

# A Mixed-Methods Systematic Review Regarding Musical Universality in Academic Literature

Andrew Graddy

Whitewater High School, USA

## ABSTRACT

Music Universality is a widely discussed phenomenon within areas of psychology as well as ethnomusicology, and these disciplines often differ in their interpretations of universality. Evolutionary psychology in particular is guided by an empirical scientific philosophy that argues musicality is innate within human nature. However, ethnomusicology is often guided by interpretive research designs that preserve the nuance of universality to argue that the experience of music is highly. Therefore, the aim of this paper is to reconcile these differing perspectives in an interdisciplinary systematic review method that utilizes thematic analysis and meta-analysis of appropriate studies in order to answer two common discourses on musicality: the extent to which innate musicality versus cultural factors affects musical perception and how music can be utilized to communicate messages cross-culturally. The meta-analysis demonstrated that cultural factors serve as a more consistent factor that influences musical perception than any theory of innate, universal musicality, yet the thematic analysis was more divisive in its conclusions regarding music's ability to facilitate cross-cultural communication, implying that the phenomenon is not yet well understood in the most recent literature. These findings indicate that both types of disciplines are converging in their conclusions regarding perceptual factors of music experience that refutes the universality argument, but other topics like cross-cultural communication lack the scientific rigor to create a unified theory of such a phenomenon. Therefore, despite the differences in academic philosophy, these fields are increasingly utilizing scientific evidence along with interpretive evidence to develop more sophisticated theories of human musicality.

## Introduction

Despite the common aesthetic appeal of traditions that have become known as 'music,' western society has exhaustively debated as to what features of this phenomenon, if any, can indicate some sort of universal, unifying behavior that can bring further insight into our innate nature. Just as Pythagoras had deduced a kind of 'universality' with mathematical perfections of rational harmonies, academia continues to exhibit a fascination with demonstrating universal aspects of music distinguished from relative aspects of Western traditions (Savage, 2019).

There is a pervasive view in popular media that music is a 'universal language' that, irrespective of its genesis, must communicate some greater part of our shared humanity to others, even if those 'others' are entirely unfamiliar or otherwise alienated by a foreign sonority (Berger, 2021). Even so, this view can largely be attributed to academia's recent fixation into demonstrating this universality in accordance with the emergence of more empirical evidence-gathering principles in cultural studies, which seeks to equalize the consideration when studying aspects of entirely foreign cultures (Savage, 2019). However, the popular view and its likely impetus suffer from a glaring contradiction, for how can these views reconcile that defining music beyond subjective and imprecise terms is an entirely Sisyphean task, which undermines the broader applicability of empirical evidence-gathering of musical traditions (List, 1971)?

## Literature Review

Even so, relatively recent cross-cultural studies attempt to analyze pre-defined aspects of music derived from immense databases that store examples of identifiable ethnic songs (Mehr et al., 2019), and some have attempted to eliminate experimenter bias by employing computational analysis of other types of ethnic musics (Savage et al., 2015). Furthermore, each of these attempts at statistical analysis of ‘world music’ stem from the basic assumption that music emerged as “an evolutionary adaptation” that serves some purpose in the social-cognitive frameworks of human behavior (Mehr et al., 2019); however, this assumption has been demonstrated to be erroneous in several aspects. For example, in an academic review of music’s position in evolutionary psychology, experimental psychologists Justus & Hustler (2005) found that the “innate constraint[s] and domain specificity” are not sufficiently documented to substantiate this assumption that music was contrived as an adaptation to any particular pressure, meaning that current research only demonstrates that any number of factors could have influenced the establishment of music in the human psyche (including entirely socio-cultural factors).

Similarly, a separate academic review by Kalinowski et al. (2021) found that the three major hypothesis of music’s evolutionary origins-as either part of “1) sexual selection, 2) the formation of social bonds, or ... 3) a byproduct”-do not fully explain the full complexity of music as it exists currently. Even so, both of these reviews demonstrate the optimism exhibited in the fields of evolutionary psychology and cognitive science in order to provide some explanation as to how humans have evolved to conceive music, even going so far as to encourage further collection of cognitive, neurological, and statistical data as well as the synthesis of various analytical models in pursuit of a clearer answer to these hypotheses (Justus & Hustler, 2005; Kalinowski et al., 2021).

However, there is a general refutation expressed by numerous ethnomusicologists at the idea of music’s universality in numerous respects. For example, George List (1971), a 20th century scholar and highly regarded authority in ethnomusicology, argues that music cannot be universally defined, as cross-cultural comparative studies have not empirically demonstrated that music communicates anything more than simplistic notions of ‘happiness’ or ‘sadness’ when shown to naive audiences, which can hardly reflect a ‘universal language’ of humanity. Morrison & Demorest (2009), in their review of cognitive science literature pertaining specifically to music, largely corroborates List’s argument, as they demonstrate that, when compared directly, individuals of disparate cultures tend to more easily recall musical examples that seem more culturally familiar to them. This “enculturation effect,” as Morrison & Demorest (2009) define it, on memory perception might go as deep as entire conceptual limitations of some culture’s ideas of music, as Gourlay (1984) highlights research design difficulties when approaching cultures who might have discernible aspects of ‘music’ but no real concept of our Western idea of an institutional musical tradition, which, again, directly refutes music’s universality as a means of aesthetic communication across every culture. However, Campbell (1997), in her review of academic literature regarding music’s analogy to a ‘universal language,’ describes ethnomusicology’s emphasis on universality as a repudiation of old-school Euro-centric theories on music, which is to attempt to equally consider each tradition’s nuance and sonority on its own terms. Moreover, Dave (2015), in relation to her experience in studying West Africa, provides that the assumption of music’s transcendence as a mode of effectual universal communication is simply not a rigorous model went attempting to analyze the sociology of human rights movements and music’s affects in the social discourse thereof.

