

Tracking Musical Emotion Transfer from Composers to Listeners
within a Cross-Classified Social Framework

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DECLARATION OF AUTHORSHIP

I hereby declare that the following thesis is wholly my own original work. Under the supervision of Professor Brian Parkinson (Christ Church, Oxford), I was personally responsible for the conceptualisation, methodology, data collection, analysis, writing, review, and editing. Professor Parkinson provided detailed and material feedback throughout. In Chapter 2, I draw on excerpts from historical interviews with British composers conducted and published by R. Murray Schafer (1963). Results from the same chapter are also published in the *Journal of New Music Research* (Varga & Parkinson, 2024). The musical excerpts collected for Chapter 3 and used as stimuli in Chapters 4 and 5 are the creative property of the composers who submitted them. Professor Todd M. Thrash (William & Mary, Virginia), who pioneered the use of structural equation modelling for conditional process analysis within cross-classified creator-recipient multilevel data structures, provided substantive feedback on my adaptation and implementation of his analytic approach, particularly in Chapter 5. A full list of research outputs arising from my DPhil at the time of deposit is included at the end of this thesis.

This thesis is duly submitted in fulfilment of
the requirements for the degree of

Doctor of Philosophy

A handwritten signature in black ink, reading 'Peter Varga', written in a cursive style. The signature is positioned above a horizontal line.

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ABSTRACT

The role of emotion and social relations in the creation and curation of the arts is vital across cultures and remains an area of great interest in the psychological literature. Whilst interpersonal emotion transfer is well attested (Parkinson, 2011, 2019), less studied is the emotion transfer that can take place through creative expression and arts media without direct contact between persons. Of all the arts, music is recognised to be a particularly effective medium for capturing and conveying emotion between its creators and consumers (Juslin, 2013, 2019). As a result, the music industry is one of the largest and most lucrative among the arts. The actual process of transmitting emotions and intentions is, however, both fundamental to cultural life and fundamentally understudied in psychological science. Much empirical literature has been dedicated to the affective experiences of music listeners, but considerably less attention has been given to composers and their expressions of intention and emotion. The present thesis is thus the first empirical investigation of whether listeners' affective experiences can be predicted by composers' affective states and intentions. To conduct this research, I adapted and applied to the musical context experimental paradigms previously developed to examine emotion transfer and inspiration 'contagion' in visual art (Pelowski et al., 2018) and creative writing (Thrash et al., 2010, 2017) to understand better what I have called 'musical emotion transfer' (MET) from composer to listener. This research is divided into four studies that examine qualitative interview data from composers about whether and how they engage with emotion in their music (Study 1), composers' individual differences as well as composition-specific affective and creative states (Study 2), expert ratings of composers' original compositions along evaluative appraisal dimensions (Study 3), and naïve listeners' traits and state affective responses to composers' original compositions (Study 4). The results show that composers' intended and incidental affective states significantly predict listeners' affective responses to their music, consistent with the mainstream expressionist view of composition as described in the musicological literature and by composers themselves. These findings also explore how specific musical elements are used to effect the transfer of different core dimensions of affect as well as how individual differences of both composers and listeners moderate MET. Finally, the combined predictive utility of these effects for listener sharing intentions along with liking and valuing suggests that MET plays some role in cultural transmission and evolution. The applications of such a social model of MET are discussed in contexts as diverse as ritual, medicine, and marketing with far-ranging implications for what it means 'to compose music' and the fundamental importance of human affective expression in the creative process.

TABLE OF CONTENTS

Acknowledgements	ii
Dedications	iii
List of Tables	iv
List of Figures	vi
I Introduction: Tracking Transmission and Convergence of Emotion in the Musical Process	1
II Mechanisms of Musical Emotion Transfer: Insights from Composers and the Musicological and Psychological Literature	56
III Mechanisms of Musical Emotion Transfer: Insights from Composers about Affect and Intention	115
IV The Well-Trained Ear: Expert Evaluations of Original Compositions	155
V Do You Feel as I Do? Naïve Listeners' Responses to Composers' Feelings and Intentions in Original Compositions	182
VI General Discussion: Hearing the Composer through the Music	254
References	289
Relevant Research Outputs	339

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This DPhil thesis is dedicated to my parents and teachers
who instilled a love of music and interdisciplinary learning
Cor ad cor loquitur
AMDG

LIST OF TABLES

Examples of Coding References to Musical Elements Influencing Affect	90
Qualitative Data Coding Examples	95
Descriptive Statistics and Reliability Estimates for Trait Variables	140
Descriptive Statistics and Reliability Estimates for Creative State Variables	141
Correlations of Composer Felt Affective States	142
Correlations of Composer Intended Affective States	143
Means, Standard Deviations, and Correlation of Felt and Intended Emotions	144
Inspiration, Effort, and Chills in the Creative Process	145
Interrater Reliability and Standardised Factor Loadings	172
Descriptives and Correlations of Composer Felt Emotions and Intentions with Aggregate Expert Ratings	173
Standardised Regression Coefficients of Composer States on Expert Felt Emotion	174
Expert Variance Decomposition Cross-Classified Intraclass Correlations	175
Standardised Factor Loadings of Exploratory Expression and Form Factors	181
Listener Variance Decomposition Cross-Classified Intraclass Correlations	228
MET Effects	229
Fixed Effects for CI → LF Mediation Models	230
Fixed Effects for CI → LP Mediation Models	231
Fixed Effects for CF → LF Mediation Models	232
Fixed Effects for CF → LP Mediation Models	233

Fixed Effects for CI → LF Parallel Mediation Model	235
Fixed Effects for CI → LP Parallel Mediation Model	236
Fixed Effects for CF → LF Parallel Mediation Model	237
Fixed Effects for CF → LP Parallel Mediation Model	238
Moderation Effects	239
Fixed Effects for CI → LF Harmony Mediation Models	250
Fixed Effects for CF → LF Harmony Mediation Models	250

LIST OF FIGURES

Cross-Classified Structure of the Composer/Composition × Listener Dataset with a Process Model of MET	54
Plot Depicting Different Frameworks for Approaching Affect in Music	91
Interaction of Valence and Arousal for Composer Felt Emotion	146
Interaction of Valence and Arousal for Composer Intended Emotion	147
Correlations of Composer Felt and Intended Emotion	148
Correlations of Composer Felt Emotions with Inspiration versus Effort	149
Correlations of Composer Intended Emotions with Inspiration versus Effort	150
Inspiration versus Effort in the Composition Process	151
Goosetingles versus Cold Shivers in the Composition Process	151
Parallel Analysis of Raw EFA	176
Parallel Analysis of Refined EFA	176
Heat Maps of Composer Intentions and Feelings with Expert Feelings	177
Conditional Effect of CF → LP Displeasure for Composer Authenticity	240
Conditional Effect of CI → LP Deactivation for Composition Expressive Value	241
Conditional Effect of CI → LP Activation for Listener Openness to Experience	242
Response Surface for CI & LF Displeasure → Listener Emotion Intensity	243
Overview of the Mediation and Moderation Results for Core Dimensions of Affect	244

Chapter I

Introduction:

Tracking Transmission and Convergence of Emotion in the Musical Process

While interpersonal emotion transfer is well attested (Parkinson, 2011), less studied is the emotion transfer that can take place through creative expression and arts media with or without direct contact between persons. The process of emotion transfer through arts media is central to the human experience across time and cultures (Aristotle, 2001a; Bennett, 2025; DeNora, 2000; Gregory, 1997; Omigie, 2015; Thrash, 2021) and is largely responsible for the vast economic impact of the arts and culture sector (International Federation of the Phonographic Industry, 2025; National Assembly of State Arts Agencies, 2020). Of all the arts, music is most often associated with expressing emotion (Juslin, 2013), but an integrated social model of how that emotion is conveyed by composers, interpreted by performers, and subsequently induced in listeners is lacking. Some theoretical frameworks have been proposed, but most research has focused either on approaches to music theory via empirical musicology or approaches to listener experiences via experimental psychology but there has been little in the way of an integrated framework wide enough to consider the whole, social-relational process of conveying affect from composers to listeners. The present research programme aims to offer one potential step towards a model of composer-listener ‘musical emotion transfer’ (MET) and the means to empirically test it by integrating strengths and best practices from across disciplines and domains of interest to capture the necessarily social aspect of affect transmission in music.

Music is both individual and social, innate and learned, sacred and secular (Alcorta et al., 2008; Becker, 2004; Cross, 2003; Ellens, 2008; Juslin & Sloboda, 2001). It is deeply engrained in what might be called the human soul and intrinsically wired into the human brain, which it engages in practically every region and neural subsystem (Levitin, 2016, pp. 85–86). Echoing a confluence of literature from across philosophy, anthropology, ethnomusicology, and psychology, it has been said that “throughout history, music has been regarded as expressive of motion, tension,

human character, identity, religious faith, and social conditions,” yet it is concluded, “the most common hypothesis is that listeners perceive music as expressive of *emotions*” (Juslin, 2013, p. 252 emphasis original).

It is thus no wonder that the psychology of music and emotion has enjoyed rapidly increasing attention in the past decades (Eerola, 2018; Juslin & Sloboda, 2001; Timmers, 2017). Most of this literature has focused on empirical musicological approaches to music theory or experimental psychological approaches to listener experiences. Nonetheless, there has been little in the way of an integrated framework wide enough to encompass both of these as critical stages in the whole social-relational process of conveying affect from composers to listeners. As DeNora (2000) asserted at the turn of the millennium, “we shall need new ways of attending to music, ones that are overtly interdisciplinary, that conjoin the hitherto separate tasks of music scholars and social scientists” (p. 23). The present research aims to answer that call by offering one potential step towards an integrated model of musical transmission of emotion drawing on strengths and best practices across disciplines and domains of interest.

A Novel Social Framework

Musical transmission of emotion broadly describes phenomena where affective content is conveyed (e.g., by expression, representation, or portrayal) via music from the composer and received (i.e., either perceived or experienced) by the listener (cf. Serafine, 1980). The modality by which emotion is transmitted in music has been extensively discussed in the philosophical literature, with many questioning how something ‘non-sentient’ can *express* emotion rather than just symbolically or

syntactically *represent* it (Aristotle, 2001b, 1340a17-22; Davies, 2001). I argue that music is expressive of emotions neither because it can be anthropomorphised nor because it imitates organismic communication (Juslin, 2019), nor even because expressivity can be divorced from agentic expression, but rather because it is the *medium* through which social agents (composers) express both intentional and incidental affect. In the programme of research reported in this thesis, I focus on the type of transmission I call ‘musical emotion transfer’ (MET). MET describes the phenomenon whereby composers *express* their felt or intended emotions in music (rather than use musical elements to portray or represent them), and listeners *respond* to that music with a corresponding emotional experience. I distinguish MET from other transmission phenomena—such as communication, which necessarily involves an intention to produce affect that is recognised by the recipient, regardless of correspondence—whilst still framing the present research in the broader context of the transmission of affective content following Juslin (2005) in considering both perception and feeling. In other words, MET is principally concerned with describing the mechanism proper to the expression of composers’ felt and intended emotions in listeners whilst differentiating the ‘locus’ (Gabrielsson, 2001a; Merrill et al., 2020) of felt and perceived emotions.

In order to account for the expressive-responsive nature of the emotion transmission aspects defined by MET, such a framework must be interpersonal and therefore social, a vital aspect underexplored in the previous literature. My approach thus begins from the premise that the composer intends to produce a signal that (minimally) has the potential to be received by the listener; this is the social core of

the MET model. Beyond cases where the composer might be directly thinking about the listener (and *vice versa*), the composer's intentions and incidental affective experience both are projected into the music and received by the listener. Within the model, this can be represented as composer states predicting listener states. These predictive effects can also be moderated by the characteristics of the composer, composition, and listener in the form of individual differences, dispositions, beliefs, values, and personality traits. Most distally, composers might also respond to (aggregate) listeners' (perceived or actual) responses to their music, completing the cycle of an iterative social interaction. The social transfer process itself is predictive of listener liking, valuing, and sharing, all of which play a critical function in the broader metatheory of cultural transmission and evolution. These processes are portrayed in Figure I.1. The present research primarily seeks to establish the theoretical grounding, methodological means of testing, and empirical evidence for the composer → listener effects of this interaction and how characteristics of composers, compositions, and listeners play a role in the process.

With these aims and scope in mind, my thesis presents a set of empirical studies that together develop and demonstrate the utility of a novel social psychological framework for studying emotion in music, building on other frameworks (e.g., Juslin, 2013; Juslin & Västfjäll, 2008) that have established music as expressive of emotions to listeners, albeit as stimulus rather than transmissive medium through which composers convey their intentions and incidental emotions. I propose that the theoretical development and empirical investigation of MET requires the integration of two different areas of psychological research, both with helpful

analogues to the present project: interpersonal emotion transfer and the intersection of creativity, aesthetics, and the arts.

I assert that interpersonal emotion transfer (IET) is well-attested (Parkinson, 2011), and offers a clear but neglected analogue to MET, which like other types of affective experience (Parkinson, 1996), is rooted in affective states caused by interpersonal factors, having consequences for other people, and having an essentially communicative and cultural component readily distinguishable from internal, reactive phenomena. Whilst emotion transfer of this kind is typically discussed in terms of direct interpersonal or intragroup processes (Parkinson, 2011, 2020, 2021; Parkinson & Simons, 2009), I propose a paradigm supportive of the transmission of core affect and higher¹ states (such as inspiration, insight, and awe) that can account for the same kind of transfer via music (i.e., absent direct personal contact). To do this, I draw on experimental paradigms from the second analogous area of psychology, which examines creativity, aesthetics, and the arts at the cutting edge of experimental methodology and statistical science.

Although my research represents the first empirical examination of social emotion transfer effects in the context of music, the phenomena I study in the context of MET are far from new. The process of emotion transfer through the arts is central to the human experience across time and cultures (Alcorta et al., 2008; Aristotle, 2001a; Bennett, 2025; Omigie, 2015; Thrash, 2021) and is largely responsible for the

¹ 'Higher' is used throughout in this context not to suggest emotions and other core affective states are somehow lower-level phenomena but to specifically identify experiences that have been traditionally roughly grouped together under terms like 'elevated' or 'transcendent'.

vast economic impact of the arts and culture sector (International Federation of the Phonographic Industry, 2025; National Assembly of State Arts Agencies, 2020). For example, in the visual domain, the artwork is posited to serve as a proxy for its artist's intended and incidental emotional experiences such that they can be shared, or at least intellectually interpreted, by the viewer (Pelowski et al., 2018; Tucker, 1955). In creative writing, the inspiration of the poet congruently influences the inspiration of the poem's reader (Thrash et al., 2017). In dance, the choreographer's emotional intentions are communicated to the audience through the movements of the dancer (Christensen et al., 2016; Foster Vander Elst et al., 2023). In film, viewers ascribe personal affective significance to the experiences of portrayed characters (Lazarus et al., 1962). Many of these experiences also tap into cross-media (artistic) and cross-modal (sensory) interactions, which have also been widely investigated (e.g., Christensen et al., 2014; Lazarus et al., 1962; Odbert et al., 1942; Reinoso-Carvalho et al., 2020; Spence & Di Stefano, 2022; Tannenbaum, 1956).

Of all the arts, however, music is most often associated with expressing emotion (Juslin, 2013; Juslin & Laukka, 2004), and listeners nearly universally experience an emotional response to music—even to the point of differentiating emotions perceived to be represented from emotions they themselves feel in response (Gabrielsson, 2001a; Merrill et al., 2020). Yet an integrated social model of how that emotion is conveyed by composers and subsequently induced in listeners is lacking. Most frameworks (discussed more fully below) emphasize different mechanisms by which music may induce emotion, such as musical expectancy (Huron, 2006), emotion contagion (Juslin, 2013; Juslin & Västfjäll, 2008), shared imagining (Tuuri

& Peltola, 2019), and goal relevance (Lennie & Eerola, 2022), but these rarely consider the key role that composers play in the transmission of emotion in their own music. The transmission of emotion in music alone (i.e., in the absence of cross-media or cross-modal interaction) has yet to be equally systematically and empirically studied as a social process (i.e., one that is interpersonal, transmissive, and situated in a cultural context).

Juslin's (2013; Juslin et al., 2013) approach is particularly compelling for studying the mechanisms for emotion expression and communication around the core components of the 'musical event', which he discusses in terms of the music, listener, and situation, accounting for the social and cultural context of music listening. To this he adds an expressive component on the part of the musician that results in the generation of measurable sounds that can be perceived by a potential listener. If only conceived in terms of potential expression and potential perception, however, such a model need not account for social transmission or affective correspondence between composer and listener, and both sides can be—and heretofore always have been—studied separately as Juslin (2019) notes. He makes the case for a communication model that posits two additional listener parameters: recognition but not necessarily congruent experience of the musician's expressed emotion and feedback to the musician on this basis. Though I contend communication requires recognition of the *intention* (not just the emotion) as a necessary condition, these frameworks help illustrate how my conceptualisation of MET is distinct from models of potential perception in isolation from expression and models of musical communication not accounting for congruence between experience and expression. Also missing from

these previous frameworks has been systematic empirical investigation at the level of the transmission process including the composer. In the present thesis, I draw on social psychological paradigms to demonstrate one possible approach to studying MET.

When considering a social psychological model of MET, it is important to note that music differs from typical social interaction. In direct face-to-face interaction, one might pick up on emotion cues from someone else's smile or frown, their gaze or lip movement when speaking, the furrow of their brow or the wrinkling of their nose. The information extracted from such gestural cues is enhanced by contextual knowledge, such as how well they are known to the recipient of their expression, what is attracting their attention, and what can be inferred about their perspective and action trajectory. These emotion cues might be experienced by the recipient by a contagion process of innate spontaneous mimicry of the agent's expressions, by synchronisation of movement or behaviour, or by relation alignment facilitated by an automatic appraisal process involving perceiving, evaluating, and interpreting the emotion expression visually (Parkinson, 2019). By contrast, in the musical context, equivalent cues might be the composer's use of rhythm and dynamics or the interplay of harmony in melodic phrases (which are meaningfully often referred to as musical 'gestures', making the analogy that much more explicit). Rhythmic and dynamic cues, for example, might lead to contagion via entrainment whilst melody and harmony might evoke certain appraisals aurally. Musical cues, however, introduce much greater 'distance' between the agent and recipient.

The social premise of the composer-performer-listener approach to MET lends itself naturally to a conditional process model (Hayes & Rockwood, 2020), where a predictor variable's effect on an outcome variable can be modelled in terms of indirect pathways through mediator variables and as regulated by moderator variables using structural equation modelling (SEM). In the present MET model, the 'signal' (composer affective states) sent by the composer in their music is mediated through the qualities of the composition (as realised by performers) to have an effect on listeners (listener affective states). The mediators of the effect of composer states on listener states are taken from evaluations of both musical elements (e.g., melody, harmony, and rhythm) and aesthetic qualities (e.g., expressive value). These mediational pathways are moderated by both composer and listener dispositions (e.g., traits, motivations, beliefs, and values). See Figure I.1 for an example of this conditional process model for illustrative purposes.

Such a framework requires a synthesis of literatures from across several disciplines. To ground my theoretical approach and inform my empirical paradigm, in the following sections, I review the literatures most directly bearing on my topic and methods—namely philosophy, musicology, and psychology. I give particular attention to points of intersection between empirical musicology and psychological science, especially previous component models of music-emotion experiences. I then make the case for how a social psychological perspective of emotion can advance conceptualisations of musical emotions by adding a vital and heretofore missing interpersonal component.

Philosophical Considerations

Many philosophers have commented directly on music composition and its ability to elicit emotions in listeners. Although philosophical considerations are often at a slight remove from the day-to-day practical considerations of modern composers, they provide a helpful backdrop for better understanding the artistic and even ethical weight accorded to composition in the broader cultural context. From some of the earliest extant examples of Greek philosophy and literature, the fifth-century BC Greek lyric poet, Pindar, for example, referenced specific musical modes in some of his odes commemorating horse-racing victories (Pindar, 1841). His association of certain musical tonalities and affective qualities with the particular characteristics associated with the subjects of the poems seems to have influenced the subsequent generation of Ancient Greek philosophers, perhaps most notably Plato (1992), who generalises the ascription of moral characteristics to the modes themselves (Bayer, 2019). The association of musical mode and moral attributes are borne out in Plato's dialogues, especially the *Republic* (1992), where Socrates's interlocutors discuss how music makes people feel and consider the suggestion that music (like all art in the Platonic view) is merely imitation, in this case, of emotion.

Plato's students, chiefly Aristotle (2001a), build on those ideas and propose even more precise pairings of musical elements such as mode, melody, and rhythm with specific affective responses—all with moral significance in education and politics (Aristotle, 2001b, 1340b1-24; Halliwell, 1987). Aristotle distinguishes visual art, which he says imitates signs or indications of emotion, from music, which he argues imitates affective states directly (2001b, 1340a17-22), and extends this

discussion to specify which instruments to play with respect to which affective states (2001b, 1341a8-1341b15). In this way, the Ancient Greek philosophical tradition offers one of the earliest frameworks for examining the emotional impact brought about by manipulating specific elements of music such as tonality and instrumentation.

The ninth-century Islamic philosopher, Al-Fārābī (1998), however, was the first to establish music as a science from the composer's perspective—pre-empting Nietzsche's (1993) claim in the nineteenth century to be the first musically involved philosopher to recognise music as the “language of emotion” by a thousand years (Regnier, 2022; Steinmann, 2022; Tuncel, 2022). In his work on music, Al-Fārābī (1998) viewed composers as products of a musical culture rather than the enlightened proponents of it. This perspective also influenced his valuation of the worthiness of different musical forms. In his ‘composer's science’, individual notes evoked certain passions (which he specifies), and the highest form of music was vocal because it is generated by the only “natural instrument” and evokes authentic feelings (al-Fārābī, 1998; Regnier, 2022). In contrast, the lowest forms of music are those melodies played on “artificial” instruments that produce merely pleasure and are not useful—a slightly more moderate stance than both Augustine (2017) and Plato (1992) before him (Regnier, 2022). The distinction of authentic, vocal expression from “artificial”, instrumental representation as well as ontologies based on utility and listener pleasure remain contentious. Other music philosophers, for example, espouse the view that the transcendental nature of beauty applies (or not) to a piece of music regardless of how it makes a listener feel on the premise that the emotional response to music

should not contribute to its valuation on the grounds that measures of worthiness would be too utilitarian (Golaszewski, 2022), such as in the context of religious service music. This is consistent with Kant's (2000) later notion of 'disinterested pleasure' (*intereßeloses Wohlgefallen*) in his *Critique of the Power of Judgement*.

Philosophers have also been concerned with the valuation of music for its aesthetic principles (Scruton, 1983a), particularly with reference to role of sublimity, and the emotional states such experiences evoke. The earliest discussion of the affective qualities of the sublime are found in an anonymous first-century treatise on good writing commonly attributed to Longinus (1991). There, sublimity is described as a grand or powerful exulting state that overwhelms reason and comprehension. Sublimity is also compared to light (Longinus, 1991) and attributed physiological effects, especially via words (Burke, 1757). In line with similar awe-inspiring experiences, it has been viewed as a stimulus for high or heightened emotion, including in musical composition and listening (Chapin, 2022). Some musicologists have recently suggested, however, that sublimity in music composition is quite different from sublimity in other areas, noting that there are many cases where experiences do not translate from nature or literature to music (Zangwill, 2022).

Music is, nonetheless, "similar to language" in Adorno's (2002) influential view on the place of music in the midst of what he saw as modern social and cultural crises. Just as for Nietzsche (1993), that role is precisely linked with its compositional "language" (Adorno, 2002, p. 113). This speculative approach centralises the importance of semiotic aesthetic forms and transcendent emotion but at the expense of theorising about mediators of human-music interaction and its

transmission process. It is too focused on the potential meaning of compositional building blocks—the representational end of the evaluative-representational continuum (Juslin & Sloboda, 2001)—to fully appreciate the “gap between structure and feeling” (Rahn, 1972, p. 255). There thus remains an implicit tension at the heart of much modern philosophical musical scholarship between the notions that music contains semiotic codes for social and emotional content and that the subjective reception of those codes is opaque to empirical investigation (DeNora, 2000; Scruton, 1983b, 1983a). The extended impact of this tension can be seen directly in the dearth of research examining both the basic elements of music (as manipulated by composers) and the phenomenological experience of music listeners.

Music is socially and culturally meaningful within an affective framework; it cannot be merely (self-) referential and abstract nor can it be the composer’s aesthetic transliteration of human speech (Leppert, 2002). Adorno (2002) is not unfounded in his instinct that there is an irreducible “theological” and “mystical” quality to music in its transcendent attempt to capture an aspect of the highest goods even as it is also concrete and material in its communication of meaning. The resulting juxtaposition highlights the utopian expression of hope and yearning for happiness (in the fullest sense) that cannot otherwise be articulated directly by verbal language but can be felt in music (Adorno, 2002; Leppert, 2002). Rather than implying a necessarily absolutist semiotic approach to studying these aesthetic qualities, however, such experiences seem to suggest the need for a broader (social, psychological) frame.

The specific bittersweet longing for a philosophical, spiritual, or emotional sense of ‘home’ or the Absolute has itself warranted much philosophical writing,

some of which inevitably picks up on the composer's role in music's unique ability to convey such complex emotions (Cain, 2022). The ancient Greek, early Christian, and medieval Islamic philosophers posited a connection between this sense of melancholic longing and creative output (e.g., Aristotle, 2001a). Researchers employing modern empirical methods have sought to further examine the relationship not only in self-transcendent experiences themselves (Yaden et al., 2017), but also in their production by visual art (Akinola & Mendes, 2008) and musical composition (Borowiecki, 2017). The innately human connection between these affective states of bittersweet longing and creative awakening, especially in the context of life transitions and concomitant spiritual yearning (Adamson & Holloway, 2012; Bennett, 2025; DeNora, 2000) has already begun expanding the frame of enquiry from the purely philosophical to include the psychological as well (Cain, 2022).

Section Summary

In this section, I have briefly summarised some of the most important philosophical influences on the study of the music composition tradition, particularly within the Western canon. Starting from Pindar, a lyric poet whose times and immediate context remain largely lost to history (Lefkowitz, 2012), I have traced the development of the notion of linking certain characteristics of emotions and values to specific musical attributes through the philosophising of some of the greatest thinkers in the tradition. As particular points of reference, I have used Plato, Aristotle, Longinus, Augustine, Al-Fārābī, Kant, Burke, Nietzsche, Adorno, and Scruton. These examples, whilst certainly not exhaustive, help illustrate the deeper intellectual and even spiritual considerations composers and music listeners have considered

when describing the affective processes involved in music. They also highlight the pervasive tension between absolutist semiotic approaches (such as discussed by Adorno) and more integrated cultural (psychological) approaches (such as found in Aristotle's *Politics*) that still undergirds much modern scholarship (such as by DeNora).

Though at an historical remove from modern composers, these philosophical questions presence and purpose of emotion in music remain relevant as the background and backbone of many approaches to composition pedagogy and still inform the way Western art music is critically engaged with by audiences, especially in the academy (Juslin, 2019; L. B. Meyer, 2008; Varga & Parkinson, 2024). The philosophical contribution is thus valuable in establishing the broader bounds of any discussion of the ways in which composers have manipulated elements of music to evoke emotions in listeners over a substantial period of recorded history. These philosophical insights both suggest starting points for conversations with modern composers about their creative processes and still prompt endless generative questions about the human psyche that modern empirical researchers can only begin to tackle.

Musical Considerations

In a field with labyrinthine interdisciplinary influences, it is important to begin by orienting around a common set of bearings centred on consensually defined terms and distinctions. First and foremost, music is heard and 'felt' in context. But even defining what the parameters of that context are can be inconsistent and contentious. At the most basic level, there is a necessarily human aspect to the 'human-music

interaction’ that bridges the “gap between structure and feeling” in the sense of meaningful interpretation of musical form and content as well as aesthetic and affective responses to it (DeNora, 2000; Rahn, 1972, p. 255). As will become apparent, there are different approaches to exploring that gap depending on whether one views music as a self-contained or social process. Expanding the human-music interaction frame, Juslin (2013) notes the need to consider how emotion induction mechanisms are differentially influenced by aspects of the music, listener, and situation—what he calls the ‘musical event’. This framework is helpful as an interactionist approach, but it still assumes that the musical stimulus operates as a self-contained and -explanatory unit. It does not take music into account as a potential medium of interaction itself, nor does it consider the social interactional role of the composer as agent in ‘sending’ the signals detected as affectively meaningful by listeners. To overcome these limitations whilst still supporting an interactionist model, I propose a framework that explicitly includes the transmission process from composer to performer to listener.

The following definitions and distinctions focus on considerations specific to each of these social entities, with particular emphasis on composers (who have received the least amount of empirical attention), the characteristics of the music (as manipulated by composers), and listeners (who have received considerably more attention but not within a social context including composers). See Figure I.1 for a plot depicting the relationships and processes among these different entities.

Performers also play an important role in this process, but investigation of the social

dynamics of solo and ensemble performance is beyond the scope of the present study and will be left for future research (see general discussion in Chapter VI).

The Composer

Beginning with the composer as the origin of the musical and affective signal (the ‘agent’ in social emotion theory parlance), the following distinctions have helped categorise different theoretical and methodological approaches to composition over the course of centuries. The first such distinction is between composer-theorists who operate under the premise that music can express emotion and those who reject this premise in favour of an intellectual aesthetic appreciation of the form of the composition. These have been called ‘expressionists’ and ‘formalists’, respectively (L. B. Meyer, 2008). The second common distinction is between those who view the affective content as being self-contained within the music itself and those who view music as a way of indicating affective contents that are external to itself. The former group have been called ‘absolutists’ and the latter ‘referentialists’ (L. B. Meyer, 2008). Scruton (1983b) separates these into those composers focused on the ‘scientific’ understanding of musical materials and those who write with an ‘intentional’ understanding of affective appearance with an audience capable of active perception of musical gesture in mind.

These distinctions are helpful organisational heuristics for categorising and coding different composers’ approaches to emotion in music, but they are all far from mutually exclusive concepts. Just as in poetry or visual art (Omigie, 2015), both absolute and referential meanings are present and perceived as are the affective responses they elicit in a listener (L. B. Meyer, 2008). The point of clear

convergence, however, is the abstract notion of the aesthetic or affective quality of musical experiences. For example, despite the limitations to interpretation inherent in its commitments, a formalist approach does not preclude explaining music in terms of beauty and pleasure (Zangwill, 2022), and in fact, often emphasises these aspects of the listening experience even whilst asserting that musical experiences involving emotion represent an inferior way of listening (Hanslick, 1986).

The Music (as Performed)

As the transmissive medium, the qualities of the music have also been considered from a variety of viewpoints as indicated by the above different approaches to composition theory and practice. Partly in response to what they saw as overstated referential expressionism, formalist practitioners and theorists such as Stravinsky (1975), Schoenberg (1984), and Hanslick (1986) rejected the relevance of considering any specific emotional representations in music, so the building blocks of musical syntax took on increased significance. Whilst they were not thought to convey any particular (referential) meaning, these core aspects were still located on dimensions accounting for the horizontal (melody), vertical (harmony), temporal (tempo), and structural (form) dimensions of the music as well as the amplitude (dynamics), contour (timbre), and regulation of strong and weak beats (rhythm) of the acoustic envelope (Campbell, 2001; Cohn et al., 2001; London, 2001; Ringer, 2001; Thieme, 2001; Whittall, 2001). This is suggestive of a common language, at least within the Western Classical tradition, through which composers and researchers can communicate.

The appeal to historical tradition is also characteristic of semiotic theories of emotional meaning in music. These theories argue that music is a socially meaningful medium (“similar to language,” as Adorno says; see previous subsection on ‘Perspectives from Philosophy’) rather than merely a self-referential abstraction (Adorno, 2002, p. 113). Consequently, emotional content is conveyed by culturally determined syntactic types and tropes that are decoded in specific performance contexts understood by contemporary audiences (Cook & Dibben, 2001). These representational approaches rely on inferences and appraisals about emotional content which depend on composers’ deployment of musical elements such as melody, harmony, metre, rhythm, and form, as well as listeners’ sensitivity to them (Juslin & Sloboda, 2001).

The form, content, and decoding of music are central to understanding MET, but have often been studied in isolation using relatively reductive measures. In the most speculative approaches to empirical aesthetics, interaction is minimised and the human component is relegated to passive reception. Such approaches are based in semiotic analysis that is often confined to the realm of aesthetic forms (DeNora, 2000). In the context of emotion transmission in music, a purely semiotic strategy—especially one that presumes musical meaning is immanent—would appeal most to practitioners and theorists who endorse formalist and absolutist views (i.e., those who most value intra-musical qualities). Some theorists (e.g., DeNora, 2000), however, have observed the limitations of the semiotic approach, particularly in domains where the artistic work has a social impact and context that influences affect via appraisal (of, e.g., personal significance, goal relevance, or aesthetic quality). Such arguments

show the need for a robust social psychology of emotion in music that accounts for composer states and listener appraisals, not just the music itself.

The Listener

The differences between the internal structural characteristics of music and the external contextual factors that influence its reception perfectly illustrate the need for a social interactionist approach. For example, affective intensity seems to be driven by the ‘intrinsic emotion’ of the music whilst affective content seems to be largely determined by musically ‘extrinsic emotion’ cued by individual-specific memories, associations, and motivations (Larsen et al., 1986; Sloboda & Juslin, 2001; Waterman, 1996). These different sources have implications for the listener experience and how it is framed.

Whilst most of the discussion around emotion in music concerns affective states (temporary physiological and mental reactions), a theoretical argument has been made in favour of also recognising processes as another important frame of reference (L. B. Meyer, 2001). States corresponding to basic emotions might be harder to study in isolation within a musical context due to the duration and complexity of musical examples—which has led some to suggest empirical studies of emotional responses to music should more appropriately discuss mood (L. B. Meyer, 2008). Processes on the other hand can account for some of the successive contextual complexity of the listening experience and dynamic variation of its emotional responses (L. B. Meyer, 2001). They can also be examined in tandem with some of the previously examined divisions. For example, some theorists distinguish ‘native’ processes as those mostly universal auditory experiences bounded by the

limits of human perception from ‘syntactic’ processes, which are formed by sociocultural norms of genre and style (L. B. Meyer, 2001). Both of these processes are implicated in the nature of uncertainty and surprise in musical emotion (Huron, 2006; Juslin & Sloboda, 2001; L. B. Meyer, 2001).

Much empirical literature has focused on ‘representational’ processes concerned with the awareness and identification of musical elements such as melody, harmony, rhythm, metre, and form to the exclusion of more ‘evaluative’ processes such as judgements of liking, technical mastery, and mechanical fluency when manipulating those properties (Juslin & Sloboda, 2001) as well as ‘appraisal’ processes such as judging affective, aesthetic, or moral quality; value; or worthiness (Scherer & Zentner, 2001; Thrash et al., 2017). The former processes have been the domain of cognition and perception research, and the latter have been reserved to more anthropological and sociological branches of musicology and critical philosophy. The combination of the two is ripe for social psychological research. In contrast to absolutist and intrinsic frameworks of emotion in music, appraisal models suggest a contextual subjectivity that is not dependent on ‘objective’ aesthetic properties (Silvia, 2005). As used in the present research, representational evaluations are limited to assessment of the technical properties contained in a piece of music whilst appraisals refer to affective and aesthetic judgements that depend on the listening context.

The Locus of Emotion in Composers and Listeners

This distinction raises the question of locus of emotion in both composers and listeners. Theorists note that there must be a difference between the emotions felt by

composers or listeners and the emotional responses or representations associated with particular musical stimuli such that genuinely experienced emotions and descriptions of what a hearer believes a musical passage is supposed to indicate are distinguishable (L. B. Meyer, 2008, p. 8). In narrative interviews and written reports, individuals are able to differentially identify their ‘direct’ affective reactions from those involving some form of cognitive appraisal, often of a representational aspect of the music or a technical aspect of the performance (Gabrielsson, 2001a)—the difference between spontaneously feeling agitated and consciously evaluating the use of rapid percussion as a signal of agitation. In self-reported strong experiences with music, differences between emotions aroused (in listeners) and emotions expressed (in the music) have also emerged along similar lines (Gabrielsson, 2001a, 2011). These findings have led theorists to call for more careful disentanglement of listeners’ perception of emotional expression and listeners’ own emotional reactions (Gabrielsson & Lindström, 2001). Such differences in ‘locus’ of emotion have psychophysiological correlates as well, with one study finding heightened facial electromyography, galvanic skin conductance, respiration, and heart rate responses when listeners were focused more on identifying what emotions musical stimuli expressed and less explicitly on their own feelings (Merrill et al., 2020)—suggesting a different listening orientation is engaged when parsing composer intention. Whilst equivalent differentiation of composers loci of emotion has yet to be studied, correlates in visual art (e.g., Pelowski et al., 2018) are suggestive of similar trends in need of systematic investigation. The present research aims to provide a social psychological framework for such an investigation.

Section Summary

In this section, I have given a brief orientation to some of the most influential considerations when studying music and emotion from a musical (and musicological) perspective. First and foremost is recognising that the context in which music is heard and felt is necessarily human. This recognition supports adopting what might be called a human-music interactionist approach (DeNora, 2000). Theorists have understood and defined the central interaction in different ways, however, which has led to a variety of frames (e.g., Juslin's 'musical event'). I argue that to fully understand both the human and interactionist aspects of emotion in music, theorists must consider both composers (as social 'agents') as well as listeners (as social 'recipients') as well as the performers who interpret and execute the music that mediates their socio-affective connection. In the present research, I focus on the agent-recipient relationship without delving too deeply into the technical and mechanical aspects of the performance or sonic propagation of music itself.

Adopting this framework, I first reviewed considerations specific to composers and the classification of different approaches to creating and interpreting the affective content of music. These approaches ranged from the formalist that emphasises aesthetic considerations of structure over affective value to the expressive that is defined by music's ability to convey emotional meaning. Likewise, I noted the differences between composition theorists who hold that the expressive power of music is entirely self-contained (absolutist) and those who find the affecting aspect of music in its ability to evoke things beyond itself (referentialist). Next, I discussed how listener experiences can be similarly divided between evaluative engagement

with the ‘representational’ technical elements that make up music and the more cognitive appraisal that can modulate psychological states. States in turn can be distinguished from processes, which can further be broken down into types (e.g., native and syntactic). Those types tend to map onto considerations specific to the music itself such as differences between semiotic and interactionist analytic approaches and consideration of intrinsic versus extrinsic emotional characteristics of music. Finally, I reviewed how these distinctions can help to distinguish more precisely the various loci of emotion in the whole MET process. I discussed the difference between listeners’ affective reactions and perceptions as well as their psychophysiological correlates, and then posited a similar differentiation in composers’ feelings and intentions in their music analogous to that observed in visual art (such as by Pelowski et al., 2018). Even taken together, however, this roadmap helps understand *how* the topic of emotion in music has been approached, but it does not entirely get at *what* emotion in music is, where it can be contextually located, or how to model the components that might be involved.

Psychological Considerations

Even outside the musical context, debates still rage among emotion theorists in response to James’s (1884) classic question of what an emotion is (e.g., Neta & Kim, 2022; Ortony, 2022). The lack of a consensus in the musical emotion context might have as much to do with the historical starting point of the empirical field. Many of these disagreements are direct descendants of the same debates in philosophy and musicology discussed above. Just as many theorists have only entered the realm of empirical aesthetics and experimental psychology via descriptive

exploration of sensation, perception, and their ability to arouse the perceiver (e.g., Berlyne, 1971; James, 1884), within the musical context, the classic early psychological theories of emotion in music composition began with the premise that music is simply a particularly pleasurable arrangement of auditory inputs (Helmholtz, 1954; Langer, 1958). These paradigms are distinct from absolutism but are still implicated in the conflation of aesthetics and (hedonic) pleasure, the oversimplification of music to discrete sounds, and the reductionism of equating physical properties of sound with generalisable psychophysiological responses (L. B. Meyer, 2008). All of these approaches capture an aspect of the composer's process of writing emotive music, but a general, non-reductive synthesis is lacking.

Observations and attempts to resist the tendency to conflate sensual pleasure and aesthetic experience are not new—as noted in the previous subsection on ‘Perspectives from Philosophy’, Plato (1992), Augustine (2017), Al-Fārābī (1998), and Kant (2000) all commented on this issue. Neither are critical comments on the approaches that seek to reduce music to sound or physical properties of sound, which philosophers like Scruton (1983b) identified with the scientific understanding focused only on material objects as distinct from the ‘intentional’ understanding resting on active perception, as noted above.

Psychology, however, offers additional means for distinguishing between compositional approaches that seek to convey some specific, if complex, emotions (e.g., the bittersweet pleasure of melancholy) and those that seek to be liked by an audience (e.g., by being generically pleasurable). Basic preferences and personality differentially affect the way people engage with aesthetic stimuli, but some traits

seem to vary less between people than others. For example, higher levels of openness to experience are associated with liking more emotionally positive art (Chamorro-Premuzic et al., 2010), but across samples, consonance is generally preferred (L. B. Meyer, 2001; Scherer & Zentner, 2001) even from infancy (Zentner & Kagan, 1996, 1998).

Other aspects of individuals' subjective engagement with music, such as expectation and familiarity, also seem to play an important role. Building on Berlyne's (1960) argument that novel art is interesting because it fosters curiosity via conflict and uncertainty between competing categories and interpretations, many psychologists maintain that the affective aspect of music is brought about by composers' manipulation of the element of surprise and the disparity between expectation and experience that requires translating between something felt and something understood (Huron, 2006; Huron & Margulis, 2009; Podlipniak, 2022; Steinbeis et al., 2006). These associations play into the question of whether certain affective states are simply engrained preferences for historically-informed associations of specific musical elements and motifs rather than innate affective or intellectually appreciated aesthetic qualities of the music.

The compositional approach primarily aimed at producing likeable works is more closely aligned with the sensationist aesthetic (Langer, 1958), whereas the aim of creating emotive music might be more relevant to 'Aesthetics' in its transporting or emotive, even moving, reception by the listener who is also engaged intellectually. Analogously to creative writing, activated positive affect (i.e., state experience of increased happiness, wellbeing, self-esteem, etc.) is easily triggered by reward

salience (e.g., wanting or liking), but higher affective states require some transcendent trigger, such as illumination or transmission (Thrash & Elliot, 2004; Varga, 2021). This interplay is suggestive of potential differences in the compositional approach and psychological apperception of emotional meaning in music, particularly when listening to evaluate both the technical mechanics of a piece of music and its psychological aesthetic value (Gabrielsson, 2001a, 2001b); a composition might be rhythmically entraining but not as harmonically engaging of the listener's critical ear for complexity so as to be popularly likeable, for example.

Such differences can be partially accounted for by appraisal theories, which rely on recipients' assessments of the significance of an object or event and their differential response to that stimulus according to personal and environmental context (Marković, 2012; Moors et al., 2013; Moors & Scherer, 2013; Scherer & Zentner, 2001). These experiences are mostly framed in terms of automatic, pre-reflexive or unconscious appraisals, though some depend on the coupling of propositional knowledge, and thus tend to be slower and under conscious control (Moors et al., 2013). Whilst some evolutionarily primitive qualities of auditory stimuli (e.g., suddenness or novelty conveying fear, danger, or pleasantness) are appraised at a low level to facilitate rapid autonomic nervous responses, other more complex musical stimuli are appraised at a much higher level, allowing for nearly limitless nuances of individual affective interpretation and response (Moors et al., 2013; Scherer, 1988; Scherer & Zentner, 2001). These interpretations are subsequently appraised against both internal (personal) and external (historical or cultural) standard values (Farnsworth, 1958; Kenyon, 1988; Scherer & Zentner, 2001). In these contexts,

appraisals can be broadly categorised into evaluations of desirability or goal-relevance, control or coping potential, and aesthetic value or artistic merit (Cespedes-Guevara, 2023; Scherer, 2009). Social appraisal as a relation alignment theory of emotion convergence is discussed further below.

Differences between listeners' (felt) affective reactions and (perceived) emotional recognition have been noted at both cognitive and psychophysiological levels (Gabrielsson, 2001b; Gabrielsson & Lindström, 2001, p. 224; Merrill et al., 2020). These findings raise questions about which aspect of the listener's experience the composer aims to influence. Thus far, no other systematic study of composers' views on the matter has been undertaken. Moreover, in previous psychological literature looking at listener ratings of music-induced affectivity, different musical factors differentially influenced felt and perceived emotion (Gabrielsson, 2001a; Gabrielsson & Lindström, 2001).

These debates have not moved much beyond attempts to identify the place, kind, and scope of emotion in music. For example, whilst it is now generally agreed that music induces emotions rather than moods because listener affective responses are of limited duration and involve autonomic responses (Krumhansl, 1997; Panksepp & Bernatzky, 2002), the nature of the emotions elicited is still debated. The rhetorical question of why music should elicit anything but the full range of emotion arises repeatedly given that, at the conscious level at least, music is not very different from many other aspects of human experience (Clarke, 2011, 2019). And yet, as noted above, many early models of emotion in music that drew comparisons with language (Adorno, 2002; Cooke, 1989; Juslin & Laukka, 2003; Timmers, 2017)

suggest that like speech, music has a semiotic structure that facilitates the expression of ‘basic’ emotions with innate, universal characteristics such as happiness, sadness, fear, anger, and surprise (Ekman, 1972; Izard, 1977). These basic emotions are reliably identified by music listeners (Gabrielsson & Juslin, 2003), whilst more complex emotions are less easily attributed to music (Sloboda, 1991; Sloboda & Juslin, 2001), but also generally (Charles et al., 2017). Although some researchers assert that music does not induce basic emotions (Scherer & Zentner, 2008), others suggest that music *can* induce basic emotions (Krumhansl, 1997), and still others note that it is ‘remarkable that any medium could so readily evoke *all* the basic emotions’ (Panksepp & Bernatzky, 2002, p. 134 emphasis added).

Subsequent research has suggested that it is the interaction of the listener and their context that gives rise to goal-relevant emotional states. Drawing on constructionist theories that posit emotions are not basic or innate but constructed moment to moment based on internal physiological states and external circumstance (e.g., L. F. Barrett, 2018), these approaches propose that automatic perceptions of music combine with responses to the personal and sociocultural context to make the listening experience personally relevant, goal-conducive, and distinctly emotional (Cespedes-Guevara, 2023). As Juslin (2005) points out, however, standard appraisal paradigms (e.g., Oatley, 1992) are insufficient if music does not directly advance or impair goals—a premise maintained in much of the literature (see Huron, 2016, 2019) in line with the Kantian (2000) notion of ‘disinterested pleasure’ (see above subsection on ‘Perspectives from Philosophy’).

Synthesising these approaches with the current music psychological literature, other researchers have attempted to add further clarity to explanations of how emotional responses in listeners are evoked (e.g., Juslin, 2019; Scherer & Coutinho, 2013; Timmers, 2017). Mirroring the multiplicity of emotion theories more generally (see Moors, 2022 for a review), psychological theories of musical emotions have proliferated in recent years (e.g., Cespedes-Guevara, 2023; Cespedes-Guevara & Eerola, 2018; Juslin, 2013; Juslin & Västfjäll, 2008; Lennie & Eerola, 2022; Scherer & Coutinho, 2013; Scherer & Zentner, 2001), but a unified or consensual framework is yet to emerge. I review a selection of current models emerging from these theories below.

Component Models of Emotion and Expression in Music

Some researchers have posited that discrepancies in theory and empirical findings might be resolved by considering the contributing factors of different affective aspects of music in tandem (Cespedes-Guevara, 2023; Juslin & Västfjäll, 2008). In response, various combined frameworks have been proposed on the premise that different mechanisms might account for different kinds of emotional responses.

At a basic level, human engagement with music relies on dynamic predictions and expectations (L. B. Meyer, 2008; Sloboda, 1991). Cognitive prediction requires a defined set of musical elements from which low level processes (such as note to note anticipation) as well as high level processes (such as defined components of form and structure) can be identified (Rohrmeier & Koelsch, 2012). Thus, predictive information processing frameworks for studying emotion in music typically contain

respective components covering sensory and low-level Gestalt predictions, non-sensory structural predictions (i.e., knowledge of form acquired through learning), syntactic or schematic predictions (i.e., culturally or socially acquired style-specific information), and veridical knowledge (i.e., prior exposure to the particular piece of music). These predictive processes run concurrently in parallel and can work in tandem (e.g., predictions informed by knowledge of both form and style) or antagonistically (e.g., Gestalt predictions clashing with different musical gestures).

Consistent with Berlyne's (1960) observation about novelty in art, Huron (2006) proposed an anticipation-based model meant to help the field move from folk psychological associations of tonality and emotion in the Western idiom to more cross-culturally relevant considerations of neurobiological, evolutionary psychological, and cultural factors from the perspective of 'psychology proper'. His ITPRA model includes five psychological response systems: imagination, tension, prediction response, reaction response, and appraisal. Critical to expectation models, imagination and tension occur before the onset of the musical event, whilst prediction and reaction responses occur after, followed by appraisal. Similar models based on the idea that one of the most important tools in the composer's kit is expectation (Huron & Margulis, 2009; L. B. Meyer, 2008; Sloboda, 1991; Steinbeis et al., 2006) note that appraisal is a cognitive component, but not necessarily conscious, alongside affective, sensory-interoceptive, and motor components (Koelsch, 2015; Koelsch et al., 2015).

Though simple surprise does not require an understanding of representational musical elements, extensions of the expectation approach note that individual

listeners' experiences vary based on differences in the ability to translate between feeling and understanding. For example, a given listener might be able to detect a wrong note in a performance on the basis of a simple 'feel' but might otherwise lack the musical understanding to identify the precise nature of the error (Podlipniak, 2022). This distinction is subtly different from the contrast between musical expression of emotion and musical elicitation of emotion, which roughly corresponds to listener perception (the cognitivistic modality) and listener feeling (the emotivistic modality), respectively (Kivy, 1989; Scherer & Zentner, 2001; see Figure II.1). These modalities, moreover, have empirically differentiable effects on listeners' qualitative and psychophysiological experiences of music (Merrill et al., 2020).

Building on an operational model of aesthetics, the prototypical emotion-episode model (PEEM) incorporates the 'aesthetic trinity' (Konečni, 2005) of being moved, aesthetic awe, and chills as the hallmark characteristics of the most genuine and profound music-emotion experiences, particularly in response to 'absolute' instrumental music (Konečni, 2008). The aesthetic trinity theory offers great insights into higher and self-transcendent experiences of the musical sublime, which have drawn much interest (Gabrielsson, 2001b, 2011) but little theoretical development. The wider applicability of the PEEM as a component model of musical emotion, however, has been criticised as a result of the relative rarity of such experiences and the lack of specific psychological mechanisms proposed (Cespedes-Guevara, 2023).

A further distinction can be made between frameworks in which the emotional qualities are 'read directly' from the acoustic qualities of music—such as by brain stem reflexes to sound or by biorhythmic entrainment—and frameworks where

listeners need to infer emotional aspects from acoustic qualities via some kind of intellectual understanding—by evaluative conditioning of culturally meaningful motifs or appraisal (Juslin, 2013). The former ‘universalist’ reductionism (L. B. Meyer, 2008, p. 5) is related to but distinguishable from absolutism in its focus on very basic features of the acoustic envelope rather than a broader placement of the emotional content solely within the higher order gestalt of the music but not explicitly at the level of its component parts.

The BRECVEMA framework proposed by Juslin (2013) organises different theoretical bases for experiences of emotion in music by combining these neural-motor and cognitive-appraisal components to account for affective states at multiple levels of processing. At the neural level, certain basic acoustic contrasts (e.g., sudden, loud, or dissonant sounds) evoke an autonomic arousal response (brain stem reflex). Similarly, the introduction of rhythm imposes exogenous patterns on bodily rhythm via biofeedback and entrainment (rhythmic entrainment). The repeated combination of sounds and events in temporal space might lead to a conditioned autonomic response (evaluative conditioning). Certain musical contours and conventions are internalised with repeated hearings, whether over the course of a single work or to the point where they become culturally engrained, such that when they are violated, the listener experiences an automatic affective response (musical expectancy).

At the acoustic level, certain instruments and musical phrases imitate better the sinusoidal patterns of human vocal communication. These similarities are hypothesized to evoke basic emotions (e.g., happiness, sadness, fear, and surprise) in

the listener via a process where the contours of the musical envelope are internally mimicked and affectively expressed (contagion). The direct contagion process might be extended by the evocation of higher affective states such as imagination (visual imagery), recollection of personal experiences (episodic memory), and aesthetic experiences (aesthetic judgement).

Scherer and Coutinho (2013) have critiqued the BRECVEMA framework, however, for neglecting to differentiate levels of function (cf. Marr, 2010) and for rejecting (Juslin, 2013) appraisal theories that can account for a number of the proposed component mechanisms (Lennie & Eerola, 2022). An alternative, multifactorial process approach has been proposed (Scherer & Coutinho, 2013; Scherer & Zentner, 2001) to address these limitations and move away from basic emotion approaches towards a dynamic component process model (CPM) as advanced by Scherer (1984, 2005). The multifactorial process approach centres appraisal as the coordinating process of other sub-mechanisms involved in music-emotion episodes, emphasising the interaction of structure, performance, listener, and contexts in which memory, entrainment, contagion, empathy, and appraisal might facilitate musical emotions. The model also includes stimulus evaluation checks such as ‘novelty’ and ‘intrinsic pleasantness’ that include but downplay goal-directedness as a primary driver in line with the Kantian (2000) definition of ‘disinterested’ aesthetic experience (Lennie & Eerola, 2022; Scherer & Coutinho, 2013).

Similarly focusing on appraisal as a core mechanism, Céspedes-Guevara (2023) expands his approach with a more constructivist account (e.g., L. F. Barrett, 2018) of goal differentiation by categorisation (Lennie & Eerola, 2022). Drawing on

the theory of constructed emotions (TCE) as active and dynamic interpretations of stimuli based on past experience and cultural knowledge rather than discrete basic emotions or innate core affective responses (L. F. Barrett, 2018), this approach to musical emotion also differentiates automatic perceptual mechanisms that produce fluctuations of affect from the associative and appraisal mechanisms that interpret and transform those fluctuations into emotion (and nonemotion) responses (Cespedes-Guevara, 2023). Such an approach relies on the categorisation of emotions, componential conceptions of core affect, and a dimensional approach to appraisal, but critics argue that this constructivist account does not go far enough to address ‘skeptical’ perspectives on categorisation, the construction and interaction of components, and dimensional appraisal (Lennie & Eerola, 2022).

