

An Extensive Exploration of the Sedative Effect

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Culminating Experience

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ABSTRACT

The purpose of this study was to examine and measure the subliminal influence of a particular compositional device on music listeners with the intent of learning whether or not the device elicits any sort of emotional response, and if so, possibly uncover ways in which this device can be implemented as a tool throughout the music industry's many facets.

A significant component of harmonic analysis in music is the examination of the chords used and the order in which they are used, known otherwise as their progression. Certain progressions are understood to create different feelings within music; dissonant chords, for example, tend to create a sense of tension and suspense within music that only a subsequent consonant chord may ease. Solely responsible for these audible sensations are intervals, or the distance between two notes. Consonant intervals are often perceived to be pleasing to the ear, while dissonant intervals are generally perceived as an unpleasant sonic clash.¹ Throughout the history of music, particularly in the Western world, there has been a prevailing preference of consonance over dissonance, and other than "because it sounds nice", there seems to not be a particular reason why.

Though a majority of people may not be able to explain these subtle changes within the music they consume every day, this does not mean the subtle changes aren't heard, or that they are not affective. A study conducted at Kansai University in Japan showed that, regardless of musical training, a large majority of children and adults alike from various cultures characterized

¹ Aarre Joutsenvirta and Jari Perkiömäki, "Consonance and Dissonance," Music Theory.

major chords as “sounding happy” and minor chords as “sounding sad.” As it turns out, it is all rooted in how the human brain innately process movements between pitch frequencies.² This study seeks to determine why a particular blend of certain pitches produces a seemingly unique and peculiar effect.

The subdominant chord of a key is a chord built on the key’s subdominant, or fourth note in the scale. The quality (major or minor) of this chord depends on the notes within the given scale, and quality is expressed as either an uppercase (major) or lowercase (minor) roman numeral corresponding with the numerical order in which the note appears in the scale. In the key of C, for example, the notes are ordered as follows:

C D E F G A B C

The quality of the chords in a key are entirely dependent on the notes within that key. The qualities of chords built on each of these notes within the key of C are as follows:

C D E F G A B C
I ii iii IV V vi vii^o I

A chord built on F (F, A, C) would be the subdominant chord in the key of C.

Movement to the subdominant chord or modulation to the subdominant key in a piece of music has been said to induce a sense of “tonal relaxation”. This is thought to be due to the fact that the subdominant chord will always contain within it the tonic note, or note the key is in (C,

² Norman D. Cook, *A Psychophysical Explanation for Why Major Chords Are “Bright” and Minor Chords Are “Dark”*, report, Informatics, Kansai University.

in the above example).³ When the subdominant chord is approached in particular progressions, however, its existing effect is enhanced; the resulting sound of the chord in the context of these progressions has been described in many ways: “bright”, “exotic”⁴, “colorful” and epic”⁵. Most notably, “cathartic”⁶, or producing an ultimate sense of release and relaxation. It is because of this, for the purpose of this study, this particular compositional device has been termed the “Sedative Effect”.

The results of this research have concluded that while the Effect’s nature is not necessarily obvious to a majority of listeners, it is in fact audible and registers as its own musical characteristic. This research has also shown the Effect could be used to influence a listener’s response to visual media, and that the Effect has been knowingly and intentionally used as a musical device within commercial or “pop” music to create a sense of emotional balance.

³ David Malvinni, *Experiencing the Rolling Stones: A Listeners Companion* (Lanham, MD: Rowman & Littlefield, 2016), 258.

⁴ Joe Mulholland and Thomas Hojnacki, *The Berklee Book of Jazz Harmony* (Boston, MA, USA: Berklee Press, 2016), 93.

⁵ Andy Hill, *Scoring the Screen: The Secret Language of Film Music* (Hal Leonard, 2017), 51.

⁶ Frank Lehman, *Manufacturing the Epic Score: Hans Zimmer and the Sounds of Significance*, publication, 29.

