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The Use of Visual Imagery in Music Performance

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Abstract

This thesis presents three studies that develop understanding of the role of visual imagery (VI) in music performance and education, investigating its use in music performance and teaching from musicians' perspectives. The first study, based on an online survey of musicians, provided an overview of the general characteristics of VI, showing variations in its frequency, intensity, types, and perceived helpfulness. The findings further revealed that these characteristics were linked to musical factors (e.g., the emotional content of a composition, musical elements, and genres) as well as musician-related factors (e.g., emotional state, performance context, and familiarity with the music). Building on these findings, the second study explored the relationships between VI, music, and emotion from performers' perspectives in a performance context. The results demonstrated that the dyadic and triadic interactions among these elements form a dynamic recursive process, in which each shapes the others within an interpretive loop that often supports performance. The third study employed an action research approach to explore the role of VI in music teaching, showing that VI can play an important role in the communicative process between teachers and students, fostering musical understanding, expressive development, emotional engagement, and cross-cultural exchange. Taken together, these studies provide new insights into the ways VI operates in musical contexts and offer practical recommendations for its pedagogical application. At the same time, limitations such as the small sample size and narrow range of genres highlight the need for larger, more diverse studies across cultural contexts. Future research should also examine practical applications of VI in performance and education, including strategies for its intentional use. Overall, this thesis offers a performer-centred perspective on how VI relates to music and emotion in both performance and pedagogy, while underscoring the need for context-sensitive approaches and further empirical investigation.

Keywords: Visual imagery, music performance, music pedagogy, emotion, music perception

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Dedication

I would like to dedicate this thesis to my parents, Yiping Xu and Xiaojun Qi, with heartfelt thanks for their constant love and support. I deeply love you both.

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Chapter One - Introduction

Background and Context

I started my piano learning journey when I was five years old in China. In my childhood lessons, my teacher often used metaphors to explain musical and technical skills. For example, to teach me the correct hand position, he said: "Imagine you are holding an egg in your hand." This simple image helped me to understand how my hand should feel on the piano keys. Later, when I studied piano performance in China, I worked with a tutor who was a very visual person. She often communicated with me through descriptions of imagery. I still remember that when I was performing Brahms's Intermezzo in A Major, Op. 118 No. 2 (Andante teneramente), I could not find its expressive quality. She told me: "Try to imagine something in your mind, see something, otherwise you will never find your musical expression." After this, I began to consciously use imagery when I practised. Over time, these images began to appear unconsciously, and imagery also became a tool for communication between me and my tutor. When I began to teach piano myself, I also used imagery and metaphors, especially with children. I found them very effective in helping students understand music and improve both expression and technique. However, at that time, I did not realise that what I was doing was connected to the concept of visual imagery, nor did I have a clear understanding of VI as a theoretical idea.

This changed when I came to the UK to study for my master's degree. There, I was introduced to music psychology and performance science. I began to learn about the role of imagery in performance and became more aware of the images I had always used in my own playing, learning, and teaching. As I read more literature, I noticed that much of the focus was on listeners' use of imagery. This made me start to wonder: do music performers also experience and use visual imagery in their practice and performance? Is it useful for other musicians, not only for me, in developing expression, learning technique, and communicating in performance and education?

These reflections on my personal experiences ultimately led to my PhD project, which aims to explore the use of visual imagery in music performance and education. In this research, the term musicians is used in a specific sense. Although some definitions include both listeners and performers, in this paper, the term musicians refers exclusively to music performers. Specifically, the focus is on individuals who have received years of musical training (Sloboda, 2005) and possess the ability to perform musical instruments or have received formal training in singing (Hallam, 2010). Accordingly, the scope of this study centres on performers and performer-related learning and teaching contexts.

Visual Imagery in the Context of Music

Visual mental imagery refers to the ability to recreate and manipulate visual representations in the mind without any external stimulus, often described as “seeing with the mind’s eye” (Ganis & Schendan, 2011). Visual Imagery (VI) in music has been broadly defined as the experience of “seeing” in the absence of immediate sensory input while listening to or making music (Taruffi & Küssner, 2022). As one sensory modality of mental imagery, VI provides a medium through which both listeners and musicians generate music-related images in their minds (Herff et al., 2021). The content of musical VI ranges from simple pictorial representations (e.g., colours, landscapes) to embodied image schemata (e.g., perceiving melodic motion as rising or falling, or visualising bodily gestures), as well as more complex cinematic-like narratives (Taruffi & Küssner, 2019).

Existing research has categorized VI according to musicians’ experiences, distinguishing between spontaneous imagery, heuristic imagery, and strategic (or goal-directed) imagery (Taruffi & Küssner, 2019; Presicce, 2022). Spontaneous imagery refers to images that arise passively or involuntarily during music making or listening, such as daydreams or mind-wandering (Taruffi & Küssner, 2019). These forms of imagery are common in musical contexts and can be influenced by the content of the music (Koelsch et al., 2019), the listener’s emotional state (Martarelli et al., 2016), and the music performance environment (Deil et al., 2023). Heuristic imagery involves images that actively shape aspects of playing and are often used in musical practice and teaching to support

problem-solving (Leech-Wilkinson & Prior, 2014; Woody, 2002). In this way, heuristic imagery provides teachers with a valuable strategy for facilitating musical understanding. Presicce (2022) further emphasized its role in fostering creativity and helping musicians to expand their expressive capacities. Finally, strategic imagery, also referred to as conscious or goal-directed imagery, denotes mental images deliberately focused on specific performance outcomes. This type of imagery is frequently employed to aid memorization (Ginsborg, 2004; Saintilan, 2014), support mental rehearsal (Ross, 1985), and reduce performance anxiety (Connolly & Williamon, 2004; Finch et al., 2021). These categories of VI provide an overview of the different formats in which imagery can occur. Taken together, they illustrate the multifaceted ways VI contributes to music practice, performance, and education, highlighting its roles in spontaneous experience, creative exploration, and purposeful skill development.

In this study, VI is defined as the visual images that musicians generate in their minds while engaged in music performance, practice, learning, or teaching, whether these images emerge spontaneously or are consciously applied in practice. The focus is in particular on how VI is experienced and employed by musicians, and on how it becomes part of the performance or teaching process, both during music making and in retrospective reflection. My conceptualization remains broad and inclusive, acknowledging that VI overlaps with related constructs often used in the literature, such as mental imagery, metaphor, and visual capacity. For my purposes, these constructs are considered part of the wider scope of VI in music.

Visual Imagery and Emotion

Research suggests that VI and emotion are closely intertwined in music contexts (Taruffi & Küssner, 2019). Emotional responses to music can influence both the quality and outcomes of the imagery that is evoked, while, in turn, VI itself may elicit or shape emotional reactions (Taruffi & Küssner, 2022). However, an important question that arises is how VI and emotion interact within musical experience, and in what ways this relationship influences musicians' music expression. This section reviews the relevant literature and discusses this relationship.

Firstly, the relationship between emotion and VI is illuminated by the theoretical framework of Juslin and Västfjäll (2008), which outlines six mechanisms through which music induces emotion, one of which is VI. According to this framework, listeners may generate mental images corresponding to the music, and these images in turn evoke emotional responses. Thus, the predictions are that music elicits VI, and VI influences emotion. Supporting this view, Day and Thompson (2019) argued that emotionally intense music can activate anticipatory mechanisms that evoke imagery related to past, present, and future behavioural states, thereby influencing emotional responses. Similarly, Taruffi et al. (2017) found that “images (compared with words) were the dominant modality in both sad and happy music” (p. 6), highlighting the strong link between VI and listeners’ perceived emotions in music. In line with this, studies employing music with contrasting valence have shown that music validated as “happy” tends to induce more positive and vivid forms of VI (e.g., daydreams) than music validated as “sad” (Martarelli et al., 2016; Taruffi et al., 2017). Further evidence comes from research on mood and mind-wandering in music listening. Deil et al. (2023) examined live performance contexts and reported that negative mood states were associated with both more frequent mind-wandering and more negative imagery content. Beyond involuntary processes, voluntary use of VI has also been shown to affect emotion. For example, Küssner and Eerola (2019) noted that VI can be intentionally employed to modulate emotional arousal, enabling listeners to feel calmer or more energised. This is consistent with findings from Cespedes-Guevara and Dibben (2022), who demonstrated that imagery evoked by listeners plays a significant role in shaping music-induced emotional responses.

Furthermore, evidence also suggests that VI may be evoked by emotion. Day and Thompson (2019), through repeated-measures experiments comparing temporal changes in participants’ emotional experiences and visual imagery while listening to music, found that other mechanisms linking music to emotion tend to precede VI. Specifically, recognition of emotion occurred first, followed by the emotional experience itself, and only then by visual imagery. Similarly, Presicce and Bailes (2019) examined listeners’ emotional engagement and perceptions of VI during classical music

listening. By asking participants to continuously report their engagement and VI experiences, they demonstrated a clear correlation between emotional engagement and imagery, with statistical analyses showing that emotions significantly predicted the occurrence of VI. This finding supports the notion that VI often follows, rather than precedes, emotional responses (Küssner et al., 2019).

Further evidence is provided by Day et al. (2020), who investigated music-evoked VI using the Positive and Negative Affect Schedule (PANAS) alongside demographic measures. Their analysis revealed strong compatibility between music-evoked VI and emotion, reflected in participants' descriptions of imagery content. Based on these findings, they proposed that emotional responses emerge prior to VI, shaping its content. Taken together, these studies highlight that emotions may not only precede but also directly influence the imagery generated by listeners during music listening.

For musicians, VI has been shown to play a significant role in shaping performance experiences. Clark et al. (2012) reported that musicians described imagery as providing a preview of performance, allowing them to experience the situation in advance, complete with its associated emotions and feelings. Similarly, Woody (2002) argued that metaphorical imagery can effectively support musicians in conveying appropriate emotion and rhythm. Experimental evidence further supports this view: Woody and McPherson (2010) found that musicians frequently rely on VI to evoke and enhance the emotional quality of their performance. More detailed discussion of how musicians employ VI in practice will be provided in the following sections of this chapter.

However, VI can also have negative effects. In some cases, imagery may distract listeners and musicians, interfering with their ability to fully engage with or appreciate music (Taruffi & Küssner, 2019). This suggests that not all VI is beneficial for emotional expression; rather, the appropriateness and timing of its use are critical. Schaerlaeken et al. (2019) likewise argued that VI should not be considered universally advantageous in performance contexts. Supporting this perspective, Davidson-Kelly (2014) drew on Bernardi's (2013) study of a pianist, which revealed that the piano performers relied most often on auditory, structural, motor, and notational imagery, while

visual imagery was used the least. Therefore, paying attention to the potential negative aspects of VI is important, as this not only deepens understanding of its functions but also informs its practical application in music performance and teaching.

Although many studies have examined the relationship between VI and emotion from the listener's perspective, relatively little research has focused on this relationship from the perspective of musicians. In addition, the potential negative influences of VI remain underexplored. These questions are addressed in Study 1 (Chapter 2) and Study 2 (Chapter 3).

Visual Imagery and Music Performance Expression

Music performance expression is conceived as a multi-dimensional phenomenon. Juslin (2003) proposed the GERMS model, which consists of five facets of expression: "(a) Generative rules that function to clarify the musical structure; (b) Emotional expression that serves to convey intended emotions to listeners; (c) Random variations that reflect human limitations with regard to internal time-keeper variance and motor delays; (d) Motion principles that prescribe that some aspects of the performance (e.g. timing) should be shaped in accordance with patterns of biological motion; and (e) Stylistic unexpectedness that involves local deviations from performance conventions." (p. 273). In the context of music education, Bonastre et al. (2017) investigated factors related to conceptions and beliefs about expressivity in music among students and teachers, and highlighted three factors, which are expressive technique, emotional expression, and self-learning of expressivity. In this study, music performance expression is understood and explored mainly in terms of expressive technique and emotional expression.

Musicians often employ VI to enhance performance expressivity in both practice and performance (Clark et al., 2016). In relation to emotional expression, Persson (2001) describes visualization as the use of powerful mental images (e.g., imagining a frightened child or envisioning the death of a loved one) to evoke and convey affective intensity (cited in Woody & McPherson, 2010). Similarly, Presicce (2022) emphasizes that VI represents a versatile tool available to musicians for music performance. Within music education, several studies have explored the role of imagery as

a pedagogical strategy for developing expressive performance, with teachers frequently integrating imagery-based approaches into their instruction (Woody et al., 2024; Meissner, 2017; Karlsson & Juslin, 2008; Lindström et al., 2003; McPhee, 2011; Schippers, 2006). For example, Leech-Wilkinson and Prior (2014) argue that musicians' use of heuristic imagery and metaphor can be particularly effective for communicating expressivity, noting that certain metaphorical or image-based descriptions may provide more flexible and useful shared understanding than technical descriptions of expressive features. Meissner (2021) reviewed existing research and highlighted that visual imagery can be used both to illustrate musical character in support of technical instruction (Woody, 2006) and to evoke emotional responses in musicians (Woody, 2000, 2006; Lindström et al., 2003; Schippers, 2006). This suggests that visual imagery plays an important role in developing multiple aspects of musical expressivity. Nevertheless, research remains limited regarding how visual imagery contributes to expressive performance. These issues will be discussed further in Study 2 (Chapter 3) and Study 3 (Chapter 4).

Cross-Cultural Encounters in Music Education

Music is both a social and cultural product, and metaphor-based musical understanding is shaped by culture (Wolfe, 2018). In educational contexts, this implies that the strategies teachers employ, including the use of VI and metaphor, are interpreted by students through the lens of their own cultural backgrounds. Bonastre and Timmers (2021) pointed out that students' cultural backgrounds influence their acceptance of and beliefs about teaching strategies, including the use of imagery and metaphors. Wolfe (2018) similarly argued that culture shapes how individuals experience and cognitively process music, which is then reflected in the kinds of imagery they use. For example, in Europe, musicians commonly describe pitches as "high" or "low," whereas in parts of Africa they may instead be described as "big" or "small" (Schippers, 2006). Such culturally grounded metaphors demonstrate how different communities conceptualize sound.

However, it also underscores the need for cultural sensitivity in the application of VI. As Zorzal and Soares-Quadros Jr. (2021) emphasized, universal assumptions about how imagery is

perceived can be misleading, and uncritical use may result in misunderstanding or misinterpretation. Thus, cultural context becomes a critical factor in determining which instructional approaches are effective. Building on this perspective, Barton and Riddle (2022) suggested that teachers should actively draw on learners' socio-cultural backgrounds and experiences to create meaningful connections between imagery, musical knowledge, and practice. They further argued that integrating VI with other pedagogical strategies can strengthen the link between students' cultural contexts and the development of musical skills, thereby positioning imagery not only as a cognitive aid but also as a culturally responsive teaching tool.

The existing research indicates that when VI is used to understand and interpret music, it inevitably carries cultural characteristics, and learners' cultural backgrounds influence how they experience and respond to it in an educational context. This highlights the need for teachers to adapt their use of imagery according to students' backgrounds and requirements. However, limited research has examined the role of VI in teacher–student communication within cross-cultural contexts, or how its use may actively shape teaching and learning experiences. These issues will be explored in depth in Chapter 4.

The Use of VI in Music Performance and Education

Building on the potential functions of VI in music performance and education, research has further examined its application in these domains. Firstly, VI is commonly used as a form of mental rehearsal in music practice and rehearsal. Musicians may, for example, imagine the performance environment (Trusheim, 1991) or mentally simulate hand movements (Bernardi et al., 2013; Ross, 1985). In addition, VI has been employed as a strategy for music memorization, supporting recall by allowing musicians to depend less on individual notes and more on holistic mental representations of sound and movement. Saintilan (2014) demonstrated that such performance imagery acts as an intermediary between score knowledge and execution, a finding echoed by studies showing VI's usefulness for memorization strategies (Chaffin & Imreh, 2002; Ginsborg, 2004). VI has also been shown to enhance performance execution and coordination. Keller (2012) argued that imagery can

facilitate planning and control of musical actions, with positive effects on timing, intensity, articulation, and intonation, while also enabling musicians to anticipate others' actions in ensemble contexts. Similarly, Leech-Wilkinson and Prior (2014) suggested that VI allows musicians to align anticipated sounds with imagery, thereby supporting adaptive action and expressive interpretation, a process refined through extensive experience. Finally, VI has been linked to arousal regulation and music performance anxiety. Finch et al. (2021), through the development of the Musician's Arousal Regulation Imagery Scale (MARIS), demonstrated that musicians' mastery imagery involves both low- and high-arousal strategies, highlighting its nuanced role in building self-efficacy and managing anxiety in performance contexts.

In music education, VI has similarly been shown to play a valuable role across several domains. First, it concerns expressive performance, where VI is used to enhance emotional expression, memorization, technical skills, and anxiety reduction (Schaefer, 2022; Meissner & Timmers, 2020). Woody et al. (2024), for example, demonstrated experimentally that descriptive imagery instruction can effectively foster more expressive performance, providing empirical support for imagery-based pedagogy. Secondly, VI functions as a pedagogical strategy, particularly through teachers' use of imagery and metaphor to adapt instruction to the diverse needs of students. Zorzal and Soares-Quadros Jr. (2021) found that imagery and metaphor were more frequently employed in guitar masterclasses with advanced students and noted that gender dynamics may also influence their use. Similarly, Wolfe (2018) observed that students' cultural background and musical familiarity shaped the effectiveness of imagery and metaphor in performance teaching. These findings underscore the importance of teachers tailoring imagery-based approaches to foster student comprehension and engagement in music teaching contexts. Finally, VI has been explored in the context of multimodal learning, where it interacts with auditory and motor modalities to support deeper musical understanding. Davidson-Kelly et al. (2015) used methods to internalize auditory, motor, and visual aspects (i.e., the score), creating "Total Inner Memory." This multimodal representation of the score, when securely created, arguably frees up cognitive resources during

performance by reducing heavy memory load. In addition, Williams (2019) proposed an Audiation Practice Tool (APT), which aims to explore the musical meaning of a phrase through multimodal exploration using gestures and visual imagery, rather than focusing on the mechanics of playing.

Taken together, existing research demonstrates that VI functions as a versatile pedagogical tool in music education, enhancing expression, supporting adaptive teaching strategies, and enriching multimodal learning. It has been shown to aid rehearsal, memorization, expressive development, and the reduction of music performance anxiety, while teachers' use of VI often requires adaptation to students' levels, cultural backgrounds, and familiarity with music. Moreover, the multimodal nature of VI has inspired the development of tools and approaches that combine imagery with other modalities to support learning. Despite these advances, limited research has systematically examined how these functions converge in practical educational contexts or how VI operates within the teaching process itself—for example, in music performance teaching or as a potential agent shaping learning experiences. These problems will be investigated in Study 3 and discussed in Chapter 4, which seeks to investigate the role of VI in music performance teaching.

Research Questions

The overarching aim of this thesis is to explore the role of VI in music performance and education. This aim is addressed through three targeted studies, each focusing on a specific subquestion. The first study (Chapter 2) investigated musicians' experiences of VI by examining its frequency, intensity, and types; how these vary across musical contexts; and the extent to which VI is perceived as helpful or unhelpful. This study provides a broad exploration of the characteristics of musicians' experienced and used visual imagery, as well as the factors influencing these characteristics. The second study (Chapter 3) was developed alongside the first study and shares a common theoretical focus on visual imagery in music performance; however, its specific emphasis on the relationship between VI, music, and emotion was defined prior to data collection for the first study. Study 2 therefore extends the investigation of VI within a practical performance context by examining how imagery and emotion interact to shape performance experiences. Building on the

combined theoretical and pedagogical implications found from the first two studies, the third study (Chapter 4) examined the use of VI in music education, focusing on how teachers and students employ it in communication, learning, and interpretive work. Together, these studies address the following research questions:

1) When is music-related visual imagery most frequent or intense? What is visual imagery related to? And how do contextual, emotional and musical factors influence this? When is visual imagery experienced as helpful or unhelpful?

2) What is the relationship between VI, music, and emotion, and how does it impact music performance?

3) How is VI used in music performance teaching, how do students and teachers experience its use, and how may it influence learning and communication between them?

By addressing these subquestions from musicians' perspectives and across both performance and educational contexts, the thesis provides a comprehensive understanding of VI's role in music performance.

Linkage of Papers

Paper One - Exploring Relationships Between Visual Imagery, Music, and Emotion During Music Performance: A Survey Study

Paper One (Chapter Two) presents the findings of Study 1, a survey study that examined both closed- and open-ended questions designed to explore musicians' experiences of VI. The study investigated the type, frequency, intensity, and perceived helpfulness of VI, as well as the potential relationships among these elements and other factors that may influence musicians' experiences or use of VI. The closed-ended questions provided an overview of the general patterns of VI among musicians and the factors that shape these experiences. Thematic analysis of the open-ended responses offered deeper insights, highlighting the complex and multifaceted ways in which VI arises during performance. These findings serve as a foundation for further exploration in Study 2, which more deeply investigates the relationships between VI, music, and emotion. As a self-report online

survey, Study 1 extends understanding of how musicians experience and use VI during performance, and it points to promising directions for further research in both music performance and music education.

Paper Two - Relationships Between Visual Imagery, Emotion, and Music During Music

Performance: An Exploratory Study

Paper Two (Chapter Three) presents the findings of Study 2, an exploratory investigation into musicians' experiences and interpretations of the relationships between VI, music, and emotion in performance. This study progresses from general self-report in Study 1, using a questionnaire, to a more in-depth investigation of occurrences in a musical context. The findings demonstrate dyadic associations between music (musical background and features) and VI, as well as between emotion (both felt and expressed) and VI. Furthermore, the results reveal a triadic interplay among music, emotion, and VI, indicating that each domain both shapes and is shaped by the others in dynamic and nuanced ways. These insights aim to advance theoretical understandings of the role of VI in musical performance and highlight its potential practical applications. In particular, the findings suggest that VI may be effectively integrated into pedagogical practices to foster deeper connections between musical and emotional understanding among students. Overall, this study provides theoretical and pedagogical implications that inform the development of Study 3, which investigates the role of VI in music performance teaching.

Paper Three - The Role of Visual Imagery in Communication Between Teachers and Students

During Music Performance Teaching

Paper Three (Chapter Four) presents the findings of Study 3, an action research investigation into the role of VI in music performance teaching, examined from the perspectives of both teachers and students. Building on the potential functions of VI identified in Studies 1 and 2, this study situates VI within an educational context to explore its application and effectiveness in real teaching and learning settings. The action research approach allowed for a deeper examination of how VI can be implemented and experienced during actual teaching sessions. The findings suggest that VI plays

a significant role in the teaching and learning process, enhancing musical understanding, supporting the development of musical expressivity, and facilitating shared cross-cultural understanding between teachers and students. Moreover, the results indicate that VI functions as a flexible and dynamic pedagogical tool; when applied intentionally, it fosters shared meaning and strengthens communication in music performance teaching. Overall, this study extends the exploration of VI into the domain of music pedagogy, demonstrating its potential to enrich teaching practice and student learning.

My Positioning in This Research

My positioning within this research is informed by my overlapping identities as a musician, educator, and bilingual researcher. These roles impact how I designed the studies, engaged with participants, and analyzed the data.

As a musician, I drew upon my own performance experience to engage in discussions on performance recording procedures and materials selection in Studies 1 and 2 with Professor Renée Timmers and Dr. Sarah K. Watts. My performance background also enabled me to analyze participants' piano playing by combining the musical elements, and to ask some follow-up questions in response to their think-aloud reflections.

As a music learner and educator, I contributed to Study 3 (Chapter 4), which adopted an action research approach. In this context, I engaged in discussions and planning around teaching strategies in the focus group, particularly with regard to incorporating visual imagery into pedagogy. My dual perspective as an educator and a researcher allowed me to build rapport with participants and to elicit deeper insights into their experiences of music learning.

As a Chinese bilingual researcher with proficiency in both Chinese and English, I was able to conduct interviews with Chinese participants in their native language. This facilitated more fluent and authentic expression of their views, reducing potential linguistic or cultural barriers and thereby enhancing the reliability of their responses. I translated the transcripts directly into English, aiming

to minimize the risk of inadvertently misrepresenting the content or meaning during the translation process (Braun & Clarke, 2021).

At the same time, I remain aware that my positioning introduces potential biases. My background as a musician may have led me to privilege certain interpretations of participants' performances, while my educator role might have influenced the kinds of teaching strategies, I found most compelling. Similarly, as a bilingual researcher, my translation choices carried interpretive weight that may have impacted how participants' voices were represented in English. I addressed these issues through discussions with supervisors and by triangulating findings across data sources to reduce the influence of any single perspective.

In sum, my positioning, as a musician, educator, and bilingual researcher, enabled me to approach the research from multiple vantage points. However, it also required ongoing reflexivity to ensure that my expertise, cultural background, and personal experiences informed, rather than unduly constrained, the knowledge produced in this study.

Together, these studies seek to develop a more comprehensive understanding of VI in music performance and education. The survey data in the first study provides a broad overview of VI's frequency, intensity, types, and perceived helpfulness, while also identifying factors that may influence its use. Building on this foundation, the exploratory study in the second study aims to provide an in-depth exploration of how musicians experience and interpret the relationship between VI, music, and emotion in the specific musical context. Finally, action research in pedagogical settings aims to extend these findings into practice, examining how VI operates in real teaching and learning contexts from both teachers' and students' perspectives.

Chapter Two - Exploring Relationships Between Visual Imagery, Music, and Emotion During Music

Performance: A Survey Study

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Statement of Contribution of Joint Authorship

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Conceptualisation of the study, data collection and analysis, writing and compilation of manuscript, preparation of tables and figures.

Timmers, R. - (Principal Supervisor)

Supervised and assisted with research design, advised on data analysis, interpretation of results, and reviewing and editing of manuscript.

Linkage of Paper to Research Methodology and Development

This paper addresses a foundational question for the project: when visual imagery (VI) is most frequent or intense during music performance, how it relates to musicians' musical, emotional, and contextual engagement, and under what conditions VI is experienced as helpful or unhelpful for performance. As an initial mapping of musicians' experienced VI, we conducted an online survey (open- and closed-ended items) with 68 musicians. We applied quantitative (descriptive and correlational) and qualitative (thematic) analyses to examine VI's characteristics and their

interrelations. The results provide an initial overview of VI in musicians, identify factors that may shape VI experiences, and lay the groundwork for subsequent studies, including some potential participants for deeper exploration of the relationships among VI, music, and emotion.

Abstract

Experiencing visual imagery (VI) during music listening is commonly reported. Less is known about the visual imagery that musicians experience during performance. How common is VI, does the occurrence of VI depend on the performance context, and what role might VI play in supporting performance? These questions were explored using an online survey with open-ended and closed questions completed by 68 Chinese participants. A majority of respondents reported experiencing moderately to strongly intense VI, especially during solo practice and less often in group or formal performance contexts. Common imagery content included situations and landscapes, followed by abstract shapes and performance actions. VI was reported to be influenced by musical characteristics, emotions expressed and felt, and the type of music. The thematic analysis provided further insight into the intensity, frequency, and type of VI, and how these change with characteristics of the music (emotions expressed, structural characteristics, style) and performance characteristics (emotional state, situation, familiarity). The results indicate the prevalence of VI when practicing, relationships between VI and mood states that inhibit VI (performance anxiety) or promote VI (relaxation), and the employment of VI as part of practicing for expression and memorisation. An interesting ambiguity arises in that whilst VI seems functionally related to practice, it is not seen as very helpful, except by beginners. Suggestions for further research include testing changes in VI with performance situations, investigating the use of VI in pedagogical contexts, and elucidating the role of VI as part of the enjoyment of performance.

Keywords: music performance, musician, visual imagery, emotion, performance science

Introduction

During the performance of music, both musicians and listeners regularly experience images in their mind's eye, whether consciously conjured or spontaneously emerging. This phenomenon is known as visual imagery (Kosslyn et al., 2001; Taruffi & Küssner, 2022). Existing research has investigated the types of visual imagery that may occur in listening and performing, the relationships between visual imagery and structural and emotional properties of music, and functional uses of visual imagery by musicians. The nature and underlying processes of visual imagery may overlap between music listening and performance, but important differences are likely. While listeners often experience VI in relation to emotion (Day & Thompson, 2019; Schaerlaeken et al., 2019), musicians may also employ VI to understand music and communicate expression (Kvifte, 2001; Chaffin & Imreh, 2002; Woody & McPherson, 2010; Saintilan, 2014). Furthermore, not all performance situations may lend themselves equally to extensive VI being experienced. Existing research remains limited regarding the factors that impact musicians' VI and the extent to which it overlaps with that of listeners. It is also unclear whether musicians experience unique types of VI that are specifically functional in performance. This study continues this line of research and these questions with the specific interest of enhancing our understanding of factors influencing the type and occurrence of visual imagery during performance: When is visual imagery most frequent or intense? What is visual imagery related to? And how do contextual, emotional, and musical factors influence this? When is visual imagery experienced as helpful or unhelpful? A scoping survey, defined as an exploratory method for mapping the breadth of a research area and engaging knowledge of users (O'Brien et al., 2016), was conducted with closed and open questions to develop insight into these research questions, forming a broad basis for future directions in research on visual imagery in performance as well as providing insights that performance students and their teachers may be able to use to enhance functional uses of visual imagery.

