical music was shown to have a 3% decrease in positive emotion scores while showing a decrease of 12% in negative emotion scores.

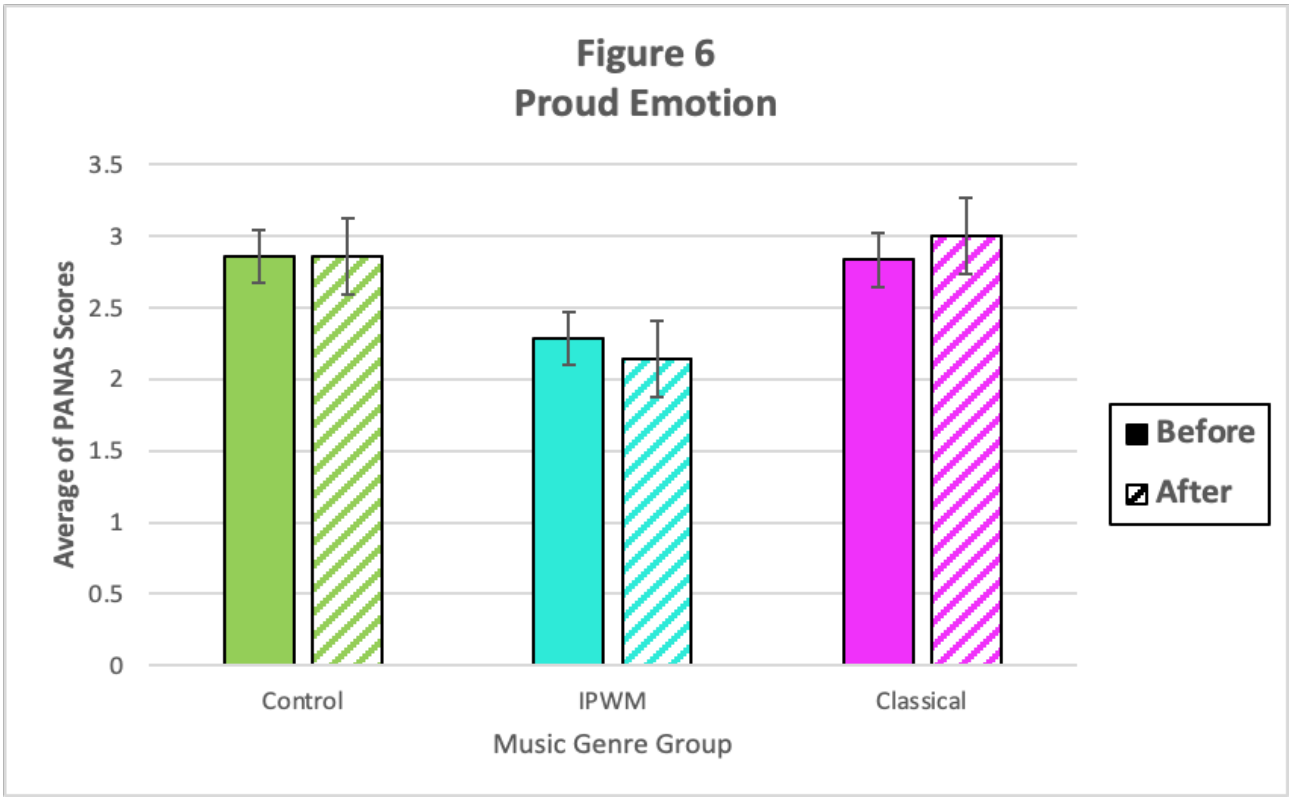
The emotions listed in the PANAS questionnaire were reviewed and identified as academic emotions based on literature. These emotions include but are not limited to fear (scared), anxiety, interest, and pride (Pekrun & Linnenbrink-Garcia, 2012). The researcher further evaluated each emotion and filtered them based on its relevance as academic emotions. In the section below, data for the 4 specific academic emotions are analyzed.