## Gap in Current Literature

Therefore, despite a simplistic exterior, defining universality is extraordinarily challenging, and productive discussion tends to be hindered by its ever-changing, vague definition. While cognitive scientists and evolutionary

psychologists inquire about music's cognitive origins as a unique feature of the human species' behavior, ethnomusicologists and anthropologists tend to inquire about music's cultural origins and interactions arising from historical circumstance, which tends to lead to this impasse in interpretations of how universality should be defined. Hence, I seek to utilize systematic review methodology in comparing academic literature from the respective fields of evolutionary psychology and ethnomusicology based entirely in the 21st century in order to demonstrate how universality's definition can be reconciled with the most relevant research to date. My research is unique in that, although many academic reviews discuss the difficulty of defining universality, extraordinarily few researchers seek to reconcile how universality is interpreted across these two disciplines. Therefore, this review will attempt to bridge this gap with the question: how can the basic idea of music's universality be considered differently as the concept applies to psychology in comparison with 21st century cultural/ethnographic studies? In this review to reconcile these disciplines, I examined the topics of the debate of cultural versus innate musicality and to what extent music can facilitate cross-cultural communication.

## **Methodology: A Mixed-Methods Systematic Analysis**

In order to answer the overall research question, this study used qualitative and quantitative analysis methods as part of a systematic review research design. The intent with this design was to mitigate experimenter bias by forcing the research into a systematic review protocol for the collection, codification, and synthesis of studies in these disparate fields of inquiry, which, in doing so, might set further precedent for this type of 'rectification' between other disciplines in similar situations of academic debate. Even though it is true that medical research uses this research design extensively to draw findings to inform policy makers and evidence-based medical practice (Samsheer et al., 2015), this method that I employed is unique in that, instead of asking questions of a specific intervention, I sought to inquire about a specific idea within ethnomusicology and evolutionary psychology and to synthesize thematic and statistical data in order to reconcile or otherwise qualify their stances when juxtaposed against one another. Hence, a systematic review was advantageous for its replicability and adherence to empirical principles of evidence-gathering and data interpretation, which is unique in this specific area of academic discourse dominated by opinion and philosophical debate rather than empirical practices.

Therefore, this study's method was composed as a series of four steps: 1.) Collection of Sources 2.) Screening for inclusion in the study 3.) Annotation of thematic material and/or aggregation of data into a mutually compatible form and 4.) Synthesis of sources first within and then between disciplines.

### **Collection of Sources: Search Strategy**

For the present review, 3 online academic databases were utilized to find articles: JSTOR, Google Scholar, and PubMed. Search strategies and search terms were divided into strategies to collect ethnomusicology-specific sources and to collect evolutionary psychology-specific sources. For ethnomusicology-specific sources, terms such as "music," "universality," and "universal language" were used in tandem with terms "ethnomusicology" and "ethnography" and the advanced search function in JSTOR, Google Scholar, and PubMed to isolate peer-reviewed articles from journals within the relevant field. A similar strategy was used for evolutionary psychology-specific sources, but search terms such as "music," "universality," and "universal language" were used in tandem with terms like "evolutionary psychology," "cognitive science," and "cross-cultural study." Every article was then classified as either primarily "interpretive" or "empirical" for the purpose of synthesis within each discipline prior to a synthesis between the disciplines, which is discussed later in this section. A complete list of search terms can be found in the table shown in table 1.

**Table 1.** Search Strategy Summary

Google Scholar (ethnography focused):	Google Scholar (evolutionary psychology focused):
Music AND Universality OR Lingua AND Franca OR Cross-cultural AND communication OR Music AND Universal AND Language OR Shared AND Humanity OR World AND Music OR Cultural AND Universal OR Cross Universality OR Multiculturalism OR Cross-cultural AND Music OR Diversity	Music AND Universality OR Evolutionary AND Psychology AND of AND Music OR Cognition AND of AND Music OR Music AND Cognition OR Evolutionary AND Factors AND of AND Music OR Development AND of AND Music OR Psychology AND of AND Music OR Music AND Psychology
JSTOR Search (2000-2022 narrowed):	PUBMED Search (2000-2022 narrowed):
((((((Music Universality) OR (Lingua Franca)) OR (Cross-cultural communication)) OR (Music Universal Language)) OR (Shared Humanity)) OR (World Music)) OR (Cultural Universal))	(Music "Universality") OR (Evolutionary Psychology of Music) OR (Cognition of Music) OR (Music Cognition) OR (Evolutionary Factors of Music) OR (Development of Music) OR (Psychology of Music) OR (Music Psychology) OR (Multiculturalism) OR (Cross-cultural Music) OR (Diversity) OR (Statistical Universals) OR (Non-universality)