Other approaches follow goal-oriented parallel-processing models of appraisal. Consistent with Moors and colleagues (2013; 2019) who propose a parallel-competitive dual-process model where behaviours (the *explananda*) can be accounted for by the competition of an automatic intuitive thinking system and an effortful deliberative system in terms of the sub-componential process underlying learning, motivation, action, and decision-making (the *explanans*), Lennie and Eerola (2022) propose the constructivistly-organized dimensional-appraisal (CODA) model. The CODA model rejects basic emotions and instead accounts for core musical affect within a multidimensional appraisal space (MAS) representing the various concurrent, competing appraisal dimensions that make up an individual’s interaction with their physical or social environment. The integration of parallel processing of multiple ongoing appraisals with a goal-relevance threshold for emotion cognition

(see Moors, 2017; Moors et al., 2017) allows for the affective meta-experience necessary for the conscious recognition of specific emotions in music (Lennie & Eerola, 2022). These and similar approaches to music-emotion experiences offer relatively new directions that are more open to embodied, goal-oriented appraisal models of listeners' emotional responses to music.

The above provides a high-level survey of many of the proposed models of music-emotion experiences. Each captures key aspects of how music expresses or evokes affect in listeners. Most tackle the problem by attempting to identify and define the components of such experiences and systematise them into a coherent framework. Taken together, the different components seem to involve some cognitive or appraisal aspect, neurophysiological or motor responses, and individual motivation or contextual subjective experience (cf. Scherer, 2005; Timmers, 2017). This substantial literature provides many lenses with which listeners' experiences of emotion in music can be studied, but all of them are limited to what Konečni (2008) symbolises as the $M \rightarrow E$ or music to (listener) emotion relationship. Without particularly critiquing or endorsing any one specific model of listener music-emotion experience but aligning most closely with expressive communication models (e.g., Hargreaves et al., 2005; Juslin, 2005, 2019), I next make the case for a MET model that explicitly includes the composer.

Social Psychological Perspectives

Whilst complex frameworks have been proposed to account for various individual affective stimuli found in music, paralleling trends present in emotion psychology more broadly (Parkinson, 1996), these frameworks almost exclusively

focus on the (individual) listener experience to the detriment of social-relational considerations of emotions in music. Humans, however, have evolved to rely on their perception and interpretation of others' mental and affective states to make judgements about how to interact and react (Parkinson & Simons, 2009; Singer & Lamm, 2009). To make this process more efficient, people employ mental schemata through which they can rapidly ascribe to others likely intentions, motivations, and emotions via mentalisation (Allen et al., 2008; Mar, 2011). This process would lead to high agreement between agents' felt emotions and recipients' interpretations of their emotions if social cues (e.g., facial or vocal expression) directly conveyed emotion via an involuntary contagion process (Ekman, 1972), but direct transferability does not obtain (Russell et al., 2003). Involuntary contagion of this kind consistently fails to yield both strong and reliable effects (Parkinson, 2011) whilst also depending on prior apprehension of the social significance of the cues themselves (Halberstadt et al., 2009; Hess & Fischer, 2013). Instead, other researchers posit that these emotion expressions are better viewed as a medium for an agent to convey a social intention to a specific recipient, in which case the recipient's perceptions of social cues are highly important, not because they are accurate representations of what the agent is feeling, but rather because they are a directed transmission of social intention, emotion, or motivation (Fridlund, 2014; Frijda, 1986). Because neither emotions nor intentions are purely individual states (Parkinson, 2005), the latter approach is more flexible and thus more accommodating to a social psychological approach to emotion in music.

Chief amongst interpersonal affective factors is empathy, which in turn has implications for affiliation, social ritual, and culture. Music is intimately bound up with the affective states associated with all of these and subsequent related behaviours underscoring the importance of considering these factors in the study of MET. From the earliest psychological accounts, empathy has been characterized as an emotionally salient signal (e.g., via expression, posture, gesture, etc.) in an agent that can directly induce a congruent affective state in a recipient (Lipps, 1903, 1907). Convergent emotional states, and the mirror neuron activation they initiate, are thus positively correlated with empathy as well as interpersonal trust and social cooperation (Alcorta et al., 2008; Carr et al., 2003; Ferrari & Coudé, 2018). Emotion convergence itself is posited to facilitate social interaction and bonding (Parkinson, 2020) as well as promote affiliation and liking—the ‘chameleon effect’ (Lakin et al., 2003). In musical contexts and beyond, these factors have also been implicated in increased solidarity and mutual prosocial behaviours (Clarke, 2019; Rennung & Göriz, 2016) observable across the lifespan from early social development (Trainor & Cirelli, 2015).

Researchers have also examined evidence for musically facilitated empathy and the empathic musical consciousness that might underlie ‘strong experiences with music’ (Clarke, 2019; Gabrielsson, 2011). For example, familiar music activates mesolimbic reward responses (Menon & Levitin, 2005) and evokes social bonding emotions (Huron, 2001; Levitin, 2008), possibly through episodic memories of social relationships (Baumgartner, 1992; Jakubowski et al., 2021; Janata et al., 2007; Panksepp, 1995). Complex mixed emotions arising from even unfamiliar music have

meanwhile been linked with greater empathy (Clarke, 2019; Eerola et al., 2016). Beyond in-group bonding, music listeners with high trait empathy have also been shown to be more likely to display implicit preferences for ethnic outgroups to whose music they were exposed (Vuoskoski et al., 2017). This ability of music to engender and entrain autonomic responses, evoke emotions, engage reward circuitry, elicit empathy, and associate motivational responses with socially salient stimuli renders it a powerful emotive and mnemonic mechanism for creating and maintaining cohesive social groups (Alcorta et al., 2008). Given the preponderance of research on the social functions of affect in music, the importance of also considering the affective functions of these social relations in music is clear.

The most commonly considered mechanisms of social emotion transfer are contagion and appraisal (Parkinson, 2011) through visual or verbal cues often taken from facial expression and context (Ekman, 1972; Fridlund, 2014; Hoegen et al., 2019; Parkinson, 2005). Contagion models propose that emotion itself is transmitted interpersonally without reference to orientation. For example, one kind of emotion contagion process, proposed in the primitive emotion contagion model (PEC), involves the recipient automatically mimicking the agent's expressions, which in turn induce a corresponding emotional state (Hatfield et al., 1994). The focus on the recipient's perception of the agent's physical movements is based on Lipps's (1907) earlier work that modelled contagion as the result of an empathic projective identification of the agent's states by the recipient's internal simulation that he called *emfühlung* ('empathy'). Similarly, another proposed model for contagion involves the agent signalling emotional orientation through dynamically articulated movement

that engages the recipient in a common rhythm and tempo via entrainment (McGrath & Kelly, 1986).

Some proponents suggest contagion might help explain the ontogenetic development of neural networks linking the sensory stimuli of music with motor, cognitive, affective, and social functions that develop in infancy and adolescence (Alcorta et al., 2008; Hatfield et al., 1993, 1994). Contagion is here proposed to facilitate the socialisation of processes that help shape certain genetic predispositions for musical emotion mechanisms, such as pitch sensitivity, preference for consonant harmony, and rhythmic entrainment (Hannon & Trainor, 2007; Trainor & Cirelli, 2015; Trehub, 2003). As noted above, however, empirical investigation has not returned good evidence for the mimicry-feedback process as a sufficient account of emotion transmission (Halberstadt et al., 2009; Hess & Fischer, 2013; Parkinson, 2011; Parkinson & Simons, 2009). Just as IET does not depend directly on mimicry alone (Parkinson, 2011), a model of MET cannot solely rely on traditional conceptualisations of contagion (e.g., PEC).

Since simple contagion cannot fully account for the complexity of affective experiences music evokes, a social psychological model of MET must also consider other processes. Within a social framework where composers convey emotions to listeners without direct interpersonal contact, such experiences must rely on the evaluation and interpretation of an external musical object (cf. Durkheim, 1912; Lazarus, 1991). Appraisal theories of emotion address precisely this issue (Lazarus, 1991). In contrast to contagion, relation alignment models such as social appraisal focus on what the agent's emotion is about. Social appraisal theories of emotion thus

depend on how the recipient perceives, evaluates, and interprets the agent's emotion and its object (Campos & Stenberg, 1981; Klinnert et al., 1983; Manstead & Fischer, 2001; Parkinson, 1996; Sorce et al., 1985). For example, 'aesthetic' emotions in response to music require some sort of judgement (Juslin, 2013).

An agent might convey these cues verbally, for example, by a speech act that encourages the recipient to align with the agent's orientation towards an emotion object. For example, statements such as 'I am angry at X' or 'I am afraid of Y' might orient the recipient towards person X in light of the agent's allocation of blame or towards situation Y with respect to its threatening qualities. Speech acts (and similar relation alignment actions) signifying emotion appraisals, however, need not be directed at or relate directly to the recipient and frequently also convey other emotion-based social cues (Parkinson, 2021). Vocal cues of affect have thus been posited to be particularly relevant to music-emotion experiences (Juslin & Laukka, 2003; Timmers, 2007). Theorists from as early as Helmholtz (1954) up through the modern day (e.g., Sawyer, 2005) have discussed the close relationship between vocal and musical expression. The component patterning model of vocal affect summarises vocal indicators of various emotional states and suggests hypothetical outcomes of stimulus evaluation checks for those states in light of acoustic parameters such as fundamental and formant frequencies (Scherer, 1986). Patterns emerging from the findings of subsequent empirical studies examining vocal expression and music performance were consistent with the earlier predictions and further revealed striking similarities between the two modalities (Juslin & Laukka, 2003). Due to these similarities, some theorists have proposed that music listeners simply perceive

expressed emotions (e.g., Kivy, 1991) whilst others suggest that listeners internally feel the expressed emotions via a mimicry-feedback contagion process (Juslin & Västfjäll, 2008).

These investigations again raise the potential interplay of contagion and appraisal processes in MET. With clear analogues between social and musical contexts, these mechanisms seem central to the social transmission of emotion and intention in music. Thus far, researchers have explored the implications of these theories of emotion in studies of affective aesthetic responses to different artworks (e.g., Silvia, 2005), but inferential forms of appraisal do not seem to capture the full spectrum of emotional responses to music (Juslin & Västfjäll, 2008) nor solely account for existing literature documenting interpersonal and intragroup emotion convergence (Parkinson, 2020), suggesting the need for a broader MET model combining aspects of appraisal theories with contagion and convergence mechanisms as well as other interpersonal effects.

Methodological Overview

As I argue at the outset of this thesis, a truly interpersonal paradigm is necessary to account for both composer and listener effects and the conditional processes that link them. The literature has thoroughly established that listeners do respond emotionally to musical stimuli, but has yet to examine the prior pathways linking the more distal but no less important composer intention and emotion through the music to those listener responses. Having reviewed several potential mechanisms for listeners' responses to music in the previous section, I adopt for the present study of composer → listener effects a circumplex dimensional model of affect that

structures affect around core dimensions of valence (displeasure to pleasure), arousal (deactivation to activation), and locus (intended or felt and felt or perceived). The circumplex model is particularly useful for the present MET context as it allows for the consideration of complex ‘mixed’ emotions (as well as tension between opposing emotions) by the rating of multiple angles whilst still capturing reliable measures of core affect, which have robust associations with particular musical elements (Griffiths et al., 2021; Ilie & Thompson, 2025)

In this thesis, I take a mixed methodological approach to examining how composers’ intentions and feelings might be involved in this process with the aim of developing a conditional process model as described above. Such an undertaking requires methods that can capture both qualitative and quantitative aspects of MET, beginning with the much-neglected domain of the composer. From composer experiences, traits, and states, something is conveyed through the music to the listener, which requires a mediational medium. As noted above, composers and listeners also bring their own trait characteristics (e.g., empathy, authenticity, and openness), which necessarily influence how these effects are sent and received. A social model of MET must therefore take each of these effect pathways into consideration with the aid of past empirical research on discrete parts of the transmission process as a guide.

Past Empirical Methodological Considerations

It is first important to note some of the ways empirical methods can help address outstanding psychological considerations as well as the limitations of those methods that have thus far impeded research into these topics. By briefly reviewing

literature offering solutions to these limitations, I consider how the present studies best combine qualitative interview approaches with quantitative self-report questionnaire methods to take the first steps in a more integrated direction by offering a combined social psychological framework for understanding MET.

An important first step to addressing empirical limitations is updating methods, particularly around questionnaires, so that they are tailored and validated for the questions at hand. A concern with past psychological investigation of emotion in composition arises from the length of the passages studied, as noted above. Most music psychological research has used (very) short excerpts (cf. more cognitive research, e.g. Cassano-Coleman et al., 2025, and emotions research in musicology) because longer passages—not to mention whole works—present the listener with an entire soundscape that collectively and complexly elicits a more stable associative response closer to a mood than a set of temporary and evanescent felt emotions (Weld, 1912), or so some theorists have argued (L. B. Meyer, 2008). This conflation of mood and felt emotion is compounded by the nature of self-report questionnaires, which do not provide adequate dynamic or descriptive flexibility to capture the essence of musical emotions that are often already complex and subtle if not deceptive and misleading (L. B. Meyer, 2008). Self-report questionnaires are also at risk of only picking up perceived associative mood conventions on one hand or failing to guide listeners to differentiate felt emotion from the intellectual understanding of composers' intentions accessed via those learned associations (Kivy, 1989; Scherer & Zentner, 2001).

To address these issues in the present research, I used composition excerpts selected by the composer to capture a specific affective soundscape. In addition to independent ratings of musical elements, qualities, and affects, I asked my listener participants to respond to every item (i.e., every angle in 30° increments on the Cartesian plane formed by the two core valence and arousal dimensions) of the affect circumplex for each composition to better capture the complexity of musical affective experiences, rather than relying on intensity ratings of a single, participant-selected ‘primary’ emotion as in one methodological approach to past studies (e.g., Chamberland et al., 2024; Folyi, 2025). In-depth interviews in the present research help address the limitations by allowing for dynamic conversation with composers about their intentions and emotions during the composition process as well as how composers think about their listeners (and anticipate how their listeners respond to their work). Discussion of these social considerations in the composition process in turn allows for more nuanced questions when interrogating listener affective responses.

A further limitation of both qualitative and quantitative psychological studies of emotion using musical stimuli has been identified by Berlyne (1974) and reiterated by Simonton (2010) as the use of artificial or lab-designed stimuli. Simonton raises the further questions of whether the results of past research that has relied on these methods can be replicated with more natural stimuli, and whether such stimuli might also reveal more nuanced data about the qualities and aesthetic success of the compositions themselves. The present research attempts to address both

questions in the MET context using methods more similar to naturalistic methods in music and emotion research.

Methodological Structure of the Present Research

In the present research, I combined elements of Thrash and colleagues' (2017) groundbreaking statistical approach and Pelowski and colleagues' (2018) paradigm for assessing emotion sharing via visual art to take the next step of asking whether music listeners' affective states correspond to the states composers experience or intend to convey at the time of composition. These combined methods allow me to separate and examine the unique effects of composer intention and emotion on listener responses using SEM of conditional processes within a complex nested data structure (see Chapter V for a more detailed explanation of the novel contributions of this analytic strategy).

To construct such a dataset from which to address my research questions, I conducted a series of four studies examining a) whether and how composers convey emotional meaning in their music through semi-structured interviews (Study 1), b) how composers' trait individual differences as well as composition-specific affective states and intentions vary during the creation process (Study 2), c) how experts rate composers' original compositions along evaluative-representational (Juslin & Sloboda, 2001) and appraisal (Thrash et al., 2017) dimensions (Study 3), and d) whether and how naïve listeners' traits influence their state affective responses to composers' original compositions (Study 4). I combined data from the three quantitative studies in a cross-classified multilevel conditional process analysis model (as shown in Figure I.1), allowing for the direct empirical investigation of the above

research questions using the methods described in the following sections and elaborated in Chapter V.

Study 1: Composer Interviews

Several celebrity composers and composition theorists have commented in interviews and autobiographical essays on aspects of their creative process, but there remains a sense of preserving the ‘mystique’ of the composer in not revealing too much or addressing the practical musical techniques that might be conveyed in the context of composition tuition. Study 1 of this thesis thus sought to lay the qualitative groundwork to address that gap by seeking the perspective of composers in semi-structured interviews that specifically probed how composers engage with emotion in their music and composition process, the practical aspects of which musical elements are employed, and the technical aspects of how those elements are manipulated to achieve the desired effects.

To help guide the interviews I conducted with composers, I first drew on aspects of aesthetic philosophy, such as sublimity (Burke, 1757; Longinus, 1991; Zangwill, 2022), that have been previously measured in psychological research (Thrash, Maruskin, et al., 2010; Thrash et al., 2017). These key constructs are explored in greater depth, especially as rated by expert listeners, in Study 3 (see Chapter IV). Recognising limitations of arts discipline-specific operationalisations (Zangwill, 2022), however, I also had recourse to music theory and musicology to craft an initial *a priori* list of core musical elements that might function as mediators of the effect of music on listener emotions (though divisions remain in the

musicological literature about the nature and locus of emotion in music; see L. B. Meyer, 2008).

Given discrepancies between the modern philosophical semiotic framework (which is linked to more absolutist approaches to understanding the source of emotions in music) and the ways in which the majority of modern composers talk about emotion in their work, I designed my questions to begin with specific musical elements with ample room for composers to expand beyond a strict semiotic framework. Using standard musicological terms allowed for more accurate comparisons between composers, because even formalist theorists and practitioners (e.g., Hanslick, 1986; Stravinsky, 1975), who do not ascribe affective meaning to the use and combination of core musical elements, almost invariably place them along dimension of relation such as the horizontal relation of pitches (melody), the vertical relation of pitches (harmony), and the temporal relation of pitches (rhythm). I also included dynamics (expression via intensity of volume) and structure/form (organisation and development of the above). In addition to these relational and relative axes, I considered broad influences of intellectual, historical, and intuitive considerations on composers' style and approach. I adopted the above conceptual framework of core musical elements as the basis for interview prompts, particularly bearing in mind the need to expand beyond the absolutist semiotic framework as proposed by modern philosophy of music to include more ancient (e.g., Aristotle, 2001b; Pindar, 1841; Plato, 1992) considerations of both social and moral implications of the human-music interaction (DeNora, 2000, p. 21).

Study 2: Composer and Composition Qualities

To supplement the qualitative data provided by Study 1, in Study 2, I aimed to quantitatively investigate the hypothesised predictors and mediators of MET by drawing on the themes and techniques arising out of the interviews. To do this, I asked composer participants to upload a short excerpt of an original composition along with short questionnaires about their feelings and intentions during the composition process as well as general individual differences. The items in the questionnaires were a combination of validated measures and novel targeted questions based on the composer interviews.

For this study, I drew on a sample of adult conservatory- and university-trained or professionally active composers identified through industry contacts, various conservatories and university music faculties, non-profit organisations dedicated to composition, and other networks suggested by interview participants in Study 1. The measures were designed to assess both process (e.g., inspiration vs. effort) and affect (e.g., felt vs. intended emotions) with the aim of providing additional quantitative insight into the creative composition process. By asking composer participants to upload a short excerpt of their own music, the survey was grounded in a specific concrete example about which they could more readily respond. The excerpts also provided stimuli for the subsequent studies (3 and 4), in which expert and naïve listeners could respond to precisely the same targets and items as the composers.

Study 3: Expert Listeners

The next step was to return to the place music psychology researchers tend to begin: measuring music listeners' responses to composers' work. In this study, expert

composers, performers, and musicologists rated the composer outputs from Study 2 along representational and aesthetic evaluative dimensions. By utilising expert raters, I ensure the evaluations of each work are informed by relevant musical training, engage with debates over whether arts domain expertise demonstrates convergence or idiosyncrasy (Hekkert & Wieringen, 1996; Leder et al., 2004; Silvia, 2013), and respond to theoretical questions about the different attitudes taken by composers when writing versus listening to music (Varga & Parkinson, 2024). These expert data also provide a preliminary look at and proof of concept for MET by demonstrating the presence of transfer effects and empirically differentiating the outcomes of composer intention and feeling.

Within the structure of the larger project, the expert ratings also provide rich coding data for the candidate mediators and evaluative moderators of the MET effects. To derive a list of *a priori* evaluative-representational descriptors (Juslin & Sloboda, 2001), I drew on concepts from aesthetic philosophy and their modern psychological measures that allowed me to engage historical and theoretical questions with a grounded empirical approach. Then, in combination with data from composers themselves, the expert data help build the MET model at the level of musical elements, compositional evaluative quality, and historical philosophical context. They also indicate the presence of MET effects, if not the causal pathways, paving the way for more granular investigation of the differential effects of composer intended and felt affective states on listener responses within a multilevel framework that accounts for the cross-classification of composer-listener data.

Study 4: Naïve Listeners

The present research is novel among music psychology studies in its use of composer participant output as stimuli for naïve listener participants. The use of real participant-generated stimuli provides data that can be used to directly assess composers' intentions and emotions when composing, which has the advantage of greater validity and much expanded potential for nuanced statistical analysis of the complex dynamic processes involved in MET. In the final study, the same audio excerpts that composers self-selected and uploaded were randomly presented to listeners to examine their states via self-report measures. Using the same adjective items as composers and experts, listener participants reported both the emotions they felt in response to each excerpt and the emotions they perceived the composer to be intending to convey.

I then combined the listener data with the quantitative composer and expert data to construct the full cross-classified nested multilevel dataset. Drawing on advances in statistical modelling techniques demonstrated by Thrash and colleagues (2017), I could then utilise conditional process analysis (CPA) to test the effects of composer states on listener states as well as the mediation of these effects by musical elements and moderation by individual differences. Extending the statistical applications of past research, I also examined congruency effects using response surface analysis (RSA). Questions of congruence (e.g., between composer intention and listener feeling) are particularly relevant to the implications of MET for cultural transmission and evolution on the premise that musical works that listeners deem worthy by liking, sharing, or valuing are more likely to be transmitted over time,

tying into the effects examined by Simonton (1995, 2010) for compositional ‘success’ and by Thrash (2021) within the meta-theory of the transmission function of higher states such as inspiration.

Discussion

Together, these four studies offer a substantial first look at the potential applications and future extension of a model of MET within a social psychological framework. By focusing in each study on a different component of what I see as the broader social context in which musical emotions exist, I hope to draw more specific attention to the integral role each plays in relation to the others. Whilst the field has made significant progress towards better understanding listeners’ experiences, to keep advancing knowledge in this area, consideration must also be given to composers as the prior causes of those listener outcomes. I attempt to do so in a way that does not treat the linking pathways as merely modular predictive effects, however; instead, I want to emphasise that these interpersonal conditional effects can only exist in what is necessarily a social and cultural context.

The social aspect of my framework is both novel to the literature on musical emotions and, I argue, integral to a complete understanding of the emotional significance of music itself. By referring to musical emotions as ‘social’, I am not suggesting that they are (all) the type of complex emotion (e.g., embarrassment, pride, envy, shame, and guilt) that serve interpersonal relational functions (e.g., Krendl & Heatherton, 2017; Lewis, 2008). Rather, in line with Parkinson (1996), I assert that musical emotions are caused by interpersonal (composer-listener) factors, have consequences for both listeners and composers, and, as such, have an essentially

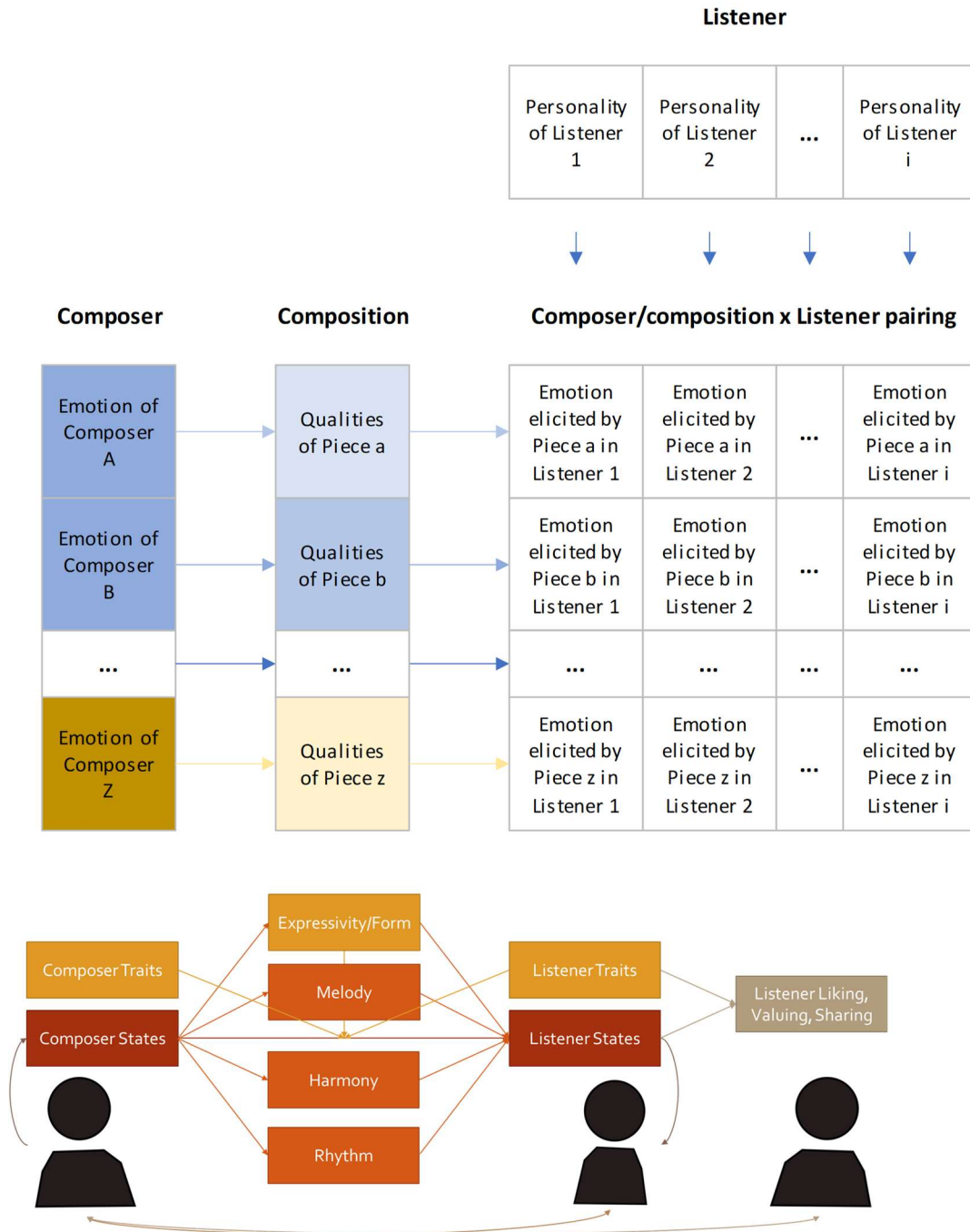
communicative (between composers and listeners) and cultural (across performances and audiences) component. All of these characteristics indicate that musical emotions are not (just) internal, reactive phenomena proper only to listeners. The project and contribution of this research is thus to move beyond the well-developed body of research that has focused so much on individual listener experiences of musical emotions by considering how they might properly be considered *responses* within a broader social phenomenon of transmission.

This widening of the frame of reference is not purely a practical development in the empirical literature; it is also a theoretical assertion of the necessary potential for interpersonal transmission of both intention and emotion as a fundamental condition of music itself. The musical composition, as the social medium through which composers convey their intentions and emotions, is thus a paradigmatic expression of self (and arguably being). When viewed through this lens, the social nature of the MET model carries implications well beyond psychology and musicology to other domains of research and industry, ranging from music medicine and adaptive marketing to the use of music in political campaigns and the rise of generative artificial intelligence in the arts.

Figures

Figure I.1

Cross-Classified Structure of the Composer/Composition $\times$ Listener Dataset with a Process Model of MET



Note. The figure provides an example of the core processes hypothesised to be involved in MET and how the data structure addresses each component of the model. The direct effect of composer states on listener states is shown in red. The indirect effects through composition quality and musical element mediators are shown in orange. The moderating effects of composer, composition, and listener characteristics are shown in yellow. External to but contextualising the conditional process, the cyclical relationship between composer intentions and listener perceptions is shown in brown with the iterative socio-cultural feedback between composers and listeners shown in tan, reflecting how composers and listeners might think about each other. This relationship is also implicated in cultural transmission and evolution, the first step of which is modelled here as listener liking, valuing, and sharing indicated in beige.

Chapter II

Mechanisms of Musical Emotion Transfer:

Insights from Composers and the Musicological and Psychological Literature

Music is recognised widely to be a particularly emotive medium across disciplines such as musicology, philosophy, and psychology. Much literature has focused on the affective effects of music on listeners, but very little attention has been paid to the role of the composer and their intentions in this process. Several composers and composition theorists have commented in interviews and autobiographical essays on aspects of their creative process, but there remains a sense of preserving the ‘mystique’ of the composer in not revealing too much or addressing the practical musical techniques that might be conveyed in the context of composition tuition. The present qualitative study addresses this gap by seeking the perspective of composers in semi-structured interviews that specifically probe how emotions are engaged by music, the practical aspects of which musical elements are employed, and the technical aspects of how those elements are manipulated to achieve the desired effects. The findings largely support existing musicological theory regarding the central components of music (from a primarily but not exclusively Western classical idiom), but they also provide new insights into the variety and hierarchy of distinct musical elements used in evoking affective responses in composers’ work, the differences between listening qua composer versus qua listener, and the practical ways in which composers consider the differentiation of affective reactions and cognitive appraisals of perceptions. These findings help shape future research questions that can be addressed using quantitative psychological methods, specifically around creative and affective states in composers and listeners.

Most people listen to music expecting to be ‘moved’ by what they hear (Simonton, 2010). The notion of a musical work as a vehicle for emotional transmission accounts for much of the music industry’s cultural and economic success (Lull, 1992; National Assembly of State Arts Agencies, 2020). Yet the focus of research into this phenomenon has almost entirely neglected the role of the composer in this process (Impett, 2016; Sloboda, 1999). To address this gap in the

empirical literature from a social-psychological perspective of interpersonal emotion transfer (Parkinson, 2011), I propose that music functionally acts as a transmissive medium by which the affective states of one individual (a composer) can be conveyed meaningfully to another individual (a listener) in the absence of direct interaction between two parties. I begin this investigation with the present qualitative interview study, in which I asked composers how they engage with emotion during the composition process to develop themes raised by philosophical, musicological, and psychological theories in the literature. My overall aim is to understand better the role of the composer as a communicative agent within a social model of musical emotions, focusing on ‘musical emotion transfer’ (MET), which describes the phenomenon whereby composers *express* (rather than portray) their felt or intended emotions in music, and listeners *respond* to that music with a corresponding emotional experience.

When considering a social psychological model of MET, however, it is important to note that music differs from typical social interaction in a number of critical ways. It is an especially clear example of a medium in which the recipient is typically unknown to the agent (despite the nature of audience fan-bases becoming clearer with time and artist success; Boyd & George-Warren, 2013; Hargreaves et al., 2005). Moreover, like other forms of indirect and asynchronous communication from road rage (Parkinson, 2001) to technology-facilitated platforms such as telephone and video conferencing (Parkinson & Lea, 2011), the basic model of social interaction needs to be adjusted to widen the frame of reference. Even these examples involve more ‘online’ interactions than the recorded and played back context of much music

listening (Juslin et al., 2008, 2016). Similar arts-mediated transmission paradigms have been proposed and empirically tested in creative writing (Thrash, Maruskin, et al., 2010; Thrash et al., 2017) and visual art (Pelowski et al., 2018), but not yet with music, where research has typically relied on consensual self-report and observational biometric data of (only) listener responses to stimuli (e.g., Becker, 2004; Hirokawa & Ohira, 2003; Juslin et al., 2008; Juslin & Laukka, 2004; Menon & Levitin, 2005; Thompson, 2006; Vuoskoski et al., 2012, 2017; Zentner & Kagan, 1996, 1998 for a brief survey).

This gap in the literature is ripe for exploring, but the lack of empirical precedent also makes direct quantitative enquiry difficult. A small number of studies have used historiometric, interview, or case study methods (e.g., Cochrane, 2013; Douek, 2013; Simonton, 2010) to explore related issues. None of them, however, has paid sufficient attention to composers' views on the emotional expressivity of music, the relative importance of moving listeners, and the musical elements that can achieve these effects. The difficulty is compounded by disagreement amongst composition theorists, philosophers of music, and music psychologists about the nature of emotion and meaning in music (L. B. Meyer, 2008), especially in light of the suggestion that the aesthetic appraisals at the core of many of these debates might be quite different in music from those in other arts disciplines and the study thereof (Zangwill, 2022). To begin overcoming the foregoing challenges, I conducted the present qualitative investigation of composers' techniques and processes with the aim of hearing directly from composers whether and how they engage (with) emotion in their creative work and in what ways they intend to influence listeners' emotions.

Beginning with perspectives on composition from musicology, I distinguish between previous writers who have endorsed the emotional expressivity of music from those who have not. The next section argues that a psychological perspective helps bridge historical approaches and modern empirical methodologies but still leaves major theoretical questions unaddressed. To help facilitate a synthesis, the final section briefly outlines the most commonly accepted elements of music that might play a mediating role in MET between composer and listener via original compositions. This literature review lays the groundwork for delving into the empirical data gathered from conversations with composers themselves.

Perspectives from Musicology

Before beginning to investigate how composers might convey specific emotions and meanings in their work, it is first important to note that not all composers aim to do so or even believe that doing so is possible. These differences are reflected in various compositional philosophies and represent preliminary ways of classifying approaches to the questions of whether and how emotion is transferred interpersonally through music—proto models of MET—insofar as they address the question of where in the ‘musical event’ emotion exists. Examining these schools of thought is a critical first step in understanding how composers engage with the affective qualities of music.

As outlined in Chapter I, Meyer (2008) helpfully framed the divisions in musicological theory in terms of two distinctions. The first is between composers who operate under the premise that music can express emotion (‘expressionists’) and those who favour an intellectual aesthetic appreciation of musical form (‘formalists’)

in its own autonomous terms—akin to what has become the cognitive theory of emotion in music (Cook & Dibben, 2001; Davies, 2001; Kivy, 1989, 1993). The second distinction addresses the question of whether composers view emotion as arising directly from acoustical qualities ('absolutists') or from external associations those qualities elicit ('referentialists'). Whilst formalist composers in the strictest sense should also be absolutists (as the focus is purely on the intrinsic formal content), it might be possible for formalists to remain committed to this ideal and also reference content external to their composition by use of quotation or appealing to historical musical tradition. Nevertheless, an expressionist composer might more easily be either absolutist or referentialist.

Representational approaches can be further contrasted with frameworks in which emotional qualities are 'read directly' from acoustic qualities of music, possibly by brain stem reflexes to sound or as a consequence of biorhythmic entrainment (Juslin, 2013). This 'universalist' reductionism (L. B. Meyer, 2008, p. 5) is related to, but distinguishable from, absolutism in its focus on basic features of the acoustic envelope rather than the higher-order gestalt within which emotional content is perceived. Figure II.1 visually plots how these different frameworks relate to each other and to other common approaches to understanding the place of emotion in music.

These distinctions are vital to understanding both historical and modern approaches to the question of emotion in music from music theory and practical composition perspectives. As such, they are a natural starting place to set the stage for the present enquiry into composers' use of musical elements to convey (or reject)

the presence of emotion in music. Having established this framework for classifying different compositional perspectives, I next turn to the broader psychological context in which the affective qualities of music have been considered in light of the composer's art.

Perspectives from Psychology

Psychology offers additional means for distinguishing between compositional approaches that seek to convey some specific, if complex, emotions (e.g., the bittersweet pleasure of melancholy; Cain, 2022; Grüning et al., 2023; Vuoskoski et al., 2012) and that seek to be liked by an audience (e.g., by being generically pleasurable; Langer, 1958; Meyer, 2008; cf. Al-Fārābī, 1998; Augustine, 2017; Plato, 1992). Analogously to creative writing, activated positive affect (i.e., state experience of increased happiness, wellbeing, self-esteem, etc.) is easily triggered by reward salience (i.e., when a desired object becomes a focal consideration, e.g., through wanting or liking), but higher affective states (e.g., inspiration, awe) require some transcendent trigger, such as the illumination or enlightenment accompanying mystical experiences or the motivational impetus of transmission found in disseminating scientific findings or preaching religious revelation (Thrash, 2021; Thrash & Elliot, 2004; Varga, 2021). This interplay implies potential differences between the compositional approach and the listener's perception and appraisal of emotional meaning for any given work of music, particularly when evaluating both technical mechanics and psychological aesthetic value (Clarke, 2011; Juslin & Laukka, 2004; Merrill et al., 2020; Timmers, 2017). In other words, responding to music may not be the same for composers and listeners.

Composers and composition teachers have built up centuries of literature on the art of composition, most of which seems predicated on the power of music to elicit an emotional response (L. B. Meyer, 2008). What remains unclear, however, is what that emotional response is. An important first step is an updated and integrated theory of MET that not only accounts for how emotion is transferred in music but also what and where that emotional content is in the transmission process. For example, psychologists investigating empirical aesthetics have distinguished between the feelings elicited by music and the intellectual perception of the composer's intentions (Gabrielsson & Lindström, 2001; Merrill et al., 2020). This distinction acknowledges the dual affective experience of the composer at work—the experience of one's own felt emotions and the projection of potentially incongruent emotions onto an (often) unknown recipient—and opens up the space in which composers might discuss their engagement with emotion in their work, particularly at different career stages where knowledge of their potential audiences might be more or less clear.

These lines of enquiry, however, have led psychologists to primarily examine listener emotional responses rather than investigate composer intentions directly. Prior research has, for example, yielded insights into harmonic preferences for consonance (L. B. Meyer, 2001; Scherer & Zentner, 2001) even from infancy (Zentner & Kagan, 1996, 1998) and associations of music-induced emotions with psychoacoustic qualities such as tempo, mode, loudness, pitch range, scalar intervals between pitches, articulation, and amplitude envelope (Gabrielsson & Lindström, 2001). These factors are the more granular bases for elements traditionally defined by

music theorists in terms of melody, harmony, tonality, rhythm, and timbre. As the tools in the composer's kit, each of these potentially represents an opportunity to express nuanced and complex emotions, but the relationship between the combination of these factors and the way composers and listeners engage with them (in potentially different ways) remains to be studied, hence the need to (literally) bring composers into the conversation in the present semi-structured interviews.

Systematic Approach

Despite differing views on whether emotion is communicated in music, what constitutes meaningful affective responses to music, and by what processes those responses are communicated or elicited, there seem to be many points of agreement amongst composition theorists and music psychologists about the notion that composers do affect listeners' perceptions and experiences of emotions through their music, though disagreement remains about the mechanism and kind of phenomenon, such as whether it is through direct expression, more disinterested aesthetic appreciation of form, or listener-specific context (Cespedes-Guevara, 2023; Juslin, 2005, 2019; L. B. Meyer, 2008). Empirical investigations have demonstrated that the musical elements used in composition and interpretation are effective emotion cues for listeners (e.g., Quinto et al., 2014; Simonton, 2010), but research has also shown that the emotions listeners perceive and experience are complex and heterogeneous (Cespedes-Guevara & Eerola, 2018) and that the ways in which listeners engage with music and its associated emotions are diverse and dependent on personal, social, and socio-cultural appraisals (Lennie & Eerola, 2022; Timmers, 2017). Considerably less is known, however, about how composers experience the creative process when it

comes to their own engagement with emotion in music. What is available for reference is the framework of musical elements used to describe the building blocks of composers' (rather than performers') work and how they affect listeners' emotional perceptions and experiences (Cespedes-Guevara & Eerola, 2018; Juslin & Laukka, 2003).

Thus, a synthesis of the musicological perspectives on composition and psychological perspectives on music's emotional effects provides a broad framework that is capable of covering the aesthetic and affective elements of music. Though informed by aesthetic theory (e.g., Burke, 1757; Collingwood, 1938), the analysis of composition also involves many more technical aspects that cannot be easily translated from other arts disciplines (Scruton, 1983a; Zangwill, 2022). I therefore also drew on established concepts in the academic domains of musicianship, composition, and music theory. Including those elements identified as core dimensions of music—especially those investigated in previous psychological studies (e.g., Gabrielsson & Lindström, 2001)—alongside more interdisciplinary aesthetic features allows for more detailed discussion and future empirical testing of specific elements and helps to overcome doubts raised about the applicability of predominantly literary aesthetic theory to music (Zangwill, 2022). In some of the schemata included here, aesthetic philosophers and music theorists explicitly offered their own dimensional frameworks of musical perception (e.g., melody, rhythm, and harmony; Scruton, 1983b). I thus adopted a conceptual framework labelled according to conventional music-theoretical core elements of composition comprised of more granular psychoacoustical factors, along with techniques for manipulating them.

Melody represents the ‘horizontal’ progression of notes over time, marking out the syntax and contour of the musical phrase by their grouping. More technically, melody has been defined as the arrangement of pitched sounds in musical time in accordance with cultural conventions and constraints (Ringer, 2001).

Harmony represents the ‘vertical’ relationship of notes, setting the acoustic context by drawing out certain resonances over others. Scalar sets of related pitches (often defined by the successive intervallic relationships between adjacent pitches in a scale) can be classified as distinguishable *modes* or identifiable parameters of *tonality*, though harmony is technically the combination of notes sounding together simultaneously and successively (Cohn et al., 2001). It can also denote the culturally constrained systems by which such combinations are governed and analysed.

Rhythm represents the regulation of the succession of strong and weak elements (London, 2001; Oxford University Press, 2022). Relatedly, *tempo* is the relative speed at which that regulated pattern is produced.

Dynamics represent the intensity of volume (amplitude) with which notes and sounds are expressed (Thiemel, 2001). Relatedly, in the Western Classical tradition, particularly from the 20th century onwards, dynamics are seen as a fundamental parameter of *expression*.

Timbre describes the tonal quality of sound (Campbell, 2001). It is thus intrinsically related to *instrumentation* and *orchestration* as different instruments sounding the same note produce different tonal qualities.

Structure (or **form**) denotes the constructive and organising element of music (Whittall, 2001). In this way, it is the synthesis of tonal, sectional, and cadential

organisation, ordering, and development of musical ideas in time (Webster, 2001), inclusive of basic units of *phrasing*.

The Present Study

The aim of the present study was to begin addressing questions about the role of composers and their use of specific musical elements in light of broader music-theoretical and psychological contexts. I crafted interview prompts and the above *a priori* list of core representational (i.e., descriptive) musical elements that composers might manipulate to create emotional effects in their listeners. I used previous psychological investigations of core musical factors (e.g., Gabrielsson & Lindström, 2001) and the above outlined aspects of composition theory and practice concerning the elicitation of emotion, impression of mood, and the conveyance of meaning in music as taught in the Western Classical tradition. I also considered the variable ways in which the use of those elements might be applied and perceived by referring to empirically validated psychological frameworks of affect (Yik et al., 2011), inspiration, (Thrash & Elliot, 2003), effort (Thrash, Maruskin, et al., 2010), and chills (Maruskin et al., 2012).

Working from the consensual nomenclature of musicologists and music psychologists, and informed by the points of disagreement in its application, my approach to identifying and labelling potential mediators of the effect of music on listeners' emotions drew on both of these sources in turn. Informed also by my own training in composition, I attempted to synthesise a coherent interview guide from which to speak to composers about the role of affective states in their creative processes. In defining this preliminary guide, the musicological and psychological

literatures proved to be rich sources from which to supplement conventions of music theory.

Theory, however, can drift very far from practice. As noted in discussions of musical form and its evolution, practice particularises and theory generalises; research that attempts to integrate both is especially vulnerable to the tensions that arise from these divergent ways of thinking (Whittall, 2001). Thus recognising the complex and often contentious academic discourse surrounding the question of emotion and meaning in music via the contributions of theorists, philosophers, and psychologists, I set out to interview composers from a variety of backgrounds to understand better how they actually engage with affect in their day-to-day work. Though informed by the general musicological literature, the lack of specific empirical precedent meant this study was predominantly exploratory in nature, with themes emerging from the data as analysed, consistent with an updated flexible grounded theory approach (Deterding & Waters, 2021).

Method

Participants and Procedure

Qualitative data was obtained both from interviews I conducted and from analysis of historical interviews. Ethical approval (R79048/RE001) was obtained from the Oxford University Medical Sciences Interdivisional Research Ethics Committee (MS IDREC). I identified composers through professional contacts and invited them to speak about their work process using a semi-structured approach. I arranged these interviews and obtained informed consent via email invitation and an online booking form. I asked interviewees about their creative process broadly and

about whether and how (if so) they attempt to convey emotional meaning in their music. I also asked them about how they engage with and affectively respond to other composers' music and in what ways they might evaluate other composers' work, particularly with respect to those affective elements. All interviews took place on Microsoft Teams and were recorded with audio and video (except in cases where interviewees preferred to have their camera off). I produced transcripts of each interview from these recordings. The sample of interviewees ($n = 15$) included 3 women and 12 men from 6 countries (the UK, the USA, Canada, Finland, Germany, and Haiti) with an age range of 21-84 years ($M = 35.5$, $SD = 18.78$).² Ten composers described composition or film scoring as their primary professional vocation, whilst five indicated it was a secondary profession to performance ($n = 3$) or teaching ($n = 2$). The majority ($n = 11$) described themselves as writing primarily contemporary Western classical art music though two indicated they were as active in traditional music of other cultures. Four others specified Western sacred music as their primary genre. One participant primarily worked in film scoring, and three others mentioned some scoring experience. Participation was limited to those who had received formal musical training at the conservatory or university level and who did not exclusively work with lyrics-based music.

In addition to the live interviews that I conducted personally, I reviewed transcripts of seven additional interviews from a larger collection (Schafer, 1963) of

² Not all participants consented to provide their age, so these descriptives are calculated based only on the data provided.

historical interviews (HI). All of these interviews were conducted in the UK with established male professional composers ranging in age from 57 to 82 years ($M = 65.4$, $SD = 9.85$). Though the interviews did not exclusively address questions of music and emotion, they all included discussion topics relevantly overlapping with my questions of interest. The final sample was thus comprised of the combination of these two qualitative datasets ($N = 22$).

Interview Questions

The open-ended interview prompts included questions about each composer's background, experiences of emotion in music, and process of engaging with affect (if at all) as well as questions about how they listen to and evaluate their own and others' music. The full set of possible questions used in the semi-structured interviews can be found in Appendix II.A.

Coding

Informed by the grounded theory approach and implementing elements of Deterding and Waters's (2021) modernised 'flexible coding' method, I classified themes (i.e., core musical elements and evaluative considerations) derived from musicological convention and confirmed in the interviews in a two-step coding procedure. First, index codes were created based on expected topics, techniques, and considerations found in the musicology literature, often aligning with specific elements of music. These codes were applied to relevant excerpts of the interview transcripts, yielding quotations that stood out as particularly representative of the topic. Analytical codes were then developed to correspond specifically to the evocation and communication of emotion in music (e.g., references to programmatic,

atmospheric, affecting techniques or examples). The analytical codes were applied to the qualitative data, and I subsequently reviewed each application for consistency.

Examples demonstrating the application of codes can be found in Appendix II.B.

Results

The following results are organised into subsections around the major themes that emerged from the interviews employing the consensual standardised coding terms taken from the interdisciplinary literature on emotion in music as defined above. These themes broadly address questions about whether and how composers engage with emotion in their work as well as the relative importance they place on this with respect to their intentions for listeners' perceptions and experiences. I also explore secondary, emergent themes, such as cross-cultural differences in the above, composers' differing views on the role of aptitude and talent in communicating emotion, and differences in how composers write versus listen to music.

The majority of interviewees ($n = 20$) placed themselves in the expressionist category; only two rejected the notion that music expresses specific emotional meaning. Based on a systematic review of the coded qualitative data, most composers converged around the same terms for musical evaluation (of technical mastery and mechanics) and psychological appraisal (of sources, points of reference, and frameworks for assessing affective, moral, or aesthetic impact) when describing musical elements and techniques associated with affect. Harmony and rhythm were mentioned as a critical element of conveying affect 38 times each, melody was mentioned 34 times, structure was discussed in 16 cases, and timbre in only 9. Despite long being held in the empirical musicological literature to be vital,

dynamics, as musical affective expression, was mentioned in only one instance. (See all frequencies in Table II.1.) The relative frequency with which composers employed these musical elements, however, was not necessarily directly related to the ways in which they engaged with each aspect or approach.

In addition to the foregoing musicological terms, different approaches to composition and evaluation emerged from the interviews. I have categorised these thematically as intellectual (based on logic, systems, and analysis), historical (based on convention and tradition or a response thereto), and intuitive (based on musical instinct, feeling, or flow) approaches. Intellectual approaches to composition were described in four cases, and historical and intuitive approaches were described in five cases each. Below and in Table II.1 are representative examples of interview data. More extensive examples for each code can be found in Appendix II.B.

General Compositional Approaches

Intellectual considerations focused primarily on the translation of abstract concepts into recognisable musical materials. They had to do with musical experiences that both aided and were aided by “enlightenment” (cf. Adorno, 1989, p. 15) or similar cognitive states, such as insight or epiphany. Composers spoke about undifferentiated first impressions and ideas giving way to intellectual understanding (e.g., HI_02)³ as well as their desire to produce non-derivative but still “intelligible” compositions (US_04). These considerations were primarily associated with the

³ All interviewees were assigned a country-specific identifier (CA = Canada, DE = Germany, FI = Finland, HI = Historic Interview, HT = Haiti, UK = United Kingdom, US = United States).

formalist appreciation of structure but were also related to referential approaches to representation and listeners' affective experiences. Composers also described this approach in terms of reasoning through how to practically express ideas musically, working methodically until they had intellectual "reason to believe that *this* theme expresses *this* idea" (US_05). The same American composer just quoted gave the following example of his creative process: "I'm trying to express something that is broken or divided, so I need a theme that feels broken or divided.... I could have this theme use a scale that is half in one place and half in another place. These two places are misaligned. This is a way of generating that idea on an intellectual level" (US_05). Similar examples were given by several composers (e.g., UK_05).

Historical considerations were primarily concerned with questions of form and structure as well as culturally informed associations of sounds with meaning and emotion. These considerations were encoded by syntactic processes that are culturally circumscribed and thus historically informed (L. B. Meyer, 2001, p. 345). As such, musical emotional stimuli in this context were described as more likely to be appraised according to external standards of historical norms and cultural values (Kenyon, 1988; Scherer & Zentner, 2001). This approach involved composers explicitly looking to historical examples of expressing a given idea (e.g., US_05) whilst also recognising that all commonly used musical "forms are the courses that music takes under the impact of sociological and cultural forces" over time (HI_04). They also noted that the historically-informed evaluation of music is constantly updating. For example, a Haitian composer observed that "right now, because of the evolution of music that you can listen to music all over the place, you get a different

understanding of what makes something better than the other one” and that this process interacts with cultural norms and cross-cultural contact as well (HT_01).

Intuitive considerations had to do with gut feelings of what I have called ‘emergent apperception’ (Varga, 2021). They were similar to the process described by Adorno (1989) by which music “trains the unconscious conditioned reflexes” (p. 53) and personal values used in appraisal (Farnsworth, 1958; Scherer & Zentner, 2001) or more primitive, unconditioned responses (L. B. Meyer, 2001). As an example of this, a German respondent recommended that composers “should just go purely on instinct and capture the emotion” (DE_01). Others endorsed similar strategies, even when asked explicitly about formal evaluation of compositions, because “most people are responding to it [a composition] in a matter of preference” (US_05), even whilst many endorsed having an intuitive sense for when composer expression is “done well, when you have this feeling of the composer knowing what they’re saying, and that they have absolute control over all of the elements and what they’re trying to do” (US_7). Most composers also referenced an intuitive sense of when a work was complete or achieving the desired effect (e.g., US_05, US_06), when “things just kind of click into place” (US_03).

Presence and Place of Emotion in Music

Not all composers described their process as intentionally engaging any methods for portraying or eliciting emotion. For example, one American composer (US_01) observed that it was more about physical experiences than intellectual or affective experiences, going on to say, “I don’t know that I feel any in my own music, any emotion”. Another composer (US_06) similarly commented, “I don’t really try

and convey emotion”. A few composers explicitly addressed the divisions between referential and absolute approaches as they relate to expressionism and formalism (e.g., “sometimes that’s evoked through meaning outside of music.... and sometimes it’s in terms of within work structurally” [US_05]). The interviewees mostly took differing approaches when utilising musical elements associated with emotion.

Even amongst the expressionist-type composers, a varied discussion of the ability to write evocative music emerged, particularly in relation to whether such skill is derived from intuition, intellectual exertion, or mastery of historical techniques and devices. These discussions provide more explicit insight into questions of locus or ‘where’ emotion exists in the composer’s work and the connection between the ability to evoke emotion and technical mastery. For example, on the topic of the role of talent or craftsmanship, some composers viewed the ability to convey emotion as a learned skill (e.g., “I guess it’s having a background and wanting to do something and then acquiring skill to do it” [US_01]) and others attributed it all to individual differences and natural talent (e.g., “It’s almost like if someone is born as an actor, and then just has talent, they can act. I think it’s a similar talent.” [DE_01]), suggesting that producing expressive music is not solely based on technical mastery of representational musical elements.

Unlike current trends in modern philosophies of music, all but the two ‘formalist’ composers suggested that the value of a piece of music is tied, at least in part, to its ability to express emotion or evoke emotional responses in the listener.

Citing an example from a Mozart opera, one composer (UK_01) said,

It's a very, on the surface, a very simple melody. And yet the expressive power, even outside its dramatic context of that piece is incredible. And to understand

those two things on the one hand, I mean, there's an elegant simplicity in the writing, and of course, as a composer I don't underestimate the skill that's needed to achieve that, so I can admire that.

Another (HI_01), referencing Bach said, “I think music ought to express some kind of emotion. Bach had tremendous skill and he was able to express the greatest emotions in the strictest forms.” Interestingly, even the formalist composers who said they did not set out to convey emotion in their music reported its importance: “Granted, I do believe that if my work doesn't at least provide some... provoke some sort of emotional reaction in myself, then it's probably not... I probably shouldn't write it” (US_06).