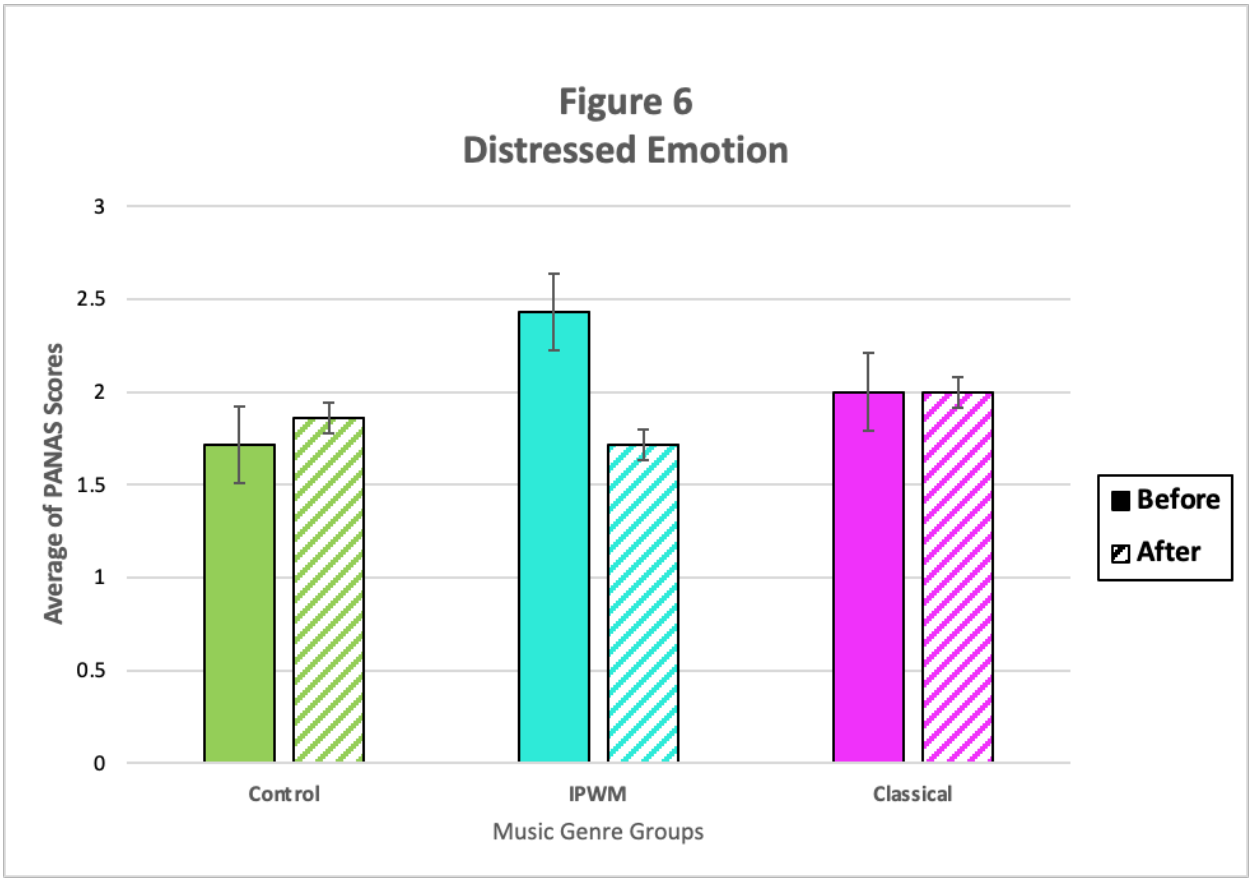
In Figure 4 shown above, it is shown that the emotion of interest decreased in the control and the experimental Classical group. However, there is a slight increase in the emotion of interest after IPWM was played. However, with the Classical group, the interest emotion shows a significant decrease after Mozart music was played. In the IPWM group, there was an extremely small increase after the music was played, however, it is not significant. Overall, the data shows that there is no significant difference in the interest emotion among the experimental groups except in the case of the Classical group, where there is a significant decrease.



For the emotion of fear, the PANAS scale had the word “scared” in its place. As per Figure 5 above, once the trial was completed, each group dropped in the average PANAS scores for the emotion of fear. The Classical music group showed a drop in scores of 8.74%. However, as seen with the IPWM group the emotion of fear (scared) had significantly dropped 33%. Therefore, there was a significant difference in the before and after effects of IPWM on the emotion of fear in comparison to the Classical experimental group.



The emotion of pride was also considered for academic-related work. As a clarification, the definition of pride is seen in its academic context. Pride here implies a sense of achievement. According to Figure 6, pride did not have any significant difference among the experimental and control groups. The control remained the same, IPWM decreased 6%, and classical music increased about 6%.



The final emotion from which data was analyzed in the study is the emotion of anxiety (distressed). As shown in Figure 6, the only group to show a significant decrease in anxiety was the IPWM group. There was a 29% decrease in anxiety in the IPWM group as compared to the 0% change in the Classical group and the 8% increase in the control.

Conclusion

Emotions can be generally affected due to a person's background, their daily lives, special events, and more. Universities and school systems require students to study for many types of assessments. Academic emotions can significantly influence activities including when students are studying, working on homework, reading, and doing other academic-related work (Pekrun & Linnenbrink-Garcia, 2012).

