The Effects of Evaluative Conditioning
On Musical Preference
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Abstract

Many factors have been studied with musical preference, but research on the conditioning effects is lacking. I hypothesize that the liking for one type of music will spread to another type of music, if they two songs are mixed together. This study is designed to look at the effects of mixing genres on musical preference, specifically between rap and rock and roll. 126 students participated in this study, and were separated into two groups, the prefers rap and prefers rock and roll. The blended exposure condition heard a blend of a Busta Rhymes song and Tom Petty song, while the prefers rock repetition condition heard Busta Rhymes, and the prefers rap repetition condition heard Tom Petty by themselves, Later all groups listened to the less preferred song again. No significant difference was found between the blended exposure or repeated exposure conditions for either the rock or rap groups.
The Effect of Evaluative Conditioning On Musical Preference

Musical preference has been looked throughout the history of psychology. Factors such as repetition, complexity, and effects of musical training have all been studied in regards to how much a person likes different music. Research has never looked at the effects of conditioning’s effect on musical preference, more specifically evaluative conditioning. Today, genre blending or “mash-ups,” where songs of two different genres are mixed, are becoming more popular. In other words, will the person’s liking increase for the less preferred genre, if it is mixed with a more preferred genre?

There are several factors that determine liking for music. Repetition is one such factor, which can alter a person’s liking for music. Research on changes in a person’s musical preference has focused a lot on the effects of repetition. Based on the phenomenon known as the mere exposure effect, repeated exposure to a stimulus is sufficient to enhance one’s positive affect toward the stimulus (Zajonc 1968) Mull (1957) looked at repeated exposure of music. She found that after she played a song from two different contemporary composers five times, participant’s preference ratings for each song began to increase. The increase in preference after repeated exposure supports the mere exposure effect. Shuckert and Donald (1968) attempted to change preschool children’s musical preference to either classical or jazz, which ever one was less preferred. They had the children participate in play situations. During the play sessions they would play the less preferred song in the background. After four play sessions the children were retested to see if musical preference had shifted at all. They did not find any significant change in the children’s musical preferences after repeated exposure to the less preferred genre of music. Another study looked at how the chart position (New
Musical Express weekly top 50 singles) of a song related to familiarity and pleasingness. Russel (1987) found that the higher the song was on the chart, i.e. the more times it was played, correlated with familiarity, but not with how pleasing the song was to the listener. In other words, more repetition of a song did not increase its liking. These results contradict the mere exposure effect.

These mixed results imply that the relationship is more complex than suggested by the mere exposure effect. The chart position study found that preference follows an inverted-U curve (Russel 1987). According to this curve, as exposure to a musical piece increases, levels off, and after awhile begins to decrease. Thus, songs that have been around for a long time, or just awhile, were not as pleasing as songs that have been recorded an intermediate time ago. Bretnar, Neuendorf, Armstrong (1994) showed that the inverted-U function is applied to musical preference of modern day music. They exposed participants to four different songs varying amounts of times. Liking began to increase with repeated exposure, but after about 16 listens, both participant’s liking and quality ratings of the song began to decrease.

The relationship between complexity or and liking for music also seems to follow this inverted-U function. Music that is of moderate complexity is generally more preferred than music that is either too complex or not complex at all (Steck and Machotka 1975). There seems to be an optimal amount of complexity which is the most preferred. If the music goes beyond or below this optimal level of complexity, then liking will begin to decrease. The person’s optimal level of complexity in his or her music is subjective to each individual person. If that person has had a high amount of musical training, then his or her’s optimal complexity level will be higher than someone who has never received
any musical training (North and Hargreaves 1995). Also, musicians have been shown to prefer more complex music than nonmusicians. Burke and Gridley (1990) compared preferences of musical complexity for college music majors and other students who had fewer than two years of musical training. They found that college music majors, who have received much musical training, had a higher optimal complexity level than those who have had less than two years of musical training.

Musical education seems to be a very important factor when looking at what type of music a person prefers. Peery and Peery (1986) did a study similar to Shuckert and Donald's (1968) experiment over the effects of repetition on musical preference of classical music in preschool children. Peery and Peery gave some of the children musical appreciation lessons before testing the effects of repetition on the children's musical preference to see whether musical training could increase liking. Kids that received musical training were more likely to have a greater preference shift after repeated exposure to classical music, than were the children who received no musical training (Peery and Peery 1986). The results supported the notion that repetition and musical training interact to increase liking of classical music.