INTRODUCTION

This study was performed to determine to what extent Sedative progressions appeal to or have an effect on listeners of music, the nature of this effect (subliminal or supraliminal) and whether or not only certain or all people could be influenced. Because the sonic nature of these progressions has been shown to induce a sense of catharsis and relaxation, could it have such a pleasant effect that we subconsciously become drawn to it as a functioning characteristic in the music we consume?

A secondary purpose of this study was to learn to what extent Sedative progressions (SIVs) can be used to influence music consumers. If SIVs could be influential in swaying listeners toward a particular sound, could it, in turn, sway them towards a particular playlist of songs almost exclusively containing SIVs, or perhaps a particular artist, if, for example, an artist or producer centered most of their work around the Effect? Could a movie-goer be subliminally influenced to feel more positively about a film overall if the score is composed primarily with this particular sort of chord progression in mind?

I. THE EFFECT

The Sedative Effect has been present and utilized throughout the history of music, and spans a wide variety of genres. The Effect can be heard within music written in both major and minor keys, but the key is rarely as significant in the creation of the Effect as the chord that precedes the subdominant (IV). Below are common examples of Sedative chord progressions:

MAJOR CONTEXT	MINOR CONTEXT
I – bIII – IV – I	i – III – IV – i
I – bVII – IV – I	i – VII – IV – i
bIII – IV – I	III – IV – i
I – i – IV – I	i – IV – i
I – bVI – IV – I	i – bVI – IV – i

The chords highlighted in red are what would be considered “borrowed chords”, or chords that do not belong in a specific key. Returning to the key of C example:

C	D	E	F	G	A	B	C
I	ii	iii	IV	V	vi	vii ^o	I

These are all chords built on notes within the key. However, Sedative progressions require that the rules be broken. One of the common Sedative progressions is written as I (major tonic chord), i (minor tonic chord), IV (major subdominant chord), I (major tonic chord). The problem is that i, the minor tonic chord, is not built on notes that naturally belong in the C scale.

Instead of C, E, G (the major tonic chord), a C minor chord would be built as C, **E \flat** (E-flat), G. Hence, this chord is essentially *borrowed* from C major's parallel natural minor scale in which it does naturally occur:

C D **E \flat** F **G** A \flat B \flat C

For Sedative progressions in a minor context, it is the subdominant chord (IV) that is always borrowed, and this can be traced back to the use and nature of musical modes.

Modes are essentially variations upon the standard formats of musical scales: Major and (Natural) Minor. Since the Middle Ages, modes have gone through numerous evolutions, but common practice now is the utilization of the modern Western modes: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, and Locrian. These modes are often classified as either major, minor or diminished (diminished being denoted by a \circ , hence vii $^\circ$ within the key of C example) depending on the sonic quality of their respective tonic triads. Both the Major and Natural Minor scales, in their purest form, have corresponding modes, (Major = Ionian, Minor = Aeolian). “Major” modes include Ionian, Lydian, and Mixolydian, while the “Minor” modes include Aeolian, Phrygian, Locrian, and Dorian. The Dorian alteration upon a Natural Minor scale, the raised sixth, is what is chiefly responsible for the strength of the Sedative Effect's sonic impact.

The image displays two musical scales on a treble clef staff. The first scale, labeled "Aeolian", consists of the notes A, B, C, D, E, F, G, and A. The second scale, labeled "Dorian", consists of the notes A, B, C, D, E, F#, G, and A. The F# note in the Dorian scale is marked with a sharp symbol.

Fig A

Pictured in Fig. A⁷ is an Aeolian (Minor) and Dorian scale in the key of A. In Aeolian mode (or Natural Minor), the fifth scale degree (E) and the sixth scale degree (F) are separated by a half-step. In Dorian however, the sixth scale degree is raised a half-step. F, in this case, would become F# (F-sharp), making the distance between the fifth scale degree (E) and the sixth scale degree (F#) a whole-step. It is this whole-step movement from the fifth scale to degree to the sixth that demands the attention of the ear; it has been described as creating an audible bright spot within the normally dark scale, offering a more open, inviting, and calming sound when compared to the famously audible tension of the half-step. Out of the four minor modes, Dorian is the only mode to include a raised 6th note.