There is a mixture of many different emotions when it comes to the academic realm. The emotions that are relative to and play a critical role in academics include interest, pride, anxiety, fear, and more (Pekrun & Linnenbrink-Garcia, 2012). As the findings from this study suggest, Classical music and IPWM affect both positive and negative emotions of college students. The negative emotions of subjects listening to IPWM decreased to a greater extent in comparison to classical. The two emotions most impacted by IPWM were fear and anxiety.

Instrumental Praise and Worship music has shown effects in both positive and negative emotions. Considering the hypothesis being tested, IPWM did not have the highest significant effect on positive emotions; however, it shows a greater decrease in the negative scores of the students. While Mozart Classical music did have higher positive emotion scores, however, there was no significant effect before and after the music was played. The higher scores may have been due to the student's current attitude before the study. This could be due to personal preferences of music or even a student's background. The results from this study do not support the hypothesis, however, there is evidence that shows that IPWM does reduce negative emotions significantly.

With the emotion of interest, IPWM shows no significant increase or decrease, yet Classical music showed a greater decrease in interest. The control group also showed a slight

decrease in the interest emotion scores. This could be due to a student's typical study environment, and the subjective variability among students. This could be dependent on the content areas that the subjects were studying for, or the students were distracted by the music. Much like a study that was done prior, certain music genres did seem to distract some students rather than help students engage with interest (Hallam & Godwin, 2015). This could be because studying requires a heavy attention demand. In a study by Kiss and Linnell (2020), their results showed they found that music benefits people who are participating in low demand- sustain attention tasks. Therefore, depending on what subjects are being studied and the level of sustained attention that a subject may demand, students' interest can be affected in addition to the genre of music being played.

Classical music was shown to increase the scores for pride while IPWM decreased the scores. Depending on the context, pride can be seen as a positive or negative emotion. However, in the context of academics, it is seen as achievement-based. Pride may show up in different ways depending on the assignments that students are required to do. If students are studying for a test, their pride and self-efficacy will most likely be at a lower amount if they were to take a PANAS questionnaire. However, if they do a mathematics homework assignment, depending on the students, they may have more pride and self-confidence. This is probably due to an achievement factor in that students take pride in their accomplishments and knowledge. Nevertheless, this can be subjective because students respond differently to stressors.

Pride was shown to have decreased with IPWM while with Classical music, it increased. IPWM's pride scores could be due to the humbling aspect of the Christian faith. That achievement is good, but all things are ultimately given to God for His Glory. This is supported with Colossians 3:23 in the Amplified Bible, "Whatever you do [whatever your task may be],

work from the soul [that is, put in your very best effort], as [something done] for the Lord and not for men," (*Holy Bible*, *Amplified Bible*, 2015, Colossians 3:23). Classical music does not necessarily have this emotional and spiritual purpose as IPWM, however, it could allow students to be more self-aware of their work and its quality for their purposes.

With Classical music, fear was also slightly decreased but it was not as significant as IPWM. This could be due to the emotional connection that students may have when music is related to their faith. Classical music's specifically this Mozart's piece does not show any faith and emotional connection. Which students may not have that emotional connection as strongly as IPWM.

Music is relational meaning that there is always something tied to it, like memories (Myrick, 2021). Due to this, emotions are also a part of the experience of music. Musical worship helps create spaces where emotions can be both felt and examined (Myrick, 2021). IPWM may help students reflect on their emotions and calm down when they are anxious or fearful while they are studying. This study provides support that in an environment that arouses both fear and anxiety, there is something about IPWM that provides a sense of peace, calmness, and reassurance. This reassurance goes along with what Paul says to Timothy in 2 Timothy 1:7, "For God did not give us a spirit of timidity or cowardice or fear, but [He has given us a spirit] of power and love and of sound judgment and personal discipline [abilities that result in a calm, well-balanced mind and self-control]" (*Holy Bible*, *Amplified Bible*, 2015, 2 Timothy 1:7).

As per figures 1 and 2, the IPWM group did not have an overall significant difference in positive emotions before and after the music was played. However, as the figures suggest that IPWM does positively affect students' negative emotions.

Studying for examinations and assessments can cause a lot of stress on students. Especially when they are taking high-stakes examinations like teacher certification exams, chapter tests, and the MCAT. Instrumental Praise and Worship music can reduce the fear and anxiety that students have when they are studying for examinations. However, it must be noted that some may find IPWM as a distraction rather than a useful tool.

This study had a couple of strengths that helped it to be successful and meaningful. It allowed for students to have the chance to not only be productive in getting study time for their coursework, but they also can discover on their own if IPWM or Classical music would help them emotionally. Another strength of this study was that it allowed the short-term effects of listening to either IPWM or classical music to be compared. It was also streamlined with technology.