### Screening for Inclusion

Each source was screened against five categories for their inclusion within the present study: 1.) Relevance, 2.) Recency, 3.) Authority, 4.) Research Design, and 5.) Language. For any source to be included based on relevance, its main focus of inquiry must be that of the universality of music or any variation of the idea such as music as a universal language, as a lingua franca, as a means of cross-cultural communication, etc. Every study whose online publication predates the year 2010 was excluded, and every article must have been published in a peer-reviewed academic journal of their respective discipline in order to be eligible for inclusion. Editorials and research reviews were excluded from this study, and any foreign-language source that did not have an English translation was excluded as well. I did an initial narrowing of the sources through the screening of descriptions and titles for relevance, and the remaining sources were more thoroughly reviewed for inclusion against some preferred characteristics of each source, which is discussed later within the findings section.

### Analysis and Aggregation of Data

Thematic analysis was conducted for every source in this review that had an entirely qualitative approach, and, for any mixed-method source, any qualitative findings were analyzed and stored separate from any quantitative findings. I took guidance from Maguire & Delahunt's (2017) systematic approach to the analysis and treatment of the source material, and I applied their method as analogously as possible to the derivation of themes from academic literature. Instead of broad topical themes, however, I sought to introduce argumentative themes that kept appearing since I assumed many of the scholar's perspectives would be relatively similar with only nuance that distinguished them. Arguments regarding cross-cultural discourse, academic study of foreign cultures, and evaluation of the extent of music's intrinsic meaning divorced from context were specifically sought within the annotation of each source.

I took all of my methodological guidance regarding the meta-analysis from Harrer et al.'s (2021) online guide for conducting a meta-analysis in R studio. To address the debate on innate versus cultural musi-

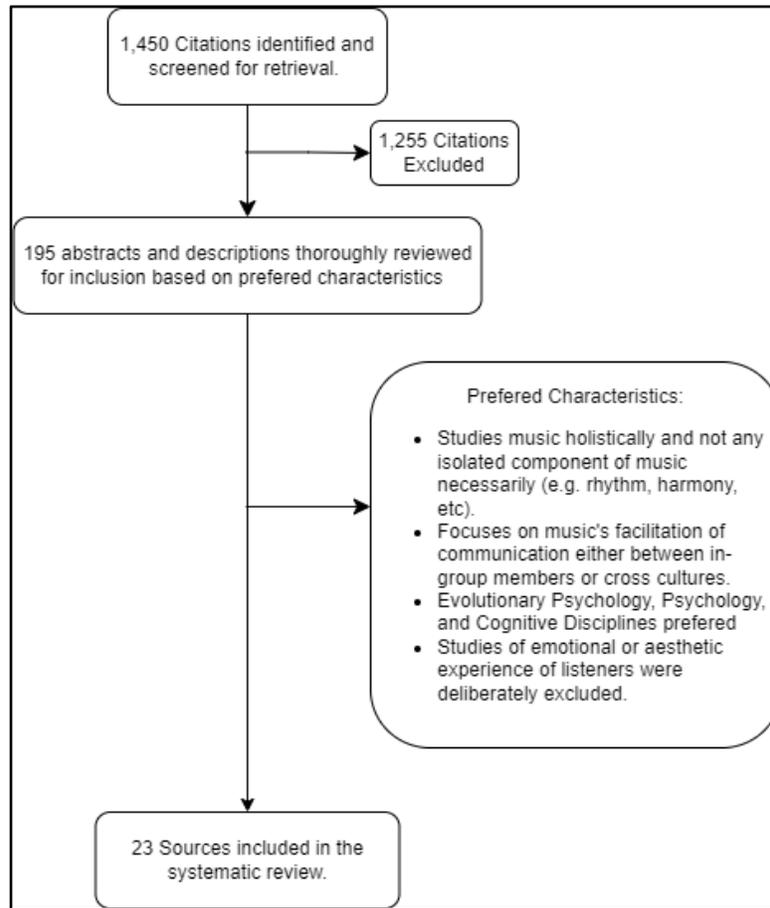
cality, two separate meta-analyses were conducted on specifically selected sources that were practical to compare within such an analysis, one analysis for the measure of cultural musicality (that music's interpretation is subject to cultural situation) and another for innate musicality (that musical interpretations have a biological explanation). These sources would have preferably been experimental studies that compared between-subject effects of either cultural musicality theory or innate musicality theory respectively, but any within-subject research design was also included if it was convertible into the standard measure I selected. Each measurement was converted into a Cohen's  $d$  standard mean difference effect size, which was an advantageous measure because of the relative ease of conversion within R studio and the prevalence of use within the study of psychology and experimental meta-analyses. A random-effects meta-analytical model was used in the calculation of between-study heterogeneity based on Higgins & Thompson's  $I^2$  Statistic (percent variability of effects that is not the result of sampling error) and  $\tau^2$  (variance of true effect size). These estimates of variance primarily informed the conclusions I draw within the synthesis of my qualitative and quantitative data within my synthesis and analysis of this evidence.