In many interviews, composers initially talked in the abstract about portraying different basic emotions using broad associations (e.g., “sad: minor, key slow” [US_03]). In one interview, the composer spoke at length about the process of “trying to translate” from a physical object of inspiration into musical “descriptors for it... with the intention of mood needing to be portrayed” (UK_04). When pressed for more specific details, however, composers often turned these discussions towards more complex emotional *experiences* they wanted their listeners to share in terms of feeling and evocation rather than of translation or portrayal. Though still using the basic elements of music to describe these processes (e.g., “How does a rhythm feel X?” or “somehow this rhythm evoked Y” [FI_01]), composers often recognised that they had multiple methods of evoking complex emotions at their disposal depending on the specific composition. Mostly, composers reported using more complicated compositional techniques and the layered manipulation of several musical elements for this purpose. For example, another composer (US_08) described carefully planning the intersection of instrumentation, timbre, dynamics, and melody to ensure

his listeners felt the kind of emotional response he intended. Although each composer apparently used a variety of strategies, few of them took a clear stance on whether they predominantly viewed their work as portraying specific emotions or attempting to induce them in listeners.

As a notable exception to this trend, those composers with film scoring experience described a much more functionalist view of their work wherein the entire goal was to induce specific, often complex emotions in their listeners, albeit in tandem with a visual component. Like other composers, they discussed the challenge of “acting as a translator” (US_02) between an external object and the affective world of music, but saw this process as much more targeted. One composer (US_02) recalled thinking at the start of composing a scene in a film score that “there are lots of avenues I could go down to make something sound scary” but went on to discuss the challenges of capturing just the right sound world for the specific scene at hand after much “experimenting and seeing what fits with what the director wants”. Perhaps unsurprisingly, those composers who worked with film were the most interested in how accurately their intended emotions were experienced by the listener. An enduring question for many (e.g., US_02, US_08) is whether they could reliably tap into culturally informed musical emotive tropes by the manipulation of specific musical elements.

Musical Elements

As anticipated from disagreements in the literature (cf. Cespedes-Guevara & Eerola, 2018; Juslin, 2013), instances of interviewee agreement on the basic musical building blocks of affectivity in music did not equate to all composers endorsing the

same musical elements or deploying the same techniques in the same way. For example, various composers gave entirely different accounts of the musical elements they prioritise and prefer: “the interplay between rhythm and harmony is very important” (FI_01), “Usually it’s melody and then its harmony, and then it’s orchestration” (US_02), “First and foremost would be the harmonic structure of the piece” (US_04), “texture is... would be one of the most important elements in music, that is one of the least discussed” (UK_01), and “tone is huge” (UK_04). Which representational musical elements composers deployed and manipulated to evoke specific emotions also varied considerably across composers and compositions. One composer (US_02) discussed manipulating orchestration and timbre outside standard performance practice to create a feeling of unease, another spoke about trying to emulate a Schubert Lied in a minor key that ends in the major “and it’s the saddest thing ever” (DE_01), whilst a third described working with tempo to convey a sense of quiet and calm contentment (UK_04). Similarly, in describing their respective overall approaches to conveying emotion when starting a new composition, different composers variously reported: “it very much largely starts in orchestration before a melody comes in, before harmony comes in. That’s how I kind of approach it” (US_02), “my first drafts look like a melody with jazz chords and some basslines written in” (DE_01), and “I think harmonically” (US_04). Though all composers acknowledged the fundamental importance of concepts such as melody and harmony, some suggested their styles transcended those typical elements, with one reporting, “If I’m being honest, I don’t really think much in terms of harmony or melody these days, just ‘cause of the kind of my own interests” (US_06). Despite these variations in

which musical elements were prioritised, it is notable that even the most experimental composers still spoke about their processes using standard Western classical terms.

That consistency dovetails with the question of whether affective responses are simply culturally conditioned associations. For one composer, these associations are all about instrumentation and melody working together in ways audiences are used to hearing at particularly emotional moments in cultural contexts, such as movies (US_08). The same composer later described picking up on these musical tropes as a critical listener, and then being able to easily imagine how they could be applied to achieve the standard effect:

when I'm imagining this really emotional moment in a movie I'm imagining like, really— full, you know, strings and, you know, probably violins up really high. And it's the, you know, this big, like swell type of moment, probably some kind of soaring melody

Another composer suggested that the reason certain motifs and gestures have become so closely associated with certain emotions could be because “some elements of music are better at [conveying specific emotions] than others. If we have rhythm and we're trying to evoke feelings of sadness, turns out that's a little bit harder. But it is possible ... slow funeral march rhythms will frequently evoke feelings of sadness via cultural associations or musical or artistic associations” (US_05). But, as noted in the anecdote from the composer who experienced coldness in response to a rhythm, at least some affective responses to music are not interpreted or evaluated via explicit culture-specific associations. For one American film scorer (US_02), the associations exist— “We all know what scary sounds like; we all know what happy sounds like,” she said—but that does not mean composers only stay within the limited scope of

cliché soundscapes. In one example, she used timbre and texture specifically in unusual ways:

I used human voices and kind of, you know, alternated the EQ and try to just make it sound very unhuman-like, if that makes sense, and I actually use a sound library of whale sounds as well to get a very unsettling boom sound.

Building on similar ideas, other composers also opened up the possibility of considering the intrinsic affective content of sound (i.e., automatic affective responses to acoustical properties) as well as the roles of intellectual appraisal (e.g., functional analysis) and culturally conditioned responses (e.g., working within or in response to tradition) that are also dependent on the listener's context.

Whilst a review of the literature examining listener perspectives helped inform the interview prompts and response codes, it also highlighted differences between the ways composers approach emotion in their work and the ways that listeners might later perceive it. For example, whilst Gabrielsson and Lindström (2001) found that tempo was usually considered the most important factor affecting listeners' perception of emotional expression, none of our composer interviewees singled it out. Aside from a Haitian composer (HT_01) who spoke about the relative foregrounding of rhythm in African and Asian music compared with Western music, only one other interviewee, a composer in Finland (FI_01), mentioned rhythm and tempo as the most important factors in setting the emotional scene of a piece and only in conjunction with harmony. Another interviewee qualified, "rhythm is the thing that the performer thinks about most despite, I think, its secondary place in the order of musical being. I think rhythm is second. However, it doesn't function— cannot function without the harmony, and the harmony actually can't move forward without rhythm" (US_04). Instead, the majority of participants (e.g., UK_01, US_02, US_03, US_04, US_05)

identified melody or harmony as the most critical contributor to emotion expression and perception from the composer perspective, but several also pointed out they would prioritise elements differently from the listener perspective.

Composing versus Listening

Composers drew nuanced distinctions between how they approach composition and how they listen to others' music. For example, the American film scorer (US_02) who reported beginning with orchestration in her own compositional process said of her own approach to music as a listener, "Usually it's melody and then its harmony, and then it's orchestration." In contrast, an American composer of sacred music (US_04) gave a different hierarchy of factors conveying emotion in music: harmony, rhythm, phrasing/structure, and then melody. The different ordering of musical elements had the most to do with intellectual approaches to writing music. The same American film scorer (US_02), for instance, suggested the difference might have to do with the technical elements she struggles with as a composer being more salient as a listener just as the elements she prefers as a listener might be the hardest for her to craft when beginning a new composition.

It does not seem unreasonable that some composers approach listening to music differently than an average lay listener. Some interviewees were more self-reflective about this observation than others and could distinguish between when they were consciously evaluating a work and when they were listening for pleasure. This distinction seems to be related to whether emotion is experienced directly or via explicit intellectual inference. All but one of the interviewees could easily identify their own experiences of having a direct emotional reaction to hearing a piece of

music, but given the automatic progression from perception to evaluation as proposed by appraisal theories of emotion (Moors et al., 2013; Oatley, 1992; Parkinson, 2011), it is somewhat dubious that composers would be entirely in touch with the associated psychological processes in themselves, let alone others. Even though they were not consciously analysing what they heard at the time, many found it easy enough to think back and identify what about the music had moved them (e.g., US_03 could pinpoint harmony as the most moving aspect in retrospect). Others described detecting other composers' tradecraft more involuntarily: "there are things that I, just as a listener, feel like— that I can pick up that people, the composer, seem to do" (US_08).

Those interviewees who teach or adjudicate were the most aware of their own evaluative processes. Emphasising consciously increased attention to structure and form, one such interviewee said, "in terms of my conscious process, what I'd probably be more likely to be thinking of is: Does the musical structure hang together? Does it feel right in terms of its formal balance? Does it feel varied in the way that it— unfolds? And does it feel in some sense coherent" (US_01). A historical interview respondent spoke about different modes of listening for musicians, composers, musicologists, and amateurs but concluded, "I always listen as a simple music lover first. ... the main thing is that what I hear must make an impression on me. When it does there is every desire to understand it more fully with the aid of the intellect. Both composition and scholarship are confirmations that we have been profoundly moved by musical experience" (HI_02).

Cultural Patterns

Some cultural patterns also emerged from the interviews. One such difference was the prominence and hierarchy of representational elements in creating a musical (or affective) landscape: “if you take [Western] classical music, you want harmony and melody complexity. But if you take like a traditional African or Asian music, you want rhythm complexity” (HT_01). Whereas in much Western music, “from the classical perspective, harmonies usually drive the piece” (CA_01) and “harmony is sort of the backdrop that the piece is created on” (US_05), composers from Asian, African, and Latin American traditions pointed out that “Rhythm is what's driving the piece” (HT_01) and “it was always like the rhythm behind it” (CA_01). Composers also reported on the enlightening effects of coming into contact with the affect-inducing qualities of other cultures’ musical techniques. For example, a composer in Finland (FI_01) said,

I took a course while I was studying in New York on Indian drumming rhythms and there was a lot of... They kind of opened my eyes to the emotional abilities that rhythm has [...] And so that was very telling to me that emotional quality can be achieved through any number of parameters on even things that we don't even... that as a Western-classical-music-raised person I would never would have thought of rhythm as a parameter for emotional quality, but that was at a kind of perfect time in my development that opened me up to this seeing meter as a tool that can adjust very subtly the impact of a sonority or a gesture.

Whilst this interviewee’s experience highlights cross-cultural differences in the affective scope of core musical elements and their representational potential, it also more subtly underscores a unity of affective response that supersedes background and training. The same interviewee recounted “talking to a friend about [an emotional experience] after the class and he had said the exact same thing; like we both had felt that this rhythm somehow evoked coldness. And we came to this same conclusion

separately” (FI_01). These cross-cultural experiences underscore the importance composers from different traditions placed on specific musical elements.

General Feedback from Composers

Finally, when asked to comment on the research questions and approach at the conclusion of the interviews, composers responded positively and expressed great interest in the project, finding many aspects novel and exciting, not to mention relevant and applicable to their daily practice. For example, one British composer said, ‘what you’re doing sounds very interesting and [it will] be interesting to see what you can get out of it. And I think the idea of having, as you say, new music from composers who then provide their own commentary as, as it were, a starting point for exploring the responses of listeners, that’s a very interesting way of grounding and trying to square, as it were, the circle’ (UK_01). Most respondents expressed something along the lines of ‘Actually, I don’t think I’ve ever tried to express this before. I don’t think I’ve ever tried to actually explain how this works...this is interesting’ (UK_03). A few also extrapolated this interest to the general public, even people who do not listen to or encounter music on a daily basis (e.g., “it’s interesting even often with people who are more or less involved in music, that the way that they will talk about the music they choose will often be in this kind of anecdotal way that doesn’t have any very direct access to the music itself. So again, there’s this disconnect between what people are saying and what the music actually is and what the music actually does, and that’s intriguing. But I think that’s part of this.” [UK_01]).

Taken together, these results provide a strong qualitative basis for examining ordinary composers' engagement with emotion in their work, the various musical techniques, and the creative processes in which composers employ or manipulate those techniques to evoke emotions in their listeners. These findings also encourage future mixed methods research that can harness the benefits of both qualitative and quantitative approaches to bring more clarity to these processes in the social context of music composition, performance, and listening.

Discussion

The foregoing has attempted to craft a conceptual approach to the study of musical emotion transmission from the perspective of composers as agents and listeners as receptors as supported by some preliminary interview data. As an initial step, the qualitative data from these semi-structured interviews helped empirically evaluate the 'lay of the land' when applying the various dimensional frameworks proposed in music theory, musicology, and psychology to the modern practice of ordinary composers across different countries. The majority of respondents supported the notion that music can express emotional meaning, though not all composers endorsed this view. Even the composers who had similar views about the affectivity of music, however, responded differently to interview questions about representational musical elements or techniques employed to convey or elicit emotion as well as about individual differences such as talent in deploying those methods.

Nonetheless, the overall findings confirm that the majority of composers engage with affective content in their own (or at least others') work and indicate that they can identify explicit mechanisms and techniques by which that content might be

conveyed via music (even if not all strive for that result). Without explicit prompting, composers suggested both representational musical elements and techniques for manipulating them that correspond to initial predictions of the aspects of composition viewed as vital to conveying or evoking emotion in listeners. In the interviews, I was able to compare the set of *a priori* index codes taken from music theory with the use of the elements they represent in actual composition practice. From there, and based on respondents' suggestions, I have also been able to systematise those techniques into quantifiable measures that approach a comprehensive overview of those core dimensions. This process has also demonstrated that the topic of my present research is both exciting and novel to composers.

The techniques and processes emerging from the interview data I analysed thus help clarify the ways composers both write and listen to music—and the affective content contained therein. Composers' responses both contribute to the large corpus of literature on the topic of music creation and performance and help inform ongoing research into listeners' affective experiences thereof. Whilst listener experiences have been thoroughly examined, very little attention has been given to composer evaluations of their own work. Aesthetic theory suggests that both factors are important as likely mediators in any emotion transfer process.

Whilst a review of previous psychological research into the affectivity of various musical factors suggests many potential pairings of specific emotions and specific representational elements (Gabrielsson & Lindström, 2001), it is not negligible that all of the included studies are based on listener responses only. The present study is an important first step in understanding how composers engage with

emotion in the musical materials they work with to produce their compositions. Much more research will be needed to bring the available amount of data on composers onto equal footing with that on listeners, but this start already sheds suggestive light on differences between composers' self-reported approaches to emotion in music and commonly accepted listener-based pairings of affective responses and musical factors.

Given debate in the literature contending that associations between musical stimuli and affective responses might simply be conditioned and perhaps more relevant to more stable moods than dynamic emotions, the varied response from composer-practitioners was all the more informative if somewhat unquantifiable—suggesting the need for additional empirical research. Much empirical musicology is based on the underlying premise that certain emotions are evoked by specific learned associations of representational musical elements (e.g., tempo, instrumentation, phrase shape and gesture). As a result, and because of the dynamic temporal nature of music, judgements of affective response must inevitably be based on an aggregate of those elements that remain most constant for the duration of the whole piece, movement, or section heard. Since these judgements are based on relatively stable aspects of the listening experience, some have contended that they are really moods rather than felt emotions which are thought to be much more temporary and dynamic (L. B. Meyer, 2008; Weld, 1912).

Most composers, however, were sceptical of reducing listener experiences entirely to culturally-informed or conditioned moods. Whilst some respondents (particularly those involved in film scoring and composing incidental music)

explained that these prototypical pairings of elements and emotions are sometimes a basis for their work, they find (both as composers and listeners) that the most evocative music does not linger in cliché territory long, especially when it is meant to be the primary object of orientation (i.e., not background music). Moreover, the sheer variety of ways composers described employing the musical elements and representational devices at their disposal seems to undercut the argument that affective responses to music are only the result of learned associations. When later asked explicitly about these issues, many respondents pointed to complexity rather than stability as the critical difference in approach. In other words, though more complex emotions are less easily attributed to music (Sloboda, 1991; Sloboda & Juslin, 2001) and are often predicated on greater ‘cognitive character’ via appraisal (Gabrielsson, 2001b), composers do not strive to create a single stable mood so much as to convey, over time, complex affective experiences for their listeners.

The outstanding question in the literature regarding whether these musical elements directly influence dynamic emotions or simply imply associated moods—and whether composers approach their work as inducing affective states or influencing moods and affective processes—should be explored in future studies. The present findings support a move in that future work towards empirical methods that better capture emotional processes (L. B. Meyer, 2001). These methods can supplement the increasing use of more nuanced measures of traits, dynamic states, and complex emotions that capture valence, arousal, intensity, and locus rather than just presence in music. These methods can be equally applied to studies of short

musical excerpts, thus addressing complications arising from analysing lengthy works (L. B. Meyer, 2008).

Limitations

The findings of this study must be qualified by a number of limitations. First, not all composers found it immediately easy to adequately articulate and describe their composition process. Some were more explicit than others in naming an engrained reluctance to diminish the ‘mystique’ of the creative process by explicitly discussing their methodologies whereas others seemed to have never considered spelling out a habitual process prior to our conversation. Second, whilst the definitions and understanding of the core musical elements are well-standardised in modern practice, other representational constructs were more nebulously defined—both in the literature and in the interviews. Third, even composer respondents who are expert in the execution of their professional work are unlikely to be aware of all of the ways in which they convey emotion in their music, particularly within a psychological framework. Finally, my small pool of interviewees is not representative, so I am unable to draw meaningful comparisons such as for gender, country, style, or experience. Moreover, most (but not all) of these composers were writing within the broad category of Western art music. Future research should examine more systematically whether composers working in different genres present different approaches to expressing emotion in their music. The following studies of composer traits and composition-specific processes and states seek to address some of these limitations with a larger sample size and more systematised recruitment protocol.

Conclusion

Despite these limitations, the techniques and processes emerging from the interview data I analysed provided rich insights into the mechanisms by which composers convey emotional meaning in their work and helped me develop a set of criteria on which listeners could technically evaluate and psychologically appraise musical compositions by offering a cross-reference for the set of traditionally valued musical qualities, within the context of theoretical assumptions and empirical research, based in active composers' actual practice. The individual affective qualities determined to be related to core compositional elements, techniques, and processes also seem to be related to principles of musical aesthetic valuation. Empirical aesthetic theory suggests that those factors are likely critical mediators in any emotion transfer process. To these, the present findings provide a qualitative basis for considering how composers engage with emotion in their work, the relative importance they place on this with respect to their intentions for listeners' perceptions and experiences, and cultural differences in how specific elements of music are used to convey emotional effects. In the present examination of MET, such input from composers about their common practices and approaches to emotion in music helps flesh out existing models of affectivity in music by extending empirical investigations of listeners' experiences to include composers as well as the theory, philosophy, and psychology underpinning their work.

Tables

Table II.1

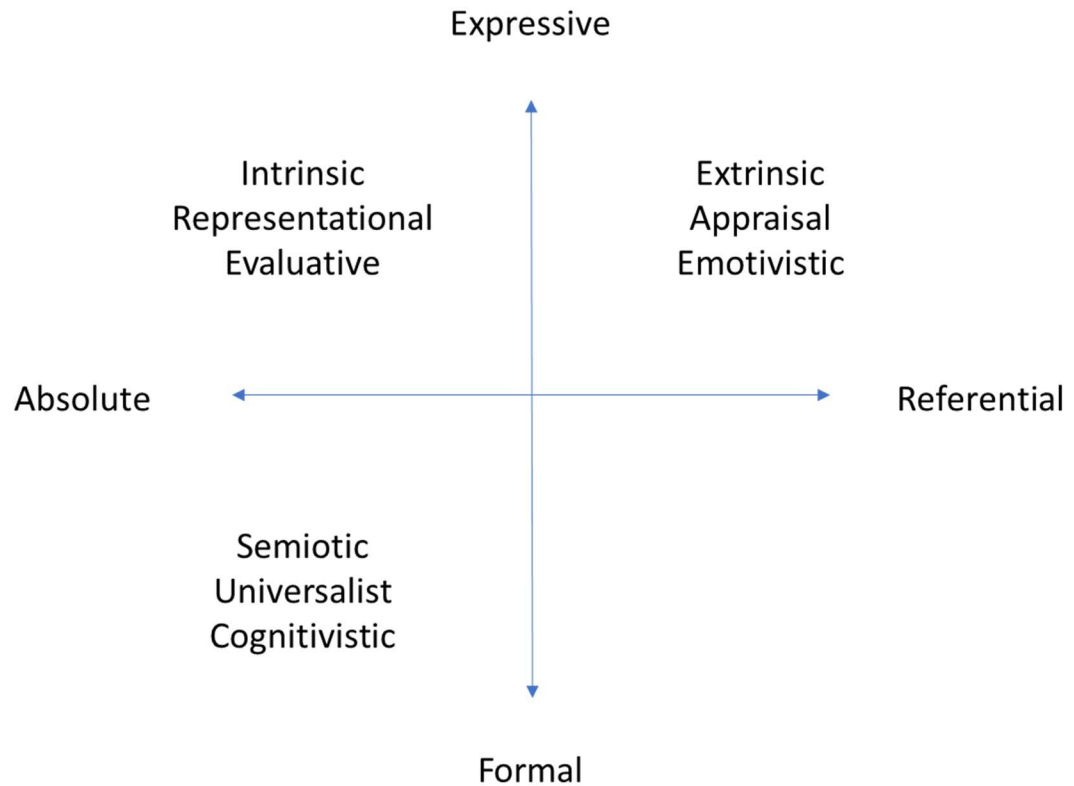
Examples of Coding References to Musical Elements Influencing Affect

Index Code	Analytical Code	Applications	Freq.
Affective states influenced by:	Melody	US_02: You know, if you're having a yearning melody, maybe there's an octave in the first, you know, 2 opening notes of the piece.	34
	Harmony	UK_01: Traditional explanations of emotive content and music tended to focus on mode and tonality.	38
		UK_04: I do think that whatever the harmony is is gonna also be a big part of that	
	Rhythm	FI_01: The Bach G minor violin suite starts on that G minor chord on the downbeat. Or if that chord were to come back later and be on an off beat, it's the same chord. It's the same gesture that the violinist is making, but its metric position changes its emotional quality as well.	38
	Timbre	UK_01: the way that you present an idea, the way that you orchestrate an idea can have an immense effect on upon that idea.	9
		UK_01: texture is... would be one of the most important elements in music, that is one of the least discussed.	
		UK_04: tone is huge.	
	Structure, Form	AC_01: I think music ought to express some kind of emotion. Bach had tremendous skill and he was able to express the greatest emotions in the strictest forms.	16
		US_04: above all of that I think there's the beauty of details, but there's also the beauty of the whole impression. So balancing that, which is really form, is also a critically important thing	
	Combination of elements	FI_01: the interplay between rhythm and harmony is very important	10
		US_02: Usually [when listening] it's melody and then its harmony, and then it's orchestration.	
		US_05: there's other arguments or other elements of music: people have put in development as an element of music. John Cage was an advocate that the only element of music that mattered was duration.	

Note. Freq. = number of discrete mentions of code content

Figures**Figure II.1**

Plot Depicting Different Frameworks for Approaching Affect in Music



Note. Axes represent dimensions of traditional musicological divide over emotional content in music; quadrants organise different frameworks for approaching affect in musical composition according to those dimensions.

Appendix II.A

Interview Guide

Confirm consent

Confirm recording and quotation preferences

Can you tell me a bit about your background?

What led you to pursue composition?

Are there experiences, events, or even specific works of music that were particularly influential in shaping your decision to pursue composition?

What do you want to convey through your music?

From where do you find inspiration to compose?

What comes first? An intention, an emotion, or something else?

What transpires when you compose?

What role do you think emotion plays in the process of composing?

What is (or are) the most important element(s) of any given composition?

What end result do you seek with any given composition?

What makes a composition "successful"?

Many people report having experienced moments of profound emotion when listening to music.

Have you experienced anything like this?

Is this something you strive for in your own work?

For yourself, how do you define what is emotion in music?

Can you walk me through the last time you set out to convey a specific emotion in your work?

Using an example from your own work, what inspires you to compose a particular piece?

What was your process?

More generally, what are the mechanisms/mediators through which emotion is conveyed in music?

What makes something (e.g., a musical element or phrase) emotional in music?

How do you know when the desired affect has been achieved in a composition?

What is the relationship of emotion and aesthetics in music?

Is emotional music always beautiful?

Have your perceptions of emotion in music changed over time?

Have the techniques you employ to convey emotion in your music changed over time?

Do you think the ability to convey emotion through music is related to the quality of a composer's work?

Do you think a listener from a different culture would experience different emotions from those you intended to convey in a given work?

If we wanted to capture composers' and listeners' experiences of emotion in music on a survey, what key questions should we be asking?

What are the criteria on which you would (quantitatively) evaluate or appraise a composition?

What are the cultural consequences of conveying or even simply experiencing emotion through music?

Are there implications for human flourishing or well-being associated with the experience of emotion in music?

How is emotion conveyance taught in composition departments, if at all?

Do you think it is important for composers to be taught specific techniques for evoking emotion in their work?

Do you think it is important for listeners to have emotional experiences in response to music?

What other questions would be most important for us to ask composers about emotion in music?

The next phase of the project will involve requesting recorded excerpts from new compositions to accompany survey responses about the process of writing the recorded work. Are you able to help share this opportunity to participate with your colleagues/students who might be interested?

What amount of incentive would motivate composers to participate in a competition like this?

The excerpts will also be judged according to a set of criteria informed by these interviews. Would you be willing to serve on the judging panel?

Would you be interested in a symposium on composition and affective communication?

Note. Interviews roughly proceeded in the order of the above questions with additional probes as necessary but otherwise allowed for freeform conversation. Questions in boldface type were asked in all interviews. The prompts between the horizontal lines were audio and video (where consent was given) recorded.

Appendix II.B

Supplementary Examples of Interview Coding

Table II.2
Qualitative Data Coding Examples

Index Code	Analytical Code	Definition	Applications
Affective states	Melody	References to melody as used to convey or interpret affective states	HT_03: you could have a simple melody accompanied by the simplest harmony, and yet the harmony would be thematically organized. I must tell you that I no longer regard this method as the last word in musical composition. I use it to this day in all passages which have a melodic significance, but I have abandoned it as an all-governing principle. The reason is because I believe, in regard to the reflection of our states of consciousness, there are always some things which are more intensely in focus than others. For instance, I am now looking at you. You are in focus. But I am seeing my bookcase to the side of you out of focus. This is a primary experience of our consciousness. Music too, therefore, requires admission of the fact that some details should be less intensely organized than others. HT_07: Such awarenesses are seldom conscious. Much would depend on the exact position I had arrived at in a composition. The Double String Concerto is a study in polyphony and it is therefore natural that my concerns were more for the horizontal unfolding of the musical ideas. The opera I am working at now is quite otherwise. I am more concerned with making certain dramatic gestures. This work is therefore technically nearer the Russian impressionist style. I am a born contrapuntist and feel the polyphonic line very much in my bones. But I don't think a composer would be worth his salt unless he could do all the various things necessary, depending on what the problem of the moment was.

Index Code	Analytical Code	Definition	Applications
			UK_01: It's a very, on the surface, a very simple melody. And yet the expressive power, even outside its dramatic context of that piece is incredible. And to understand those two things on the one hand, I mean, there's an elegant simplicity in the writing, and of course, as a composer I don't underestimate the skill that's needed to achieve that, so I can admire that. US_02: You know, if you're having a yearning melody, maybe there's an octave in the first, you know, 2 opening notes of the piece. US_05: I tend to work in a thematic manner where I utilize themes and generate those themes based on an understanding of how I feel about them and their meaning, not too dissimilar from, like, a leitmotif structure in some ways. I'll have ideas that I want to deal with, and I'll write material that I think reflects those ideas as best I can.
	Harmony	References to harmony as used to convey or interpret affective states	UK_01: Traditional explanations of emotive content and music tended to focus on mode and tonality. UK_04: I do think that whatever the harmony is is gonna also be a big part of that US_03: I can tell you for me it's harmony, just like, unabashedly. I will say that like I just, I think about the things that are most moving to me when I listen to a piece of music or like what catches my ear the most or sort of what the most powerful experiences are that I've had in listening and it's always harmony. US_04: First and foremost would be the harmonic structure of the piece, in other words, what is the that more than anything, the destiny of a

Index Code	Analytical Code	Definition	Applications
			piece is determined by its harmonic mean, its harmonic impulse.... I think even if monophonic music like Gregorian chant for instance, there is a harmonic profile there of intensification, but it's an implied harmony because there's only one line, right. So I would say the harmonic impulse is the is sort of maybe the life force of the piece
	Rhythm	References to rhythm as used to convey or interpret affective states	HT_03: My contention was that, in the classics, notes which were thematically organised as well as being rhythmical and harmonic, were combined with other voice parts whose organisation was exclusively rhythmical and harmonic. HT_01: like the Renaissance and Baroque period: the rhythms were very predictable, they're just like square on the beat, not a lot of like syncopation compared to African tradition where the Rhythm is what's driving the piece, not really the melody. The melodies were always mostly like repeated simple harmonies. It was always like the rhythm behind it. So when listening to classical music from that perspective, it sounds kind of like, 'OK, there's like something missing in it,' but like classical from a classical perspective, looking at traditional African or Asian pieces, they will find it very repetitive because they will hear the same harmonies over and over. Because from the classical perspective, harmonies usually drive the piece. It's really with like Renaissance and Baroque music. But those other traditions might have something different that's the main thing on that piece and the other aspect, maybe it's rhythm-based, and harmonies and melodies are just the backdrop of the music. US_05: some elements music are better at doing it than others. If we have rhythm and we're trying to evoke feelings of sadness, turns out

Index Code	Analytical Code	Definition	Applications
			that's a little bit harder. But it is possible, via... slow funeral March rhythms will frequently evoke feelings of sadness via cultural associations or musical or artistic associations. FI_01: The Bach G minor violin suite starts on that G minor chord on the downbeat. Or if that chord were to come back later and be on an off beat, it's the same chord. It's the same gesture that the violinist is making, but its metric position changes its emotional quality as well. I took a course while I was studying in New York on Indian drum drumming rhythms and there was a lot of... They kind of opened my eyes to the emotional abilities that rhythm has, because the... I was watching a teacher on, he was playing a A-frame drum and he was able to make this rhythm that felt cold. How does a rhythm feel cold? I don't know. Like what— what the trick was. But it like, I was talking to a friend about it after the class who was in the class and he had said the exact same thing, like we both had felt that this rhythm somehow evoked Coldness. And we came to this same conclusion separately. And so that was very telling to me that emotional quality can be achieved through any number of parameters on even things that we don't even... that as a Western-classical-music-raised person I would never would have thought of rhythm as a parameter for emotional quality, but that was at a kind of perfect time in my development that opened me up to this seeing meter as a tool that can adjust very subtly the impact of a sonority or a gesture US_08: in my music it's generally very rhythmically related, so when I'm conveying some sort of sense of anxiety or instability, it's often Rhythmically complex to the point of being kind of not exactly... Like your average listener wouldn't be able to be like 'Oh, I know exactly where the beat is' type of thing. You know, it's kind of overlapping

Index Code	Analytical Code	Definition	Applications
			rhythms or obscuring the bar line. Or just kind of complex enough for them so that they're not just immediately understood. So it's almost a sort of prescribed randomness like it gives you the illusion of being kind of random, but it's actually very carefully notated, so that's a big one. That that happens in a lot of my music.
	Timbre	References to timbre, instrumentation, or orchestration as used to convey or interpret emotion	UK_01: the way that you present an idea, the way that you orchestrate an idea can have an immense effect on upon that idea. UK_01: texture is... would be one of the most important elements in music, that is one of the least discussed. UK_04: tone is huge. US_02: The thing is, a lot of the time, you know when I went to school for this, they said you're going to be acting as a translator because the director can say, 'OK, I want the music here to sound scary or I want there to be something unsure about it', and you walk away and you're like, 'OK, there's lots of different avenues I could go down and to make something sound scary'. So I'm really passionate about creating, like, sound worlds unique to each one I work on. So working with textures and working with found sounds and, you know, pulling from my sample libraries. And so I usually start saying, 'OK how what are the sounds that I want to use to convey—' Let's go with the scary feeling. 'What sounds do I want to use?' And a lot of the times it's for horror films. I go to very... Let me let me just pull from something one I did over the summer. I used human voices and kind of, you know, alternated the EQ and try to just make it sound very unhuman like if that makes sense and I actually use a sound library of whale sounds as well to get a very unsettling boom sound.

Index Code	Analytical Code	Definition	Applications
			So a lot of it is just honestly experimenting and seeing what fits with what the director, wants and sometimes it's not a very straightforward process. There are a lot of times where I can't describe what I'm doing because a lot of it is just... It's so crazy I will write something then delete it hundreds of times before I settle on something. So it's not like I have like a record of what I'm doing. But so I usually start with orchestration and sounds and I reference a lot. I do a lot of research, score study and seeing what has been done before and I say 'OK, how can I push that?' Because of course there's a standard, there is a... You know there is... OK. Scary is going to sound this way. We all know what's scary sounds like; we all know what happy sounds like. There is of course a standard but my goal with each project is to try to, you know, how can I make this sound like me? How could I make this sound like me but also what the story needs. So it very much largely starts in orchestration before a melody comes in, before Harmony comes in. That's how I kind of approach it. US_08: there are things that I, just as a listener, feel like that I can pick up that people, the composer, seem to do. Like when I'm imagining this really emotional moment in a movie I'm imagining like, really— full, you know, strings and, you know, probably violins up really high. And it's the, you know, this big, like swell type of moment, probably some kind of soaring melody
	Structure, Form	References to structure or form as used to convey or	HT_01: I think music ought to express some kind of emotion. Bach had tremendous skill and he was able to express the greatest emotions in the strictest forms. HT_03: Now it occurred to me, that at this stage of history, where control of nature, and therefore of the materials of art, had reached a

Index Code	Analytical Code	Definition	Applications
		interpret emotion	higher point than at any previous time, the advance in music would consist in extending the thematic organization to every note so that all the notes of a composition were equally highly organized, yet always according to the natural laws of music, never according to an arbitrary set of formulas as with the twelve-note method. HT_04: Forms are the courses that music takes under the impact of sociological and cultural forces. When these forces are spent or change direction, we can still write music that is labelled sonata, fugue or symphony and which will still be such in essence, yet which, under analysis, will show marked structural diversities. In other words, the forms that have developed in the history of Western music, although few in number, have no fixed shapes that can be measured and made available, like moulds for a jelly. Rather are they like variants of archetypal ideas which are inexhaustible in potentiality, yet which always remain the same. This the paradox of form.... No, form is no great problem to me. I use classical forms in my music, but each time I do I think I am able to give them new personality. I use them instinctively, never as patterns to which I must shape my thought. Frankly, I don't give form much thought at all. I never know where a piece is going to go next.... My method of working at a lengthy work is to continue steadily from the opening idea. The excitement of discovery would be lost if I 'graphed out' where certain climaxes, etc., would be. When I begin, my only concern is with fixing a starting point that I can be sure of. I work each bar as I go along until I have expressed exactly what I want. When I am at work on one bar I never have any idea where the next is going to lead. But I have a feeling that it is there and will be discovered as I need it. My imagination discovers the architecture for me. I never force it to conform to formal rules. I never, for example, consciously search for a second subject; I'm

Index Code	Analytical Code	Definition	Applications
			only happy if this comes spontaneously, unexpectedly, and in the right place.
			US_04: above all of that I think there's the beauty of details, but there's also the beauty of the whole impression. So balancing that, which is really form, is also a critically important thing
	Hierarchy of musical elements	References to the combination and order in which musical elements are applied or experienced to elicit emotion in the listener	FI_01: the interplay between rhythm and harmony is very important
			US_02: Usually [when listening] it's melody and then its harmony, and then it's orchestration.
			US_04: First and foremost would be the harmonic structure of the piece, in other words, what is the, that more than anything, the destiny of a piece is determined by its harmonic mean, its harmonic impulse.... I think even if monophonic music like Gregorian chant for instance, there is a harmonic profile there of intensification, but it's an implied harmony because there's only one line, right. So I would say the harmonic impulse is the is sort of maybe the life force of the piece, but that's not enough to realize the piece. To that you need to add the rhythmic aspect. In other words, the relative density of rhythm.... I'd also add to that the phrasing structure, so every cadence is and in a way, a cessation of musical activity.... So phrase structure is also the next thing that I would that I would point to as a real contributor.... Now the question of melody is a difficult one because it actually involves all three of those things—Harmony and melody are actually part of the same Function in some respects. In most respects, either there's a sense of belonging or not belonging in every note in the melody right to the harmonic concept.

Index Code	Analytical Code	Definition	Applications
			US_04: in terms of rhythm, rhythm is the thing that the performer thinks about most despite, I think, its secondary place in the order of musical being. I think rhythm is second. However, it's not... It doesn't function, cannot function without the harmony and the harmony actually can't move forward without rhythm. So these are all codependent factors. They're all codependent forces within the music, but the rhythm is, I think, also the most immediate contributor to the sensibility of the music or the pathos / ethos, depending on what we're trying to achieve that the rhythm has a great deal to do with that and the density of the rhythm. US_05: The core ones [elements] that are true of all sound are Melody, Harmony, Rhythm, timbre and structure.... So also these elements of music are what we manipulate to generate emotional responses to connect emotional responses to people. If we have... And some elements, music are better at doing it than others.... but by manipulating elements of music we can shape how people respond to and hear and experience things, how they sense things.... There is no way to have a piece of music that doesn't have all five of them. US_05: there's other arguments or other elements of music: people have put in development as an element of music. John Cage was an advocate that the only element of music that mattered was duration.
	Experience, talent	References to experience or talent as relevant to conveying or	US_03: when you compose, it's not like you have to be living, you know, happiness or living sadness or whatever the emotion is that you're trying to convey. But I do think that like the more you've experienced in your life on both, sort of the positive emotional end of the spectrum and the negative, that then you're able to kind of harness like the musical tools

Index Code	Analytical Code	Definition	Applications
		interpreting emotion	like of harmony and of rhythm and dynamics and instrumentation and all of that to your advantage.
	Lack of emotions	References to the lack of affective states in music	US_01: it's a physical experience that happens. It's not even the ears are physical things. It's not the brains, not the emotions. It's the body. US_01: I don't know that I feel any in my own music, any emotion. US_06: I don't really try and convey emotion, so I'm not sure; like I don't think about... I'm much more interested in the concept first and then seeing kind of following that through more often.... Granted, I do believe that if my work doesn't at least provide some... provoke, some sort of emotional reaction in myself, then it's probably not... I probably shouldn't write it.
Specific Emotions	Sad Music	References to sad or melancholic emotions	US_03: it seems to me that a lot of young people like to write sort of sad, minor key slow pieces, and I was completely the same. Like if I went back to my undergrad recital, it is all that like literally just like all slow.
Evaluation, Appraisal	Melody	References to evaluating or appraising melody	US_02: Usually [when listening to music] it's melody and then its harmony, and then it's orchestration. US_05: I do think you can emphasize different elements of music more one over the other or more than the others— I don't think it's possible to have a zero amount of melody inside of a piece of music. I don't think it's possible to have zero amount of melody inside of a sound.

Index Code	Analytical Code	Definition	Applications
			My voice has melody here as I'm speaking to you; it goes up and down in pitch. So, if we cannot have a 0 sum, it does imply to me that it is on some level understandable through a quantification.... But we could say that, you know, this piece is about the melody. And this piece is about the harmony. US_08: I always look at counterpoint. Was it— Is the counterpoint compelling? Has it been— I'd say even on a more micro scale like each phrase, each melody, like does it have a firm point of reference that you're trying to go from here to there and back? Because a bad melody doesn't do that, it goes up and down and up, and at like it doesn't have a firm point of reference that you can lead to.
	Harmony	References to evaluating or appraising harmony	US_03: I try to be like, very aware of both harmony vertically— each individual chord—but then the progression of chords in terms of getting more intense, getting less intense, the use of dissonance, how thick the cords are, how many notes there are in a chord— and what the relationship of, you know, how many of those notes are consonant with one another versus how many of those are distant with one another— US_04: I would certainly say harmony: There is not just consonance and dissonance. There's near and remote, so there's that sort of an X and a Y that you could impose on the question of harmony.... So the further it goes away from its home key—this is in tonal music—but it's also true in modern music as well. There is a sense there needs to be a sense, in the most successful modern music, of pilgrimage, of some kind of departure.

Index Code	Analytical Code	Definition	Applications
	Structure, form	References to evaluating or appraising structure, form, or phrasing	UK_01: in terms of my conscious process is what I'd probably be more likely to be thinking of is: Does the musical structure hang together? Does it feel right in terms of its formal balance? Does it feel varied in the way that it— unfolds? And does it feel in some sense coherent that can be— Maybe that's... but that in itself is quite an important element. The idea that a musical statement over an extended period of time, which in itself will be diverse, should nonetheless also feel as if it holds together and is coherent in some sense. And what's involved in that then is this idea of contrast, which is a term that often crops up in writing about music, but is quite difficult to probe as to exactly what is a contrast. A contrast that creates a variety, but a variety doesn't compromise coherence, and there are no rules, or at least not rules that I've come across for defining, then how far you can go in terms of a contrast without compromising coherence. Though it's quite easy to exaggerate, to create a degree of contrast that does seem to compromise, and it does compromise coherence. But what is the range that... I suppose, ultimately, that's just a reflection of your skill as a composer. The more that you can create contrasts within a piece without compromising its coherence, the better you are in control of the elements, of the material that you're dealing with. And probably the... if one thinks through one's experience of music, the composers who are the most successful are those who managed to contain the widest diversity, the strongest range of contrasts within the coherence of their musical expression. US_04: in the case of phrasing, I would say you have short and long phrasing basically as are the two are the two options think about.... These are not just questions about rhythm though, because you could say, well, isn't that really a rhythmic issue if the phrase is short, isn't it?

Index Code	Analytical Code	Definition	Applications
			US_05: I still find that these five sort of parameters [melody, harmony, rhythm, timbre, structure] will help cover a huge amount of music in our understanding of music, particularly on the core level for me, which is how we experience it, how we hear and listen to things. And that's why, you know, structure ends up being really important despite the fact that it's sort of slightly different in the way that we relate to it and the others. US_07: Main thing is structure: did the overall form and how you led to climax and back down to the resolution... was that cohesive? ... When you have it done well, you feel this feeling of 'the composer knows what they're saying,' and that they have absolute control over all of the elements and what they're trying to do. So I'd say how well the structure is formed in whatever form it is, and you can hear it or see it on the score. US_08: pacing, I think is the framework in which everything else gets communicated. Like you can have fantastic musical material and really great ideas, but if the if the structure or the pacing is off then you'll lose people's interest and they won't be able to really, like, effectively take in that that musical material. So that's kind of I think one of the first things that strikes me when I'm listening to a piece is whether I feel like the arc of the piece really works— And whether, you know, like, this idea— Was... enough time was spent on it or too much time or— it transitioned into this idea. Because I just think that if that's not there, it's really hard for the material itself to be effective.
	Intellect	References to evaluating or	HT_02: I always listen as a simple music lover first. Perhaps the second or third time I will try to analyse a work but the main thing is that

Index Code	Analytical Code	Definition	Applications
		appraising music via the intellect	what I hear must make an impression on me. When it does there is every desire to understand it more fully with the aid of the intellect; when it doesn't there is no desire to be bothered with it at all. Both composition and scholarship are confirmations that we have been profoundly moved by musical experience. US_04: I'm interested in writing something doesn't sound derivative, so it's fresh sounding doesn't quite sound like anything else, yet it's still is intelligible. I'm not interested in a solipsistic compositional language entirely. You know, I don't avoid dissonance, but I also don't do it at the gratuitously. Because frankly, when you do that, you actually do start sounding like other people. And so that's important. And I also wanted to have a certain internal discursive logic where the piece grows consequently out of every gesture within the piece. So to me, those processes of basically measuring the energy of the piece. So, you know, you have let's say one harmonic place that's intense. It's got energy. You need to calibrate that to make sure that the if the energy of that is on a scale of 1 to 10 because of its complexity or dissonance at a 9 you know, resolving it to a 1 or a 2 is going to be illogical and non-discursive, is a failure, discursive failure in the music. So that's what I mean by being logical and balanced in its discourse, and those are all musical factors. I'm using almost literary descriptors and logic. I mean, you know how logic is not something that we see in music in the way we see it in language or even math. Right? So but there is a kind of a consequence and antecedent and consequence dynamic in every piece of music.
	History	References to historical	HT_03: My theory of 'thematic' composition was, in essence, quite a different thing. I developed it in the late 'thirties and wrote a number of

Index Code	Analytical Code	Definition	Applications
		considerations when evaluating or appraising music	compositions according to it. My contention was that, in the classics, notes which were thematically organised as well as being rhythmical and harmonic, were combined with other voice parts whose organisation was exclusively rhythmical and harmonic. For example, if you take the Eroica symphony, which is highly thematic in relation to the bridge passages and so forth, there are always harmonic notes which move not for thematic reasons, but purely for harmonic convenience. Now it occurred to me, that at this stage of history, where control of nature, and therefore of the materials of art, had reached a higher point than at any previous time, the advance in music would consist in extending the thematic organization to every note so that all the notes of a composition were equally highly organized, yet always according to the natural laws of music, never according to an arbitrary set of formulas as with the twelve-note method. HT_04: Forms are the courses that music takes under the impact of sociological and cultural forces. When these forces are spent or change direction, we can still write music that is labelled sonata, fugue or symphony and which will still be such in essence, yet which, under analysis, will show marked structural diversities. In other words, the forms that have developed in the history of Western music, although few in number, have no fixed shapes that can be measured and made available, like moulds for a jelly. Rather are they like variants of archetypal ideas which are inexhaustible in potentiality, yet which always remain the same. This the paradox of form. HT_01: right now, because of the evolution of music that you can listen to music all over the place, you get a different understanding of what makes something better than the other one. Goes like for example like I said, if you take classical music, you want harmony and melody

Index Code	Analytical Code	Definition	Applications
			complexity. But if you take like a traditional African or Asian music, you want rhythm complexity. US_05: My experience as a student and coupled with my experience of my students who have gone on to furthering education and reported back to me is that this is how it is taught, but it is not talked about this way. It is almost invariably talked about in terms of a historical understanding of these things rather than a living intellectual and feeling sensational understanding of these things. You know, I talked about all three of those need to be connected for me.
	Intuition	References to intuitive or preferential considerations when evaluating or appraising music	DE_01: Analysis is for music theorists, and composers shouldn't, self-analyze— They should just go purely on instinct and capture the emotion and let the music analysis be done by the music theorists. US_05: most people are responding to it [a composition] in a matter of preference, and different types of scoring systems can be gamed very easily by judges. Frequently, this is one of the reasons why competitions tend towards a denominator of the easiest way of judging a piece of music, which is its presentation: How good does it look on the page? Because that's something that we can agree upon pretty consistently, whereas how much melody, how much harmony or how good the melody and how good the harmony ends up being very, very difficult to agree upon the set of parameters to judge. How would I do it? I mean, for me, it's how effective is the piece at accomplishing what it's setting out to do. And sometimes that's evoked through meaning outside of music: you know, some sort of title or performance note that gives instruction as to what the piece is about in a literal sense, and other times it's in terms of OK, within a work structurally, does this piece set forth expectations and then meet or exceed

Index Code	Analytical Code	Definition	Applications
			or— turn those expectations into more. In terms of in terms of judging it along the lines of quantifying these things, I guess I don't compare them to each other. I compare them to themselves. I would look at each piece in terms of its use of the five elements of music. And then say, 'OK, how does this element develop over the course of the piece and why?' If the piece has a very simple harmonic language where it maintains its harmonic language from start to finish throughout the entirety of the piece, clearly, Harmony isn't really getting the piece to do anything as the harmony is sort of the backdrop that the piece is created on; now, does that mean it's bad harmony? No, frequently we need the harmonic language to be a backdrop because in reality the pieces about something else, it's about the rhythm or it's about the melody.... So we have to not just judge it merely upon how it is, but how that serves the greater whole of the piece. US_05: certainly I think that like a lot of students take harmony classes, but they don't learn how to feel a I chord. They learn what a I chord is. They learned that a I chord has three notes in it, three different pitches in it, 1, 3 and five. They learned that a root position I chord has a 1 in the bass. They learn sort of about this stuff. But the really good teachers actually teach them to feel this stuff, and they teach him to subvert how to feel this stuff, right? Our understanding of harmony. You know, one of the big problems with harmony is that we have all these words to describe what the chords are in a literal sense. We have these notes. And this note is in the bass. This is this harmony works. But it one of the most important things about harmony is not how it works, but how it's voiced. And if you voice it weirdly, then it will feel weird in some sense. But it will still feel a little bit like that core sense of home. So no, I don't think that people are really taught as much as I would like the feeling of these things they're taught. Other aspects over there concert— of the... I yeah, I think

Index Code	Analytical Code	Definition	Applications
			frequently we're taught historically informed understanding of these things rather than a body sensational understanding of these things.
			US_08: When I'm listening to a piece of music, because I don't tend to sort of sit and listen to a piece of music like super analytically, you know, intentionally, analytically, let's say. Like, I do just kind of want to experience it.
Process	Effort	Reference to effort in the creative process	DE_01: I'm not gonna lie anymore and say that I do everything by hand. You know, that's very noble thing, but I mean, come on... If I'm doing, I'm doing a full orchestra piece, it's gonna take me an hour just to do, like, 2 measures. So like what I do is I get out the big orchestra, 18 staff, extra-large piece of paper because I like to have room to write—I think I mentioned this to the composition class—and I just write out... I listen to the voice recorder, and I just kind of dictate the melody or I'm self-dictating from the recorder.
	Inspiration	Reference to inspiration in the creative process	DE_01: But yeah, so I as I'm dictating, I think about where is this kind of placed this fake reality I'm creating? And then I fill up a bunch of pages that are basically a melody at the top, maybe another line and another line 'cause I figure I don't really need more than more than two or three steps for what— for how I compose... What's cool about those big things is if I just write the melody or the voice part with nothing else at first, I can get like 40 or 50 or 60 measures on one of these pages and just leave a blank line or two blank lines underneath, turn the page, keep going, and I mean, I can get through 10 minutes of opera some days like that, maybe even more just when I'm on a roll because it's like it's the natural

Index Code	Analytical Code	Definition	Applications
			speech pattern. It's improvised melody. And then it's just writing it out and leaving a bunch of space to do stuff later.
			UK_01: I think the affect is something in itself that comes into focus through the act of composition. I don't think it's something that can be separated from it. So I suppose I think that it is realised when I feel the piece is finished.
			UK_01: I think probably my compositions all tend to have some origin in improvisation, that is in improvising in rather broad terms actually, which covers a wide variety of different practices. But anyway, let's hold on to it for want of a better one. So in improvising various contexts, it will throw up some kind of idea that stays in my mind for whatever reason that I feel the need to do something more with. And so compositions always have some kind of origin, I think, in in that context, even though what the composition will do with it will tend to be very different. I mean a piece can seem to have one shape initially, but then will, once the idea is really clarified, will turn out to be something quite different, and a lot of my pieces have sort of... will almost be complete in one form before it turns out that they actually need it. Feels to me that as if they need to assume a different form. there is a relationship between improvisation and composition. For me, in that way improvisation I think is creating ideas and materials. But the process of composition itself will often lead those ideas in a very different way, and the ability to reflect on materials over time, which of course written composition affords will give me—leave me—perhaps to clarify the idea of a piece in a quite different way from what I thought it was initially.

Index Code	Analytical Code	Definition	Applications
	Musical elements	Reference to the order musical elements are applied in composition	DE_01: my first drafts look like a melody with jazz chords and some basslines written in US_02: it [composition] very much largely starts in orchestration before a melody comes in, before Harmony comes in. That's how I kind of approach it. US_06: if I'm being honest, I don't really think much in terms of harmony or melody these days, just 'cause of the kind of my own interests. But usually it just comes down to like, say 'now it's moving too slow or this process is not following what I wanted to follow.' UK_04: I think harmonically.

Note: HT = Historical Interview Transcript, CA = Canada, DE = Germany, FI = Finland, HT = Haiti, UK = United Kingdom, US = United States

Chapter III

Mechanisms of Musical Emotion Transfer:

Insights from Composers about Affect and Intention

Much empirical literature has been dedicated to the affective experience of music listeners, but considerably less attention has been given to the role of composers and their intentions in the process of conveying emotion in music. The present research builds on previous exploratory qualitative in-depth interviews by contributing a closer confirmatory look at composers' individual differences and creative processes via quantitative psychometric surveys that probe composers' engagement with emotion in their work. Significantly, composers' felt and intended emotions were correlated in the creative process, but higher states (e.g., inspiration) and psychophysiological responses (e.g., the chills) were more closely associated with felt positive emotion whilst effort was more closely associated with negative intended emotion. Further findings shed light on how composer states vary across stages in the composition process. By synthesizing these results with the musicological literature, this research attempts to provide a first empirical foray into better understanding the transmission of emotion and culture through music as a process beginning with composer affect and intentionality.

The social context of transmitting emotional content through music seems to be at the core of its cultural value (Juslin, 2005; Lull, 1992; Sloboda & O'Neill, 2001). As a result, composers are often accorded praise and acclaim for their creative prowess and ability to transport audiences with their work (Juslin, 2019; Simonton, 2010). As discussed in the previous chapter, however, it is listeners' emotional experiences that have received the most attention in the empirical literature (Impett, 2016; Sloboda, 1999). This chapter continues addressing the imbalance by extending previous qualitative interview studies (e.g., Cochrane, 2013; Varga & Parkinson, 2024) with a quantitative social psychological approach to surveying composers' own emotions and intentions within their creative processes.

The social psychology of emotion provides some broad frameworks for understanding the interpersonal sharing and regulation of emotion (Parkinson, 2011, 2019) and is thus a good starting point for understanding musical emotions in social context. These social models, however, necessarily involve an agent and a recipient of social emotional signals, which requires the frame of empirical musical emotion research to be expanded to include composers as active agents in the process of musical transmission of emotion. Whilst there have been a few empirical examinations of the social context of musical emotions, these have largely focused on the social environment of the listener (e.g., Sloboda & O'Neill, 2001) rather than the music's effects in a social process involving the composer. This area of the literature suggests that listeners' experiences are influenced by a number of factors, including musical elements and structure, interpretation and performance quality, listener individual differences, and social or cultural context (Cespedes-Guevara, 2023; Cespedes-Guevara & Eerola, 2018; Scherer & Zentner, 2001). Based on qualitative data from composers (Varga & Parkinson, 2024), however, many of these factors might be more directly influenced by the individuals writing the music than the empirical literature would suggest.