This study also had a few limitations. This study was limited due to the large number of students who initially consented to be a part of the study but did not show up. This study also did not consider the other variables including music tempo, room environment, personalities, as well as individual music genre preferences. Due to students' backgrounds or familiarity with the songs, it may have interfered with their emotions, and it could have distracted the students. For example, students at the university are a part of spiritual formation activities and events where this genre of music is typically played. However, it does suggest that IPWM is effective in lowering the negative emotions of college students when they are studying.

For future studies, this work can be expanded with an analysis of the spiritual component of IPWM and how it may affect college students' emotions. One's faith may play a role in regulating one's emotions. A study can be with a wider variety of musical genres including IPWM and Classical, to analyze the overall emotions of the same sample of college students over

a longer period. This could be done to determine the long-term effects of listening to different types of musical genres which then could be compared to each other. Another study like this one can also be done at another university that is not Christian, like a state university. It would be interesting to analyze the results that come from this, in comparison to that of this study.

References

Antony, M., Priya, V. V., & Gayathri, R. (2018). Effect of music on academic performance of college students. *Drug Invention Today*, *10*(10), 2093–2096.

Bell, T. P., & Akombo, D. O. (2017). Long-term music-listening's effects on blood pressure, heart rate, anxiety, and depression. *Journal of Alternative Medicine Research*, *9*(1), 57–64.

Blackburn, H. (2017). Music in the Classroom. *International Journal of the Whole Child*, *2*(1), 26–33.

Bowles, L., Curtis, J., Davies, C., Lengerich, A., & Bugajski, A. (2019). The effect of music on mood, motivation, and exercise among patients in a cardiac rehabilitation program: A pilot study. *Nursing Forum*, *54*(3), 340–344. https://doi-org.seu.idm.oclc.org/10.1111/nuf.12334

Ferreri, L., & Verga, L. (2016). Benefits of music on verbal learning and memory: how and when does it work? *Music Perception: An Interdisciplinary Journal, 34*(2), 167-182. doi:10.2307/26417442

Granot, R., Spitz, D. H., Cherki, B. R., Loui, P., Timmers, R., Schaefer, R. S., Vuoskoski, J. K., Cárdenas-Soler, R.-N., Soares-Quadros, J. F., Li, S., Lega, C., La Rocca, S., Martínez, I. C., Tanco, M., Marchiano, M., Martínez-Castilla, P., Pérez-Acosta, G., Martínez-Ezquerro, J. D., Gutiérrez-Blasco, I. M., … Israel, S. (2021). "Help! I Need Somebody": Music as a Global Resource for Obtaining Wellbeing Goals in Times of Crisis. *Frontiers in Psychology*, *12*, 648013. https://doi.org/10.3389/fpsyg.2021.648013

Guan, M. (2021). The role of classical music in the creative thinking of university students. *Thinking Skills and Creativity*, *41*, 100925. https://doi.org/10.1016/j.tsc.2021.100925

Hallam, S., & Godwin, C. (2015). Actual and perceived effects of background music on creative writing in the primary classroom. *Psychology of Education Review*, *39*(2), 15–21.

Hirokawa, E., & Ohira, H. (2003). The Effects of Music Listening after a Stressful Task on Immune Functions, Neuroendocrine Responses, and Emotional States in College Students. *Journal of Music Therapy*, *40*(3), 189–211. https://doi.org/10.1093/jmt/40.3.189

Lemaire, E. C. (2019). The Effect of Background Music on Episodic Memory. *Psychomusicology: Music, Mind & Brain*, *29*(1), 22–34. https://doi.org/10.1037/pmu0000234

Linnemann, A., Wenzel, M., Grammes, J., Kubiak, T., & Nater, U. M. (2018). Music listening and stress in daily life—a matter of timing. *International Journal of Behavioral Medicine*, *25*(2), 223–230.

Kiss, L., & Linnell, K. J. (2020). The effect of preferred background music on task-focus in sustained attention. *Psychological Research*. https://doi.org/10.1007/s00426-020-01400-6

Mado Proverbio, A., Lozano Nasi, V., Alessandra Arcari, L., De Benedetto, F., Guardamagna, M., Gazzola, M., & Zani, A. (2015). The effect of background music on episodic memory and autonomic responses: listening to emotionally touching music enhances facial memory capacity. *Scientific Reports (Nature Publisher Group), 5*, 15219. doi:http://dx.doi.org/10.1038/srep15219

McCraty, R., Barrios-Choplin, B., Atkinson, M., & Tomasino, D. (1998). The Effects of Different Types if Music On MNood, Tension, and Mental Clarity. *Alternative Therapies*, *4*(No.1).