Literature Review

What Is Visual Imagery

Herff et al. (2021) argued that visual imagery serves as “one of the main sensory modalities of music-evoked mental experiences” (p. 1). Providing further detail, Taruffi and Küssner (2019) explain that “in relation to music, visual mental imagery refers to the mechanism whereby music stimulates internal images in the listener (or performer) consisting of pictorial representations (e.g., natural landscape, colours), embodied image-schemata (e.g., picturing a melodic movement as an ascending or descending image), or complex visual narratives (e.g., similar to that of a movie)” (p. 6). Based on these definitions, our research defines Visual Imagery (VI) as the images that individuals conjure in their mind’s eye while engaging in the performance or practice of music. Such imagery may be spontaneous or involuntary, but may also form part of deliberate practice, as explained below.

Visual Imagery in Music Listeners

Much of the understanding of VI in response to music comes from studies investigating music listening. For example, Day and Thompson (2019) found variations in the frequency with which VI is experienced and attributed these to factors such as the familiarity of the music and low processing fluency in music perception and cognition. Küssner and Eerola (2019) systematically explored the content of listeners’ visual imagery. They found a diversity of manifestations, with imagery frequently related to autobiographical events. They grouped the contents of VI into two broad categories of “concrete” (encompassing landscapes, depictions of individuals, and scenes from past events) and “abstract” (comprising shapes, objects, and colours) visual imagery (p. 2). They also found that VI experiences break down into factors distinguishing vivid from soothing VI and potentially a third type of disruptive VI. Extending and refining these categories, Dahl and colleagues’ (2023) experimental study employed group comparisons and content analysis, identifying similar but more detailed categories of VI content, including “Nature, Places and settings, Objects, Time, Movements and events, Colors, Humans, Affects, Literal sound, and Film” (pp. 727–728). In a related

vein, Hashim and colleagues (2023) explored VI through an online survey and applied thematic analysis to participants' descriptions, identifying three higher-order themes of prominent experiences: "Storytelling (imagined locations, characters, actions), Associations (emotional experiences, abstract thoughts, memories), and References (sources such as film and television)" (p. 1).

Cultural and Metaphorical Influences

VI in response to music is embedded in cultural practice. Margulis (2014) describes music as an "abstract stimulus" capable of eliciting shared narrative constructs across listeners, contingent on a common cultural context that shapes this intersubjective experience. Borgohain et al. (2023) investigated cultural variations in VI by comparing responses to Hindustani Classical Music and Western music. In this study, Indian listeners reported VI linked to the religious and spiritual elements of Hindustani music. For example, VI included dancing, which is particularly linked to *Riyaz*, an Indian classical morning dance. This indicates the cultural embedding of VI. Nevertheless, most studies have sought to address generalisable characteristics of VI without specific attention to the cultural context. We will also not explicitly examine the role of culture, but will return to this point as part of the discussion.

Schaerlaeken et al. (2019) proposed the Geneva Musical Metaphors Scale, which categorises musical metaphors into five dimensions related to Flow, Movement, Force, Interior, and Wandering. Such metaphorical descriptions of music may feed into VI evoked by music. Indeed, there are some similarities between these metaphors and the visual image content described in Küssner and Eerola's (2019) research, implying some overlap between visual imagery and metaphors from listeners' musical experiences. Schaerlaeken et al. (2019) argue that visual imagery is based on metaphors, but not all metaphors have a direct visual image.

Visual Imagery and Emotion

Furthermore, visual imagery has been linked to listeners' emotional responses. Scherer and Zentner (2001) propose that visual imagery plays a role in the experience of emotions in response to

music. Similarly, Juslin and Västfjäll (2008) include visual imagery as one mechanism for the induction of emotion in listeners. Küssner and Eerola (2019) found differences between musically trained and untrained participants in their experiences of visual imagery during music listening as energising or calming. Whilst these studies consider the emotions evoked by visual imagery in response to music, Day and Thompson's (2019) research suggests that listeners often experience emotional responses before visual imagery arises in their minds, indicating a role for emotions in informing visual imagery. This is also indicated in the research by Presicce and Bailey (2019), who proposed that visual imagery typically follows rather than precedes emotional reactions. These findings indicate a "circular" relationship between emotion and visual imagery during music listening: on the one hand, visual imagery can make listeners feel emotion from the music. On the other hand, emotion can impact the visual imagery listeners experience.

Visual Imagery in Music Performance and Practice

With respect to performance, musicians reported experiencing VI during practice and performance (Bailes, 2006). Having VI while playing music may be functional. For example, visual imagery may be used to enhance musicians' expressiveness (Clark et al., 2012; Connolly & Williamon, 2004). Woody and McPherson (2010) also note that musicians deliberately evoke emotions by conjuring imagery during performance. Moreover, visual imagery can create a vivid and authentic experience (Clark et al., 2012). Musicians report utilising visual imagery to comprehend the structural representations of a musical piece (Kvifte, 2001; Saintilan, 2014; Chaffin & Imreh, 2002) and employ strategic visual imagery to aid in the memorization of music (Ginsborg, 2004). Addressing performance anxiety, musicians may utilise visual imagery to evoke positive states during performances (Connolly & Williamon, 2004). Finch and Oakman (2022) reviewed existing research and reported that intentional mental imagery can help musicians cope with performance anxiety through approaches such as metaphorical imagery, relaxation imagery, systematic desensitisation, and mental skills training. With respect to music practice, visual imagery contributes to mental rehearsal, which concerns sounds and images (Ross, 1985). Furthermore, visual imagery

can motivate musicians to amplify their engagement and interest in music (Clark et al., 2012) while also playing a role in regulating music-related arousal (Finch et al., 2021). Presicce (2022) synthesises these findings, describing visual imagery as a "powerful and versatile tool available for performers" (p. 252).

Aims of the Study

Previous research on VI in music has focused predominantly on listening contexts. This work has shown that listeners commonly experience VI, and that such imagery varies in type and intensity, is modulated by factors such as musical familiarity, and is closely related to emotional experience. In addition, theoretical and pedagogical accounts have identified multiple ways in which VI may occur and be used during music performance. However, empirical research on VI during music performance remains limited, particularly with respect to how VI is experienced by musicians themselves and whether it occurs spontaneously or as part of deliberate practice.

In the present study, we examined musicians' experiences of VI during music performance across a range of performance situations. This research aims to progress understanding of VI in musicians by investigating the frequency, intensity and types of VI and how these change across different performance situations, as well as their relation to emotions, as well as the degree to which VI is experienced as helpful or unhelpful in different contexts. To address these aims, we employed a general online survey of musicians' experiences. Participants reported on their typical experiences of VI in various performance situations, enabling us to examine characteristics of VI across different contexts. The analysis is structured first to describe overall characteristics of VI experiences and subsequently to examine how these characteristics vary across performance situations and contextual factors.

Method

Participants

Participants were recruited through email invitations, personal networks, and social media platforms. A total of 68 individuals (55 female and 13 male) of Chinese descent participated in the

online survey. The age range was between 18 and 64 years. A majority of participants played the piano or a related keyboard instrument (n=45, 66%). The other specialisms concerned singing (n=14), strings (n=6), percussion (n=2), and woodwind (n=1). Performance levels were 17 professionals, 11 semi-professionals, 21 advanced students, 11 intermediate students, and 7 relatively inexperienced performers (< 5 years). As the study focused on visual imagery in music performance, participants were eligible if they had experience learning a musical instrument and were performers with experience of, or an interest in, visual imagery.

Materials

Given the limited existing research in this area, an exploratory online survey was conducted. The survey questions were informed by Küssner and Eerola's (2019) survey study, and open-ended questions were used to map musicians' experiences of VI. The survey comprised two sections (see Appendix A). Section 1 contained questions about basic demographic information about the participants (gender, age, nationality, music education and years of experience, and musicianship level). Section 2 measured participants' experiences of visual imagery during music performance or practice with both closed and open questions. The questions evaluated different characteristics of the visual imagery, in particular the type of VI, its frequency, and intensity. Additionally, questions asked participants to reflect on the degree of changes in VI in different situations such as variations in performance context, musicians' emotions, and type of music. Participants were asked to reflect on the effects of visual imagery on their performance (e.g. as helpful or unhelpful) and on the ways VI was learned or developed. A set of closed questions was followed by open questions to explain responses and give an example. Visual imagery types were formulated based on Küssner and Eerola (2019) and included abstract VI (shapes, colours) and concrete VI (people, landscapes, situations).

The participants' experiences of visual imagery, such as frequency, familiarity, and changes in visual imagery were rated using a four-point scale (from never to always), or, for intensity, from 'never or hardly present' to 'very strong/intense'. Participants' feelings about the usefulness of visual

imagery were measured on a five-point bipolar scale from strongly disagree to strongly agree.

Qualtrics (www.qualtrics.com) was used to collect the data.

Procedure

We recruited participants, who were instrumental performers, learners, or teachers with an interest in visual imagery and music performance, through email, social media, and personal networks. Participants received an email that included a link to the online survey. Participants read the information about the study and gave informed consent before completing the survey in Qualtrics. The survey was completed remotely and individually, using participants' own devices in a self-selected environment. Participants were instructed to complete the survey in one sitting and to respond based on their experiences of music performance and visual imagery. The survey consisted of two sections presented in a fixed order. The first section collected demographic and musical background information. The second section comprised questions related to participants' experiences of visual imagery in music performance, including open-ended questions. The project was approved by the Department of Music Research Ethics Committee at the University of Sheffield.

Analysis

First, the data analyses aimed to characterise visual imagery in terms of what types of VI were experienced, how frequent and intense they were, and in what situational contexts. A descriptive analysis¹ was used to summarise participants' responses concerning their experiences with visual imagery, focussing on the frequency of responses, enabling comparison of results across different situations and groups. Correlation analysis was employed to assess the relationships between intensity, frequency, and changes in visual imagery, aiming to develop insight into individual differences in use of visual imagery.

We conducted a thematic analysis of the responses to the open-ended questions, following the six phases outlined by Braun and Clarke (2022): (1) familiarisation with the dataset; (2) data

¹ Descriptive analysis refers to descriptive statistics that summarize collected research data in a meaningful and efficient manner (Vetter, 2017).

coding; (3) generation of initial themes; (4) development and review of themes; (5) refinement, definition, and naming of themes; and (6) writing up. KQ first reviewed all responses in Chinese, translated them into English, and coded the data into first-order themes. These were then refined into more abstract categories based on shared elements (emotion, situation, musical features, type of music, familiarity, and aspects of visual imagery). The themes were further integrated into two overarching themes to examine the interrelations between identified categories (Attride-Stirling, 2001). RT reviewed and commented on the themes, and both authors refined the final framework and write-up. This analysis procedure allowed us to summarise the characteristics of VI, the music and musical context, and to explore what factors influence the experience of VI and contribute to changes in VI.

Results

The results were split into two sections of analysis, with the quantitative data presented first, followed by a presentation of the qualitative findings.

Quantitative Results

Frequency, Intensity and Type of Visual Imagery

Figure 2.1 shows the frequency of VI experienced across different contexts. A small proportion of participants (4.41%) reported not experiencing VI in any of the contexts described in the survey. How frequently VI was experienced depended on the context. Friedman's non-parametric related samples test confirmed a significant effect of context on frequency of VI ($p < .001$). Pairwise comparisons with Bonferroni corrections for multiple testing confirmed significant differences between practicing alone and performing for a teacher ($p = .001$) and performing for an audience ($p = .004$). The responses indicated that VI was experienced relatively frequently when practising alone, with over 50% of the responses indicating 'most of the time' or 'always'. In other contexts, the largest response category was 'sometimes'. A few participants indicated that 'always' have VI in practice and performance, but not when rehearsing with others. The findings indicated

that practice offers greater opportunity for VI, as does playing alone, compared to playing with a group.

With respect to the intensity of VI, the majority of participants (71%) indicated the intensity was moderately strong. For most other participants, intensity was weak (15%), or not present or hardly present (6%). However, there was also a proportion of participants who experienced the intensity of their VI as very strong (9%).

Figure 2.1

Frequency of Visual Imagery (VI) during Music Performance

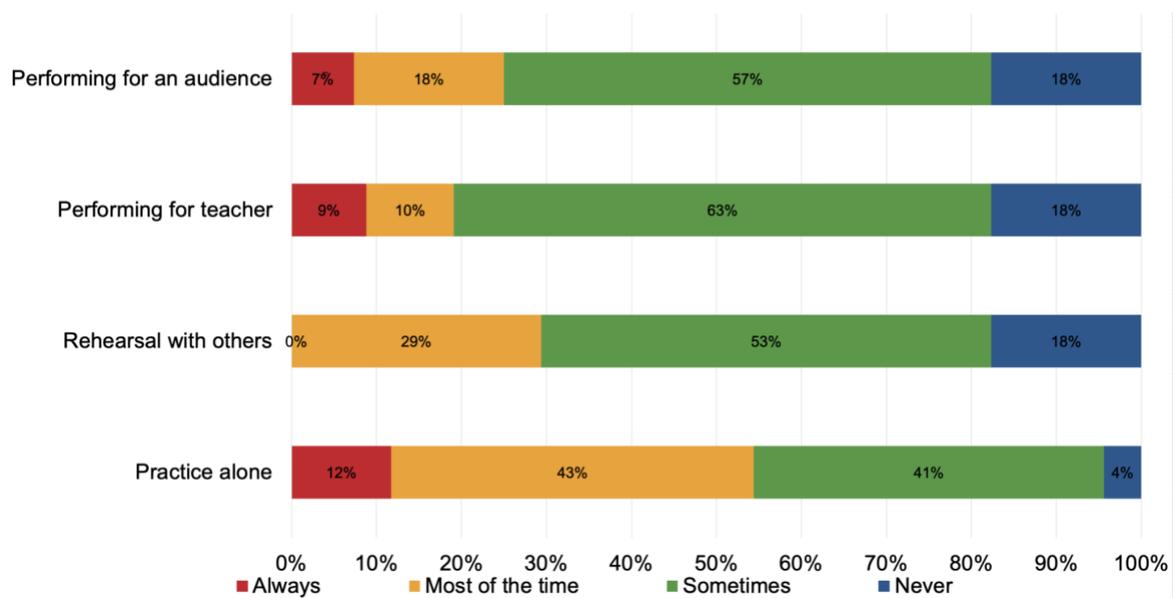


Figure 2.2 presents the responses to the different types of VI. The largest response category was 'sometimes' for all types of VI, except for situations. Friedman's non-parametric related samples test confirmed a significant effect of types on frequency of VI ($p = .001$). Pairwise comparisons confirmed significant differences between situations and shapes, movement, music instruments, colours, scenes from past events, people (all $p < .001$). Additionally, the differences were significant between landscapes and shapes ($p = .003$), objects ($p = .007$), movement ($p = .014$) and music instruments ($p = .018$). The majority of participants (74%) experienced situations 'most of the time'

(46%) or 'always' (16%). The types of VI that were experienced the second most frequently were landscapes (44% 'most of the time' or 'always'), followed by music performance actions (38% 'most of the time' or 'always'). In contrast, abstract VI was much less frequently experienced; a relatively large proportion of participants (26-31%) indicated that they 'never' experienced shapes, colours, objects, followed by musical instruments and movement. There was, however, considerable variation between participants. Colours also showed a considerable spread in responses with approximately a third of the participants indicating 'most of the time' or 'always', a bit below a third indicating 'never', and more than a third indicating 'sometimes'.

Figure 2.2

Types of Visual Imagery (VI) Experience

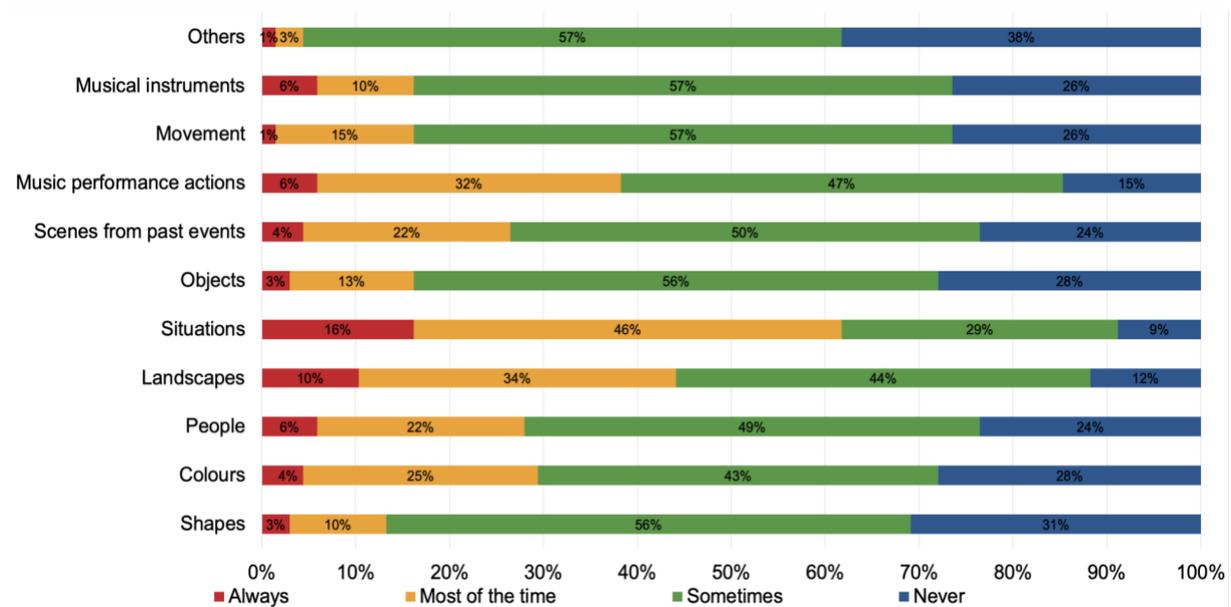
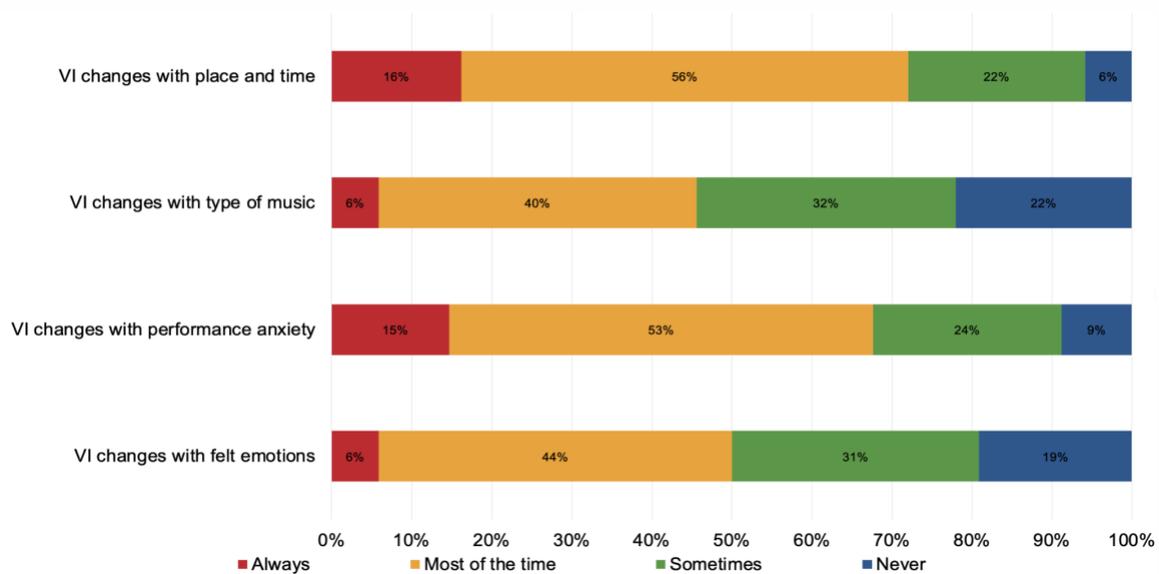


Figure 2.3 shows a summary of the responses to the questions related to changes in VI in different contexts. Friedman's non-parametric related samples test confirmed a significant effect of performance contexts on frequency of changes in VI ($p < .001$). Pairwise comparisons confirmed significant differences between VI changes with types of music and the emotion musicians feel ($p = .009$), with place and time ($p = .002$) and, with music performance anxiety ($p = .006$). Half or more

of the participants indicated that VI changed ‘most of the time’ or ‘always’ with the type of music and with the emotion they feel. Changes with performance anxiety and the place and time of the playing were indicated as less common, with the majority indicating never or sometimes (67% and 70%, respectively). Nevertheless, in all cases, there was a considerable proportion indicating changes under these conditions.

Figure 2.3

Frequency of Changes in Visual Imagery (VI) with Changes in Performance Context



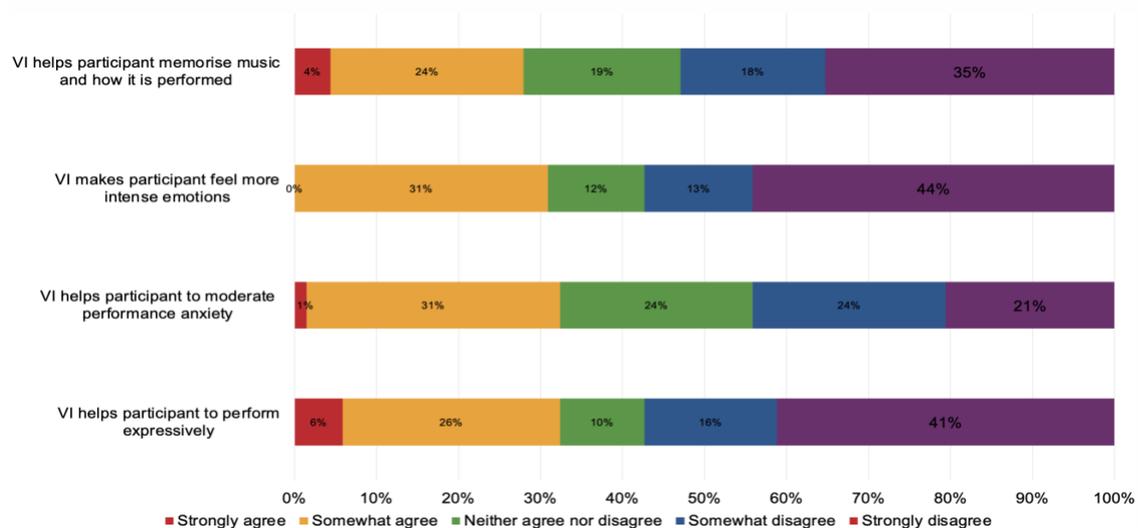
Note. “Changes in Visual Imagery (VI)” refer to variations in its type, intensity, and frequency due to changes in the four performance contexts. These variations are examined in greater detail in the qualitative analysis, based on participants’ responses to the open-ended survey questions.

In contrast, few participants agreed with statements that indicated that VI was helpful, as shown in Figure 2.4. Instead, the majority of participants (> 68%) were neutral or disagreed with the statements that VI helps to perform expressively, to moderate performance anxiety, to feel more intense emotions, or to memorise music. Most of the remaining participants indicated that they somewhat agreed with these statements. Friedman’s non-parametric related samples test confirmed a significant effect of context on the helpfulness of VI ($p = .048$). Pairwise comparisons

showed no statistically significant differences between responses to statements that VI moderates music performance anxiety and responses to statements that VI helps to perform expressively ($p = .111$), feel more intense emotions ($p = .068$), and memorise music ($p = .273$).

Figure 2.4

Helpfulness of Visual Imagery (VI) in Different Ways



Correlational Analysis

A correlation analysis was conducted to examine relationships between the frequency and intensity of the experience of VI, ratings of helpfulness of VI, and changes in VI across different contexts. Spearman correlations were used, as these are appropriate for ordinal data. To conduct this analysis, we calculated the median values for dependent variables that concerned multiple questions and used these values as input for the correlation analysis. The resulting correlation values are presented in Table 2.1. Significant correlations are indicated in the table.

Table 2.1

Spearman Correlations between Evaluations of Intensity, Frequency, Helpfulness, and Changes of VI in Different Contexts

	Intensity	Frequency
Frequency	.560***	
Helpfulness	-.273*	-.289*
Median of Changes in VI	.360**	.465***
VI changes with felt emotions	.342**	.318**
VI changes with performance anxiety	.260**	.365**
VI changes with the type of music	.362**	.482***
VI changes with place and time	.396***	.534***

* $p < .05$, ** $p < .01$, *** $p < .001$

Note. Total $N = 68$.

A positive relationship was observed between frequency and intensity of VI: participants who experienced VI more frequently also tended to experience it with greater intensity. Correlations were also positive between frequency or intensity of VI and experiences of VI changing across different contexts. In general, the correlations with the frequency of VI tended to be stronger than with the intensity of VI. These positive correlations indicated that with more frequent occurrence of VI, VI also tended to be more intense to change more frequently across different contexts, such as felt emotions and type of music. In contrast, a small negative correlation was observed between helpfulness and both frequency and intensity, indicating that participants who experienced VI more often and intensely found it less helpful.

Comparison Between Different Groups

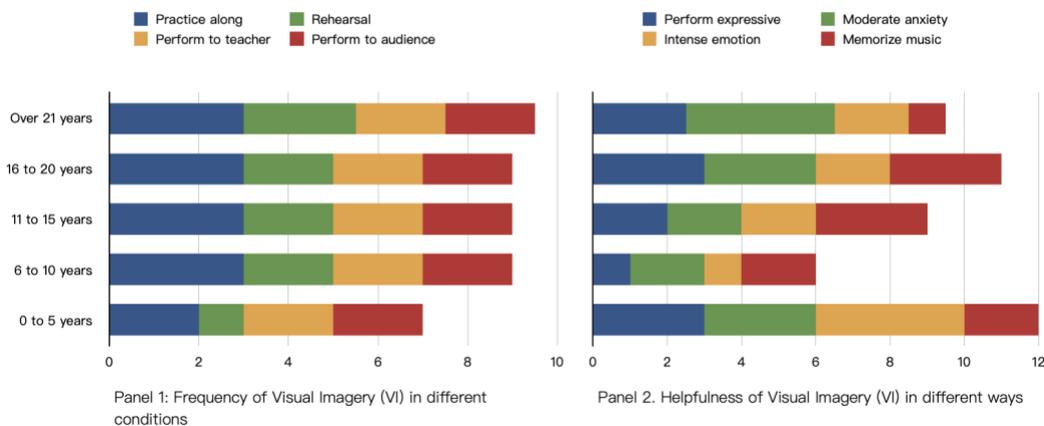
Next, we analysed whether VI experiences varied with the level of experience of participants, comparing those with 0 to 5 years of music learning ($n = 7$), 6 to 10 years ($n = 17$), 11 to

15 years ($n = 19$), 16 to 20 years ($n = 17$), and over 21 years of experience ($n = 8$). Figure 2.5 (Panel 1) shows the relationship between participants' years of experience and the stacked median frequency of VI in different contexts. The median values were computed across participants within each group. As a general trend, the frequency of VI seemed to increase with greater performance experience, with the exception of the most experienced group, as supported by a small but significant positive correlation between years of musical learning and median VI frequency, $\rho(68) = .239, p = .050$.

On the other hand, Figure 2.5 (Panel 2) shows that VI was found to be helpful irrespective of years of experience. Specifically, participants with over 25 years of experience learning their instruments indicated that VI could help them moderate their performance anxiety. However, since this is a relatively small group, further confirmation with a larger sample size is necessary. The least experienced participants (< 6 years) also found VI advantageous, despite experiencing VI less frequently.

Figure 2.5

Stacked Median Ratings of Frequency and Helpfulness of VI in Different Contexts for Groups with Different Years of Experience. For Reference, the Maximum Stacked Value Is 16 (4×4).



Qualitative Results

The thematic analysis of factors influencing VI from musicians' perspectives identified two core themes: (a) performance characteristics influencing changes in VI and (b) characteristics of the music influencing changes in VI. Table 2.2 presents the thematic structure, encompassing two overarching themes, six subthemes, and 17 codes. Participants indicated that these codes affect the frequency, intensity, and types of VI across contexts. The relationships among themes, subthemes, and codes, reflecting interactions among musicians' experiences, music, and VI are discussed below and illustrated in Figure 2.6.

Performance Characteristics Influencing Changes in VI

Participants mentioned a variety of factors associated with their music performances that influence the intensity, frequency, and type of VI they experience. These factors were categorised as emotional states, music performance situations, and familiarity with music.