## Synthesis of Data

Therefore, with this method, there were two distinct datasets-qualitative data with thematic analysis and quantitative with a random effects meta-analysis subgrouped into cultural musicality and innate musicality classifications. Qualitative and quantitative data was synthesized separately in order to draw preliminary conclusions within each discipline and generalize each disciplines' most frequent stance, and then these conclusions were juxtaposed against each other in my final analysis in order to provide an answer to the present research question. In this synthesis, I drew guidance from Stern et al. 's (2020) methodological paper and the description of the "convergent segregated approach" to the integration of both my qualitative and quantitative findings to evaluate the extent to which they agree, juxtapose contrasting positions, and describe discrepancies in arguments in order to reconcile disparate views between these two disciplines.

## Findings

## Systematic Review



**Figure 1.** Screening Procedure

Using this search strategy, inclusion and exclusion criteria, as well as screening process, A total of 1,450 citations were collected from the Octoparse web scraping program in order to convert the search queries results into Excel to manage the data (screening process using this resource can be found in figure 1). A total of 195 abstracts and descriptions were reviewed thoroughly for inclusion against preferred characteristics, and a total of 23 studies were included in the present study. The collected studies were then classified under the Thematic Analysis or Meta-Analysis/Data summary and then further classified as either a ‘Empirical Science’ or ‘Humanities/Interpretive Studies’ discipline (a summary of these classifications can be found in table 2). Eight studies were selected to conduct a meta-analysis primarily because they satisfied these three conditions: 1) examines music and its perception holistically, not any specific aspect of perception 2) examines a specific effect of either culture or intrinsic musicality 3) examines this relationship explicitly with data convertible into Cohen's *d* (SMD) effect size. The other four studies not included in the meta-analysis would have served to further data summary with the three studies classified as a ‘humanities’ discipline; however, because the analysis of these sources would have expanded the scope of this research far beyond any practicality, these two categories were excluded from analysis. The remaining eight sources classified as humanities were analyzed using the thematic analysis method.

**Table 2.** Summarized References Extracted from Search

Review Summary	Thematic Analysis	Meta-Analysis/Data Summary
Empirical Science	<p><b>Excluded:</b> Pressnitzer &amp; Demany (2019) Greenberg, Decety, &amp; Gordon (2021) Hobbs &amp; Gallup (2011)</p>	<p><b>Included:</b> Demorest &amp; Osterhout (2012) Dunbar, Kaskatis, MacDonald, &amp; Barra (2012) Valentova et al. (2019) Jacoby et al. (2019) Loersch &amp; Arbuckle (2013) Paraskevopoulos, Tsapkini, &amp; Peretz (2010) McPherson et al. (2020) Van Hedger et al. (2016)</p>
Humanities/ Interpretive Studies	<p><b>Included:</b> McKimm-Vorderwinkler (2010) King (2016) Whale (2015) Matsunobu (2011) Balosso-Bardin (2018) Hirsch (2010) Dave (2014) Gidal (2010)</p>	<p><b>Excluded:</b> Mehr et al. (2019) Prete et al. (2020) Savage et al. (2015) Boer et al. (2013)</p>

### Thematic Analysis

Five themes were identified from the eight sources examining various aspects of musical universality and the extent to which music can serve as a means of cross-cultural communication. Although there was not any single theme that permeated every paper other than the subject matter, I included a theme only when it was identified between at least three separate papers. The five themes I state here are the most frequent, relevant themes that were identified (Figure 4 summarizes these themes identified and their definitions); however, I selected three specific themes for further elaboration.

**Table 2.** Summary of Themes

Theme	Definition/Summary
Music Education Pedagogy	<p>Music education pedagogy concerns the way in which world music is taught in higher education institutions, and what was of primary concern across multiple perspectives was how a pedagogic method can reduce the alienation a student experiences from the world's major musical cultures. This pedagogy has to do with teaching world music in such a way that is culturally sensitive and liberal while preserving its uniqueness between other culture's music. Most papers simply discussed implications of their findings on pedagogic ideas and principles, and they expressed the need to ensure that the individual student is enriched, musically, from the exposure to entirely foreign traditions of music. Therefore, the interaction of educators, students, and the subject of World music served as a medium of enrichment through a greater informed pedagogy of world music in a higher education institution.</p>

