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The Universal Language

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"Music touches us emotionally, where words alone can't."

— Johnny Depp

Music is a friend, a motivator, an agitator, a stimulant, a depressant, a therapist, and a release for any situation in which it is needed. Music is a bank of emotions stored over the years by humanity just waiting to be experienced again by the next listener. Music is humanity, and humanity is music. It is the ultimate expression of human emotions, and as so many great thinkers and musicians have stated, *music conveys what words cannot*.

Music has the ability to cause spontaneous emotions and can evoke powerful reactions without any prior triggers or cognitions. Does music have a cognitive object? And if not, how is it that humans can become emotional without that cognitive object? The aim of this paper is to prove that music does not need a cognitive object to evoke emotions.

First, 'cognitive object' must be defined. In this paper, a cognitive object is an object or idea that is processed consciously. The emotional trigger is something humans are aware of; such as another person's facial expressions or words, or when something affects our own wants, goals and interests. Most emotions require a conscious interpretation of events, but arguably that conscious interpretation is not necessary to feel emotion when listening to music. The emotions felt when listening to music fit well into the James- Lange view; they are interpretations of physiological changes in response to the music. The music affects humans physically which, in turn, causes an emotion to arise from the changes in the cardiorespiratory system, hormones, skeletal muscle movement, and active areas of the brain. The puzzle that remains is that in instrumental music there are no normal cues which prompt these changes. There are no visual clues, no words or concepts conveyed, and individual wants, goals and interests are not at stake,

so there is no real reason emotions should be felt. Instead, these three cognitive emotional objects are replaced by three non-cognitive processes:

1) The awareness of visual prompts is displaced by the movement found in music.
2) Words and complex concepts are more simply communicated through a new universal language.
3) The emotional reactions in response to music are instinctual and automatic therefore needing no reason, even though the emotions we feel when listening to music serve no progressive advantage to our daily life.

Thus, music affects humans physiologically which allows emotions to be induced without a cognitive object.

1. Movement in Music

"Music is an outburst of the soul."

— Frederick Delius

Jenefer Robinson explores music and emotion in her book, *Deeper than Reason,* and theorizes that "...happy music can make us happy..." (Robinson 381). While this seems like an excruciatingly simple idea, Robinson expands on it with what she calls 'the jazzercise effect'. 'The jazzercise effect' describes the changes in a physiological state when listening to music and how those changes cause an emotion. Robinson states that this is an unconscious process involving relating the changes felt when reacting to music to the reactions associated with certain emotions. Robinson claims that this is why the music matches the mood one wants or finds appropriate. For instance,

> Much music has been written to facilitate specific activities: brisk, martial music for military marches, sad, dignified music for funeral processions, gentle, tender

> music for lullabies, and arousing music of various sorts and degrees for various sorts of dances... (Robinson 397)

Robinson states that the physiological changes that are felt when experiencing an emotion are very similar to the changes experienced when listening to music. These changes include shifts in hormone levels, the cardiorespiratory system, facial muscles, and skeletal muscle movement. Robinson also theorizes that music is contagious in the sense that human bodies naturally 'want' to synchronize with music. Thus, in response to a fast tempo the heart rate rises, and in response to lowering or rising pitches the reaction is to sit or stand taller, respectively. Music creates emotions by directly affecting human physiology.

Digging even deeper into the idea that music affects human physiology, Stephen Davies believes music elicits emotion by actually resembling the physical manifestations of that emotion and causing one's body to unconsciously recognize and mimic the musical elements. Davies calls this theory 'appearance emotionalism' and proposes that humans recognize certain emotional characteristics in music. For example, slowly descending minor keys with low bass tones could resemble a sad person who has a falling posture, speaks in a minor key, and feels sunk into the ground. Much like when one feels sad when they observe another sad person, the music's 'sad' features prompt a similar response to that which sadness evokes.

Certain instruments can also resemble human voices when expressing an emotion. Violins and most string instruments can sound like singing or screaming, while trumpets can sound like shouts of passion. The various pitches and tones of the instrument are reminiscent of a person's voice when he or she is expressing an emotion. For example, angry music features passionate, shouting trumpets and saxophones or low undertones which sound similar to a deep

growl, whereas happy music can feature bright, harmonious, and moving piano which is reminiscent of laughter or joyful singing.