Emotional States. This subtheme refers to musicians' felt emotions evoked during performance that drive perceived changes in VI. Participants reported that variations in felt emotion, intensity, and frequency were reflected in changes to VI characteristics, including colour and shape, during music performance. As three participants noted:

When I am in a positive emotional state, imagery features bright tones and vivid instruments, such as trumpets. (P10)

In intense or relaxed emotions, my imagery shifts in depth of colour and from sharp to smooth shapes. (P11)

I see warmer colours in heightened emotions. (P5)

These examples relate to positive and intense emotions evoking warm colours, smooth shapes, and bright-sounding instruments. In contrast, negative emotions were reported to evoke opposite images, such as darker and cooler tones and lower-pitched instruments:

When I'm feeling low, I see cool colours like blue around me. (P5)

In a low mood, my imagery shifts to darker shades and low-pitched instruments. (P10)

Table 2.2

Overview of Themes, Sub-Themes, and Codes from the Thematic Analysis of Open-Ended Responses

Themes	Sub-themes	Codes
Performance characteristics influencing changes in VI.	Emotional states	Positive emotion
		Negative emotion
	Situations	Practice
		Teaching session
		Formal performance (on the stage or performance to others)
		Musical ensemble rehearsal
		Time
	Familiarity with music	Familiarity
		Unfamiliarity
	Characteristics of the music influencing changes in VI	Emotion of music
Negative emotion		
Elements of music		Tonality
		Dynamics
		Melody
		Harmony
Type of music		Programmatic music
		Chinese music

Additionally, one participant reported that the intensity of experienced emotion impacts the vividness of the VI they experience:

For example, a song shows me a scene of rain. When my emotions are stronger, the picture will change from light rain to heavy rain. (P34)

Furthermore, three participants reported that the frequency and intensity of VI decreased

when they experienced negative emotions such as anxiety and tension. For example:

When I feel anxious or tense, the images disappear, and I focus on the sheet music. (P44)

When I'm feeling down and can't fully engage in my work, creativity of visual imagery is inhibited. (P7)

An exception to this pattern was noted by one participant, who stated, "I more easily experience visual imagery in the presence of performance anxiety" (P46). For this participant, anxiety appeared to stimulate the experience of VI. In general, however, a relaxed emotional state was associated with increased frequency and intensity of VI, for example:

I can see more when relaxed and joyful while playing. (P55)

Clarity in visual imagery comes with relaxation. (P35)

Situation. This subtheme refers to the diverse contexts in which musicians engage in performance or practice. Participants mentioned four performance situations that can impact VI: practice, teaching, formal performance (e.g., performing on stage or for others), and ensemble rehearsal. Three participants reported that when they performed and practiced alone, they experienced greater intensity and a wider range of VI, whereas performing with or for others led to reduced or absent VI:

I always experience more images when playing in a relaxed environment, like at home, during quiet practice alone, or late at night or early in the morning. (P33)

I experience strong visual imagery in solo practice and performances. (P58)

My intensity of visual imagery diminishes when I perform to others. (P58)

However, two participants described the opposite feeling. When they performed to others or on stage, they experienced stronger intensity or more types of VI:

My visual imagery during a formal performance is clearer than when I'm practising on my own. The visual imagery tends to shift more rapidly and with greater sensitivity during formal performances. (P6)

The visual imagery happens during formal performances but rarely in casual practice

sessions. (P31)

Participants identified two reasons why performance situations negatively impacted VI: (a) performing for teachers or others induced nervousness that inhibited VI, and (b) performing with or for others shifted musicians' focus on technical aspects of performance rather than VI:

When I practise drumming and get into a positive emotional state, I feel relaxed and my mind is filled with various visuals. It never happens during lessons, I always feel nervous when I speak to my teacher. (P15)

In group practices or teaching scenarios, I focus more on playing techniques and the immediate musical elements, such as dynamics and rhythm. Therefore, I only experience the emotion but not images. (P12)

When I perform the piano on stage, nervousness affects my focus, and the intensity of imagery decreases. (P44)

These findings indicate that performance situations influence participants' emotional states during music performance or practice, subsequently affecting their experience of VI. The themes are not independent; rather, they are intertwined and jointly contribute to changes in VI.

Besides, time of day can influence VI. As one participant noted, "I see different sakura in my mind when I practise piano during the daytime and at night. At night, the imagery tends to be softer and quieter" (P33). This suggests that the time of day at which musicians perform can influence the intensity and character of visual imagery.

Familiarity with Music. Musicians reported that the level of familiarity with a particular piece of music directly impacted the intensity of the VI they experienced. Specifically, individuals experienced clearer, more vivid, more detailed, stronger, and more changeable VI as their familiarity with music developed:

The visual imagery becomes stronger and clearer with improved proficiency and familiarity through practice. (P59)

After repeated practice and increased proficiency, visual images go from blurry to vivid, with

more pronounced changes. (P37)

As I become more proficient in playing a piece, the main imagery remains consistent but gains more intricate details at times. (P14)

One participant explained how VI developed with increasing familiarity with the piece and became more consolidated and consistent over time:

Visual imagery often changes as I start practising a piece of music, particularly when my familiarity and mastery of the piece are low, resulting in frequent shifts. However, when I am familiar with the music, I have consistent visual imagery. (P39)

These findings indicate that VI becomes consolidated and strengthened with increasing familiarity with music, reflecting the operation of semantic memory processes that anchor and encode knowledge through repeated practice (Freitas et al., 2018).

Characteristics of the Music Influencing Changes in VI

The second set of factors influencing VI was related to the music itself. These factors were categorised into three subthemes: emotion of music, elements of music, and type of music.

Emotion of Music. This subtheme captures how musicians perceived the emotion of the music and how these perceptions informed the emotions they expressed during performance. Six participants reported that their imagery changed in response to the perceived emotion in the music, for example:

The imagery changes in response to the emotional shifts within the music. (P7)

When a very lyrical melody suddenly transitions to something cheerful, the imagined scenarios also transform. (P34)

Several participants provided more detailed descriptions of how the content of VI changed in relation to perceived musical emotion, for example:

When a song's chorus is melancholic and sombre, but the bridge becomes joyful, such as in Jay Chou's *His Eyelashes*, my visual imagery changes from a solemn church with a stern priest to a relaxed seaside vacation, where I am enjoying a cup of milk tea. (P22)

During the joyful sections of the music, I see ordinary, exuberant birds in my mind. (P4)

In addition to changes in imagery content, participants reported that the intensity of their visual imagery was influenced by the intensity of the emotion they perceived in the music. For example, one participant noted:

The more intense the musical emotions I perceive, the stronger and more vivid the imagery appears in my mind. (P13)

Moreover, the emotion in music can evoke vivid imagery related to musicians' personal experiences, such as memories. This emotional imagery can aid musicians in expressing their feelings during performance, as one participant described:

When singing a song with a sorrowful emotional theme, my mind conjures up painful memories, intensifying the sense of sadness. This, in turn, aids me in conveying the depth of sorrow in my performance. (P20)

Additionally, this quote suggests a potential feedback loop in which emotions conveyed by the music influence musicians' emotional states and imagery—through mechanisms such as memory—subsequently affecting emotional expression.

Elements of Music. Five participants reported that musical elements, such as tonality, rhythm, harmony, and melody, influenced the content of their VI. For example:

When there's a transition from major to minor keys, I often notice a change in the colours in my mind's eye. (P43)

A slow rhythmic composition in a minor key conjures up a visual image of a solitary figure on a nighttime street, evoking a feeling of desolation. (P34)

When playing Liszt's *Second Narrative Etude*, my visual imagery shifts with the music.

Specifically, in the first 20 measures, I have a sense of being by the seaside, as if waves are crashing against the shore and growing increasingly tumultuous. (P40)

Type of Music. Finally, three participants reported that the intensity, type, and frequency of VI changed when they performed different types of music, with programmatic music, contemporary music, and Chinese music identified as notable cases. For example:

When I perform programmatic music, I am more likely to experience vivid visual imagery.
(P57)

In most cases, I encounter visual imagery less frequently when practising pieces from older musical eras casually. However, when performing more contemporary compositions, visual imagery tends to occur more frequently. (P31)

These participants described engaging with Chinese music and frequently experiencing imagery closely aligned with Chinese culture. They reported that Chinese music conjured scenes reminiscent of traditional Chinese landscape paintings, historical events, and serene natural landscapes. For example:

When playing Chinese music, I often associate it with traditional Chinese landscape paintings, envisioning scenes of rippling water or imagery of large and small pearls falling onto a jade plate. (P4)

When performing *Yellow River*, the imagery of a vast land with a roaring river and the spectacle of thousands of horses and soldiers galloping changes in sync with the music. (P52)

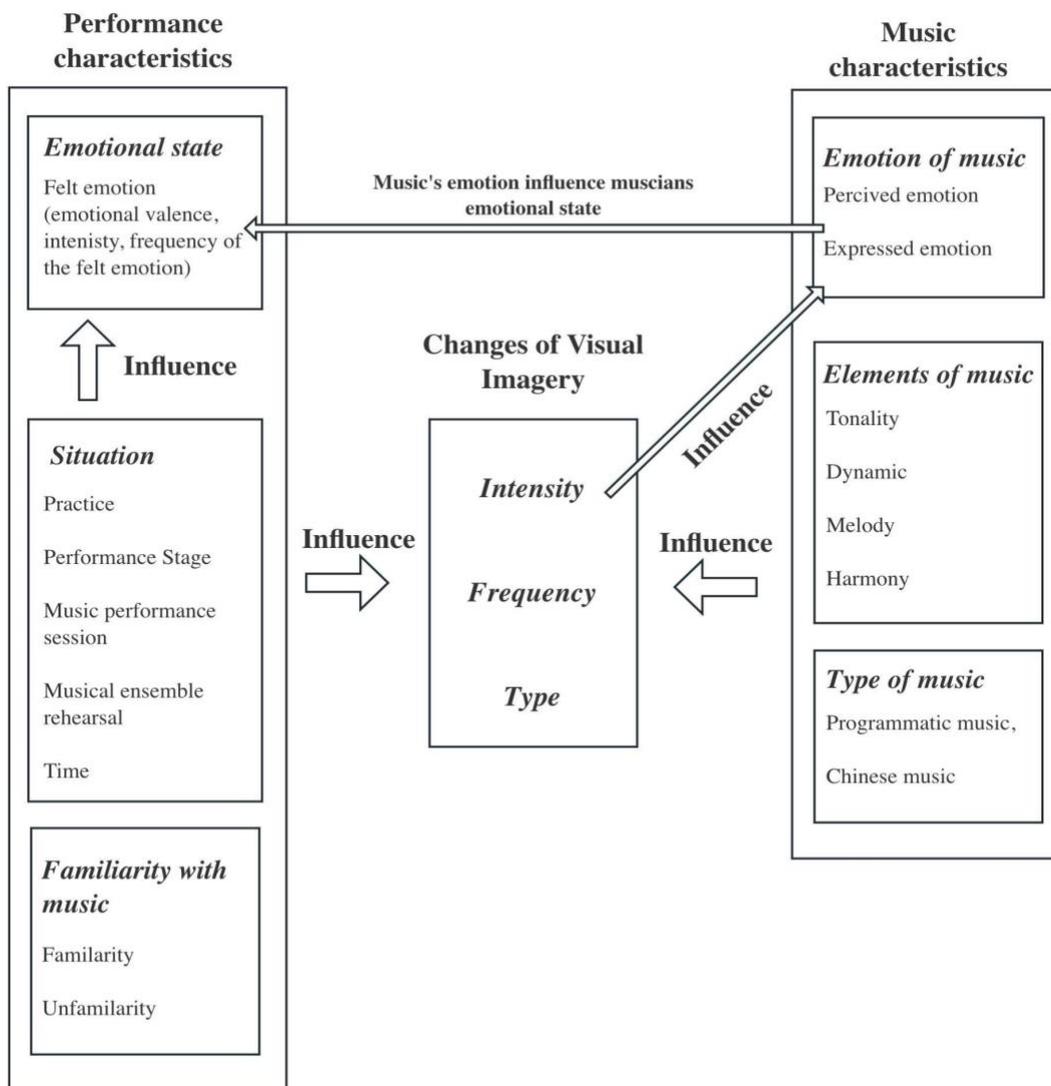
When I play Zhao Xiaosheng's *Sound of Dian Lake*, I often experience visual imagery of serene landscapes, with a shimmering lake, picturesque mountains, and the sun casting its warm glow. (P52)

Figure 2.6 summarises the thematic analysis by illustrating the relationships among the identified subthemes. In this analysis, changes in VI refer to variations in the type, intensity, and frequency of imagery reported by participants (see Appendix A, Questions 10–15). These variations may occur within a performance (e.g., as a piece unfolds) or between performances in different contexts (e.g., depending on musical familiarity or performance situation). The results indicate that VI changed with musicians' emotional states, performance situations, and familiarity with the music.

In addition, characteristics of VI varied in relation to the emotion expressed in the composition, musical properties, and the type of music. VI was generally reported to be stronger during practice and in contexts of musical enjoyment and relaxation and was closely associated with musical understanding, increasing in strength with greater familiarity. Overall, VI was described as closely linked to emotion, including emotions that were experienced, perceived, and expressed.

Figure 2.6

Relationships Between VI, Music, and Musicians' Performance



General Discussion

This study aimed to enhance insight into the experience of VI during music performance by investigating the properties of VI under different circumstances and its relationships with the context, emotional state and musical experience of performers through a self-report questionnaire. A particular interest was examining whether musicians perceived VI as helpful in any way. These explorations developed insight into the manifestation of VI and the potential role VI may play in performance.

Our results indicate that musicians primarily experience concrete visual imagery of landscapes and situations, and less frequently abstract visual imagery of shapes, colours, or performance movements. These results demonstrate strong parallels with VI experiences reported by listeners in response to music (Küssner & Eerola, 2019). This finding indicates a shared space between musicians and listeners in their experience of VI, suggesting that VI can function as a point of connection between musicians and audiences (Juslin, 1997; James, 2017).

With regard to the frequency of the experience of VI, musicians reported VI to be more frequent during solo practice compared with formal performance, and also more frequent during solo playing compared with playing with others. Furthermore, frequency was generally strongly correlated with the intensity of VI. This shows parallels with research on musical imagery and mind wandering that indicates imagery is relatively frequent in low cognitive load compared with higher cognitive load contexts (Floridou & Müllensiefen, 2015), suggesting that VI may be reduced with more focused and engaged mental states. In line with this interpretation, we also found that beginners experienced less frequent VI, which may be due to the heightened effort and attention required for performance. An alternative explanation may be that a performance situation and playing with others distract from the expressive inner experience, creating less awareness and/or less opportunity for VI to emerge. The qualitative responses from participants confirmed that performance anxiety and stressful situations diminished their experience of VI, in particular the frequency and intensity of VI. The observed positive correlation between frequency and emotion-

related changes in visual imagery also provides support for a relationship between the presence of visual imagery and music-induced emotion, but in a positive direction, suggesting that VI is dependent on experiencing the right kind of emotions to support it.

Notably, while most participants indicated VI to only sometimes change with performance anxiety or place and time, most participants indicated that VI changed most of the time or always with the emotion of the music and the type of the music. It is likely that these responses to 'changes in VI' relate to the type of visual imagery that was experienced, rather than its frequency. Thus, even though VI was experienced less often, when it was experienced, it was similar in content to the practice situation.

Only a small proportion of participants agreed that VI was helpful in playing expressively, feeling emotions, moderating performance anxiety or memorising music. Many disagreed with or responded neutrally to these statements, indicating that VI was not consistently perceived as beneficial and may sometimes have negative effects on performance (Taruffi & Küssner, 2019). Our findings further revealed a modest negative correlation between the perceived helpfulness of VI and its frequency, intensity, and years of experience, suggesting that greater experience and use were linked to more critical evaluations of VI. This aligns with Prychitko's (2017) findings that beginners, while reporting less frequent use of VI, perceived it as relatively helpful, possibly reflecting the need to engage additional neural mechanisms to support the development of performance skills.

Apart from not experiencing VI as helpful, a subset of musicians reported an absence of visual imagery across all contexts examined (e.g., practice, rehearsal, and performance for both teachers and audiences). This absence of VI could indicate that musicians experienced aphantasia or limitations in the experience of imagined narratives (Hashim et al., 2023).

Future research may investigate how to effectively incorporate visual imagery into initial music instruction for beginning musicians. More experienced musicians reported more frequent experiences of VI. This shows parallels with musical imagery ability, which strengthens with increasing musical expertise. Compared with beginners, experts exhibit greater flexibility in mentally

representing musical information and have enhanced abilities to adapt their planning strategies (Bishop, et al, 2014; see also Bishop et al., 2013). Prychitko (2017) supports this, noting that professionals frequently employ imagery techniques for learning and practice and show more refined brain activation areas. Similarly, Lotze and colleagues (2003) found that professionals report frequent use of imagery, whereas amateurs generally do not. Despite their enhanced experience of VI, ratings of the helpfulness of VI decreased as a general rule with years of experience. It may be that more advanced musicians do not feel that they require VI to perform expressively, manage anxiety, feel emotions or memorise music. Nevertheless, they may employ VI or enjoy it, in particular during practice. Future research can gain further insight into these matters by addressing the question of the helpfulness of VI for specific contexts such as individual practice and the developing an expressive interpretation of music.

Emotion felt by musicians was evaluated as an important factor influencing musicians' visual imagery and also emerged as a theme in the open responses. Previous research (Balteş and Miu, 2014) has shown a relationship between visual imagery and emotion in two directions: visual imagery can evoke emotions experienced by listeners (Juslin & Västfjäll, 2008) and emotional states can also elicit visual imagery (Day & Thompson, 2019). This relationship extends to musicians, as highlighted in Vroegh's (2024) research, which found that alterations in emotional states resulted in changes in visual imagery. Our results primarily support the latter relationship, highlighting the influence of perceived and felt emotions on VI. For example, positive, in contrast to negative, emotions were mentioned as evoking vibrant and warm colours, and scenes such as birds flying. Positive emotions were also reported to lead to more frequent and intense VI. The open-ended responses suggested a link between VI and feelings of enjoyment and relaxation. Only occasionally was VI mentioned as strengthening emotional experience or expression.

The reports of seeing colours and shapes in participants' open-ended responses may be indicative of music-colour synaesthesia, which may represent a distinct phenomenon of interest to investigate further in future research that differs in its characteristics from other VI experiences

during performance. For example, synaesthesia is often characterised in terms of its consistency and automaticity (Ward et al., 2006), meaning that it is expected to be present during practice and performance. Music-induced visual mental imagery has been described as a weak form of sound–colour synaesthesia, with partial but not complete overlap in features (Küssner & Orlandatou, 2022). Relationships between emotion and synaesthesia have been found before (Isbilen & Krumhansl, 2016), although the exact relationship remains under investigation (see Curwen et al., 2024). It will be useful in future research to separate out different types of VI, to avoid conflating between different forms, for example by assessing participants' synaesthesia.

As expected, our participants reported a strong association between musical features and the content of VI experienced during music performance. This aligns with the assumption of Taruffi and Küssner (2019), who propose that the content of visual imagery is modulated by musical features. Cross-modal correspondences between properties in different modalities may play a key role in shaping these associations. As demonstrated using various experimental paradigms, perceivers readily associate auditory properties such as intensity, pitch, and duration with properties in other domains, most prominently with the visual domain (Eitan, 2017; Walker, 2016). These include associations with size, texture, luminosity, spatial location, shape, and thickness (e.g. Eitan & Timmers, 2010). Our findings indicate that these correspondences also play a role in music performance (Eitan, et al., 2017), and connect with previous research that demonstrated influences of instrumental performance experience on cross-modal correspondences (Timmers & Li, 2016). Associations between musical features and VI were also reported that went beyond simple cross-modal correspondences, which may have a more metaphorical and conceptual basis (Zbikowski, 2017). Imagined motion was less often described and received lower ratings than expected based on research suggesting close links between musical properties and imagined movement (see for example, Eitan & Granot, 2006). Further explicit investigation of imagined motion is required to verify this.

Finally, our results indicate that visual imagery was influenced by both the musicians' familiarity with the music and the type or genre of music. Our study highlights that musicians were more likely to experience vivid imagery when they were familiar with the music, and VI appeared to become more consolidated with practice and deep familiarity with a piece of music. Presicce and Bailes (2019) also reported that music familiarity enhanced visual imagery engagement, and Day and Thompson (2019) showed that high familiarity with music not only accelerated the emergence of visual imagery compared with unfamiliar music but also increased its intensity. Additionally, some musicians in our study reported that the consistency of the visual imagery strengthened with increasing familiarity with the music. These findings support a close relationship between musicians' cognitive understanding of music and the experience of VI. In contrast, unfamiliar music tended to produce less developed, more random, or unstable imagery.

Some contents of the experienced VI are related to cultural context. This observation aligns with Duncum (2001), who argued that visual imagery reflects perceptual cultural and social dynamics. Our research extends the insights into Chinese musical-cultural settings, finding that when musicians play Chinese music, this often triggers images linked to specific Chinese historical and cultural backgrounds, including specific landscapes and poems.

While cultural context influences the content of VI, the relationship between VI and emotion did not appear to differ significantly from findings in previous research. This aligns with research by Borgohain and colleagues (2023), who found that although the content of imagery may vary across cultures, the evocation mechanisms appear similar. Nevertheless, subtle differences in aspects such as the intensity, frequency, and perceived helpfulness of VI were observed when compared with previous studies, which may be related to the specific participant group of this research. Future research could further explore how cultural and music-educational contexts might influence these aspects and investigate practical ways to promote or adapt VI to performance and educational contexts. Another limitation of the present study was a predominance of female participants. Although gender was not a central focus, future research with more balanced representation would

help minimize the potential influence of gender on the findings. In addition, we used a relatively straightforward approach to ask participants about various aspects of their VI experiences. It will be valuable for future research to examine VI experiences in a more targeted fashion within specific contexts. For instance, to evaluate the intensity of VI experienced by participants directly following music performance or practice, one could refer to the Vividness of Visual Imagery Questionnaire (VVIQ; Marks, 1973), as vividness has been recognized as a key indicator of imagery experience and intensity (Galton, 1883).

Conclusion

In summary, the results of this study provide insight into the characteristics of musicians' visual imagery and how these characteristics varied with performance context. We found that musicians, not unlike music listeners, experience visual imagery that is often related to situations and landscapes. They also experienced colours, shapes, and music performance actions with some regularity. The occurrence of visual imagery was strongly dependent on context, with musicians experiencing it much less frequently when playing with others or performing compared with practising alone, although these trends were not consistent across all participants. There was not a strong sense that visual imagery was helpful. However, its frequent occurrence during solo practice raises the question of why musicians continue to experience visual imagery in the different contexts. Future research can refine this question of helpfulness by addressing it in specific contexts. For example, exploring visual imagery's role in shaping the expressive interpretation of a particular piece of music (Chapter Three, Study 2). Further investigation into the use of visual imagery in music performance teaching, focusing on its application by teachers and its perception by both teachers and students, would also be valuable (Chapter Four, Study 3). Changes in visual imagery were often described in relation to changes in felt emotions, and open-ended responses suggested a specific role for emotional and cognitive states in influencing visual imagery during performance, alongside strong links with the musical material. Many factors influence the visual imagery experienced, including properties of the music (e.g., emotion, structural properties, type of music), and the state

and context of the musician (e.g., emotional state, situation, and familiarity with the music). We further found that visual imagery varied with years of musical training, which was confounded with age. As this was a questionnaire study, the results relied heavily on retrospective self-report. A particular strength of the study therefore lies in uncovering several relationships and trends that can be further investigated in future research, explored as part of teaching and learning practices.

Chapter Three - Relationships Between Visual Imagery, Emotion, and Music During Music Performance: An Exploratory Study

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Chapter 3 is presented in its current form in the process of being published.

Statement of Contribution of Joint Authorship

Qi, K. - (Candidate)

Conceptualisation of the study, data collection and analysis, writing and compilation of manuscript, preparation of tables and figures.

Timmers, R. - (Principal Supervisor)

Supervised and assisted with research design, advised on data analysis, interpretation of results, and reviewing and editing of manuscript.

Linkage of Paper to Research Methodology and Development

Building on Chapter 2, this study further examined the relationships among VI, music, and emotion, as well as the perceived helpfulness of VI. We conducted an exploratory study that collected participants' performance data, think-aloud and interview responses, and score annotations during piano performance, which related to their VI and emotional experience. Content and thematic analyses extended our previous findings and identified three relationships, two dyadic

and one triadic, highlighting the intertwined nature of these elements. The results also indicate VI's pedagogical potential, laying the groundwork for the next study (Chapter 4).

Abstract

Research has explored the relationship between visual imagery (VI) and emotion in music listening; however, less is known about musicians' perspectives on and experiences of the relationship between VI, emotion and music during music performance. Eight piano students and two piano tutors performed three variations from Mozart's "Ah, vous dirai-je, maman" twice (natural and with emotion). After performing an excerpt, participants explained their interpretation of the music, the VI they experienced, the sources of this VI and whether VI was experienced as helpful or unhelpful in any way, using score annotations and verbal explanation. Performances were recorded. A brief interview was held at the end. Thematic analysis of verbal explanations highlighted a dyadic relationship between VI and music, with the background of the music informing VI (composer, personal memories, historical context), and distinct musical features (e.g. simple vs. complex) eliciting different forms of VI. This relationship was experienced as bidirectional with VI supporting music cognition. A second dyadic relationship was observed between VI and emotion with music performers explaining an alignment between VI and perceived and expressed emotions. Music performers experienced varying types and intensities of VI in response to variations in both perceived and felt emotion, with negative emotions eliciting more detailed imagery. In some cases, excessive VI negatively impacted performance. Finally, a triadic relationship was found, showing that musical background and features affect felt and perceived emotion, which in turn impact VI during performance. These findings were illustrated with score annotations, highlighting close interaction with the musical materials. These results offer a nuanced understanding of the relationships between visual imagery, emotion, and music as experienced by performers, with implications for music education and the psychology of performance.

Keywords: music performance, musician, visual imagery, emotion, perception

Introduction

Visual imagery (VI) is regularly experienced by both musicians and listeners during music performance and listening. Similar to listeners, musicians may experience visual imagery in connection with their emotions during performances (Connolly & Williamon, 2004; Finch & Oakman, 2022; Woody & McPherson, 2010). Musicians employ various forms of mental imagery to support music performance as part of their practice strategies (Holmes, 2005; Keller, 2012). This may include imagery of music, movements, and performance contexts (see also Schaefer, 2022). Relatively little is known about how music performers' VI interacts with their experience and expression of emotion during music performance. This study aims to further investigate the relationship between VI and emotion specifically from the perspective of musicians, with a focus on the functions that VI serves. Our research question is thus set as: "What is the relationship between VI, music, and emotion, and how does it impact music performance?" To answer this research question, an exploratory study was conducted where musicians were asked to play selected pieces and explain their experiences of VI immediately following the performance of each musical piece as outlined below.

Literature Review

Visual mental imagery refers to the ability to recreate and manipulate visual representations in the mind without any external visual input, resulting in the experience of "seeing with the mind's eye." (Ganis & Schendan, 2011). Juslin and Västfjäll (2008) define visual imagery as an experience similar to perceptual experiences and emphasize its role in shaping listeners' emotional responses to music. Visual imagery is one of the sensory modalities involved in mental imagery and can range from spontaneous, involuntary images to those that are deliberately cultivated. Taruffi and Küssner (2019) point at the wide spectrum of mental phenomena included in the notion of visual imagery in music, from pictorial representations like natural landscapes and colors, to embodied image schemata such as visualizing melodic movement and performers' movements, and complex visual narratives similar to a movie. Studies have investigated spontaneous and deliberate imagery in the context of music in listeners (e.g., Herff et al., 2021) as well as in performers (e.g., Presicce, 2022).

Here we will focus on visual imagery as experienced and employed by performers, with an interest in investigating how visual imagery is part of the performance process. Based on these definitions, our research defines Visual Imagery (VI) as the visual images that individuals generate in their mind while engaging in music performance, whether these images appear spontaneously or are voluntarily directed as part of deliberate practice. Our research focuses on VI as a modality that may be experienced during performance and be accessible for retrospective reflection.

The relationship between emotion and VI has gained specific significance via the theoretical framework proposed by Juslin and Västfjäll (2008). Approaching the relationship from the listener's perspective, this framework identifies six mechanisms through which music listening can induce emotions, one of which is VI. The authors indicated that listeners may generate images in their mind corresponding to the music they are listening to, which induces listeners' emotional responses. Based on this framework, the predictions are that music evokes VI, and VI influences emotions.