Moss, S. L., Enright, K., & Cushman, S. (2018). The influence of music genre on explosive power, repetitions to failure and mood responses during resistance exercise. *Psychology of Sport and Exercise*, *37*, 128–138. https://doi.org/10.1016/j.psychsport.2018.05.002

Moore, K. S. (2013). A systematic review on the neural effects of music on emotion regulation: implications for music therapy practice. *Journal of Music Therapy*, *50*(3), 198–242. https://doi.org/10.1093/jmt/50.3.198

Myrick, N. (2021). Music, Emotion, and Relationship in Christian Worship. *Liturgy*, *36*(1), 27–31. https://doi.org/10.1080/0458063X.2020.1865030

Parker III, F. R. (2020). The effect of music on the on-task behavior of students with attention-deficit/hyperactivity disorder. *Psychomusicology: Music, Mind & Brain*, *30*(3), 119–123. https://doi.org/10.1037/pmu0000256

Pekrun, R., & Linnenbrink-Garcia, L. (2012). Academic Emotions and Student Engagement. In *Handbook of Research in Student Engagement*. Springer Science+Business Media, LLC.

Serpil, U. (2015). An analysis of the academic achievement of the students who listen to music while studying. *Educational Research and Reviews*, *10*(6), 728–732. https://doi.org/10.5897/ERR2014.1742

Su, Y.-N., Kao, C.-C., Hsu, C.-C., Pan, L.-C., Cheng, S.-C., & Huang, Y.-M. (2017). How does Mozart's music affect children's reading? The evidence from learning anxiety and reading rates with e-books. *Journal of Educational Technology & Society*, *20*(2), 101–112.

Tönsing, J. G., Wepener, C. J., & Vos, C. (2015). The "cognitive" and the "emotive" component in Christian songs: Tracing the shifts in traditional and contemporary songs. *Verbum et Ecclesia*, *36*(1), 1–14. https://doi.org/10.4102/ve.v36i1.1308

Trappe, H.-J., & Voit, G. (2016). The Cardiovascular Effect of Musical Genres. *Deutsches Aerzteblatt International*, *113*(20), 347–352. https://doi.org/10.3238/arztebl.2016.0347

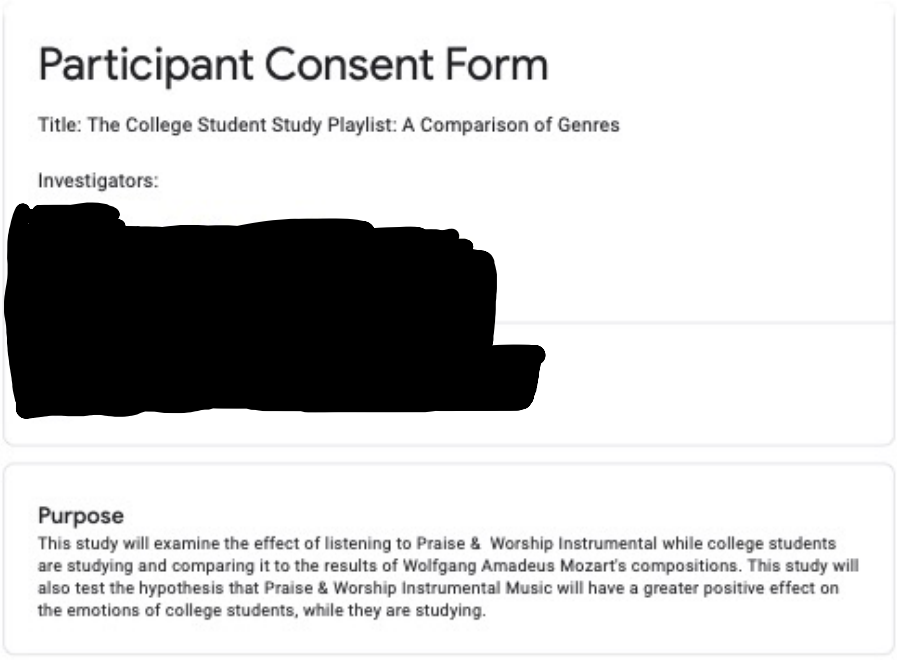
Tshabalala, B. G., & Patel, C. J. (2010). The Role of Praise and Worship Activities in Spiritual Well-Being: Perceptions of a Pentecostal Youth Ministry Group. *International Journal of Children's Spirituality*, *15*(1), 73–82.