Another method to change people's preference for a stimulus is through classical conditioning; more specifically, evaluative conditioning, which looks at the acquisition of preference. Walther (2002) demonstrated a special case in evaluative conditioning known as the spreading attitude effect, or a person's liking for something can be systematically spread to a neutral stimulus by pairing the neutral stimulus with a more preferred stimulus. Walther paired neutral rated images of faces with those that were positively rated, and found that the spreading attitude effect worked for this set of stimuli.
The neutral rated faces were rated higher after being paired with more positively rated faces. When looking at music, a person’s preference is shaped by his or her emotional response to a particular song (Balkwill 2003), and evaluative conditioning changes the person’s emotional response to that stimuli. So, one could generalize evaluative conditioning to musical preference.

The effect of conditioning has never been looked at in regards to music, because the pairing of two songs is a relatively new phenomenon. Although, van Reekum, van den Berg, and Frijida (1999) did look at the effect synthetic sounds on the preference of nonfigurative paintings by relatively unknown painters. Ratings for the synthetic sound effects ranged from pleasing to unpleasant. They played each sound effect while they viewed the paintings. The results showed that preference ratings for the paintings were contingent on how pleasing or unpleasant the sound effect was. So, evaluative conditioning should be able to be applied to musical preference. Today we can look at evaluative conditioning through the use of technology that allows songs to be paired together through sampling other people’s music to create a different musical track.

An example of the evaluative conditioning and spreading attitude effect for music can be seen back in recent history. For years, rap music was not part of the mainstream music scene. It remained underground, only finding commercial success occasionally. Hip hop beats were a novelty to the general public; but with repeated exposure sales began to increase. The spreading attitude effect phenomenon may have at helped change people’s musical perspective, which occurred when hip hop was paired with a more familiar and more preferred genre: rock and roll. The pioneers of this phenomenon were Run DMC. Run DMC took hip hop beats, combined them with loud distorted guitars,
and rhymed lyrics over them. Rock music (more preferred) was at the forefront of mainstream music at the time, and by mixing hip hop (less preferred) with rock, people preference for hip hop will increase.

Run DMC’s “Walk this Way” that featured Aerosmith, was the first hip hop song to reach mainstream credibility. “Walk This Way” was the first rap single to make Billboard’s top ten list. Aerosmith or rock and roll, for the majority of listeners, was a preferred stimulus. The Run DMC/Aerosmith collaboration featured cuts and scratches on the turntable, a main feature of hip hop music at the time, by Jam Master Jay: Run DMC’s DJ. The collaboration caused an emotional reaction in listeners: evaluative conditioning in action (Walther 2002). Most people did not prefer rap music at the time, but by working with Aerosmith, a popular rock band, they began to associate Run DMC with Aerosmith, fueling Run DMC’s rise to fame. In 2004, rap/hip hop is now a dominating and lucrative genre in the recording industry. Still many people do not prefer many different types of music, and only listen to mainly one genre, whether it is just rock or just hip hop.

One new trend in music that has grown over the years is mash-ups, or blends. Blends are when DJ’s take one genre of music, such as rock, and completely mix it with another genre, like rap. Probably the most popular examples of this phenomenon are the many Jay-Z blends to have emerged from the underground DJ scene. The first Jay-Z blend album was done by DJ Dangermouse, where he took the acappella’s from Jay-Z’s “The Black Album” and put them over beats comprised of samples from the Beatles “White Album;” forming the “Grey Album.” Now Jay-Z and the rock group Linkin Park have collaborated for live mix between both groups most recent CDs much like Run
DMC did with Aerosmith and their already popular hit “Walk This Way” 18 years earlier.

Blends have the potential to change people’s musical perspective similar to the way Run DMC did through evaluative conditioning. I believe that if someone listens to mainly rock, and then they hear rock and rap fused into one song, the person’s preference for the particular rap song will be greater than if he or she had never heard the rock and rap blend. Evaluative conditioning and the spreading attitude effect allows people to listen to and possibly like the music they normally would not prefer by associating it with a song or music genre they already like.

The purpose of my study is to demonstrate that in blending two songs together, a preferred song will increase the liking of the non-preferred song. The preference shift will be caused by evaluative conditioning; positive affect from the more preferred song will spread to the less preferred song. The study should show people’s musical preferences can be changed through the evaluative conditioning of music blends. The experiment should show that people who initially only listen to rock and roll will start to prefer hip hop after hearing the rock/hip hop blend, and those who mainly listen to hip hop will begin to listen to rock and roll as a result of hearing the blend. These findings should generalize to other genres of music.