Music has indeed been shown to play an important role in influencing listeners' VI experiences. Herff et al. (2021) demonstrated that music supports the generation of visual imagery, while Juslin (2013) and Borgohain et al. (2023) summarize that autobiographical memories, contextual associations, semantic knowledge, and cultural frameworks mediate the listener's VI. Music can reliably cue both autobiographical memories and fictional imaginings during listening. These two forms of imagery may be interrelated, particularly when they stem from similar personal backgrounds, such as shared cultural experiences and musical training (Margulis & Jakubowski, 2024). Taruffi et al. (2023) found that music compared to silence evoked elaborate stories in listeners' minds with more references to affect and social dynamics. Besides, an increasing number of studies suggest the impact of musical features on listeners' visual imagery experience (Herff et al., 2021). For instance, melody, harmony (Juslin, 2019), rhythm (Juslin, 2013), tempo (Herff et al., 2021), and texture (Rudenko & de Córdoba Serrano, 2017) have been identified as impacting the vividness and content of visual imagery. This means that similar musical and acoustical characteristics may evoke similar visual imagery elements across individuals (Dahl et al., 2023). For

example, Groves et al. (2025) found that variations in tempo, loudness, pitch, and dissonance are linked to the evocation of distinct scene qualities, such as differences in brightness, warmth, and colorfulness as well as the emergence of diverse characters. At a more general level, visual imagery may vary depending on what music genre is presented. For example, classical music was found to be more likely to evoke concrete imagery, such as narratives or personal memories, while electronic music evoked more abstract imagery (e.g., shapes, colors) (Jakubowski et al., 2024). This study further indicated that the evaluation of music is influenced by knowledge and perspectives on the origins of presented music, including its cultural context, which influences the scenes imagined, highlighting the importance of meta-cognition about music for VI.

Existing research has further examined the relationship between VI and emotion in music listening. While the primary argument of Juslin and Västfjäll (2008) is that VI influences emotions, it has also been suggested that emotions evoked during music shape the content of images (Day & Thompson, 2019). For example, Day et al. (2020) argued that listeners may experience emotions before VI when listening to music. In these cases, musically evoked emotional responses trigger subsequent visual imagery. This suggests a dynamic relationship between musically evoked emotion and VI. For example, Taruffi and colleagues (2023) found that the emotional tone of music influences the content of imagery, providing multidimensional material to rich people's imagined stories. Jakubowski and colleagues (2024) demonstrated that music with different emotional valence elicits distinct thought content, with positive valence linked to more positive imagery. Apart from the imagery content, the emotional tone of music seems to influence the frequency and vividness of VI. For example, sad music was found to elicit less frequent visual imagery (Day et al., 2020; Martarelli et al., 2016) and less vivid daydreams (Martarelli et al., 2016), although Taruffi and colleagues (2017) found that sad music can increase visual imagery during mind-wandering. These findings highlight the intricate interplay between VI and emotion in shaping listeners' experiences, where emotion may both influence the content and the frequency or intensity of VI, as well as VI influencing the experience of emotion. This suggests bidirectional relationships between VI and both perceived and

felt emotion: influences are observed in both directions, which may mean they manifest as mutually reinforcing influences.²

When considering the relationship between VI and emotion in music performance, research has been more explicitly concerned with the potential function of VI in emotion regulation and expression during music performance. For example, research on music performance anxiety has indicated that the use of visual imagery can impact emotion and be intentionally controlled, making it a potentially useful tool for musicians to modulate emotions so that their performance anxiety can be mitigated (Connolly & Williamon, 2004; Finch & Oakman, 2022). Beyond anxiety, musicians are reported to use imagery to evoke new emotions during performances (Woody & McPherson, 2010), enhance emotional expression (Clark et al., 2012; Connolly & Williamon, 2004) and facilitate expressive communication (Clark et al., 2012). Musicians might use visualization, which means that they visualize a powerful image (e.g., a frightened child) or imagine themselves during their performance in an emotionally charged scenario (e.g., hearing of a loved one's death) to enhance their emotional expression (Persson, 2001, as cited in Woody & McPherson, 2010). Nevertheless, VI can also have negative consequences for listeners and musicians; for example, it may act as a distraction away from concentrated music listening and performance (Taruffi & Küssner, 2019).

In summary, existing research highlights the relationship between VI, emotion, and music both from listeners' and musicians' perspectives. For listeners, studies suggest bidirectional relationships between VI and emotion, with each also being connected to the music and its context. Similar relationships are assumed for music performance, where performers may deliberately employ VI to support performance processes. The objective of this study was to investigate manifestations and directionality of relationships between music, VI and emotion from the perspective of music performers in the context of a specific performance of music, and to explore how directionality relates to the functional uses of VI by music performers. The larger aim is to

² The term directionality is used throughout this paper to refer to experienced or observed patterns of influence. Some studies have manipulated musical materials to look at causality. Nevertheless, in many cases, causality cannot be fully inferred.

provide music performers with empirical insights into VI's role and manifestations in performance, supporting its use in music performance and music pedagogy.

Method

Participants

This qualitative case study involved ten participants including two professional pianists (piano tutors from the United Kingdom) and eight postgraduate Chinese piano performance students (six females and four males) studying at the University of Sheffield. Experience ranged from between 6–10 years to over 30 years of playing the piano. Communication with the Chinese participants was in Chinese to ensure they could express their perspectives more fully and in greater detail. The data was then translated into English by the researcher (KQ) and aided by Google Translate. Participants were recruited via email invitations, personal networks, and social media. Ethics approval for this study was obtained from the Ethics Committee of the Department of Music at University of Sheffield.

Materials

Piece of Music

Participants were asked to perform the Theme, and Variations III and VIII from W. A. Mozart's "12 Variations on 'Ah, vous dirai-je, Maman'" (K. 265). These three excerpts were chosen for their coherent as well as distinct characteristics. First, the "Theme" presents the main melody, also known as the children's song of "Twinkle Twinkle Little Star," and features a relatively simple musical structure, primarily in 2/4 time with quarter notes and slow tempo, which may induce feeling of serenity or calm (Fernández-Sotos et al., 2016). In "Variation III," the main melody is retained, and a triplet interleaving of the melody and staccato is added, which may be perceived as more energetic and amusing (Carr et al., 2023). Finally, "Variation VIII" is the only movement in a minor key, with octaves in a lower register, which links the negative emotion (Azib, 2017; Justus et al., 2018). These three excerpts offer distinct musical characteristics that we expected to influence both VI and emotional connotations.

Table 3.1*Basic Demographic Information of Participants*

P	Age Group	Gender	Instruments Learning Years	Level of Expertise	Frequency of VI Experienced During Performance	Intensity of VI Experienced During Performance
1	18 to 24	Female	11 to 15 years	Postgraduate piano performance student	Always	Moderately strong/intense
2	25 to 34	Male	11 to 15 years	Postgraduate piano performance student	Most of the time	Moderately strong/intense
3	18 to 24	Male	6 to 10 years	Postgraduate piano performance student	Most of the time	Moderately strong/intense
4	35 to 44	Female	Over 30 years	Professional (Piano tutor)	Sometimes	Moderately strong/intense
5	18 to 24	Female	16 to 20 years	Postgraduate piano performance student	Most of the time	Moderately strong/intense
6	18 to 24	Male	16 to 20 years	Postgraduate piano performance student	Most of the time	Moderately strong/intense
7	18 to 24	Female	6 to 10 years	Postgraduate piano performance student	Always	Moderately strong/intense
8	55 to 64	Male	Over 30 years	Professional (Piano tutor)	Sometimes	Weak
9	25 to 34	Female	21 to 25 years	Postgraduate piano performance student	Most of the time	Moderately strong/intense
10	18 to 24	Female	16 to 20 years	Postgraduate piano performance student	Always	Very strong/intense

Capturing Visual Imagery

Different aspects of the experience of VI were explored by inviting participants to play an excerpt twice and then to explain and reflect on the VI they had experienced during the performances. These aspects included the type of VI, the source and location of the VI (annotation in the score), and the role of VI in the performance as they experienced it. Participants were asked to

annotate the score, aiding in the capture of data related to their experience of VI and its connection to the music. The think-aloud and interview questions are provided in full in Appendix B. They did this immediately following two performances of an excerpt.

Recordings of Performances

Audio and video recordings were used to capture the expressive characteristics of the performances, and the verbal and nonverbal behaviors of participants.

Interview

At the end of the session, participants participated in a semi-structured interview where they were asked to explain their feelings about using VI during the study and their thoughts on the relationship between VI and emotion in music performance.

Procedure

All participants received the participant's information sheet, consent form and the musical pieces to practice a few weeks prior to participating in the study. Subsequently, participants completed a survey in which they reflected on their experiences with visual imagery during performances and practices. At the start of the session, participants were given a five-minute verbal introduction about the study. The researcher (KQ) explained what was meant by visual imagery and the tasks they would undertake during the experiment. Rather than directing participants to focus on either intentional or spontaneous imagery, the instructions invited them to describe "the visual imagery you experienced during your performance." We intentionally kept the wording generic, wanting not to restrict what was reported in any way. Participants warmed up and were given time to practice the music. Then, participants performed each movement in the order it occurs in the piece: Theme (32 seconds), Variation III (32 seconds), and Variation VIII (43 seconds). Each movement was performed twice: The first time, they played the music without explicit instruction. The second time they were asked to focus on emotional expression. In the analyses of the data, no distinction is made between the first and second performance of the music.

After performing and recording an excerpt twice, participants were asked to go through the excerpt and verbally explain with annotations in the score their experiences of VI during the performances of an excerpt. They were asked to explain their interpretation of the music, type of VI, the source of the VI and whether they experienced the VI to be helpful in any way. No specific questions about the effect of playing with emotion was included, leaving it up to the participant to raise this where applicable. They were encouraged to explain aloud what their experience and thinking was during the performance. No follow up questions were asked. At the end of the session, participants were interviewed and encouraged to further elaborate on their perceptions of the use of VI and its relationship to music and emotion (see Appendix B for details).

The procedure followed in this study allowed us to gain detailed insight into the qualities of VI and the experience of it during performances of music. The participants were aware of the focus of the study on VI. This may have increased how much VI they experienced. The relevant findings therefore relate to what VI was experienced and what it related to. Because participants were asked to describe VI in relation to specific pieces, their responses can be seen as more reliable than obtained through generic questionnaire studies.

Analysis

A content and reflexive thematic analysis was employed to analyse the verbal explanations provided by the participants in the think-aloud procedure and the interview. The verbal data were first transcribed verbatim using Audacity and Microsoft Word. Second, those sections were selected from the interview and think-aloud responses related to the performances done during the recording session, excluding more general comments about daily practice or other contexts, as our focus was on analyzing VI and emotion during the performances as a main context for the data (Bengtsson, 2016). The Chinese text was translated into English by the first author, a native Chinese speaker, to ensure consistency of language. Although no external translator was involved, the author's cultural and linguistic background helped minimize the risk of inadvertently misrepresenting the content or meaning during the translation process (Braun & Clarke, 2021). We

used an inductive approach to analyse the data, because we did not have a preexisting coding frame or analytical preconceptions (Braun & Clarke, 2006).

A content analysis of the data was conducted. For this, all data were summarized per participant and analysed to identify the types of images participants experienced, the emotions participants reported, factors influencing their experience of VI, and other comments they made about their experience of VI. We used content analysis to count and map the categories mentioned by participants (Braun & Clarke, 2021). Categorization was done in ways that required limited interpretative inferences.

We then conducted a thematic analysis that followed Braun and Clarke's (2006) six-phase framework for thematic analysis: first, familiarization with the data; second, generating initial codes; third, searching for themes; fourth, reviewing themes; fifth, defining and naming themes; and finally, producing the report. The approach was recursive and based on content analysis. The data were reviewed and categorised several times. This process involved looking across different instances of VI and examining at a more general level, what participants reported about the VI they experienced. It also examined what may have informed the VI, what relationships with the music and with emotion were reported, and what they said about the functionality of VI. The first author took the lead in this process, with the second author checking the interpretation and confirming the identified overarching themes describing the relationships between visual imagery, emotion, and music, and the five sub-themes summarizing a total of 19 codes. Manifestations of these themes, sub-themes and codes were analysed per excerpt, further illustrated using the score annotations.

Results

The results are presented in the two analytical stages. The first summarises the content of music performers' explanations of VI, emotions, and music characteristics during the performances. The second presents the thematic analysis of the relationships between categories, especially relations between VI and emotions, VI and music characteristics and VI, emotions and musical characteristics.

Content Analysis: VI, Emotion, and Music Characteristics

The initial results from the content analysis illustrate music performers' experiences of VI, emotions, and focal musical characteristics during their performances of the music. Table 3.2 presents the categories of the content analysis and their frequency of occurrence.

This summary of the main categories discussed by participants is further illustrated in Appendix C, D and E, which provide explanations of each category including illustrative quotes. This is done for each excerpt, summarising perceptions for the Theme, Variation III, and Variation VIII, respectively. These tables (Appendix C, D, and E) summarize the main points from each participant, highlighting aspects of their VI and emotional experience in relation to the music.

As can be seen, as a general trend, the described VI was primarily associated with concrete elements. This relates for example to "people" (e.g., children and mother) and "scene" (e.g., night) in the Theme (Appendix C). Additionally, in Variation III (Appendix D), participants also reported VI linked to more abstract concepts, such as "colour" and "shape," while in Variation VIII (Appendix E), the imagery expanded to include contrastive and narrative elements related to "movies," "past memories," and storytelling. As captured by the theme Emotion, participants reported distinct emotional associations with each excerpt, with the Theme being described as "calm," Variation III being positive and excited, and Variation VIII being predominantly associated with "negative" emotions. A range of musical characteristics were mentioned. Descriptions of the Theme primarily mentioned the associations with the melody, while descriptions of the Variations engaged in more detail with specific musical features, including harmony, rhythm, and tonal mode.

Table 3.2

Number of Mentions per sub-categories (Ns) and main categories (Nt) and Percentage of Mentions per sub-categories (Ps) and main categories (Pt) Across the Entire Dataset

Categories	Subcategories	Nodes	Ns	Nt	Ps	Pt
Visual Imagery	Concrete	Some detailed narrative and storytelling	15	40	11.81%	31.50%
		People (children, mother)	14		11.02%	
		Scene (night, sky)	5		3.93%	
		Movie & Anime	4		3.15%	
		Past memory relates to this song (childhood)	2		1.57%	
	Abstract	Colour	1	2	0.78%	1.57%
		Shape	1		0.78%	
Emotion	Felt Emotion	Music's emotion felt	30	33	23.62%	25.98%
		The performance day's emotion	3		2.36%	
	Express Emotion	Develop emotion expression	15	15	11.81%	11.81%
Music	Musical Background	Composer and composition (Music style)	4	7	3.15%	5.51%
		Memory about listening to this music	2		1.57%	
		Historical transformation	1		0.78%	
	Musical Features	Melody	10	30	7.87%	23.62%
		Timbre	4		3.15%	
		Rhythm	3		2.36%	
		Tonality	3		2.36%	
		Harmony	3		2.36%	
		Structure	2		1.57%	
		Ornament	2		1.57%	
		Dynamics	2		1.57%	
		Texture	1		0.78%	

Thematic Analysis: Relationships Between Music, VI, and Emotion

The thematic analysis resulted in three overarching themes related to the main areas of focus of this study, five sub-themes, and nineteen codes, which are presented in Table 3.3 and discussed in turn below. The overarching themes capture three relationships between VI, music and emotion: 1) a dyadic relation between VI and music, 2) a dyadic relationship between VI and emotion, and 3) a triadic relationship among VI, music, and emotion.³ These relationships were found for each music excerpt. Instances of relationships between VI, music and emotion are illustrated in Figures 3.1 (for Theme), 3.2 (for Variation III), and 3.3 (for Variation VIII).

Dyadic Relationship Between VI and Music

VI and Musical Background. The subtheme of background characteristics influencing VI was mentioned by participants in relation to the: “composer and composition,” “memory about listening to this music,” and “historical transformation” of this music, which make up the codes for this subtheme.

Four participants noted that the piece’s classical, elegant, and slightly childlike qualities reflect Mozart’s distinctive compositional style. This connection led them to see scenes such as Mozart performing or composing, or imagery related to children. One participant shared in relation to Variation III:

I feel this piece is very classical and bright, with a courtly atmosphere, as if it were written for nobility. It’s very Mozart-like, even to the point where I can vividly imagine Mozart himself performing or composing at his desk. (P3)

³ We define a dyadic relationship as one involving two key elements (e.g., emotion and VI, Music and VI) and a triadic relationship as one involving three interrelated components (e.g., emotion, VI, and Music).

Table 3.3*Theme, Subtheme, and Code Description from the Participants*

Theme	Subtheme	Code Description
Dyadic relationship between VI and Music	VI and Musical background.	A composer's composition experience impacts music performers' VI experience.
		Memories of listening or performing to the music impact the VI experienced by music performers.
		The historical transformation of the music impacts the VI experienced by music performers.
	VI and Expression of Musical features.	The expression of melody impacts the VI experienced by music performers.
		The expression of timbre impacts the VI experienced by music performers.
		The expression of rhythm impacts the VI experienced by music performers.
		The expression of tonality impacts the VI experienced by music performers.
		The expression of harmony impacts the VI experienced by music performers.
		The expression of structure impacts the VI experienced by music performers.
		The expression of ornament impacts the VI experienced by music performers.
		The expression of dynamics impacts the VI experienced by music performers.
		The expression of texture impacts the VI experienced by music performers.
	Dyadic relationship between VI and Emotion	VI and Perceived and Felt Emotion.
VI impacted by music performers' felt emotion on the performance day.		
VI and Enhancing Emotional Expression.		VI enhances music performers' emotional expression.
		VI enhances music performers' technique for expressive performance.

		VI can sometimes make music performers overly emotional, negatively affecting their performance.
Triadic relationships between VI, Music and Emotion	Triadic relationships between VI, Music and Emotion	Musical background influences music performers' emotional response to a piece of music, which in turn affects their experience of VI.
		Musical features evoke distinct emotional feelings that influence music performers' VI.

Additionally, the background of the melody as a famous children's song is regularly referred to by participants. They may refer to the melody as a specific feature, linking musical background to the next subtheme of musical features. This familiarity of the melody from their childhood contributed to images rooted in childhood memory and experiences. For instance, one participant pointed out:

I think because, as children in this country, I grew up with this (song)—Twinkle, Twinkle Little Star for me. I can't get away from being a child, like a very simple, very pure feeling. ... I saw my dad's face because I didn't play [this piece of music] very well; he's my teacher. (P4)

Additionally, one participant highlighted the development of the melody and its role in musical communication, and explained that:

This piece is based on a French poem about a mother scolding her daughter for losing her innocence. Over time, it transformed into a lullaby, becoming dreamy and child-friendly, not just in China but in many countries. Whenever I play it, I would have the image of soothing a baby to sleep. (P1)

This quote indicated that the widespread use of the piece as a children's song has shaped participants' perceptions, as many learned it within that context. Especially VI associated with the Theme is strongly influenced by the contemporary use of the song, while the VI in the Variations include more references to Mozart and his classical style.

VI and Expression of Musical Features. All participants mentioned the importance of musical features for VI more than once. The codes ordered according to the frequency of mentions

are: “melody,” “timbre,” “rhythm,” “tonality,” “harmony,” “structure,” “ornament,” “dynamics,” and “texture.”

Analysis of these mentions in relation to the three excerpts revealed some more general characteristics of how musical features related to VI. With respect to the Theme, which was identified as having a relatively simple “structure,” most participants referred to its “melody” and “rhythm” (Figure 3.1). This simplicity corresponded with a straightforward and relevant VI. For example, one participant stated:

The melody in the theme is very simple, clear, and familiar. My mind immediately conjured images of children. The (right-hand) melodies consist of straightforward quarter-note patterns, and the rhythm is also very simple, evoking a childish and somewhat monotonous feeling. (P3)

With the greater complexity in structure in the other excerpts (Figures 3.2 and 3.3), participants reported a greater variety of musical features influencing their perception of the music and their experienced VI. Different features appear to be impacting experienced VI. For example, several participants refer to the complex “texture” of the music as one participant explained:

The voice parts became more numerous and the texture more complex, and then you could see people talking to each other, and more images appeared in my mind. (P2)

The combination of features contributes to VI, not just individually but in combination. Examples of this are given in Figures 3.4 and 3.5, where images are related to multiple musical features. One participant explained with respect to Variation VIII:

At first, this is a minor key, so I have some plots that seem negative, like a boy feeling very conflicted. Then, there is a canon texture here (polyphonic), with two voice parts that sound like a conversation, one melody rises while the other falls, making me feel like one represents an angel and the other represents evil. (P6)

This example highlights how “tonality,” “texture,” and “melody” work together to evoke detailed and narrative VI. The interplay of these elements creates a multi-layered experience.

Additionally, Figures 3.4 and 3.5 illustrate that the VI experienced by music performers during performance was associated with specific moments of the music. For instance, Figure 3.4 highlights that several participants reported detailed images between bars 5 and 8, particularly in response to the triplets in the right hand that combine legato with staccato articulation. One participant explained:

I don't think it's a linear picture. Maybe because of the triplets, I always think of spirals (curves). In the middle, it may not be as continuous as this. It might rise into two lines or form a point. (P10)

Music performers' formal training in music theory may contribute to a shared interpretation of certain musical features and enhance their sensitivity to these elements during performance. The influence of musical experience is explained by one of the participants as:

After studying music performance, I can use professional approaches to analyze why certain things happen. For example, as the "dynamics" intensify, it might feel like the stars shine brighter, and when the tempo slows down, I get a sense that they are fading away (P9)

These comments indicate that music performers' may use VI to support their understanding of musical features, which can further support the development of performance techniques to express these features. Several participants mentioned this in relation to the ability to control "timbre" (Appendices C and E). One participant explained:

Sometimes it is difficult to describe the colour or timbre of music, but when I have a clear image of the colour in my mind, it helps me understand the timbre and allows me to create a beautiful sound. (P3)

Participants further discussed that the use of VI can enhance their engagement with the music and deepen their experience of its emotional and stylistic content. One participant explained:

By imagining Mozart performing this piece, I can immerse myself in his emotions, creating a heightened sense of the courtly atmosphere and classical style of the music. (P3)

This quote highlights how VI may facilitate a more nuanced comprehension of the music's expressive intent, historical context, and stylistic elements.

Dyadic Relationship Between VI and Emotion

VI and Perceived and Felt Emotion. The participants indicated that the content of their' VI appears to align with their perceived emotion from the music. Specifically, they noted that their perceived emotions directly influenced the imagery they experienced. For example, one participant explained:

When performing this [Variation III] positive emotion melody, I will evoke some happy images. But when I perform the sad melody, there would be some unhappy views in my mind. (P9)

This quote suggests that emotion portrayal in music can evoke corresponding emotional imagery, with positive emotions evoking the pleasant imagery and negative emotions linked to more somber scenes.

Furthermore, the comparison across Figures 3.1 (calm), 3.2 (happy), and 3.3 (negative emotion) reveals that VI content is more detailed and varied when participants perceive negative emotions (Figure 3.3) compared to positive or neutral emotions (Figures 3.1 and 3.2). This difference may stem from the greater subtlety and complexity often associated with negative emotions, as indicated in Figure 3.3. Additionally, the more intricate melody of Variation VIII, compared to the Theme, may contribute to the richness of VI under negative emotional states.

Some participants reported that their imagery was influenced not only by the music's emotion portrayal but also by their emotional experience on the day of performance. For instance:

If today I have some argument with my friends, I will not have any strong emotion, and I may feel depressed and not experience any images during my performance. (P9)

This response indicates that music performers' emotional states on the day of performance can influence their felt emotions and, consequently, the VI they experience.

VI and Enhancing Emotional Expression. As the “other comments” in Appendices C, D, and E indicate, music performers mentioned utilize VI to enhance emotional expression and create an emotional atmosphere in their performances. For instance, one participant noted:

It helps me express my emotions. For example, when I feel that a star has disappeared at a certain point, I will gradually make the tempo slow down and the voice weak, which helps me to express a quiet and calm emotion. (P9)

This suggests that music performers use VI to control their performance techniques, allowing them to effectively convey their emotions. Another participant emphasized the role of VI during tonal transitions:

When I performed Variation III to Variation VIII, the visual imagery is extremely important because there are changes in tonality. At first, I could not change my emotional expression and control the timbre and dynamics so quickly, but visual imagery helps me do this. (P1)

This indicates that VI facilitates the management of timbre and dynamics during rapid tonal transitions (e.g., from major to minor), enabling performers to maintain expressive continuity.

Despite its benefits, the use of VI can sometimes lead to some negative effects. Excessive reliance on VI may result in over emotional responses, disrupting the performer’s control and focus. One participant shared their experience:

Sometimes it might make me feel too emotional, like remembering it when it triggers memories that you might not be able to control. Sometimes music can make it spiral out of control a bit. (P4)

This suggests that while VI can be a powerful tool for emotional expression and engagement, its overuse or inappropriate application can hinder performance.

Triadic Relationships Between VI, Music, and Emotion

Figure 3.1 contains several examples that illustrate that musical background influences participants’ emotional responses to a piece of music, which also impacts their experience of VI. For instance, one participant stated:

The piece is something we listened to as kids, like ‘Twinkle, Twinkle, Little Star,’ so it carries a certain stereotype. I feel it conveys a calm and peaceful emotion. Then, I see many stars in my mind. (P9)

In this quote, the image of stars is both linked to the calm and peaceful emotion as to the childhood memory of the song. Similarly, as illustrated in Figure 3.3 certain musical features impact participants’ emotions which shape their experienced VI. Participants noted that changes in “tonality” affected their emotions, specifically the change from major tonality associated with happiness to minor associated with sadness (Woody, 2002) which also linked to their VI. For example, the minor key in Variation VIII was consistently associated with negative emotions. One participant described:

In this section, the music shifted to a minor key. The image in my mind was no longer very happy but negative because my interpretation was that the tone conveyed a negative feeling. (P9)

This response suggests that the association of the minor mode with sadness (Gabrielsson & Lindström, 2010) does not directly influence VI but operates indirectly through its emotional impact. Changes in tonality evoke specific emotional responses, which in turn shape the imagery experienced.

Variations in “harmony” were also indicated to evoke distinct emotional feelings, which influenced the participants’ VI. As depicted in Figure 3.4, participants reported diverse imagery when performing sections with different “harmony.” For instance, participants noted:

There is a minor second here, every time I play this part, I feel very frustrated, like something is broken. I also imagine Harry Potter or feel a sense of heartbreak. (P3)

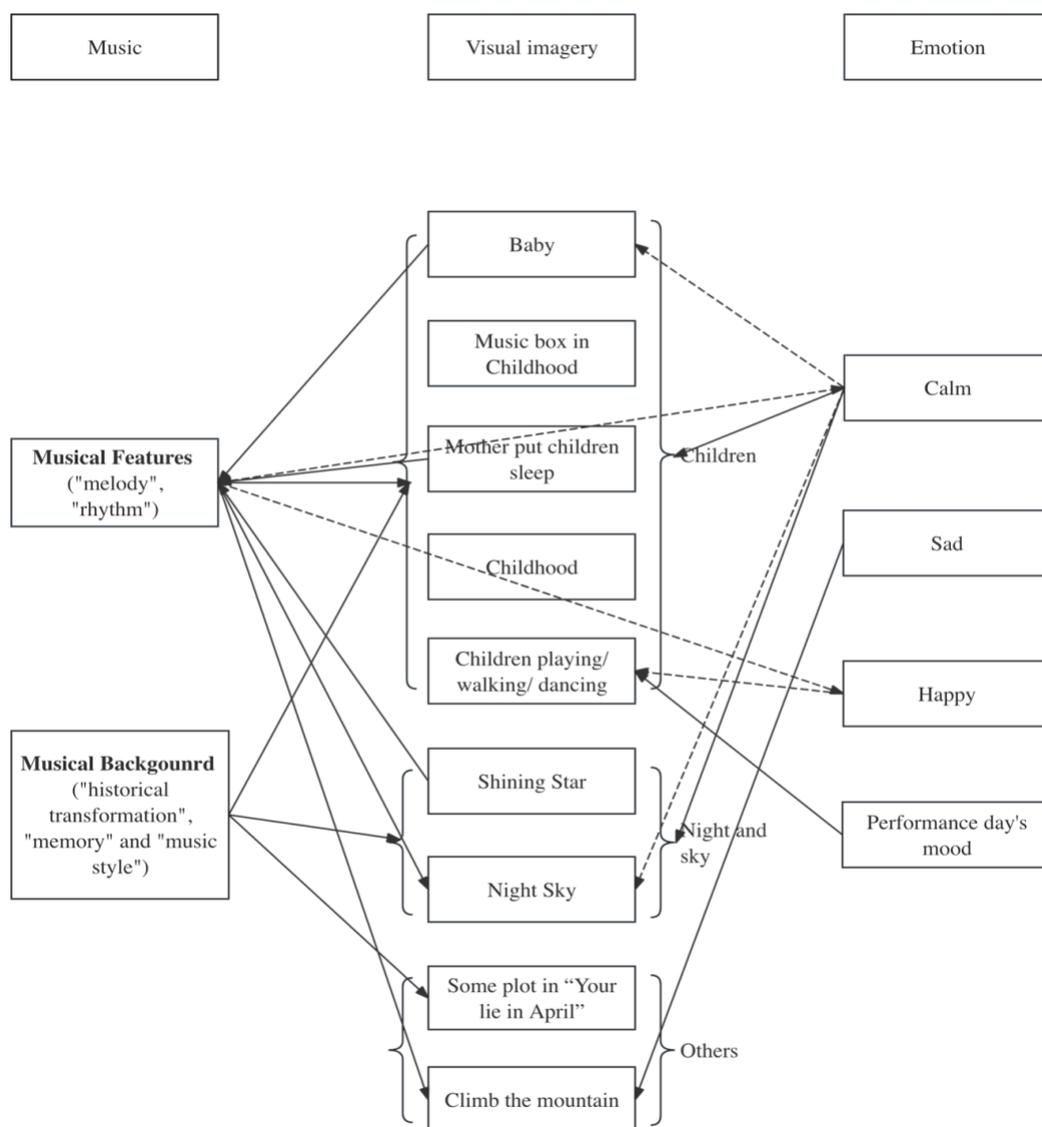
Another participant shared:

I think the octave trend in low pitch combined with the rhythmic patterns makes this section feel slightly more tense. (P7)

These examples indicate that specific harmonies combined with certain pitch registers, such as low-pitched “octaves” or “minor seconds,” elicit distinct emotional responses. This effect may be due to the minor second’s association with melancholy (Maher & Berlyne, 1982), which appears to influence the content of music performers’ visual imagery.