Progressivism	Progressivism in this context refers to certain applications of music in cross-cultural discourse such that it promotes, inspires, or even effects social and/or political change and peace between two separate, culturally distinct groups. This area presumes that another culture's music can be inherently divisive, and any initiative to embed political and social methods must carefully examine not only cultural context but also the specific audience that the message is targeted toward as to prevent disastrous misinterpretation. These assumptions suggest that utilizing music for cross-cultural communication of political and social meaning may be difficult if not entirely impractical depending on the specific circumstance.
Enlightened Self-Experience	Enlightened Self-Experience refers, broadly, to any experience of music intended to heighten spirituality through some form of ritual or study. The distinction was made between religion and culture and spirituality when discussing various aspects of music's associations to a particular people or culture. Some papers even argued for a universality based entirely on the idea of a shared capacity for manifesting spirituality in musical contexts, apart from any religious affiliation.
Western Music Elitism	This elitism of western music refers not only to the snobbish, intellectual elitism in the study of western art music but also the economic elitism that exists between the wealthier west and poorer regions of the world. Several papers suggested that the idea of a universality in music is a construct from the west in a reaction to past contempt for the rest of the world's culture; however, they also argue that this reaction may reinforce western culture dominance through the neglect of other people's musical traditions. This theme was the least prevalent among the analyzed sources.
Transcendence of Language/ Culture	The most common theme among the papers was the idea that music has the capacity to transcend culture, that, since music is intrinsic to our experience as humans, our musical construction follows a natural order that any individual can identify and understand at least to some degree, regardless of culture's influence on the perception of music. This particular theme was extremely divisive, as scholars generally used differing justifications for certain assertions that were often contradictory. Some would argue that humans are biologically conditioned to interpret musical idioms largely uniformly while others would directly contradict that assertion and argue that musical and cultural identity more often inform perceptions than biological conditions.

**Table 3.** Theme: Progressivism

Quotation
<p>“A more complex and methodologically precise view is needed, one which probes rather than unreservedly accepts music's ability to act and change. Such an approach must begin with consideration of existing debates about culture and human rights. In this debate, culture has become a polarizing subject, seen alternatively as an apology for abuses or a riposte to Western hegemony.” (Nomi, 2015)</p>

The Progressivism theme encompasses several arguments about the relationship between music's performance and its use as a medium for inspiring change. For example, the quotation in table 3 taken from Nomi

(2015) argues that musical initiatives to advocate for human rights is based on impractical ideals and romanization of the musical activist that produces ineffectual musical advocacy. This idea was similar to Hirsch’s (2010) analysis of “musical benefits” where this author readily derides large-scale musical fundraising events for advocacy activities for its hypocrisy of its intent and the public figures who actually most benefit. Hence, these scholars consider current efforts in ‘Progressive’ music fail to consider the tangible effects of these initiatives that often either serve to exacerbate divides and benefit figures with no interest beyond imposing a moral righteousness that paints an overly ideal image. These arguments and identified trends suggest that direct intercultural communication is either difficult or entirely ineffectual using music as a communicative medium for reconciliation or advocacy.

**Table 4.** Theme: Enlightened Self-Experience

Quotation
<p>“Many Western shakuhachi practitioners, like my participants, are drawn to honkyoku playing.... They also find that the primitive nature of ji-nashi leads more toward the fulfillment of their spirituality.” (Matsunobu, 2011)</p> <p>“In other words, the more complex a cultural expression is, the more difficult it is for outsiders to understand its essence. He indicated that spirituality is a universal trait of human experience and often is acquired through simpler expressions, such as a single tone of a simple flute.” (Matsunobu, 2011)</p>

The Enlightened Self-Experience theme was a relatively unexpected finding within the review of the scholarly work, as it simultaneously argues in favor of music’s universality while denying its cultural transitivity. Specifically, as indicated in the first quotation from Matsunobu (2011) in table 4, there is evidence of a certain appeal of “primitive” and “simple” music for the purpose of spiritual fulfillment through meditative performance of instruments like the shakuhachi. This phenomenon is especially significant since it is very apparent that there are certain practices of the performance of this music that seems to be divorced from a specific cultural affiliation, which implies meditative music performance to be a universally appealing form of spiritual realization. These findings differ from the arguments presented by List (1971) where he doubts the transitivity of a “heightened experience” from music, as there is perhaps not a transitivity of meaning but a widely appealing medium for this specific aspect of spiritual experience.

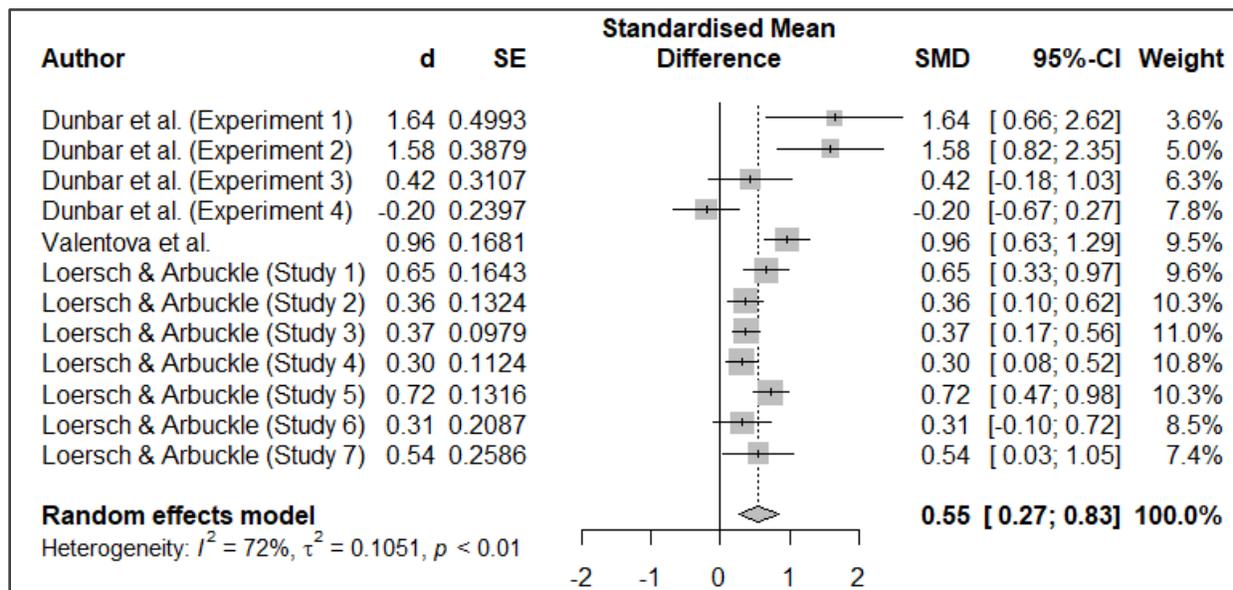
**Table 5.** Theme: Transcendence of Language/ Culture