Musical transmission of emotion broadly describes phenomena where affective content is transmitted (e.g., by expression, elicitation, representation, portrayal) via music from the composer and received by the listeners. For example, one type of transmission might be 'musical communication', which I argue necessarily involves an intention to convey affective meaning that is recognised by the recipient. In the present research, as more fully elaborated in the previous

chapter, I have focused on another type of transmission that I call ‘musical emotion transfer’ (MET), which describes the phenomenon whereby composers express (rather than portray) their felt or intended emotions in music, and listeners respond to (rather than merely perceive) that music with a corresponding emotional experience.

The experience of emotion in music is not homogenous, however, even for specific pieces of music within individual composers or listeners (Cespedes-Guevara & Eerola, 2018). As is evident in the philosophical, musicological, and psychological literatures, the majority of music listeners experience an emotional response to what they hear (Scherer & Zentner, 2001). Listeners also tend to converge on the same emotion for a given piece of music (Gabrielsson & Lindström, 2001; Juslin, 2001), and this was long supposed to represent a congruence between the musically expressed emotion and listeners’ experiences of it (Anderson, 2013; Aristotle, 2001b; Plato, 1992). As explored in the philosophical literature, however, there is a distinction between musical representation of emotion and musical elicitation of emotion, which roughly translates to listener perception (the cognitivistic modality) and listener feeling (the emotivistic modality), respectively (Gabrielsson, 2001a; Kivy, 1989; Scherer & Zentner, 2001).

As reviewed in Chapter I, the distinction has empirically differentiable effects on listeners’ qualitative and psychophysiological experiences of music such that muscle, skin conductance, heart rate and respiration responses were higher for perceived than felt emotional responses (Merrill et al., 2020). The chills response is another psychophysiological indicator that has traditionally been associated with aesthetic experiences, particularly music (Bannister, 2019; Blood & Zatorre, 2001;

Huron, 2006; Salimpoor et al., 2011). The chills response has also been conceptualised as a psychological construct that can be decomposed into a positive, approach-related ‘goosetingles’ factor and a negative, avoidance-related ‘cold shivers’ factor accounting for the two distinct kinds of response previously conflated in the literature (Maruskin et al., 2012). Whilst Merrill and colleagues (2020) found stronger responses for perceived than felt conditions, the goosetingle-cold shiver distinction helps provide additional clarity along the valence dimension of affect.

The question remains, however, whether composers experience similarly distinct felt emotions and cognitive intentions for the music they write and whether this distinction affects the listener’s experience and perception of emotion in music. As noted, it is now widely accepted that there are different ‘loci’ of musical emotional experiences that can be empirically distinguished—e.g., perception of emotion accompanied by greater psychophysiological responses compared with feeling an emotion (Merrill et al., 2020). In analogous arts media such as visual and creative writing domains (see Omigie, 2015), researchers have found similar empirical differentiation of artist affective intention and felt emotions (Pelowski et al., 2018). More recently, the importance of visual artist intention for the transmission of emotion and meaning has been underscored by research responding to the rise of generative artificial intelligence (Johnson, 2024). The corresponding gap in the musical emotion literature reveals the need to more rigorously consider composer affective intentions and emotional experience, perhaps adopting methods from adjacent literature on improvisation (e.g., Clarke, 2005; Dean, 2017; Foster Vander Elst et al., 2023; Limb & Braun, 2008; Rosen et al., 2024; Sawyer, 2015), if we are to

accurately parse their contribution to the social psychological context of musical emotions.

The Personality and Social Psychology of Feeling and Intention

In the psychology of emotion and intention, no single explanation for emotional influence can account for the full variety of possible responses, but social models of emotion are principally based on the interpersonal effects of interaction. For example, Frijda (1986) has suggested that expressions have a relational function that serves a ‘messaging’ function to others about intended action. The association of particular expressive patterns and received inferred meaning might lie in the underlying muscular features and agreed cultural decoding of such communications (Parkinson, 1995), which has implications for composers who spoke about relying on similar agreed upon meanings for the expression of their emotional intentions (Varga & Parkinson, 2024) in Chapter II (see also Mead, 1934, Chapter 7 on the gestural expression of the artist, actor, and poet). These relational functions of expression as communication also provide further precedent for the unique interpretations of incidental emotion and directed intention.

For example, Fridlund (2014) has demonstrated a potential behavioural ecological function of expression as communication, in which an agent makes an expressive display, not to spontaneously represent an emotion, but to signal their intentions to a recipient (either present or imagined). In the clearest case, an agent directly interacts with a recipient, at whom an intentional emotional signal is directed, though information is still conveyed even if the recipient is not the direct intended target of the agent (Parkinson, 1995, 2005). Explicit verbal or gestural information

about object-directedness can modify the perceived emotional meaning as can more indirect, separable components such as posture. The dynamic temporal combination of object-directedness information with indirect postural cues can also add an additional layer of context-sensitive interpersonal effects, which aid the recipient's ability to make information-based inferences about the intended signal (Parkinson, 2019).

This interpersonal transmission is influenced by the traits of the individuals involved, primarily relating to the recipient's perceptiveness and patterns of cognition or goal orientation but also implicating the agent with respect to *their* patterns of behaviour and affective expression (Revelle & Scherer, 2014). The core dimensions of personality most relevant to social emotions are typically labelled neuroticism and extraversion, which correspond to emotionally negative behavioural inhibition and emotionally positive behavioural activation, respectively (Revelle, 1995), and describe phenotypic expressions of affect, cognition, and behaviour. Most relevant to both the interpersonal signalling and reception of emotion and intentionality, however, are the psychological processes that underlie and motivate specific affects, cognitions, and behaviours in relation to affective reactivity, perceptual vigilance, and behavioural inclination (Elliot & Thrash, 2010). These processes are described by approach and avoidance temperaments, which account for the stable underlying individual differences that predict and motivate a sensitivity, preference, and predisposition towards positive versus negative stimuli (Elliot & Thrash, 2002).

Whilst these individual differences have long been theorised to influence affect signalling and reception (Lazarus, 1994; Scherer, 2001; Tong, 2010), different

models of interpersonal emotion transfer have proposed different mechanisms and emphasised different, domain-specific aspects of personality (e.g., trait empathy and being “moved” by music in Eerola et al., 2016; aesthetic chills and openness to experience in McCrae, 2007). Openness to experience has been particularly associated with creativity, aesthetics, and the arts (Chamorro-Premuzic et al., 2009; McCrae, 2007; J. Meyer et al., 2023; Silvia et al., 2015). The general trait describes aspects of cognitive exploration that can be labelled ‘intellect’ and the eponymous ‘openness’ (DeYoung, 2015). The intellect aspect has been more associated with perceived intelligence and intellectual engagement, whilst the openness aspect has been more associated with artistic creativity and aesthetic sensation and perception (DeYoung et al., 2007), perhaps suggesting a differential function in composers’ intentions and feelings during the composition process.

Relatedly, trait authenticity might play a role in the relation between composer intentions and feelings. Perhaps of particular relevance in Wood’s (2008) tripartite conceptualisation of authenticity is the dispositional self-alienation component, which concerns knowledge of internal feelings and sense of self. Such knowledge of internal feelings and sense of self might manifest as greater alignment between intended and incidental affect. The external influence component perhaps addresses the question of composers’ originality and compositional integrity. The authentic living component perhaps captures composers’ dispositional motivations to respond to popular pressures or write in their own voice. All of these authenticity aspects of the composition process came up in the composer interviews (see previous chapter).

In addition to these trait considerations and how they might interact with composers' creative output, there still remains the question of whether composers' expression of their intentions and feelings is the product of inspiration, effort, or both. In much of the psychological literature, inspiration and effort have been treated as opposing theories of creativity (Cui et al., 2020; Thrash, 2021), with many psychologists (e.g., Martindale, 1989; Sawyer & Henriksen, 2024) endorsing effort as the dominant mechanism in line with the adage attributed to Thomas Edison that genius is 1% inspiration and 99% perspiration (attributed in Manchester, 1897). Previous research, however, suggests that both are implicated in the creative process generally (Thrash, Maruskin, et al., 2010; Thrash et al., 2017), but there has as yet been no empirical research on how the two processes interact with musical composition and the expression of intended or felt emotion. For example, inspiration has been associated with positive affect, whilst effort has been associated with more laborious writing processes (Thrash, Maruskin, et al., 2010), suggesting a potential differentiation of inspiration with felt emotion and effort with intended emotion. Neural correlates of similar states of creative flow have been observed in musical improvisation contexts (Rosen et al., 2024).

Feeling and Intention in Musical Composition

Given the influence of agent intention and information about object-directedness, listeners' emotional responses to musical compositions must surely depend to some extent on the perception of the composers' intentions as well as the listeners' ability to accurately parse felt emotion from perceived intention. In the same way that agent posture can modify interpretation of object-directed emotional

orientation (Mead, 1934), aspects of composers' incidental emotions that are translated into the musical elements they deploy in their music might also influence listeners' experiences. These cues help orient the listener to composers' emotional intentions and thereby help foster greater emotion convergence, albeit without an explicit object in many musical cases, particularly given the dominance of recorded (rather than live) music, especially in the Western classical tradition (Juslin et al., 2008, 2016). Whilst some low-level acoustical properties of music might have this direct transfer effect via contagion and entrainment (Gabrielsson & Lindström, 2001; Juslin, 2013; Juslin & Västfjäll, 2008), much of the emotional influence exerted by composers through their music must be derived from their ability to direct the listeners' attention and shape their orientation via relational alignment.

Perhaps as an implicit result of this orienting aspect, the communicative aspects of music have often been compared to speech (Adorno, 2002; Cook & Dibben, 2001; Cooke, 1989; Scherer, 1986). Yet the syntax of musical stimuli is rarely appraised as relating directly to the listener. This indirect relation is perhaps similar to emotional speech acts that are pragmatically akin to social referencing (see Klinnert et al., 1983), wherein a target is encouraged to orient towards the emotion object in a way that aligns with the stance suggested by the source. In the musical case, the declarative act is the composition and the source is the composer of those musical emotional cues.

Musical emotions are, however, dynamic processes (L. B. Meyer, 2001; Schubert, 2001)—for composers as well as for listeners. To understand better the divergent dynamic modalities of listeners' felt and perceived emotions, the

corresponding processes need to be studied in composers as well, especially as it is the composer who arranges the temporal associations of musical elements that form emotional orientational cues analogously to facial expression and gesture in direct interpersonal communication. These analogous processes help provide starting points for this overdue enquiry. For example, the felt and perceived loci of emotion in listeners naturally suggest felt and intended loci in composers. In a similar way, the shift from ‘consumers’ to ‘creators’ of music also necessitates incorporating aspects of personality, such as openness to experience (DeYoung, 2015), beyond basic approach-avoidance that are especially relevant to the psychology of creativity, aesthetics, and music.

The Present Study

To supplement limited previous qualitative research, the present study aimed to quantitatively investigate the role of composer intention and personality in the process of musical emotion transfer (MET). Adapting paradigms from narrative study methodology, the current research asked participating composers to focus on a single composition and provide an audio excerpt of it as the focal point of reference when responding to a variety of questionnaires addressing individual differences (authenticity, approach-avoidance, openness), affect and intention (felt versus intended core and aesthetic emotions), psychophysiological responses (chills), and creative process (inspiration versus effort). The questionnaires included a combination of validated measures and novel targeted questions covering each of the core elements of music indicated by the musicological literature and previous qualitative studies of composers’ techniques and methods.

By extrapolating from social psychological models of trait-informed affect processing (e.g., Lazarus, 1994; Scherer, 2001; Tong, 2010) and prior empirical studies of musical listeners (e.g., Eerola et al., 2016; Vuoskoski et al., 2012), I hypothesised that 1a) composer intended and felt emotions would empirically differentiate along the core dimensions of affect valence and activation but that, given the qualitative data from the composer interviews (Varga & Parkinson, 2024), 1b) composer intention would loosely correlate with composer felt affect. I supplemented this prediction with the intuitive hypothesis that 2) composer trait authenticity would predict the degree of similarity between intention and feeling. Drawing on the personality psychology literature (DeYoung, 2015; DeYoung et al., 2007; Elliot & Thrash, 2002, 2010), I hypothesised that 3) approach temperament would correlate more with both felt and intended positively valenced emotions whilst avoidance temperament would correlate more with felt and intended negatively valenced emotions and that 4) the openness aspect of openness to experience would correspond to felt emotions whilst the intellect aspect would correspond to intended emotions. Finally, based on the findings of previous studies of inspiration and the creative process (Cui et al., 2020; Maruskin et al., 2012; Thrash, Maruskin, et al., 2010; Thrash et al., 2017) as well as psychometric studies of listener responses (Gabrielsson, 2001a; Merrill et al., 2020), I hypothesised that 5) effort would more closely associate with intended emotion whilst inspiration would more closely correlate with felt emotion and that 6) the chills response would most strongly correlate with activated positive and negative affect where positive chills (‘goosetingles’) correspond to positive activation and negative chills (‘cold shivers’)

correspond to negative activation. In addition to these hypotheses, I examined how these creative states varied across stages of the composition process in exploratory analyses.

Method

Participants and Procedure

This study was based on a sample of adult conservatory- and university-trained or professionally active composers identified through industry contacts, various conservatoires and university music faculties, non-profit organisations promoting composers and composition, and other networks suggested by interviewees in previous qualitative research. Ethical approval was granted by the Oxford MS IDREC (R81669/RE001). Participants completed an online survey addressing composer traits and composition process states based on a single, self-selected original composition. They were asked to upload a 90-second audio excerpt of their selected composition along with their responses to the survey. Composers were incentivised to participate by opting into a chance to win a number of adjudicated (based on expert ratings obtained in Study 3 and general listener liking obtained in Study 4) and random prizes (by lottery) for their submitted compositions. After dropping 16 incomplete cases and one case involving a composition not written by the participant, the final analytic sample was $N = 47$.

All composer participants worked within or adjacent to Western classical art music genres (though not exclusively in many cases). Nineteen participants had been trained in composition to postgraduate level, 16 had received undergraduate training, three had been trained to high school or pre-conservatoire diploma level, and nine

were working professionally as composers but had not received a formal qualification in composition. The mean number of years composing was 17.5 with a range of 1-70 ($SD = 16.23$). For just over half of the participants ($n = 26$), composition was their primary professional work or academic area of study. Participants were Asian ($n = 3$), Black ($n = 4$), Hispanic ($n = 2$), White ($n = 34$), and of mixed ethnicity ($n = 4$). They identified as men ($n = 28$), women ($n = 18$), and nonbinary ($n = 1$).

Measures

Trait Measures

Descriptive statistics and reliability estimates for all trait variables are presented in Table III.1.

Authenticity. Composer trait authenticity was measured using Wood and colleagues' (2008) Authenticity Scale, which captures domains of dispositional self-alienation (e.g., 'I don't know how I really feel inside'), authentic living (e.g., 'I am true to myself in most situations'), and accepting external influences (e.g., 'Other people influence me greatly'). Participants expressed agreement on a 7-point Likert scale ranging from 1 = *does not describe me at all* to 7 = *describes me very well*. The self-alienation and accepting external influences subscales were reverse coded, and a composite authenticity variable was formed by averaging across the three subscales.

Approach and avoidance temperaments. Participants also completed the 12-item Elliot and Thrash (2010) Approach-Avoidance Temperament Questionnaire, which consists of two subscales for the relevant dimensions. Items were rated from 1 = *strongly disagree* to 7 = *strongly agree*. Approach temperament and avoidance

temperament composites were formed by averaging across the respective sets of six items.

Openness to experience. Composers also completed DeYoung and colleagues' (2007) 10-item Big Five aspect subscales for openness to experience (openness and intellect). Items were rated on a scale from 1 = *disagree strongly* to 5 = *agree strongly*. Composites for each aspect were formed by taking the mean of the relevant subscale.

State Measures

Composer chills, inspiration, and effort variables were computed from three distinct stages of the creative process—the moment of getting the seminal ideal for the piece, the process of expressing the idea, and the process of revising the final work—consistent with precedent set by Thrash and colleagues (2010; 2017). All chills, inspiration, and effort items were rated on 7-point Likert scales ranging from 1 = *strongly disagree* to 7 = *strongly agree* at each stage of the creative process. Composites for each were made by averaging items across stages of the creative process. The stage-specific variables were computed for exploratory analyses, and the composites across stages were used for the primary hypothesis testing. Descriptive statistics and reliability estimates for all state measures at each stage and composites are presented in Table III.2.

Core affect and aesthetic emotion variables were measured once each for composer intention and feeling with respect to the final composition. Means and standard deviations for all affect variables are shown in Table III.5.

Chills. At each stage of the creative process, composer state chills response was assessed using four items from the Chills Questionnaire by Maruskin and colleagues (2012): ‘I felt cold or felt a chill’, ‘I felt a shiver or a shudder’, ‘I had a tingling or ticklish feeling’, and ‘I had goosebumps or a hair-on-end feeling’. The scale can be further divided into ‘cold shivers’ and ‘goosetingles’ subscales by the first pair and latter pair of items respectively. Cold shivers ($M = 2.99$, $SD = 1.53$, $\alpha = .92$) are indicative of negative, avoidance-related experiences, and goosetingles ($M = 3.41$, $SD = 1.59$, $\alpha = .89$) are indicative of positive, approach-related experiences.

Inspiration. Composer state inspiration ($M = 5.36$, $SD = 1.31$, $\alpha = .91$) was assessed by adapting three items per stage from the state version of the Thrash and Elliot (2003) Inspiration Scale (‘I felt inspired’, ‘something inspired me’, and ‘I was inspired to compose’).

Effort. Composer effort ($M = 5.20$, $SD = 1.29$, $\alpha = .85$) was assessed with two items at each stage adapted from Thrash and colleagues (2017): ‘I was working hard’ and ‘I was putting forth a great deal of effort’.

Core affect. Both composer felt emotion and intended emotion were measured using the adjective format of the 12-point affect circumplex (12-PAC) designed by Yik and colleagues (2011). Like other circumplex measures of affect, the 12-PAC is organised around the core dimensions of valence and activation. All items were rated on 5-point Likert scales ranging from 1 = *not at all* to 5 = *extremely* for both the felt and intended scales.

Aesthetic emotions. Composer aesthetic emotions were measured by a single adjective item on each of the felt and intended affective scales: ‘full of awe, full of wonder, awestruck’. This item was also rated on the same 5-point Likert scale as the 12-PAC adjectives.

Analytic Strategy

Cases with incomplete or invalid data were dropped listwise. Within-subjects interactions and pairwise comparisons among composer affect factors (locus, valence, activation) were tested in a 3-way ANOVA. For every affect angle, a difference score was computed by subtracting intended affect from felt affect. Exploratory analyses between composer states at each stage of the creative process were conducted using Bonferroni-corrected pairwise comparisons. All other analyses used ordinary least squares (OLS) regression models, including to compute standardised Pearson correlation coefficients.

Results

Descriptive statistics and reliability estimates for composer trait and state variables are presented in Tables III.1 and III.2, respectively. Correlations for composer felt and intended emotions are presented in Tables III.3 and III.4.

Locus, Valence, and Arousal

Consistent with hypothesis 1a, there was a significant three-way interaction effect among locus of emotion (felt vs. intended), valence of emotion (pleasant vs. unpleasant), and activation (activated vs. deactivated), $F(1, 46) = 6.22, p = .016, \eta^2 = .12$, such that the interaction between valence and activation was different for felt and intended emotions. Activation and deactivation decrease differentially when

moving from pleasure to displeasure for felt emotion (see Figure III.1), whereas they show a similar difference between pleasure and displeasure for intended emotion (see Figure III.2). There were also significant main effects for locus, valence, and arousal. The main effect for locus, $F(1, 46) = 13.04, p = .001, \eta^2 = .22$, demonstrated that felt emotions ($M = 2.50, SE = .07$) were endorsed significantly more strongly than intended emotions ($M = 2.27, SE = .08$). The main effect for valence, $F(1, 46) = 87.39, p < .001, \eta^2 = .66$, showed that the mean rating for pleasant emotions ($M = 3.10, SE = .11$) was significantly higher than that for unpleasant emotions ($M = 1.67, SE = .10$). And the main effect for arousal, $F(1, 46) = 22.35, p < .001, \eta^2 = .33$, showed that activation ($M = 2.76, SE = .10$) was rated significantly higher than deactivation ($M = 2.01, SE = .10$).

Despite being empirically differentiable on the core dimensions of valence and activation, felt and intended emotion angles were almost all significantly correlated as predicted in hypothesis 1b. As shown in Table III.5, all but the correlations for pleasure (0° - happy, content, pleased), pleasant activation (60° - energetic, alert, excited), and displeasure (180° - unhappy, troubled, miserable) were significant (see also Figure III.3).

Composer Personality

Contrary to hypothesis 2, however, composer trait authenticity did not significantly predict felt and intended emotion congruence ($\beta = .10, p = .52$). Despite predictions in hypothesis 3, approach and avoidance temperament were not significantly correlated with most felt and intended affect angles. Approach temperament was positively correlated with felt activated pleasure, $r(45) = .31$,

$p = .033$, consistent with the hypothesis, but avoidance temperament was also more strongly positively correlated with the same angle, $r(45) = .38, p = .008$, as well as the predicted felt unpleasant activation, $r(45) = .29, p = .045$. Similarly, the results for hypothesis 4 did not entirely follow expectations with the intellect aspect of Big Five openness to experience significantly negatively correlating with felt activation, $r(45) = -.35, p = .016$, and intended activated pleasure, $r(45) = -.48, p < .001$, and the openness aspect significantly correlating with felt pleasant activation, $r(45) = .36, p = .013$.

Inspiration, Effort, and the Chills

Results for hypotheses 5 and 6 were mixed. As predicted, inspiration was positively correlated with felt pleasure, $r(45) = .48, p < .001$; activated pleasure, $r(45) = .42, p = .003$; pleasant activation, $r(45) = .37, p = .011$; activation, $r(45) = .34, p = .020$; and deactivated pleasure, $r(45) = .34, p = .020$. Effort was significantly correlated with intended unpleasant activation, $r(45) = .32, p = .030$, and activated displeasure, $r(45) = .31, p = .033$. Out of line with the predicted pattern, inspiration was also significantly correlated with intended activation, $r(45) = .36, p = .014$. The correlations of inspiration and effort with composer felt and intended emotion are depicted in Figures III.4 and III.5. As predicted in hypothesis 6, the positive ‘goosetingles’ chills response was correlated with felt activated pleasure, $r(45) = .42, p = .003$, and the negative ‘cold shivers’ response was associated with intended activated displeasure, $r(45) = .29, p = .048$.

In addition to the hypothesised effects, exploratory analyses examined composers’ inspiration, effort, and chills at each stage of the creative process. Table

III.6 shows the correlations of inspiration, effort, coldshivers, and goosetingles with composer felt and intended emotions at each angle of the circumplex for all three stages of the creative process. Whilst effort started low at the idea stage and then significantly increased at the expression stage, inspiration played the primary role in the idea and expression stages before significantly decreasing in the revision stage (see Figure III.6). As shown in Figure III.7, composers experienced goosetingles primarily in the idea and expression stages before they significantly decreased in the revision stage whilst cold shivers significantly decreased between the idea stage and the expression stage.

Discussion

The results, though mixed, provide empirical evidence of the differentiation of the felt affective states and cognitively intended emotions that composers, like listeners, experience in response to music. As predicted, felt and intended emotion were empirically distinguishable by the three-way interaction effect showing that the interaction of the core affect dimensions of valence and activation was different between the two loci (see Figures III.1 and III.2). The main effects for valence and activation demonstrate that, on the whole, the results are consistent with the literature showing a general, approach-motivated preference for, and therefore trend towards stronger endorsement of, pleasant and activated states (Chamorro-Premuzic et al., 2010; Elliot & Thrash, 2002, 2010; Thrash & Hurst, 2008). Of particular interest is the contrast this preference for pleasant activation presents with previous qualitative data from composers, which emphasised the challenges of writing authentically

happy music and the consequent perceived over-representation of sad music, especially from younger composers (Varga & Parkinson, 2024).

A bias towards positive and activated emotion is consistent with similar self-report affect research, but another possible explanation lies in the main effect for locus, which shows comparatively weaker effects for intended than felt emotions. This finding contrasts with that of Merrill and colleagues (2020), who found that listeners' perceived emotional responses elicited stronger psychophysiological responses than felt emotions; they suggest this is because focus on the self distracts from the music (compare with Table III.6). In the present study, the relative strength of felt emotion effects in composers is perhaps due to the phenomenological experience of composers being stronger and more salient than their intellectual or creative intentions. For composers, then, the focus on the compositional process with respect to intention might in some way reduce the affective impact vis à vis ambient felt emotions during the creative process. From an analytic standpoint, this trend might also account for the relatively fewer significant findings for the former compared with the latter locus of emotion.

In most interview data, however, composers are asked to describe either their intentions or their own ambient feelings when composing, but no prior research has taken the interplay of valence, arousal, and locus into account when trying to pinpoint composer engagement with emotion. For example, when less experienced composers report that they find it easier to write melancholic music (Varga & Parkinson, 2024), they are almost certainly describing their intentions rather than their feelings, but when discussing the difficulty of writing authentically happy music, it seems they are

describing the congruence of intention and feeling. In previous qualitative research, it has been difficult to disentangle composer intention from composer ambient feelings whilst relying solely on retrospective analysis of interview data. By explicitly measuring the two independently, the present study helps bring a more fine-grained quantitative edge to parsing the interplay between the two in composers' creative processes.

Significant effects for approach and avoidance temperaments and aspects of openness to experience were minimal, suggesting that these core aspects of personality have relatively little bearing on composers' creative process. Instead, it seems that compositional methods are independent of individuals' traits even as their states vary across stages in the creative process. This is consistent with previous qualitative data, in which composers suggested that whilst composition involves harnessing various dynamic states at different stages of the process, the overall project tends to be more about conveying intention, formal aesthetic creativity, or emotional meaning than aspects of their own personality, but future research should investigate whether this might vary by genre.

The present study also contributes a quantitative look at the creative process itself, particularly the interplay of inspiration and effort, as well as psychophysiological responses accompanying them, in relation to specific felt and intended emotions. Despite the three-way interaction effect, overall, composers' felt and intended emotions were correlated in the creative process as predicted. Inspiration was more closely associated with felt positive emotion whilst effort was more closely associated with intended negative emotion. This finding is partly

consistent with the hypothesised correlations of inspiration with felt emotion and effort and with intended emotion but is also indicative of the dominant role of valence that emerged in differentiating the two loci.

Likewise, the positive, goosetingles chills response was more closely associated with felt positive emotion and the negative, cold shivers chills response was more closely associated with intended negative emotion. The divide of the goosetingles and cold shivers by valence along the arousal dimension is consistent with expectations, but the decisive differentiation of locus is particularly notable as the chills have been associated, contrastingly, with both strong felt emotions (e.g., Maruskin et al., 2012) and perceived, rather than felt, musical emotions (Merrill et al., 2020). Also of note is the novel co-occurrence of cold shivers with composer effort. This emergent pattern is suggestive of a potentially underexplored link between negative chills and effort that complements the better-established association between the positive goosetingles and inspiration. As shown in Table III.6, this pattern was particularly pronounced in the idea stage where cold shivers and effort were most strongly related to intended unpleasant activation and activated displeasure. Consistent with the previously documented link (Maruskin et al., 2012), inspiration and goosetingles were correlated with activated pleasure across all three stages of the creative process. Future research should explore more explicitly the links among cold shivers, effort, and the intention to express negative activated affect as well as continuing to examine the association of inspiration, goosetingles, and felt positive affect.

Exploratory analyses of composer states at different stages of composing helps contextualise the relationship between inspiration and effort as well as goosetingles and cold shivers during the creative process. Given that inspiration and effort have long been posed as competing theories of creativity (Cui et al., 2020; Thrash, 2021) with many psychologists strongly endorsing effort as the critical factor (Martindale, 1989; Sawyer & Henriksen, 2024), it is all the more notable that inspiration, rather than effort, was most relevant in the idea and expression stages of composers' creative processes; effort significantly increased during the expression stage but only overtook inspiration in the revision stage. These findings might have implications for future research examining the interplay of inspiration in the creative process (Cui et al., 2020; Oleynick et al., 2014) and creative flow (Csikszentmihalyi, 1990; Sawyer, 2015), which involves a high level of involvement or full concentration balanced, in this case, between the skill of the composer and the challenge of composition. Ongoing research has particularly examined related effects in the context of musical improvisation (Limb & Braun, 2008; Rosen et al., 2024; Sawyer, 2005), which many composers included in their creative process (Varga & Parkinson, 2024).

The variation of composers' chills responses by stage of the creative process are also suggestive. Whilst goosetingles remained the dominant experience throughout the composition process, this positively valenced chills response significantly dropped off during revision. Meanwhile, cold shivers started moderately high and significantly decreased at the expression stage. The well-established association of goosetingles with inspiration demonstrably (compare Figures III.6 and

III.7) accounts for their similar trajectories. On the other hand, the decrease in the avoidance-related cold shivers between the idea and expression stages is suggestive of the decreasing threat accompanying the risk of losing an unexpressed or unrecorded idea, relieving the strain of accurately representing it, overcoming the existential dread of the blank page, or some combination of the above. Whilst exploratory here, examination of these relationships promises to be a fruitful direction for future work.

Limitations

Though adding a valuable quantitative angle to previous qualitative work, the present study is limited in a number of ways. First and foremost, the cross-sectional design severely limits the possibility of causal inference. The current correlation and regression analyses are invaluable in guiding future research, but do not provide sufficient means to comprehensively address the causal questions arising from these findings. Second, the reliabilities of the approach, avoidance, and openness trait subscales were much lower than expected given the previous validation of the measures, which might account for some of the non-significant findings out of line with the hypotheses. Third, the sample that was obtained was predominantly White and composing within a Western classical art music genre, which limits the generalisability of the findings of the present study. Fourth, data about composers' states during the creative process were retrospectively self-reported and therefore potentially influenced by individual biases of memory. Analysis of these stages was therefore treated as exploratory to provide an indication for future research. Finally, though larger than most of the limited studies specifically examining composers, the

present sample size is still relatively small compared with similar social psychological work in other domains of creativity, aesthetics, and the arts. Though the target sample size of 50 valid cases was not quite attained after the preliminary data cleaning described in the Methods section above, the nature of the planned analyses was such that the deficit of three participants did not pose a detriment to power. In feedback from composers, it seemed the sample size was limited by the availability and willingness of composers to respond to a psychological survey that also required them to upload a short audio excerpt of an original work.

Conclusion

Despite these limitations, the present study contributes a first quantitative foray into composer process and personality. The extension of prior qualitative research using quantitative methods sheds greater light on how composers engage with emotion in their work and allows for more precise operationalisations of dimensions of core affect, locus of emotion, composer personality, and aspects of the creative process such as psychophysiological responses and the interplay of inspiration and effort. The findings show that valence, locus, and arousal are empirically differentiable dimensions of core affect in music and that creative states, such as inspiration and effort, as well as their psychophysiological markers are differentially implicated at different stages of the composition process. By examining composers' affect and intentions in ways analogous to the preponderance of research into listeners' affective experiences with music, this research broadens the empirical frame for investigating the transmission of emotion and culture through music.

Tables

Table III.1

Descriptive Statistics and Reliability Estimates for Trait Variables

Variable	<i>M</i>	<i>SD</i>	Min	Max	α
Authenticity	5.26	.90	1	7	.84
Approach	5.58	.88	1	7	.67
Avoidance	4.29	1.52	1	7	.65
Openness	3.69	.61	1	5	.64
Intellect	4.49	.39	1	5	.77

Note. *N* = 47, *M* = Mean, *SD* = Standard deviation, Min = Minimum, Max = Maximum, α = Standardised Cronbach's alpha

Table III.2*Descriptive Statistics and Reliability Estimates for Creative State Variables*

Stage: Variable	<i>M</i>	<i>SD</i>	Min	Max	α
Idea					
Inspiration	5.75	1.53	1	7	.90
Effort	4.69	1.88	1	7	.86
Cold Shivers	3.10	1.72	1	7	.78
Goosetingles	3.66	1.95	1	7	.87
Expression					
Inspiration	5.77	1.40	1	7	.90
Effort	5.51	1.35	1	7	.83
Cold Shivers	2.91	1.68	1	7	.83
Goosetingles	3.59	1.83	1	7	.81
Revision					
Inspiration	4.57	1.67	1	7	.84
Effort	5.39	1.55	1	7	.91
Cold Shivers	2.95	1.71	1	7	.96
Goosetingles	2.99	1.66	1	7	.81
Composites					
Inspiration	5.36	1.31	1	7	.91
Effort	5.20	1.29	1	7	.85
Cold Shivers	2.99	1.54	1	7	.92
Goosetingles	3.41	1.59	1	7	.89

Note. *N* = 47, *M* = Mean, *SD* = Standard deviation, Min = Minimum, Max = Maximum, α = Standardised Cronbach's alpha

Table III.3
Correlations of Composer Felt Affective States

Circumplex Angle	Correlations (<i>r</i>)											
	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
0° Pleasure												
30° Activated Pleasure	.31*											
60° Pleasant Activation	.47**	.31*										
90° Activation	-.06	.16	.16									
120° Unpleasant Activation	-.18	.29*	-.01	.19								
150° Activated Displeasure	-.36*	.12	-.02	.13	.59**							
180° Displeasure	-.21	-.15	-.17	.00	.38**	.57**						
210° Deactivated Displeasure	-.21	-.06	-.24	-.04	.08	.31*	.24					
240° Unpleasant Deactivation	-.41**	-.04	-.41**	.02	.43**	.57**	.38**	.40**				
270° Deactivation	.09	-.36*	.14	-.12	-.22	-.11	.18	.17	-.05			
300° Pleasant Deactivation	.49**	-.07	.18	-.19	-.30*	-.29*	.09	.23	-.18	.50**		
330° Deactivated Pleasure	.43**	.09	.15	-.13	-.35*	-.32*	.09	.11	-.04	.36*	.74**	

Note. N = 47, * $p < .05$, ** $p < .01$ for significant Pearson correlations, $r(45)$, in boldface type.

Table III.4
Correlations of Composer Intended Affective States

Circumplex Angle	Correlations											
	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°
0° Pleasure												
30° Activated Pleasure	.47**											
60° Pleasant Activation	-.01	.29*										
90° Activation	-.01	.20	.44**									
120° Unpleasant Activation	-.40**	-.07	.34*	.34*								
150° Activated Displeasure	-.43**	-.10	.47**	.48**	.76**							
180° Displeasure	-.21	-.05	.15	.08	.37*	.32*						
210° Deactivated Displeasure	-.04	-.04	-.26	-.06	.10	-.12	.15					
240° Unpleasant Deactivation	.06	.15	-.05	.03	.41**	-.03	.18	.58**				
270° Deactivation	.31*	.18	-.40**	-.04	-.24	-.31*	.05	.48**	.28			
300° Pleasant Deactivation	.53**	.41**	-.38**	-.17	-.38**	-.37*	-.01	.27	.16	.79**		
330° Deactivated Pleasure	.49**	.33*	-.44**	-.12	-.39**	-.41**	-.01	.31*	.23	.81**	.90**	

Note. $N = 47$, $*p < .05$, $**p < .01$ for significant Pearson correlations, $r(45)$, in boldface type.

Table III.5*Means, Standard Deviations, and Correlation of Felt and Intended Emotions*

Circumplex Angle	Felt		Intended		Correlation
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>r</i>
0° Pleasure (happy, content, pleased)	3.64	1.21	3.11	1.24	.26
30° Activated Pleasure (proud, enthusiastic, euphoric)	3.49	1.02	3.00	1.23	.35*
60° Pleasant Activation (energetic, alert, excited)	4.06	.92	3.57	1.26	.25
90° Activation (aroused, hyperactivated, intense)	3.00	1.49	2.98	1.53	.66**
120° Unpleasant Activation (anxious, jittery, nervous)	2.15	1.14	1.91	1.30	.60**
150° Activated Displeasure (tense, agitated, fearful)	1.94	1.17	1.91	1.25	.41**
180° Displeasure (unhappy, troubled, miserable)	1.64	1.13	1.28	.77	-.01
210° Deactivated Displeasure (gloomy, down, sad)	1.40	.80	1.40	.93	.39**
240° Unpleasant Deactivation (tired, sluggish, dull)	1.51	.91	1.09	.46	.63**
270° Deactivation (quiet, still)	2.64	1.24	2.47	1.53	.54**
300° Pleasant Deactivation (calm, relaxed, at rest)	2.70	1.28	2.57	1.41	.66**
330° Deactivated Pleasure (soothed, peaceful, at ease)	2.74	1.21	2.66	1.49	.70**

Note. Composers ($N = 47$) were asked to rate how they felt emotionally during composition and how they wanted the listeners of their composition to feel using the same given adjective items of the Yik et al. (2011) 12-Point Affect Circumplex. * $p < .05$, ** $p < .01$ for significant Pearson correlations, $r(45)$, of felt and intended composer emotions in boldface type.

Table III.6*Inspiration, Effort, and Chills in the Creative Process*

Circumplex Angle Felt/Intended Affect	Idea				Expression				Revision			
	<i>Insp</i>	<i>Eff</i>	<i>CS</i>	<i>GT</i>	<i>Insp</i>	<i>Eff</i>	<i>CS</i>	<i>GT</i>	<i>Insp</i>	<i>Eff</i>	<i>CS</i>	<i>GT</i>
0° Pleasure	.39** /.13	.01/-.19	.08/-.21	.19/-.03	.58** /.25	-.19/-.15	.23/.15	.28/.09	.29* /.-01	-.13/.13	.21/.12	.24/-.03
30° Activated Pleasure	.36* /.14	.10/-.15	.23/-.04	.39** /.-01	.37* /.14	-.06/-.10	.10/.06	.35* /.-11	.35* /.-04	.06/.03	.20/-.01	.38** /.-12
60° Pleasant Activation	.34* /.09	-.18/.03	.27/.06	.24/.06	.32* /.-06	-.04/-.01	.31* /.08	.21/.03	.29/.14	-.02/.22	.16/.14	.21/.02
90° Activation	.19/.25	-.07/.25	.33* / .31*	.21/ .35*	.32* /.15	-.05/.02	.25/.23	.12/.11	.36* / .48**	-.01/ .35*	.14/.18	.08/.12
120° Unpleasant Activation	.05/.00	.18/ .29*	.15/ .34*	.17/.28	.14/-.16	.16/.14	.18/.06	.40** /.15	.03/.04	.23/ .32*	.05/-.01	.11/.05
150° Activated Displeasure	.16/.08	.09/ .31*	.16/ .46**	.16/ .30*	.04/-.10	.08/.16	.09/.17	.20/.10	-.06/.20	.12/.27	.06/.16	.08/.13
180° Displeasure	.11/.13	.05/.15	.15/.20	-.01/.09	.06/-.19	.10/.05	.38** /.-13	.09/-.14	.01/-.06	.13/.23	.25/.02	.13/.05
210° Deactivated Displeasure	.06/.21	.22/-.06	.20/.23	.12/.14	-.04/.13	.09/-.10	.05/.16	.01/.06	.15/-.02	.05/.02	.12/.26	.24/.17
240° Unpleasant Deactivation	-.02/-.04	.10/.06	.15/.07	.03/.06	-.02/-.04	.06/.02	.06/.04	.05/.08	-.10/-.15	.14/.07	.01/-.01	.01/.03
270° Deactivation	.02/ .36*	-.18/-.09	.04/.12	.01/.13	.00/ .30*	-.09/-.07	.19/.19	-.14/.01	-.04/.01	.08/.03	.22/.27	-.03/.09
300° Pleasant Deactivation	.25/ .29*	.17/-.06	.07/-.04	.10/-.01	.23/ .29*	-.08/-.07	.23/.18	.06/.01	.15/.00	.07/.04	.21/.15	.27/.06
330° Deactivated Pleasure	.31* /.26	-.11/-.06	.11/-.03	.02/.01	.34* / .33*	-.16/-.06	.30* /.11	-.02/.01	.23/-.00	.02/-.12	.30* /.16	.25/.04

Note. $N = 47$, $*p < .05$, $**p < .01$ for significant Pearson correlations, $r(45)$, of Felt/Intended composer emotions with inspiration (Insp), effort (Eff), cold shivers (CS), and goosetingles (GT) at each stage of the creative process (Idea, Expression, Revision) in boldface type.

Figures

Figure III.1

Interaction of Valence and Arousal for Composer Felt Emotion

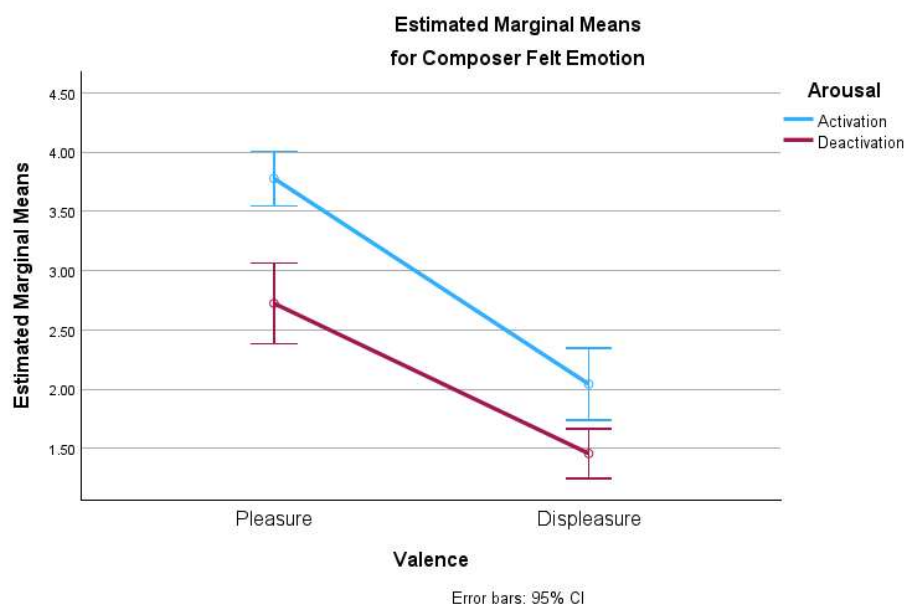


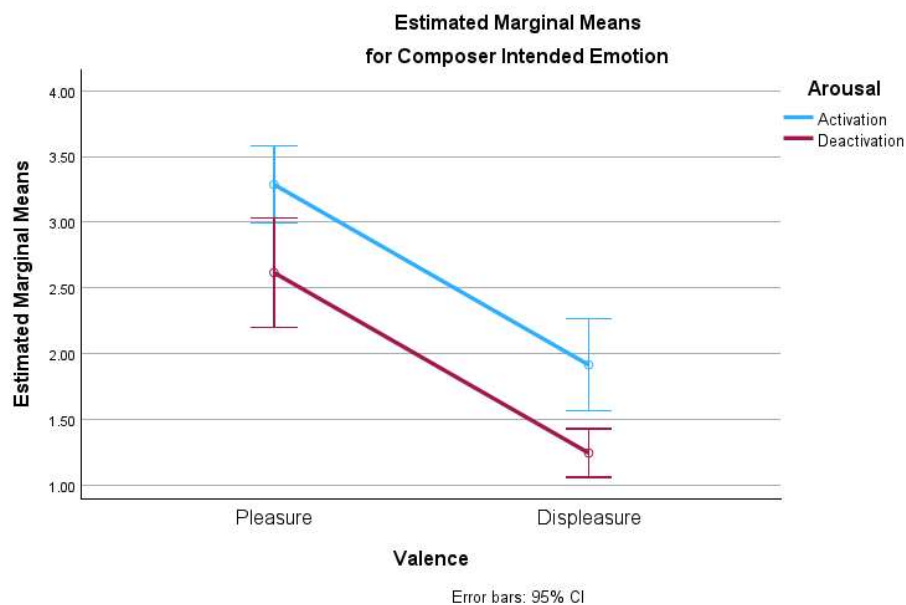
Figure III.2*Interaction of Valence and Arousal for Composer Intended Emotion*

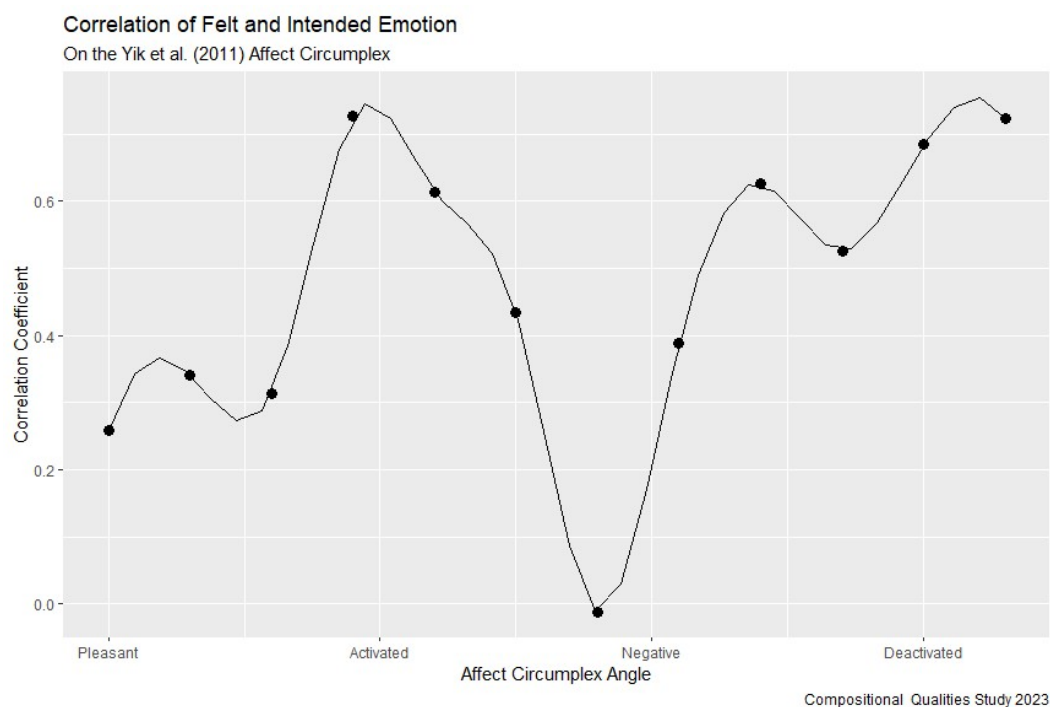
Figure III.3*Correlations of Composer Felt and Intended Emotion*

Figure III.4

Correlations of Composer Felt Emotions with Inspiration versus Effort

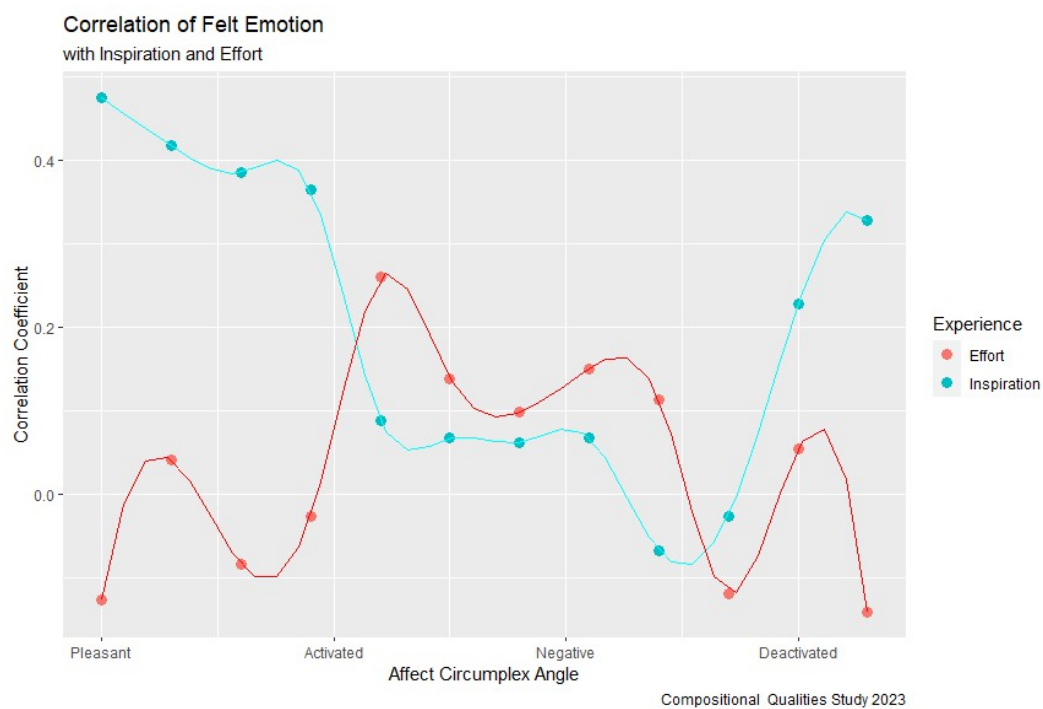


Figure III.5

Correlations of Composer Intended Emotions with Inspiration versus Effort

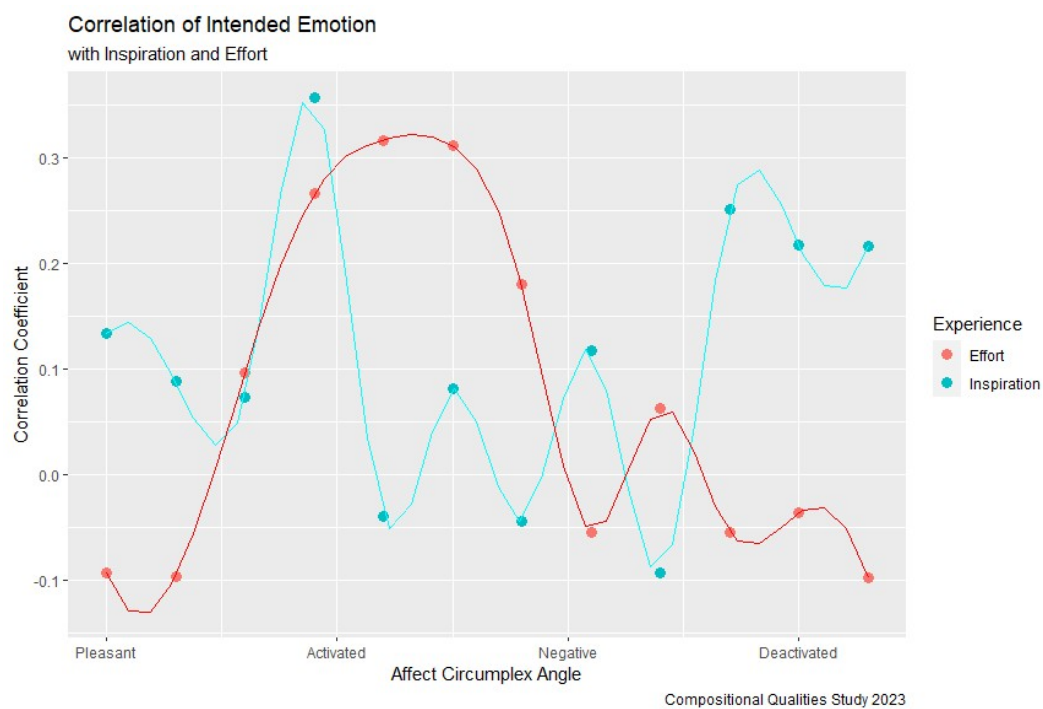
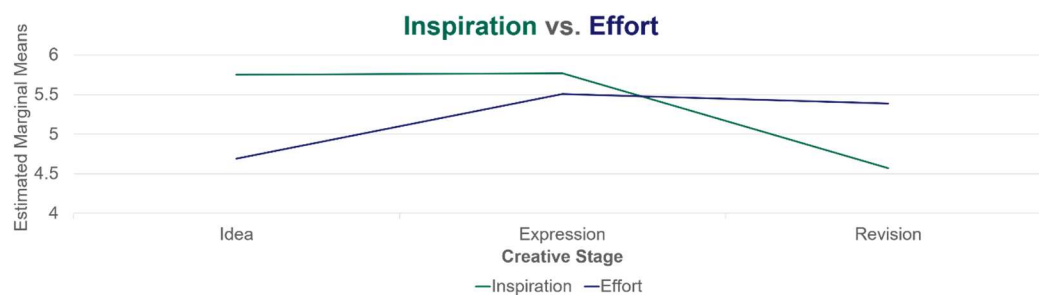
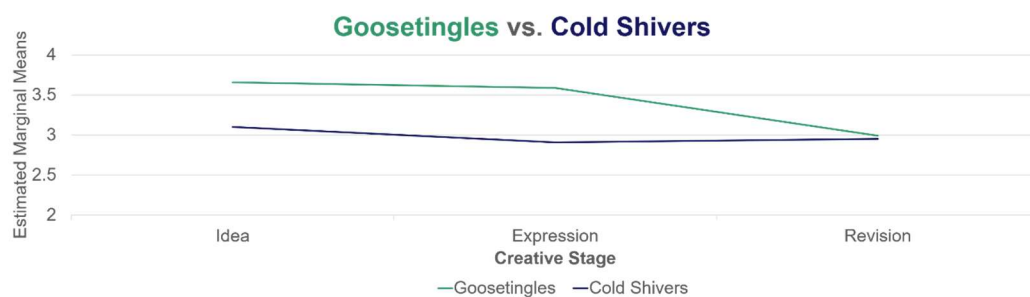


Figure III.6*Inspiration versus Effort in the Composition Process***Figure III.7***Goosetingles versus Cold Shivers in the Composition Process*

Appendix III.A

Composer Questionnaire Measures

Preliminary Composer Questionnaire

Authenticity. [*Moderator.*] Authenticity Scale (Wood et al., 2008).

Approach-avoidance. Approach-Avoidance Temperament Questionnaire (Elliot & Thrash, 2010).

Personality. Openness and Intellect aspects from Big Five Aspect Scale (DeYoung et al., 2007).

Musical training. [*Control/Moderator.*] Level: ‘To what academic level have you been trained as a composer? [High School/Pre-Conservatory, Undergraduate University/Conservatory, Postgraduate University/Conservatory]’. Duration: ‘How many years have you been composing?’ *dropdown range*: [<1-99]. Vocation: ‘Is composition your primary professional work/academic subject of study? [Yes/No]’.

Demographics. Ethnicity: ‘What is your ethnicity? Select all that apply: [Black, White, Hispanic, Asian, Pacific Islander, Native American, Middle Eastern, Other, please specify]’; Gender: ‘With which of the following do you most identify? [Man, Woman, Trans Man, Trans Woman, Non-binary, Gender non-conforming, Other, please specify]’; Age: ‘How old are you?’ *dropdown range*: [18-99]’.