Van Criekinge, T., D'Août, K., O'Brien, J., & Coutinho, E. (2019). Effect of music listening on hypertonia in neurologically impaired patients—Systematic review. *PeerJ*, *7*, e8228. https://doi.org/10.7717/peerj.8228

Watson, D., Clark, L. A., & Tellegen, A. (n.d.). *Positive and Negative Affect Schedule (PANAS-SF)*. The Ohio State University. Retrieved February 12, 2021, from https://ogg.osu.edu/media/documents/MB%20Stream/PANAS.pdf

Appendix A

PANAS Consent & Form 1



Participant Consent Form

Title: The College Student Study Playlist: A Comparison of Genres

Investigators:

[redacted]

Purpose

This study will examine the effect of listening to Praise & Worship Instrumental while college students are studying and comparing it to the results of Wolfgang Amadeus Mozart's compositions. This study will also test the hypothesis that Praise & Worship Instrumental Music will have a greater positive effect on the emotions of college students, while they are studying.

Procedures

This study is designed to take at least 30 mins to an hour.

You will have been separated into groups and will have completed a total of 2 surveys. These surveys will measure your emotions before and after the experimental trial.

The first survey you will see listed emotions that you may or may not currently feel. You will have to rate the from 1-5.

Once that is completed, identify an assignment from any of your course that involves reading a text. This may be digital or hardcopy.

Then the proctor will be playing music over the speakers, wait for the proctor to say "begin" before you start reading your identified assignment.

Once the proctor says "begin," start reading the text. Continue reading for 10 minutes until you are asked to stop.

After the time is up the proctor will say, "stop." Once the proctor says, "stop" they will instruct you to write down at least 5 points as a summary of what you have read. (Must be numbered 1-5). Paper will be provided to you if needed.

Once the instructions are read, you will write down your points. You will have 5 mins for this task.

Once the proctor says, "stop" and they will walk around to see if you have written all your 5 points. You can keep this summary for your course work.

Lastly, you will complete the final questionnaire.

Pull out your devices and scan the QR code that is displayed on the screen to fill out the Google Form. This Google Form is similar to the current one, but will have open ended questions, that you must answer to the best of your ability and truthfully.

Risks

Names and email addresses will be collected and used only for sorting and contacting purpose solely for this study. The form and spreadsheet will be deleted once the study and thesis are completed.

Benefits

You will be able to complete some reading for your course work as well as recall what you read.

Your short 5 point summaries may help you for studying for upcoming assessments you may have.

Results from the study may be shared with you, if you are interested.

Compensation

Snacks will be provided after the session.

Rights & Confidentiality

Your participation in this research is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time.

Confidentiality

The records of this study will be kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored on a password protected computer and only researchers and individuals responsible for research oversight will have access to the records. Data will be destroyed after the study and thesis has been completed.

Contact Information

You may contact any of the researchers at the following addresses should you desire to discuss your participation in the study and/or request information about the results of the study:

[redacted]

If you have questions about your rights as a research volunteer, you may contact the IRB Office

[redacted]

Please, click NEXT if you choose to participate. By clicking NEXT, you are indicating that you freely and voluntarily and agree to participate in this study and you also acknowledge that you are at least 18 years of age. It is recommended that you print a copy of this consent page for your records before you begin the study by clicking below.

Next Clear form

[redacted]

Google Forms

Participant Consent Form

[redacted]

* Required

Survey

What group are you in? *

Choose

On a scale of 1-5 (1- very slightly/not at all, 5- extremely) rate your current (at the moment) emotional state based on the emotions given below:

Interested *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Distressed *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Excited *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Upset *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Strong *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Guilty *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Scared *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Hostile *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Enthusiastic *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Proud *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Irritable *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Alert *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Ashamed *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Inspired *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Nervous *