Quotation
<p>“Ultimately, it is our biologically conditioned, universally shared ‘communicative musicality’ which brings us closer, and evens the ground to face one another, in order to enter into a verbal dialogue about our differences.” (McKimm-Vorderwinkler, 2010)</p> <p>“[the symphony’s] appeal...as a musical product...is still dependent upon the associations we are able to make with it. We hear the drama of conflict and resolution and are excited by it because it reminds us of, and resonates with, our own preconceived notions of political struggle. In an immediate sense, the drama does not challenge us to rethink what is involved in freedom and equality so much as it reinforces a set of thoughts already there.” (Whale, 2015)</p> <p>“We are drawn to music we have strong associations with and often fail to understand that our preference for the affect that it has is not felt by everyone—it is not universal—but has to do with where we have grown up, our social biases, and our self-images.” (Whale, 2015)</p>

Among these five themes discussed in this paper, the Transcendence of Culture/Language theme was the most prevalent theme that appeared in this review, and these arguments generally examined how musical idioms transcend language and cultural context to transmit generally understood aesthetic information. However, justifications for this phenomenon were extremely divisive. For instance, as quoted from McKimm-Vorderwinkler (2010) in figure 7, some scholars posited that individuals are “biologically conditioned” to interpret idioms uniformly such that it encourages homogeneity rather than distinction of cultural meaning and aesthetics, yet others, as indicated from Whale’s (2015) quotation, directly contradicted this perspective by arguing that associations of musical idioms only reinforce one’s cultural identity and values, not a universal, ambiguous ideal of cultural transitivity. Therefore, despite this theme’s frequent discussion within the review, there is little unified conclusion that can be presented for this specific. However, the reliance on scientific reasoning and findings from empirical studies is significant, as it represents a trend that was not accounted for in the initial assumptions of this research, that interpretive sources would rely on interpretive evidence to inform their findings.

### Meta-Analysis

A meta-analysis was conducted including data from 8 publications with 18 total studies analyzed since some publications presented results from multiple studies, and 12 of these studies analyzed intrinsic musicality theory predicts musical perception and tasks in subjects, while 6 studies were combined to examine how much cultural musicality predicts similar outcomes. The aim of these meta-analyses was to assess the variance of these effects

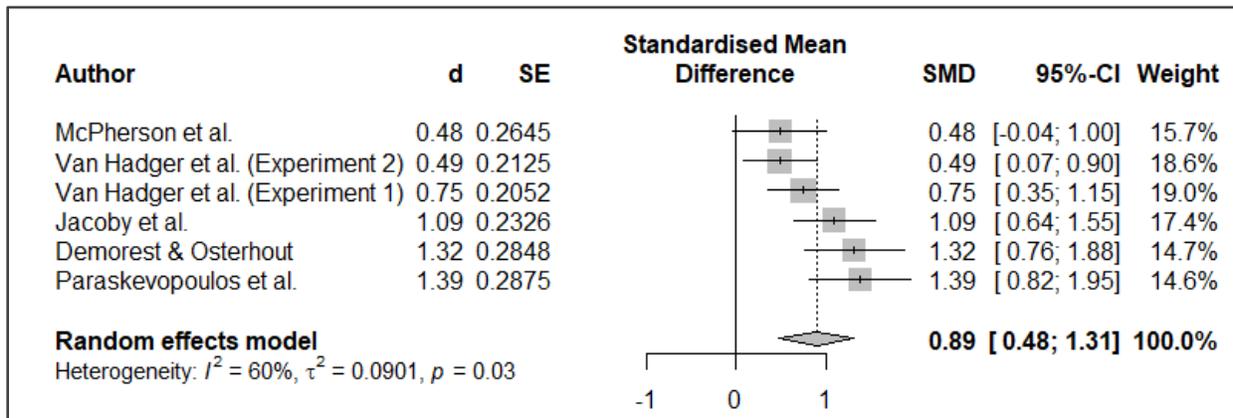


and to conclude where there might be the stronger evidence for either theory.