Method

Participants

There were 126 participants in this study, and were required to be 18 or older. All participants came from the Ball State University Department of Psychological Science Human Subject Pool.
Musical Conditioning

Measures and Procedure

Participants were given a simple survey to determine whether they prefer hip hop or rock and roll music. The survey consisted of 7-point Likert scales (-3 = Do not like the song at all, +3 = Liked the song very much, 0 = no preference) rating their preference for rock, and hip hop. Preferences for other genres were taken to help mask the hypothesis. Participants were also asked to list their three favorite albums and what genre they are. Finally participants were asked to rank order their favorite genres (1-being the best 7-being the worst). The genres they rated were classic rock, alternative rock, techno, rap/hip hop, country, reggae, and pop music.

Participants then were placed into two groups, the “prefers hip hop” group and the “prefers rock and roll” group, based on which genre they prefer more, hip hop/rap or classic rock, according to the rank order section of the initial survey. After participants were separated into two groups, one of the groups was moved to another room.

The participants listened to a CD of varying genres. They were instructed to listen to each song, and after each song rate how much they liked the song on a 7-point Likert scale (-3 = Did not like song at all, +3= Liked the song very much, 0 = No preference). Ratings were taken for all the songs. The first song the blended exposure condition heard was a blend done by DJ Erb combining the instrumental of Tom Petty’s “Free Fallin’” with the lyrics from Busta Rymes’s “Put Your Hands Where My Eyes Can See.” A verse and a chorus from “Free Fallin” are played at the end of DJ Erb’s blend also.

After hearing the blend, the participants listened and rated their preference for several other tracks from varying genres, such as country, techno, reggae, pop, and
alternative rock, to act as distracter variables. These variables should have masked the hypothesis to the participants. The distracter tracks were two minute samples of the song that include a verse, and chorus of the song. All songs had a 15 second pause in between them to allow time for participants to rate their preference. The last track the blended exposure condition heard was the relevant song, which was for the less preferred genre/song that was heard partially in the blend earlier. The hip hop group’s relevant song was the classic rock track, Tom Petty’s “Free Fallin’”, and the rock and roll group’s was hip hop artist Busta Rhymes’ “Put Your Hands Where My Eyes Can See.”

The repeated exposure condition went through the same procedure except they did not hear the DJ Erb blend of Tom Petty’s “Free fallin” and Busta Rhymes “Put Your Hands Where My Eyes Can See.” Instead they heard the relevant song twice, either Tom Petty’s “Free Fallin” or Busta Rhymes “Put Your Hands Where My Eyes Can See. Hearing the relevant song again should have controlled for any mere exposure effects for the control group.

According to the hypothesis for both the prefers hip hop and prefers rock and roll groups, liking for the relevant song should increase more for the blended exposure condition (those that hear the hip hop/rock blend) than for the repeated exposure condition, if the blended exposure condition liked the DJ Erb blend. If liking increased in the repeated exposure condition, it is because of the mere exposure effect, repetition makes it more likable. If the blended exposure condition’s preference ratings are higher, then it means evaluative conditioning and the spreading attitude effect worked to increase a person’s preference for a less preferred song.

Results
The prefers rock and roll group had 61 participants: 31 participants for the blended exposure condition and 30 participants for the repeated exposure condition. The prefers rap group had 65 participants: 37 participants in the blended exposure condition and 28 in the repeated exposure condition. Participants’ final ratings for their nonpreferred songs were analyzed using a 2x2 (initial preference x exposure condition) analysis of variance. Results revealed there to be a significant main effect for initial genre preference, $F(1, 122) = 101.9, p < .001$, with the prefers rap group giving higher final ratings to the rock song than the prefers rock group gave to the rap song. There was also a marginally significant difference between the blended exposure and repeated exposure groups, $F(1, 122) = 2.8, p < .10$. However, contrary to prediction, final ratings of the nonpreferred song were lower in the blended exposure than the repeated exposure conditions. Means for the four groups are in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Nature of Exposure to Less Preferred Song*</th>
<th>Blended</th>
<th>Repeated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prefers Rock**</td>
<td>-1.1</td>
<td>-0.2</td>
</tr>
<tr>
<td>Prefers Rap</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>0.57</td>
<td>1.06</td>
</tr>
</tbody>
</table>

* mean difference between Blended and Repeated Exposure significant at $p < .10$
** mean difference between Rock and Rap Preference significant at $p < .001$

Another interesting result was that, within the prefers-rock group, there was a significant difference ($p = .029$) in the initial preference rating between participants in the repeated exposure condition (which heard Busta Rhyme’s “Put your Hands Where My
Eyes Can See”), and the blended exposure condition (which heard the blend of Busta Rhyme’s “Put Your Hands Where My Eyes Can See” and Tom Petty “Free Fallin’”).