Dorian mode allows for the rules to be broken without actually breaking any rules. Though a major subdominant (IV) would normally not belong in the context of a minor scale, (just as it was previously shown in the key of C example how a minor tonic chord does not naturally occur in a major scale), a piece of music written in the Dorian mode essentially forces the major subdominant to belong. In the key of A Natural Minor, the subdominant chord would normally be of minor quality (iv), as it would consist of the notes D, F, and A, which create a minor triad.

A	B	C	D	E	F	G	A
i	ii°	III	iv	v	VI	VII	i

If, however, F is raised a half-step to F#, as it is in Dorian, the quality of the subdominant chord changes from minor to major, as the triad D, F#, A is a major chord. This major chord

⁷ "Aeolian vs. Dorian 1," digital image, Musical U, June 13, 2017.

within a minor context is in part from whence the captivating sound of the Sedative effect originates.

II. METHODOLOGY

A. Part One

Twenty participants were given two personalized playlists on their preferred Digital Service Provider centered around their favorite genres; preferences were collected by survey. To ensure there would be no subconscious bias (Playlist 1 vs. Playlist 2; Playlist A vs. Playlist B; “first” vs. “second”, etc.), each playlist was named after one of each participant’s favorite foods, which were also learned via survey. In one playlist, every song listed either heavily contained and emphasized or was entirely based upon one or more Sedative progressions, and in the other, no Sedative progressions were present in any of the songs at all. No two playlists made were identical. The participants, after listening to both playlists in their entirety, were then asked to choose which playlist they overall preferred, and briefly explain why. The purpose of this survey portion was to discover whether or not the continued use of songs containing SIV progressions in a one playlist could influence the listener to favor the playlist overall, the hypothesis being that if one playlist contained only songs containing the Effect and the other contained none, listeners would then find themselves more mentally or emotionally impacted by, and thus favor, the SIV playlist, due to its peculiar sonic appeal.

In a previous “beta test” of this experiment, one participant listened to a Sedative progressions “podcast” which included relevant excerpts of songs from a range of genres that clearly displayed the artists’ use of the progressions while simultaneously explaining the chords’ theory and analysis. When the participant was asked as to whether or not the Sedative effect was audible, he noted it was not as obvious as it could have been, as he found himself focused more

so on the drastic changes in genre between songs. It is because of this that participants were asked by survey to select their favorite genres. It was hypothesized that if the playlists exclusively contained the participant's favorite genres as opposed to those they are unfamiliar with or dislike, there would be an increased chance of the participants focusing on the music they received, allowing for less biased results, and providing an easier platform for the Sedative Effect to be heard due to the participants essential confinement to a "musical comfort zone" while listening to the playlists.

B. Part Two

Hans Zimmer is an incredibly distinguished and renowned film composer, and Sedative progressions tend to make appearances in his work. They can be heard perhaps most famously in the principal theme of the film *Inception*, as well as in other notable films on which he has worked such as *The Prince of Egypt* and *Pirates of the Caribbean*. In the second Sedative study survey, the same twenty participants surveyed in Part One were asked to watch a scene from the film *Interstellar* as well as a scene from the film *Inception*. Both movies were directed by Christopher Nolan and scored by Hans Zimmer, and for both movies, Zimmer wrote an iconic theme to play during pivotal scenes. The *Inception* score is built exclusively on an SIV progression, while the *Interstellar* score is not. After watching the two scenes, participants were asked to choose which scene appealed to them most, and explain their reasoning. The purpose of this survey portion was to determine whether or not the use of SIV progressions within a film score could influence an audience members overall reaction to the scene or film they are watching, the hypothesis being that if the two were presented alongside one another, the scene

with the SIV score would register as a more impactful scene, due to the “emotional balance” induced by the Effect.