**Figure 2.** Summarized Effect of Innate Musicality Studies

The studies of innate musicality generally had a moderate to low effect across at least seven of the twelve measures included in this analysis, and one measure across both analyses demonstrated a negative effect. Studies from the publication of Loersch & Arbuckle (2013) were heavily featured and largely characterized this research to have large sample sizes, which both increases its weight and decreases the range of each confidence interval. The between-study variance  $I^2$  was calculated to be 72%, which is moderately high and limits the

confidence of the pooled result of the effects; however, the greatest variation of effects can be seen in the studies from Dunbar et al.'s (2012) publication where effects varied wildly and sample sizes small, which correlates



with its wide confidence interval. Therefore, overall heterogeneity is too great to have confidence in the pooled effect of innate musicality experiments, but the overall effects excluding Dunbar et al.'s (2012) publication indicate low, indeterminable effects of innate musicality in these experiments ( $SMD = .55 \pm .23$ ). Hence, these results suggest that innate musicality theory generally finds weak evidence to support biologically evolved mechanisms for musical perception.

**Figure 3.** Summarized Effect of Cultural Musicality

Although fewer in studies are included, the effects of cultural musicality in these experiments were uniformly found to have a positive effect, and, in comparison with the innate musicality meta-analysis, the between-heterogeneity for this analysis ( $I^2 = 60\%$ ) demonstrates greater confidence in the pooled effect for these particular measures. The greater pooled effect ( $SMD = .89 \pm .42$ ) suggests much stronger correlation between predictors of cultural musicality and musical interpretation outcomes, which contradicts previously understood theories in empirical disciplines that posit a biological explanation for musical cognition (Kalinowski et al., 2021). Therefore, even in empirical disciplines, evidence that demonstrates the cultural components of musical perception is stronger than evidence that demonstrates innate perceptions.

## Analysis and Synthesis

The findings from the thematic analysis indicate that disciplines aligned with the humanities tend to suggest a certain commonality of musical experience such that music can have some kind of effect on an individual. Whether it might be the increased creative output of a student of world music, the shakuhachi studies for the North American musicians, or a certain willingness to perceive and recognize another and come to terms with those differences (Matsunobu, 2011; McKimm-Vorderwinkler, 2010), these authors describe the universal *effect* of music upon the individual and the similar ways in which people tend to use music to better themselves irrespective of cultural influences. This unique finding is not a perspective considered directly from either List's (1972) or Savage's (2015) arguments regarding the cultural transitivity of music, where each examines the cross-cultural modes in which meaning can transfer but not the universal function music has in spiritual experience.

However, the macro-cultural view of music's capacity for progressivism seems to argue that music is a tool that can be just as divisive as religious differences and can go further to exacerbate political turmoil. These scholars (Dave, 2015; Hirsch 2010; Matsunobu, 2011) ascertain that music is intrinsically linked to politics in a way that implies any musical gesture is a political statement attributable to a specific group's identity,

yet some still argue that, on an individual level, any form of music can represent an aesthetic that resonates with any individual, such as the argument presented by Whale (2015). To reconcile this disparity, it could be argued that, since the environment of cultural turmoil does not facilitate cross-cultural communication and peace building, music does not necessarily drive the wedge between groups but the group's intent of division in its musical context does. Therefore, these themes show the significance of the interaction between context and music's capacity to unite or divide peoples, which implies that the perception of music is highly situational and not necessarily universal in its effect. This result might call into question the validity of experiments in human cognition of music, whose musical material is often sterile and out of context (i.e. it has no intrinsic message to communicate), which supports Kalinowski et al.'s (2021) urgency to gather further evidence regarding this phenomenon for the lack of enough justification to affirm a biological theory.

The pooled effects of each meta-analysis generally indicate that both tests for some intrinsic musicality and cultural influence on musicality have at least moderate effects on the perception of music in individuals. Although the measure of intrinsic musicality had a lesser pooled effect and greater variance when compared to the cultural measures, it is also true that the cultural measure is limited to only six measures from six studies, which might overestimate the true effect of this relationship. Even so, measures of intrinsic musicality had the least predictable effect on the outcome of the experiments used to test such a hypothesis. Therefore, studies that measured culture's effect on areas of music perception found a stronger relationship than those who studied intrinsic musicality; however, both must be accepted as significant in their effects, even if relative sizes favor culture's effect. It must also be noted that these studies measured objectively verifiable metrics for comparison between two groups or two conditions, which excludes much of the subjective experience and perceptions associated with music. Therefore, insofar as objectively measurable aspects of perception, the influence of culture has demonstrated to be slightly more predictable than the measures of intrinsic musicality. The studies with the greatest weight actually found that intrinsic musicality had only a slight effect compared to studies that examined the influence of culture, further corroborating this position.

