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Music to the inner ears: Exploring individual differences in musical imagery



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ABSTRACT

In two studies, we explored the frequency and phenomenology of musical imagery. Study 1 used retrospective reports of musical imagery to assess the contribution of individual differences to imagery characteristics. Study 2 used an experience sampling design to assess the phenomenology of musical imagery over the course of one week in a sample of musicians and non-musicians. Both studies found episodes of musical imagery to be common and positive: people rarely wanted such experiences to end and often heard music that was personally meaningful. Several variables predicted musical imagery, including personality, musical preferences, and positive mood. Musicians tended to hear musical imagery more often, but they reported less frequent episodes of deliberately-generated imagery. Taken together, the present research provides new insights into individual differences in musical imagery, and it supports the emerging view that such experiences are common, positive, and more voluntary than previously recognized.

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1. Introduction

Musical imagery is widely experienced in daily life (Bailes, 2006, 2007; Liikkanen, 2008, 2011). Although previously considered an aversive experience (e.g., Levitin, 2006), an emerging literature suggests that musical imagery is experienced positively in the minds of most people (Beaman & Williams, 2010; Halpern & Bartlett, 2011; Hyman et al., 2013). These melodies of the mind can arise both involuntarily and voluntarily. Professional musicians, for example, can engage in voluntary musical imagery to enhance their own musical performance (Hodges & Sebald, 2011). Aside from such general differences between musicians and nonmusicians, little is known about how people differ more broadly in their imagery experiences. In the present research, we conducted two studies—using cross-sectional and experience sampling methods—to explore the role of personality and musical background in the phenomenology and emotional quality of musical imagery.

1.1. Musical imagery and volitional control

Researchers often distinguish between imagery that is voluntary and involuntary. Involuntary musical imagery (INMI) can occur spontaneously in the mind without conscious intent (Liikkanen, 2011); voluntary musical imagery can occur deliberately by intentionally summoning music to mind (Halpern & Zatorre, 1999) or mentally rehearsing a piece of music

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(Hodges & Sebald, 2011). Of the two types of imagery, INMI is often characterized as intrusive—the experience of having a song “stuck in the head.” Despite its seemingly uncontrolled nature, recent research suggests that INMI is a pleasant experience for most people (Beaman & Williams, 2010; Halpern & Bartlett, 2011; Hyman et al., 2013).

Another theme in the musical imagery literature is that music listening increases the frequency and content of imagery (Bailes, 2006; Hyman et al., 2013; Liikkanen, 2009, 2011; Williamson et al., 2011). For example, Liikkanen (2009) asked people to complete popular song lyric stems and then work on a task unrelated to the study. A majority of people reported hearing INMI from the cued songs during the subsequent task, consistent with the idea that recently experienced music influences the content of musical imagery. Similarly, Bailes (2007) conducted an experience sampling study with undergraduate and graduate music students and found that most students experienced imagery for music they had recently heard or performed.

Voluntary musical imagery, or audiation (Walters, 1989), is often employed by musicians to mentally rehearse a piece of music. When coupled with physical rehearsal on an instrument, mental rehearsal can enhance musical performance quality (Hodges & Sebald, 2011; Ross, 1985). Bailes (2007) found that music students frequently attributed episodes of musical imagery to preparing for an upcoming performance. Although musicians can seemingly control aspects of musical imagery, the extent to which such voluntary imagery is present in the average person remains unclear.

A growing body of evidence suggests that musical imagery is associated with positive emotions. Such imagery has been linked to positive affective states prior to onset (Williamson et al., 2011) and during the experience (Bailes, 2007). Recently, Hyman et al. (2013) found that imagery was more commonly reported for songs that were liked rather than disliked. This finding is complimented by research suggesting musical imagery is rarely experienced as aversive or disruptive in daily life. Beaman and Williams (2010), for example, conducted a daily diary study and found only a small percentage of episodes to be interfering with everyday activities.

1.2. The present research

In two studies, we sought to extend the small literature on musical imagery by exploring the phenomenology of musical imagery using cross-sectional (Study 1) and experience sampling (Study 2) designs. In Study 1, we assessed the role of personality and musical value (i.e., how important music is to someone) to examine the contribution of individual differences in the frequency and phenomenology of musical imagery. The few studies that considered variation in imagery have largely focused on characteristics of unwanted “ear worms.” In this present work, we were interested in exploring both involuntary and voluntary aspects of imagery.

In Study 2, the frequency and phenomenology of musical imagery were examined in daily life with an experience sampling study, using a cell phone-based, interactive voice response (IVR) system. This approach allowed us to probe the imagery experience by contacting people at random times throughout the day and asking them to fill out an automated survey on their cell phones for one week. For this study, we were particularly interested in exploring imagery in musicians and non-musicians. Previous research suggests that musicians enjoy a unique experience: they report more frequent episodes of imagery (Liikkanen, 2011) and can exert some level of control over such experiences (e.g., mental rehearsal; Bailes, 2007). But does the experience of musical imagery differ between musicians and non-musicians?

2. Study 1

Study 1 explored the prevalence and phenomenology of musical imagery using a cross-sectional approach. We asked people to report how often they had musical imagery as well as the extent to which they enjoy these experiences, find them unpleasant, experience imagery with special meaning, and deliberately improvise, rehearse, or compose musical imagery. People also completed a series of questionnaires, including personality, musical value, and genre preference measures. In light of recent research (e.g., Floridou, Williamson, & Müllensiefen, 2012), we expected personality characteristics to predict the frequency of self-reported imagery, such as openness to experience and neuroticism. We also expected people to report frequent and positive episodes of musical imagery.

2.1. Method

2.1.1. Participants

The data were collected as part of a larger study of individual differences in personality. Participants were 190 UNCG undergraduates (58 men, 132 women; mean age = 19.64, $SD = 2.16$). Students received credit toward a research option in a psychology course for their participation. Self-reported ethnicity was 61% European American, 31% African American, 7% Asian, and 7% Hispanic or Latino (students could choose more than one option).

2.1.2. Materials and procedure

The study took place in groups of 1–8. Upon entering the lab, students filled out a consent form and were briefed by an experimenter about the study. Following informed consent, students completed several computerized assessments, including personality and musical experience questionnaires.

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