Participants surveyed for Parts One and Two were between the ages of 17 and 50. Half of those surveyed identified, to some extent, as a musician, the other half identified simply as “avid listeners”. This study attempted to include participants of widely varying nationalities; it attempted as well to gain insight on how various cultural backgrounds may affect the Sedative Effect’s perception. Shown in Fig. B are the countries represented:

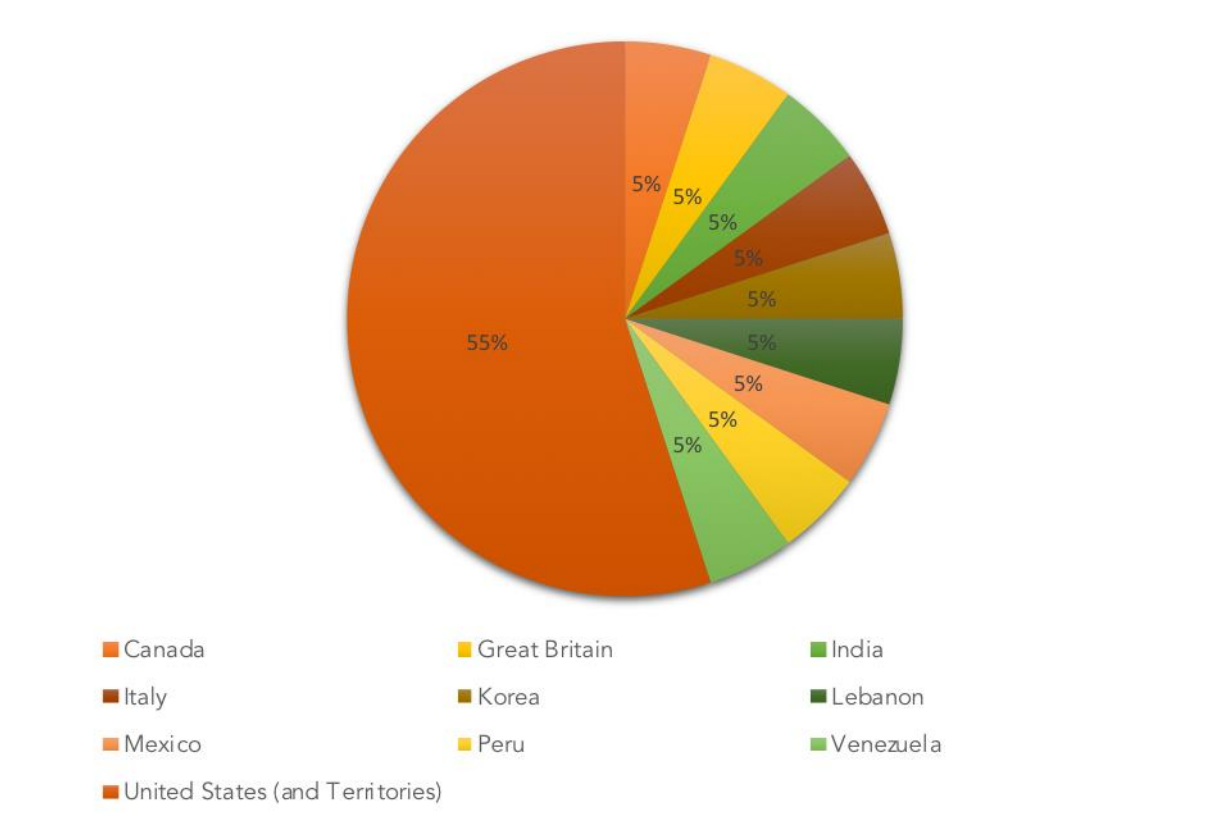


Fig. B

As mentioned, participants were also asked to provide three of their favorite genres for the purpose of personalizing their playlists. Multiple songs containing Sedative progressions could be found for every genre within this wide range, pictured in Fig. C.