As was aforementioned, human bodies seem to naturally want to move along with any music that is being listened to. Dancing is a common reaction to music and has played a large part in humanity's history. Even if dancing doesn't occur, humans still have the tendency to 'conduct' classical music or tap toes or fingers along with the beat. While these connections are obvious, recent studies have found that the brain's motor skills center is activated when listening to most music. William J. Cromie writes for a 2001 Harvard article on music and the brain: "Neuroscientists have found activity in brain regions that control movement even when people just listen to music without moving any parts of their bodies" (Cromie). Further studies show that not only does the brain interpret music through the motor systems, but it also activates a mirror neuron system which subconsciously encourages the listener to mimic the movement observed.

> These activations occurred in the motor networks of the brain that are thought to be responsible for following the beat of the music and in the brain's mirror neuron system. The human mirror neuron system appears to play a fundamental role in both understanding and imitating action... the mirror neuron system provides a mechanism through which listeners feel the performer's emotion, making musical communication a form of empathy..." (Nauert)

This means that not only is the brain subconsciously interpreting the emotion the music is trying to convey, but it is actually feeling the emotion. Musical communication is not about telling or showing the listener what to feel, but it is about making the listener feel the emotion for themselves.

2. Musical Communication

"Music is the universal language of mankind."

—Henry Wadsworth Longfellow

Music evokes an emotion without a cognitive object because it *becomes* that emotion. Musical communication involves the transfer of emotions, rather than the description of them. Theodor Adorno explores the idea that music is its own language in his essay, "Music and Language: A Fragment." Music consists of technical elements that, when strung together, form a complete idea much like words from sentences. When these musical sentences are put together, they create a song or movement similar to an essay or book. What is missing from this musical language is a concept. Music can only convey the most basic, yet universal, communication humans possess; our emotions. Instrumental music cannot convey complex ideas, hypotheses or abstract concepts, but it can pass an emotion or feeling from one human to another.

> But if musical structure or form is to be more than a set of didactic systems, it does not just embrace the content from outside; it is the thought process by which content is defined. Music becomes meaningful the more perfectly it defines itself in this sense—and not because its particular elements express something symbolically. It is by distancing itself from language that its resemblance to language finds its fulfillment. (Adorno 6)

Adorno states that music does not just symbolize a thought or idea, it *becomes* that thought or idea. Unlike language, in which each word stands as a symbol for something, music is universal. For example, only to English speakers does the word 'chair' mean something and only to Spanish speakers does the word 'la silla' mean something. In reality, both words describe the same object. With the musical language, it doesn't matter what culture one is from-- anyone

could easily identify the emotion of a song. Music, in other words, defines itself. It needs no words to help convince the listener of what emotion to feel. Music can be seen as one of the most basic forms of human communications. It is a way to share ones emotions with another human being and express oneself. No known human culture is without music. (Cromie)

Not only is music a universal language, but in some cases it even takes priority over actual language. Song lyrics often verbally—and sometimes ambiguously—have a message, tell a story, or compel humans to feel a certain way. Sometimes, however, the emotion the lyrics describe and the conveyed instrumental emotion clash. Occasionally in pop music, sad or angry lyrics can be accompanied by happy sounding instrumentals and beats. When this clash occurs, humans have a tendency to interpret the song in question based on its instrumentals. Taio Cruz sings a catchy song entitled "Break Your Heart" that, based on the instrumentals alone, compel the listener feel a sense of pleasure and the urge to dance with excitement. This excitement and happiness quickly diminishes with the realization that the song is about a woman falling in love with the singer, who essentially promises to cheat on her and "break [her] heart". When the lyrics are read without the upbeat instrumentals, they describe a very depressing situation:

There's no point trying to hide it

No point trying to evade it

I know I got a problem

Problem with misbehavin'

If you fall for me

I'm not easy to please

I might tear you apart

Told you from the start, baby from the start

I'm only gonna break break your break break your heart. (Cruz)

In spite of the sad state of affairs the lyrics spell out, "Break Your Heart" remained a popular dance anthem for about six months because the negative emotions the words conveyed were ignored while the elated emotion the instrumentals induced was focused on.

Another example of this phenomena in pop music can be found in a song called "Some Nights" by Fun. This song reigned as a "pick-me-up" anthem for a few months; yet, when it's seemingly vague lyrics are inspected a little closer, it tells an anti-war perspective of a soldier, presumably in Iraq, and the burdens he and his family have faced because of the war. Based on the lyrics, the song conveys disillusionment and despondency; conversely, the instrumentals make the listener feel empowered and hopeful. Thus, while the lyrics of a song can provide a cognitive object and create an emotion, ultimately, the instrumental emotion prevails without a cognitive object.