Composition Questionnaire

Measures at each stage of the composition process (moment of idea, composition, revision)

Chills. Four items ‘In response to [stage], I... ‘felt cold or felt a chill’, ‘felt a shiver or a shudder’, ‘had a tingling or ticklish feeling’, ‘had goosebumps or a hair-on-end feeling’ rated on a 7-point Likert intensity scale (*very slightly or not at all* to *extremely*). Overall chills composite formed by averaging across three stages.

(Adapted from Maruskin et al., 2012 Chills Scale)

Inspiration. [*Predictor.*] Idea stage: ‘I felt inspired at that moment’, ‘Something inspired me’, ‘I was inspired to compose’; Composition stage: ‘I felt inspired while expressing my ideas’, ‘Something inspired me’, ‘I was inspired to compose’; Revision stage: ‘I felt inspired while revising and finalizing this composition’, ‘Something inspired me’, ‘I was inspired to revise this composition’ rated on 7-point Likert agreement scales (*strongly disagree* to *strongly agree*).

Overall inspiration composite formed by averaging across three stages. (Adapted from Thrash et al., 2017)

Effort. [*Predictor.*] Idea stage: ‘I was working hard at that moment’, ‘I was putting forth a great deal of effort at that moment’; Composition stage: ‘I worked hard in writing this composition’, ‘I put forth a great deal of effort into expressing my ideas’; Revision stage: ‘I worked hard on revising this composition’, ‘I put forth a great deal of effort into revising and finalizing this composition’ rated on 7-point Likert agreement scales (*strongly disagree* to *strongly agree*). Overall effort

composite formed by averaging across three stages. (Adapted from Thrash et al., 2017)

Overall Measures

Affective states. [*Predictor.*] Thirteen items (Yik Affect Circumplex plus awe) in which composers will be asked to indicate which states they personally felt whilst composing: ‘Whilst composing this excerpt, I felt... ‘tired, sluggish, dull’, ‘energetic, alert, excited’, ‘gloomy, down, sad’, ‘calm, relaxed, at rest’, ‘proud, enthusiastic, euphoric’, ‘happy, content, pleased’, ‘anxious, jittery, nervous’, ‘soothed, peaceful, at ease’, ‘tense, agitated, fearful’, ‘aroused, hyperactivated, intense’, ‘quiet, still’, ‘unhappy, troubled, miserable’, ‘full of awe, full of wonder, awestruck’ on a 5-point Likert intensity scale (*not at all* to *extremely*).

Composers will then be asked to rate which emotions they intended to convey to the listener using the same set of items: ‘I want listeners of this excerpt to feel...’ rated on a 5-point Likert intensity scale (*not at all* to *very much*).

Liking. [*Predictor.*] One item: ‘How much do you like the final composition?’ rated on a 7-point Likert intensity scale (*not at all* to *very much*). (Adapted from Thompson, 2006)

MIDI. [*Control.*] One item: ‘Was this recording produced using MIDI or other digitally synthesised instruments in place of live performers?’

Chapter IV

The Well-Trained Ear:

Expert Evaluations of Original Compositions

The music industry is one of the largest and most lucrative among the arts and creative sector (International Federation of the Phonographic Industry, 2025; National Assembly of State Arts Agencies, 2020). Music listeners have therefore been the subject of numerous studies to understand their behaviours and preferences in response to composers' creative output. No previous research, however, has directly compared composers' intentions and techniques with listener evaluations. This is partly the result of a majority of previous empirical studies into music listening relying on stimuli from historical composers and participation from college student and general population samples, which might not have the consistent expertise necessary to reliably evaluate the technical mechanics of original compositions as well as other psychological effects (Berlyne, 1974; Simonton, 2010). The present study seeks to fill in the picture by specifically comparing previously collected qualitative data from composers about how they approach writing and evaluating music with how a panel of expert listeners evaluated and affectively responded to 47 original musical compositions with reference to the composers' own feelings and intentions to compare their predictive effects on the experts' ratings. Experts' evaluative and appraisal ratings were found to form two factors along formal and expressive dimensions of music. Composers' intended and felt emotions significantly correlated with experts' experienced emotions, and composer intentions and felt emotion uniquely predicted expert emotion ratings in regression analyses. These results are consistent with the musicological literature and previous composer interviews. The findings also show that composer intentions as well as incidental affects during composition, albeit to a lesser extent, both individually play a role in determining listeners' affect experiences of music, thus demonstrating the need for more fine-tuned research in the area of musical emotion transfer.

Music listening is a nearly universal human activity. It has seemingly been an integral part of cultures throughout human history and remains a key aspect of modern societies. The music industry is now one of the largest and most lucrative among the arts, accounting for a substantial portion of the creative sector's capital

output (International Federation of the Phonographic Industry, 2025; National Assembly of State Arts Agencies, 2020). Music listeners have therefore been the subject of numerous studies to understand their behaviours and preferences in response to composers' creative outputs. Many of these studies have pointed to the emotional effects of music listening as the core driver of its social and cultural impact (Juslin, 2005; Lull, 1992; Simonton, 2010). As such, considerable research resources have been poured into understanding how music makes listeners feel, but these studies have often been limited to college or general population convenience samples and artificial, laboratory-designed stimuli (Berlyne, 1974; Simonton, 2010). Very few studies have examined expert evaluations of musical qualities and emotional content, and none to my knowledge have done so in comparison with composers' own evaluative approaches nor with specific direct reference to composers' own feelings and intentions. The present study seeks to do all three of the above and establish the factors experts use to evaluate original compositions and confirm the predictive utility of composers' intended and felt emotions for experts' responses to their work.

Domain experts are expected to be better at parsing and evaluating domain-relevant content than domain novices, and this effect is particularly pronounced in the arts (Silvia, 2013). When evaluating artistic work, experts can apply specialist knowledge of history, theory, criticism, style and technique that novices do not possess (Lundy, 2010; Parsons, 1987). There is, however, debate about whether the requisite specialised arts training leads to greater technical consensus (Hekkert & Wieringen, 1996) or greater idiosyncrasy (Leder et al., 2004) among experts. Moreover,

specialist training has been shown to sometimes bias expert evaluations of artistic quality, authenticity, and value in ways that novice evaluators are not biased, for example, when presented with experimentally controlled information about the source of a work (Anglada-Tort et al., 2021). Such comparisons of expert and non-expert evaluations, however, are also limited by different operationalisations of what counts as expertise (e.g., Hekkert & Wieringen, 1996; Leder et al., 2012; Silvia, 2013)

In the musical context, domain expertise is typically ascribed to professional musicians and academic musicologists. Mirroring the trends of musical emotion research more broadly, composers tend to be somewhat overlooked in this regard, more frequently being viewed as merely the crafters of the musical content that experts can then perform and analyse (Impett, 2016; Sloboda, 1999). Yet when it comes to domain expertise, it is typically the individuals engaged in the craft who are best placed to determine the ideal evaluation criteria on the basis of their specialist knowledge (Lundy, 2010; Parsons, 1987; Silvia, 2013).

In this case, composers seem to offer an overlooked fount of domain expertise that should be tapped to better establish criteria relevant to evaluating their work. In previously collected qualitative data from interviews with composers (Varga & Parkinson, 2024; see Chapter II), three sets of evaluative parameters emerged. The first followed standard Western classical musicological terms to lay out the core elements composers might manipulate in writing music; these were melody, harmony, rhythm, dynamics, timbre, and structure/form. The second emerged from the interviews themselves and described general approaches composers might take in their creative process; these were labelled intellectual, historical, and intuitive. The

final set concerned philosophical distinctions made about the presence and place of emotion in music as debated by music theorists. These distinctions were made principally between formalist and expressionist theories contrasting intellectual aesthetic appreciation of musical form and the direct musical expression of emotion, and secondarily, between absolutist and referentialist theories contrasting the origins of emotional response between the music itself and the representation of an external evocative object. A fourth, descriptive parameter was also suggested in the interviews where composers discussed the difference between approaching a piece of music as a composer versus as a listener, further underscoring the importance of examining expert responses to music by composers *qua* listeners. (These distinctions are more fully explained in Chapter II.)

Though no prior research has empirically examined the effects of these distinctions on MET, previous studies examining similar questions in adjacent domains provide some insight into how musical experts might evaluate and respond to composers' work. Research demonstrating the transfer of inspiration and other higher states through creative writing took a similar approach to expert evaluation and appraisal of technical and psychological aspects of poetry (Thrash et al., 2017; Thrash, Maruskin, et al., 2010). In these studies, however, the experts only evaluated the poems, limiting the affective response data to the general audience sample alone. Another study, from the visual arts context, included both expert and non-expert viewers, but did not empirically interrogate differences in their emotional responses; instead, all participants' responses were compared to both the artists' intended and felt affect (Pelowski et al., 2018). One study of musicians and nonmusicians found

similar ability between groups to anticipate the next note in a phrase with implications addressing the role of anticipation in priming emotion responses (Cassano-Coleman et al., 2025). When musical experts, including composers, respond to compositions in the listener stance, then, the next question to address is whether they would show similar, greater (due to expertise), or lesser (due to more technical evaluation) sensitivity to composers' intended and incidental affects compared with general audiences.

The Present Study

The first aim of the present study was to take an exploratory approach to understanding the relevant factors experts use to evaluate original compositions. The second aim was to establish empirically whether composer intended and felt emotions can predict expert listener responses. For this latter, confirmatory aim, I hypothesised based on previous studies of inspiration and emotion transfer in other arts domains that composer intentions would strongly predict expert ratings and that experts would be able to significantly detect some of the composers' felt emotions as well but with weaker effects than for composer intentions.

The present study drew on the above emergent parameters to determine the criteria that should be included in a quantitative survey measure of compositional qualities generally as well as specific emotional impact of original works. The evaluation process was completed by an expert panel consisting of professional composers, performers, musicologists, and instructors, who were tasked with assessing the musical and affective qualities of 47 audio excerpts of original compositions. To avoid any bias of source effects (Anglada-Tort et al., 2021), the

experts were only presented with the audio file for each work and not given any information about the composer or the composition. Data from the composers of the excerpts were available from a previous study allowing for direct comparison of experts' ratings with composer intentions.

Method

Participants and Procedure

After the study received ethical approval by the Oxford MS IDREC (R81669/RE001), expert evaluators were invited to participate through professional contacts and compensated for their time. Expertise was operationalised as holding an advanced music degree in composition, performance, theory, or education or working professionally in one of the above music domains. After one expert was unable to complete the study, the final panel consisted of nine evaluators. All were professional musicians ($n = 9$), of whom four were also musicologists ($n = 4$), three were composers ($n = 3$), one was an instructor ($n = 1$), and one was a music director ($n = 1$). Six had received postgraduate university or conservatoire qualifications in music, and three were working professionally in music, having received an undergraduate university or conservatoire degree in music or a pre-degree level conservatoire diploma. Seven worked primarily in music, whereas two worked in music alongside other related vocations. Participants ranged in age from 24 to 71 years ($M = 43.89$, $SD = 20.72$). They identified as Asian ($n = 1$) and White ($n = 8$), and five identified as women ($n = 5$) and four as men ($n = 4$).

The experts were asked to listen to 47 approximately 90-second audio excerpts of composer-submitted original works. The task interface required that they

listen to each excerpt all the way through at least once and could replay each as many times as desired. After each excerpt they were asked to rate it on the below measures.

The order in which excerpts were presented to each expert was randomised.

Measures

Affective State Measures

Experts first indicated their personal affective response to each excerpt.

Additional details of the below affect measures are given in Chapter III.

Core affect. Expert felt emotions were measured using the adjective format of the 12-point affect circumplex (12-PAC) designed by Yik and colleagues (2011). Like other circumplex measures of affect, the 12-PAC is organised around the core dimensions of valence and activation. All items were rated on 5-point Likert scales ranging from 1 = *not at all* to 5 = *extremely* for both the felt and intended scales.

Aesthetic emotion. Expert felt awe and wonder were measured by a single adjective item presented alongside the 12-PAC adjectives: ‘full of awe, full of wonder, awestruck’. This item was also rated on the same 5-point Likert scale as the 12-PAC adjectives.

Musical Elements

The following musical element evaluations, analysed in a different study (see Chapter V), were based on qualitative composer interview data from a previous study (see Chapter II). They encompass the core elements of music set out by Varga and Parkinson (2025). Those elements with dimensional scales with high reliability ($\alpha > .6$) were computed as a composite. Those with low reliability ($\alpha < .6$) were retained as two separate dimensional scales.

The following were measured using two dimensions of each element as suggested by respondents in Study 1. All were rated using 9-point sliding scales with diametric anchors -4 to 4. The content-specific anchors for each item are as follows:

Harmony was evaluated along dimensions spanning from *dissonance* to *consonance* and *remoteness from tonal centre* to *nearness to tonal centre* ($\alpha = .98$).

Rhythm was evaluated along dimensions spanning from *sparse* to *dense* and *simple* to *complex* ($\alpha = .73$).

Phrasing was evaluated along dimensions spanning from *short* to *long* and *irregular* to *regular* ($\alpha = .53$).

Dynamics were evaluated along dimensions spanning from *soft* to *loud* and *static* to *varied* ($\alpha = .73$).

Style was evaluated along dimensions spanning from *original, novel, or unusual* to *traditional* and *free* to *formal* ($\alpha = .96$).

Instrumentation was evaluated along dimensions spanning from *simple orchestration* to *complex orchestration* and *extended technique* to *standard performance practice* ($\alpha = .43$).

Timbre was evaluated along dimensions spanning from *dark* to *bright* and *round* to *sharp* ($\alpha = .46$).

In addition to these sliding scales, experts evaluated tempo, metre, melody, intervallic variation, and use of quotation along single dimensions, rated on 9-point Likert scales as follows:

Tempo. Rhythmic pulse was evaluated *very low* to *very high*.

Strength of metre was evaluated *very low* to *very high*.

Melody. Melodiousness was evaluated *very low* to *very high*.

Intervallic variation was evaluated *very low* to *very high*. This variable is a subjective approximation what Simonton (2010) calls ‘melodic originality’.

Use of quotation was evaluated *very low* to *very high*.

Composition Qualities

The experts evaluated each excerpt as a musical product as well as a psychological stimulus and aesthetic object. These evaluation and appraisal items were rated on 9-point scales to be assessed together using factor analysis.

Musical evaluations. Adapting items from Thrash and colleagues (2017), evaluative items included ‘stimulation of thought (the degree to which the piece stimulates thought or reflection)’, ‘sublimity (the degree to which the piece has a moving, exalting, or elevating effect)’, ‘craftsmanship (the degree to which the piece displays craftsmanship, using your own subjective definition of craftsmanship)’, ‘creativity (the degree to which the piece is creative, using your own subjective definition of creativity)’, ‘organic/authentic quality (the degree to which the ideas and their expression are organic, natural, and authentic, as opposed to manufactured, contrived, and phony)’. All of the evaluative items were rated 1 = *very low* to 9 = *very high*.

Psychological and aesthetic appraisals. Again adapting items from Thrash and colleagues (2017), experts were asked to appraise each excerpt along the following dimensions: ‘ordinary or mundane’, ‘rational or logical’, ‘interesting’, ‘valuable’, ‘useful’, ‘meaningful’, ‘surprising’, ‘superficial or cliché’, ‘complex’, and

‘integrative’. All appraisal items were rated from 1 = *strongly disagree* to 9 = *strongly agree*.

Overall quality. Experts were informed of the incentive scheme whereby composers had the opportunity to indicate they wanted their submitted excerpt to be considered for a monetary reward based on listener feedback. This feedback was obtained in the form of a single sliding scale of -4 = *low* to 4 = *high* overall worthiness to receive the monetary award.

Analytic Strategy

Ratings were aggregated across experts. Exploratory factor analysis (EFA) with geomin oblique rotation was used to examine the factor structure of expert evaluations and appraisals at the composer-composition level ($N = 47$). Substantive factors were determined on the basis of loadings: retaining primary loadings greater than .60 and dropping any items that cross-loaded above a .20 standardised cutoff. Model fit was tested using confirmatory factor analysis (CFA). Following the recommendation of Hayes and Coutts (2020), the reliability of the emergent substantive factors was assessed by McDonald’s Omega (ω) using CFA. Interrater reliabilities (α) were established using intraclass correlations (ICCs). Correlation analyses used standard Pearson correlation coefficients (r) averaging across experts. Ordinary least squares (OLS) regression techniques were used to model associations of aggregate expert ratings with composer intentions and felt emotions. Items cohering onto a single factor were combined into a composite scale.

Results

Factor Structure of Evaluative and Appraisal Criteria

Principal components analysis of expert evaluations and appraisals initially yielded two substantive factors with eigenvalues 12.19 and 4.09. As shown in Figure IV.1, a third factor would only have an eigenvalue of 1.19, falling below the intersection of the parallel analysis (Valle et al., 1999), and was thus rejected. The contents of these factors roughly corresponded to the musicological distinction between expression and form. After an iterative process of dropping items failing to meet the loading criteria above, however, the factor structure collapsed down to a single factor with an eigenvalue of 5.31 where a second factor would only have an eigenvalue of .27, falling below the intersection of the parallel analysis (see Figure IV.2). (Appendix IV.B presents an alternative EFA strategy that further discusses the indicative contents of the second potential form factor.) This single factor appeared to be readily interpretable as rated expressive value as indicated by evocation of emotion, stimulation of thought, finish, profundity, value, and meaningfulness. The resulting CFA model had moderate fit, $\chi^2(9) = 42.955$, CFI = .92, TLI = .87, SRMR = .027, RMSEA = .283, with $\omega = .97$ indicating good reliability. Interrater reliabilities and loadings are shown in Table IV.1. On the basis of these results, the above six items were treated as comprising a single composite scale.

Core and Aesthetic Affect

The cross-classified ICC for each expert self-rated affective state presented in Table IV.4 indicates the proportions of total variance found at that level of analysis. These results show that variation between experts only accounts for a small portion of

the total variance. Notably, the least amount of variance is attributable to differences between experts for negative affective states. The greatest proportion of the variance is attributable to individual pairings of experts and compositions, as expected. The next greatest proportion of the variance is attributable to differences between compositions, also as expected.

Means and standard deviations for each aggregated (across experts) affect variable are presented in Table IV.2. As shown in Figure IV.3, there were significant positive correlations between average expert-rated affect and average composer's intended affect for all angles of the affect circumplex as well as awe and wonder. The strongest effects, $r(2372) > .5$, were for deactivation, pleasant deactivation, and deactivated pleasure. Though still significant, the weakest effect, $r(2372) = .05$, was for unpleasant deactivation. Expert ratings and composer felt emotions were also significantly correlated for all affect items. These effects were comparatively weaker than those for composer intention. The strongest effect was for deactivated pleasure, $r(2372) = .49$, and the weakest effect was for deactivated displeasure, $r(2372) = .02$.

When entered together in multiple regression analyses, composer intentions and felt emotions differentially predicted expert ratings. Standardised effects (β s) are presented in Table IV.3. These effects were stronger for intended than felt emotions except for activated pleasure, unpleasant activation, and awe. Both intended and felt emotions significantly predicted expert ratings except for intended unpleasant activation and awe and felt pleasant activation and activation. Activated pleasure was the only circumplex angle where expert felt emotion was more strongly independently predicted by composer felt emotion ($\beta = .27, p < .001$) than composer

intention ($\beta = .11, p < .001$). Similarly, composer felt awe uniquely predicted expert ratings of aesthetic emotion ($\beta = .20, p < .001$) whilst composer intended awe was not a significant independent predictor.

Discussion

Addressing the first aim of the present study, the two initial factors yielded by the EFA of experts' evaluations and appraisals of the musical, psychological, and aesthetic qualities of the composers' works are readily interpretable along the expression-form distinction found in the musicological literature and previous composer interviews. Expressionist composers and theorists attribute affective expressivity to music, allowing that there is something in the music itself or referred to by the music that evokes or represents emotion. They emphasise aspects such as evocation of specific emotions, profundity, and meaningfulness in this process. Formalist composers and theorists, on the other hand, attribute any affective impact of music to an aesthetic appreciation of the musical form, emphasising aspects such as technical or conceptual complexity and displays of the composer's logic and reason. Whilst composers tended to place themselves predominantly in one camp or the other (Varga & Parkinson, 2024), experts seem to be assessing their work with criteria relevant to aspects of both form and expression.

The dominant perspective, however, was the expressionist. Only a very small number of composers in the present research identified themselves as formalists. It is therefore not surprising that the stronger of the two factors to emerge and ultimately cohere with acceptable fit was that for expression. On that factor, the evocation of emotion, stimulation of thought, and profundity items capture the core of

expressivity, whilst the value, meaning, and finish items capture the experts' qualitative valuations of the composer's expression in each work. The ultimate instability of the formal complexity factor found in the preliminary EFA was likely the result of a too-small subpopulation within an already restricted sample. Future research working with larger samples is likely to better detect and measure such a factor.

Relevant to the second aim, composer intended and felt emotions did predict expert affect ratings. Consistent with the hypothesised strength of effects, composer intention was a stronger predictor of expert emotion than composer felt emotion in almost all cases. This finding suggests that expert listener responses were primarily driven by the affective content composers intend to convey, but that, to a lesser but still significant extent, composers' ambient felt emotions also play an independent role in determining how listeners respond to their music. Though, again weaker than the effects for composer intention, composer felt unpleasant activation, displeasure, deactivation, and pleasant deactivation all negatively predicted expert felt emotion suggesting that composers were both not feeling these emotions at the time of composition and effectively transferring their intention to induce them. These findings confirm that composers' intended and felt emotions are empirically distinguishable and act as unique predictors of expert listeners' affective responses to their music rather than just an artefact of composers' retrospective conflation at the time of recall.

Whilst the general trend showed that composer intention was the stronger predictor of expert felt emotion, activated pleasure and aesthetic emotion were

notable exceptions. The relative strength of the effects for activated pleasure might be explained by the ease of ‘happiness’ transmission as seen in contagion through social networks (e.g., Fowler & Christakis, 2008). Aesthetic emotions such as awe, in contrast, might be detectable to expert listeners but more difficult for composers to intentionally and effectively convey. Awe, moreover, is typically associated with passive encounter (Keltner, 2023), and is therefore more likely to be experienced in cases where transfer of *felt* affect (composer feeling → listener feeling) also occurs rather than cases where composers attempt to induce it only by transfer of *intended* affect (composer intention → listener feeling). Future research should expand this line of enquiry to compare the effects found in expert listeners with general listeners—paralleling similar work in the visual arts that has found significant differences between expert and novice emotional impact and understanding (e.g., Leder et al., 2012).

Limitations

The present study is limited in a number of ways. First, due to the complexities of recruiting qualified experts to provide ratings within a narrowly restricted domain of expertise, the sample size is small for generalisable independent analyses. Furthermore, the maximum number of cases for factor analyses was limited by the 47 original compositions that each expert rated, and thus the *N*-size is not sufficient to extract a large number of factors, resulting in the present focus on a single expressive value factor. Relatedly, the fit indices for the factor are also biased by the small sample size (though reliability was acceptable). CFI, TLI, and RMSEA have been shown to be particularly susceptible to small sample sizes, yielding

estimates suggesting worse fit than less biased indices such as SRMR (Shi et al., 2019; Stone, 2021; Yadama & Pandey, 1995). Thus, in specifying the present expressive value factor, preference is given to SRMR and reliability.

Second, the interrater reliability for some variables was low. This might be partly attributable to the ‘idiosyncratisation’ of experts proposed by theories such as the process model of aesthetic experiences that suggest expertise causes individuals to be more distinctive, specialised, and differentiated from each other than in novice populations (Leder et al., 2004). This limitation raises the further question of how ‘expertise’ is itself defined and discussed. Future philosophical and empirical work could be fruitfully coupled to address questions such as: *Is expertise having the ‘right’ response, the authority to impose one’s own taste, or the ability to arrive at some ‘virtuous mean’ between extremes?*

Third, whilst the present study is the first to directly examine the effects of composer intended and felt emotion on listener responses by using composer products as listener stimuli, this approach introduces potential issues of non-independence that require larger, hierarchical datasets to address: responses from the same rater to each composition (nesting within experts) as well as responses to the same composition by different raters (nesting within excerpts), for example. The present study, though drawing on temporally distinct datasets to more meaningfully examine composer-listener regression effects than previous listener-based cross-sectional studies, is also limited by the small sample of experts, thus excluding more informative models of individual characteristics or random slopes.

Furthermore, the expert panel, though recruited from a broadly diverse pool, is limited by an apparent self-selection effect that yielded a particularly homogenous demographic. These limitations were exacerbated by the attrition of one of the experts prior to the completion of data collection. Future research should examine the effects found in this study with a larger sample using cross-classified multilevel modelling techniques that can better account for non-independence, potential missing data, and individual characteristics.

Conclusion

Despite these limitations, the present study demonstrates the importance of examining both composer and listener effects. Though only one stable factor was retained in the CFA, the initial two emergent factors suggest that expert evaluations of original compositions fall along the expression and form dimensions that have been used to organise the musicological emotion literature. Expert listeners' own emotional responses were significantly related to composers' intentions and incidental affects. Moreover, composer intentions and feelings uniquely and independently predicted experts' feelings, empirically establishing both as sources of listener affective experience. These findings pave the way for future research that should examine the locus of emotion in composers and both expert and non-expert listeners with greater precision.

Tables

Table IV.1*Interrater Reliability and Standardised Factor Loadings*

Variable	Reliability (α)	Standardised Loading
Evocation of emotion	.70	.95*
Stimulation of thought	.64	.98*
Finish	.75	.91*
Profundity	.71	.92*
Valuable	.66	.90*
Meaningful	.67	.90*

Note. Interrater reliabilities (α) are shown for $N = 9$ raters. Standardised loadings $> .60$ are shown in **boldface** type. $*p < .05$

Table IV.2*Descriptives and Correlations of Composer Felt Emotions and Intentions with Aggregate Expert Ratings*

Circumplex Angle (adjective items)	Expert Rating		Composer Intended			Composer Felt		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>r</i>	<i>M</i>	<i>SD</i>	<i>r</i>
0° Pleasure (happy, content, pleased)	2.10	.81	3.64	1.19	.28**	3.10	1.22	.09**
30° Activated Pleasure (proud, enthusiastic, euphoric)	1.77	.69	3.49	1.01	.21**	3.00	1.22	.31**
60° Pleasant Activation (energetic, alert, excited)	2.44	.92	4.06	.91	.38**	3.57	1.25	.11**
90° Activation (aroused, hyperactivated, intense)	2.07	.73	3.00	1.47	.22**	2.98	1.51	.14**
120° Unpleasant Activation (anxious, jittery, nervous)	1.99	.77	2.15	1.13	.50**	1.91	1.29	.20**
150° Activated Displeasure (tense, agitated, fearful)	1.95	.78	1.94	1.16	.45**	1.91	1.23	.33**
180° Displeasure (unhappy, troubled, miserable)	1.51	.38	1.64	1.12	.12**	1.28	.76	.07**
210° Deactivated Displeasure (gloomy, down, sad)	1.48	.41	1.41	.79	.19**	1.40	.92	.02**
240° Unpleasant Deactivation (tired, sluggish, dull)	1.45	.39	1.51	.90	.05**	1.09	.46	.08**
270° Deactivation (quiet, still)	1.67	.76	2.64	1.23	.64**	2.47	1.51	.19**
300° Pleasant Deactivation (calm, relaxed, at rest)	1.84	.73	2.70	1.27	.62**	2.57	1.40	.33**
330° Deactivated Pleasure (soothed, peaceful, at ease)	1.76	.71	2.74	1.19	.60**	2.66	1.48	.49**
Awe (full of awe, full of wonder, awestruck)	1.81	.40	3.06	1.36	.15**	3.66	1.45	.22**

Note. Composers were asked to rate how they felt emotionally during composition and how they wanted the listeners of their composition to feel using the same given adjective items of the Yik et al. (2011) 12-Point Affect Circumplex as well as our own single aesthetic emotion item. * $p < .05$, ** $p < .01$ for significant Pearson correlations, $r(2372)$, of expert ratings with felt and intended composer emotions, respectively, in boldface type.

Table IV.3*Standardised Regression Coefficients of Composer States on Expert Felt Emotion*

Circumplex Angle (adjective items)	Composer Locus of Emotion	
	Intention	Feeling
0° Pleasure (happy, content, pleased)	.27**	.02*
30° Activated Pleasure (proud, enthusiastic, euphoric)	.11**	.27**
60° Pleasant Activation (energetic, alert, excited)	.38**	.02
90° Activation (aroused, hyperactivated, intense)	.22**	.00
120° Unpleasant Activation (anxious, jittery, nervous)	.58**	-.15**
150° Activated Displeasure (tense, agitated, fearful)	.38**	.17**
180° Displeasure (unhappy, troubled, miserable)	.12**	.07**
210° Deactivated Displeasure (gloomy, down, sad)	.21**	-.06**
240° Unpleasant Deactivation (tired, sluggish, dull)	-.01	.09**
270° Deactivation (quiet, still)	.76**	-.22**
300° Pleasant Deactivation (calm, relaxed, at rest)	.71**	-.13**
330° Deactivated Pleasure (soothed, peaceful, at ease)	.51**	.13**
Awe (full of awe, full of wonder, awestruck)	.03	.20**

Note. Standardised regression coefficients (β) computed using OLS multiple regression analyses for both loci at each angle. * $p < .05$, ** $p < .01$

Table IV.4*Expert Variance Decomposition Cross-Classified Intraclass Correlations*

Emotion	Expert Felt Emotions		
	<i>Composition</i>	<i>Expert</i>	<i>Composition × Expert</i>
Pleasure	.37 [.24, .52]	.19 [.07, .51]	.43 [.31, .55]
Activated	.29 [.16, .40]	.23 [.08, .50]	.47 [.31, .61]
Pleasure	.52 [.32, .63]	.15 [.05, .40]	.34 [.24, .43]
Pleasant	.32 [.17, .46]	.18 [.06, .46]	.49 [.35, .62]
Activation	.43 [.29, .56]	.09 [.03, .26]	.47 [.35, .51]
Unpleasant	.42 [.31, .55]	.05 [.02, .20]	.52 [.39, .62]
Activation	.12 [.05, .22]	.29 [.10, .62]	.58 [.30, .76]
Displeasure	.22 [.12, .35]	.07 [.02, .23]	.68 [.56, .82]
Activated	.42 [.31, .55]	.05 [.02, .20]	.52 [.39, .62]
Displeasure	.12 [.05, .22]	.29 [.10, .62]	.58 [.30, .76]
Deactivated	.22 [.12, .35]	.07 [.02, .23]	.68 [.56, .82]
Displeasure	.42 [.31, .55]	.05 [.02, .20]	.52 [.39, .62]
Unpleasant	.26 [.15, .40]	.07 [.02, .26]	.65 [.52, .78]
Deactivation	.57 [.44, .67]	.03 [.01, .11]	.40 [.29, .50]
Deactivation	.51 [.39, .62]	.04 [.01, .13]	.44 [.32, .55]
Pleasant	.51 [.39, .62]	.04 [.01, .13]	.44 [.32, .55]
Deactivation	.41 [.30, .52]	.05 [.01, .16]	.53 [.41, .64]
Deactivated	.41 [.30, .52]	.05 [.01, .16]	.53 [.41, .64]
Pleasure	.08 [.02, .16]	.43 [.22, .76]	.48 [.21, .68]
Awe	.08 [.02, .16]	.43 [.22, .76]	.48 [.21, .68]

Note. Intraclass correlations for composition characteristic (2A), expert (2B), and composition × expert (1) levels of variance. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

Figures

Figure IV.1
Parallel Analysis of Raw EFA

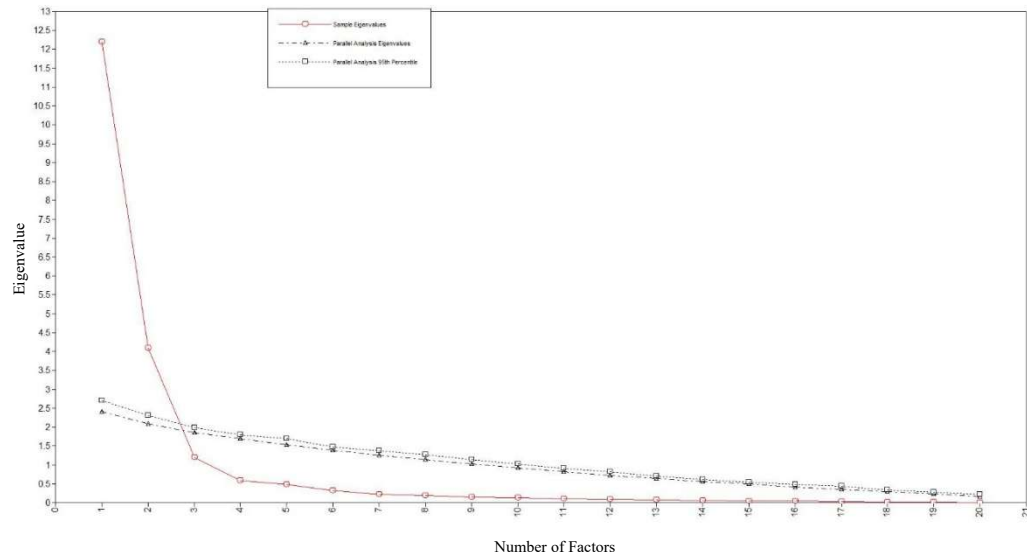


Figure IV.2
Parallel Analysis of Refined EFA

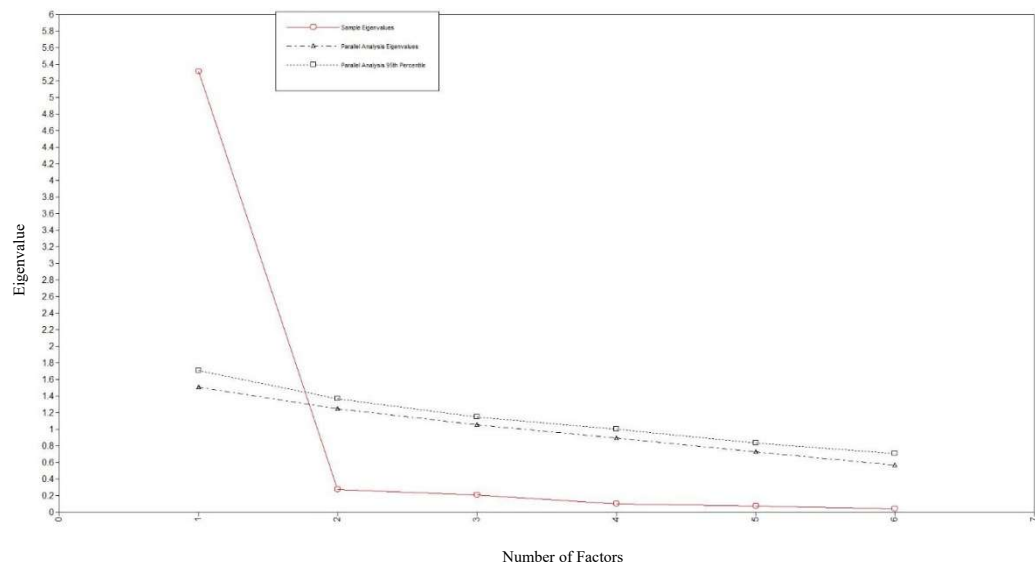
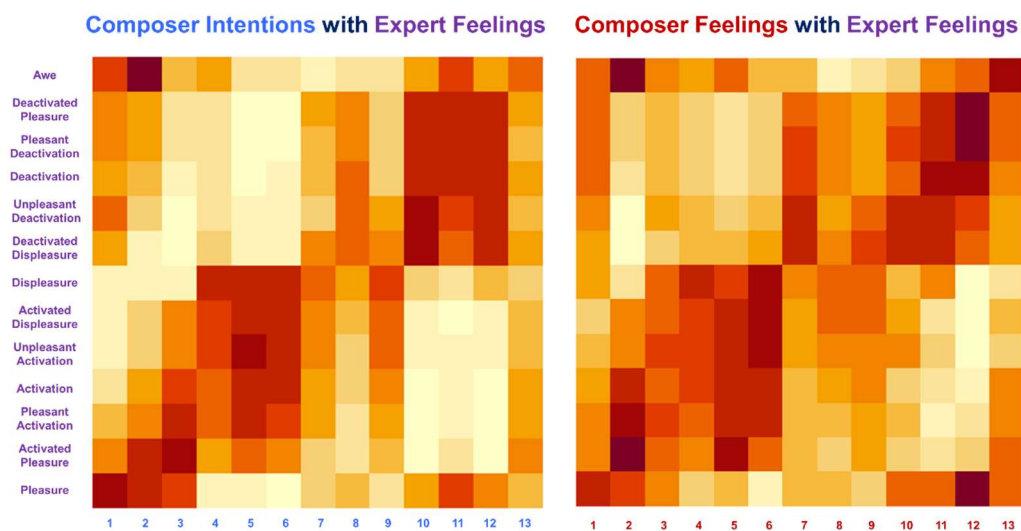


Figure IV.3*Heat Maps of Composer Intentions and Feelings with Expert Feelings*

Appendix IV.A

Expert Questionnaire Measures

Evaluative Coding of Compositions as Products

Ratings given on 9-point slider scales anchored at *Harmony*: ‘dissonance’ to ‘consonance’, ‘remoteness from tonal centre’ to ‘nearness to tonal centre’; *Rhythm*: ‘sparse’ to ‘dense’, ‘simple’ to ‘complex’; *Phrasing*: ‘short’ to ‘long’, ‘irregular’ to ‘regular’; *Style*: ‘original, novel, or unusual’ to ‘traditional’, ‘free’ to ‘formal’; *Timbre*: ‘dark/round’ to ‘bright/sharp’; *Instrumentation*: ‘simple orchestration’ to ‘complex orchestration’, ‘extended technique’ to ‘standard performance practice’

Evaluative ratings on a 9-point slider scale anchored at ‘good’ to ‘bad’ were used to determine ecological overall quality and worthiness of expert monetary award.

Ratings given on 9-point relative (to other compositions) Likert scales (1 = *very low*, 5 = *medium*, 9 = *very high*): ‘rhythmic pulse (tempo)’, ‘strength of metre’, ‘melodiousness (melody)’, ‘intervallic variation’, ‘use of quotation’; ‘evocation of emotion (the extent and depth of emotion that the piece evokes)’, ‘stimulation of thought (the degree to which the piece stimulates thought or reflection)’, ‘sublimity (the degree to which the piece has a moving, exalting, or elevating effect)’, ‘finish (the degree to which the piece seems finished and polished, rather than unfinished and rough)’, ‘craftsmanship (the degree to which the piece displays craftsmanship, using your own subjective definition of craftsmanship)’, ‘beauty/aesthetic appeal (the degree to which the piece is beautiful or aesthetically appealing)’, ‘pleasantness (the degree to which the piece is pleasant, as opposed to

unpleasant)', 'creativity (the degree to which the piece is creative, using your own subjective definition of creativity)', 'profundity (the degree to which the piece is profound, showing depth and significance)', 'organic/authentic quality (the degree to which the ideas and their expression are organic, natural, and authentic, as opposed to manufactured, contrived, and phony)'.

Appraisal Coding of Compositions as Elicitors of Psychological States

Ratings given on 7-point absolute Likert scales (1 = *strongly disagree*, 4 = *neutral*, 7 = *strongly agree*) from Thrash and colleagues (2017; 2010): 'ordinary or mundane', 'rational or logical', 'interesting', 'valuable', 'useful', 'meaningful', 'surprising', 'superficial or cliché', 'complex', 'integrative'.

Affective states. Thirteen items (Yik Affect Circumplex plus awe) in which experts were asked to indicate which states they personally felt were conveyed in the composition: 'When listening to this excerpt, I felt... 'tired, sluggish, dull', 'energetic, alert, excited', 'gloomy, down, sad', 'calm, relaxed, at rest', 'proud, enthusiastic, euphoric', 'happy, content, pleased', 'anxious, jittery, nervous', 'soothed, peaceful, at ease', 'tense, agitated, fearful', 'aroused, hyperactivated, intense', 'quiet, still', 'unhappy, troubled, miserable', 'full of awe, full of wonder, awestruck' on a 5-point Likert intensity scale (*not at all* to *extremely*).

Appendix IV.B

Supplementary Exploratory Factor Analysis of Expression and Form Factors

Whilst the standard approach to EFA would suggest conducting the analysis at the composer-composition level aggregating across expert ratings, such an approach is limited in the present study to the number of compositions ($N = 47$), which is too small for effective factor analysis. To illustrate the two factors suggested in the initial EFA, however, I conducted the following alternative analysis by using individual expert ratings (rather than aggregates) for each affect angle. To reduce the amplification of nonindependence (as ratings are nested within experts), I standardised responses within each expert participant by converting their ratings to Z -scores, and then rerunning the factor analyses treating each individual rating as independent. This strategy yielded a functional sample size of $N = 423$.

The parallel analysis again suggested two substantive factors with eigenvalues 9.72 and 2.59 (a third factor would only have an eigenvalue of 1.37, falling at the line of the parallel analysis). After following the same standardised procedure for retaining factor loadings stronger than .60 and dropping items with cross-loadings greater than .20, two substantive factors remained. Factor 1 was still readily interpretable as expressive value, and Factor 2 could be interpreted as formal complexity, as shown in Table IV.5.

Whilst the approach of using individual ratings to increase the functional sample size available for factor analysis helps stabilise the EFA results to clearly demonstrate the contents of the formal complexity factor, this method cannot fully account for nonindependence of ratings as shown in the CFA results, where model fit

is poor, $\chi^2(43) = 593.10$, CFI = .81, TLI = .76, SRMR = .06, RMSEA = .17, even as the reliabilities (ω) are acceptable. Nevertheless, the results of the EFA are suggestive of what future studies with larger composition sample sizes might expect to find, in line with the musicological literature and consistent with my qualitative findings from composer interviews in Chapter II.

Table IV.5

Standardised Factor Loadings of Exploratory Expression and Form Factors

Variable	Standardised Loadings	
	Expressive Value	Formal Complexity
Evocation of emotion	.74*	.02
Stimulation of thought	.75*	-.06
Finish	.70*	-.06
Profundity	.70*	-.09
Valuable	.83*	-.03
Useful	.84*	.12
Meaningful	.89*	.05
Ordinary or mundane	.06	.83*
Surprising	.12	-.60*
Superficial or cliché	-.01	.60*
Complex	-.05	-.61*
<i>Reliability (ω)</i>	.94	.84

Note. $N = 423$ individual ratings. Standardised loadings > .60 are shown in **boldface** type. * $p < .05$

Chapter V

Do You Feel as I Do? Naïve Listeners' Responses to Composers' Feelings and Intentions in Original Compositions

The present study is the first to undertake an empirical investigation of whether listeners' affective experiences can be predicted by composers' affective states and intentions with the aim of establishing MET effects as a musical analogue to other affect sharing theories. It was hypothesised that composer intentions would predict listener experiences and perceptions of original compositions, and that composers' own felt emotions would also predict listeners' responses, albeit with weaker effects. It was hypothesised that this effect would be mediated by characteristics of the music itself (e.g., expressivity and form as well as individual musical elements, such as melody, harmony, and rhythm) and moderated by individual differences between both composers and listeners. To test these hypotheses, the present study drew on data from 47 composers, each of whom provided an audio excerpt of an original composition in an earlier study (see Chapter 3). These composition excerpts were rated by both a panel of nine musical experts (Chapter 4) and in the present study by 229 naïve listeners. Within the resulting combined cross-classified multilevel dataset, conditional process and response surface analyses were used to test the above hypotheses. The results show that both composer intended and incidental affective states predicted listener felt and perceived emotions. These effects were mediated by specific musical elements and moderated by characteristics of the composers, compositions, and listeners. Such findings suggest that MET accounts for previously neglected aspects of interpersonal emotion sharing in music.

It has long been accepted that people listen to music with the expectation to 'feel something' or be 'moved' in some way (Simonton, 2010). A preponderance of psychological research has provided the empirical groundwork to show that people typically do indeed respond to music emotionally (Balteş et al., 2011; Juslin, 2005; Krumhansl, 1997). A direct study of whether listeners' affective experiences can be predicted by composers' affective states and intentions, however, has not been undertaken until now. In the present study, I build on paradigms used to investigate

creative writing (Thrash et al., 2017; Thrash, Maruskin, et al., 2010) and the visual arts (Pelowski et al., 2018) to conduct the first test of what I call ‘musical emotion transfer’ (MET). Drawing together the data I previously collected from composers (Chapter III) and experts who rated their compositions (Chapter IV), I investigate the real-world effects of composer intention and emotion on listener responses and perceptions as mediated by specific musical elements (e.g., melody, harmony, rhythm) and moderated by the traits of composers and listeners (e.g., authenticity, openness to experience).

As I have discussed more fully above (see Chapter I), there are several phenomena whereby affective content is conveyed (e.g., by expression, representation, portrayal, articulation, actualisation, extension) that can collectively be described as musical transmission of emotion, but in the present study, I focus on MET as a type of transmission that specifically describes the phenomenon whereby composers *express* (rather than portray symbolically or syntactically) their felt or intended emotions in music, and listeners *respond* to that music with a corresponding emotional experience. Hence, composer C can be said to *transfer* emotion E to listener L via musical work M just in cases where: (i) EITHER C *intends* to express E in M OR C expresses *felt* E in M, AND (ii) L responds to M with EITHER an *emotional experience* corresponding to E OR a *perception* of C’s intention to express E in M. MET can thus take a number of forms. In the clearest case (transfer of intended affect), a piece of music induces the composer’s intended emotion in the listener, such that the listener’s felt response and the composer’s intention are congruent. A second case (transfer of felt affect) might involve listeners’ felt responses aligning

with what the composer was feeling at the time of composition (above and beyond composer affective intention). Differentiating the ‘locus’ of felt and perceived emotions (Merrill et al., 2020) reveals a third case where the listener might be able to dispassionately and accurately perceive the composer’s affective intentions in a piece of music but might not directly feel the same. In contrast, however, MET fails to obtain in cases where, due to idiosyncratic associations, different listeners experience different emotional responses to the same composition that do not correspond to either the composer’s intentions or actual feelings at the time of composing.

Beyond the transfer of basic emotions (e.g., joy, fear, surprise; Ekman, 1972; Izard, 1977), arts media are thought to be able to convey creators’ higher affective states to their audiences as well. These higher states include experiences such as epistemic or aesthetic emotions (Jacobi et al., 2024; Kang et al., 2009), insight (Kounios & Beeman, 2014), and inspiration (Cui et al., 2020; Thrash, 2021; Thrash et al., 2017) and are often accompanied by a psychophysiological response, such as the chills (Maruskin et al., 2012; McCrae, 2007). As noted in Chapter III, the relationship of these higher states to more mundane processes has often been contested. For example, inspiration and effort have long been posed as competing theories of creativity (Cui et al., 2020; Manchester, 1897; Thrash, 2021), with many psychologists strongly endorsing one view or the other (e.g., Martindale, 1989; Sawyer & Henriksen, 2024). At the same time, inspiration and effort are positively correlated (Thrash & Elliot, 2003) and are distinguishable by the creative outcomes they predict in some arts contexts (Thrash et al., 2014; Thrash, Maruskin, et al., 2010). Both predict consumer recipient outcomes, but the effect of effort is not

unique or robust to controlling for other creator states whilst the effect of inspiration is robust (Thrash et al., 2017). Inspiration and effort, however, have not yet been directly compared in the musical context.

Immediately following the question of whether emotions and other affective states are transferred from composers to listeners through music is the question of how this might take place. In analogous arts contexts, various mechanisms have been proposed. Using the example of inspiration in the context of creative writing, whilst the simple effect of writer inspiration on reader inspiration was not independently significant, particular characteristics of poems, such as insightfulness, pleasantness, originality, and sublimity, were found to significantly mediate the effects of writer states on reader states (Thrash et al., 2017), demonstrating the importance of considering the underlying mechanisms of transmission. In the writing case, the mediators were largely dependent on semantic aspects of text itself. Similar semantic approaches to musical meaning have been proposed (e.g., Adorno, 2002; Cooke, 1989; Juslin & Laukka, 2003) but mostly limited to the theoretical realm (L. B. Meyer, 2008), and it has been noted (see Chapter I) that such experiences do not necessarily retain the same replicable structure when moving from literature to music (Zangwill, 2022). The question of how MET might take place, then, is also one about level of analysis—whether at the level of the musical work, the elements of music comprising it, the semantic aspects of how those elements are combined, or the simple acoustic properties of the sound envelope itself—as well as which of these elements are involved in the transfer of specific emotions.

The elements and qualities of music are also experienced differently based on the traits of the listeners, raising the question of who experiences MET and how it might vary from person to person. As discussed in Chapters I and III, individual differences in personality and goal orientation more broadly are implicated in both (agent) expressiveness and (recipient) perceptiveness (Revelle, 1995; Revelle & Scherer, 2014). Approach and avoidance temperaments are posited to be the most relevant stable psychological processes underlying these individual differences in motivation, affect, cognition, and behaviour, especially with respect to affective sensitivity and reactivity, perceptual vigilance, and behavioural inclination or preference (Elliot & Thrash, 2002, 2010). Within the arts and aesthetics literature, traits like authenticity and openness to experience have emerged as particularly prominent (McCrae, 2007; J. Meyer et al., 2023; Rawlings et al., 2000; Silvia et al., 2015). In a similar transmission context, for example, openness to experience was found to moderate the writer → reader inspiration effect such that writer inspiration predicted reader inspiration more strongly in readers higher in openness (Thrash et al., 2017). Less research, however, has been conducted on the openness and intellect aspects of openness to experience in this context, nor have previous studies examined its role in the transfer of the more complex emotions experienced in response to music beyond basic emotions as aggregate measures of positive and negative affect.

Finally, as noted, previous research on musical emotions has almost entirely focused on listener affective experiences of music, but even within this literature, very little attention has been paid to listeners' behaviours (or behavioural inclinations) in response to those experiences. One proposed function of such

transfer processes is in aid of cultural transmission and evolution (Thrash, 2021).

Whilst the music industry is indisputably thriving in terms of economic and cultural capital (National Assembly of State Arts Agencies, 2020), the effects of composer intention and emotion remain unaccounted for within these data, particularly as they might predict listener liking, sharing, and valuing of specific musical outputs.

The Present Study

This final study had three core aims: to establish whether composer states predict listener states; whether specific musical elements are implicated in the transfer of specific core dimensions of affect; and whether specific characteristics of composers, compositions, and listeners affect the strength of those predictions. The study also aimed to examine the effects of MET on outcomes relevant to cultural transmission, especially listener liking, valuing, and sharing. One of the primary obstacles to studying MET has been the lack of adequate statistical modelling methods to capture effects at the levels of both the composer-composition-listener and the individual interaction of specific listeners with specific compositions. Adopting the integrative approach pioneered by Thrash and colleagues (2017), my strategy in the present study was to treat original compositions as both composer products and listener stimuli whilst fully crossing the two samples of composers and listeners such that each listener responds to each composition. Merging these data with the expert-rated musical qualities of each composition (collected in Study 3) yields a cross-classified multilevel structure with composers and compositions at one upper level and listeners at the other whilst individual listeners' encounters with individual compositions form the lower level (as shown in Figure I.2).

Another criticism of much musical emotion research to date has been its reliance on student samples participating in laboratory-based tasks either featuring a non-representative selection of overused classical examples or artificially generated ‘quasi’ or ‘art-like’ stimuli (Berlyne, 1974; Simonton, 2010). The present study seeks to overcome these limitations by drawing on a sample of compositions from a range of living, professionally active composers to obtain a much more naturalistic set of authentic creative outputs. It similarly draws on multidimensional ratings of musical qualities from a diverse panel of highly qualified experts in different areas of music rather than inventing stimuli artificially targeting specific characteristics or analysing low-level features using psychoacoustic methods. Within the resulting cross-classified framework, listeners are effectively experimentally assigned to compositions (and the corresponding composers). Moreover, by explicitly asking listeners to rate how much they liked each composition and participate in assigning potential monetary awards for them, a more ecologically valid model of real-world monetary valuation is included. The present study thus takes full advantage of this more naturalistic outputs-as-stimuli approach whilst simultaneously applying the rigour of experimental control to the measurement of equivalent states in both composers and listeners.

Conditional process analysis (CPA) and response surface analysis (RSA) were applied within this cross-classified framework to test predictions about the effects of composer states on listener states. In the present study, I address the following preregistered (osf.io/vgbmw) hypotheses.

1. Given my findings in Study 3 above and the results reported by Thrash and colleagues (2017) and Pelowski and colleagues (2018), I hypothesised that composer intended emotions and incidental felt affective states would positively predict listener affective states.
2. Based on the empirical literature on creativity, I hypothesised that composer inspiration, but not effort, would similarly positively predict listener inspiration.
3. Drawing on the qualitative data from the composer interviews in Study 1, I hypothesised that compositional techniques and musical elements as well as listener perceptions would mediate the effect of composer states on listener states (e.g., the effect of composer intended pleasure on listener felt pleasure would be mediated by the use of harmony in the composition).
4. Referring to the personality psychology literature and past findings for similar transfer models in other arts domains, I hypothesised that listener trait openness to experience and composer trait authenticity would moderate the effect of composer states on listener states.
5. Extending the above predictions by intuition, I hypothesised that the openness aspect of trait openness to experience in listeners would correlate positively with felt emotional intensity, whilst the intellect aspect would correlate positively with perceived emotion parity.
6. Similarly, I hypothesised that listener emotion intensity would correlate positively with perceived authenticity, inspiration, and MET

(operationalised here as the correspondence of composer and listener states) as well as positively predicting liking and sharing.

Method

Detailed participant and procedure information, including ethical approval, for the composer and composition rating datasets is given in Chapters III and IV, respectively, and is briefly recapitulated in the below. Ethical approval for listener participant data collection was granted by the Oxford MS IDREC (R89188/RE001).

Participants

Composers

As reported in Chapter III, a final analytic sample of $N = 47$ conservatory- and university-trained or otherwise professionally active composers was obtained through industry contacts as well as conservatoire and music faculty directories. Nineteen participants had been trained in composition to postgraduate level, 16 had received undergraduate training, three had been trained to high school or pre-conservatoire diploma level, and nine were working professionally as composers but had not received a formal qualification in composition. The mean number of years composing was 17.5 with a range of 1-70 ($SD = 16.23$). For just over half of the participants ($n = 26$), composition was their primary professional work or academic area of study. Participants were Asian ($n = 3$), Black ($n = 4$), Hispanic ($n = 2$), White ($n = 34$), and of mixed ethnicity ($n = 4$).