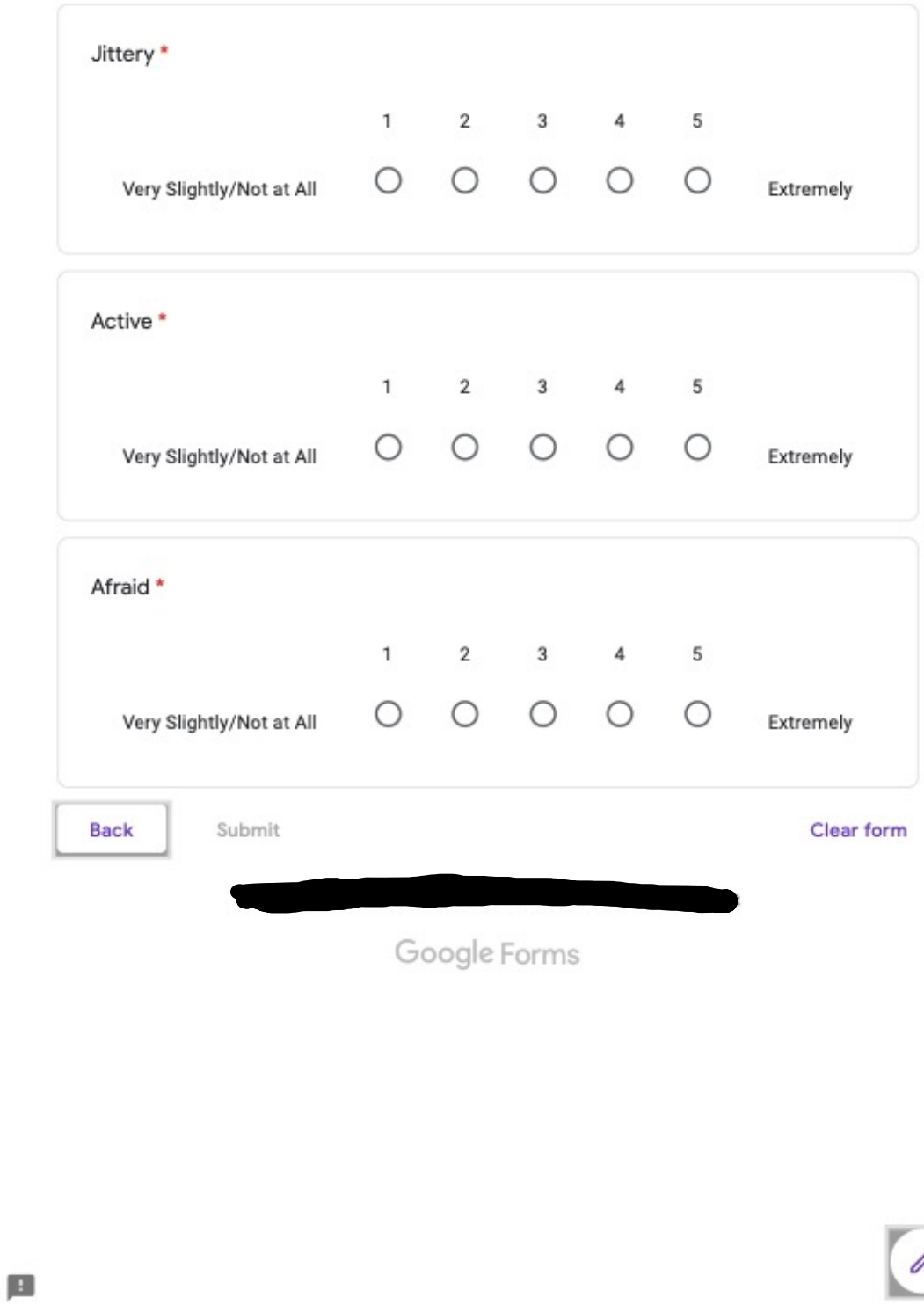
	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Determined *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Attentive *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely



Jittery *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Active *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Afraid *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Back Submit Clear form