3. Natural Reactions to Music

"Beethoven tells you what it's like to be Beethoven and Mozart tells you what it's like to be human. Bach tells you what it's like to be the universe."

— Douglas Adams

So far, this paper has determined that music changes one's physiology which, in turn, creates an emotion within that person. Human bodies want to mimic the elements of a given song and synchronize with its beat. Some studies show that these reactions are not only natural--they are instinctual. Stephan Strauss writes about studies on infants' response to tonal change in

his article, *Musical Tonality Preferred by Babies*. Strauss found that reactions to harmonious and dissonant sounds could be observed in infants as young as 4 months old.

> Harvard University psychologists Jerome Kagan and Marcel Zentner studied the response of 32 infants, some as young as four months old. The Harvard researchers found that the children seemed calmer and more content when harmonious sounds were played. The out-of-tune sounds produced not just looks of disgust, but the infants would look away, cry, fret and not even look at the speaker. (Strauss)

This reaction to dissonance and harmony in infants suggest that emotions are instinctually evoked from music and not taught culturally like languages are. The infants' reactions also can lead to the conclusion that music is 'in' human genes, and that there is a universal set of rules which determine human reactions to various musical elements.

Parts of the set of universal rules for music and emotion can be seen in experiments done by John Slobada in the early 1990s. Slobada's experiments consisted of playing classical songs with known musical elements for subjects and then asking them to mark in the song where they felt different emotions. Afterwards, Slobada determined which musical device was used during the time that the emotion was felt. His results showed a few important correlations between certain musical devices and emotional reactions. Most notably, the device known as an appoggiatura seemed to elicit tears or feelings of sadness. (See Figure 1)

Feature	Number of musical passages provoking a response.		
	Tears	Shivers	Heart
Harmony descending cycle of fifths to tonic.	6	0	0
Melodic appoggiaturas.	18	9	0
Melodic or harmonic sequence.	12	4	1
Enharmonic change.	4	6	0
Harmonic or melodic acceleration to cadence.	4	1	2
Delay of final cadence.	3	1	0
New or unprepared harmony.	3	12	1
Sudden dynamic or textural change.	5	9	3
Repeated syncopation.	1	1	3
Prominent event earlier than prepared for.	1	4	3
Total number of musical passages.	20	21	5

Figure 1. Music-structural features associated with physical-emotional responses.[5]

Appoggiaturas sound much like a leading tone, but are on beat. This can be seen in several sad songs, including many of Mozart's symphonies, The Beatles' song "Yesterday" and Adele's "Someone Like You." "Someone Like You "created quite a stir when it came out because a noticeably sad and emotional song held the top spot in pop for a great deal of time, causing some musical enthusiasts to investigate. Slobada's studies were dug up, and major news broadcasters such as NPR and CNN began throwing the term "appoggiatura" around. Essentially, "Someone Like You" is sad not only because of the lyrics and power in Adele's voice, but because Adele speckled the beginning of the song with appoggiaturas to really squeeze the tears out of her audience. While musical devices might not evoke an emotional reaction from everyone, it seems that the majority can agree that certain devices do indeed induce emotional reactions.

Another set of studies from the 1990s by the psychologist Gordon Bruner explored the relationship between tempo and emotion. Different identified tempos were presented to various

subjects, then the subjects were asked how each tempo made them feel. The results were to be expected, as tempo, which sets speed and rhythm, is usually the main indicator for emotion in music. The results of Bruner's experiments are as follows:

- Music in 2/4 time: expresses rigidity and control
- Music in 3/4 time: more relaxed, abandoned
- Fast tempo: expresses animation, happiness
- Jerky, uneven rhythms: indicate complex emotions
- Even rhythms: simpler, unimpeded feelings
- Firm rhythms: suggest serious mood
- Smooth-flowing rhythms: playful
- Staccato: gives more emphasis to a passage than legato

Each tempo had a fairly consistent emotion or mood which was associated with it, and most parings seem quite logical. For example, 2/4 time is what a march is played in, so feeling rigidity and control while listening to a march makes perfect sense. On the other hand, jerky and uneven rhythms such as syncopation evoke more complex emotions because the listener is forced to pay attention to the constantly changing melody. Through following these universal rules of musical devices and tempos—not to mention the complexity of various keys and the levels of minor scales—specific emotions can naturally be conveyed through music without an awareness of ones wants, goals and interests at stake.