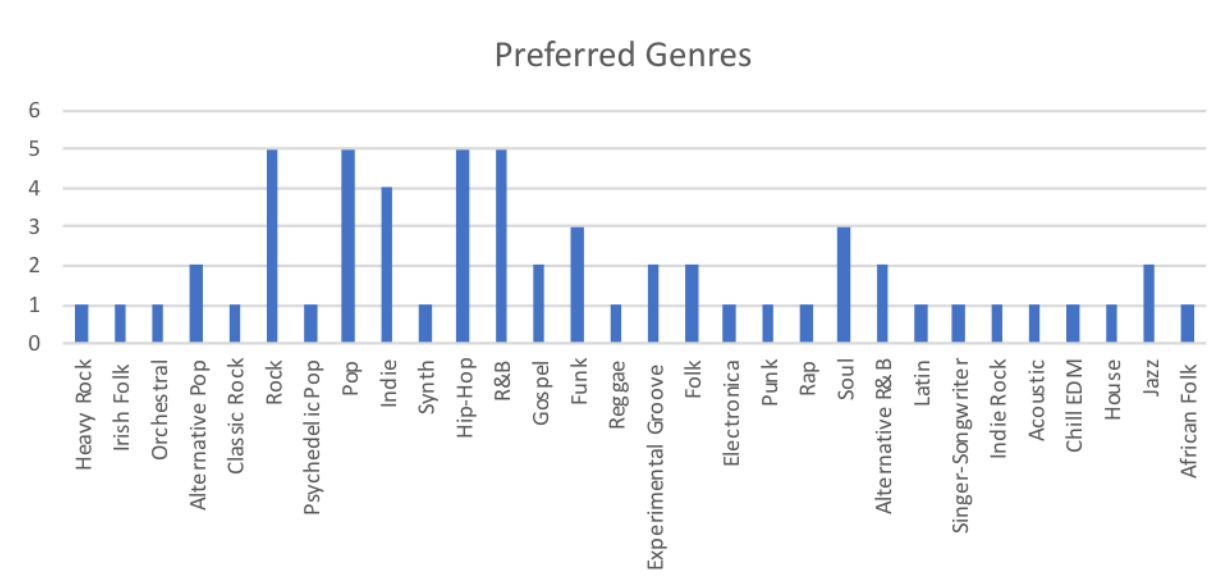


Fig. C

C. Part Three

Six artists who were known to commonly utilize Sedative chord progressions were contacted to gain further insight into their motivations behind using these progressions. These artists included The Dandy Warhols, Fly Golden Eagle, Painted Palms, Django Django, Portugal. The Man, and Broken Bells. These particular artists were chosen due to the fact that each of them has at least one album on which SIVs are used in at least 50 percent of the listed songs. Painted Palms was the only group to respond, and members of the group were in turn asked in depth about the composition of their 2015 album, *Horizons*, on which 70 percent of the listed songs used SIVs. The purpose of this portion of the study was to determine whether or not and to what extent SIVs are knowingly and purposefully used within commercial music to achieve desired effects, and the nature of these effects.

III. OUTCOMES

A. Part One

Method: Participants were given two separate playlists made according to their preferences, one exclusively containing songs that made heavy use of Sedative progressions, the other containing songs that do not use them at all.

Out of the two playlists given to participants, the Sedative and non-Sedative, only 40% of participants seemed to favor the Sedative playlist overall. There were some who did in fact like more songs off of their Sedative playlist, but chose to factor the overall flow of the playlist into their final decision. No participant specifically stated the use of the chord progressions in their reasoning for choosing one playlist over another, however one participant noted that songs on their SIV playlist seemed to contain “simpler” chord progressions that sounded more “Western”.

Feedback given from participants regarding the music in their **non-Sedative** playlists:

- The music on the non-SIV playlist “suited the listener better”.
- The non-SIV playlist had “a more direct and powerful emotive reach”.
- The music on the non-SIV playlist was “more upbeat” and “more familiar”.
- The songs on the non-SIV playlist “stuck out” and were “more memorable”.
- The tone of the non-SIV playlist “resonated more” with the listener.
- The songs on the non-SIV playlist actually generated differing opinions for the listener, as opposed to the listener’s SIV playlist, on which all of the songs were “just fine”.