Listeners

The preregistered (osf.io/vgbmw) starting sample consisted of $N = 250$ participants. The cross-classified data structure allows for random missingness, such

that completed ratings from participants who did not finish all 47 rating tasks could still be included in analysis, but data from 9 participants were excluded because they did not complete any rating tasks. Data from 12 additional participants were dropped because they failed one or more of three validity checks—an instructed response item and two self-report items—embedded within the trait measures and among the rating tasks. The instructed response item asked participants to ‘choose somewhat disagree – 2’ (eight participants failed). The two self-report validity items asked participants to indicate whether their responses were accurate representations of their thoughts and feelings in response to the musical excerpts (six participants indicated against the integrity of their data). Of the remaining 229 valid cases, 170 (approximately 75%) completed all 47 rating tasks; 201 (approximately 88%) finished 25% or more of the rating tasks.

The final listener sample consisted of 229 participants who were fluent English speakers with normal or corrected hearing from 35 countries (Australia, Brazil, Canada, China, the Czech Republic, Egypt, Estonia, France, Germany, Greece, Hungary, India, Iran, Ireland, Italy, Kenya, Lesotho, Mexico, Morocco, Nepal, the Netherlands, Nigeria, the Philippines, Poland, Portugal, Slovakia, Slovenia, South Africa, Spain, Sweden, the Syrian Arab Republic, Turkey, the United Kingdom, the United States, and Zimbabwe) identifying as English/Welsh/Scottish/Northern Irish/British (38%), Irish (9%), White and Black Caribbean (1.7%), White and Black African (8.7%), White and Asian (6.1%), Indian (3.9%), Pakistani (1.7%), Bangladeshi (<1%), Chinese (7.4%), African (14%), Arab (1.3%), and White other (28.6%). 54.6% identified as female, 43.2% identified as

male, and <1% identified as non-binary or another gender; 1.3% declined to answer. Age ranged from 18 to 78 years ($M = 30.13$, $SD = 12.16$).

Participant Summary

Composer (Study 3) and listener (Study 4) data are here combined using a cross-classified multilevel structure with composers and listeners at the two upper levels and specific composition-listener pairings at the lower level. At the composer upper level (Level 2a), $N = 47$; at the listener upper level (Level 2b), $N = 229$; and at the lower level (Level 1) consisting of particular pairings of listeners and composition excerpts (one to each cell of the cross-classified matrix), $N = 8,818$.

Procedure

Composers and Compositions

Composer participants completed an online quantitative survey including trait measures of individual differences and state measures about compositional process based on a single, self-selected original composition. They were asked to upload a 90-second audio excerpt of the composition along with their responses to the survey.

Listeners

Given the composers' uploaded 90-second audio excerpts as stimuli, listener participants responded to each composition on a variety of affective and evaluative measures on an online survey platform. They were sent a personally unique link to the study upon providing informed consent, thus allowing them to complete the composition rating tasks in their own time rather than having to finish them all in one sitting as it took roughly 2.5 hours to complete all 47. Participants were compensated for every listening task they completed, so they did not have to finish all 47 to receive

payment. The order compositions were presented was randomised between participants.

Measures

Composer Traits

Authenticity. Composer trait authenticity was measured using Wood and colleagues' (2008) Authenticity Scale, which captures domains of dispositional self-alienation (e.g., 'I don't know how I really feel inside'), authentic living (e.g., 'I am true to myself in most situations'), and accepting external influences (e.g., 'Other people influence me greatly'). Participants expressed agreement on a 7-point Likert scale ranging from 1 = *does not describe me at all* to 7 = *describes me very well*. The self-alienation and accepting external influences subscales were reversed coded, and a composite authenticity variable was formed by averaging across the three subscales ($M = 5.26$, $SD = .89$, $\alpha = .84$).

Approach and avoidance temperaments. Participants also completed the 12-item Elliot and Thrash (2010) Approach-Avoidance Temperament Questionnaire, which consists of two subscales for the relevant dimensions. Items were rated from 1 = *strongly disagree* to 7 = *strongly agree*. Approach temperament and avoidance temperament composites were formed by averaging across the respective sets of six items (approach temperament: $M = 5.58$, $SD = .87$, $\alpha = .75$; avoidance temperament: $M = 4.29$, $SD = 1.50$, $\alpha = .88$).

Openness to experience. Composers also completed DeYoung and colleagues' (2007) 10-item Big Five aspect subscales for openness to experience (openness, intellect). Items were rated on a scale from 1 = *disagree strongly*) to

5 = *agree strongly*). Composites for each aspect were formed by taking the mean of the relevant subscale (openness: $M = 4.49$, $SD = .39$, $\alpha = .62$; intellect: $M = 3.69$, $SD = .60$, $\alpha = .77$) and an overall composite was formed by averaging across both subscales (openness to experience: $M = 4.09$, $SD = .39$, $\alpha = .74$).

Composer States

Chills. At each stage of the creative process, composer state chills response was assessed using four items from the Chills Questionnaire by Maruskin and colleagues (2012): ‘I felt cold or felt a chill’, ‘I felt a shiver or a shudder’, ‘I had a tingling or ticklish feeling’, and ‘I had goosebumps or a hair-on-end feeling’. The scale can be further divided into ‘cold shivers’ and ‘goosetingles’ subscales by the first pair and latter pair of items respectively. Cold shivers ($M = 2.99$, $SD = 1.53$, $\alpha = .92$) are indicative of negative, avoidance-related experiences, and goosetingles ($M = 3.41$, $SD = 1.59$, $\alpha = .89$) are indicative of positive, approach-related experiences.

Inspiration. Composer state inspiration ($M = 5.36$, $SD = 1.31$, $\alpha = .91$) was assessed by adapting three items per stage from the state version of the Thrash and Elliot (2003) Inspiration Scale (‘I felt inspired’, ‘something inspired me’, and ‘I was inspired to compose’).

Effort. Composer effort ($M = 5.20$, $SD = 1.29$, $\alpha = .85$) was assessed with two items at each stage adapted from Thrash and colleagues (2017): ‘I was working hard’ and ‘I was putting forth a great deal of effort’.

Core affect. Both composer felt emotion and intended emotion were measured using the adjective format of the 12-point affect circumplex (12-PAC)

designed by Yik and colleagues (2011). Like other circumplex measures of affect, the 12-PAC is organised around the core dimensions of valence and activation. All items were rated on 5-point Likert scales ranging from 1 = *not at all* to 5 = *extremely* for both the felt and intended scales. Dimensional composites for both composer intended and felt emotions were also calculated using the three relevant angles for each of pleasure (intended: $\alpha = .69$; felt: $\alpha = .54$), activation (intended: $\alpha = .58$; felt: $\alpha = .62$), displeasure (intended: $\alpha = .71$; felt: $\alpha = .71$), and deactivation (intended: $\alpha = .67$; felt: $\alpha = .66$). These were measured as four distinct constructs following Nezlek (2005) to account for complex emotional responses to musical stimuli. The correlations between constructs along the same dimensions (i.e., pleasure-displeasure, activation-deactivation) did not rise above $r(45) = \pm .31$ for intended emotion or $r(45) = \pm .21$ for felt emotion.

Aesthetic emotions. Composer aesthetic emotions were measured by a single adjective item on each of the felt and intended affect scales: ‘full of awe, full of wonder, awestruck’. This item was also rated on the same 5-point Likert scale as the 12-PAC adjectives.

Composition Elements

Synthesising both music theoretical literature (Chapter I) and qualitative data (Chapter II), the composition element variables encompass the core elements of music as defined in musicology and described by composers in interviews (Varga & Parkinson, 2024). Adapted into quantitative scales, they were evaluated in the 47 original compositions (Chapter III) by the panel of expert listeners in Study 3 (Chapter IV).

The following were measured using two dimensions of each element as suggested by respondents in Study 1. The items were all rated using 9-point sliding scales with diametric anchors -4 to +4. Pairs of ratings with strong convergence ($\alpha > .6$) were combined to form composites whilst pairs capturing oblique dimensions ($\alpha < .6$) were entered as parallel mediators. The content-specific anchors for each item are as follows:

Harmony was evaluated along dimensions spanning from *dissonance* to *consonance* and *remoteness from tonal centre* to *nearness to tonal centre* ($\alpha = .98$).

Rhythm was evaluated along dimensions spanning from *sparse* to *dense* and *simple* to *complex* ($\alpha = .73$).

Phrasing was evaluated along dimensions spanning from *short* to *long* and *irregular* to *regular* ($\alpha = .53$).

Dynamics were evaluated along dimensions spanning from *soft* to *loud* and *static* to *varied* ($\alpha = .73$).

Style was evaluated along dimensions spanning from *original, novel, or unusual* to *traditional* and *free* to *formal* ($\alpha = .96$).

Instrumentation was evaluated along dimensions spanning from *simple orchestration* to *complex orchestration* and *extended technique* to *standard performance practice* ($\alpha = .43$).

Timbre was evaluated along dimensions spanning from *dark* to *bright* and *round* to *sharp* ($\alpha = .46$).

In addition to these sliding scales, experts evaluated tempo, metre, melody, intervallic variation, and use of quotation along single dimensions, rated on 9-point

Likert scales. Tempo and strength of metre were subsequently combined to form a composite capturing pulse ($\alpha = .97$) and melodic quality and intervallic variation were entered as parallel mediators capturing two dimensions of melody ($\alpha = .44$).

Tempo. Rhythmic pulse was evaluated *very low* to *very high*.

Strength of metre was evaluated *very low* to *very high*.

Melody. Melodiousness was evaluated *very low* to *very high*.

Intervallic variation was evaluated *very low* to *very high*. This variable is a subjective approximation what Simonton (2010) calls ‘melodic originality’.

Use of quotation was evaluated *very low* to *very high*.

Composition Qualities

The experts also evaluated each excerpt as a musical product as well as a psychological stimulus and aesthetic object. These evaluation and appraisal items were rated on 9-point scales.

Musical evaluations. Adapting items from Thrash and colleagues (2017), evaluative items included ‘stimulation of thought (the degree to which the piece stimulates thought or reflection)’, ‘sublimity (the degree to which the piece has a moving, exalting, or elevating effect)’, ‘craftsmanship (the degree to which the piece displays craftsmanship, using your own subjective definition of craftsmanship)’, ‘creativity (the degree to which the piece is creative, using your own subjective definition of creativity)’, ‘organic/authentic quality (the degree to which the ideas and their expression are organic, natural, and authentic, as opposed to manufactured, contrived, and phony)’. All of the evaluative items were rated 1 = *very low* to 9 = *very high*.

Psychological and aesthetic appraisals. Again adapting items from Thrash and colleagues (2017), experts were asked to appraise each excerpt along the following dimensions: ‘ordinary or mundane’, ‘rational or logical’, ‘interesting’, ‘valuable’, ‘useful’, ‘meaningful’, ‘surprising’, ‘superficial or cliché’, ‘complex’, and ‘integrative’. All appraisal items were rated from 1 = *strongly disagree* to 9 = *strongly agree*.

Overall quality. Experts were informed of the incentive scheme whereby composers had the opportunity to indicate they wanted their submitted excerpt to be considered for a monetary reward based on listener feedback (see Chapter III). Experts were then asked to provide that feedback in the form of a single sliding scale of -4 = *low* to +4 = *high* overall worthiness to receive the monetary award.

Listener Traits

Further details of the listener questionnaires are given in Appendix V.A.

Musical training. Listeners’ musical experience was measured using a binary (*no/yes*) item: ‘Have you received any training (either formal or self-taught) in music?’

Music preference. Listeners’ musical genre of choice was measured by a single, forced-choice item, ‘What genre of music do you listen to most frequently?’, with response options *Alternative, Blues, Western Classical, Eastern Classical, Country, Electronic, Folk, Hip-Hop, Jazz, Latin, New Age, Pop, Reggae, Rock, Traditional*, and *Other (please specify)*.

Susceptibility to contagion. Trait predisposition to emotion contagion was measured using the Emotion Contagion Scale (Doherty, 1997), which includes items

such as ‘I tense when overhearing an angry argument’, ‘I cry at sad movies,’ and ‘Listening to the shrill screams of a terrified child in a dentist’s waiting room makes me feel nervous’ rated on 5-point Likert scales from 1 = *Never* to 5 = *Always*.

Approach-avoidance. As with the composer participants, approach and avoidance temperaments in the listener participants were measured using the Approach-Avoidance Temperament Questionnaire (Elliot & Thrash, 2010). Listener approach and avoidance composites were formed in the same way as the composer composites by averaging across the relevant subscale.

Openness to experience. The Big Five trait of openness to experience was also assessed in the listener participants using the same two 10-item aspect subscales of the Big Five Aspect Scale (DeYoung et al., 2007) for intellect and openness that were used for the composer participants. Composites for openness and intellect aspects as well as combined trait openness to experience were formed in the same way as for the composer participants by averaging across the relevant subscale items.

Listener States

Participants were asked to answer the following questionnaires for each musical excerpt they heard. Further details of the listener questionnaires are given in Appendix V.A.

Core affect. Listeners were prompted to respond to the adjective items of the 12-Point Affect Circumplex (12-PAC; Yik et al., 2011) for both their own felt emotions (‘Whilst listening to the excerpt, I felt...’) on a 5-point Likert intensity scale and the emotions they perceived the composer to be trying to convey (‘Regardless of whether you actually felt the emotion personally, please rate the below again

according to what you think the composer was trying to convey. The composer wanted me to feel...') on a 5-point Likert agreement scale.

Aesthetic emotion. In response to the same prompts for felt and perceived emotions, listeners' aesthetic emotion was measured using a single item presented alongside the 12-PAC adjectives both times: 'full of awe, full of wonder, awestruck'. This item was also rated on the same 5-point Likert scales as the 12-PAC adjectives.

Intensity. Listeners responded to a single, general affect intensity item ('How intense was your emotional response to the music?') on the same 5-point Likert intensity scale as the affective measures above (*not at all* to *extremely*).

Chills. The chills response was assessed using a 4-item version of the Chills Questionnaire (Maruskin et al., 2012) where listeners indicated whether they felt 'cold or a chill', 'a shiver or a shudder', 'a tingling or ticklish feeling', and 'goosebumps or a hair-on-end feeling' in response to the music on a 7-point Likert scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*.

Inspiration. Listener inspiration was assessed using items adapted from the state version of the Inspiration Scale (Thrash & Elliot, 2003): 'I felt inspired', 'something inspired me', 'I was inspired to do something', 'something about the music inspired me' in response to the prompt 'When listening to the excerpt...'. An inspiration composite was formed by averaging across the items.

Authenticity. Listeners reported their perceptions of each excerpt as 'an authentic expression of the composer's intentions' on a Likert scale ranging from 1 = *not at all* to 5 = *very much*.

Liking, sharing, and valuing. To assess listener liking, sharing, and valuing in an ecologically valid way, participants were informed that ‘Composers who submitted their work to this study will have the chance to win a monetary prize based on listener feedback’ and were then asked to respond to four items (‘How much did you like the music?’, ‘How much would you like to hear the whole piece of music this excerpt is taken from?’, ‘How likely would you be to share this music with a friend?’, ‘How worthy of the monetary prize is this excerpt?’) on Likert scales ranging from 1 = *not at all* to 5 = *very much*.

Listening orientation. Finally, participants were asked to indicate their listening orientation to each excerpt on a slider anchored at ‘technical (structure, instrumentation, etc.)’ and ‘emotional (feelings, imagery, etc.)’ capturing the musicological distinction between formal and expressive approaches to musical affectivity.

Analytic Strategy

As noted (in Chapter IV and above), tracking MET by using composer outputs as listener stimuli overcomes many of the empirical obstacles to the study of emotion transmission in music, but it also invites its own analytic difficulties. The basic approach to modelling transmission effects is grounded in CPA using structural equation modelling (SEM), which allows for modelling the effect of composers’ states on listeners’ states as mediated through the set of musical factors identified in Studies 1 and 3. One of the primary limitations of the proof-of-concept approach in Study 3, however, was the non-independence of responses from the same rater to

each composition (nesting within experts) as well as responses to the same composition by different raters (nesting within excerpts).

To properly address these considerations, a cross-classified ‘mixed effects’ multilevel model (Judd et al., 2012; Raudenbush & Bryk, 2002), rather than a purely hierarchical structure (Beretvas, 2008, 2011), is needed to avoid biases in variance component estimates as well as consequent biased estimation of the standard errors of the regression coefficients used in CPA (Luo & Kwok, 2009). Because composers each submit one composition, composition characteristics are linked with composer traits. As the same audio excerpts are the stimuli for listeners, those excerpts are also classified within listeners. This forms a multilevel data structure (see Figure I.2) where composition $\times$ listener pairings (Level 1) are cross-classified within compositions (Level 2a) and listeners (Level 2b). Variables within this structure can then be tested using CPA for mediation and moderation and RSA for polynomial regression models (Edwards & Parry, 1993), such as between composer intention, composer feeling, and listener response or between composer intention, listener feeling, and listener sharing. The cross-classified nesting structure of the data allows for missingness patterns such that not every listener participant is required to listen to every audio excerpt.

IBM SPSS 30.0 was used to clean raw data, calculate descriptives for each variable, and run correlational and simple regression analyses. Within the cross-classified framework, a series of multilevel mediation and moderations analyses (Thrash et al., 2017) were run at the composer, listener, and composition $\times$ listener levels using Mplus 8.7 for mediational analyses and the brms and rsm packages in R

for moderation and RSAs (due to better capabilities for modelling moderation with random slopes within a cross-classified data structure). These analyses were conducted with Bayesian estimation to provide more rigorous significance testing of indirect effects in CPA and because cross-classified data structures are too computationally demanding for traditional estimation methods (Muthén & Asparouhov, 2012; Yuan & MacKinnon, 2009). The Markov Chain Monte Carlo (MCMC) algorithm based on the Gibbs sampler was used to generate the posterior distribution for each parameter.

Basic transfer (i.e., composer state $\rightarrow$ listener state) was formally tested by estimating unstandardised effects in random-slope-and-intercept models regressing each felt or perceived listener emotion outcome on the corresponding intended or felt composer emotion predictor with the intercept free to vary at all levels and the slope free to vary across listeners. For mediation analyses in Mplus, the slopes from composer state to composition qualities were modelled as fixed because neither can vary across listeners. For each affective state, the indirect effect via each musical element was computed as the product of the effect of composer state on musical element and the average effect of the musical element on the listener state. Two MCMC chains were used, retaining the second half of each. For moderation and response surface analyses using brms, four MCMC chains were used, retaining the second half of each. For both, the potential scale reduction (PSR) value ($\hat{R}$) was used as the MCMC convergence criterion. The minimum number of iterations for all analyses was set at least four times the number of iterations from the initial analysis or function default to ensure sufficient bulk and tail effective sample size (ESS) for

reliable posterior point estimates, variances, and tail quantiles and to minimize the risk of premature model convergence (Muthén & Asparouhov, 2012). All reported Bayesian point estimates are medians of posterior distributions and tested against a 95% Bayesian credible interval for significance.

Results

Variance Decomposition

The cross-classified intraclass correlation (ICC) for each listener state seen in Table V.1 indicates the proportions of total variance found at each level of analysis. These results show in the broadest strokes a tendency for some compositions to be generally more emotive than others (at the composer/composition level), a tendency for some listeners to be generally more affectively responsive than others (at the listener level), and a comparatively strong tendency for listener affective responses to hinge on the pairing of particular listeners with particular compositions. These results also show that whilst a large proportion of variance resides at the composer $\times$ listener level—suggesting listener individual differences moderate transfer and play a role in predicting relative emotionality, there is still a significant amount of variance at the composer/composition level—consistent with the hypothesis that composers influence their listeners' responses via their music.

Transfer Effects

At the composer $\times$ listener level, the slope for each listener represents the effect of the given composer state on the given listener state. The fixed effect for each composer state refers to the mean slope across listeners (or listening occasions). The random effect of a given composer state represents the variability in the

composer-listener slope across listeners, capturing individual differences in listeners' receptivity to MET. Fixed and random effects for basic transfer models are shown in Table V.2.

The fixed effects for basic transfer were positive for all affective states as hypothesised. Of the circumplex angles, only composer felt $\rightarrow$ listener felt activated displeasure, deactivated displeasure, and unpleasant deactivation and composer felt $\rightarrow$ listener perceived activated displeasure included zero in the 95% credible interval. Consistent with theory, composer intended awe did not predict listener felt or perceived awe, but composer felt awe significantly predicted both listener outcomes.

The fixed effect for inspiration transfer was positive as hypothesised ($B = .003$), but the 95% CI included zero ($[-.04, .05]$) as in previous studies (Thrash et al., 2017). Consistent with the same precedent, the random effect, representing variability in the slope of inspiration transfer across listeners, was significant, $B = .003$ $[.001, .009]$. As predicted, composer effort did not predict listener inspiration, $B = -.005$ $[-.03, .01]$. The random effect of effort was marginally significant, $B = .001$ $[-.000, .005]$.⁴

Together, these findings provide strong evidence for rejecting the null hypothesis for musical emotion transfer, leading to the conclusion that the affective response of the average music listener is predictable from the intentions and feelings conveyed by the composer through the music.

⁴ The magnitude of these unstandardised coefficients (B s) cannot be directly compared.

Mediation by Musical Elements

Ten candidate mediators (melody, harmony, rhythm, pulse, phrasing, dynamics, style, instrumentation, timbre, and use of quotation)⁵ were selected based on the musicological literature (see Chapter I) and interviews with composers (see Chapter II). These were rated by a panel of experts (see Chapter IV). I primarily examine the mediating role of these music elements (what Eerola, 2018 calls “features”) in the parallel analyses presented below. I elaborate on the independent effects of the mediators in Appendix V.B, particularly examining which aspects of each musical element are implicated in the MET process for different dimensions of core affect. All slopes and indirect effects are presented in Tables V.3a-d. Tables V.4a-d show the unique indirect effects of the parallel mediation analyses. Figures V.5a-d show a high-level overview of the significant mediation effects for each core dimension of affect for each composer-listener modality.

In parallel mediation models, harmony uniquely mediated the effect of composer intended pleasure on both listener felt pleasure ($B = .08$ [.006, .184]) and listener perceived pleasure ($B = .08$ [.008, .177]). Similarly, rhythm uniquely mediated the effect of composer intended activation on both listener felt ($B = .06$ [.02, .15]) and perceived ($B = .08$ [.01, .20]) activation as well as the effect of composer intended deactivation on listener perceived deactivation ($B = .07$ [.004, .153]). Dynamics uniquely mediated the effects of composer intended and felt

⁵ Though similar evaluations mediated the transfer effects of positive higher affective states in past research (Thrash et al., 2017), expressive value functions as a moderator in the current study given the dimensional nature of specific emotion angles within the circumplex model of affect used.

deactivation on listener felt and perceived deactivation. Instrumentation, particularly performance practice, uniquely mediated the effects of composer intended ($B = .04$ [.001, .108]) and felt ($B = .06$ [.01, .17]) activation on listener felt activation. Timbre, particularly sonority, uniquely mediated the effect of composer intended activation on listener perceived activation, $B = .05$ [.03, .28]. Style, pulse, phrasing, and use of quotation did not significantly mediate composer states on listener states in the parallel analysis; neither did expressive value, which theoretically functions as a moderator in the present dimensional model of MET (in contrast to previous transfer models where it properly functioned as a mediator of higher, positive states; see Notes 5 and 6).

The above results show MET and mediation for the average listener. They document the musical elements composers manipulate to effect emotional musical writing and show which of those musical elements facilitate MET for the average listener. The signs of the direct effects of each moderator on the listener outcomes also indicate which aspects of each element were implicated in each affective outcome. These effects and the overall indirect effects show how the variation between composers' intentions in their compositions influence the affective experience of the average listener. Notably, the transfer effects of the higher affective states of awe and inspiration were not mediated by the musical elements of the excerpts.

Moderation by Composer, Composition, and Listener Characteristics

The following analyses tested whether MET effects vary as a function of individual differences in composers and listeners. The core dimensional axes for

affect were each tested separately. The conditional effects at particular levels of each moderator were also examined. Low, moderate, and high levels of the moderator are tested in these and subsequent moderation analyses at one standard deviation below the mean, the mean, and one standard deviation above the mean, respectively. Figures V.1-3 show examples of these conditional effects for composer authenticity, rated composition expressive value, and listener openness to experience, respectively. Figures V.5a-d show a high-level overview of which moderators were significant for which core dimensions of affect in the four composer-listener modalities.

Composer Traits and Composition Characteristics

Composer trait authenticity positively predicted listeners' felt activation and their perceptions of composer felt activation. Composer trait authenticity also moderated MET for displeasure between composers and listeners such that MET of displeasure was stronger in cases where composers were less authentic. As shown in Figure V.1 for composer felt displeasure → listener perceived displeasure, MET was moderated by composer authenticity, $\beta = -.20 [-.38, -.02]$, such that the conditional effect was only significant when composer authenticity was low ($B = .27 [.07, .47]$) but not moderate ($B = .09 [-.09, .26]$) or high ($B = -.09 [-.37, .18]$). The effect of composer felt displeasure → listener felt displeasure MET was moderated by composer authenticity, $\beta = -.18 [-.34, -.03]$, such that the conditional effect was only significant when composer authenticity was low ($B = .25 [.09, .42]$) but not moderate ($B = .09 [-.06, .24]$) or high ($B = -.08 [-.31, .16]$). Composer authenticity did not moderate MET of awe.

Composer authenticity did not moderate inspiration transfer, but listeners' *perceptions* of composer authenticity did moderate the effect of composer inspiration on listener inspiration such that transfer was stronger for compositions that listeners perceived to be more authentic to the composer's intentions, $\beta = .02$ [.003, .041], such that the conditional effect increased with listeners' perception of composer authenticity from low ($B = .01$ [- .08, .11]) to moderate ($B = .04$ [-.06, .13]) to high ($B = .06$ [-.03, .15]), though none of the points tested were significantly greater than zero.

The expressive value⁶ of each excerpt positively predicted listener felt pleasure. Expressive value moderated the composer intention → listener feeling MET effect for pleasure ($\beta = .13$ [.01, .24]) and deactivation ($\beta = .14$ [.02, .26]). The conditional effect of composer intended pleasure on listener felt pleasure was not significantly greater than zero for low ratings of expressive value ($B = -.003$ [- .15, .14]) but was significant for moderate ($B = .12$ [.005, .24]) and high ($B = .24$ [.07, .42]) ratings. The conditional effect for deactivation was significant at all points tested, increasing from low ($B = .17$ [.01, .34]) to moderate ($B = .31$ [.19, .43]) to high ($B = .44$ [.28, .61]) expressive value.

Rated expressive value also moderated the MET effect of composer intention → listener perception of pleasure ($\beta = .14$ [.01, .26]) and deactivation

⁶ As indicated in Footnote 5, whilst evaluative qualities like expressive value and emotion evocation have been modelled as mediators in previous emotion transfer studies examining specific positively valenced higher affective states, in the present research using dimensional circumplex models of core affect, expressive value functions as a moderator of MET effects along specific angles of the circumplex.

($\beta = .14$ [.02, .26]). The conditional effect of composer intended pleasure on listener perceived pleasure was not significantly greater than zero for low ratings of expressive value ($B = .002$ [-.16, .17]) but was significant for moderate ($B = .13$ [.003, .265]) and high ($B = .26$ [.07, .45]) expressive value. As shown in Figure V.2, the conditional effect for deactivation was significant at all points tested, increasing with rated expressive value from low ($B = .17$ [.01, .35]) to moderate ($B = .32$ [.19, .44]) to high ($B = .46$ [.29, .63]).

Listener Traits

Listener trait openness to experience positively predicted listener felt pleasure, activation, displeasure, deactivation, and awe as well as listener perceived pleasure, activation, and deactivation but not listener perceived displeasure. Listener openness to experience also positively predicted listener inspiration.

Listener trait openness to experience moderated MET effects between composers and listeners such that MET was stronger for listeners lower in openness to experience (as shown in Table V.5). Composer intention $\rightarrow$ listener feeling MET was moderated by listener openness to experience for pleasure ($\beta = -.07$ [-.138, -.004]) and activation ($\beta = -.11$ [-.18, -.05]). The conditional effect of composer intended pleasure on listener felt pleasure was significantly greater than zero for listeners low in openness ($B = .14$ [.01, .26]), but not moderate ($B = .12$ [-.01, .23]) or high ($B = .10$ [-.03, .22]) in openness. The conditional effect of composer intended activation on listener felt activation was significantly greater than zero at all three tested levels, decreasing from low ($B = .23$ [.11, .35]) to moderate ($B = .20$ [.08, .32]) to high ($B = .17$ [.05, .29]) openness.

Composer feeling → listener feeling MET was moderated by listener openness to experience for activation ($\beta = -.10 [-.17, -.03]$), where the conditional effect for listeners low in openness was significantly greater than zero ($B = .18 [.01, .36]$) whilst the conditional effect for listeners moderate ($B = .15 [-.02, .32]$) and high ($B = .12 [-.05, .30]$) in openness was not.

Composer intention → listener perception MET was moderated by listener openness to experience for pleasure ($\beta = -.11 [-.18, -.04]$), activation ($\beta = -.15 [-.22, -.07]$), and deactivation ($\beta = -.11 [-.19, -.03]$). The conditional effect of composer intended pleasure on listener perceived pleasure was significantly greater than zero for listeners low in openness ($B = .15 [.01, .29]$) but not moderate ($B = .12 [-.02, .26]$) or high ($B = .09 [-.05, .23]$) in openness. As shown in Figure V.3, the conditional effect of composer intended activation on listener perceived activation was significant at all tested levels of the moderator, decreasing from listeners low ($B = .30 [.16, .44]$) to moderate ($B = .25 [.12, .40]$) to high ($B = .21 [.08, .35]$) in openness. The conditional effect for deactivation followed a similar pattern, decreasing from listeners low ($B = .36 [.22, .49]$) to moderate ($B = .32 [.19, .45]$) to high ($B = .29 [.16, .43]$) in openness.

Composer feeling → listener perception MET was moderated by listener openness to experience for activation ($\beta = -.11 [-.20, -.04]$) and deactivation ($\beta = -.08 [-.156, -.001]$). The conditional effect of composer felt activation on listener perceived activation was significantly greater than zero for listeners low in openness ($B = .23 [.03, .43]$) but not moderate ($B = .20 [-.002, .401]$) or high ($B = .16 [-.04, .37]$) in openness. The conditional effect of composer felt deactivation on

listener perceived deactivation was significantly greater than zero for listeners low ($B = .23 [.03, .43]$) and moderate ($B = .21 [.01, .40]$) in openness to experience but not high ($B = .19 [-.02, .38]$).

Inspiration transfer was moderated by listener openness to experience ($\beta = .08 [.003, .158]$), such that transfer was stronger for listeners higher in openness to experience. Though not significant at the points tested, the conditional effect of composer inspiration on listener inspiration increased from listeners low ($B = .02 [-.10, .14]$) to moderate ($B = .04 [-.08, .16]$) to high ($B = .06 [-.06, .18]$) in openness. Consistent with previous findings (Thrash et al., 2017), these results demonstrate that the MET effect for inspiration is most detectable in those listeners highest in openness to experience, partly explaining the modest fixed effect size in a general population.

Listener openness to experience was also found to positively predict the emotional intensity of listener affective responses, $\beta = .03, p = .010$. Contrary to the hypothesised effects, however, the intellect aspect significantly predicted emotional intensity ($\beta = .03, p = .011$) whilst the openness aspect did not ($\beta = .02, p = .082$). As predicted, the intellect aspect of listener trait openness to experience positively predicted listener perceptions of composer intended pleasure, activation, and deactivation, though it did not significantly predict listener perceived displeasure. It moderated the effect of composer intentions on listener perceptions for pleasure ($\beta = -.07 [-.136, -.003]$) and activation ($\beta = -.08 [-.150, -.013]$), such that MET effects were stronger for listeners lower in the intellect aspect of openness to experience. Specifically, the conditional effect of composer intended pleasure on

listener perceived pleasure was significantly greater than zero for listeners low in the intellect aspect of openness to experience ($B = .15$ [.01, .28]) but not moderate ($B = .13$ [- .01, .26]) or high ($B = .10$ [-.03, .24]). The conditional effect for activation was significant at all points tested, decreasing from listeners low ($B = .28$ [.14, .42]) to moderate ($B = .26$ [.12, .39]) to high ($B = .23$ [.09, .37]) in the intellect aspect of openness. These results reveal the role of the intellect aspect of openness to experience in parity of listener perception with composer intentions for pleasure and activation.

Listener orientation positively predicted listener felt and perceived pleasure, activation, displeasure, and deactivation as well as inspiration and felt and perceive awe. Listener orientation also moderated the MET effects between composer intentions → listener feelings for activation ($\beta = .01$ [.002, .016]) and deactivation ($\beta = .01$ [.004, .017]), such that MET effects were stronger for listeners who focused more on the affective aspects of the music rather than the technical aspects. The conditional effect of composer intended activation on listener felt activation was significant at all points tested, increasing from listeners focused more on technical aspects ($B = .19$ [.07, .31]) to neutral ($B = .21$ [.09, .32]) to focused more on affective aspects ($B = .23$ [.11, .35]). The conditional effect for deactivation follows a similar pattern, increasing from listeners with a more technical orientation ($B = .27$ [.15, .40]) to neutral ($B = .30$ [.17, .43]) to more affective ($B = .32$ [.20, .45]) orientation.

Listener orientation moderated the MET effects between composer feeling → listener feeling for activation, $\beta = .01$ [.001, .018], where the conditional effect was not significant for listeners with a technical ($B = .14$ [-.04 .31]) or neutral

($B = .16 [-.02, .34]$) orientation but only significant for listeners with a more affective orientation ($B = .18 [.01, .36]$).

Listener orientation also moderated the MET effect of composer intention $\rightarrow$ listener perception for deactivation, $\beta = .02 [.008, .022]$, where the conditional effect was significant at all points tested, increasing from listeners with a technical ($B = .28 [.15, .41]$) to neutral ($B = .31 [.18, .44]$) to affective ($B = .35 [.22, .48]$) orientation.

The above moderation analyses document the particular individual traits that affect the relative strength of MET effects—in other words, for whom MET is stronger or weaker than average. They documented how individual differences in composers (e.g., trait authenticity), listeners (e.g., trait openness to experience), and even characteristics of the compositions (e.g., expressive value) affect the relative strength of MET. The next section asks how these processes might fit into broader questions of cultural transmission and evolution.

Affect Intensity and Authenticity with Liking, Sharing, and Valuing

Listeners' perceptions of whether each excerpt was an authentic expression of the composer's intentions significantly correlated with the intensity of their emotional responses to the work, $r(8818) = .06, p < .001$. In an exploratory RSA examining inspiration transfer, listener perceived authenticity was highest when composer and listener inspiration were high, as indicated by the positive and significant interaction term, $\beta = .01 [.003, .018]$. A main effect of listener inspiration was suggested by its significant fixed effect, $\beta = .28 [.25, .31]$. The slope at the line of congruence was positive, $B = .25 [.19, .32]$, indicating that perceived authenticity increased when

composer and listener inspiration increased together. The slope at the line of incongruence was negative, $B = -.31 [-.37, -.25]$, indicating that listener inspiration drives the effect. The curvature at the line of incongruence was negative but not significant, $B = -.01 [-.03, .01]$, suggesting that perceived authenticity is maximised when composer and listener inspiration are congruent.

The intensity of listener emotional responses was greatest when both composer and listener inspiration were high as indicated by the positive and significant interaction term, $\beta = .008 [.00, .01]$. The fixed effect and quadratic term for composer inspiration were not significant, but the fixed effect and quadratic term for listener inspiration were significant, indicating a main effect for listener inspiration. The slope at the line of congruence was positive, $B = .31 [.25, .38]$, indicating that listener emotion intensity increased as composer and listener inspiration increased together.

The intensity of listener emotion responses was similarly highest when both composer intended pleasure and listener felt pleasure were high. The fixed effect and quadratic term for listener feeling were both significant, indicating a main effect for listener felt pleasure. The slope at the line of congruence was positive, $B = .37 [.29, .45]$, indicating that listener emotion intensity increased as composer intended pleasure and listener felt pleasure increased together. The slope at the line of incongruence was negative, $B = -.42 [-.50, -.34]$, indicating that listener felt pleasure drives the effect.

The results for listener intensity for activation were highest when composer intention was moderate to high and listener feeling was high, as indicated by the

positive and significant interaction term, $\beta = .05$ [.03, .07]. The fixed effects for composer intention and listener feeling were significant, indicating main effects for both. The slope at the line of congruence was positive, $B = .42$ [.33, .52], indicating that listener emotion intensity increased as composer intended activation and listener felt activation increased together. The slope at the line of incongruence was negative, $B = -.62$ [-.72, -.53], indicating that listener feeling drives the effect. Though not significantly different from zero, the curvature at the line of incongruence was negative, $B = -.04$ [-.12, .03], perhaps suggesting that listener intensity is maximised when composer intention and listener feeling are congruent.

As shown in Figure V.4, the results for displeasure showed that the intensity of listener response was highest when composer intention was moderate and listener feeling was high. The interaction term was positive and significant, $\beta = .05$ [.02, .09]. The fixed effect and quadratic term for listener feeling were both significant, indicating a main effect for listener felt displeasure. The slope at the line of congruence was positive but not significant, $B = .16$ [-.01, .35], suggesting that in general, listener emotion intensity increased as composer intended displeasure and listener felt displeasure increased together. The curvature at the line of incongruence was negative but not significant, $B = -.05$ [-.18, .08], suggesting that listener intensity was maximised when composer intention and listener feeling were both high or both low.

The results for deactivation showed that the intensity of listener response was highest when composer intention and listener feeling were high, as indicated by the positive interaction term, $\beta = .04$ [.01, .07]. The fixed effect and quadratic term for

listener feeling were significant, indicating a main effect for listener felt deactivation. The curvature at the line of congruence was positive, $B = .19$ [.10, .27], indicating higher listener intensity when composer intention and listener feeling are both high or both low. The curvature at the line of incongruence was also positive, $B = .11$ [.01, .20], indicating that listener intensity was higher when composer intention was low and listener feeling was high.

Intensity of listener emotional response significantly predicted listener liking ($\beta = .10, p < .001$). The intensity of listeners' emotional responses to each excerpt also significantly predicted how likely they were to share the composition with a friend ($\beta = .03, p = .003$). Emotional intensity, however, did not significantly predict how much listeners valued the excerpts in terms of ascribed worthiness to receive a monetary prize ($\beta = .02, p = .053$). The expert ratings of expressive value also predicted listeners' ratings of worthiness ($\beta = .15, p < .001$).

In an exploratory RSA examining the effect of inspiration transfer on listener sharing, sharing was highest when composer and listener inspiration were high, though the positive interaction term was not significant, $\beta = .004$ [-0.003, .011]. There was a main effect of listener inspiration, indicated by its significant fixed effect and quadratic term. The slope at the line of congruence was positive, $B = .38$ [.32, .43], indicating that listener sharing increased as composer and listener inspiration increased together. The slope at the line of incongruence was negative, $B = -.32$ [- .37, - .27], indicating that listener inspiration drives the effect. The curvature at the line of congruence was positive, $B = .05$ [.03, .06], indicating that listener sharing intention is greatest when composer and listener inspiration are both high.

Discussion

The present study examined MET by first establishing the basic effects of emotion transfer in music; mapping the mediational role of specific elements of music; identifying how these effects differ based on differences in individual composers, listeners, and musical excerpts; and finally, examining how the combination of the above affects the potential role of MET in listener liking, sharing, and valuing—in other words, answering the questions of whether, how, for whom, and why of MET. The following summarises the results and discusses their implications and limitations.

The core aim of this research was to establish MET effects as analogous to other basic emotion-sharing theories as applied specifically to musical media. Consistent with Hypothesis 1, composer intended emotions and actual felt affective states did predict listener affective states and perceptions, despite the lack of direct contact between composers and listeners beyond the audio excerpt of the musical composition itself. This finding is consistent with the widely held belief that music is an effectively emotive arts medium and as such is a powerful vehicle for socially sharing affective meaning among individuals otherwise separated by time and place. Notably, similar associations between composer and listener states did not apply to higher affective states such as aesthetic emotions and inspiration. Consistent with theory, it seems that a composer's intention to convey awe is not sufficient to produce it in the listener; rather, it is only transferred when genuinely felt by the composer in the first instance as indicated by the significant MET effects for composer felt awe but not composer intended awe.

Whilst the fixed effect of inspiration transfer was not significant, the overall pattern of inspiration and effort effects followed that documented in the literature (Thrash et al., 2017), albeit in a novel arts domain, with composer inspiration positively predicting listener inspiration. The significant random effect suggests that inspiration transfer is more dependent on characteristics of individual composers and listeners especially when noting, consistent with the same precedent, that the effect of MET for inspiration was strongest in those listeners high in openness to experience. This dependence also partially accounts for the weak fixed effect. Given the nonsignificant and marginal posterior distributions in the present study, however, it is impossible to conclusively assess Hypothesis 2. A larger composer sample size would help future studies clarify this effect.

Turning next to Hypothesis 3 and the question of *how* composers achieve MET, the specific musical elements used by composers to convey their intentions and feelings through their music were evaluated by a panel of independent raters and thus avoided confounding listener attributions. As hypothesised, harmony, rhythm, dynamics, melody, instrumentation, and timbre all mediated the transfer of emotion at different angles of the affect circumplex. In parallel mediation analyses, harmony, rhythm, dynamics, instrumentation, and timbre uniquely mediated dimensions of affect transfer, but the indirect effect of melody notably included zero in the 95% CI, consistent with how some composers described the hierarchical relationship of melody in service to harmony in the qualitative data (Varga & Parkinson, 2024). The broader patterns also both corroborate qualitative data from composer interviews and shed new light on the mechanics of musical rhetoric employed by composers in the

creative process. In particular, the use of bipolar rating scales for each element provides a novel level of nuance that reveals informative patterns of which elements are used in expressing which emotions, but also which aspects of those musical elements account for the mediational effects.

The transfer of higher states, such as aesthetic emotions and inspiration, was not mediated by musical elements, perhaps suggesting that these experiences are conveyed at a higher level than musical elements. For example, past research (Chapin, 2022; Thrash et al., 2017; Zangwill, 2022) has proposed sublimity as a strong candidate mediator. Future research should extend this investigation and also consider the use of bimodal measures of higher states that account for both the contents and modalities of such experiences (Varga, 2021). These higher states results are also influenced by individual differences factors as noted above.

Addressing the question of *for whom* MET occurs, Hypotheses 4 and 5 had slightly more mixed results. The findings reported above reveal the differential role different aspects of composer and listener personality have on MET at different angles of the circumplex indicating, unsurprisingly, that not all emotions are experienced the same way across all people. Openness to experience has long been most closely associated with curiosity and receptivity to the arts (DeYoung, 2015; J. Meyer et al., 2023; Rawlings et al., 2000; Silvia et al., 2015), and the negative interaction effects with MET are not inconsistent with past findings. Listeners higher in openness to experience are by definition more discerning and thus more attentive to musical qualities. This might make them less likely to be caught up in the affective experience of the music. In other words, listeners higher in openness to experience

tend to be more responsive to the art of the music than just to the emotional stimuli. This interpretation is further clarified by the results of the intellect aspect, which particularly moderated the effect of listener perceptions as predicted and seemingly overcame the effect of the openness aspect to predict listener felt intensity contrary to the hypothesised effect. Combined with the exploratory findings of listener orientation that show stronger MET effects for listeners more focused on the affective than technical aspects of the music, a clearer picture of the variation in listeners (as indicated by the random effects reported in Table V.2) emerges. The differentiation of listeners focused on more technical and formal aspects of the music from listeners focused more on affective and expressive aspects also helps clarify the role of the divide between formalist and expressionist compositional theories of MET.

Composer authenticity had a negative interaction effect on MET (such that compositions from less authentic composers had stronger MET effects on listeners) consistent with composers' experiences reported in qualitative interviews (Study 1) and quantitative surveys (Study 2). For example, composers discussed how they do not particularly feel displeasure when intending to convey it to their listeners, and when they are feeling displeased, they do not necessarily want that emotion to come through in their music (Varga & Parkinson, 2024). The effect of trait authenticity moderates how effective composers are at sublimating their own feelings artistically; the more authentic composers might express their true feelings in a more artistic way that partially masks the raw emotion whilst less authentic composers are directly transferring their feelings into the music inartistically such that the MET effect is

stronger. Interestingly, it was not composer trait authenticity but listener perceived authenticity that significantly moderated the effect of inspiration transfer.

Consistent with Hypothesis 6, listener perceived authenticity also predicted the intensity of their emotional responses to the excerpts. Intensity of listener response was also highest when composer and listener inspiration were both high. Given the correlation of inspiration with pleasant activation, it follows that a similar trend was found for composer intended and listener felt pleasure, activation, and displeasure. The curvature of the response surface for displeasure, however, suggested that there were diminishing returns for increasing composer intended displeasure, perhaps suggesting that the results of over-intending displeasure draw listeners out of their emotional experiences past a certain point when the music becomes too unpleasant or camp. The intensity of listeners' emotional responses to the music in turn predicted their subjective liking of the excerpt and how likely they were to share it with a friend. Emotion intensity did not, however, predict how much they valued the composition or thought the composer should receive a monetary prize for it, suggesting that MET plays a role in some aspects of listener liking and sharing inclination but that emotion transfer alone is insufficient for determining cultural valuation.

Limitations

The present study is limited in a number of ways. First, the present study is weakened by the limitations of the previous datasets (from Studies 2 and 3) that were used in combination with the current listener sample. In particular, the small sample size at the composer upper level makes certain downstream analyses unreliable. For

example, the composer sample size limited effectiveness of factor analysis in Study 3, weakened the model fit of the expert-rated composites, reduced the reliability of multiple regression analyses involving multiple composer variables, and capped the statistical power available for CPAs involving composer level moderators such as composer authenticity. Nevertheless, given the cross-classified structure of the data, the core analyses in the present study were run with an effective sample size of $N = 8,818$, the number of populated cells at the lower level of the composer $\times$ listener matrix.

Second, the magnitude of MET effects is relatively small when compared to similar literature that has only examined listener experiences. The present results, however, must be considered in light of substantial causal distance between composers and listeners, which is arguably the greatest strength of the present paradigm. These effect sizes must be contextualised as the transfer of emotion not between a stimulus and a listener (as in traditional paradigms), but rather as the transfer of states from a composer through the musical stimulus to the listener. In other words, the price of directly examining the transfer of composer intentions and emotions whilst also addressing Simonton's (2010) concern about laboratory-designed musical stimuli by using genuine original compositions is paid in the form of relatively reduced magnitudes of effects.

Third, whilst the present research uses original compositions as stimuli, these are necessarily limited in length for the practicalities of standardising listening experiences across excerpts and to allow composers to select a single episodic moment of their work that captures a consistent emotional soundscape. Though these

excerpts are relatively short in musical terms, like other recent empirical musicological studies of emotion (employing stimuli of 30-60 seconds), they are longer than those used in much of the psychological literature employing traditional music-based emotion induction paradigms, which are largely based on stimuli in the range of 500-3000 milliseconds (e.g., Folyi, 2025). The limited length also addresses Meyer's (2001) worry about accounting for emotion (or mood) processes in full-length works due to additional issues of duration and complexity (see Chapter I).

Fourth, by intentionally excluding songs and choral music with lyrics to avoid confounds of meaning beyond the music itself, the resulting set of compositions dramatically skews towards Western classical art music. Though some non-Western examples are included, generalisability of the findings to other genres and musical contexts is limited. Composers working in different genres might present different approaches to expressing emotion in their music just as listeners might respond differently depending on whether a piece of music is consistent with their genre preferences and expectations. Though liking was here modelled as an outcome variable, future research should also consider whether listener liking and genre preferences moderate MET.

Fifth, the paradigm used is quasi-experimental as only listeners (most of whom completed every listening task) were randomly assigned to composition excerpts (the equivalent of an experimental manipulation), but composers, compositions, and their characteristics were sampled and measured using methods consistent with cross-sectional correlational designs. The lack of total experimental control compromises the isolation of causal factors sampled simultaneously, but it is

still possible to conclude that temporarily prior and independently rated characteristics of the musical stimuli causally affected listener responses. Moreover, as Thrash and colleagues (2014, 2017) have argued in the context of poets, direct experimental control of creative states is impossible as an experimenter can only manipulate stimuli, not states, which are themselves dependent variables.

Sixth, not all of the RSAs met the strict criteria set out by Edwards (2002) for warranting testing congruence. Significant congruence coefficients are presented here (with all due caveats) as an aide to interpreting the polynomial regression models, but future research should finetune these with datasets that address the foregoing limitations for cleaner results.

Conclusion

Music is often associated with emotional experiences of its listeners, but the present study is the first to examine how the intentions and feelings of composers actually predict those listener experiences. By applying social emotional paradigms to the musical context, the present study establishes music as a social medium by which emotion and intention can be conveyed between individuals separated by time and place. The findings show that the greatest amount of variance generally occurred at the composer $\times$ listener level and that the composer level importantly accounted for a significant proportion of variance that is otherwise overlooked in studies focusing only on listeners. In CPA models, composer intended and incidental affect predicted both listener felt and perceived emotion. These effects were mediated by specific musical elements for different angles of the affect circumplex, and they were moderated by characteristics of the composers, compositions, and listeners. The

relative parity of composer states as well as their congruence with listener responses also predicted cultural transmission outcomes such as affect intensity, perceived authenticity, liking, valuing, and sharing. These findings show that MET is intrinsically both social and affective, bringing these two aspects of the musical process together to help explain and predict cultural transmission in the musical context.

Tables

Table V.1*Listener Variance Decomposition Cross-Classified Intraclass Correlations*

Emotion	Listener Felt Emotions			Listener Perceived Emotions		
	<i>Composer</i>	<i>Listener</i>	<i>Composer × Listener</i>	<i>Composer</i>	<i>Listener</i>	<i>Composer × Listener</i>
Pleasure	.20 [.14, .29]	.27 [.23, .32]	.53 [.46, .58]	.23 [.17, .32]	.23 [.20, .28]	.53 [.46, .59]
Activated Pleasure	.16 [.11, .25]	.31 [.27, .36]	.53 [.47, .58]	.19 [.14, .29]	.25 [.21, .29]	.56 [.49, .61]
Pleasant Activation	.27 [.21, .37]	.21 [.17, .25]	.52 [.44, .58]	.31 [.24, .41]	.16 [.13, .19]	.53 [.44, .59]
Activation	.15 [.10, .25]	.28 [.24, .34]	.56 [.50, .61]	.18 [.13, .29]	.21 [.18, .26]	.60 [.52, .66]
Unpleasant Activation	.24 [.17, .37]	.19 [.15, .23]	.57 [.49, .64]	.29 [.21, .42]	.15 [.12, .19]	.56 [.46, .63]
Activated Displeasure	.25 [.18, .38]	.16 [.13, .20]	.59 [.50, .65]	.31 [.22, .44]	.13 [.09, .16]	.57 [.46, .65]
Displeasure	.13 [.08, .22]	.21 [.17, .25]	.66 [.60, .71]	.13 [.08, .22]	.21 [.18, .26]	.65 [.59, .70]
Deactivated Displeasure	.15 [.10, .25]	.22 [.18, .26]	.63 [.56, .69]	.16 [.10, .26]	.20 [.17, .24]	.63 [.56, .69]
Unpleasant Deactivation	.12 [.08, .20]	.20 [.17, .25]	.68 [.63, .73]	.07 [.04, .13]	.27 [.23, .32]	.66 [.61, .70]
Deactivation	.27 [.18, .39]	.20 [.16, .25]	.54 [.45, .60]	.29 [.21, .42]	.18 [.14, .22]	.53 [.43, .60]
Pleasant Deactivation	.24 [.17, .37]	.27 [.21, .32]	.49 [.41, .55]	.26 [.18, .39]	.23 [.18, .28]	.51 [.42, .57]
Deactivated Pleasure	.24 [.17, .36]	.28 [.22, .34]	.49 [.41, .55]	.26 [.18, .38]	.24 [.18, .29]	.51 [.42, .57]
Awe	.07 [.04, .11]	.31 [.26, .36]	.62 [.57, .67]	.08 [.05, .14]	.30 [.25, .35]	.62 [.55, .66]

Note. Intraclass correlations for composer (2A), listener (2B), and composer × listener (1) levels of variance. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

Table V.2
MET Effects

Emotion	CI → LF		CI → LP		CF → LF		CF → LP	
	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>Fixed Effects</i>	<i>Random Effects</i>	<i>Fixed Effects</i>	<i>Random Effects</i>
Pleasure	.064 [.03, .09]	.008 [.00, .01]	.182 [.10, .26]	.012 [.01, .02]	.098 [.00, .24]	.001 [†] [.000, .003]	.112 [.02, .25]	.001 [†] [.000, .004]
Activated Pleasure	.112 [.06, .17]	.001 [†] [.000, .003]	.081 [.06, .10]	.002 [.00, .01]	.064 [.04, .08]	.002 [.00, .01]	.072 [.04, .10]	.003 [.00, .01]
Pleasant Activation	.245 [.19, .28]	.011 [.01, .02]	.053 [.02, .08]	.012 [.01, .02]	.032 [.02, .05]	.006 [.00, .01]	.232 [.04, .45]	.002 [.00, .01]
Activation	.059 [.03, .08]	.002 [.001, .004]	.123 [.06, .18]	.002 [.00, .01]	.055 [.02, .12]	.001 [†] [.000, .002]	.054 [.03, .15]	.001 [†] [.000, .003]
Unpleasant Activation	.09 [.04, .11]	.014 [.01, .02]	.08 [.03, .11]	.02 [.01, .03]	.19 [.10, .29]	.01 [.00, .02]	.27 [.14, .37]	.008 [.003, .014]
Activated Displeasure	.089 [.04, .12]	.018 [.01, .02]	.15 [.04, .23]	.007 [.002, .014]	.05 [-.01, .12]	.003 [.001, .007]	.06 [-.01, .13]	.002 [†] [.000, .005]
Displeasure	.126 [.01, .20]	.004 [.00, .01]	.190 [.10, .31]	.012 [.01, .02]	.169 [.08, .29]	.018 [.01, .03]	.185 [.09, .30]	.002 [.001, .006]
Deactivated Displeasure	.195 [.11, .30]	.011 [.01, .02]	.121 [.03, .26]	.012 [.01, .02]	.094 [-.01, .17]	.004 [.00, .01]	.087 [.01, .17]	.012 [.01, .02]
Unpleasant Deactivation	.110 [.04, .16]	.065 [.04, .10]	.209 [.10, .32]	.059 [.03, .09]	.011 [-.01, .03]	.006 [.00, .02]	.094 [.06, .13]	.005 [.00, .01]
Deactivation	.293 [.22, .35]	.015 [.01, .02]	.145 [.09, .18]	.018 [.01, .02]	.034 [.01, .05]	.006 [.00, .01]	.080 [.03, .17]	.004 [.00, .01]
Pleasant Deactivation	.140 [.09, .16]	.013 [.01, .02]	.141 [.10, .18]	.023 [.02, .03]	.233 [.13, .38]	.002 [.00, .01]	.231 [.07, .35]	.006 [.00, .01]
Deactivated Pleasure	.133 [.09, .16]	.017 [.01, .02]	.145 [.10, .18]	.029 [.02, .04]	.104 [.07, .14]	.010 [.006, .014]	.113 [.07, .15]	.017 [.01, .02]
Awe	.04 [-.01, .08]	.000 [†] [.000, .001]	.042 [-.02, .10]	.001 [†] [.000, .003]	.054 [.00, .11]	.001 [†] [.000, .002]	.029 [.00, .08]	.001 [†] [.000, .002]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception. 95% CIs excluding 0 are shown in boldface type. [†]Marginally significant effect.