4. Heightened Realism

"Music acts like a magic key, to which the most tightly closed heart opens."

— Maria Von Trapp

Now that it has been established that music does not need a cognitive object to elicit an emotion, the concept of heightened realism can be explored to show further support for the theory that music creates emotions within a person. Based on the theory that music provides an emotional connection to fictional characters, music oftentimes provides the emotional reaction in movies. While film characters can show or directly tell the audience what emotion they are feeling, real empathy is not usually felt for the characters until the music starts. A good film score will capture the emotional quality of every scene even without visual cues or much context. This is why film scores and soundtracks are some of the most emotive music. This idea that music is essential to a film's emotional quality is termed by Stuart Fischoff as 'heightened realism' in his essay, "The Evolution of Music in Film and its Psychological Impact on Audiences."

> Because films are two-dimensional, extra-ordinary experiences, they may need help, as it were, from music. After all, in real life when you're scared you don't need scary music to tell you. Absent repressions your body, your nervous system, your cognitions, tell you that. So, perhaps heightened realism merely levels the playing field enabling films to draw us in and, as the saying goes, suspend disbelief. (Fischoff 3)

Thus, Fischoff theorizes that music removes the belief that what is being watched in a film is fictional by emotionally connecting the audience to said film. Cognitions are not needed, but merely enhance an emotion derived from music. In this case, the music is essential for the basic emotion while the cognition of what is happening to the characters is not. This 'heightened

realism' theory does have exceptions in the sense that without the cognitive connection to the film character's background and shared history with the film viewer, it is unlikely that the emotion would be as powerful as the music alone. Usually when a film character cries or is in extreme pain of some kind, it is usually enough to elicit a small reaction from the film viewer; otherwise music still remains the main catalyst for a true emotional reaction from the film viewer.

5. Music with Cognitive Objects

"Music produces a kind of pleasure which human nature cannot do without."
— Confucius

Like every good theory, the theory posed in this paper has a few exceptions. Emotion deriving from music does not always have to be non-cognitive. There are some cases that music evokes emotions using a cognitive object. These cases are situations in which a particular piece of music, or perhaps artist, genre, or style, is attached to a specific memory. This is seen most commonly in songs that are associated with significant events or times in one's life. Songs from childhood, especially familiar lullabies, usually bring back happy memories. Songs playing during traumatic times in one's life, on the other hand, can make one relive that time of calamity. For example, was in a car accident last year which totaled my car and knocked my mom out. While the accident happened, Flo Rida's song, "Good Feeling," blasted out of the radio. To this day, that song only reminds me of the accident and I don't get any "good feelings".

Sometimes songs can be associated with past relationships, representing past memories with a particular person. Couples can have "their song" which will forever remind them of the other person even long after they break up. The emotions that the song evokes will then depend on how bitter or friendly the break up was. Lyrics can sometimes create a powerful emotional

reaction to a song that otherwise would not elicit such a reaction based on the instrumental alone. The words can relate to an important part of one's life or remind them of a specific person.

Film scores can also become cognitively emotional if one remembers the specific part of the movie that the song played in. Then it is no longer the brain subconsciously interpreting the music; one is cognitively remembering the emotional scene. Another personal account of cognitively emotional music is a beautiful piano song that I found the sheet music for and learned to play. As I learned to play the piece, my heart always filled with renewed hope—the recovery after a storm or battle, or the feeling that I just survived something terrible. One day, I stumbled across a trailer for an awfully made video game which featured a vacation island overrun by zombies. Morbidly curious, I watched the trailer and quickly realized that my piano song played in the background of this horrific story about a family forced to kill one another as they each turned into zombies. My song of hope turned into a song of horror and destruction, and I have never been able to shake that feeling of dread when I listen to it or play it since. Thus, when music is associated with a memory, that cognition will prevail over the normal non-cognitive emotion felt with music.

6. Conclusion

Music is extremely complex and exists in many different forms, yet it seems to span across the ages using the same universal rules to express and share emotions from culture to culture. An American does not need to understand French in order to feel the happiness in a French love song. The universal language known as music lacks a cognitive object, yet can spontaneously evoke powerful emotions in the listener. This is because the emotion is not merely being described or shown to the listener, but is actually transferred from the artist to the listener. This transfer is done through musical devices which cause the listeners' brain to mimic the

emotional signals and change the listeners' physiology, thus creating an emotion. Music needs no cognition to create emotion because the music itself is an emotion just waiting to be felt by anyone willing to listen.

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