Feedback given from participants regarding the music in their **Sedative** playlist:

- The music on the SIV playlist was “steadier as far as quality is concerned”.
- The music on the SIV playlist transitioned more smoothly through genres.
- The music on the SIV playlist was repetitive to varying degrees.
- The music on the SIV playlist “appealed to [a participant’s] gut”.
- The music in the SIV playlist had “fascinating diversity”.
- The SIV playlist felt more “emotionally engaging and “gave better vibes for some reason”.
- The songs on the SIV playlist had “better instrumentation”.
- The songs on the SIV playlist were “ok, listenable, but not re-playable.”
- The songs on the SIV playlist were “more sporadic”.
- The SIV playlist felt more “sonically constrained”.

B. Part Two

Method: Participants were provided with a survey containing two film clips. Both clips were composed by Hans Zimmer and directed by Christopher Nolan. The two clips have a very similar level of emotional investment. Participants were asked to watch both and choose their preference between the clip containing a Sedative score (*Inception*), Scene II, and the clip containing a non-Sedative score (*Interstellar*), Scene I. Participants were **not** asked which score they preferred, but which scene in general, to measure the presence and lack of the SIV progression’s subliminal effects.

1. Which scene appealed to/emotionally impacted you most?

20 responses

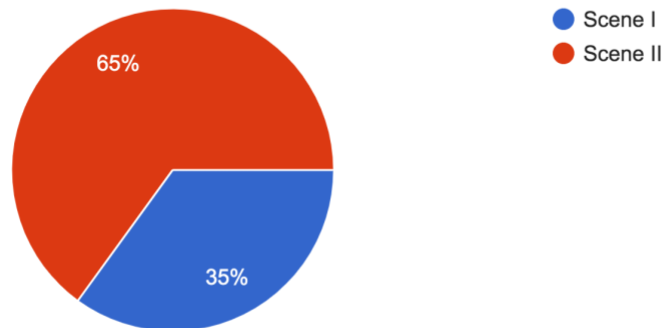


Fig. D

A majority of participants ultimately chose the *Inception* scene. While the score was often cited as a reason for participants' final decision, only two participants specifically cited the chord progression used in the scene:

- Participant A: The music was the main influence in this particular participant's preference between the two clips. The Sedative progression was audible, "strong", and "very powerful as well as moving" in comparison. Participant A "went with her gut" on her decision to choose the *Inception* scene, and interestingly, this was the same participant who noted she "went with her gut" in choosing her Sedative playlist over the non-Sedative playlist.
- Participant B: This participant cited the feeling brought on by the chords as his justification for choosing *Inception*. He described the progression as creating a sense of "elevation and excitement", and including an "unresolved dominant, constantly showing you the edge without completely falling in". Participant B also noted, when listening to

his playlists, his Sedative playlist felt more “emotionally engaging” and gave him “better vibes”.

C. Part Three

Method: An artist known to use Sedative progressions often in their music was questioned as to the conscious relevance and inclusion of the progressions in their compositional process.

Painted Palms, a band based in San Francisco, released their album *Horizons* in 2015. Of all of the songs on this album, 70% contained Sedative Progressions. These songs were:

- Refractor – Progression: i III IV V
- Contact – Progression: I bIII **IV** I (entire song built on progression)
- Gemini – Progression: i III IV V
- Glaciers – Progression: i III IV V
- Control – Progression: I bIII **IV** I (almost entire song built on progression)
- Disintegrate – Progression: I bVII **IV** I (almost entire song built on progression)
- Waterfall – Progression: I bIII **IV** I (entire song built on progression)

In each of songs listed above, often in the chorus, the duo utilizes a borrowed chord (underlined), the main purpose of each being to emphasize the sonic impact of the major subdominant (IV) within their respective progressions. This borrowed chord is either the IV chord of the parallel major key (such is the case in Refractor, Gemini, Glaciers) used in a minor context, or it is a bIII or bVII chord borrowed from the parallel minor key that highlights the subsequent IV chord in

the progression and is used in a major context (Contact, Control, Disintegrate, Waterfall). Two questions were posed to the duo regarding this seemingly strategic use:

- Whether or not anything specific motivated them to utilize these progressions
- Whether or not they consciously favored the progressions as a collective

Reese Donohue, the producer of the group, provided the following response:

Yes! That almost all of *Horizons* was built using borrowed chords was an intentional decision and a stylistic choice. It was something I started to play with towards the end of our writing period for the previous album, *Forever*. [Use of this method] immediately felt to us like we'd discovered something we'd be trying to figure out for a long time: namely emotional balance. The music we were writing at the time was very bright and loud. The timbre of the instruments was bright, the vocals were energetic, and the overall track was highly compressed. I think those techniques can pretty easily lend themselves to a lack of emotional nuance because the methods are extreme, and small inclusions or omissions can be swept up in the fervor and become big decisions.

During the songwriting process, a lot of the written material wasn't holding up when combined with the production techniques. What started as a curious, daydream-y major song suddenly became cloying. The opposite was doubly true for minor songs; something intended as smoldering became aggressive and abysmal, or even worse, slick. We felt by blending in borrowed chords, we could create emotionally ambiguous songs in a high-energy production style that retained nuance. We could push songs to the sunny side of Manchester baggy / 60's psychedelia by swapping in the vii in a major scale (Disintegrate), and then give it a slighter edge with a bIII (Control). Similarly, we felt we could push songs to the darker side without completely committing to one-dimensional despair or angst in minor songs. [As far as] why always the IV, I don't have a definite answer because it was never an explicit rule, but I think more of a guideline developed through hearing what we thought we were doing well and what we weren't doing well. I think using the iv [as opposed to the IV] feels like crossing an emotional threshold into something irredeemably despairing. It abandons optimism in a way. We did try using it often in a lot of songs that were never released, progressions as simple as i iv v, but couldn't find an emotional balance that didn't feel like...slick, bad R&B, or club pop. Not to say that other people don't do that beautifully. We had trouble doing it in a way that felt authentic.

IV. REPLICATION STUDIES

For possibly more accurate results or to further affirm those collected, replication studies utilizing these four methods are likely to be conducted in the future.

Method A: To better isolate the Effect, participants would be given a multiple-choice question, in which the answers are all segments of a particular song in their preferred genre. The song, ideally, would not contain much of the Effect at all, but would use it in specific moments that could easily lend themselves to isolation. One of the answers proposed would be the segment of the song containing the Effect, while the others would be segments of the song entirely void of it. Participants would then be asked to choose which segment appealed the most to them, and as a follow up, asked to explain the reasoning behind their decision.

Method B: A primary recommendation to attain even more direct results would be the application of neuroscientific methods to disclose potential influences the Sedative Effect might have on the brain. The best way to achieve this would likely be with the use of an EEG (electroencephalography) monitor which, with the placement of electrodes on various areas of the scalp, records electrical activity generated from nerve impulses in the brain. An EEG study of creativity in expert classical musicians was conducted in Belgium, and the authors described the EEGs functions as such: “Usually, the EEG signal is filtered into four frequency bands for analysis: a delta wave (0.5-4 Hz) and a theta wave (4-8 Hz) associated with sleep, an alpha wave (8-13 Hz) associated with relaxation, and a beta wave (13-30 Hz) associated with alertness.”⁸

⁸ Tom De Smedt et al., *An EEG Study of Creativity in Expert Classical Musicians*, report, 1.

Electroencephalography is a staple of neuroscience. According to a paper authored by Mario Tudor on its colorful history, its discovery was “a milestone for the advancement of neuroscience and of neurologic and neurosurgical everyday practice” and it continues to be instrumental in the “diagnostic work-up of seizures, brain tumors, degenerative brain changes, and other diseases”.⁹ After this success, the use of EEG monitors to track the brain’s responses to external stimuli was inevitable. Numerous studies have been performed using EEGs to attempt to establish consensus on music’s many diverse effects on the brain, and many of them have proven, in one way or another, music does in fact have an effect on our minds as well as our emotions.¹⁰ If the Sedative Effect registers on a subconscious level with at least some percentage of people, it’s possible that its influence could be further proven by prompting a visual representation of its neurological effects.