Table V.3a
Fixed Effects for CI → LF Mediation Models

Effect	Composer Intended (CI) States → Listener Felt (LF) States			
	Pleasure	Activation	Displeasure	Deactivation
Harmony				
CI → Rharm	.29 [-.002, .534]	-.31 [-.51, -.05]	-.28 [-.511, -.001]	.18 [-.14, .46]
Rharm → LF	.88 [.78, .95]	-.37 [-.59, -.07]	-.76 [-.88, -.57]	.43 [.19, .63]
CI → Rharm → LF	.11 [-.001, .226]	.05 [.001, .117]	.14 [.02, .29]	.04 [-.03, .12]
Rhythm				
CI → Rrhyt	-.29 [-.53, .05]	.37 [.10, .60]	.22 [-.09, .49]	-.37 [-.59, -.07]
Rrhyt → LF	-.09 [-.40, .20]	.79 [.65, .88]	-.04 [-.37, .29]	-.70 [-.81, -.54]
CI → Rrhyt → LF	.01 [-.03, .06]	.13 [.03, .25]	-.002 [-.07, .06]	.13 [.03, .24]
Dynamics				
CI → Rdyna	-.19 [-.45, .14]	.37 [.10, .60]	.07 [-.24, .37]	-.38 [-.60, -.08]
Rdyna → LF	-.10 [-.39, .19]	.64 [.44, .80]	.05 [-.28, .36]	-.59 [-.73, -.39]
CI → Rdyna → LF	.005 [-.02, .06]	.11 [.02, .21]	.001 [-.03, .05]	.11 [.02, .23]
Melody				
CI → Rmel1	.27 [-.01, .49]	-.19 [-.43, .10]	-.22 [-.45, .06]	.15 [-.15, .41]
CI → Rmel2	-.02 [-.28, .23]	.19 [-.10, .42]	.16 [-.12, .40]	-.05 [-.31, .21]
Rmel1 → LF	.94 [.84, 1.03]	-.33 [-.56, -.05]	-.75 [-.89, -.56]	.38 [.16, .58]
Rmel2 → LF	-.15 [-.340, -.002]	.28 [.003, .510]	.13 [-.11, .34]	-.29 [-.49, -.06]
CI → Rmel → LF	.12 [-.001, .23]	.05 [-.01, .14]	.12 [-.02, .27]	.03 [-.04, .14]
Instrumentation				
CI → Rinst1	-.24 [-.47, .05]	.28 [.01, .52]	.20 [-.09, .46]	-.27 [-.48, .01]
CI → Rinst2	.26 [-.02, .48]	-.28 [-.50, -.01]	-.19 [-.42, .07]	.20 [-.09, .43]
Rinst1 → LF	.09 [-.17, .31]	.56 [.30, .74]	-.12 [-.37, .19]	-.46 [-.66, -.21]
Rinst2 → LF	.73 [.57, .85]	-.17 [-.43, .06]	-.63 [-.77, -.38]	.25 [.04, .45]
CI → Rinst → LF	.08 [-.01, .19]	.09 [.01, .17]	.06 [-.08, .17]	.08 [.002, .166]
Timbre				
CI → Rtim1	-.01 [-.28, .27]	.06 [-.22, .34]	-.09 [-.35, .20]	-.06 [-.32, .24]
CI → Rtim2	-.40 [-.60, -.17]	.34 [.07, .53]	.20 [-.09, .43]	-.35 [-.56, -.10]
Rtim1 → LF	.64 [.47, .77]	-.17 [-.36, .06]	-.71 [-.83, -.52]	.10 [-.08, .29]
Rtim2 → LF	-.47 [-.62, -.26]	.65 [.49, .79]	.30 [.11, .48]	-.63 [-.76, -.42]
CI → Rtim → LF	.09 [-.03, .22]	.10 [.01, .20]	.08 [-.08, .26]	.11 [.02, .21]

Table V.3b
Fixed Effects for CI → LP Mediation Models

Effect	Composer Intended (CI) States → Listener Perceived (LP) States			
	Pleasure	Activation	Displeasure	Deactivation
Harmony				
CI → Rharm	.32 [.003, .527]	-.32 -.53, -.08	-.25 [-.50, .02]	.20 [-.10, .44]
Rharm → LP	.88 [.76, .94]	-.43 [-.61, -.16]	-.77 [-.89, -.61]	.44 [.20, .63]
CI → Rharm → LP	.13 [.002, .261]	.07 [.01, .17]	.15 [-.02, .34]	.05 [-.02, .14]
Rhythm				
CI → Rrhyt	-.26 [-.50, .02]	.39 [.10, .59]	.24 [-.07, .47]	-.35 [-.56, -.09]
Rrhyt → LP	-.09 [-.42, .25]	.78 [.61, .88]	-.03 [-.34, .29]	-.69 [-.82, -.55]
CI → Rrhyt → LP	.01 [-.03, .07]	.17 [.04, .28]	-.002 [-.08, .06]	.13 [.03, .25]
Dynamics				
CI → Rdyna	-.16 [-.42, .11]	.40 [.10, .59]	.09 [-.20, .35]	-.36 [-.57, -.10]
Rdyna → LP	-.11 [-.43, .20]	.63 [.39, .79]	.08 [-.22, .37]	-.56 [-.74, -.39]
CI → Rdyna → LP	.01 [-.02, .06]	.13 [.03, .25]	.003 [-.04, .06]	.11 [.03, .22]
Melody				
CI → Rmel1	.26 [.05, .50]	-.18 [-.42, .11]	-.22 [-.45, .06]	-.04 [-.31, .21]
CI → Rmel2	-.01 [-.29, .29]	.19 [-.09, .42]	.16 [-.12, .40]	.37 [.09, .59]
Rmel1 → LP	.94 [.83, 1.04]	-.38 [-.66, -.13]	-.75 [-.86, -.56]	.44 [.18, .66]
Rmel2 → LP	-.18 [-.41, .01]	.29 [.02, .54]	.13 [-.11, .34]	-.30 [-.53, -.06]
CI → Rmel → LP	.13 [.04, .26]	.06† [.000, .163]	.12 [-.02, .27]	.04 [-.04, .13]
Instrumentation				
CI → Rinst1	-.23 [-.46, .07]	.28 [.002, .507]	.18 [-.13, .43]	-.27 [-.515, .001]
CI → Rinst2	.26 [-.06, .50]	-.28 [-.51, -.01]	-.19 [-.45, .07]	.20 [-.11, .42]
Rinst1 → LP	.11 [-.17, .33]	.55 [.31, .74]	-.10 [-.33, .18]	-.46 [-.65, -.21]
Rinst2 → LP	.77 [.56, .93]	-.21 [-.46, .04]	-.62 [-.81, -.35]	.27 [.05, .49]
CI → Rinst → LP	.09 [-.03, .20]	.11 [.02, .22]	.08 [-.08, .25]	.09 [.003, .182]
Timbre				
CI → Rtim1	-.02 [-.32, .25]	.06 [-.26, .34]	-.09 [-.39, .17]	-.07 [-.36, .21]
CI → Rtim2	-.41 [-.61, -.17]	.29 [.06, .52]	.20 [-.11, .23]	-.36 [-.57, -.09]
Rtim1 → LP	.67 [.52, .79]	-.18 [-.36, .05]	-.74 [-.85, -.56]	.10 [-.08, .30]
Rtim2 → LP	-.45 [-.64, -.26]	.65 [.49, .79]	.30 [.12, .47]	-.62 [-.78, -.45]
CI → Rtim → LP	.10 [-.03, .24]	.10 [.01, .23]	.10 [-.10, .33]	.12 [.02, .23]

Table V.3c
Fixed Effects for CF → LF Mediation Models

Effect	Composer Felt (CF) States → Listener Felt (LF) States			
	Pleasure	Activation	Displeasure	Deactivation
Harmony				
CF → Rharm	.19 [-.11, .46]	-.37 [-.55, -.12]	-.23 [-.48, .10]	.12 [-.18, .42]
Rharm → LF	.88 [.68, .94]	-.44 [-.67, -.12]	-.74 [-.86, -.56]	.49 [.23, .69]
CF → Rharm → LF	.09 [-.05, .25]	.10 [.02, .21]	.08 [-.04, .20]	.04 [-.06, .16]
Rhythm				
CF → Rrhyt	-.13 [-.41, .20]	.17 [-.13, .45]	.16 [-.15, .44]	-.20 [-.46, .13]
Rrhyt → LF	-.13 [-.44, .15]	.83 [.72, .91]	-.04 [-.38, .28]	-.79 [-.88, -.34]
CF → Rrhyt → LF	.01 [-.03, .07]	.09 [-.07, .25]	-.001 [-.04, .04]	.11 [-.07, .28]
Dynamics				
CF → Rdyna	-.01 [-.29, .31]	.35 [.07, .59]	-.001 [-.26, .27]	-.35 [-.68, -.02]
Rdyna → LF	-.15 [-.45, .15]	.72 [.51, .86]	.07 [-.25, .34]	-.70 [-.84, -.45]
CF → Rdyna → LF	.001 [-.04, .04]	.15 [.03, .30]	.000 [-.03, .03]	.17 [.01, .34]
Melody				
CF → Rmel1	.25 [-.03, .46]	-.25 [-.495, .002]	-.13 [-.40, .13]	.08 [-.21, .32]
CF → Rmel2	.08 [-.18, .32]	.20 [-.08, .41]	.16 [-.12, .39]	-.14 [-.39, .12]
Rmel1 → LF	.94 [.85, 1.02]	-.42 [-.71, -.11]	-.77 [-.91, -.59]	.47 [.17, .70]
Rmel2 → LF	-.15 [-.340, -.002]	.36 [.04, .63]	.10 [-.14, .32]	-.33 [-.62, -.03]
CF → Rmel → LF	.12 [-.03, .26]	.11 [.02, .23]	.06 [-.05, .18]	.05 [-.04, .18]
Instrumentation				
CF → Rinst1	-.02 [-.31, .22]	-.36 [-.55, -.11]	.12 [-.18, .36]	-.14 [-.40, .12]
CF → Rinst2	.05 [-.21, .31]	-.53 [-.72, -.27]	-.16 [-.39, .13]	.11 [-.16, .36]
Rinst1 → LF	.08 [-.18, .35]	.58 [.31, .79]	-.13 [-.43, .18]	-.50 [-.73, -.24]
Rinst2 → LF	.72 [.56, .96]	-.21 [-.47, .06]	-.66 [-.87, -.39]	.26 [-.01, .49]
CF → Rinst → LF	.02 [-.10, .14]	.14 [.01, .27]	.04 [-.05, .13]	.07 [-.07, .21]
Timbre				
CF → Rtim1	.02 [-.27, .26]	-.07 [-.32, .19]	-.06 [-.34, .20]	.13 [-.15, .37]
CF → Rtim2	-.22 [-.45, .04]	.23 [.003, .459]	.15 [-.12, .38]	.11 [-.36, .15]
Rtim1 → LF	.71 [.50, .89]	-.17 [-.37, .12]	-.76 [-.93, -.58]	.09 [-.14, .30]
Rtim2 → LF	-.53 [-.76, -.32]	.71 [.52, .83]	.32 [.12, .54]	-.75 [-.88, -.58]
CF → Rtim → LF	.07 [-.05, .21]	.11 [.01, .24]	.05 [-.06, .17]	.07 [-.08, .22]

Table V.3d
Fixed Effects for CF → LP Mediation Models

Effect	Composer Felt (CF) States → Listener Perceived (LP) States			
	Pleasure	Activation	Displeasure	Deactivation
Harmony				
CF → Rharm	.22 [-.10, .45]	-.35 [-.57, -.07]	-.20 [-.44, .08]	.15 [-.16, .40]
Rharm → LP	.88 [.77, .94]	-.47 [-.71, -.22]	-.77 [-.88, -.61]	.51 [.24, .69]
CF → Rharm → LP	.12 [-.06, .27]	.11 [.02, .27]	.09 [-.04, .24]	.05 [-.06, .17]
Rhythm				
CF → Rrhyt	-.11 [-.39, .17]	.20 [-.12, .44]	.18 [-.12, .43]	-.18 [-.43, .10]
Rrhyt → LP	-.13 [-.46, .20]	.83 [.70, .90]	-.01 [-.33, .30]	-.78 [-.89, -.66]
CF → Rrhyt → LP	.01 [-.03, .07]	.12 [-.08, .29]	.000 [-.05, .05]	.10 [-.07, .29]
Dynamics				
CF → Rdyna	.02 [-.27, .29]	.37 [.06, .57]	.03 [-.25, .29]	-.33 [-.55, -.05]
Rdyna → LP	-.16 [-.48, .15]	.72 [.47, .85]	.10 [-.21, .39]	-.68 [-.84, -.50]
CF → Rdyna → LP	.000 [-.05, .05]	.19 [.03, .36]	.000 [-.03, .04]	.16 [.02, .33]
Melody				
CF → Rmel1	.24 [-.07, .45]	-.27 [†] [-.52, .000]	-.15 [-.43, .13]	.06 [-.26, .32]
CF → Rmel2	.09 [-.23, .33]	.20 [-.11, .43]	.16 [-.14, .39]	-.14 [-.42, .11]
Rmel1 → LP	.89 [.80, .95]	-.44 [-.65, -.16]	-.74 [-.85, -.56]	.56 [.22, .65]
Rmel2 → LP	-.17 [-.31, -.02]	.35 [.07, .55]	.14 [-.08, .32]	-.29 [-.52, -.04]
CF → Rmel → LP	.13 [-.06, .30]	.14 [.01, .33]	.08 [-.06, .26]	.05 [-.07, .21]
Instrumentation				
CF → Rinst1	-.05 [-.35, .22]	.26 [-.04, .47]	.10 [-.20, .36]	-.15 [-.43, .13]
CF → Rinst2	.06 [-.26, .31]	-.36 [-.58, -.14]	-.16 [-.42, .11]	.12 [-.21, .36]
Rinst1 → LP	.09 [-.15, .28]	.60 [.36, .77]	-.09 [-.32, .19]	-.54 [-.75, -.25]
Rinst2 → LP	.75 [.59, .86]	-.26 [-.54, .04]	-.62 [-.80, -.35]	.29 [.03, .56]
CF → Rinst → LP	.03 [-.14, .16]	.17 [.04, .34]	.06 [-.07, .19]	.08 [-.06, .21]
Timbre				
CF → Rtim1	.01 [-.27, .28]	-.05 [-.32, .23]	-.06 [-.34, .23]	.13 [-.18, .38]
CF → Rtim2	-.22 [-.46, .03]	.26 [-.02, .47]	.16 [-.12, .39]	-.11 [-.37, .15]
Rtim1 → LP	.74 [.53, .92]	-.20 [-.41, .01]	-.79 [-.93, -.61]	.10 [-.15, .31]
Rtim2 → LP	-.50 [-.71, -.28]	.75 [.53, .90]	.33 [.13, .54]	-.73 [-.78, -.54]
CF → Rtim → LP	.07 [-.09, .22]	.15 [-.01, .30]	.06 [-.07, .20]	.07 [-.07, .24]

Note. For **Tables V.3a-d**, CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception, Rharm = Rated harmony, Rrhyt = Rated rhythm, Rdyna = Rated dynamics, Rmel1 = Rated melodiousness, Rmel2 = Rated intervallic variation, Rmel = total indirect effect of rated melody, Rinst1 = Rated orchestration, Rinst2 = Rated performance practice, Rinst = total indirect effect of rated instrumentation, Rtim1 = Rated brightness, Rtim2 = Rated sharpness, Rtim = total indirect effect of rated timbre. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

[†]Marginally significant effect.

Table V.4a
Fixed Effects for CI → LF Parallel Mediation Model

Effect	Composer Intended (CI) States → Listener Felt (LF) States			
	Pleasure	Activation	Displeasure	Deactivation
CI → Rharm → LF	.08 [.01, .18]	-.02 [-.14, .03]	.10 [-.01, .32]	.01 [-.03, .08]
CI → Rrhyt → LF	-.02 [-.076, .004]	.06 [.02, .15]	-.04 [-.15, .02]	.06 [.003, .143]
CI → Rdyna → LF	.001 [-.02, .03]	.04 [-.01, .11]	-.001 [-.04, .03]	.06 [.01, .14]
CI → Rmel1 → LF	.03 [-.02, .11]	-.02 [-.11, .03]	.000 [-.10, .12]	-.01 [-.07, .03]
CI → Rmel2 → LF	.000 [-.01, .02]	-.02 [-.06, .01]	.001 [-.04, .05]	-.003 [-.04, .03]
CI → Rinst1 → LF	-.01 [-.04, .01]	.01 [-.03, .06]	-.001 [-.06, .04]	.004 [.03, .04]
CI → Rinst2 → LF	-.001 [-.04, .03]	.04 [.001, .108]	.003 [-.05, .07]	.01 [-.02, .07]
CI → Rtim1 → LF	.000 [-.03, .03]	-.001 [-.03, .02]	.02 [-.04, .11]	.003 [-.02, .04]
CI → Rtim2 → LF	.01 [-.03, .07]	.05 [.002, .143]	.01 [-.04, .09]	.02 [-.03, .09]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception, Rharm = Rated harmony, Rrhyt = Rated rhythm, Rdyna = Rated dynamics, Rmel1 = Rated melodiousness, Rmel2 = Rated intervallic variation, Rinst1 = Rated orchestration, Rinst2 = Rated performance practice, Rtim1 = Rated brightness, Rtim2 = Rated sharpness. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

Table V.4b
Fixed Effects for CI → LP Parallel Mediation Model

Effect	Composer Intended (CI) States → Listener Perceived (LP) States			
	Pleasure	Activation	Displeasure	Deactivation
CI → Rharm → LP	.08 [.01, .18]	-.02 [-.13, .08]	.12 [-.02, .39]	.01 [-.05, .08]
CI → Rrhyt → LP	-.02 [-.08, .02]	.08 [.01, .20]	-.06 [-.20, .02]	.07 [.004, .153]
CI → Rdyna → LP	.001 [-.02, .03]	.05 [-.01, .14]	.000 [-.05, .04]	.06 [.01, .13]
CI → Rmel1 → LP	.05 [-.004, .155]	-.01 [-.10, .05]	-.001 [-.13, .12]	-.001 [-.09, .05]
CI → Rmel2 → LP	.000 [-.02, .02]	-.02 [-.07, .01]	.000 [-.05, .06]	-.002 [-.04, .03]
CI → Rinst1 → LP	-.01 [-.05, .01]	.01 [-.03, .07]	-.002 [-.06, .05]	.01 [-.04, .05]
CI → Rinst2 → LP	.002 [-.04, .04]	.03 [-.01, .12]	.002 [-.05, .07]	.01 [-.02, .08]
CI → Rtim1 → LP	.000 [-.04, .06]	-.001 [-.02, .02]	.02 [-.07, .14]	.003 [-.03, .05]
CI → Rtim2 → LP	.01 [-.05, .08]	.05 [.002, .149]	.01 [-.04, .11]	.02 [-.04, .09]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception, Rharm = Rated harmony, Rrhyt = Rated rhythm, Rdyna = Rated dynamics, Rmel1 = Rated melodiousness, Rmel2 = Rated intervallic variation, Rinst1 = Rated orchestration, Rinst2 = Rated performance practice, Rtim1 = Rated brightness, Rtim2 = Rated sharpness. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

Table V.4c
Fixed Effects for CF → LF Parallel Mediation Model

Effect	Composer Felt (CF) States → Listener Felt (LF) States			
	Pleasure	Activation	Displeasure	Deactivation
CF → Rharm → LF	.07 [-.03, .18]	-.03 [-.22, .07]	.06 [-.02, .22]	.01 [-.04, .09]
CF → Rrhyt → LF	-.01 [-.07, .02]	.04 [-.03, .14]	-.03 [-.10, .02]	.04 [-.03, .15]
CF → Rdyna → LF	.000 [-.02, .02]	.06 [-.002, .158]	.000 [-.03, .03]	.09 [-.01, .22]
CF → Rmel1 → LF	.03 [-.03, .12]	-.03 [-.17, .06]	.001 [-.05, .08]	-.002 [-.08, .04]
CF → Rmel2 → LF	.000 [-.02, .03]	-.02 [-.09, .01]	.000 [-.03, .03]	-.02 [-.09, .03]
CF → Rinst1 → LF	.000 [-.03, .02]	.01 [-.04, .08]	.000 [-.04, .03]	.000 [-.03, .04]
CF → Rinst2 → LF	.000 [-.03, .02]	.06 [-.01, .17]	.001 [-.03, .05]	.01 [-.03, .07]
CF → Rtim1 → LF	.000 [-.03, .04]	.001 [-.02, .04]	.01 [-.04, .08]	-.01 [-.07, .03]
CF → Rtim2 → LF	.01 [-.02, .06]	.04 [-.01, .14]	.01 [-.03, .06]	.01 [-.03, .09]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception, Rharm = Rated harmony, Rrhyt = Rated rhythm, Rdyna = Rated dynamics, Rmel1 = Rated melodiousness, Rmel2 = Rated intervallic variation, Rinst1 = Rated orchestration, Rinst2 = Rated performance practice, Rtim1 = Rated brightness, Rtim2 = Rated sharpness. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

Table V.4d
Fixed Effects for CF → LP Parallel Mediation Model

Effect	Composer Felt (CF) States → Listener Perceived (LP) States			
	Pleasure	Activation	Displeasure	Deactivation
CF → Rharm → LP	.06 [-.03, .19]	-.02 [-.16, .14]	.07 [-.03, .26]	.01 [-.07, .11]
CF → Rrhyt → LP	-.01 [-.08, .03]	.05 [-.03, .18]	-.03 [-.14, .03]	.05 [-.03, .16]
CF → Rdyna → LP	.000 [-.03, .02]	.07 [-.002, .192]	.000 [-.03, .03]	.08 [-.01, .20]
CF → Rmel1 → LP	.05 [-.02, .16]	-.01 [-.04, .06]	.000 [-.04, .05]	-.001 [-.01, .07]
CF → Rmel2 → LP	-.001 [-.03, .02]	-.03 [-.10, .01]	.000 [-.03, .03]	-.02 [-.10, .03]
CF → Rinst1 → LP	.000 [-.05, .03]	.01 [-.03, .09]	.000 [-.04, .03]	.002 [-.04, .05]
CF → Rinst2 → LP	.000 [-.03, .04]	.06 [-.02, .17]	.000 [-.04, .05]	.01 [-.04, .09]
CF → Rtim1 → LP	.000 [-.05, .05]	.000 [-.02, .04]	.01 [-.05, .10]	-.01 [-.09, .03]
CF → Rtim2 → LP	.01 [-.02, .08]	.05 [-.01, .18]	.01 [-.03, .07]	.01 [-.03, .09]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception, Rharm = Rated harmony, Rrhyt = Rated rhythm, Rdyna = Rated dynamics, Rmel1 = Rated melodiousness, Rmel2 = Rated intervallic variation, Rinst1 = Rated orchestration, Rinst2 = Rated performance practice, Rtim1 = Rated brightness, Rtim2 = Rated sharpness. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

Table V.5
Moderation Effects

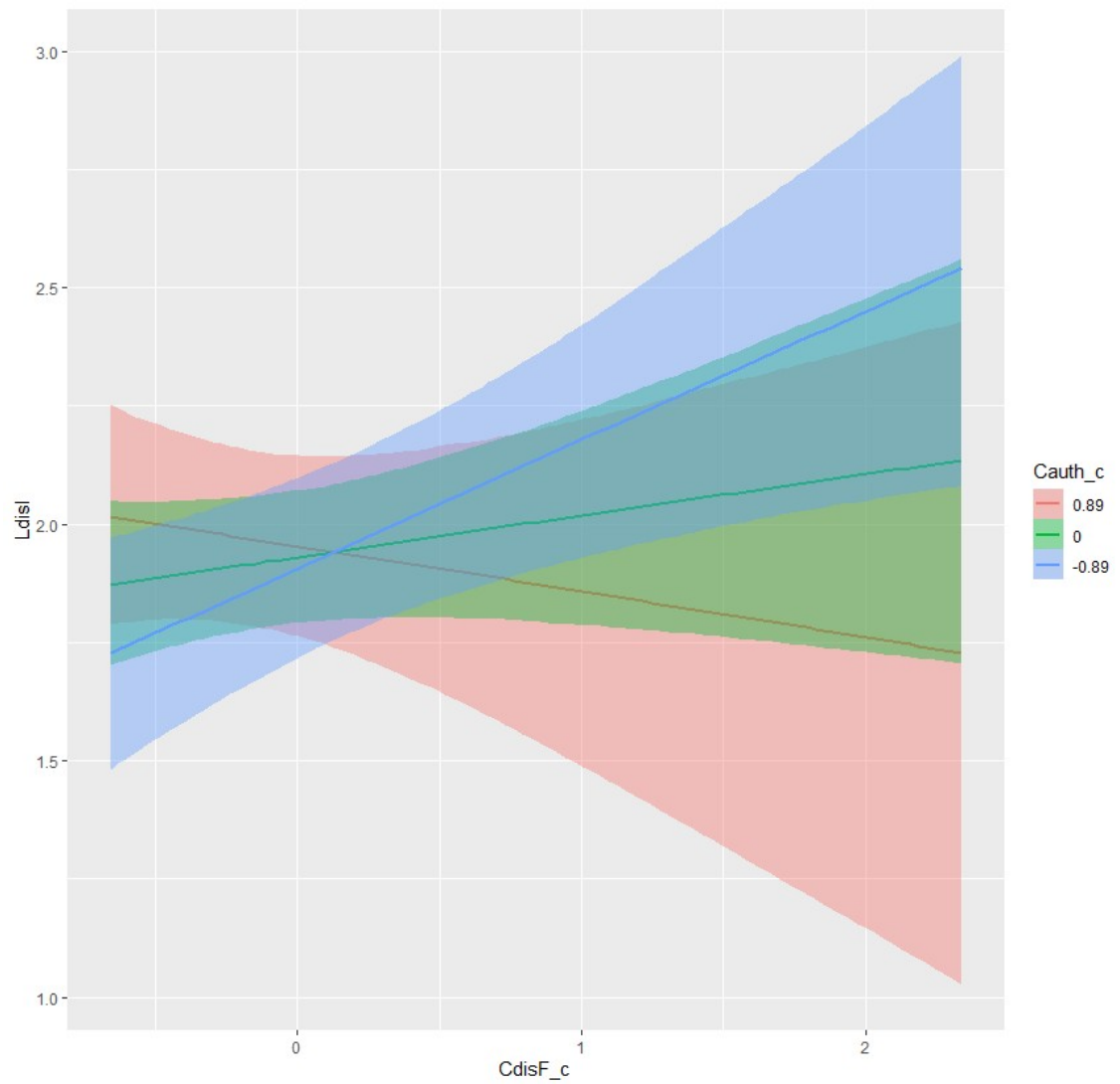
Effect	Moderators (↓)		
	Composer Authenticity	Composition Expressive Value	Listener Openness to Experience
CI → LF			
Pleasure	.03 [-.09, .15]	.13 [.01, .24]	-.07 [-.138, -.004]
Activation	.09 [-.05, .22]	-.01 [-.13, .11]	-.11 [-.18, -.05]
Displeasure	-.08 [-.31, .16]	-.04 [-.24, .16]	-.02 [-.11, .07]
Deactivation	-.04 [-.15, .08]	.14 [.02, .26]	-.08 [†] [-.155, .000]
CI → LP			
Pleasure	.02 [-.12, .15]	.13 [.005, .258]	-.11 [-.18, -.04]
Activation	.10 [-.06, .25]	-.02 [-.16, .13]	-.15 [-.22, -.07]
Displeasure	-.09 [-.36, .18]	-.05 [-.30, .19]	-.07 [-.16, .03]
Deactivation	-.03 [-.18, .11]	.15 [.02, .27]	-.11 [-.19, -.03]
CF → LF			
Pleasure	.02 [-.17, .21]	.10 [-.05, .25]	.02 [-.05, .08]
Activation	.02 [-.19, .22]	-.03 [-.18, .11]	-.10 [-.17, -.03]
Displeasure	-.18 [-.34, -.03]	-.09 [-.23, .06]	-.04 [-.11, .03]
Deactivation	-.06 [-.22, .10]	.16 [-.04, .36]	-.07 [-.14, .01]
CF → LP			
Pleasure	.01 [-.21, .22]	.09 [-.07, .26]	-.004 [-.070, .064]
Activation	.04 [-.21, .29]	-.02 [-.20, .16]	-.12 [-.20, -.04]
Displeasure	-.20 [-.38, -.02]	-.06 [-.23, .11]	-.06 [-.13, .01]
Deactivation	-.05 [-.24, .13]	.17 [-.04, .37]	-.08 [-.156, -.001]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception. [†]Marginally significant effect. Significant effects with 95% credible intervals [in brackets] excluding 0 are shown in boldface type.

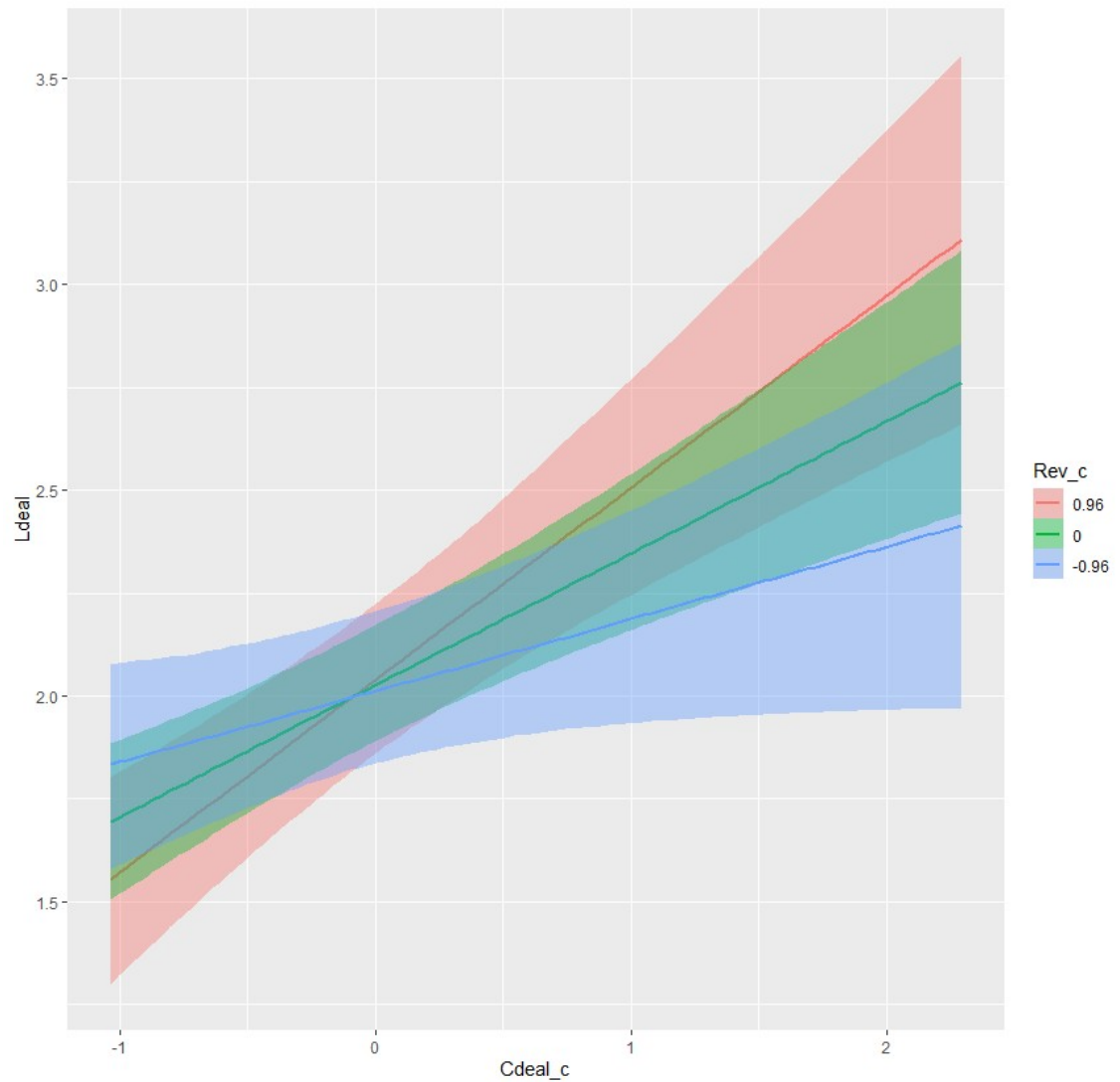
Figures

Figure V.1

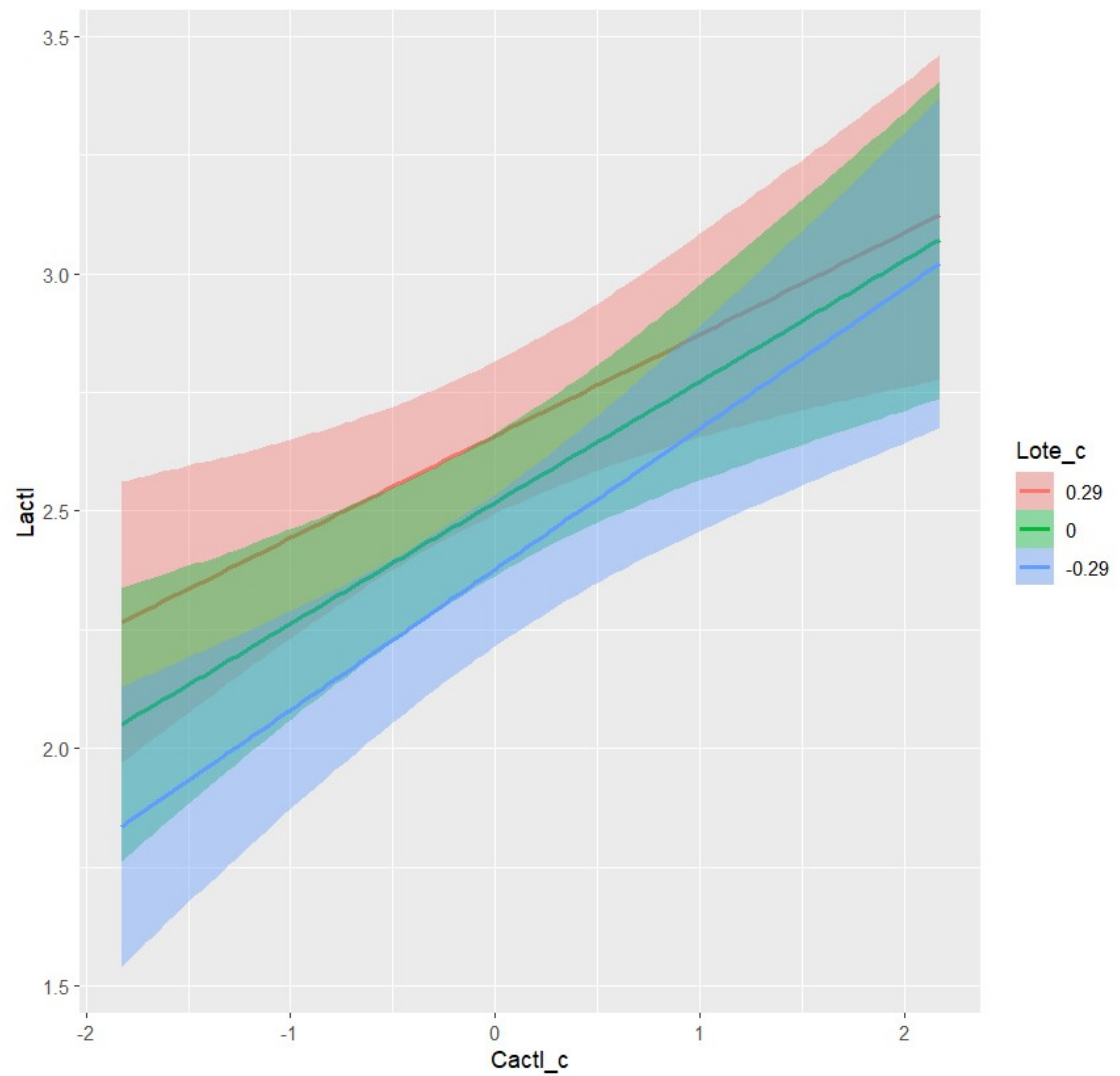
Conditional Effect of CF $\rightarrow$ LP Displeasure for Composer Authenticity



Note. Effect of composer felt displeasure centred (CdisF_c) on listener perceived displeasure (LdisI) conditioned on composer authenticity centred (Cauth_c) at +1 SD, SD, -1 SD.

Figure V.2*Conditional Effect of CI → LP Deactivation for Composition Expressive Value*

Note. Effect of composer intended deactivation centred (CdeaF_c) on listener perceived deactivation (Ldeal) conditioned on composition rated expressive value centred (Rev_c) at +1 SD, SD, -1 SD.

Figure V.3*Conditional Effect of CI → LP Activation for Listener Openness to Experience*

Note. Effect of composer intended activation centred (CactI_c) on listener perceived activation (LactI) conditioned on listener openness to experience centred (Clote_c) at +1 SD, SD, -1 SD.

Figure V.4

Response Surface for CI & LF Displeasure → Listener Emotion Intensity

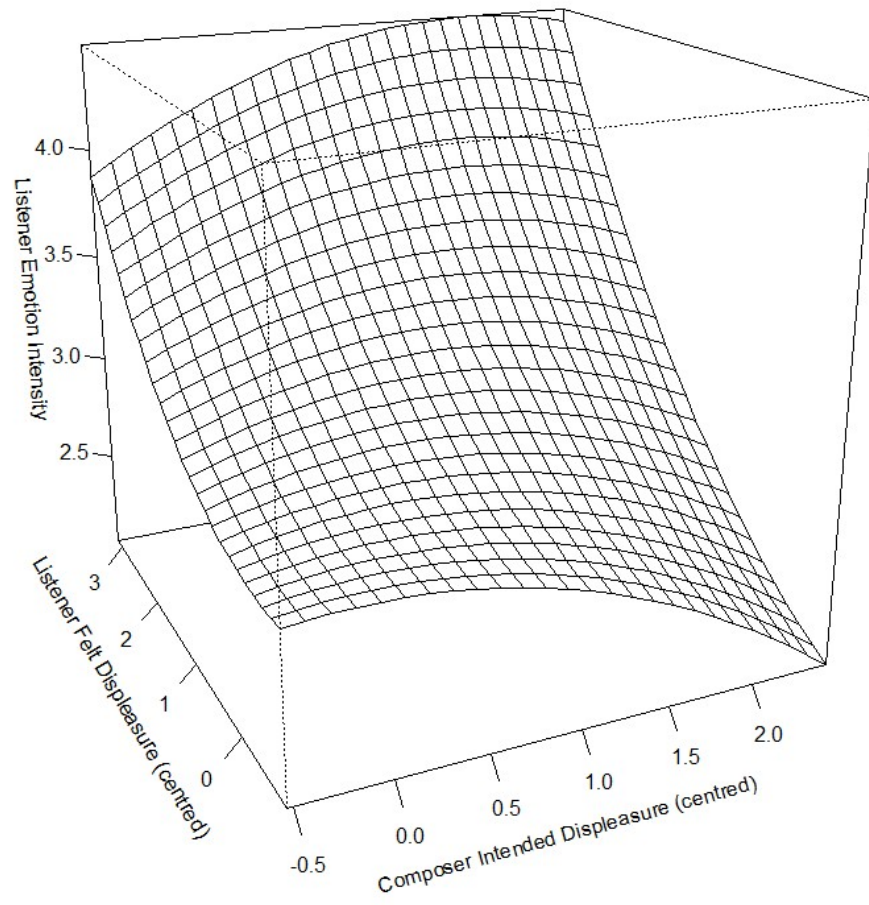
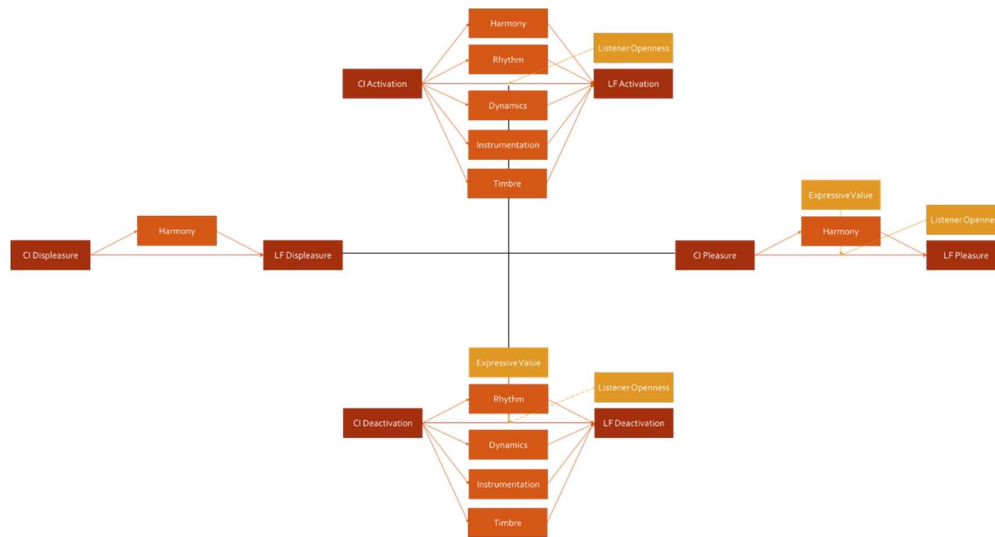
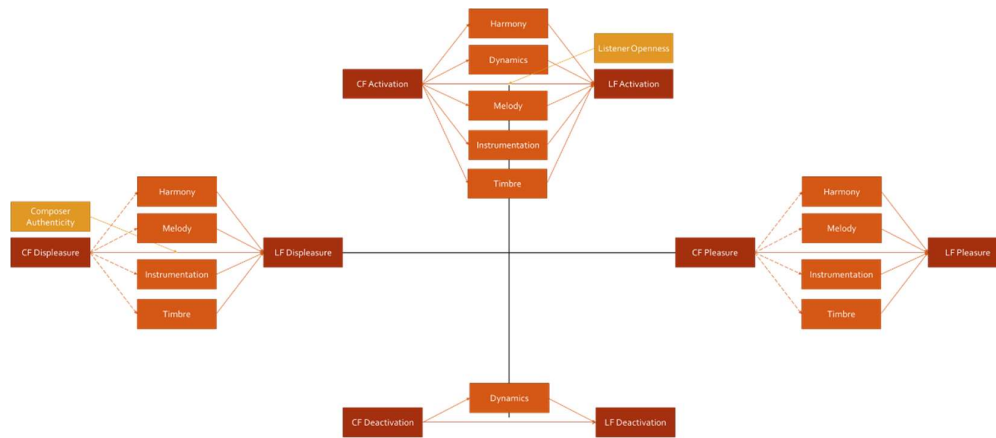
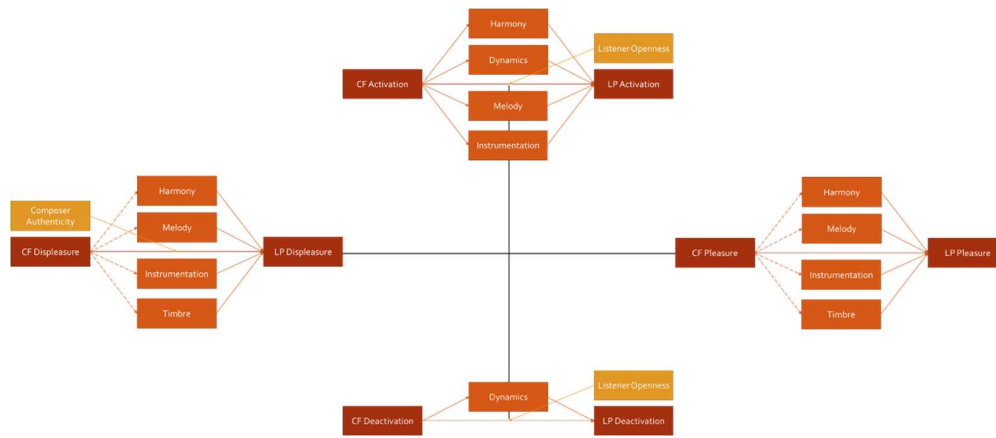


Figure V.5a-d*Overview of the Mediation and Moderation Results for Core Dimensions of Affect***a) Composer Intention → Listener Feeling****b) Composer Intention → Listener Perception**



c) Composer Feeling → Listener Perception



d) Composer Feeling → Listener Feeling

Note. The figures show a high-level overview of the significant mediation and moderation findings for each core dimension of affect in each composer-listener modality. Dashed lines represent effects containing 0 within the 95% CI.

Appendix V.A

Listener Questionnaire Measures

Preliminary Listener Questionnaire

Musical training. [*Control.*] Training binary: ‘Have you received any training (either formal or self-taught) in music? No/Yes’.

Music preference. [*Control.*] ‘What genre of music do you listen to most frequently? [Alternative, Blues, Western Classical, Eastern Classical, Country, Electronic, Folk, Hip-Hop, Jazz, Latin, New Age, Pop, Reggae, Rock, Traditional, Other, please specify]’.

Susceptibility to contagion. [*Moderator.*] Emotion Contagion Scale (Doherty, 1997).

Approach-avoidance. [*Moderator.*] Approach-Avoidance Temperament Questionnaire (Elliot & Thrash, 2010).

Personality. [*Moderator.*] Openness and Intellect aspects from Big Five Aspect Scale (DeYoung et al., 2007).

Demographics. Ethnicity: ‘What is your ethnicity? Select all that apply: [English/Welsh/Scottish/Northern Irish/British, Irish, Gypsy or Irish Traveller, White and Black Caribbean, White and Black African, White and Asian, Indian, Pakistani, Bangladeshi, Chinese, African, Caribbean, Arab]’; Gender: ‘With which of the following do you most identify? [Male, Female, non-binary or other gender (please specify), Prefer not to answer]’; Age: ‘How old are you? [18+]’.

Listening Questionnaire

For each excerpt:

Affective states. [*Outcome.*] For each trial, listeners will be asked to rate the states they felt in response to the excerpt: ‘During the musical excerpt, I felt...

‘tired, sluggish, dull’, ‘energetic, alert, excited’, ‘gloomy, down, sad’, ‘calm, relaxed, at rest’, ‘proud, enthusiastic, euphoric’, ‘happy, content, pleased’, ‘anxious, jittery, nervous’, ‘soothed, peaceful, at ease’, ‘tense, agitated, fearful’, ‘aroused, hyperactivated, intense’, ‘quiet, still’, ‘unhappy, troubled, miserable’, ‘full of awe, full of wonder, awestruck’ on a 5-point Likert intensity scale (*not at all to extremely*).

Listeners will also be asked to rate which emotions they think the composer was trying to transmit via the music using the same items regardless of whether the listener actually felt that emotion: ‘The composer intended to convey a sense of being...’ rated on a 5-point Likert agreement scale (*strongly disagree to strongly agree*).

Intensity. [*Outcome.*] Listeners will respond to a single intensity item: ‘How intense was your emotional response to the music?’ rated on the same 5-point Likert intensity scale as the affective measures above (*not at all to extremely*).

Chills. [*Outcome.*] Four items ‘In response to the music, I... ‘felt cold or felt a chill’, ‘felt a shiver or a shudder’, ‘had a tingling or ticklish feeling’, ‘had goosebumps or a hair-on-end feeling’ rated on a 7-point Likert intensity scale (*very slightly or not at all to extremely*). Composite chills formed by averaging across four items. (Adapted from Maruskin et al., 2012 Chills Scale)

Inspiration. [*Outcome.*] Four items: ‘I felt inspired’, ‘Something inspired me’, ‘I was inspired to do something’, ‘Something about the music inspired me’ rated on 7-point Likert intensity scales (*not at all to very deeply or strongly*). (Adapted from Thrash et al., 2017)

Authenticity. [*Mediator.*] One item: ‘In your opinion, is this musical excerpt an authentic expression of the composer’s intentions?’ rated on a 7-point Likert intensity scale (*not at all to very much*).

Liking and sharing. [*Outcome.*] Liking: ‘How much did you like the music?’; Listen again: ‘Some excerpts will be made available to participants at the end of the study with composers’ permission. How much would you like to listen to this excerpt again?’; ‘Some compositions will be made available in their entirety with composers’ permission. How much would you like to hear the whole piece of music this excerpt is taken from?’; Sharing: ‘How likely would you be to share this music with a friend?’; Valuation: ‘Composers who submitted their work to this study will have the chance to win a monetary award based on listener feedback. How worthy of the monetary prize is this excerpt?’ rated on a 7-point Likert intensity scale (*not at all to very much*).

Orientation. [*Control.*] Listeners will indicate how much they were focusing on technical or affective elements of the excerpt on a slider anchored at ‘technical (structure, instrumentation, etc.’ and ‘emotional (feelings, imagery, etc.’.

Appendix V.B

Supplementary Independent Mediation Analyses

In addition to the parallel mediation analyses presented in the main body of the text, I examined individual mediators independently to determine the specific aspects of different musical elements implicated in different MET processes. Using composites for each cardinal dimension of the affect circumplex, each mediator was modelled independently, either as a two-item composite or in parallel mediation depending on the convergence and reliability of the two dimensions of each (see Measures above). Indirect effects from the mediation models are presented in Tables V.3a-d. All effects are averaged across listeners.

Harmony mediated the effect of composer intended activation ($B = .05$ [.001, .117]) and displeasure ($B = .14$ [.02, .29]) on the respective listener felt emotions. Particularly, intended pleasure transfer was mediated by consonance and nearness to tonal centre, whilst activation and displeasure transfer were mediated by dissonance and remoteness from tonal centre. The effect of composer felt activation on listener felt activation was also mediated ($B = .10$ [.02, .21]) by harmonic dissonance and remoteness from tonal centre.

Harmony also mediated the effects of composer intended pleasure on listener perceived pleasure ($B = .13$ [.002, .261]) via consonance and nearness to a tonal centre as well as both composer intended ($B = .07$ [.01, .17]) and felt ($B = .14$ [.02, .31]) activation on listener perceived activation, both through dissonance and remoteness from the tonal centre. Tables V.6a-b show the fixed direct, indirect, and total effects for composer intended $\rightarrow$ listener felt and

composer felt → listener felt emotion mediated by harmony for illustrative purposes.

Table V.6a
Fixed Effects for CI → LF Harmony Mediation Models

Effect	Composer Intended (CI) States and Listener Felt (LF) States			
	Pleasure	Activation	Displeasure	Deactivation
Direct Effects				
CI → LF	-.005 [-.07, .07]	.152 [.05, .26]	.015 [-.10, .15]	.263 [.16, .37]
CI → Rharm	.597 [.04, .96]	-.527 [-.97, -.06]	-.887 [-.91, -.04]	.387 [-.24, .92]
Rharm → LF	.200 [.17, .23]	-.086 [-.14, -.04]	-.153 [-.19, -.12]	.107 [.05, .17]
Indirect Effects				
CI → Rharm → LF	.119 [.01, .23]	.044 [.01, .12]	.133 [.01, .29]	.039 [-.02, .11]
Total Effects	.112 [-.03, .23]	.207 [.08, .33]	.155 [-.04, .31]	.296 [.17, .43]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception, Rharm = Rated harmony

Table V.6b
Fixed Effects for CF → LF Harmony Mediation Models

Effect	Composer Intended (CI) States and Listener Felt (LF) States			
	Pleasure	Activation	Displeasure	Deactivation
Direct Effects				
CF → LF	.023 [-.06, .11]	.051 [-.10, .22]	.050 [-.06, .16]	.157 [.00, .31]
CF → Rharm	.477 [-.25, .90]	-.953 [-.98, -.26]	-.518 [-.99, .15]	.357 [-.47, .97]
Rharm → LF	.199 [.17, .23]	-.103 [-.17, -.05]	-.152 [-.19, -.11]	.125 [.06, .19]
Indirect Effects				
CF → Rharm → LF	.100 [-.05, .22]	.088 [.02, .22]	.081 [-.05, .20]	.044 [-.05, .15]
Total Effects	.123 [-.08, .30]	.158 [-.01, .31]	.127 [-.01, .28]	.189 [-.02, .40]

Note. CI = Composer Intention, CF = Composer Feeling, LF = Listener Feeling, LP = Listener Perception, Rharm = Rated harmony

Rhythm mediated the effect of composer intended activation ($B = .13$ [.05, .24]) and deactivation ($B = .13$ [.03, .24]) on the respective listener felt emotions. For activation transfer, composers used more dense and complex

rhythms, whilst for deactivation transfer, they used more sparse and simple rhythms.

Rhythm also mediated the effects of composer intended activation ($B = .15$ [.06, .28]) and deactivation ($B = .14$ [.05, .26]) on listener perceptions. The mediation for activation was carried through more dense and complex rhythms, whilst the effect for deactivation was carried through more sparse and simple rhythms.