The study’s results fit in with previous research on repetition’s effect on music. For only one out of thirty participants in the rock control group, which heard Busta Rhyme’s “Put your Hands Where My Eyes Can See” twice, did preference change. For only four out of twenty-eight participants in the rap control group, which heard Tom Petty “Free Fallin’ twice, did preference change (for one participant it decreased).

Discussion

This study did not support my original hypothesis that blending a non-preferred song with a preferred song will increase liking for the non-preferred song. An interesting finding was that the rock repeated measure’s preference for the Busta Rhymes “Put Your Hands Where My Eyes Can See” was extremely low, but the rap repeated measure’s preference for the rock song Tom Petty “Free Fallin’” was extremely high. This shows that the rap repeated exposure condition was not a good representative sample of people who did not prefer the rock song. One explanation, following research on repetition, is that Tom Petty has been around a lot longer then Busta Rhymes, and participants could have heard Tom Petty more than Busta Rhymes, meaning the mere exposure effect has already taken place. Another possibility is that rap is a music based on sampling from different genres including rock, while rock rarely uses sampling in its music. Therefore, people who like rap will be more apt like music from different genres than people who like rock, who would not like rap beats that are made up of a series of samples.

The experiment did show a significant difference between the rock repeated exposure condition’s preference of the Busta Rhymes song, and the rock blended
exposure condition’s preference of the blend with Busta Rhymes and Tom Petty. The repeated exposure condition rating was higher than blended exposure condition. This goes counter to my hypothesis, because theoretically if Busta Rhymes has classic rock behind it, the song should be preferred more than if it is just straight Busta Rhymes, but the results show the opposite effect. One explanation would be that people who prefer rock really hate when songs they know and love are messed around with, and tainted by a less preferred genre.

This study had several procedural problems that caused the experiment to not yield any significant results. Fist of all, musical preference is a very subjective experience. One person may like rap over all, but not like a particular song or remix of the song. The design of this study tried unsuccessfully to place participants into two groups, the rock group and the rap group. Looking at the information in the initial surveys it was evident that people’s initial preference could not be determined by asking them, which they liked better. To remedy this problem I would suggest a different design. Each individual’s preference for the less preferred song should be determined before they are given the experimental condition. That way they serve as their own control, a test and retest design, unlike this experiment where the blended exposure groups’ initial preference was not determined. This design adds more problems to the study that would have affected the amount of participants, because it will extend the experiment beyond a single session. Many college students would not likely want to come back for the retest.

Another problem with this study is that participants heard the rock and rap blend only once. Blends are a totally new genre that still has not gained acceptance from the
majority of people yet. In other words blends are novel to participants. According to research on repetition, a novel stimulus preference will go up after so many repetitions. I saw this happen with my lab assistant. When he first heard the blend, he didn’t like it to much, but after about three sessions he started liking it a lot. My suggestion for future studies is too again extend the study over many trials, and compare the results of a group that hears the blend repeatedly to a group that hears the song normally repeatedly.

Finally, a confounding variable that could not be adequately controlled for in this study was the effect of forcing participants to listen to music. The classroom is not a normal place for people to listen to music, and especially new types of music. Blending is new form of music that has not reached mainstream popularity yet. Participants are forced to listen to this new form of music and then rate their preference for it. I hypothesize that in the real world, preference ratings would be different. One thing I have noticed in the real world is if I tell people to listen to a certain blend they do not like it as much as people who here it because I am playing it. The difference is I am forcing someone to listen, compared to them hearing it on their own. Research shows if a parent forces a child to eat certain foods, then he will not like them (Benton 2004). The taste of food and liking of music are both subjective experiences, so I believe the same thing is happening here. Instead of digesting food, the participants are digesting music.

Future research could also include the blending of a preferred and non-preferred song from the same genres. Preference would shift from a liked stimulus to a novel stimulus. An example of this would be to take a popular song from rap that is extremely well known, and mix it with an underground beat that is not well known by people. One could blend the song two different ways; with lyrics from the popular song and the beat
from the unpopular song, or with the lyrics from the unpopular song and the beat from
the popular song.

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