Figure 3.1

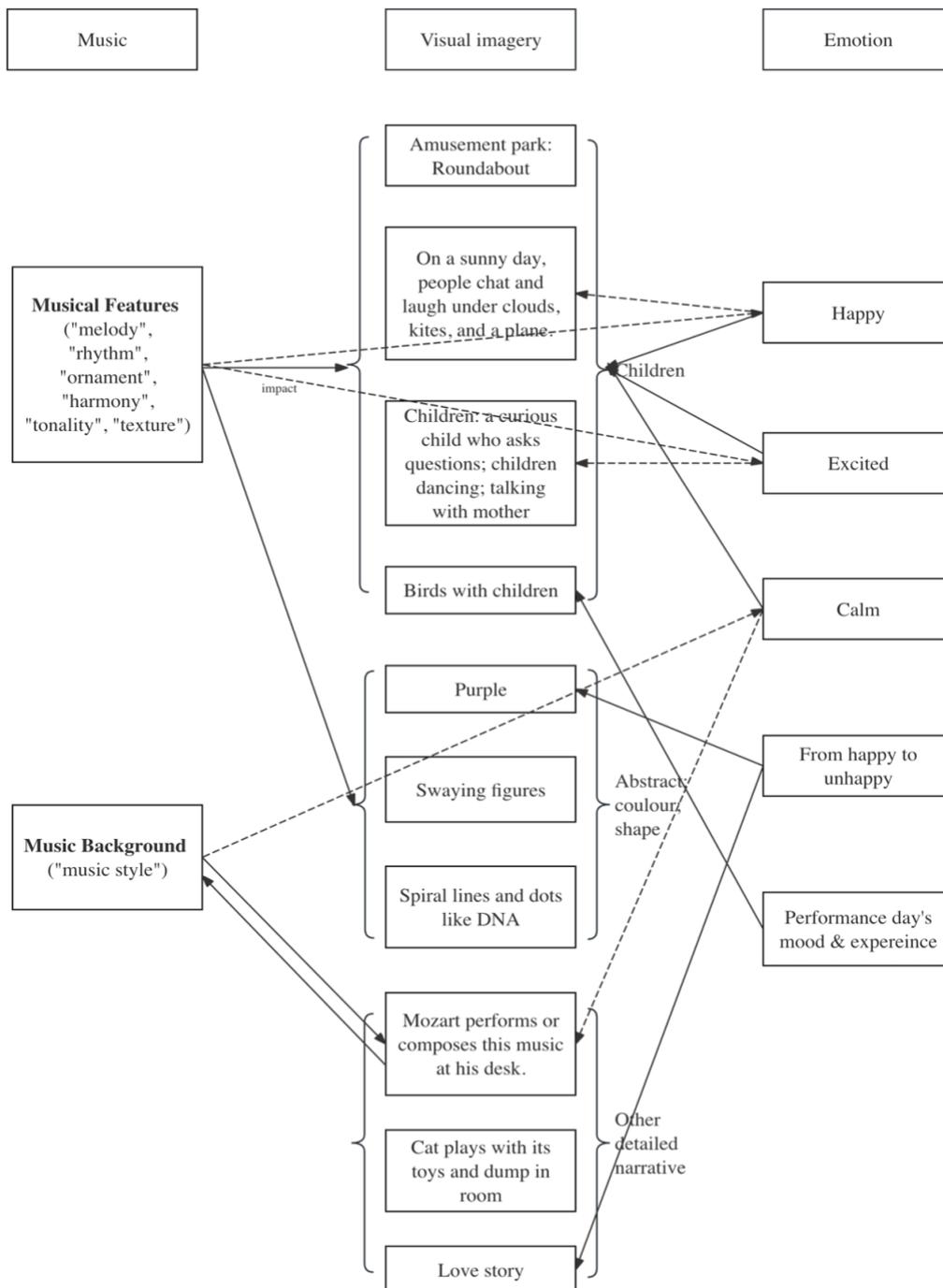
Relationships Between Music, Visual Imagery, and Emotion for Performances of the Theme



Note. The solid arrows represent the dyadic relationships between Music and VI, and Emotion and VI, while the dashed arrow indicates the triadic relationship between Music, VI, and Emotion.

Figure 3.2

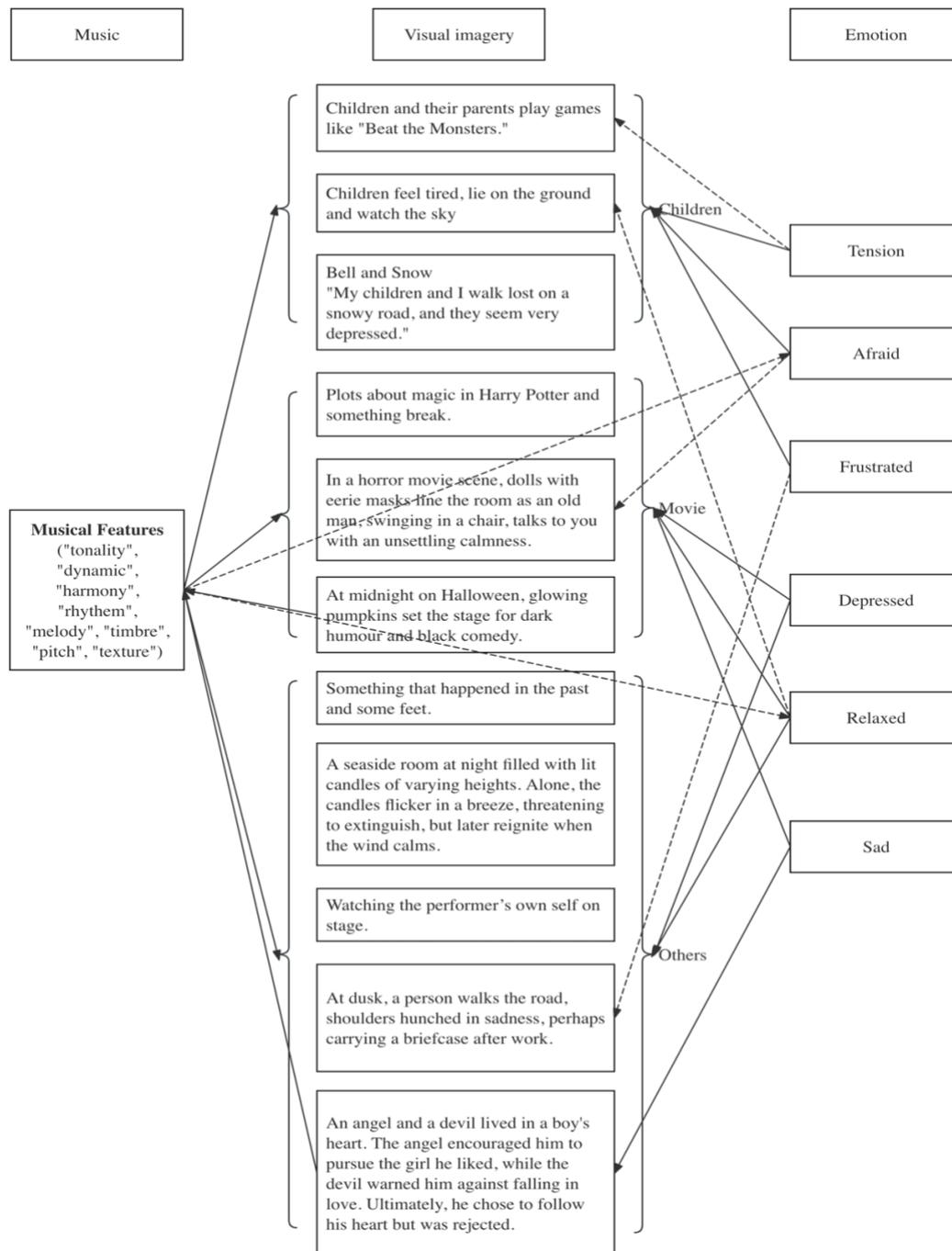
Relationship Between Music, Visual Imagery, and Emotion in Performances of Variation III



Note. The solid arrows represent the dyadic relationships between Music and VI, and Emotion and VI, while the dashed arrow indicates the triadic relationship between Music, VI, and Emotion.

Figure 3.3

Relationship Between Music, Visual Imagery, and Emotion in Performances of Variation VIII



Note. The solid arrows represent the dyadic relationships between Music and VI, and Emotion and VI, while the dashed arrow indicates the triadic relationship between Music, VI, and Emotion.

Figure 3.4

Examples of Participants' Annotations in Variation III

This image shows a page of musical notation for Variation III, spanning measures 74 to 90. The score is written in 2/4 time and includes both treble and bass staves. Handwritten annotations in blue ink are present: "birds native" is written above the first system (measures 74-81); "question mark" is written above the second system (measures 82-89); "my older son - playing" is written above the third system (measures 90-97); and "friends home" is written below the third system. The page number "2" is visible in the bottom left corner.

This image shows another page of musical notation for Variation III, spanning measures 74 to 90. The score is written in 2/4 time and includes both treble and bass staves. Handwritten annotations in blue ink are present: "木马 carousel" is written above the first system (measures 74-81), with a large blue circle around the text and the first system. The text "VAR. III." is circled in blue at the beginning of the first system. The page number "2" is visible in the bottom left corner.

跳音的部分有种在跳跃的感觉
feels jump

74 VAR. III

82

90

positive love story 爱情故事
积极向上 身琴板 practice piano
want to change 想去改变
but it doesn't work. 但又不济事
but still insist

74 VAR. III

82

90

Figure 3.5

Examples of Participants' Annotations in Variation VIII

VAR. VIII. Minore.

194

p

202

211

magic broke

feet

sigh

Detailed description: This image shows a handwritten musical score for Variation VIII, Minore. The score is written on three systems of staves (treble and bass clefs). The first system starts at measure 194 and includes a piano (*p*) dynamic marking. The second system starts at measure 202. The third system starts at measure 211. Handwritten annotations in black ink include the word "magic broke" written above the treble clef in the third system, and the word "feet" written below the bass clef in the first system. A circled note in the first system is also annotated with "sigh".

VAR. VIII. Minore.

194

p

202

211

万圣节 Halloween 黑夜 midnight

脚步 feet

脚步 feet

Detailed description: This image shows a handwritten musical score for Variation VIII, Minore, similar to the one above but with blue ink annotations. The score is written on three systems of staves. The first system starts at measure 194 and includes a piano (*p*) dynamic marking. The second system starts at measure 202. The third system starts at measure 211. Handwritten annotations in blue ink include "万圣节 Halloween 黑夜 midnight" written above the treble clef in the first system, and the word "脚步 feet" written below the bass clef in the second and third systems. A circled note in the first system is also annotated with "脚步 feet".

Handwritten musical score for "VAR. VIII. Minore." (Mozart's Theme and Variations). The score is annotated with Chinese and English text:

- At the beginning (measure 194), there is a circled "VAR. VIII. Minore." and the Chinese text "打游戏的面面, 紧张的感觉" (gaming face, tense feeling). Below this, "playing games" and "intension" are written in blue ink.
- At measure 202, the Chinese text "魔鬼出现" (devil appears) is written above the staff, with "devil appear" written in blue ink below it.
- Dynamic markings include *p* (piano) at the start, *mf* (mezzo-forte) at measure 198, and *f* (forte) at measure 202.

Handwritten musical score for "VAR. VIII. Minore." with English annotations:

- At measure 194, "bats (1st time)" is written above the staff.
- At measure 198, "lost in the snow (2nd time)" is written below the staff.
- At measure 202, "lost (2nd time)" is written below the staff.
- At measure 211, "delicious meals (first time)" is written below the staff.
- At measure 215, "hopeless (slightly panicked - trying to find who)" and "tiredness (2nd time)" are written below the staff.
- Dynamic markings include *p* (piano) at the start and *f* (forte) at measure 202.

Discussion

This study explored the relationship between VI, music, and emotion during musical performances of a Theme and Variations by Mozart. Dyadic and triadic relationships were found between VI, music and emotion, where VI was influenced by musical features and the background of the music, and influenced by emotional connotations of the music and those experienced by the performer. These relationships often seemed bidirectional; meaning, the influence is experienced to

be in both directions as mutually reinforcing experiences. For example, VI was both experienced as helpful in performing and interpreting the music and as influenced by its stylistic and emotional character. We discuss the findings for each relationship in connection with existing research and its implications for music pedagogy and psychology of performance.

Regarding the dyadic relationship between music and VI, research on music listening suggests that the content of VI is shaped by listeners' perception and interpretation of music, rather than emerging independently of the music-listening experience itself (e.g., Herff et al., 2021; Koelsch et al., 2019; Taruffi et al., 2017). Studies have indicated that past life events, contextual information (Juslin, 2013), autobiographical memories, semantic knowledge, cultural associations (Borghain et al., 2023; Margulis & Jakubowski, 2024), and social aspects (Taruffi et al., 2023) impact the mental imagery. Consistent with these findings, our study also found that the musical background, which included historical developments, autobiographical memories and social contexts, impacted music performers' evoked content of VI. Participants described how their understanding of the composer and composition shaped their interpretation of the piece, which in turn influenced their experience of VI. Our research supports the idea that VI can be utilized in relation to musical structures in music education (Woody, 2002). For example, discussion of relationships between musical features and VI may offer opportunities for dialogue between student and teacher, which may also support expressive performance (Meissner & Timmers, 2019).

Whilst some relationships between VI and musical background were quite general, various findings indicated close and specific relationships between musical features and VI, which is similar to what listeners have reported (Herff et al., 2021). In alignment with previous research, a variety of features as well as their interaction may influence VI (Dahl et al., 2023; Herff et al., 2021; Juslin, 2019; Rudenko & de Córdoba Serrano, 2017). Indeed, we found that music performers experienced more detailed and narrative VI when engaging with the more complex musical features of the Variations. This engagement may stem from their extensive music training, which enables them to process and respond to music with great cognitive depth (Dawson, 2011) and more efficiently

interpret musical image representations than non-musicians (Aleman et al., 2000). This suggests the potential usefulness of incorporating VI in music education in enhancing individuals' control over VI in relation to musical interpretation and understanding (Commodari & Sole, 2020).

With regards to the dyadic relationship between VI and emotion, our findings reveal that emotion was experienced as a critical factor directly influencing the experience of VI for music performers. This supports previous research (Day & Thompson, 2019; Day et al., 2020; Deil et al., 2023; Küssner et al., 2019) that highlights how emotion evokes listeners' VI. Our results support these arguments from music performers' perspectives and provide some detailed examples of the interplay between VI and emotion. For example, alignment between VI and perceived emotion was regularly observed, with positive emotions evoking happy imagery and negative emotions leading to negative imagery. This aligns with Koelsch et al. (2019), who reported that listeners experience emotionally congruent mind-wandering in response to music with distinct emotional tones. We also found that music performers effectively use VI to moderate their emotion expression during the performance, aligning with previous research (e.g., Connolly & Williamon, 2004; Finch & Oakman, 2022) and suggesting a dynamic, bidirectional relationship between VI and emotion. VI was confirmed to serve important functions, including reducing music performance anxiety (Finch & Oakman, 2022) and enhancing emotional expression (Clark et al., 2012; Connolly & Williamon, 2004; Woody & McPherson, 2010). Notably, employing VI at specific moments in a performance was found to facilitate expression and create rapid emotional transitions. This process appears to help music performers regulate parameters such as dynamics, timbre, intensity, and timing, resonating with Keller's (2012) findings that imagery can aid in planning and executing musical actions. Additionally, VI was found to evoke emotions for music performers, aiding in creating a specific emotional atmosphere during a performance. This aligns with previous studies by Juslin et al. (2008) and Küssner & Eerola (2019), which demonstrated the role of VI in emotion evocation. Our findings expand on this research by emphasizing the broader applications of VI in performance. We highlighted its multifaceted utility for music performers, who can evoke VI in relation to a musical

and emotional context, using it as a tool to enhance emotion expression and support their musical interpretation.

Related to this, our findings indicated that VI is experienced to support emotional communication between music performers and audiences, supporting previous research on the role of musical imagery in expressive communication (Clark et al., 2012) and in fostering a connection with the audience (Connolly & Williamon, 2004). This aligns with Bogunović et al.'s (2014) perspective that imagery serves as a communication pathway between composer, performer, and listener by imbuing music with meaning and effectively conveying its message. Additionally, our results suggest that VI can enhance music performers' cognitive understanding of the emotional and intentional aspects of music during practice. While our findings provide further evidence supporting the positive role of imagery, they also highlight its potential drawbacks during performance, such as distraction and diminished focus. This underscores the importance of using visual imagery strategically, as recommended by Presicce (2022) and Ginsborg (2004), who emphasize the value of employing it as a cue at appropriate moments rather than relying on it excessively. These insights contribute to a more nuanced and comprehensive understanding of VI's role in performance science and music education.

Finally, our findings reveal an intriguing pattern that music performers experience varying levels of diverse, detailed, and narrative VI across different emotional states, aligning with prior research with listeners by Martarelli et al. (2016) and Taruffi et al. (2017). However, these findings are somewhat in contrast to studies suggesting that listeners experience less frequent (Day et al., 2020; Martarelli et al., 2016) and less vivid VI (in daydreams) (Martarelli et al., 2016) in response to sad music. Specifically, music performers reported more frequent and detailed VI for the Variation in minor mode, which was associated with negative emotion. This difference may be from the differences between only listening and active performance; music performers engage deeply with the music, requiring active cognitive and emotional investment. Their VI may be part of this deep and active engagement, which might be different from processes evoking VI in listeners that have

been associated with mind-wandering (Deil et al., 2023; Koelsch et al., 2019; Taruffi et al., 2017).

For example, the enjoyment of sad music (Vuoskoski & Eerola, 2012) could amplify the richness of VI as performers interpret and internalize the emotional depth of the music. Another contributing factor may be the structural complexity of the musical features encountered in negative emotional contexts such as Variation VII. As discussed in the relationship between VI and music, more intricate musical elements, such as complex harmonies or shifting tonalities, can stimulate music performers to generate more vivid and elaborate imagery. This interplay between musical complexity and emotional engagement underscores the dynamic nature of VI in performance. These findings point to the need for further exploration of how emotional and musical factors interact to shape the imagery music performers experience and their implications for performance training and education.

In addition to the dyadic relationships observed, triadic relationships between VI, music, and emotion were also fairly common. First, we observed that music performers' emotional experiences were influenced by their understanding of the musical background of the piece and its composer, which subsequently impacted their VI. This aligns with research by Vuoskoski and Eerola (2015), which suggests that background information about a musical piece can intensify the emotions it induces in listeners. Similarly, Chmiel and colleagues (2024) provide further support by demonstrating that a historical framework (accompanying historical information presented alongside a work) benefited listeners' mood and emotional responses. Our study shows parallel findings in highlighting how music performers' familiarity with and understanding of the music supports their emotional responses and enriches their VI experiences.

Second, our findings suggest that distinct musical features are closely linked to specific emotional responses, aligning with prior research focused on listening (Evans & Schubert, 2008; Schubert, 2004). These emotional responses, in turn, play an important role in shaping music performers' VI experiences. Notably, musical features appear to influence VI indirectly by modulating emotional connotations. For example, elements such as texture, tonality, and dynamics

interact with the emotional tone of the music, collectively enhancing and shaping the imagery experience.

In this discussion we have identified many overlaps between this study's findings with musicians and previous research with listeners. These overlaps are noteworthy as parallels between music performers and listeners are not self-evident. It suggests that the act of performance is not a barrier for VI to be experienced, but VI experiences seem similarly rich and versatile. Additionally, we have identified a number of potential differences between performers and listeners. It would be worthwhile in future research to more directly compare between listeners' and musicians' experiences of VI in relation to music, examining similarities and differences. For example, whilst parallels may be observable between the kind of VI experienced and what elements inform the VI, there may still be significant differences in the processes evoking VI. Our research emphasises the relevance of the role of VI in the interpretation of the music, and in understanding its structure and emotion. It is not known whether VI plays a similar role in listening. Furthermore, music performers may employ VI strategically with a level of control. Again, it is unknown whether such deliberate usage of VI is also relevant for listeners.

Limitations, Implications and Future Research

As a case study, the data collected in this research is based on a small sample and limited musical repertoire. While these results offer valuable inductive insights, future research could validate the findings through a deductive study with a larger population, also examining performers from different backgrounds to enhance generalizability. For instance, we here have hypothesised that different emotions may impact the diversity and vividness of VI experienced during music-related tasks. This hypothesis can be further examined through follow-up research that varies the musical materials systematically and examines VI in an appropriate sample of participants.

Our second limitation relates to the use of only three excerpts as stimuli that were intended to offer different musical and emotional affordances. Expanding the range of music and exploring a broader variety of emotion contexts, contents, and dimensions in future research could yield more

comprehensive insights into the interplay between VI and felt and perceived emotion, particularly from music performers' perspectives. Furthermore, it will be important to examine musicians performing and having a background in different genres, as much research so far has included music from a Western classical tradition. For example, previous research with listeners has indicated variations in imagery depending on musical genre (Jakubowski et al., 2024).

A potential limitation of this study lies in the design of the task induction. We focused on exploring the VI experienced by music performers during performance, without distinguishing whether the imagery was intentional or spontaneous. Although intentional and spontaneous imagery represent different cognitive processes, they often co-occur during musical performance and practice. As such, we did not instruct participants to differentiate between them. The lack of distinction between intentional and spontaneous VI may limit the specificity of our findings regarding the underlying mechanisms of each type. Furthermore, our participants were not blind to the objectives of the study of investigating VI, nor were they blind to our interest in the influence of emotions. This allowed us to investigate what VI was experienced in relation to emotion and music. Music performers may have reported more of these experiences than would be typical in their practice and performance.

Finally, several findings from this study can be explored further in future research. For instance, it is worth investigating whether more complex musical features (e.g., varied structural sections, irregular rhythms, multiple voice parts or layered textures, and numerous ornaments) significantly influence the individuals' vividness and diversity of VI. Additionally, one could examine whether individuals experience more frequent and detailed VI in response to music with a sad tone and explore the factors driving this phenomenon. Understanding these processes could provide more insights into the role of VI across various musical and emotional contexts. It could also explore practical applications using action research, helping music performers to effectively utilize or regulate VI to enhance their performance and adapt it to different scenarios.

For music educators, these insights offer pedagogical implications for integrating VI as a

teaching strategy (Woody, 2002). By incorporating VI into teaching, educators can support students in developing both cognitive and emotional engagement with music, fostering more expressive and nuanced performances. Furthermore, understanding the relationship between music and VI may provide a framework for enhancing students' comprehension of musical structure and emotional communication in performance. Future research could further explore the application of VI as a teaching strategy in music education, examining its validity and potential pedagogical approaches.

Conclusion

This study provides valuable insights into the complex relationship between visual imagery, music and emotion as well as its impact on music performance from the perspective of music performers. Although current research has widely explored VI in the context of music listening, few studies have examined the various interactions between VI and music, and the role of emotions in the context of music performance. This study addressed this gap using an exploratory case study investigating the relationships between VI, music and emotion during performances of set pieces of music. The findings of dyadic and triadic relationships between VI, music, and emotion reveal a dynamic recursive process: each of these elements shapes the other during performance in an interpretive loop, often in ways that support performance. Notably, apart from positive impacts, we also identified potential negative effects of this relationship on performance, which broadens our understanding of how music performers experience VI. The study contributes to a deeper theoretical understanding of the interdependencies between VI, music and emotion and their manifestations and roles in performance, guiding future research toward a more systematic exploration of these impacts. On a practical level, the findings offer musicians useful insights into the utilisation of VI to enhance their performance and control their emotional expression, while also informing them to start paying attention to its potential negative influence. This research suggests VI as a useful tool in music education, where educators can incorporate it as a strategy to help students develop a deeper understanding of both emotion and music. Future research could further explore this relationship in music performance teaching and identify ways to mitigate negative impacts and develop effective

approaches for integrating VI in music education to enhance performance and emotional expression, with a particular focus on musicians' perspectives.

Chapter Four - The Role of Visual Imagery in Communication Between Teachers and Students During Music Performance Teaching

Forthcoming:

Qi, K., & Timmers, R. The role of Visual Imagery in communication between teachers and students during music performance teaching. [Manuscript in preparation]. Department of Music, University of Sheffield.

Statement of Contribution of Joint Authorship

Qi, K. - (Candidate)

Conceptualisation of the study, data collection and analysis, writing and compilation of manuscript, preparation of tables and figures.

Timmers, R. - (Principal Supervisor)

Supervised and assisted with research design, advised on data analysis, interpretation of results, and reviewing and editing of manuscript.

Linkage of Paper to Research Methodology and Development

The final study extends the first two studies into classroom practice by examining how visual imagery (VI) operates in music performance teaching. Building on Chapter 2, which examined musicians' general experiences of VI and the factors influencing it, and Chapter 3, which explored relationships among VI, music, and emotion as well as the perceived helpfulness of VI, we conducted an action research project to investigate teachers' use of VI and students' responses. Through content and thematic analyses, we developed a two-way model of VI in pedagogical communication:

teachers used VI, and students received, reflected on, and communicated it back to teachers. This model highlights the role of VI in supporting musical understanding, expression, and cross-cultural communication, and offers practical guidance for integrating VI into performance teaching, underscoring its pedagogical importance.

Abstract

Visual imagery (VI) is an established yet under-researched teaching strategy in music performance education that can support the communication of expressive musical features. This article draws on literature relating to imagery, music performance pedagogy, and teacher–student communication to situate an action research project examining the use of VI in one-to-one music performance teaching contexts. The study focused on piano and vocal performance lessons involving 3 teachers and 8 students, in which VI was examined as both a pedagogical and communicative tool. The project employed a collaborative action research framework, including researcher observations; video and audio recordings of 32 individual performance sessions; 3 focus groups involving each teacher and their students; and 11 follow-up stimulated video recall interviews. Findings indicated that VI was a commonly used strategy, employed both consciously and unconsciously by teachers and adapted in individual ways according to students and musical repertoire. Three overarching characteristics of VI use were identified: its multi-strategic nature, responsiveness to learners and repertoire, and deliberate application to support musical understanding, expressive development, and cross-cultural communication. Students’ responses suggested that intentional use of VI supported musical understanding and expression, encouraged development of imagery skills, and enabled VI to function as both a reminder cue and a communicative resource. The study suggests that VI can bridge cognitive, emotional, and technical dimensions of performance learning and provides a model for enhancing teaching practice in music performance education.

Keywords: Visual imagery, teaching strategies, music learning, music performance, expression

Introduction

Imagery and metaphors are commonly used in music performance teaching to help students develop expressive qualities related to emotion, mood, and gesture (Woody et al., 2024; Bonastre & Timmers, 2021; Wolfe, 2018; Zorzal, 2020; Meissner & Timmers, 2020). Nevertheless, not much is known about how teachers use visual imagery (VI) in their teaching and how students perceive its role in their learning, including in contexts where teachers and students come from different cultural backgrounds. This study aimed to investigate the role of VI from both teachers' and students' perspectives, with a focus on how imagery supports interaction in music performance lessons. The research question was: how is VI used in music performance teaching, how do students and teachers experience its use, and how may it influence learning and communication between them? The aim of this study is to contribute to a more comprehensive understanding of the role of VI in music teaching and learning, with particular emphasis on communicative processes between students and teachers. In doing so, the study seeks to inform pedagogical practice by highlighting ways in which VI may be intentionally employed as an instructional strategy to enhance musical understanding and expression.