While both results of the meta-analyses found an overall positive effect for both cultural and intrinsic measure, findings from the thematic analysis generally discount the idea any intrinsic musicality, as an evolved biopsychosocial mechanism or otherwise, yet some idealize the role of music and propose the synthesis of biological and ethnographic evidence to form a unified theory of music's psychosocial affect within and between different groups (Matsunobu, 2015; McKimm-Vorderwinkler, 2010). It is apparent that ethnographic studies and scholars recognize the imprecise nature of their academic discipline, despite how marked convictions some tend to hold, but, because of this self-awareness, scholars tend to recognize the virtue of empirical evidence gathering as a tenet within fields of biology and evolutionary psychology.

Ethnographers realize the philosophic discrepancy between empirical sciences and their own work, yet it is these scholars that indicate the need for a more unified theory of music in social, biological, and evolutionary contexts as encouraged by Morrison & Demorest (2009) and Kalinowski et al. (2021). It is not that each field is examining two completely different phenomena but that each is inquiring within the bounds of an extraordinarily limited theory of music. Therefore, although the results of the meta-analysis seem to corroborate the results from the thematic analysis, the meta-analytical data does not account for the nuance of interpretation of qualitative-type studies; likewise, the thematic data cannot hope to be as rigorous as empirical studies using statistical methods to corroborate certain relationships. Even though the analyses are generally in agreement, this agreement is incomplete, yet this level of agreement regarding evidence contradicts the previous assumptions in demographic studies that there must be a biological explanation for the similar appearances of music in different cultural contexts (Savage et al., 2015). Thus, there is convergence of evidence, but not complete agreement.

## Limitations

The greatest limitation hindering the generalizability of this study is the available time to more thoroughly search the literature. Because the window for data collection was so narrow, I was unable to more thoroughly screen each citation for inclusion using a second reviewer to approve citations for inclusion. Data analysis was also hindered by this timeframe, as much of the thematic material I found within the qualitative studies was unable to be elaborated further if it was not absolutely necessary to answer my research question. If a similar study were to be conducted in the future, more time would have to be spent pouring over the literature in order to ensure the most thorough findings, but the present research offers enough summary of these arguments to justify the findings presented in this paper.

Because I did not include unpublished literature, these results are highly susceptible to publication bias. The meta-analysis is especially affected by this because unpublished literature usually contains findings that might not be statistically significant themselves but can be combined into a meta-analysis to add to the overall significance. However, the phenomenon being studied is the representative sample of each of these academic disciplines, meaning that unpublished literature might not have significantly contributed to any findings specifically related to the published literature.

Despite every measure to ensure the comparability of each study, the relationship that was attempted to be analyzed might not have allowed perfectly compatible studies to be included in the meta-analyses. This limitation is largely due to the abstract nature of each of the relationships discussed in this study, which does not necessarily enable the comparison between the exact same measurements. However, although it might not be perfect, each effect does correspond to some kind of measure of the relationship between either culture or innate musicality to people's perception of music, which is the intent of this paper.

Therefore, in the future, meta-analysis procedures and techniques must be refined to better suit an analysis of a more abstract relationship such as the one studied in the present paper. The current designs are restricted only for narrow use in the medical practice, yet this technique must be expanded should my proposed methodology be more practical to implement. In this paper, meta-analysis is triangulated with qualitative data in order to attempt to tell a more complete story of the phenomenon studies, and nuance is preserved without overly abstracting the phenomenon with statistical analysis.

## Conclusion

The aim of this paper was to evaluate the extent two disparate disciplines of research diverge on the topic of Music Universality and identify ways in which this disparity, if present, can be reconciled and what position can be qualified from this body of research. This research was important to fill the gap in the current literature as to the nature of more recent academic research on the topic of Music Universality, yet it is also unique in not only its interdisciplinary focus but also its novel application of the systematic review method to study the literature as a phenomenon itself. As such, this paper demonstrates that, although disparate in philosophies, the humanities and empirical sciences are convergent in their findings regarding Music Universality: the perception of music is largely influenced by cultural factors and not necessarily inherent musicality, yet the discussion regarding cross-cultural communication is divisive between multiple disparate perspectives.

These findings can only be generalized effectively to areas of physiology and ethnomusicology, yet the themes identified in this paper alludes to a trend of qualitative researchers appealing to scientific theory to justify interpretations of human musical behavior. Furthermore, empirical research as it is demonstrated here may suffer from experimental deficiencies when examining human behavior, particularly when subjecting participants to sterile, culturally meaningless tones and attempting to ascertain the extent of cultural influence to musical perception. Future research in this subject matter may seek to build the body of psychological evidence while utilizing methodological procedures that are conscious of ethnomusicological perspectives. Additionally, more inclusive theories must be constructed to challenge assumptions and interpretations of ethnomusicological

researchers, as the necessity of scientific reasoning may further the extent of such scholar's interpretations in their own line of work.

Very few studies have sought to synthesize various interpretations of multiple disciplines in order to answer a question regarding musical universality. Because this paper is so unique in this regard, future researchers who wish to expand on this body of knowledge may need to further experiment with methodological approaches that synthesize disparate disciplines in order to answer questions regarding this far-reaching phenomenon of universality. Such studies will have the advantage of empirically and statistically supported evidence along with expert interpretations of phenomena that can preserve specific nuance of this subject while strengthening the scientific reasoning of this field of inquiry.

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