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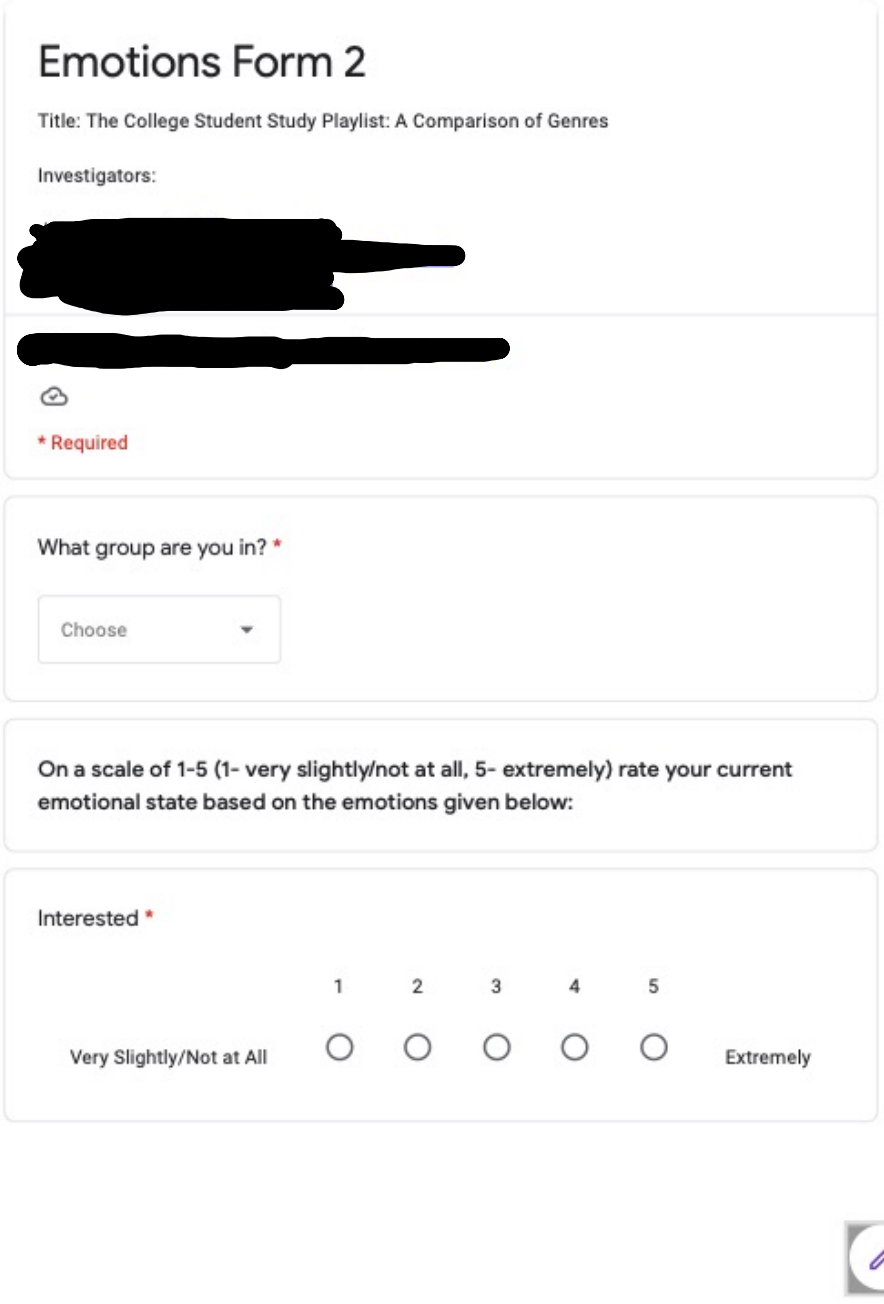
Google Forms

Appendix B

PANAS Emotions Form 2



Emotions Form 2

Title: The College Student Study Playlist: A Comparison of Genres

Investigators:

[redacted]

* Required

What group are you in? *

Choose

On a scale of 1-5 (1- very slightly/not at all, 5- extremely) rate your current emotional state based on the emotions given below:

Interested *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Distressed *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Excited *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Upset *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Strong *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Guilty *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Scared *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Hostile *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Enthusiastic *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Proud *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Irritable *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Alert *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Ashamed *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Inspired *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Nervous *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Determined *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Attentive *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Jittery *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Active *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Afraid *

	1	2	3	4	5	
Very Slightly/Not at All	○	○	○	○	○	Extremely

Were you able to focus better? Explain. *

Your answer

What was the best part of this exercise? Why? *

Your answer

What was the worst part of this exercise? Why? *

Your answer

Submit Clear form

Never submit passwords through Google Forms.

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Google Forms

Appendix C

Proctor Script

Proctor Script

“Good afternoon, Thank you for participating in this study!”

[Introduce yourself and pull up the QR CODE Labeled in Folder as “Participant Consent Form & Emotions Form 1”]

“First, please be sure to get your phones ready to scan a QR code, and be sure to read everything and complete the survey. Fill out the form as it corresponds to your current (at the moment) emotions. Once you are finished, please put your phone away.”

[Once the students put their phones away, you will start playing the assigned music. The laptop, projector, and music selection (should be at 50% volume should) already be set up in the room that you are in.]

[Play the music assigned to your room]

“Begin”

[Set timer on phone or on Google’s timer for 10 mins, once 10 mins are up say stop. DO NOT STOP PLAYING MUSIC]

“Stop. Now you will get a sheet of paper and write down at least 5 points as a summary of what you have read. It must be numbered boldly from 1 to 5. Paper will be provided if you needed. You will have 5 mins to complete it.”

[Once you have read the directions, start the timer for 5 mins.]

[Once the time is up, stop the music. You will then quickly walk around and check to see if everyone has completed their 5 point summaries]

[Afterwards, pull up the QR code labeled “Emotions Form 2”]

“You will now complete this final survey, pull out your phones. Please answer the questions truthfully and thoroughly. Once you are completed, you may leave and some snacks will be available to you in the lobby.”