Dynamics mediated the effect of composer intended activation and deactivation on respective listener emotional responses. Loud and varied dynamics mediated pleasure transfer whilst soft and static dynamics mediated deactivation transfer.

Dynamics also mediated the effects of both composer intended and felt activation and deactivation on respective listener perceptions. Listener perceived activation was predicted by louder and more varied dynamics whereas deactivation was predicted by softer and more static dynamics. The effect of composer felt deactivation on listener perceived deactivation was mediated by dynamics, $B = .16$ [.02, .33], especially softer and more static dynamics. The effect of composer felt activation ($B = .15$ [.03, .30]) and deactivation ($B = .17$ [.01, .34]) on the respective listener feelings was also mediated by dynamics, especially louder and more varied dynamics for activation and softer, more static dynamics for deactivation.

Melody mediated the effect of composer intended pleasure on listener perceived pleasure ($B = .12$ [.02, .27]) and composer felt activation on listener felt ($B = .11$ [.02, .23]) and perceived ($B = .14$ [.01, .33]) activation. Melodiousness

positively predicted listener perceived pleasure for composer intention and negatively predicted listener perceived activation for composer feeling.

Instrumentation mediated the effect of composer intended pleasure ($B = .08 [.004, .174]$), activation ($B = .08 [.02, .16]$), and deactivation ($B = .08 [.002, .166]$) on the respective listener feelings. Standard performance practice accounted for the significant indirect effect for pleasure whilst complex orchestration accounted for the significant indirect effect for activation. The effect of composer felt activation on listener felt activation was also mediated by instrumentation, $B = .14 [.01, .27]$, particularly complex orchestration.

Instrumentation also mediated the effect of composer intended activation on listener perceived activation ($B = .11 [.02, .21]$). Complex orchestration predicted listener perceived activation whilst simple orchestration, along with more standard performance practice, predicted listener perceived deactivation. The effect of composer felt activation on listener perceived activation was also mediated by instrumentation, $B = .17 [.04, .34]$.

Timbre mediated the effect of composer intended pleasure ($B = .10 [.04, .19]$), activation ($B = .09 [.02, .18]$), and deactivation ($B = .12 [.04, .21]$) on the respective listener felt emotions. Brightness predicted listener felt pleasure, whilst roundness accounted for the significant indirect effect. Sharpness accounted for the significant indirect effect for activation. Roundness accounted for the significant indirect effect for deactivation. Timbre also mediated the effect of composer felt activation on listener felt activation ($B = .11 [.01, .24]$) via sharpness.

Timbre also mediated the effects of composer intended pleasure ($B = .11 [.03, .20]$), activation ($B = .10 [.01, .23]$), and deactivation ($B = .13 [.04, .25]$) on

listener perceived affect. Listener perceived activation was predicted by sharper sounds, whilst listener perceived pleasure and deactivation were both predicted by rounder sounds.

Style, Pulse, Phrasing, and Use of Quotation did not significantly mediate the effects of either composer intention or feeling on listener felt or perceived emotions. Though similar evaluations mediated the transfer effects of positive higher affect states in past research (Thrash et al., 2017), expressive value functions as a moderator in the current study given the bipolar nature of specific dimensions of affect within the circumplex model used.

Chapter VI

General Discussion:

Hearing the Composer through the Music

This final chapter discusses the findings and implications of the of the foregoing four empirical studies. Those studies begin a research programme that aimed to establish a wider social framework for understanding musical emotion transfer (MET) by including composers as agents of intention and affect whose states influence those of listeners through their music. In particular, the findings of the research presented here provide a complement to the majority of current literature on musical emotions that has focused particularly on listener experiences by offering an account of composer-based antecedent factors and how they relate to expert judgements and listener responses. The results show that composer states influence listener states through music, which is here presented as a social medium rather than an affective stimulus. These findings thus fill gaps in the literature, which has heretofore neglected the role of the composer, and offer some novel contributions towards a more comprehensive understanding of how composers' intentions and emotions play a role in the cultural transmission and evolution of their work, particularly by offering a methodological approach that can empirically capture each critical stage of MET as well as the unique effects of locus in both composers and listeners.

The foregoing chapters have discussed the respective roles played by composer traits, intentions, and emotions in influencing the affective experiences of listeners to their music as well as the intermediary role of particular elements of music and the individual differences and contexts of listeners. These original studies were particularly aimed at linking composer intention and emotion with well-established areas of the literature examining listener affective responses to music. This present research builds on that literature to propose a social model of emotion transfer in music.

The literature has established listener perception of basic emotions in music to be reliable (Eitan et al., 2018; Gabrielsson & Juslin, 2003; Gabrielsson &

Lindström, 2001; Sloboda, 1991; Sloboda & Juslin, 2001), though emotional expression in music is not limited to basic emotions (Timmers, 2017) and some recent componential models of musical emotion are critical of the basic emotion approach (Cespedes-Guevara & Eerola, 2018; Lennie & Eerola, 2022; Scherer & Coutinho, 2013; see Chapter I) . The vast majority of empirical work on listeners' affective responses to musical stimuli examines particular aspects of the music itself independent of composer intentions (Gabrielsson & Juslin, 2003), though early theoretical works discuss different philosophies of composition and emotional meaning (see Chapters I and II). Moreover, though comprehensively reviewed (Gabrielsson & Lindström, 2001), the aspects of music examined have not yielded a clear-cut framework categorically linking particular musical expressions to specific discrete emotions (Timmers, 2017). In light of this, some commentators (Coutinho & Dibben, 2013; Juslin & Laukka, 2003; Scherer, 1986) have argued for a model parallel to vocal affect expression that includes physiological emotion responses to account for listener affective experiences. Such theories are recognised to account only for part of a more complex musical emotion mechanism (Cespedes-Guevara, 2023; Cespedes-Guevara & Eerola, 2018; Juslin, 2013; Juslin & Västfjäll, 2008), but they do implicitly suggest a signal being sent by a distal agent that is perceived as a form of affective communication by the listener. The current research seeks to develop a model for this transfer process by further extending the analogy with social theories of emotion sharing.

In such a model, the composer can be thought of as the signalling agent, just as the listener is the receiver of the signal. One of the core questions addressed by the present research has been whether it is the composer's intention,

feeling, or both that drives this signalling relationship. Building on the distinction made in the literature between listeners' perceived and felt emotions in response to musical stimuli (Gabrielsson, 2001a; Merrill et al., 2020), I propose a similar distinction of 'locus' in composers distinguishing intention from feeling, similar to that made in the visual arts by Pelowski and colleagues (2018). By examining composers' intentions as well as their feelings, I am not aiming to reduce the 'floating intentionality' of music (Cross, 2008); rather, I am attempting to consider on equal footing the antecedents of the musical characteristics that have themselves received so much attention as antecedents of listener experiences (Schubert & Fabian, 2014).

Having established that listeners have emotional responses to musical experiences and that composers must be involved in shaping those experiences, there remains the question of how the affective signal is conveyed from composer to listener in the music. Much ink has been spilt attempting to find a comprehensive model of acoustical parameters that can account for all of the variability found in music listening (see also Chapter I), but as has been demonstrated in the literature (Coutinho & Dibben, 2013; Eerola, 2011; Timmers, 2007), models that fit one musical work do not easily generalise. Without advancing a strong theoretical mechanism, I have attempted to address the question in terms of which musical elements actually (statistically) mediate the effects of composers' intentions and emotions on listeners' responses using an *a priori* set of candidates from the musicological literature and qualitative interview data from composers (Varga & Parkinson, 2024). These mediation models help address the question of composer intentionality and emotionality previously absent from the literature whilst also contributing to empirical and musicological

literature on the effects of particular musical elements on listeners' affective experiences. These findings are critical to linking up research on listener experiences with further investigation of the role of composers and the characteristics of compositions.

I also hope that they might shed light on the process of cultural transmission and evolution of music. Most music theorists and researchers agree that the appeal and 'power' of music comes from its ability to 'move' its listeners (Simonton, 2010; Timmers, 2017). This affective component is almost certainly responsible for the dominance of the music industry within the creative arts economy (Juslin, 2005; Lull, 1992; National Assembly of State Arts Agencies, 2020; Simonton, 2010). Despite this, very little empirical research has been conducted into how composers' intentions and feelings might predict these substantial economic and cultural outcomes. In the present research, I have conducted a preliminary investigation of the role of musical emotion transfer (MET) in listener liking, sharing, and valuing—helpful indicators of a larger process of cultural transmission. In particular, the role of inspiration—and its transfer between creators and consumers—has already been posited as central to this process (Thrash, 2021), suggestive of a role for core affect and other higher experiences in the domain of music. Whilst the present research has not compared these effects between societies or across cultures, the inherently cultural context of music means these findings are highly suggestive of their relevance in future work.

Core Findings

To examine the MET process from the composer's seminal idea through to the listener's response to it, I began with a grounded theory approach to collecting

and analysing qualitative interview data from composers to determine whether and how they engage with emotion in their work (Study 1). I used these data to inform the design of quantitative measures of composer traits, states, and creative outputs (Study 2). Again drawing on insights from the composer interviews, the latter were then rated by an independent panel of experts for musical and psychological qualities (Study 3). Finally, I combined these composer and composition data with data from a sample of international listeners using a cross-classified multi-level framework to model the effects of composer intention and emotion on listener affective responses, as mediated by musical qualities, and moderated by composer and listener traits (Study 4). I synthesise and discuss the findings and implications of these combined studies below.

The Composer

Study 1 involved collecting and analysing qualitative data from interviews with composers (Varga & Parkinson, 2024), from which three sets of evaluative parameters emerged. The first followed standard Western classical musicological terms to lay out the core elements composers might manipulate in writing music (e.g., melody, harmony, rhythm, dynamics, timbre, structure/form). The second emerged from the interviews themselves and described general approaches composers might take in their creative process; these were labelled intellectual, historical, and intuitive. The final set concerned philosophical distinctions made about the presence and place of emotion in music as debated by music theorists. These distinctions were made principally between formalist and expressionist theories contrasting intellectual aesthetic appreciation of musical form and the direct musical expression of emotion, and secondarily, between absolutist and

referentialist theories contrasting the origins of emotional response between the music itself and the representation of an external evocative object.

Of the 22 composers whose interview data I analysed (in Chapter II), the overwhelming majority endorsed the notion that music can express emotional meaning and reported engaging with affective content in their own or other composers' work. Though many initially demurred when asked directly about how they deploy and manipulate specific musical elements in service of conveying affective intentions in their music, most would readily discuss how they might teach a student composer to evoke specific emotions in their work. Working from a set of *a priori* index codes based on (Western) musicology and music theory in tandem with interview responses and suggestions from composers in the sample, I systematised the representational musical elements and composers' reported techniques for manipulating them into quantifiable measures that together offer a comprehensive overview of the core musical dimensions of a composition.

Composers were quick to dismiss the idea that emotional experiences from music solely result from learned associations between musical elements and affective responses. Formal complexity emerged from these conversations and the musicological literature as the more critical musical quality for transferring their intended emotions. As noted above, basic emotions are more reliably identified by listeners (Gabrielsson & Juslin, 2003) whilst more complex mixed emotions are less easily attributed to music (Sloboda, 1991; Sloboda & Juslin, 2001), but composers report being distinctly uninterested in creating single stable moods in their work so much as conveying, over time, complex and dynamic affective experiences for the listeners. These interview data helped me develop

the set of criteria on which expert listeners (in Study 3) would technically evaluate and psychologically appraise original compositions by offering a cross-reference for the traditional set of musical elements based in active composers' actual practice.

The composer interviews also helped shape the design of a quantitative survey of composers addressing individual traits and creative states as well as their affective intentions and felt emotions in the context of a specific, self-selected original composition. This study (Chapter III) built on the limited number of previous qualitative case and interview studies (Cochrane, 2013; Douek, 2013; Varga & Parkinson, 2024) specifically focusing on the role of the composer by contributing a novel quantitative social psychological approach to surveying composers' personality and affective intentions and states within their creative process. Building on the analogy of music as a social medium for sharing emotional meaning, a social psychological framework offers helpful insights for understanding the interpersonal sharing and regulation of emotions (Parkinson, 2011, 2019).

Social models of emotion necessarily involve an agent and a recipient of social emotional signals, however, requiring an empirical frame that includes composers in the MET context. A few experimental paradigms have sought to widen the empirical frame in this way (e.g., Sloboda & O'Neill, 2001), but these have largely focused on the social environment of the listener rather than the music itself as social medium. These frameworks are important to understanding how listeners' experiences vary as a function of musical elements and structure, interpretation and performance quality, listener individual differences, and social or cultural context (Cespedes-Guevara, 2023; Cespedes-Guevara & Eerola, 2018;

Scherer & Zentner, 2001; Timmers, 2017). Based on the qualitative data from composers (see Chapter II), however, many of the antecedent factors might be more directly influenced by the individuals writing the music than empirical literature has heretofore tested. By first studying the composers' creative processes (e.g., Study 2), a social MET model can directly account for this influence when examining listener variables (e.g., in Study 4).

The results of Study 2 provide quantitative evidence for the differentiation of composer affective intentions and feelings, along similar lines to the distinction between listeners' feelings and perceptions of emotion that has already been made in the literature (e.g., Gabrielsson, 2001a; Merrill et al., 2020). Whilst these findings corresponded to expectations about the interactive effects of valence, arousal, and 'locus' of emotion in an omnibus test of variance, they also provide a valuable insight into composers' creative process when integrated with the qualitative data from Study 1. For example, the quantitative data show a main effect of pleasant and activated states even whilst composers discussed in interview the difficulties of writing authentically happy music and the consequent perceived over-representation of sad and melancholic music, especially from younger composers.

As summarised more fully in Chapter 3, the findings of Study 2 are in dialogue with those of Merrill and colleagues (2020), who found that listeners' perceived emotional responses elicited stronger psychophysiological responses than felt emotions, suggesting that focus on the self distracts from the emotional experience of the music. On the other side of the music, however, composer data revealed a main effect of locus suggesting that they focus more on their intentions in the compositional process such that the impact of their felt emotions is reduced.

The pattern of composers' chills responses also seems consistent with the experience of Merrill and colleagues' (2020) participants who reported focusing on the chills as a marker of felt affect.

This measure of perceived psychophysiological responses also correlated with creative states like inspiration and effort. The positive, approach-motivating 'goosetingles' chills response was more closely associated with felt positive emotion and inspiration, whilst the negative, avoidance-motivating 'cold shivers' chills response was more closely associated with intended negative emotion. The divide of goosetingles and cold shivers by valence along the arousal dimension is consistent with theory (Maruskin et al., 2012), but the differentiation of the chills by locus as well is notable as this finding corresponds to a point of disagreement in the listener-based literature, where the chills have been associated with both strong felt emotions (Maruskin et al., 2012) and, contrastingly, perceived rather than felt musical emotions (Merrill et al., 2020).

Exploratory analyses help contextualise the creative states experienced by composers at each stage of the composition process—here divided into the seminal idea, the process of expressing the idea, and the process of revising the work, following precedent in the literature (Thrash et al., 2017). Consistent with theory, inspiration, rather than effort, was more relevant in the idea and expression stages whilst effort significantly increased during the expression stage but only overtook inspiration in the revision stage. Similarly, goosetingles remained the dominant chills response throughout the creative process but significantly dropped off during revision. Cold shivers started moderately high at the idea stage, significantly decreased at the expression stage, and remained low during revision.

These aspects of composers' creative processes provide valuable insight into the other side of affective musical experiences, differing from the usual listener-oriented perspective. The findings contribute to the literature by addressing important constructs in the study of inspiration and creativity in a new arts context and by particularly focusing on an understudied population within the broader music psychology literature. Whilst making a substantive contribution on their own for these reasons, however, these data provide an even more valuable window into the necessarily social aspect of MET when directly linked with listener data and quantitative measures of the characteristics of specific compositions.

The Music: Expert Ratings of Composition Characteristics

Past studies that have analysed the characteristics of compositions for their emotional content have typically focused on lower-level acoustic properties (see Gabrielsson & Lindström, 2001, 2010 for a review). It has also been noted (e.g., by Berlyne, 1974; Simonton, 2010) that many such empirical studies of aesthetics have relied on convenience samples of participants responding to artificial or laboratory-designed stimuli. In keeping with the social level at which I propose to study MET, I focused on the characteristics of composer-submitted composition excerpts that could be rated by (expert) listeners at the level of the musical elements and qualities identified in the composer interviews and literature (Chapter II) without acoustic analytic technology (the additional aid of which is discussed in the future directions below). Moreover, by drawing on audio excerpts submitted by composers as representative of their affective intentions, the present research overcomes some of the limitations faced by past research that has relied solely on stimuli sets specifically designed for experimental protocols. That

the panellists rating the musical elements and qualities of the excerpts in the present research possess expertise in music also provides a contrasting reference point for the responses of the general listener population sampled in Study 4.

Study 3 yielded two sets of results helpful in linking composer data (from Study 2) with listener data (in Study 4). First, two preliminary factors emerged in an exploratory factor analysis (EFA) of the experts' ratings of literature-derived musical qualities. These initial factors appeared to be readily interpretable along the expression-form distinction suggested by the musicological literature and the composer interviews (see Chapter II). Due to the sample size ($N = 47$) of submitted compositions, however, a confirmatory factor analysis (CFA) with acceptable levels of cross-loading and model fit proved impossible for a two-factor model. Instead, following a standardised procedure for dropping strong cross-loading items in the initial EFA, acceptable model fit was found for a single-factor CFA based on six indicators of what I labelled 'expressive value'.

The second set of results provided an early proof of concept for my theory of MET by showing that expert listeners' affect ratings were independently predicted by composer intended and felt emotions. In almost all cases, composer intention was the stronger predictor. These findings confirm that composers' intended and felt emotions are empirically distinguishable and are both implicated in the affective experiences of listeners. Awe, a higher aesthetic emotion, was a notable exception to the trend in that it was more likely to be experienced in listeners by transfer of felt affect than induced by transfer of intended affect (alone), suggesting a meaningful distinction between higher and basic emotions and their modalities of transmission.

The results from the panel of experts are suggestive of trends posited by my theory of MET to be generalisable to a population of naïve listeners. Whilst I have emphasised the importance of examining the role of composers in MET, the greatest proportion of variance within the combined cross-classified model was attributable to the composition $\times$ listener level. It is therefore critical to examine these signals as perceived and interpreted by listeners.

The Listener

Study 4 responds to the core question of whether listeners' affective experiences are predicted by composers' affective intentions and states—addressing a substantial gap in the current empirical literature. The study design builds on paradigms used to investigate creative writing (Thrash et al., 2017; Thrash, Maruskin, et al., 2010) and visual art (Pelowski et al., 2018). Drawing together the data collected from composers (in Study 2) and expert ratings of their compositions (in Study 3) with new data collected from 229 listeners specifically for this study, I investigated the real-world effects of composer states on listener states as mediated by musical elements and moderated by the traits of composers and listeners within a cross-classified multi-level framework. This approach addresses both immediate questions of whether and how emotion transfer takes place via music as well as broader theoretical questions about the function of transmission in culture.

As noted above (and see Chapter V), the cross-classified intraclass correlation (ICC) for each affective state indicates that some compositions were generally more emotive than others (at the composer-composition level), that some listeners were generally more affectively responsive than others (at the listener level), and a comparatively strong tendency for listener affective

responses to hinge on the pairing of particular listeners with particular compositions, where the largest proportion of variance is found. Complementing this finding, the ICCs at the composer-listener level show that composer intentions and composition characteristics account for a significant proportion of the variance, that would otherwise be overlooked in a purely listener-based study.

In response to the core aim of the present research, the findings of Study 4 establish MET effects as analogous to other basic emotion-sharing theories as applied in the musical context. Composer intentions and actual felt affective states did predict listener felt and perceived emotions, despite the lack of direct contact between composers and listeners beyond the audio excerpt of the composition itself. This finding was not true of higher affective states, such as awe and inspiration. Consistent with theory (see Chapter IV), composer intention to convey awe was insufficient to produce it in the listener, which was limited to only those cases where the composer felt awe in the first instance. Similarly, whilst the fixed effect of inspiration transfer was not significant, the 95% credible interval (CI) for the random effect excluded zero. Following the overall pattern of inspiration transfer in the literature (Thrash et al., 2017), this finding suggests that inspiration transfer is more dependent on characteristics of the individual composers and listeners than the transfer of core dimensions of affect.

Addressing the question of the mechanisms of MET, mediation analyses confirmed that musical elements (harmony, rhythm, dynamics, melody, instrumentation, and timbre) all individually mediated the transfer of different dimensions of affect. Harmony and rhythm both uniquely mediated the effect of composer intended pleasure on both listener felt and perceived pleasure. Rhythm also uniquely mediated the effect of composer intended deactivation on listener

deactivation. Dynamics uniquely mediated the effects of composer intended and felt deactivation on listener perceived and felt deactivation. Instrumentation uniquely mediated the effects of composer intended and felt activation on listener felt activation. Timbre uniquely mediated the effect of composer intended activation on listener perceived activation. The indirect effect of melody was notably only significant in individual mediation analyses, perhaps corroborating the hierarchical aspect of how composers described using melody in service to harmony in the qualitative data (see Chapter II). Higher states, such as aesthetic emotions and inspiration, were not mediated by musical elements, perhaps suggesting that these experiences are conveyed at a higher level than musical elements. For example, past research (Chapin, 2022; Thrash et al., 2017; Zangwill, 2022) has implicated sublimity as a strong candidate mediator. These results are also affected by individual differences of composers and listeners as noted above.

Individual differences play a differential role in MET effects for different dimensions of affect. For example, listener openness to experience had a negative buffering effect on MET, suggesting that listeners higher in openness might be less likely to get caught up in the affective experience of music in favour of approaching listening with greater discernment and attention to musical qualities. This interpretation is further supported by the finding that the intellect aspect of listener openness to experience particularly moderated the effect of listener perceptions as predicted, whilst also seemingly overcoming the effect of the openness aspect to predict listener felt intensity contrary to the hypothesised effect. Providing greater insight into these findings and consistent with the formalist and expressionist divide suggested in Chapter II, listeners more focused

on the affective and expressive aspects of the excerpts reported more intense emotional responses than listeners more focused on the technical and formal aspects.

The interaction effect between composer authenticity and MET was negative, such that compositions by composers lower in authenticity exhibited stronger MET effects, seemingly corroborating composers' reported experiences in both the qualitative (Chapter II) and quantitative (Chapter III) data. For example, composers indicated that they do not particularly feel displeasure when intending to convey it to their listeners, just as when they are feeling displeased, they do not necessarily want that emotion to come through in their music (Varga & Parkinson, 2024). Instead, it seems that composer trait authenticity moderates how effective composers are at sublimating their own feelings artistically. More authentic composers might intentionally express their true feelings in an artistic way that partially masks their raw emotions whilst less authentic composers might not intend to express their emotions artistically and therefore end up transferring their raw feelings directly and unobscured by artistic expression such that the MET effect is stronger.

Such expressions of intention and feeling might play a key role in cultural transmission and evolution as listener liking, sharing, and valuing proved to be strongly predicted by aspects of MET. For example, the intensity of listeners' emotional responses to a given excerpt predicted how much they reported liking it and how likely they were to share it with a friend. Emotional intensity did not, however, predict how much listeners valued a given excerpt, suggesting that MET plays a role in some aspects of cultural transmission but that emotional variables alone are not sufficient to predict aspects such as valuation. By asking listeners to

actively participate in the monetary award scheme for best compositions, I hoped to design a more ecologically valid paradigm to measure the real-world effects of listener valuation. Future research should model these listener outcomes as moderators of MET alongside related variables such as genre preference and musical training. Similar to composer genre preferences interacting with compositional approaches to expressing emotion in music, listeners preferences might also have an effect on listener affective engagement.

General Discussion

The emotional effects of music have captivated thinkers since at least the earliest extant examples of Greek philosophy and poetry (Aristotle, 2001a, 2001b; Bayer, 2019; Pindar, 1841; Plato, 1992). Whilst musical emotion research in empirical psychology has only substantially picked up in recent decades (L. B. Meyer, 2008), numerous constructs and models have arisen (e.g., Cespedes-Guevara, 2023; Cespedes-Guevara & Eerola, 2018; Huron, 2006; Huron & Margulis, 2009; Juslin, 2013, 2019; Juslin & Västfjäll, 2008). With the proliferation of relevant research concepts in any domain of psychology comes the responsibility to justify the theoretical grounds for proposing a novel development. The questions *what does a social psychological model of MET add?* and *why must it be social?* are very much present behind the current research programme.

It is first important to reiterate that when I refer to musical emotions as ‘social’, I am not likening them to the ‘social emotions’ (i.e., those complex emotions also known as “self-conscious” emotions such as embarrassment, pride, envy, shame, and guilt that serve interpersonal relational functions and are implicated in medial prefrontal cortex activation; Krendl & Heatherton, 2017;

Tangney & Fischer, 1995), but rather arguing that, like other types of affective experience (Parkinson, 1996), they are caused by interpersonal factors, have consequences for other people, and have an essentially communicative and cultural component that distinguishes them from internal, reactive phenomena. Thus, following the trend in emotion research more broadly, the present project has attempted to move beyond a well-developed body of research that has focused on individual (listener) reactions to consider how they might be properly social phenomena.

There is no reason to think that musical emotions are any different from other kinds of affective experience in this regard (Clarke, 2011, 2019); if anything, they are more explicitly socially oriented given their context within a communicative arts medium (Collingwood, 1938; Dewey, 2005; Dolese & Kozbelt, 2020; Juslin, 2005; Zaidel, 2020). One might object that the arts context studied in a unidirectional (creator → consumer) way does not capture the basic interactional aspect of the social paradigm. Most interpersonal emotional research, however, relies on similarly ‘one-sided’ experimental paradigms, where participants respond to stimuli evoking social emotional cues such as gesture, posture, facial expression, situational context, and verbal statements (e.g., Day et al., 2023; de Gelder et al., 2010, 2015; Hareli & Hess, 2010; D. H. Lee et al., 2013; Meeren et al., 2005; Van den Stock et al., 2007; Van Kleef, 2009). Whilst it is true that in my present cross-classified framework, listeners are only responding to composers’ work without the opportunity for composers to respond back, the naturalistic validity of the stimuli is, if anything, enhanced by the use of authentic, composer-selected composition excerpts that composers intend to be shared with an audience.

As is evident from the composer data in Studies 1 and 2, composers are very much aware of their potential listeners and have explicit intentions for what they are trying to convey. Moreover, my proposed social model of MET must be iterative, with composers responding to previous listener feedback (though the interview data reporting individual experiences of this should be supplemented by a future cross-lagged study). Composer intention is very much shaped by the role of audience response, whether imagined, anticipated, perceived, or actual. The feedback process in the arts generally thus implies a framework for audience influence that has both empirical and theoretical grounding (Boyd & George-Warren, 2013; Hargreaves et al., 2005)—with some philosophers making the strong claim that artists can be directly impacted in a morally significant way by the judgements and reactions of those receiving their work (Fraser, 2024).

Even in the absence of empirical operationalisation of composer reactions to audience responses, the current research demonstrates a genuine interpersonal transfer process as well as the correlates and motivators of expression and transmission. For example, returning to composers' creative processes, I observe (in Chapter III) the divergent trajectories of goosetingles and cold shivers through the stages of composition. Whilst approach-motivated goosetingles and inspiration—itself a hallmark of the translation of creative ideas into creative products (Thrash, 2021)—remained high during the idea and expression stages, avoidance-motivated cold shivers significantly decreased at the transition from the idea stage to the expression stage. As Thrash and colleagues (2017) assert, there are clear parallels between the literary concept of the 'author' or artist and the psychological concept of the 'self'—both the artist and the self find authentic voice in the creative context when inspired (Bowra, 1951; Thrash & Elliot, 2004).

Inspiration, however, is not sufficient on its own, but must participate in a motivated transmissive function. The decrease in cold shivers—which are considered to be a response related to existential dread (Maruskin et al., 2012)—is thus all the more suggestive that an important shift occurs once an abstract seminal idea is finally expressed. Expression, in this case via music, has significant implications for the self in relation to others, not only in the composer's confrontation of the blank staff, but also in facing the unwritten future (Thrash et al., 2017). Indeed, sharing one's personal story is often the inspiration to compose. Even as listener individual differences moderate their reception of the composer's work, the significant unique effects of composer intention and emotion in my findings suggest that Barthes's (1995) proverbial author is very much not dead. In fact, the composer's expression of those intentions and feelings, in this paradigm case, is a necessarily interpersonally directed, and therefore social, assertion of being.

Applications, Implications, and Future Directions

Music is socially ubiquitous, accompanying nearly all important human activities across cultures (Alcorta et al., 2008; Bennett, 2025; DeNora, 2000; Gregory, 1997). Informed by anthropological, ethnomusicological, and sociological perspectives and incorporating aspects of more functional psychological frameworks, a broader social psychology of music and emotion is a logical next step. Establishing the importance of a social model of emotion transmission in music within this context comes with a number of implications and lays the groundwork for future research across multiple domains.

The formation of societies around collective ritual and worship is a foundational sociological phenomenon (Durkheim, 1912, 1972). In ritualised

social contexts, rhythmic entrainment is a good natural facilitator of intragroup orientation calibration (Bernieri et al., 1988; McGrath & Kelly, 1986; McNeill, 1995; Parkinson, 2020) because it helps group members keep physical time in collective activities (Clarke, 2019; Parkinson, 2020). When individuals' movements become thus coordinated, the group itself becomes a social entity actively affording participation and in-group collective flow (Csikszentmihalyi, 1990; Durkheim, 1912; Páez et al., 2015; Sawyer, 2015).

Song, dance, and even soldiers marching (Bamford et al., 2023; Durkheim, 1972; Fessler & Holbrook, 2016; Goldstein, 1980; McNeill, 1995; Mora, 2019) are exemplary interaction rituals with an intrinsic and explicit musical element that also involve inherent collective symbolic significance (Parkinson, 2020). Music has long been associated with socially coordinated work, worship, and celebration, where its rhythmically entraining attributes and opportunities for controlled mimicry play a central role (Clarke, 2019). Examples span from the spiritual, folk, and sacred choral traditions (e.g., Heider & Warner, 2010) to team (Slater et al., 2018) and player-fan (Granström, 2012) cohesion in sports. Moving in synchrony induces interpersonal liking (Rennung & Göritz, 2016), a sense of shared intentionality (Reddish et al., 2013), and coherent group identity via intragroup orientation calibration (Collins, 2004; McNeill, 1995; Parkinson, 2020). These processes can allow for collective emotion convergence when group members commonly orient to emotionally relevant objects or engage in collectively meaningful activities, but are not always sufficient to elicit genuinely emotional effects independent of social appraisal and identity-related processes (Parkinson, 2020). When combined with taste-defined social identities that might be particularly relevant in the musical context (Bourdieu, 2006), the effects (and

potential future applications) of music-facilitated group convergence for social structures and movements are manifold (Hebdige, 1991; Y. A. Lee, 2022); a selection are discussed further below.

The combination of group flow (Sawyer, 2015), physical environment (Heider & Warner, 2010; Konečni, 2008; Thompson, 2006), and musical induction might help elicit a common emotional response. The sense of mutual support and empowerment shared in acts of ensemble music making and collective worship particularly might play a role in intragroup emotion convergence (Hopkins et al., 2016). Solidarity-inducing musical entrainment amplified by shared identity (Páez et al., 2015; Swann et al., 2012) and intentionality (Reddish et al., 2013) is likely involved in emotion induction and transfer as suggested by applications of interaction ritual theory (Collins, 2004; von Scheve & Salmella, 2014) to sacred music in liturgical settings (Heider & Warner, 2010). These factors are also relevant in the extension of individual creative flow, such as during improvisation (Limb & Braun, 2008; Rosen et al., 2024), to the collective of ensembles (Sawyer, 2005, 2015), where it might manifest as ‘chemistry’ (Reis et al., 2022). In these contexts, the individually absorbing process of improvisation or composition is interpersonally extended by the intention to share the music with others, amplified by joint participation in an intragroup collective action or intergroup musical interaction.

Performers and Audiences

Specifically with an eye to group dynamics as an extension of the MET model, an essential next step in understanding this process and its role in cultural transmission requires a more fine-tuned assessment of performers’ intermediary role in the process. Unlike other arts, significant subsets of music as a discipline

consist of creative outputs interpreted and performed by individuals and ensembles distinct from the individuals who created them—and moreover, often encountered via recordings, especially in Western classical contexts (Juslin et al., 2008, 2016). Performers thus constitute an additional social dimension of MET. As reviewed above and in Chapter I, affective psychology suggests two potentially critical phenomena for understanding group and intergroup emotion dynamics (see Parkinson, 2020): transfer and convergence both within a group (e.g., a choir or orchestra) and between multiple groups (e.g., a musical ensemble and an audience). Critically, within group dynamic processes also interact *between* groups when the collective affective experience of one group influences that of the other; just as audiences differentially respond to engaged or dispassionate performances, performers talk about the difference between receptive and bored audiences (Boyd & George-Warren, 2013 e.g., p. 146). Such dynamics have been studied (e.g., Konvalinka et al., 2011) in intense affective settings (e.g., fire-walking rituals), but not between performers and audiences in naturalistic music listening environments (but see Konvalinka, 2024 for ongoing work in this direction). Especially whilst researchers still debate whether vision or audition is more important in musical performance appraisal (Tsay, 2013), incorporating these phenomena into my current composer × listener framework is critical to understanding better the social transmission of emotional meaning in music, which in turn drives much of the industry’s cultural and economic impact (International Federation of the Phonographic Industry, 2025; Lull, 1992; National Assembly of State Arts Agencies, 2020) as further discussed in Chapter IV and below.

To measure these effects, future research might collect ensemble and audience member data using the same performance as the reference point for both (Konvalinka, 2024 proposes to take a similar approach). Data can be self-reported and collected using wearable electrophysiological measurement devices that interface with apps designed to track musical engagement (e.g., *Biih*, 2025). These data can be combined to model the effect of intra-ensemble dynamic emotion convergence on audience emotion experience whilst also examining the moderating role of individual differences. This methodology overcomes the limitation of artificial or laboratory-designed stimuli discussed above (see also Berlyne, 1974; Simonton, 2010) by integrating contemporaneous composer and performer products with listener responses to those same stimuli, thus tracking the real-world transmission of emotion content from intention to interpretation to reaction within the same social MET framework.

Cultural Transmission and Evolution

Expanding on the measures of listener liking, sharing, and valuing that I examined as preliminary indicators of the utility of the MET framework in the study of cultural transmission, future studies can also use methodologies similar to the present research beyond contemporaneous datasets from living composers to overcome the difficulty of tracking the affective impact of musical works across time. Such future work could integrate historical composer data with contemporary listener data to better model the transmission effects that occur frequently in naturalistic music listening (i.e., audio recordings of works by historical composers). Within the psychology of creativity, aesthetics, and the arts, there is already a well-established ‘historiometric’ tradition that adapts psychometric methods to examine data about historic individuals (Simonton,

2010, 2020). Such datasets are ripe for further exploration using more sophisticated analytic techniques. Future research could employ my cross-classified composer $\times$ listener MET framework to analyse this historiometric data with modern listener data to yield more informative indicators of composer $\rightarrow$ listener effects for emotional content and audience valuation, which will provide critical insights into the role of MET in cultural transmission and evolution.

Simonton (1977, 1977, 1995) compiled large datasets of historic composers and composition characteristics from reference works such as Barlow and Morgenstern's (1970) dictionary of musical themes, Gilder and Port's (1978) chronology of musical works, Halsey's (1976) compendium of popular recordings, and Moles's (1966) survey of musical listening. Simonton's preliminary work with these datasets focused on creativity and success in musical composers' careers with little reference to emotion specifically. One stream of this research using content analysis of historic compositions (e.g., melodic originality), however, has already established connections between quantifiable aspects of compositions, composer biographical antecedents (e.g., documented traumatic experiences, stress, ill health, end of life), and audience impact (e.g., frequency of performance or recording, aesthetic significance, listener accessibility), showing that the optimal level of affective activation lies along the middle of an inverted U 'Wundt curve' (Berlyne, 1971) representing maximal musical impact and audience-based success (Simonton, 2010; Steck & Machotka, 1975; Vitz, 1964). Such associations of melodic originality and arousal potential suggest there is much more to be gleaned.

By applying my cross-classified MET approach, it would become possible to use these historical and biographical data to reconstruct composer states as

predictors of modern listener responses, which in turn can be used to both predict modern valuation and compare it with records of historic listener valuation.

Building on these pre-existing historic samples, future research projects could construct newer and more detailed datasets of composer and composition attributes, now possible with the greatly expanded capabilities of AI-assisted data compilation. Whilst the present study has intentionally relied only on human-rated data, future studies could also implement additional technology-accelerated acoustic analysis. The combination of these methods with the historiometric approach would help advance research seeking to measure more fully the arc of listener affective responses to composer intentions over time as an important predictor of cultural transmission and evolution.

Theology and Higher Experiences of Music

As discussed above, for much of human history, the cultural role of music has been in ritual or theologically-inflected contexts in individual's lives and societies (see also Gregory, 1997). Parkinson (2020) notes that groups enduring over time tend to develop unique emotional climates that are typically maintained by traditions and collective practices coordinating the emotional orientations of their members. These social structures can be demarcated by taste-defined social identities (Bourdieu, 2006). Organized religion is certainly no exception (Durkheim, 1912; von Scheve & Salmella, 2014). The intimate association of music and religious ritual across all cultures suggests an important role for music in the evaluative conditioning of religious beliefs and symbols. Emotional responses to music may be instrumental in imbuing abstract symbols and beliefs with sacred and motivational meaning (Alcorta et al., 2008). Arguably, music has

historically and cross-culturally rarely been individual or secular (Becker, 2004; Ellens, 2008; Juslin & Sloboda, 2001).

Music has been and continues to be intimately associated with communal and religious ritual in societies as diverse as Australian hunter-gatherers, African agriculturalists, and American industrialists (Alcorta et al., 2008). In traditional societies, music and religion often have an inseparable relationship (Juslin & Sloboda, 2001). Even in modern, secular societies, music continues to play a fundamental role in both communal and religious ritual (Chaves et al., 1999; Huron, 2001). The relationship between social relations, spirituality, and music offers important insights into human emotional responses (Alcorta & Sosis, 2005). In a collective worship setting, where group members are similarly oriented to identity-related and emotionally significant objects, the role of music in emotion convergence both as an elicitor of emotion via the BRECVEMA⁷ framework (Juslin, 2013) and as a source of rhythmic entrainment is worth reconsidering in light of the social MET model presented here.

Rather than treating liturgical music as simply an agonist to the affective experiences of collective worship, a MET approach allows—requires, even—consideration of the directed intentionality of sacred music composers as having a significant role in shaping the emotions of ritual participants. MET is particularly relevant in these contexts as composers writing liturgical music almost always have a specific ritual function and intentionality in mind and frequently attempt to imbue their work with a musical and affective sense of the shared values and

⁷ Comprised of Brain stem reflex, Rhythmic entrainment, Evaluative conditioning, Contagion of emotion, Visual imagery, Episodic memory, Musical expectancy, and Aesthetic judgement, see Chapter 1.

beliefs they are seeking to augment, perhaps supplemented by their own faith-heightened inspiration as motivation. They invariably must give particular consideration to their intended listeners (who are themselves motivated to cooperate with composers' intentions), often with the explicit aim of elevating their emotional responses to a higher plane.

Music Medicine and Therapy

With refinements in functional neuroimaging techniques, the association of music and emotion, particularly the limbic and paralimbic correlates of music-evoked emotions, has increasingly become the focus of much speculation about music-based and -supplemented interventions for autonomic, endocrine, and immune system dysfunctions modulated by emotional processes (Koelsch et al., 2010). In the absence of a more robust and readily available means for marking and predicting emotional experience, however, many of these intervention approaches remain theoretical, pre-clinical, or limited by very small experimental samples. Similar to the liturgical context, music in medical contexts is most frequently used to help shape patient affective experiences in a particular way. MET offers one possible way of more finely tailoring music medicine treatments in these areas by allowing practitioners to take the interplay of composer intention and listener affectivity into account when targeting specific effects for intervention.

A helpful reference for the use of music in 'guiding' higher, non-ordinary experiences can be found in the burgeoning literature synthesizing music and psychedelic neuropharmacology (F. S. Barrett et al., 2018; Kaelen, 2017; Kaelen et al., 2015, 2016, 2018; Taves, 2020). That music and drugs often co-occur in collective rituals dating back centuries (millennia in some cases) should not be

surprising, but their combined use in modern medical practice is still very much a novel, and often controversial, development (F. S. Barrett et al., 2018; Vollenweider & Kometer, 2010). Independently, both music-based and pharmacological interventions have been found effective in treating affective, mnemonic, and motoric disorders. For example, studies suggest that musical interventions can significantly decrease symptoms of depression and anxiety along with associated fatigue and irritability while also increasing vigor (Koelsch et al., 2010), improve cognitive outcomes in Alzheimer's disease patients (Jacobsen et al., 2015), and improve gait and motor deficiencies caused by neurodegenerative diseases by modulating the activity of the basal ganglia (Koshimori & Thaut, 2018).

In light of these findings, neuropharmacology researchers have proposed mechanisms for the synergistic combination of music and psychedelics (Kaelen, 2017). These interventions typically follow a protocol similar to that developed by Carhart-Harris and colleagues (2016) wherein patients are given psilocybin and a playlist of music in a prepared therapeutic environment. Such playlists attempt to evoke specific desired emotions (Bonny & Pahnke, 1972), such as sadness and grief juxtaposed with hope, change, beauty, and personal empowerment (Carhart-Harris et al., 2016), with a 'narrative arc' corresponding to the different phases of the patient's experience with the drug. Patients' subjective experiences with the music (*e.g.*, aesthetic judgements of liking, preference, personal associations) uniquely predicted depression reduction, whereas drug intensity (by dose) did not (Kaelen, 2017). These findings have led researchers to search for more precise ways to predict patient emotion response and engagement, again offering an opportunity to further develop MET-based models of composer intentionality in

tandem with listener subjective associations to produce bespoke music-supplemented psychopharmacological interventions. These might one day take the form of MET-informed specially-composed therapeutic musical treatments targeting specifically prescribed emotional responses and affective regulatory processes or the use of composer intentionality (not unlike in sacred contexts) to specifically guide individual responses to certain psychoactive treatment regimens.

Commercial Marketing and Political Movements

Though there are many benefits to using MET models to more accurately target specific listener responses, such an approach is not without risks. The prediction and manipulation of emotion is one of the oldest strategies in the salesperson's handbook. The social psychological literature on this topic alone is substantial (e.g., Burger, 1999; Cialdini, 2014; Festinger, 1957; Salganik et al., 2006). In practice, audio and video advertising campaigns heavily rely on music to influence potential consumers' affective states—and regularly spend large sums of money securing just the right excerpt of music for their desired effect (Anglada-Tort et al., 2021; International Federation of the Phonographic Industry, 2025). The literature clearly shows the investment pays off as choosing the right music has been shown to influence consumers' cognitive and affective processing, mood, memory, purchase intentions, involvement, and attitudes (Anglada-Tort et al., 2021; Hecker, 1984; MacInnis & Park, 1991; North & Hargreaves, 2008). The professionals that companies rely on to make such selections typically consider four factors: the music, the listener, the listening situation, and the listener's advertising processing strategy (Lantos & Craton, 2012). The process is, however, complicated by the number of stakeholders and the complexities of

their highly subjective evaluations (Anglada-Tort et al., 2021), which is not to mention the dominant reliance on listener-level predictors.

MET models offer an opportunity to more accurately predict listener responses by accounting for more of the variability in listener reactions. Moreover, with the rise of adaptive marketing strategies that not only try to predict consumers' affective states but also use that data in real time to adjust targeted advertisements, the greater sophistication offered by the cross-classified MET model structure offers a completely untapped frontier to launch campaigns of dynamic, emotion-specific targeted advertisements with the full predictive power of composer intentionality and affectivity behind them. These implications and future directions primarily envision marketing a product, but could be as easily—and dangerously—used to peddle ideas.

The use of music in social movements and politics predates audio and visual broadcasting (Anglada-Tort et al., 2021; Bullerjahn, 2005; Furnham et al., 1997; Hettinger, 1933; Kellaris et al., 1993) by millennia. Some of the same mechanisms that motivate the use of music to facilitate entrainment and project formidability and cohesion in military contexts (Fessler & Holbrook, 2016) have been adapted to political campaigning, especially in a digital age facilitating the near-instantaneous spread of content to vast online audiences (Grüning & Schubert, 2022). In these contexts, music brings people together and facilitates entrainment and other intragroup cohesion activities (McNeill, 1995; Parkinson, 2020; Reddish et al., 2013), but it can also be powerfully divisive when harnessed to form groups that define themselves as antithetical to an othered outgroup (Harwood, 2017). The use of MET models to even more directly and adaptively target specific groups by tapping into and seeking to align their affective states

along partisan lines raises concerns about how knowledge of intentionality can be used to further manipulate individuals and populations. Here, it is important to consider who is listening to whom (Waltham-Smith, 2024) and raise further questions about the autonomy and independence of composers from the way their music is used by others (Linford & Perzanowski, 2024). Taking seriously the question of composer intentionality is vital to these ongoing debates.

Music and Film Industries

Though MET models promise widely applicable benefits for better understanding the impact of music on individual listeners and broader societies in light of composer intentionality, the novelty and impetus of this approach is precisely to allow for this overdue shift of focus back to the composer by highlighting the importance of creators. The focus on listeners extends well beyond the academic literature; composers⁸ have increasingly struggled to keep pace with the rapidly evolving music industry. As I have noted throughout this thesis, the vast majority of the economic and cultural impact of the music sector seems directly attributable to composers' ability to 'make people feel things', yet composers, as a group, have typically received the least credit and compensation for their contributions (DiCola, 2013; Dowd & Park, 2024; García et al., 2020). They are also having to defend their rights to their own work in an age of digital streaming (Priest, 2021), substantial imbalances in power over copyright assignment and termination (Brennick, 2018), algorithmic approaches to melodic

⁸ And performers, to an extent, though treatment of this topic will have to be left to future work for the time being; see subsection on 'Performers and Audiences' in this chapter.

similarity and acoustic plagiarism (Müllensiefen & Pendzich, 2009), and AI music generation (Magowan, 2023).

A slightly different phenomenon can be observed in the film industry, where in recent decades, the fame (and correspondingly, fortunes) of some score composers has begun to rival that of directors. Composers such as John Williams (*Star Wars*, *Harry Potter*, *Indiana Jones*, *Jurassic Park*), Howard Shore (*The Lord of the Rings*, *The Hobbit*, *Twilight*), and Hans Zimmer (*Pirates of the Caribbean*, *Inception*, *Interstellar*) have earned celebrity in their own right through their vital collaborative work animating some of the largest film franchises of the 20th and 21st centuries partly through the revival of large orchestral scoring. Much like the composers of sacred music, film scorers are tasked with engaging their listeners in an affective experience partially determined by an external orientation. In this sense, their intentionality is subsumed within a broader, collaborative vision, yet as demonstrated in the earliest interviews I conducted (see Chapter II), these composers are some of the most articulate in expressing how their intentions and techniques shape the affective experiences of their listeners. Indeed, many studies have demonstrated just how much of a difference the accompanying musical score can make to audience perceptions of an on-screen scene (Cohen, 2010; Hoeckner et al., 2011). Film composers, then, should perhaps be the most reassured by the findings of the present research, as it empirically confirms that what they put into their work independently transfers to their audiences—something many expressed as a worry in interview (Varga & Parkinson, 2024). Building on these findings, future work should more specifically examine the interactive roles of both composer and director

intentionality and affectivity in film and questions of collaborative arts media more generally.

AI-generated music, however, remains a troubling quantity to classify. Earlier incarnations of artificially generated music used a set of pre-determined rules to generate⁹ outputs conforming to the *given* parameters (Worth & Stepney, 2005). The results were such that most listeners could identify that something (perhaps creativity, inspiration, artistry, or intentionality) was missing (Fernando et al., 2024). Modern AI technologies, however, now rely on machine learning algorithms that have been trained on datasets that might include the complete corpuses of hundreds of composers, allowing for the generation of outputs matching certain *learned* parameters (Carnovalini & Rodà, 2020; Ji et al., 2023). Aside from the legal battles over composers' rights to their creative content used to train the algorithms as well as the question of whether a non-human entity can generate something protected by copyright laws (Brennick, 2018; Magowan, 2023), I find the MET framework draws into sharp focus the much bigger question of what can be considered music.

I propose the following condition for consideration: the potential for interpersonal (i.e., social in the strict sense of 'between *persons*') transmission of

⁹ I intentionally use the term 'generate' in this context to reserve the use of 'create' to persons covered by the following premises:

There is a potential power to create in every person.
 Individual differences influence whether and how that potential is actualised.
 Those who do actualise this power engage in a process resulting in products.
 The qualities (e.g., originality, utility, and non-obviousness) of the product can be (non-consensually) recognised by (some) others through emergent appreciation (Varga, 2021).
 The products can be appraised on these qualitative dimensions by those others to determine the degree of what can be called 'creativity'.
 The degree of creativity is at least partly determined by cultural context.

both intended and incidental emotion (in line with Johnson, 2024, and consistent with the idea that the context in which music is heard and felt is necessarily human; see Chapter I). Some artists who use AI have argued that it is simply a tool that functions like an artist's studio assistants to help them complete their work (Zhou, 2023), but this seems to overlook the fact that even studio assistants are human creators with social intentions. It is the more extreme and increasingly common case, however, that I find most alarming: when the only human input is to prompt an AI generator to produce an entire (through-composed) output. In this case, there may be a vestige of human intentionality in the original and subsequent prompting of the AI, but there is no affective intentionality in the creation of the output itself; neither is there any potential for social transmission as the actual creation has taken place via an algorithmic processor that cannot function as an autonomous agent capable of authentic expression no matter how sophisticated the impersonation of these attributes becomes. As Bowra (1951) wrote 75 years ago, we must maintain our ability to “discriminate between authentic poetry and mere verse, between the real thing and the manufactured article, between *le vers donné* and *le vers calculé*, between what has a strangely unreckonable power and what is merely apt and adequate” (p. 3).

Conclusion

These cases indicate some potential next steps MET research could take whilst also underscoring the important contributions this framework can make. In the foregoing chapters, I have identified the relative absence of empirical literature on composers' role in this social process, developed a framework for bridging this gap, designed an experimental approach to test my hypotheses, and synthesised my findings with the existing literature. Within this approach to MET, I have

demonstrated that composers' intentions and emotions uniquely predict listeners' feelings and perceptions. I have shown that elements of music mediate these effects and that traits of composers and listeners moderate them. I have also explored key questions about composers' creative processes and what they might reveal about the role of MET in the cultural transmission of music. Taken together, these findings both elaborate upon proposed mechanisms of emotion in music and underscore the important role of composer creativity and expression in, what I argue is, a necessarily social context. The MET framework thus makes a substantive contribution to the psychology of emotion in music and restores the importance and dignity of the human composer's affective intentionality and expression.

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Relevant Research Outputs

GRANTS & AWARDS:

2026	Association for Psychological Science Convention Grant
2025	Christ Church Graduate Research Grant Chris Elliss Award and Research Grant Thrash Inspiration Research Grant
2024	Christ Church Graduate Research Grant
2022-2024	John & Daria Barry Scholarship and Research Grant
2021	Oxford Experimental Psychology Research Training Support Grant

PUBLICATIONS:

Varga, P.J., & Parkinson, B. (2024). Mechanisms of musical emotion transfer: Insights from 22 composers and the musicological and psychological literature. *Journal of New Music Research*, 53(5), 383–398. <https://doi.org/10.1080/09298215.2025.2481852>

PRESENTATIONS:

Refereed Conferences

Varga, P.J. & Atkins, S.J. (2026, July 9-10). *Hearing the composer through the music: Musical emotion transfer as social expression*. [Paper presentation]. 10th Conference of the Royal Musical Association Music & Philosophy Study Group, All Hallows College, Dublin City University, Dublin, Ireland.

Varga, P.J. & Parkinson, B. (2026, May 28-30). *Musical emotion transfer from composers to listeners*. [Paper presentation]. 38th Association for Psychological Science Convention, Barcelona, Spain.

Varga, P.J. & Parkinson, B. (2025, July 16-18). Musical emotion transfer from composers to expert listeners. [Poster presentation flash talk]. In **P. Varga** (Chair), *Specific emotions*. 10th Conference of the Consortium of European Research on Emotion, Grenoble, France.

Varga, P.J. & Parkinson, B. (2025, May 22-25). *Inspired affects and effortful intentions: Composer traits and states in music creation*. [Poster presentation]. 37th Annual Association for Psychological Science Convention, Washington, DC, United States.

Varga, P.J. & Parkinson, B. (2024, July 17-20). *Mechanisms of musical emotion transfer: Insights from composers*. [Paper presentation]. 2024 Conference of the International Society for Research on Emotion, Belfast, Northern Ireland, United Kingdom.

Varga, P.J. & Parkinson, B. (2024, May 23-26). *Tracking emotion transfer in music: The important role of composer affect and intention*. [Poster presentation]. 36th Annual Association for Psychological Science Convention, San Francisco, CA, United States.

Varga, P.J. (2023, November 17). *From Muse to Score: Tracking the Mechanisms of Musical Emotion Transfer in Composers*. [Paper presentation]. Oxford Art & Science Network: 'From Canvas to Code: Art, Science, and Innovation in the Digital Age', Wolfson College, University of Oxford, Oxford, United Kingdom.

Varga, P.J. (2023, October 11). *How playing music with others can promote self-transcendent wellbeing*. [Paper presentation]. Flourish Network Launch Conference, Royal Northern College of Music, Manchester, United Kingdom.

Invited Talks

Varga, P.J. (2026, July 13). *Music, psychology, and human flourishing*. [Invited talk]. Summer Springboard, St Stephen's House, Oxford, United Kingdom.

Varga, P.J. (2025, November 14). *How is emotion transferred through music?* [Invited talk]. Bishop Vaughan Catholic School, Swansea, United Kingdom.

Varga, P.J. (2025, July 30-August 3). *Sharing grounds: Art, knowledge practices, and the making of communities*. [Invited talk]. KUNE Festival, Ungdomsøen, Copenhagen, Denmark.

Varga, P.J. (2025, July 30-August 3). *Making music with others: Community and transcendence*. [Invited talk]. Moved: The Role of Art in Feeling and Belonging, KUNE Festival, Ungdomsøen, Copenhagen, Denmark.