Literature Review

Visual imagery (VI) in music has been defined as “a broad umbrella term, which can be described in the most general sense as ‘seeing’ in the absence of the appropriate immediate sensory input while listening to, or making, music” (Taruffi & Küssner, 2022, p. 57). Building on this definition, Presicce (2022) further conceptualised VI in music performance as encompassing three main categories. The first, spontaneous visual imagery, refers to passive or involuntary imagery that arises unexpectedly during performance or listening, such as mind wandering (Taruffi & Küssner, 2019). The second, heuristic visual imagery, describes the proactive or voluntary use of images that shape aspects of performance, including musical expression, tone production, and ensemble cohesion, often through heuristic processes (Presicce, 2022). The third, strategic visual imagery, denotes goal-directed imagery consciously employed to address specific performance aims, such as

targeting technical or expressive outcomes (Presicce, 2022, p. 271). In the present study, we focus on both spontaneous and deliberate uses of VI as they occur in the context of music performance teaching. Following Taruffi and Küssner (2019), imagery is understood as “internally generated pictorial representations (e.g., landscapes, colors), embodied image-schemata (e.g., perceiving melodic motion as ascending or descending), or complex visual narratives (e.g., cinematic-like sequences) that arise in the mind and influence behaviour” (p. 63). VI may encompass related phenomena such as mental imagery and metaphor. Following prior work, mental imagery denotes internally generated representations of objects, events, or sensations, often described as “seeing with the mind’s eye” or “hearing with the mind’s ear” (Kosslyn et al., 2001, p. 635; cited in Talamini et al., 2022). Metaphor is the conceptual process through which a target domain is understood in terms of a source domain, grounded in image-schematic structures shared by music and language (Lakoff & Johnson, 1980; Johnson, 1987; Zbikowski, 2008; Schaerlaeken et al., 2019). In music pedagogy, such metaphors often serve to evoke and organize the imagery that performers employ (Woody, 2002). In the present study, VI is used as an inclusive term that subsumes related constructs frequently addressed in music pedagogy, namely mental imagery and metaphors that are used in a pictorial manner during instruction. This inclusive definition allows us to consider both spontaneous and deliberate (heuristic and strategic) uses of imagery as they are operationalised in music performance teaching.

The functions of VI in music performance have been explored. Research shows that performers can enhance their memorisation of music (Chaffin & Imreh, 2002; Ginsborg, 2004; Kvifte, 2001; Saintilan, 2014), reduce performance anxiety (Connolly & Williamon, 2004; Finch et al., 2021), and facilitate mental rehearsal through imagery (Bernardi et al., 2013). Davidson-Kelly et al. (2015) argued that deliberate mental imagery rehearsal can strengthen technical facility, musical quality, and memory security, thereby enhancing overall performance on stage. Similarly, Clark et al. (2012) suggested that imagery can help musicians maintain focus, recover from errors, build mental toughness, display confidence, and manage mental and physical fatigue. Together, these findings

demonstrate that VI is a valuable tool for optimising music performance across expressive, technical, and psychological dimensions.

Building on its importance for performance, VI has been increasingly recognised as a useful pedagogical strategy in music education. Schaefer (2022) suggested that imagery holds considerable potential to facilitate learning, while Wolfe (2018) highlighted how the deliberate and creative use of VI supports pedagogical claims that imagery fosters meaningful relationships within the learning environment through shared experiences. Woody and colleagues (2024) similarly found that imagery-based instruction improved performers' expressive quality, a point also supported by Meissner and Timmers (2020), who emphasise the value of metaphors and character imagery for enhancing expressiveness. More specifically, imagery and metaphor further assist students in building an emotional connection with music during expressive performance (Woody, 2002). Similarly, Wolfe (2018) and Zorzal (2020) supported this point and indicated that teachers often adopt imagery-based language to guide students in expressing emotions, moods, or gestural motions. At the same time, VI contributes to technical development. Wolfe (2018) indicated that imagery stimulates the sensorimotor experience of playing, while also aiding memory and internalisation. Expanding on these dual roles, Zorzal and Soares-Quadros Jr. (2021), drawing on earlier studies (Barten, 1998; Schippers, 2006; Zorzal, 2020), identified four instructional objectives for imagery use:

- (1) technical or context-free motion (e.g., metaphors grounded in everyday actions); (2) technical with aesthetic intentions, or contextual motion, directly tied to musical gestures;
 - (3) imagery referring to expression, aesthetics, or meaning; and (4) imagery related to mood.
- (p. 10)

Moreover, the effectiveness of VI in education depends on several contextual factors. For example, teachers vary their use of imagery depending on students' levels of musicianship (Zorzal, 2020) and cultural backgrounds (Wolfe, 2018). Teachers also select imagery content that supports students' comprehension and engagement. They further adjust their use of VI based on students'

responses, sometimes encouraging collaborative discussions of musical interpretation, which Graham (1998) argued can foster creativity and ownership in performance.

Finally, frameworks from related domains such as sports psychology have provided further insight into imagery's pedagogical potential. Holmes and Collins (2001) developed the PETTLEP model, a structured guideline for performance enhancement through imagery. Although originally designed for athletes, it has since been explored in music performance contexts (Clark et al., 2012; Wright et al., 2014), although further research is needed to establish its efficacy in music education.

Taken together, these studies demonstrate that VI serves not only as a valuable tool for enhancing musical performance but also as a potentially useful strategy in music education. By enhancing music students' expressive performance (e.g., emotional expression, memorization, technical skills, and anxiety reduction) and improving the quality of learning and practice (e.g., motivation and musical understanding), VI addresses multiple aspects of performance that are important for both learning and teaching. The present study examines the role of VI in communication between students and teachers within music performance teaching. The study was guided by the following research questions: (a) How is VI used in music performance teaching? (b) How do students and teachers experience its use? and (c) How may VI influence learning and communication between them? To address these questions, an action research approach was employed, incorporating perspectives from both students and teachers to examine how VI functions in communicative and pedagogical contexts.

Method

Methodological Approach

This study adopted an action research (AR) design to investigate the use of VI in one-to-one music performance teaching within higher education contexts. The project was designed to support tutors' reflection on practice and pedagogical decision-making while enabling close engagement with authentic teaching and learning settings, in which reflection and action inform one another (Altrichter et al., 2008; Cain, 2008). Through collaboration with tutors and students, the study aimed

to develop a practice-informed understanding of how VI functions as a pedagogical strategy in performance lessons.

The research was conducted over two iterative cycles, each spanning one to two months and comprising two regularly scheduled teaching sessions (see Figure 4.1). The cycles followed a “planning – doing – monitoring – cycles” framework (Ward, 2009), allowing reflections generated in one cycle to inform subsequent actions.

To ensure pedagogical authenticity, the authors did not assume the role of tutors. Instead, experienced music performance educators teaching at the higher education level were invited to lead the instructional sessions. The authors remained actively involved throughout all stages of the AR process, including project design, participatory observation, focus group facilitation, data collection, and reflection.

Table 4.1

Participants’ General Information

Group	Instruments	Teachers	Students	Level of Study	Gender	Nationality
1	Piano	T1	S1	Postgraduate	Female	Chinese
			S2	Undergraduate	Female	British
2	Piano	T2	S3	Postgraduate	Male	Chinese
			S4	Postgraduate	Female	Chinese
			S5	Postgraduate	Female	Chinese
3	Vocal	T3	S6	Undergraduate	Female	Chinese
			S7	Undergraduate	Female	British
			S8	Undergraduate	Female	British

Participants

Three British music teachers (two males and one female) took part in this research: two pianists and one singer. All three had extensive teaching experience (> 28 years). Nine music performance students studying music at the University of Sheffield (one male and eight females) participated including five piano and three vocal students (see Table 4.1). Years of formal training in voice or piano ranged from 3 to 10 years. All participants were invited to attend two cycles of the study. In Cycle 1, the tutors adopted their usual teaching strategies and reflected on their use of VI, and in Cycle 2, they were encouraged to adopt VI as a teaching strategy consciously based on their reflections on VI in Cycle 1 and share their findings. They were also committed to exploring music performance teaching and demonstrated openness to collaborative practice and reflective inquiry (Meissner & Timmers, 2020).

Materials

Data generation materials included video and audio recording, semi-structured focus group protocols, and Video-Stimulated Recall Interview (VSRI) prompts. Video and audio recordings were used to capture one-to-one music performance teaching sessions in situ. Video excerpts from Cycle 2 were subsequently used as stimuli during the VSRI to support participant reflection on teaching and learning processes.

Semi-structured open-ended question guides were employed for both focus group discussions and VSRI to ensure consistency across participants while allowing flexibility for participants to elaborate on their experiences. The guiding questions for these activities are presented in Table 4.2.

Procedure

Before Cycle 1, the researchers shared an overview of the study design with participating tutors through informal discussion. During the initial phase of Cycle 1, tutors conducted lessons using their usual instructional approaches, without consciously incorporating VI. This phase aimed to

Table 4.2*Focus Group and VSRI Questions*

Type	Questions Contents
Focus Group	Can you each give an example of VI that you had during one of the sessions? Can you briefly explain what your imagery was and why you may have experienced it? How did you experience having VI? Was it useful in any way?
	Is VI sometimes also a negative phenomenon for you? Does it hamper you in any way and did this happen in one of the sessions?
	How do you see the relationship between VI and performing music expressively? How is this for each of you? Can you give an example.
	I would like to encourage you to use VI regularly where possible in the upcoming lessons. Do you think that is possible, and can you share some ideas about how or when you might use VI?
Video-Stimulated Recall Interviews	Reflecting back on the lessons, can you explain how successful or not was the use of VI and why?
	How would you compare VI with other teaching strategies, such as body language, gestures or modelling?
	Did you experience any differences in how they made you feel?
	Or differences in communication between the teacher and student?
	Can you explain what happened in this video?
	What was the reason for using VI here?
What worked, and what did not work?	

establish a naturalistic teaching and learning context, document typical pedagogical interactions, and explore and reflect on the use of VI in the teaching practices.

In the second phase of Cycle 1, a focus group discussion was conducted with each tutor and their students. Discussions were facilitated and recorded by the first author, lasted approximately 50 minutes, and were guided by four semi-structured questions (see Table 4.2). The focus groups centred on participants' reflections on the first two teaching sessions, with particular attention to

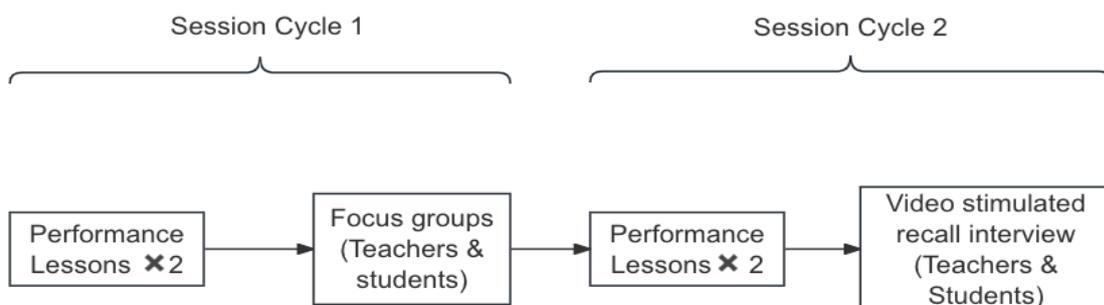
tutors' use of VI and students' experiences of and responses to it. Insights from these discussions informed the planning of subsequent teaching sessions.

Reflections arising from Cycle 1 informed tutors' more deliberate incorporation of VI during Cycle 2. Upon completion of Cycle 2, video-stimulated recall interviews (VSRIs) were conducted with all participating tutors and students. Video excerpts from the recorded lessons were used to prompt reflection on teaching and learning processes, with particular attention to the use of VI. This approach enabled in-depth exploration of participants' perspectives and contributed to theory development regarding the role of VI in one-to-one music performance teaching (Altrichter et al., 2008). These phases operate as two cycles of teaching and action research. The first cycle concludes with reflection, and these reflections inform the planning of the subsequent phase, thereby initiating Cycle 2 (Elliott, 1991; Stringer, 2007, cited in Ward, 2009).

Ethics approval for this study was obtained from the Ethics Committee of the Department of Music at University of Sheffield. All video and audio data were stored separately, with Cycle 1 data kept on the X drive and Cycle 2 data on Google Drive, both selected for their large storage capacities. The departmental risk management procedures were completed.

Figure 4.1

The Process of Action Research



Data Analysis

Data analysis began with a three-phase content analysis approach (Elo & Kyngäs, 2008) to inductively categorise the qualitative data and develop a descriptive overview (Crowe et al., 2015). All interview and focus group data were transcribed verbatim in Chinese and translated into English for consistency prior to analysis. These data were analysed alongside video-recorded teaching sessions, which were reviewed to identify instances of VI, teaching strategies (both general and VI-specific), and teacher–student interactions. Annotations generated during video review also informed the VSRI.

Data segments relating to the use and experience of VI and other pedagogical strategies, as reported by tutors and students, were subjected to open coding and grouped into categories. These categories then formed the basis for a thematic analysis following Braun and Clarke's (2006) five-phase framework. Initial codes were iteratively organised into themes, which were reviewed and refined by KQ to ensure coherence and completeness.

Reflexivity was supported through ongoing reflective discussions among the researchers and repeated engagement with the data across cycles. Trustworthiness was enhanced through triangulation of multiple data sources, including lesson recordings, focus groups, and VSRI. The final themes were defined, named, and presented in the results (Braun & Clarke, 2006; Crowe et al., 2015).

Result

Content analysis of the video-recorded sessions revealed variation in the contents of VI employed, the frequency of its use, and the strategies through which it was integrated into instruction. These patterns provided an overview of teachers' actions and decisions of VI. Thematic analysis of focus group and interview data produced five themes, twelve sub-themes, and twenty-three codes from both teacher and student perspectives of using VI during one-to-one performance sessions, highlighting VI's role in facilitating communication and promoting shared understanding between the teacher and student during the sessions.

Content Analysis: Teachers' Actions and Decisions in the Use of VI

This section presents findings from the content analysis of teaching sessions and focus group discussions conducted across two instructional cycles (see Figure 4.2). Appendices F, G, and H illustrate substantial variation in teachers' use of VI. Across the four sessions, the analysis indicates that all tutors employed VI, either consciously or unconsciously, though their approaches differed markedly. Despite these differences, several shared features emerged: (a) all tutors drew on similar categories of imagery (e.g., nature, landscapes, narratives, and instruments); (b) their use of imagery was informed by their personal experiences and understandings; (c) VI was approached as a flexible, student-centred pedagogical tool rather than a fixed method; and (d) VI was rarely used in isolation, instead being consistently integrated with other strategies such as modelling, conducting, gesture, and dialogue.

In Cycle 1, T1, a piano tutor who self-identified as a highly visual person, employed a wide range of imagery with considerably higher frequency than the other two tutors. His imagery predominantly referenced elements from nature (e.g., leaves, sky, birds), geometric shapes (e.g., circles, squares), and musical instruments (e.g., violin). Many of these images were recurrent and appeared to be unconsciously anchored to specific musical moments, such as likening water to the flow or speed of music. VI was frequently integrated with modelling, conducting, body movement, and dialogue, and was applied throughout the session to address emotional expression, technical aspects, and musical elements. In this way, VI supported students' emotional engagement, technical development, and musical understanding. In contrast, T2, the other piano tutor, used relatively little VI during the first two sessions, relying more heavily on modelling and conducting, with imagery serving a supplementary role. When VI was employed, it was often exploratory and closely tailored to students' needs, drawing primarily on imagery related to nature and musical instruments, particularly string instruments. For example, he asked one student to close his eyes and visualise hand movements or explicitly explained the rationale behind a chosen image. This pattern suggests

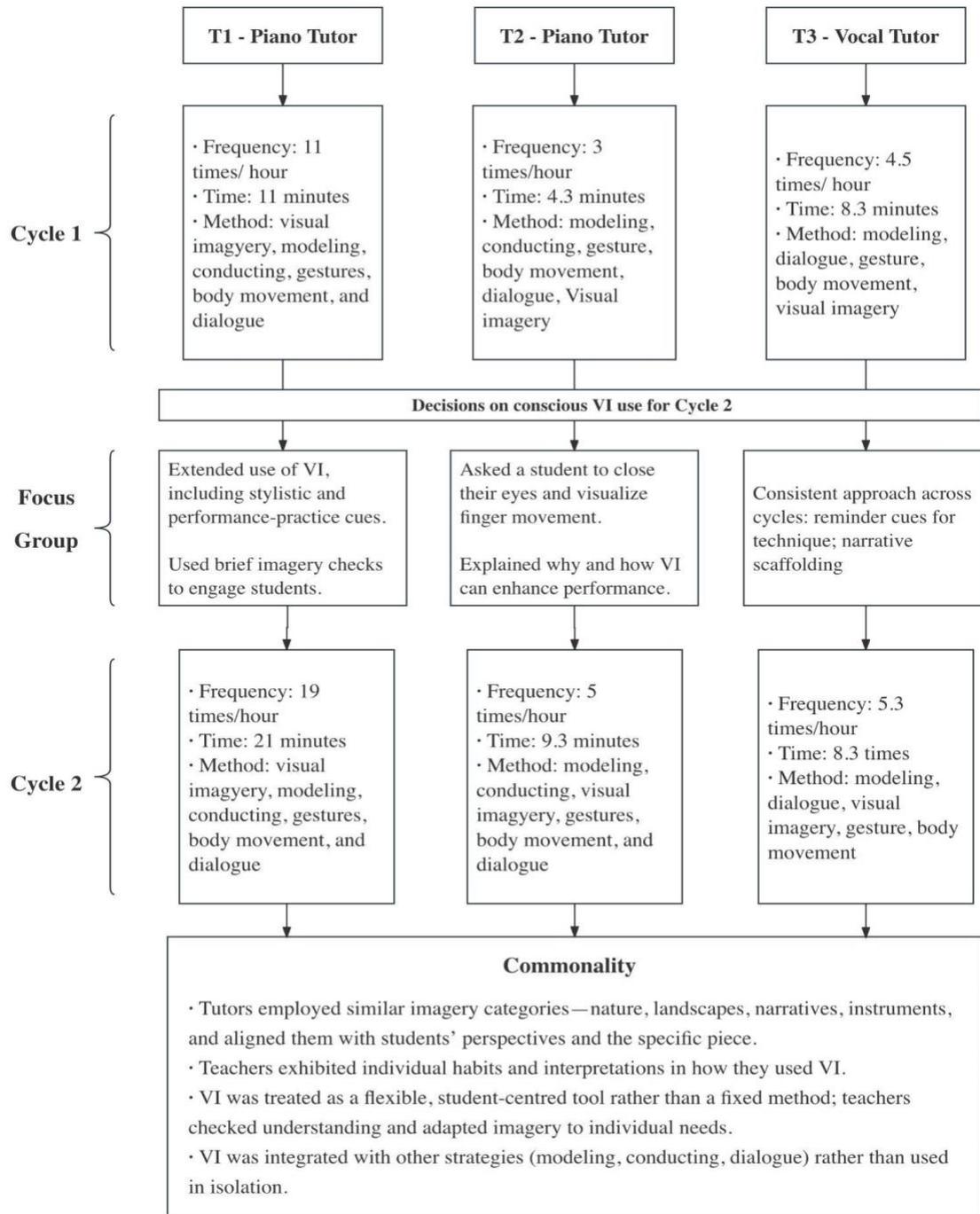
that T2 treated VI less as a habitual mode of communication and more as a flexible pedagogical resource, adjusted in response to students' levels and reactions.

T3, the vocal tutor, demonstrated the most systematic use of VI. Her approach was characterised by narrative-driven, character-based imagery closely aligned with song lyrics, alongside a set of recurring images (e.g., "hot chocolate," "strong women") used to cue vocal placement. VI was primarily employed to support lyric interpretation, understanding of emotional context, coordination of physical actions (e.g., positioning for sound production), and technical aspects such as vowel placement. For more advanced students, her imagery appeared less explanatory and functioned more as shorthand cues, reflecting shared familiarity with her teaching approach.

During the Cycle 1 focus group discussions, tutors and students reflected on their experiences and perceptions of VI use in the recorded sessions. These reflections informed pedagogical adjustments in Cycle 2. For example, T1 decided to invite students to describe imagery before performing and to adopt simpler, more culturally accessible images for one Chinese student. T2 planned to experiment with new ways of introducing and applying VI, while T3 indicated that she would continue to adapt her use of VI responsively during lessons.

Cycle 2 (see Appendix F, G, and H) generally demonstrated more targeted and integrated use of VI than Cycle 1. T1 further refined his use of imagery, applying it not only to describe musical features, emotions, and atmosphere, but also to convey stylistic elements and performance practices. He also engaged students more actively through dialogue, frequently prompting reflection with questions such as, "How do you feel about the image here?" T2 adopted a markedly different approach from Cycle 1, for instance instructing a student to close his eyes and imagine finger movements to reinforce fingering memory and explicitly explaining how and why VI could enhance performance. T3's approach remained relatively consistent across both cycles, continuing to use VI as reminder cues in two main ways: to help students discover appropriate vocal techniques or develop personal imagery to support technical work, and to scaffold dialogic, narrative-based

Figure 4.2

Teachers' Decision-Making and Actions Across the Two Cycles and Focus Group

Note. “Frequency” and “time” indicate the average number of times and duration teachers used VI with each student during a one-hour session.

learning by inviting students to “tell me the story.” Follow-up interviews further deepened these content-analytic findings by illuminating tutors’ and students’ underlying rationales and experiences related to VI use.

Thematic Analysis: The Role of Visual Imagery in Music Teaching

This section presents findings from the thematic analysis of focus group and interview data, organised around six key themes (see Table 4.3): VI as a multi-strategy approach, personalised use, a bridge for musical understanding and expression, an emotional connector, a reminder cue, and a cross-cultural tool. These themes illuminate the role of visual imagery within the music teaching process.

Table 4.3

Theme, Subtheme, and Code from the Participants

Theme	Subtheme	Code
VI is multi-strategy	VI combined with modelling	Teachers model technique using VI
		Modelling with VI enhances students’ understanding
	VI combined with gesture and body movement	VI-supported modelling aids comprehension for second-language learners
VI is personalized	Teachers’ adapt VI to student characteristics	Teachers’ adapt VI to student characteristics
	Teachers’ tailor VI to music features and contents	
	Refine students’ existing VI	Students organised and refined imagery through the received VI from teachers
		Students integrated teacher provided VI with their understanding
Develop students’ creativity of VI		

	Fostering the conscious use of VI	Students consciously create their VI
VI as bridge for music understanding and expression	VI simplifies complex musical concepts and techniques	VI simply's music technique develop students understanding
		VI simply's music terms develop students understanding and memorization
	Developing music expression	Develop the efficiency of learning musical technique
	Shared understanding of the imagery	
VI as an emotional connector	Interpreting perceived and expressed emotion	VI helps students perceive musical emotion
		VI helps students' express emotion naturally
	Emotional status impacts VI experience	The emotional atmosphere of different sessions influenced students' VI experiences
VI as the reminder cue	VI remind students during sessions	VI enhance students' efficiency of understanding teachers' meaning
	VI reminds students during practice	VI reminds students of their teachers' instruction during practice
		Student reinterpretation of teacher provided imagery
VI as a cross-cultural tool	Bridging language barriers through shared imagery	
	VI for resolving culture-based misunderstandings	

Theme 1. VI Is Multi-Strategy

VI Combined with Modelling. All students reported that when VI was combined with modelling, gestures, and body movement, it became easier for them to understand and apply it during music performance sessions. Several students felt that the combination of modelling and VI deepened their musical understanding. As S8 explained,

I think modelling works best with visual imagery when it's together... If she's explaining what she's doing through visual imagery, that gets through to me a bit clearer. (S8)

This response suggests that students value understanding the rationale behind teachers' use of VI, as it can deepen their learning. One student (S5) further supported this point, explaining that when the tutor introduced an image and then combined it with modelling, she was able to grasp the imagery more effectively and gain a clearer understanding of the teacher's intention, resulting in a more efficient learning process. Taken together, these accounts indicate that explicitly introducing and explaining the reasons for using VI—rather than focusing solely on the imagery itself—can enhance students' comprehension and support more effective learning.

This perspective was also shared by teachers, who recognised the importance of integrating multiple instructional strategies rather than relying solely on VI. As T1 reflected:

I think it is good to combine the things... I don't think I could go everywhere with just the visual imagery. I need to combine it. It's another aspect which is very useful. (T1)

He also noted, "I probably didn't realize how much visual image there is," suggesting that teachers sometimes use visual imagery alongside other strategies unconsciously or instinctively, rather than as a deliberate, standalone method.

VI Combined with Gesture and Body Movement. From the teachers' perspective, T2 emphasised the value of integrating gesture and body movement to support student understanding, particularly for students learning in a second language.

Especially with the students here, where they are using their second language, I find that gestures and just doing things in my body helps to reinforce what I'm saying (VI). (T2)

Theme 2. Visual Imagery Is Personalised

Teachers adapt VI to student characteristics. Teachers reported adapting their use of VI to students' individual characteristics, including performance level, personal experience, and responses (Appendix I). As T2 noted, "VI is very useful, but it depends on the student." For younger learners, T2 described employing concrete and embodied cues, such as "using more VI combined with body

language,” to externalise musical ideas and sustain attention. By contrast, with advanced students, he encouraged more internal, kinaesthetic imagery, explaining that “You could just close your eyes and play it in your head... I’ve tended to do that with my most advanced students and indeed myself.” This contrast highlights differences in both the form and function of VI: for beginner learners, teachers employ movement-based prompts and explicit imagery to scaffold comprehension and engagement, whereas for advanced students, the emphasis shifts towards self-regulatory, kinaesthetic mental rehearsal, which is more closely aligned with the higher technical and expressive demands of performance.

In addition, teachers reported adapting their use of VI to students’ personal experiences and immediate responses. As T3 emphasised:

It’s important that you try to find out what the image is that the student has... You get to know your students and the things that are likely to stimulate their imagination. (T3)

T3 further noted that she checks whether students understand and resonate with the proposed imagery, thereby underscoring a student-centred pedagogical approach and ensuring that the imagery remains meaningful and pedagogically effective.

Teachers Used VI According to Music Features and Contents. Teachers also reported that their use of VI was shaped by musical characteristics. T2 explained that a sea image fit the characteristics of the Glass piece—quiet and pulsing, with occasional crescendos—so he used the idea of a “swell” to describe it to students.

This suggests that teachers align VI with the style and expressive character of a piece in order to guide students’ understanding and performance.

Refine Students’ Existing VI. Students reported that teachers helped them elaborate on the mental images they already held, making those images more detailed and more like a movie. For example, one participant (S6) explained:

Before T3 told me the visual imagery, I may have a picture, like a film poster in my mind. But after she told me, I have a film with the detailed plots in my mind, which helps me understand the emotion better. (S6)

This suggests that instruction in VI helps students develop and personalise their imagery, thereby deepening their understanding of the music.

Develop Students' Creativity of VI. All students reported that, although performance teachers incorporated VI into their instruction, they often developed their own images in response.

As one student explained:

I feel like T3 doesn't really tell me what to imagine. I suppose she prompts me, like, how does this song feel? What will be going on? but I think I will make my own images. (S8)

This account suggests that, rather than prescribing specific imagery, teachers frequently employ open-ended prompts that encourage students to construct personally meaningful images. Such an approach highlights a potentially effective pedagogical strategy: instead of directly providing students with VI, teachers can encourage students to generate their own imagery, thereby fostering creativity and deeper engagement.

Fostering the Conscious Use of VI. Another student (S6; see Appendix I) explained that, with the teacher's guidance, she adapted VI linked to technical cues (e.g., vocal placement) and used these images as personal reminder cues, in ways similar to those modelled by her tutors. She emphasised the importance of making the imagery her own, which helped her identify and maintain the correct vocal position. This account suggests that teachers' use of VI can prompt students to employ imagery more deliberately and in teacher-like ways, enabling them to develop personalised and effective learning strategies. As T1 noted, VI can also be used to "develop students' independent learning skills."

Theme 3. VI as a Bridge to Music Expression and Understanding

VI Simplifies Complex Musical Concepts and Techniques. Students reported that VI translates abstract musical ideas into concrete images, enabling more immediate understanding and demystifying technical demands. As S8 explained:

She (T3) uses visual imagery because she can't go inside our body and change things. ... If you're always talking about anatomy, some people get lost, whereas with visual imagery, most people can communicate and connect with the concept and understand what's being discussed. (S8)

This quote suggests that, in vocal teaching, VI can function as an anatomical explanation, helping students understand their bodily processes, grasp mechanisms of sound production, and execute desired actions, thereby bridging the gap between abstract concepts and practical application.