Method C: It was mentioned more than once in feedback received from participants that the Sedative playlist they received tended to feel repetitive, however it is unclear as to whether or not this impression was due to the nature of the songs themselves, or the continuous use of SIVs throughout the playlist. As a possible solution, instead of creating an SIV and a non-SIV playlist, participants could be given just one playlist, but one playlist containing both SIV and non-SIV songs. Participants would then be asked which songs out they preferred. Composing this portion of the survey in this way would offer two additional benefits: it would effectively save time, and alternating back and forth between SIV and non-SIV songs could make the playlist feel more

⁹ Mario Tudor, "Hans Berger (1873-1941)—the History of Electroencephalography," PhD diss., abstract in *Pub Med*, 2005, 1.

¹⁰ Yuiko Kumagai, Ryosuke Matsui, and Toshihisa Tanaka, *Music Familiarity Affects EEG Entrainment When Little Attention Is Paid*, Research Article, Electrical and Electronic Engineering, Tokyo University of Agriculture and Technology, November 6, 2018.

varied, thus reducing the possibility of a repetitive impression and perhaps make the playlist even easier and more enjoyable to listen to.

Method D: The film scene comparison portion of this research was inherently flawed, in that numerous variables could interfere with results attempting to capture the subliminal effect of only one of the scene's aspects (the score). While many of those variables will remain, a possible improvement upon this could be presenting participants with two versions of the same scene instead of different scenes, one version with a Sedative score and one without, and surveying yet again for the most preferred scene out of the two provided.

V. LIMITATIONS

To be appropriately completed, it was necessary for this research to be conducted on a much smaller scale than desired. Due to this, there were multiple limitations:

- **Sample Size:** For each surveyed portion of the study, only twenty people were surveyed, rendering the conducted research and its results to be strictly qualitative. To increase the scalability of this research, a possible solution would be to introduce Method A to the general population in the form of a website or online quiz. Participants would be asked to select their preferred genre out of a list, and for each genre there would be a pair of questions as described in Method A.
- **Time:** The materials (playlists) necessary for the first part of the study took a significant amount of time to formulate; two playlists were required per participant, resulting in forty personalized playlists for twenty participants. The participants then, of course, required time to listen to the playlists, which tended to vary in length. Ideally, regarding their playlists, participants would all have the same (and a decent) amount of time to listen and make their decisions between the two. Though participants were given their SIV and non-SIV playlists at the same time to be guaranteed equal time with each, it was simply not possible to give every participant their playlists at the exact same time.
- **Variables:** There is incredible difficulty in studying the subliminal effects of a tool or concept, as a multitude of different variables have the potential to cloud results. In Part One, variables such as the length of the playlists, the artists on the playlists, the order and flow of the songs, and the order in which the playlists were listened to could have potentially affected results. In Part Two, variables such as participants' previous

knowledge of and familiarity with the films as well as differing occurrences within the scenes had the potential to affect results. It was hypothesized that, despite the numerous variables, the Sedative Effect would have shone through due to its impactful nature, thus making the results of this research all the more valuable. This does not seem to have occurred on as large a scale as expected.

VI. CONCLUSION

The current results do not seem to reflect the expected overwhelming response to the Sedative Effect. At the moment, it is unclear as to whether or not this is due to the way in which the research was performed, or the affectivity of (or lack thereof) the Effect itself. What is known is that much more research should and must be done to draw a more definitive conclusion. That said, there was indeed clear confirmation that the Effect is audible, impactful to some degree, and knowingly and intentionally used by musicians to establish within their work a specific sense of emotional balance.

Though not the intentional focus of this particular study, much relevant insight was gained regarding the differing ways in which listeners consume music, and the differing ways in which listeners prefer to consume playlists. For example, one of the participants, a drummer, specifically cited that his preference of the two playlists was decided mainly by the percussion used and the groove generated throughout, stating that he “always listens to groove first as a drummer”. This sort of nuanced insight was incredibly valuable, and will be retained and harnessed in subsequent iterations of this study.

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