Moreover, as S1 (see Appendix I) reported, teachers' use of VI extends musical terms beyond dictionary definitions: for example, a dictionary might label a passage as "soft" without specifying its quality, whereas VI articulates the intended character, such as where the sound sits, providing students with a clear interpretive and technical target. This indicates that VI enriches the meaning of musical terminology and offers actionable guidance for both interpretation and technique.

From the teachers' perspective, T3 similarly explained that "singing is about being in the body. It's difficult to explain what happens in a body ... Rather than explain the technical aspects of it, I want to get people to think about things that they know themselves, so that they can connect with the experience from their memory and imagination." For example, she encourages students to imagine their favourite food, and when doing so, their voices naturally respond, helping them understand concepts such as "raising the soft palate to create one resonating space" and "dropping the jaw with the tongue forward."

Developing Musical Features' Understanding. Students indicated that VI helps them understand musical features and reflect these features in their performance. S2 shared that her tutor used images such as a "spider" or "sneakers" to encourage a more legato performance. Similar

imagery was also used by the same teacher with another student, as S1 noted: “The spider is a specific animal, and you can understand its usual direction and movement trajectory.” This account illustrates how familiar and concrete imagery can support students in grasping musical characteristics more readily and translating them into technical execution.

Shared Understanding of VI. Some students reported that during individual lessons, their instrumental or vocal teachers introduced VI grounded in their own experiences and interpretations (see also Appendix I, S1). During subsequent practice and lessons, this imagery became a shared communicative resource between students and teachers, enabling students to articulate their musical understanding and further extend and personalise the imagery, thereby fostering reflective thinking. As one participant explained:

After the teacher gives an idea [of visual imagery], when I go to practice, I'll naturally develop my interpretations that may 'collide' with the original one. Then, in the next lesson, I can bring it back and discuss it with the teacher. This kind of exchange helps develop my thinking. (S1)

Similarly, S6 (see Appendix I) reported that she used VI to communicate with her tutor, and that through discussion they collaboratively selected an appropriate image. This suggests that the co-construction and negotiation of imagery enables both teachers and students to reach a shared understanding.

T1 reinforced this perspective, explaining that students' use of VI can reveal images the teacher may not have previously considered, thereby prompting teacher reflection:

I think it's nice when you get some feedback from them (pupils). Because they can visualize something which you haven't maybe thought of. I think it is a two-way thing. (T1)

Taken together, these accounts indicate that VI can facilitate reciprocal exchange, enabling teachers and students to share perspectives and develop mutual understanding.

Theme 4. VI as an Emotional Connector

Interpreting Perceived and Expressed Emotion. Some students reported that their teachers'

use of VI helped them understand and express the emotional content of music. For example, T3 consistently encouraged students to “tell a story” through their singing, a process that often involved narrative elements and visual imagery, enabling students to establish an emotional connection with the music. As S7 described, this experience could feel like creating “emotional films,” allowing her to draw on personal memories to enhance expressive performance:

I feel like it's important to tell a story while singing... Sometimes, when you're singing and need to think of emotions, you can recap or picture moments from your past that help enhance the emotion. I think it's more of a feeling than a picture sometimes; (it's more) like an emotional film. (S7)

T2 similarly reported that he frequently used VI to support students in interpreting the mood and character of a piece. For example, during S5's lesson, he explained:

I'm trying to put across the overall feeling for the whole song.... So you could picture a person who's died, but you love them and all that kind of thing. You have happy memories of them... I'll talk about how we're gonna do this change of mood, the words saying the song where the singer kind of says, then I saw something different. (T2)

This example illustrates how VI can guide students through emotional and expressive transitions, supporting their ability to embody and communicate emotional contrasts within performance.

Some students further indicated that the use of VI enhanced the authenticity of musical performance. Rather than focusing solely on technical accuracy, VI enabled students to attend to emotional expression, making performances feel more human and expressive. As S4 explained:

He (T2) said that when you're performing, even if you follow all the dynamics and markings on the score perfectly and do everything technically right, if you don't add what you personally feel inside, then there's nothing technically wrong, but you're just a machine. I lean more toward aesthetics; I feel I must add visual imagery of my own. (S4)

From the teachers' perspective, T2 explained that using imagery such as imagining “riding a

horse” could help students feel “part of” the musical motion, which he regarded as more effective than mechanical explanations (e.g., likening music to the operation of a machine) for conveying continuity and momentum in tempo. Similarly, T3 noted that she used expressive imagery such as “a baby crying” or “delicious food,” which enabled students to intuitively connect sound, emotion, and bodily movement. She observed that such imagery often helped students produce sound more naturally, without requiring explicit awareness of the underlying physical mechanisms.

Emotional Status Impacts VI Experience. In turn, some students reported experiencing varying levels of intensity and usefulness of VI depending on their emotional state. As S7 explained:

I feel like it would be easier to act on the visual imagery if you're more comfortable and relaxed, to use the visual imagery to help with your technique. I feel like it takes me longer to picture it and do it properly when I'm under pressure. More like, when you're relaxed, it's easier to see. (S7)

This account suggests that students engage more readily and effectively with VI in relaxed learning environments. Accordingly, teachers may cultivate low-pressure and supportive conditions to facilitate the appropriate and efficient use of VI during instruction.

Theme 5. VI as a Reminder Cue

VI Reminds Students During Sessions. VI was reported as a useful reminder cue that helped students quickly understand teachers’ intended meanings. Participants explained that teachers’ consistent use of similar imagery for similar pedagogical aims made it easier for students to recognise the imagery and produce an appropriate response. As one participant explained:

Because she repeats what we’ve previously learned (visual imagery) in every lesson, if I grasp it, it becomes clearer and stronger in my mind. Then I can immediately get it; it just pops into my head. For example, when she says it should be like ‘baby crying,’ that’s her way of saying you should use that technique to express something, to express emotion. (S6)

From the teacher's perspective, T3 further supported this point, noting that when S6 forgets a physical position, she can simply say "beef stew with tomatoes," and the student can quickly find the correct vocal position, thereby improving teaching efficiency.

VI Reminds Students During Practice. Some students reported using VI during individual practice to recall teachers' instructions from lessons. This process supported the memorisation of instructional cues (see Appendix I, S1) and improved practice efficiency. Some students also externalised VI through annotations or written notes, using imagery-based prompts as memory aids during practice. As one participant explained:

Most of the time, I go home after a lesson and write down different things. Next to the lyrics I put 'chocolate' or think about things like 'think about your mouth as a box.' I write down all these different things (visual imagery) because then I can remember. She said that imagery—how did that feel—straight up, like the memory. (S8)

These quotes suggest that VI can function as an effective reminder cue during individual practice, supporting the retention of teachers' instructions and enhancing practice efficiency.

Theme 6. VI as a Cross-Cultural Tool

Bridging Language Barriers Through Shared Imagery. Chinese participants reported that VI made communication with teachers more fluent and clearer in terms of intended meaning, compared with relying solely on verbal explanations. As S1 noted:

If he uses technical terms, it's hard for me, because even if I know the concept in my native language, I might not understand it in English. But if he uses visual imagery with objects we're familiar with, it helps much more. (S1)

This quotation highlights how familiar, object-based imagery can reduce linguistic demands, support mutual understanding, and mitigate cross-cultural barriers between teachers and students with different first languages.

Teachers also emphasised the communicative value of VI when working with international students, reporting that VI functions as a more accessible and relatively universal medium for conveying complex ideas, particularly for students with developing English proficiency. As T2 noted:

A slightly different approach here with Oren, because his understanding of English is not quite so good... I think it's easier for him with the pictures. (T2)

VI for Resolving Culture-Based Misunderstandings. Participants noted that VI helped them move beyond literal translation and resolve misinterpretations rooted in linguistic and cultural differences. For example, S6 explained:

When I was trying to understand the lyrics, because of cultural differences, I could only rely on a literal translation, which caused me not to realise that it was sometimes an idiom. It was through her description of the scene that I finally understood the meaning of the lyrics. (S6)

Similarly, T1 highlighted the role of VI as a form of shared ground for linguistic and conceptual understanding, noting:

I think to use simpler images, but also it's nice to explain the language. And because they are learning English... It's [visual imagery] a kind of a point where we can meet. It can be useful as a means of communication. (T1)

Together, these accounts indicate that VI can foster shared meaning across cultures and function as an effective communicative bridge, reducing misunderstandings that arise from cultural and linguistic differences.

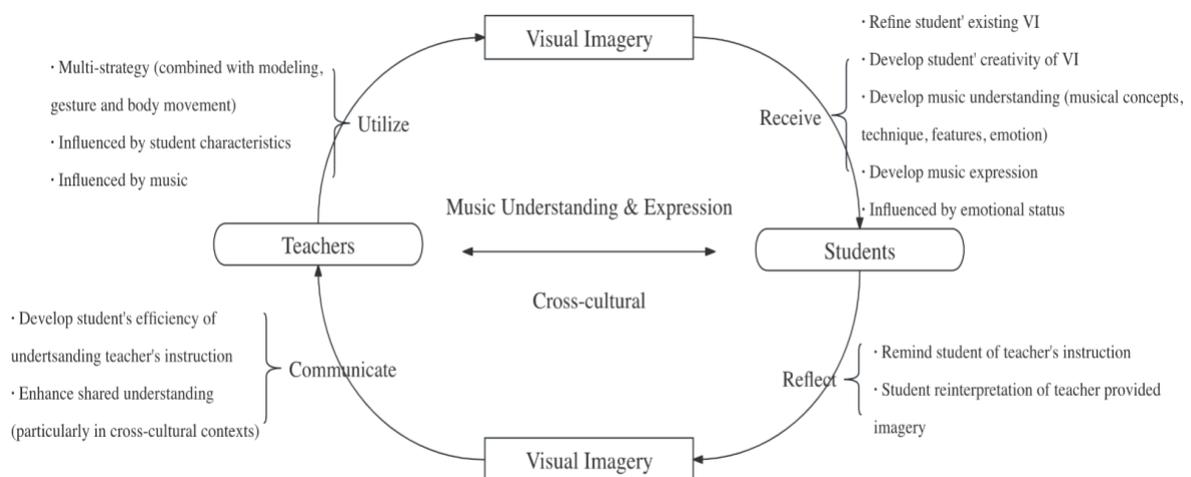
Discussion

This study explored teachers' utilisation of VI in music pedagogy, students' responses to VI, and its role in communication between teachers and students. Our analysis of focus group and interview data from three teachers and eight students, regarding their experiences with the use of VI during music performance sessions, revealed six main themes and sixteen sub-themes. Based on the results of the thematic analysis, the themes, sub-themes, and codes were organised to develop a

dynamic model (see Figure 4.3). This model illustrates teachers' use of VI, students' reception of VI during performance sessions, students' reflective use of VI, and the communication of VI back to teachers, who in turn receive and respond to it. The model further illustrates that VI functions primarily as a multi-strategy and personalised pedagogical tool, and in some cases as a reminder cue. Its principal pedagogical roles are to enhance students' musical understanding of technique and emotion, develop musical expression, and facilitate cross-cultural communication within the music performance teaching process.

Figure 4.3

Model of Visual Imagery Use in Teacher–Student Communication



Teachers' Utilization of Visual Imagery to Students

Teachers' Selection of Using VI

Our results indicate that two main factors influence teachers' use of VI: students and the piece of music. In relation to students, teachers' choices were shaped by various student characteristics, such as musicianship level, responsiveness, and familiarity with the music or cultural context. For instance, teachers reported adapting their imagery choices based on students' musical

experience, selecting imagery that aligned with learners' levels of understanding and engagement (Zorzal & Soares-Quadros Jr., 2021; Woody, 2002). Regarding the music itself, elements such as lyrics, historical or expressive background, and genre also influenced the selection of VI, suggesting that certain musical works may invite or constrain particular types of imagery. Furthermore, our data revealed that teachers' use of VI often followed a trial-and-error process, with imagery being selected, refined, or adjusted based on students' real-time feedback. This process appeared to be highly individualized, reflecting both the teacher's personal style and their pedagogical judgment. These findings suggest that the use of VI in teaching is fundamentally student-centered, flexible, and shaped by both the teacher's expressive preferences and the dynamic interaction with learners.

Teachers' Multi-Strategy Use of VI

Our findings indicate that VI is consistently employed in combination with other pedagogical strategies during music performance teaching. Teachers emphasized that VI becomes more effective when integrated with multimodal approaches such as gesture, body movement, or modeling. This is consistent with Meissner (2021), who highlighted the benefits of combining multiple strategies (e.g., dialogue with movement and gesture) to enhance students' musical learning. Similarly, Woody (2002) argued that verbal descriptions of emotion, mood, and motion, together with physical gestures, can effectively complement an instructor's aural modelling. Our results extend this argument by suggesting that one particularly effective way of integrating VI with other strategies is through its use in explaining gesture, body movement, or modelling, which in turn supports students' understanding of VI itself. This may be because students need to learn how to translate an instructor's metaphor into a concrete plan for expressive performance (Karlsson & Juslin, 2008; Woody & McPherson, 2010, cited in Woody et al., 2024). Moreover, the data suggest that this combined, multimodal approach may be especially beneficial when teaching students in second-language learning contexts, as it provides additional communicative resources that can reduce linguistic barriers and promote musical understanding.

Teachers' Intention of Using VI

Teachers reported using VI for three primary purposes: to strengthen students' musical understanding, deepen musical expression, and enhance cross-cultural communication in instruction. Our findings indicate that VI was employed to support students' understanding of musical background, features, technique, and perceived emotion, and was frequently used to convey musical characteristics, particularly when addressing abstract concepts or musical techniques (Woody, 2006). This was especially evident in vocal instruction, where imagery helped make the body's role in sound production more accessible. These findings align with previous research highlighting imagery as a means of communicating target musical technique and skills and create sound required in music (Barten, 1998), as well as with studies showing that metaphor supports internal visualization of otherwise hidden bodily processes (Burwell, 2006; González & Payri, 2017). Our results also support the use of imagery to communicate emotional content in music (Woody, 2002), consistent with Meissner's (2021) argument that emotional metaphors aid the development of students' expressive understanding. Extending this prior work, our data suggest that teachers moved beyond spontaneous imagery, instead adopting a more systematic and reflective approach, in which specific forms of VI were categorised according to musical features, techniques, and emotional content, and refined in response to students' feedback. Additionally, the present findings suggest that teachers used VI to enhance students' expression of affective intent, a result that is consistent with Woody's (2002) findings. Our results further suggest that VI encouraged students to express emotion more musically, shifting their performance focus from purely technical execution toward expressive delivery. This also supports Wolfe's (2018) research, which indicated that metaphors in music teaching give meaning to the process of thinking musically and enrich subtle, nuanced aspects of musical expression.

Finally, the results suggest that VI plays an important role in teaching learners from diverse linguistic and cultural backgrounds (Wolfe, 2018). Teachers' arguments further indicated that VI can be used to foster cross-cultural understanding, for example, by clarifying complex concepts across

contexts and bridging cultural gaps. At the same time, cultural differences sometimes shaped participants' reflections and their use of imagery and metaphor (Wolfe, 2018). Consistent with this, our data indicate that VI is especially effective for non-native speakers when combined with complementary strategies. This aligns with Barton and Riddle (2022), who argue that teachers can integrate multiple approaches, including imagery and modelling, to acknowledge sociocultural differences in musical practice, meaning-making, and performative expression across learning environments, thereby informing pedagogical choices that more effectively connect learners with musical experiences.

Students' Received Teachers' VI

From the students' perspective, our data suggest that teachers' use of VI during lessons was highly valuable, as it encouraged students to refine and creatively adapt imagery in ways that supported three key areas: musical understanding, musical expression, and cross-cultural communication, as also identified by teachers. For instance, students reported that VI was particularly helpful for grasping teachers' intended meanings, especially when it was used to describe emotion or musical character, thereby deepening students' understanding of emotion, technique, and musical features (Leech-Wilkinson & Prior, 2014; Meissner & Timmers, 2020). Furthermore, our data show that Chinese students emphasised that VI made complex musical concepts easier to comprehend, underscoring its role in bridging cultural and linguistic differences. Moreover, students' responses to VI provided a reciprocal perspective on teachers' intentions, indicating that imagery was not only understood but also actively engaged with. Taken together, these findings suggest that teachers' use of VI is generally well received by students and constitutes an effective pedagogical tool for enhancing music teaching and learning.

Students' Reflection of Teachers' VI

Following teachers' instructions involving VI during lessons, students demonstrated reflective engagement with VI in their practice, using it to enhance both the familiarity of their musical imagery and the efficiency of their practice. This finding is consistent with Hui Wong and

Hun Lim (2017), who argue that imagery skills—particularly vividness (the clarity of mental images), controllability (the ability to manipulate imagery), and fluency (the quantity of images generated and recalled)—can be developed through repeated application. Moreover, our findings support the work of Woody and colleagues (2024), who demonstrated that skill acquisition is closely linked to expressive performance, particularly when facilitated through imagery-based approaches. Our data extend this perspective by showing that students not only engaged with teacher-provided imagery but also actively integrated it into their own interpretive frameworks. This process suggests that imagery functions as more than an instructional tool; it becomes internalized and personalized by students as part of their expressive development. Participants reported using VI as a cognitive and emotional cue to recall instructional content, particularly in relation to musical understanding and technical control. This aligns with Wolfe’s (2018) claim that VI can be used to stimulate the sensorimotor experience of playing and support memory and internalisation. Future research could investigate which forms or characteristics of VI are most effective in facilitating recall and internalization, to support teachers in selecting and adapting imagery that maximizes pedagogical impact.

Students’ Using VI Communicate with Teachers

Our results indicate that when students reflected on and practised the use of VI, they were better able to understand teachers’ intentions and guidance during lessons, thereby enhancing the overall effectiveness of instruction. This improvement may, in part, be attributed to the familiarity and shared communicative repertoire that developed over time between teachers and students (Zorzal & Soares-Quadros Jr., 2021). Furthermore, our data suggest that students valued VI as an effective means of communication with teachers, perceiving it as both efficient and engaging, which contributed to a greater sense of enjoyment during sessions. Teachers likewise reported that the use of VI not only facilitated communication but also offered new perspectives and stimulated reflection on their own musical practices.

Contribution and Limitations

In conclusion, in this study, we found that teachers employ VI in flexible and context-sensitive ways within music performance teaching and generally perceive it as a valuable pedagogical strategy. From teachers' perspectives, VI supports communication, interpretation, and expressive development, while from students' perspectives, the reception, adaptation, and reflective use of VI function as important learning mechanisms that enhance musical understanding, performance, and instructional communication. The alignment between teachers' and students' perspectives suggests that VI operates as a bridge for mutual understanding, facilitating shared meaning-making in one-to-one music performance teaching.

These findings offer practical insights for teaching practices that make imagery prompts explicit, invite student-generated imagery, align imagery with musical goals, and adapt approaches to different instruments and learner profiles. For students, the findings highlight the value of using VI as both a communicative and learning resource to support self-directed learning, creativity, practice efficiency, and memory for musical instruction. Future research could further examine how different forms of VI function across musical genres, instruments, and cultural contexts, as well as how specific characteristics of imagery support long-term learning and performance development.

Besides, the AR process provided teachers with a context to critically examine their practices, experiment with the diverse use of VI, and build greater reflection and understanding in its pedagogical application. The greater focus on directive VI in Cycle 2 was particularly valuable, as it created meaningful opportunities for teachers to embed and refine strategies that promoted inclusive learning. For students, the process heightened their awareness of the role of VI in shaping their learning experiences, and they reported that teachers' application of VI strategies was especially beneficial in Cycle 2, likely because these practices were more frequently employed and integrated in a wider variety of ways.

However, several limitations should be acknowledged. First, the study was limited to a small sample of piano and vocal teachers and students. To enhance the generalizability of the findings,

future research should expand to include teachers and students of other instruments. This would allow for a comparison of how VI is used across different instrumental contexts and whether there are instrument-specific patterns in the types and functions of VI employed. Such research could offer more systematic and nuanced guidance for educators.

Second, the study employed a small-scale case study methodology. While it provided in-depth insights, future research could benefit from larger sample sizes using online surveys or questionnaires. This would help validate the findings and examine potential variables that influence the effectiveness of VI as a communication tool in teacher–student interactions.

Conclusion

In conclusion, this study shows that teachers employ VI in diverse ways, underscoring its role as a dynamic, two-way communication process shaped by active agents in music performance teaching. The findings further emphasize that VI can be regarded as an essential component of music pedagogy, bridging cognitive, emotional, and technical aspects of performance. Theoretically, this study builds on existing research that has examined teacher and student perspectives on VI, but advances understanding by revisiting these perspectives and offering additional insights that provide a broader foundation for exploring its role. Practically, it emphasizes VI's value in adapting to students' requirements and considering their cultural backgrounds, thereby enhancing the quality of its practical application in teaching. Future research could further examine the communicative role of VI, with particular attention to how it can be adapted to the distinct characteristics of different instruments and systematically applied across diverse instrumental teaching contexts. It could also explore how teachers might adjust its use to meet pedagogical requirements, thereby strengthening communication with students and enhancing the effectiveness of teaching and learning. It is also worth investigating how the VI can support appropriate verbal expressive approach across diverse cultural contexts, fostering effective cross-cultural musical understanding and contributing to the fields of music education and performance.

Chapter Five - Summary, Discussion, and Conclusion

The main focus of this research was to examine musicians' experiences and uses of VI during music performance, and to explore the relationships between VI, music, and emotion across performance and pedagogical contexts. The overarching aim was to advance understanding of how VI is experienced, how it functions in relation to musical structure and emotion, and how it may be harnessed to support both performance quality and music performance teaching. In doing so, the thesis adopts a performer-centred perspective that complements and extends existing listener-focused approaches to musical imagery. Three empirical studies addressed the following questions:

1) When is VI most frequent or intense, what is it related to, and how do contextual, emotional, and musical factors shape these experiences? When is VI experienced as helpful or unhelpful?

2) What is the relationship between VI, music, and emotion, and how does it influence music performance?

3) How is VI used in music performance teaching, and to what extent does it function as an active agent in shaping musical experiences?

Together, these studies provide a multi-level account of VI across practice, performance, and pedagogy. Across the three studies, VI emerged as a common but highly context-dependent aspect of musicians' experiences, highlighting the situated nature of imagery within specific musical, emotional, and performance contexts.

Study 1 (Chapter 2) demonstrated that musicians frequently report VI, with contents broadly similar to those described by listeners (e.g., concrete scenes, colours, abstract forms, and action-related imagery), thereby suggesting the possibility of shared representational resources between performers and audiences. However, VI was reported most often during solitary practice and less frequently in ensemble or formal performance settings, and many participants did not perceive it as directly helpful. Study 2 (Chapter 3) extended these findings by examining the relationships among

VI, music, and emotion in greater depth. The analysis identified two dyadic relationships (VI–music; VI–emotion) and a triadic configuration in which musical background and features shape felt and perceived emotion, which in turn influences the occurrence and content of VI during performance. This study highlighted the functional, though not always consciously valued, role of VI in expressive communication and musical understanding. Building on these insights, Study 3 (Chapter 4) examined the use of VI in music performance teaching. Teachers were found to employ VI in multimodal ways to support musical understanding, expressive development, and cross-cultural communication. Students' responses corroborated these findings and further indicated that VI was often internalised and incorporated into individual practice, thereby contributing to more efficient and reflective learning processes.

Implication

Theoretical Implications

Study 1 (Chapter 2) offered a more detailed understanding of the types of VI reported by musicians, broadly similar to those described by listeners (e.g., situational and landscape scenes, colours and abstract forms, and performance-related actions) (Küssner & Eerola, 2008). This result suggested a potentially shared representational space between performers and audiences (Connolly & Williamon, 2004). This finding supports existing theoretical understandings of musical communication while extending them by incorporating performers' lived imagery experiences. Future work in music cognition could examine how VI contributes to shared understanding or serves as a bridge between performer and audience communication. This might involve performers discussing their imagery with audiences beforehand and then evaluating how it shapes audience interpretations or providing multimodal visual illustrations during performance and examining audience responses. It is also important to attend to differences between performers' and audiences' VI experiences and to consider the factors that may account for these divergences.

Study 1 (Chapter 2) demonstrated that the frequency and intensity of VI are shaped by multiple factors, including musical features and emotional state, thereby supporting prior research

on the influences of emotion and music while extending it by demonstrating greater contextual dependence (e.g., solo practice versus ensemble or formal performance). These findings suggest that musicians can adapt their use of VI to serve different purposes depending on the context, thereby enhancing its effectiveness. For example, employing VI during practice may help musicians focus more on emotional expression while reducing attention to performance anxiety. Building on this, Chapter 3 provided a more systematic view of the relationships among VI, music, and emotion, indicating functional roles for VI in expressive communication and musical understanding. Taken together with Chapter 2, where many participants did not perceive VI as directly helpful, these findings highlight a tension between the functional role of imagery and performers' conscious evaluations of its usefulness. These findings raise the possibility of instrument differences in the perceived utility of VI (Chapter 3 involved pianists, whereas Chapter 2 surveyed multiple instruments). Further exploration could investigate why performers sometimes experience VI even when they do not find it helpful, and whether such perceptions vary across instruments. Study 3 on music education showed that VI was more clearly beneficial in clarifying musical interpretation. Therefore, it is also worth exploring whether the perceived helpfulness of VI differs between music performance and educational contexts, for instance, whether it serves a more effective function in teaching and learning than in performance.

Building on the potential implications of VI in music performance teaching suggested in the first two studies, Study 3 (Chapter 4) examined VI in music performance teaching and demonstrated that teachers and students use VI in multimodal ways to support musical understanding (Wolfe, 2018), expressive development (Woody et al., 2024; Meissner & Timmers, 2020), and cross-cultural communication (Barton & Riddle, 2022). This study extends the understanding of VI's function in music performance teaching by situating it within a more systematic framework for discussing its expressive and cognitive roles in musical communication. Rather than treating imagery as a discrete instructional technique, the findings conceptualise VI as a flexible communicative resource that operates across stages of teaching and learning.

Practical Implications

For musicians, Studies 1 and 2 (Chapters 2 and 3) presented the typical contents, frequency, and intensity of VI, as well as its context dependence, together with its links to musical features and emotion. These findings can inform practice and performance preparation by encouraging the intentional, reflective use of VI to support musical understanding and expressive aims, while recognising individual differences (e.g., level of musicianship, familiarity with music, cultural background) and situational (e.g., practice, music session, rehearsal, performance) variability. Chapter 3 also points to potential drawbacks, such as overly vivid or intrusive imagery that may disrupt focus, aligning with prior observations (Taruffi & Küssner, 2019). Therefore, it is necessary to raise awareness among musicians of both the beneficial and potentially disruptive effects of VI. By understanding these influences, musicians and educators may begin to consider strategies that not only minimise negative impacts but also enhance the functional use of VI in performance and teaching contexts. For example, these findings further suggest that musicians can deliberately use VI at different stages of performance preparation (Keller, 2012). Future research could build on these findings by developing and testing targeted protocols for the intentional use of VI, aiming to support musical understanding, expression, and communication while mitigating potential negative impacts.

For educators, Chapter 4 supports the value of VI in music education and emphasises its communicative function in lessons. From students' perspectives, VI facilitated shared understanding, expressive development (e.g., expressive technique and emotional expression) development, and cross-cultural meaning-making. These findings suggest practical guidance for teaching: make imagery prompts explicit, invite student-generated imagery, align imagery with specific musical goals, incorporate brief reflection on what helps or hinders learning, and adapt approaches to instrument and learner profile. Collectively, the research encourages deliberate, context-sensitive use of VI in performance and pedagogy, coupled with attention to potential risks.

Challenges and Limitations

First, limitations related to sample size and sampling frame should be acknowledged. The research employed a modest sample consistent with the project's qualitative methods and exploratory aims. While this choice supported ecological reporting and feasibility, it limits statistical power, subgroup analyses (e.g., by training level or genre), and the generalisability of effects. Future work should adopt multi-site recruitment, a priori power analyses, and stratified sampling to enable robust estimates and testing of moderators, thereby examining the frequency and usefulness of VI in different performance phases and contexts.

Second, limitations related to repertoire scope should be acknowledged. The project drew primarily on Western classical repertoire. Chapter 4 broadened the stimulus set by including several works from the 1960s as well as popular and jazz materials, extending stylistic coverage. Nonetheless, the repertoire remained limited, and systematic cross-genre comparisons were not conducted. Future research should employ explicit cross-repertoire designs to test whether and how the prevalence, content, and perceived utility of VI vary across musical styles (Margulis & Jakubowski, 2024).

Third, the study was limited in terms of instrumental scope. The research focused primarily on piano (with some inclusion of voice), reflecting the researcher's domain expertise and enabling fine-grained analysis of performance data. This improves ecological validity for these contexts but constrains inferences across instrumental families, where the instruments' ability to sustain a sound, produce sounds with a varied dynamic range, and play chords differ (Prior, 2017). Comparative designs spanning strings, winds, percussion, and voice, with task-matched protocols, are needed to evaluate instrument-specific versus general features of VI. Prior's (2017) research on music and shape heuristics with violinists and harpsichordists offered a useful example, showing how comparative interview-based approaches can illuminate both commonalities and differences in musicians' use of VI across instruments.

Fourth, cultural and linguistic scope requires consideration when evaluating the validity and transferability of the findings. To enhance transferability, participants were recruited from two regions, the UK and China, rather than from a single cultural context. However, this cross-regional sampling nevertheless situates the findings within specific educational, musical, and cultural traditions, particularly those associated with Western classical training and Asian music education contexts. While the bilingual design reduced language-related misunderstandings and introduced a degree of cultural diversity, it also limits the extent to which the findings can be generalised to musical cultures with different pedagogical norms, aesthetic values, and conceptions of imagery and emotion. For this reason, the findings should be interpreted in relation to comparable musical and educational settings rather than as broadly representative of all musical cultures.

At the same time, the research identified the communicative function of visual imagery in cross-cultural teaching and learning interactions between UK teachers and Chinese students. This suggests that VI may serve as a valuable pedagogical strategy in cross-cultural music performance contexts by providing teachers and learners with additional means of communication beyond verbal explanation alone. From this perspective, VI may support mutual understanding where linguistic and cultural differences are present. Further research is therefore warranted to examine whether these communicative benefits of VI extend to other cross-cultural educational contexts and to explore more systematically how cultural background shapes musicians' experiences and uses of visual imagery.

Finally, there were design considerations related to blinding and construct specificity. We did not implement formal blinding: participants were aware that the study investigated VI and its relation to emotion. We also did not ask participants to distinguish between intentional and spontaneous imagery. Although these forms involve different cognitive processes, they often co-occur in performance and practice (Taruffi & Küssner, 2022); our choice prioritised ecological reporting but may limit claims about mechanism-specific effects. The absence of blinding also introduces the possibility of demand characteristics. Future work should consider protocols that (a)

minimise expectancy effects and (b) separate intentional from spontaneous VI to clarify underlying mechanisms.

Taken together, these limitations highlight the exploratory and context-specific nature of the present research, while also indicating clear directions for future work aimed at testing, extending, and refining the models proposed here.

Novelty

This research makes an original contribution to knowledge by advancing a performer-centred and context-sensitive understanding of VI in music performance and pedagogy. Whereas prior research has focused predominantly on listeners' imagery experiences or on imagery as a deliberate pedagogical or therapeutic tool, this thesis reconceptualises VI as a situated, flexible component of musicians' music performance and learning experiences.

At a conceptual level, the research demonstrates that VI is not merely an internal cognitive accompaniment to music, but a phenomenon embedded in the interaction between musical structure, emotional experience, and performance context. By articulating both dyadic (VI–music; VI–emotion) and triadic relationships among these elements, the thesis offers an integrative framework that advances existing theoretical models of musical imagery.

Importantly, the findings show that VI can exert influence even when performers do not consciously evaluate it as helpful, challenging assumptions that imagery operates only as an intentional or strategic technique. This reframes VI as an emergent aspect of musical sense-making rather than a tool applied solely for instrumental benefit.

In pedagogical contexts, the research further contributes by conceptualising VI as a flexible communicative resource within music performance teaching. By modelling how imagery functions across stages of instruction and learning, the thesis extends pedagogical theory by moving beyond technique-based accounts towards a process-oriented understanding of musical communication.

Taken together, this research clarifies what is now known that was previously underexplored: how performers experience and use imagery in real performance contexts, how

imagery dynamically interacts with emotion and music, and why VI matters not only as a pedagogical strategy but as a core component of communication between music teacher and learner.

Conclusion

In conclusion, this research indicates that VI plays an important role in music performance and education. Musicians commonly report VI of varying types and intensities, and its occurrence is shaped by musical and contextual factors, including perceived and felt emotion. In turn, VI can inform musical understanding and expression. Together, these findings point to dyadic relations between VI and music, and between VI and emotion, as well as a triadic interplay in which musical background and features shape emotion, which then influences VI during performance. Pedagogically, VI is drawn upon both intentionally and incidentally in teaching, where it can function as a flexible communicative tool that supports shared understanding, interpretive work, and expressive development. At the same time, the use and perceived utility of VI vary across individuals and contexts. Recognising this variability, the relationships and models articulated here offer musicians and educators a more comprehensive view of VI's role, supporting reflective, person-centred application in performance, practice, and instruction. The action research project further suggests that deliberate use of VI can offer pedagogical benefits and promote active interaction and dialogue between teacher and student. Overall, the research advances a performer-centred account of how VI relates to music, emotion, performance techniques and musical understanding in both artistic and educational settings, while underscoring the need for context-sensitive, tailored use and for further systematic investigation.

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Appendices

Appendix A – Questions in the Online Survey, Chapter 2

Section 1	Q1	What gender do you identify as?
	Q2	What is your age group?
	Q3	What is your nationality?
	Q4	What is the main instrument you learned?
	Q5	How long did you learn this instrument?
	Q6	What is the level of your musicianship?
Section 2	Q7	How often do you have visual imagery whilst playing your instrument / singing?
	Q8	What kinds of visual imagery do you have?
	Q9	How intense is your visual imagery?
	Q10	Does the visual imagery that you have vary with the following contexts and situations (e.g., felt emotion; performance anxiety; type of music; place and time)?
	Q11	Please give an example of how your visual imagery changes (or not changes) with the context or situation of performance/practice.
	Q12	Do you find visual imagery in any of the following ways (perform expressively; moderate performance anxiety; feel more intense emotions (positive and negative); memorise music and how it is performed) helpful?
	Q13	Please give an example of how you use visual imagery or find it helpful. Or if it is unhelpful, please explain that.
	Q14	Does your visual imagery change with emotion in the following ways?(e.g., Type of visual imagery changes with the emotion of the music; Type of Visual imagery changes with the emotion that I feel; Intensity of visual imagery changes with emotion of the music; Intensity of visual imagery changes with the intensity of emotions I feel)
	Q15	Please give an example that illustrates how your visual imagery changes (or not changes) with emotion.
	Q16	How were you taught or how did you develop visual imagery?
	Q17	Is there anything that you would like to tell us about your development or use of visual imagery during a piece of music that you are currently performing or practicing?

Appendix B – Think-Aloud Questions After Each Excerpt and Interview Questions After the Entire

Performance Recording, Chapter 3

Think-aloud Questions	1	What is your interpretation of this excerpt? What character or emotion do they convey?
	2	Did you see anything in your mind during the music performance? If so, can you explain the visual imagery that you had? What type of images did you see?
	3	What was the source of those images? What may have caused these images to occur? Can you explain that for this piece of music? [Annotate music?]
	4	Was the visual imagery useful or unhelpful for you in any way in terms of performing this music? If so, can you explain how?
Interview Questions	1	Did you have any visual imagery during practicing these pieces? If so, were they similar to what you experienced today or different? How were they similar or different?
	2	Can you give us more insight into the type of images that you perceive? For example, by drawing or searching on the internet for relevant images?
	3	Is there anything else that you would like to tell us or explain by drawing about your experience of visual imagery and its relation to emotion or your musical performance?

Appendix C – Participants’ Visual Imagery and Emotion Experienced in Music Performance

(Theme), Chapter 3

P	Visual Imagery (VI)	Emotion	How VI is related	Other Comments	
1	Children	Baby; Blue night sky	Neutral - calm	Musical background	VI helps the performer control speed.
2		Childhood; Night	Neutral - calm	Musical features: melody	VI helps the performer to express emotions during the performance.
3		Mother putting baby to sleep; Scene in “Your lie in April” ⁴	Neutral - calm	Memory; Musical features: melody; Music style	VI helps the performer control musical speed, dynamics and timbres in this excerpt.
4		Children (participant’s old son) playing outside in the Garden and smiling; Dad’s face	Neutral - calm	Musical background	Past memories impacted VI contents that the performer experienced.
5		Children play together (singing)	Positive - happy	Musical features: structure	VI helps the performer to express emotions during performances.
7		Children; Play in the garden	Positive - happy	Musical features: melody; structure	VI helps the performer to express emotions during performances.
10		Children Walk; Slight Walk	Neutral - calm	Performance day's mood	VI helps the performer focus on emotion felt.
8	Night	Vague feeling of seeing the twinkling stars.	Neutral - calm	Musical background	
9		Shining stars	Neutral - calm	Music style	VI helps the performer to control timbre.
6	Others	Climb the mountain	Negative - sad	Music features: ornaments, melody, structure	

Note. Theme - simple section featuring the main melody of “Twinkle Twinkle Little Star”.

⁴ A Japanese anime in which the main character plays Mozart's Variations on 'Ah, vous dirai-je, Maman' on the piano.

Appendix D – Participants’ Visual Imagery and Emotion Experienced in Music Performance

(Variation III), Chapter 3

P	Visual Imagery (VI)		Emotion	How VI is related	Other Comments
1	Children	Amusement park; Roundabout	Positive - happy	Music’s emotion; Musical feature: ornament	VI evokes the performer’s auditory imagery, then develops performance techniques.
2		On a sunny day, people chat, and children play with a kite and laugh.	Positive - happy; excited	Today’s mood; Music feature: melody	After becoming familiar with the music, the performer can experience more VI.
4		A curious child who asks questions; Birds	Positive - excited	Performance day’s experience; Musical feature: melody	The VI related to the performance days’ experience.
5		Children dancing	Positive - excited	Music feature: rhythm	VI makes the performance more emotional and vivid.
7		Children talking with mom	Positive - happy	Music feature: texture (heterophony), melody, dynamics (the legato and staccato)	VI helps the performer make vivid emotional expressions and control performance techniques.
6	Colour	Purple; Love story	From happy to unhappy	Music style; Music feature	Sometimes VI let the performer make mistakes.
10	Shape	Spiral lines and dots like DNA	Positive- happy; excited	Music feature: rhythm (the triplet, legato and staccato)	VI helps the performer emotion expression and develop her performance accuracy.
8	Other detailed narrative	Happy dance; Swaying figures	Positive - happy	Music feature	
9		Cat plays with its toys and jumps in the room	Positive - happy	Musical feature: tonality (major evokes happy emotion), melody	VI helps the performer control performance techniques.
3		Mozart performs or composes this music at his desk.	Neutral - calm	Musical feature: harmony; Musical background: music style (classical)	VI helps the performer immerse in music and develop techniques.

Note. Variation III - A major section, presenting the main melody arpeggio ornamentation and altering the rhythm (triple meter) of the original theme.

Appendix E – Participants’ Visual Imagery and Emotion Experienced in Music Performance

(Variation VIII), Chapter 3

P	Visual Imagery (VI)	Emotion	How VI is related	Other Comments	
5	Narrative (children)	Children feel tired, lie on the ground and watch the sky	relaxed	Musical feature - rhythm (legato and staccato)	VI enhances the performance's emotional expression.
7		Children and their parents play games like "Beat the Monsters."	Negative - tension	Musical feature - melody (feeling like Schubert Erlkönig, Op. 1, D 328); pitch (lower register)	VI helps the performer express emotion.
4		Bell; Snow My children and I walk lost on a snowy road, and they seem depressed.	Negative - depressed		VI can help the performer create an emotional atmosphere.
1	Narrative (movie)	At midnight on Halloween, glowing pumpkins set the stage for dark humour and black comedy.	Negative - afraid	Teacher's guidance combines performer's perspective	VI can help the performer shift the emotional tone during music in major and minor more quickly.
2		In a horror movie, dolls with eerie masks line the room as an old man, swinging in a chair, talks to you with an unsettling calmness.	Negative - depressed; afraid	Musical features - tonality (minor key); dynamic (from "p" to "f" back "p")	More voice parts would cause more VI.
3		At dusk, a person walks the road, shoulders hunched in sadness, perhaps carrying a briefcase after work. / Plots about magic in Harry Potter and "something" break.	Negative - frustrated	Musical feature - harmony (octave)	VI help the performer express the emotion
6	Other narrative	An angel and a devil lived in a boy's heart. The angel encouraged him to pursue the girl	Negative - sad	Musical feature - tonality (minor key); structure; harmony	VI would help the performer control timbre and express emotion.

P	Visual Imagery (VI)	Emotion	How VI is related	Other Comments
	he liked, while the devil warned him against falling in love.			
8	Something that happened in the past. / Some feet, some kind of stamping feet.	Negative - afraid		
9	A seaside room at night filled with lit candles of varying heights. Alone, the candles flicker in a breeze, threatening to extinguish, but later reignite when the wind calms.	Negative - afraid	Musical feature- melody; dynamic	VI helps the performer communicate emotion with the audience.
10	Watching the performer's own self on stage.	Negative - intense	Musical feature - timbre	VI helps the performer moderate anxiety, express emotion in this excerpt.

Note. Variation VIII - The only minor section of the piece, featured a counter melody in the left hand.

Appendix F – Content Analysis of Teachers’ Actions Related to VI Across Four Sessions (Tutor 1),

Chapter 4

T1’s Group					
S	VI	Cycle 1		Cycle 2	
		Session 1	Session 2	Session 3	Session 4
S1	Type	Footsteps approaching; giant steps; big steps; riding a horse; horses; carts; planes; silk; coming nearer; close; mysterious things; foggy; cannot see properly; fire; fried fish and chips; cathedral; grey stone; no roofs; “you thought you saw something, but you didn’t”; hunting.	Throwing something into the air; dancing; spiders; nightmares; lights; something creeping up from underneath the road; colour; something approaching; “giant”; bell; unicorn; cannot see anything; circular; vertical; shape.	Light shower; drizzle; rider; misty; film; painter; something standing out in a blurry background painting; snake; ballet; dancer; pushing; ball; violin; bell; dark and shallow; ripples in water; stone; orchestra; spiky; silk; imagining something very heavy; telling a story; thunderous sound; footsteps; something urgent rushing toward something tired; yellow; purple; cellos; conductor tuning the cellos; desolate landscapes.	Moulding clay; singing; little doll; round; rolling; velvet versus concrete; liquid; painting (detailed description); getting closer; “she’s putting flowers in her hair”; pearls; spectrum of colour; colour on top; diamonds and jewels; picking jewels you like; “a tree without leaves”; horse, cart, and coach; “ground a bit more like a bear”; echo; huge valley; murdering somebody; puzzle; colour; shopping.
	Time	12 mins	10 mins	26 mins	20 mins
	Fre	12 times	10 times	26 times	20 times
	Pur	Emotion expression and understanding; musical features (dynamics, rhythm, timbre, harmony).	Emotion expression and understanding; musical features (dynamics, texture, voice part, melody, timbre); musical technique.	Emotion expression and understanding; musical technique; musical features (tempo, dynamics, timbre); music background and	Emotion expression; musical features (timbre, tempo, dynamics); musical

				style.	technique (explaining musical vocabulary, acoustics, and pedal use).
	TS	VI; modeling; gesture; conducting.	VI; modeling; gesture; conducting; explanation.	VI; modeling; gesture; conducting; explanation.	VI; modeling; gesture; conducting; explanation.
S2	Type	Magic wave; sleep; hug; boiling; pulling; water; hologram; boat; wind; splash.	Night; light; leaves; sun; birds; chimes; clouds; sky; circle; square.	Looking for something; wind; gauze; sleep; bright colours; clay; streetlight; wolf; violin; stars; orange; key; birds; autumn sky; spanning; flourish; summer garden; pianist; spider.	Looking at the water; streams; diving; fountains; landscape; sleep; wind; countryside; swaying on a boat; spider; violin; tempest.
	Time	10 mins	12 mins	24 mins	14 mins
	Fre	10 times	12 times	18 times	12 times
	Pur	Emotion expression and understanding; musical technique; musical features (tempo).	Emotion expression and understanding; musical technique; musical features (timbre, dynamics).	Emotion expression and understanding; musical technique; musical features (timbre, dynamics, tempo); practice; communication with students.	Emotion expression and understanding; musical features (timbre).
	TS	VI; modeling; gesture; conducting; dialogue; body movement.	VI; modeling; gesture; conducting; dialogue; body movement.	VI; modeling; gesture; conducting; dialogue; body movement.	VI; modeling; gesture; conducting; dialogue; body movement.

Note. S = student; VI = use of VI; Time = total times of VI use in the sessions; Fre = frequency of VI

use in the sessions; Pur = purpose of teachers' use of VI in the sessions; TS = teaching strategies used by teachers during the sessions. Types of VI are ordered by frequency of occurrence.

Appendix G – Content Analysis of Teachers' Actions Related to VI Across Four Sessions (Tutor 2),

Chapter 4

T2's Group					
S	VI	Cycle 1		Cycle 2	
		Session 1	Session 2	Session 3	Session 4
S3	Type	Walking speed; someone singing; harp; violin.	River; heartbeat.	Imagining fingering and hand movements; trumpet.	Someone laughing; crying; sharing something on YouTube; an old funny movie (mentioned twice); running around; a silly person; everyone waiting; a sad film.
	Time	4 mins	2 mins	7 mins	10 mins
	Fre	3 times	2 times	3 times	7 times
	Pur	Musical technique (creating a smooth tone); musical features (tempo, dynamics).	Emotion expression and understanding; musical features (tempo).	Emotion expression and understanding; musical technique (sound colour, fingering); musical features (tempo); practice (performance familiarity).	Emotion expression and understanding; musical features (tempo, timbre).
	TS	VI; modeling; conducting; gesture; singing; body language.	VI; description; modeling; conducting; gesture; body language.	VI; modeling; conducting; gesture; body language; singing.	VI; modeling; conducting; gesture; body language; singing.
S4	Type	Church; bell; semi-craters; stars to bells.	Horse; sea.	Garden; tree; roots; old garden.	Magic; sunshine; cello; orchestra.
	Time	3 mins	3 mins	12 mins	4 mins
	Fre	3 times	2 times	4 times	3 times

	Pur	Emotion expression and understanding; musical features (rhythm).	Emotion expression and understanding; musical technique (fingers, hands); musical features (tempo).	Emotion expression and understanding; musical technique (fingers, hands); musical features (texture, dynamics).	Emotion expression and understanding; musical features (dynamics).
	TS	VI; imagery explanation.	VI; dialogue (prompting imagination and feeling).	VI; dialogue (discussion); explanation.	VI; dialogue (discussion); description.
S5	Type	Puppets on strings; love; death; colour.	Flower; clouds; blue; purple; shape.	A love story (based on lyrics); slow dance; woman and man; church; hill; white sound; canal; rivers; flags; flute; saxophone.	Dance; flowers; happy memories.
	Time	8 mins	6 mins	15 mins	8 mins
	Fre	4 times	3 times	11 times	2 times
	Pur	Emotion expression and understanding; musical technique (hands, wrist).	Emotion expression and understanding (vibe); musical features (dynamics changes).	Emotion expression and understanding (vibe, singer's feeling, musical style); musical features (dynamics, tempo, texture).	Emotion expression and understanding (musical details).
	TS	VI; imagery guidance.	VI; body language; discussion.	VI; modeling; gesture; explanation.	VI; lyrical description.

Note. S = student; VI = use of VI; Time = total times of VI use in the sessions; Fre = frequency of VI

use in the sessions; Pur = purpose of teachers' use of VI in the sessions; TS = teaching strategies used by teachers during the sessions. Types of VI are ordered by frequency of occurrence.

Appendix H – Content Analysis of Teachers’ Actions Related to VI Across Four Sessions (Group 3),

Chapter 4

T3’s Group					
S	VI	Cycle 1		Cycle 2	
		Session 1	Session 2	Session 3	Session 4
S6	Type	Detailed narrative story (based on lyrics and melody); strong women.	Detailed narrative story (based on lyrics and melody).	Circle; warm embrace; mountain (student image); strong women; storm; red.	Beef, straw, and tomatoes; in a swimming pool; lost; crying; box; strong women; baby crying; water in the mouth (student image).
	Time	19 mins	1 mins	4 mins	10 mins
	Fre	4 times	1 time	4 times	7 times
	Pur	Emotion expression and understanding; musical technique (finding the position to create the sound).	Emotion expression and understanding (understanding and expressing musical intention).	Emotion expression and understanding; musical technique (finding the position to create the sound).	Musical technique (muscle relaxation; finding the correct position to produce sound; vowel formation).
	TS	VI; modeling; dialogue; description; explanation; gesture; body movement.	VI; dialogue.	VI; dialogue; modeling; gesture; body movement.	VI; dialogue; modeling; gesture; body movement.
S7	Type	Chocolate; strong women.	“Speak to yourself”; crying.	Fence; strong women; scaffolding; box; singing in bubbles.	Detailed narrative story (based on lyrics and melody); circles; spiral.
	Time	5 mins	2 mins	10 mins	6 mins
	Fre	5 times	2 times	6 times	2 times
	Pur	Musical technique (muscle activation; finding the sound position; generating powerful energy;	Musical technique (finding the position to create sound); musical features (lyrics).	Musical features (rhythm, tempo); musical technique (producing a powerful sound; muscle control).	Emotion expression and understanding (understanding and expressing musical intention).

		explanation of preparation).			
	TS	VI; modeling; dialogue; description; explanation; gesture; body movement.	VI; modeling; body language.	VI; modeling; dialogue; description; explanation; gesture; body movement.	VI; modeling; dialogue; description; explanation.
S8	Type	Chocolate; strong women; painting a story—detailed narrative (based on lyrics and melody); rent; sweetness and warm food; projectile.	“Singing into a person’s ear”; “things one wants to do”; telling a story; box; strong women; cylinder.	Box; scaffolding; detailed narrative story (based on lyrics and melody); “iron fist in a velvet glove”; “swimming and pedalling hard underneath while appearing graceful on the surface”; imagining something very close.	Detailed narrative story (based on lyrics and melody); sneaking; flying birds; strong women.
	Time	7 mins	16 mins	13 mins	7 mins
	Fre	6 times	9 times	8 times	5 times
	Pur	Musical technique (finding the position to produce sound; muscle control); emotion expression and understanding (vibe and feeling).	Emotion expression and understanding; musical technique (producing sound; finding the correct position); musical features (dynamics, lyrics).	Musical technique (finding the correct position); musical features (lyrics); emotion expression and understanding.	Musical technique (producing sound; finding the correct position); musical features (lyrics); emotion expression and understanding.
	TS	VI; modeling; dialogue; description; explanation; gesture; body movement.	VI; modeling; dialogue; description; explanation; gesture; body movement.	VI; modeling; dialogue; description; explanation; gesture; body movement.	VI; modeling; dialogue; description; explanation; gesture; body movement.

Note. S = student; VI = use of VI; Time = total times of VI use in the sessions; Fre = frequency of VI

use in the sessions; Pur = purpose of teachers’ use of VI in the sessions; TS = teaching strategies used

by teachers during the sessions. Types of VI are ordered by frequency of occurrence.

**Appendix I – Thematic Map of Themes, Sub-Themes, Codes, and Participant Quotes on the Role of
VI in Teacher–Student Relationships in Music Education, Chapter 4**

Theme	Subtheme	Code
T1. VI is multi-strategy	VI combined with modeling	Teachers model technique using VI
		Modeling with VI enhances students' understanding
<p>I think modeling is really helpful, especially when it is combined with visual imagery. Sometimes he introduces the imagery first, then demonstrates it, so you can imagine the scene and then try to imitate it.... As he plays, you can observe him while imagining the image in your mind, and that's really effective. (S5)</p> <p>Sometimes I can only catch a few key words because the language... I would prefer if he could model directly with visual imagery... so I can hear it with my own ears. (S1)</p>		
T1. VI is multi-strategy	VI combined with gesture and body movement	VI-supported modeling aids comprehension for second-language learners
Especially with the students here, where they are using their second language, I find that gestures and just doing things in my body helps to reinforce what I'm saying (VI). (T2)		
T2. VI is personalized	Teachers' adapt VI to student characteristics	Teachers' adapt VI to student characteristics
You can do that with advanced students, but also with very young ones. In fact, I use it even more with younger pupils—the younger the student, the more you do it—the kinds of things you say [visual imagery]. You get them to march around the room to feel the beat and say, 'This is a piece—think of something,' and they do. And it helps. (T2)		
T2. VI is personalized	Teachers' tailor VI to music features and contents	
I think [the sea] fits well with what's happening in the Glass piece at that point: it's quiet, just pulsing, and every now and then there's a little crescendo—a swell. (T2)		
T2. VI is personalized	Refine students' existing VI	Students organised and refined imagery through the received VI from teachers
		Students integrated teacher-provided VI with their understanding
<p>Before T3 told me the visual imagery, I may have a picture, like a film poster in my mind. But after she told me, I have a film with the detailed plots in my mind, which helps me understand the emotion better. (S6)</p> <p>He (T1) wanted me to create a sense of musical flow based on the shape of the circle. .. I was probably thinking about the movement of the notes, imagining their direction. I didn't picture a</p>		

circle itself, but rather the notes connecting together to form a circle. Then he said the notes are moving, and when they reach a certain point, I should return and go through it again.” (S1)		
T2. VI is personalized	Develop students’ creativity of VI	
I feel like T3 doesn't really tell me what to imagine. Imagine I suppose I think she prompts me like, how does this song feel? What will be going on, but I think I will make my own images. (S8)		
T2. VI is personalized	Fostering the conscious use of VI	Students consciously create their VI
When she asked me how I felt, I suddenly felt like drinking water, and then I immediately got it. If I sing using that image, then as long as I use that technique, it feels just like drinking water. That technique then belongs to that image. For me, the technique now belongs to me, whenever I think of the image, I know how to do the technique. (S6)		
T3. VI as bridge for music understanding and expression	VI simplifies complex musical concepts and techniques	VI simply’s music technique develop students understanding
		VI simply’s music terms develop students understanding and memorization
She (T3) uses visual imagery because she can't go inside our body and change things. ... If you're always talking about anatomy, some people get lost, whereas with visual imagery, most people can communicate and connect with the concept and understand what’s being discussed. (S8)		
[Visual imagery] helps me grasp what a musical term means. A dictionary entry often gives only a brief definition or a literal translation like soft, whereas my teacher’s imagery reveals multiple facets of the concept, like making it soft like an image. By images he describes, I form a concrete sense of the term’s meaning, which helps me memorize this term. (S1)		
T3. VI as bridge for music understanding and expression	Developing music expression	Develop the efficiency of learning musical technique
The spider is a specific animal, and you can understand its usual direction and movement trajectory. (S1)		
T3. VI as bridge for music understanding and expression	Shared understanding of the imagery	
Sometimes we have different understandings of lyrics, but by sharing our images and adjusting them, we decide on the final imagery to use, which becomes a highly effective tool for communication. (S6)		
T4. VI as an emotional connector	Interpreting perceived and expressed emotion	VI helps students perceive musical emotion
		VI helps students express emotion naturally

<p>I feel like it's important to tell a story while singing... Sometimes, when you're singing and need to think of emotions, you can recap or picture moments from your past that help enhance the emotion. I think it's more of a feeling than a picture sometimes; (it's more) like an emotional film. (S7)</p> <p>I think it [Visual imagery] just makes it less robotic and more like a human play. (S2)</p>		
T4. VI as an emotional connector	Emotional status impacts VI experience	The emotional atmosphere of different sessions influenced students' VI experiences
<p>I feel like it would be easier to act on the visual imagery if you're more comfortable and relaxed, to use the visual imagery to help with your technique. I feel like it takes me longer to picture it and do it properly when I'm under pressure. More like, when you're relaxed , it's easier to see. (S7)</p>		
T5. VI as the reminder cue	VI remind students during sessions	VI enhance students' efficiency of understanding teachers' meaning
<p>It's a reminder, I feel like you could just say strong woman, but when you do it, it's like a reminder of what she wants you to do, like put in the same. (S7)</p>		
T5. VI as the reminder cue	VI reminds students during practice	VI reminds students of their teachers' instruction during practice
		Student reinterpretation of teacher provided imagery
<p>He likes to use words like "fish and chips" to help me with the rhythm. I might not be able to do it right away in class, but when I practice, I think of "fish and chips" and it helps me remember the teacher's words during practice. (S1)</p>		
T6. VI as a cross-cultural tool	Bridging language barriers through shared imagery	
<p>I think he (piano teacher) knows that my English isn't very good, so he uses very specific and detailed visual imagery to make sure that I can understand. (S4)</p>		
T6. VI as a cross-cultural tool	VI for resolving culture-based misunderstandings	
<p>When I was trying to understand the lyrics, because of cultural differences, I could only rely on a literal translation, which caused me to not realize sometimes it was an idiom. It was through her description of the scene that I finally understood the meaning of the lyrics. (S6)</p>		