

Personality influences career choice: sensation seeking in professional musicians

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Despite the obvious importance of deciding which career to pursue, little is known about the influence of personality on career choice. Here we investigated the relation between sensation seeking, a supposedly innate personality trait, and career choice in classical and ‘rhythmic’ students at the academies of music in Denmark. We compared data from groups of 59 classical and 36 ‘rhythmic’ students, who completed a psychological test battery comprising the Zuckerman Sensation Seeking Scale, the Spielberger State–Trait Anxiety Inventory, as well as information about demographics and musical background. ‘Rhythmic’ students had significantly higher sensation seeking scores than classical students, predominantly driven by higher boredom susceptibility. Classical students showed significantly higher levels of state anxiety, when imagining themselves just before entering the stage for an important concert. The higher level of anxiety related to stage performance in classical musicians was not attributed to group differences in trait anxiety, but is presumably a consequence of differences in musical rehearsing and performance practices of the two styles of music. The higher sensation seeking scores observed in ‘rhythmic’ students, however, suggests that personality is associated with musical career choice.

Keywords: sensation seeking; music; state–trait anxiety; career; stage fright; personality

Introduction

Personality influences the essential choices we make in life including choice of partner, education and career (Marrs, Barb, and Ruggiero 2007; Page, Bruch, and Haase 2002; Wilke et al. 2006). Choosing a professional career in music requires a great deal of courage and possibly a strong personality regardless of the style of music. Certainly, it seems that personality traits differ between classical musicians and musicians in improvisational styles of music such as jazz, rock, pop, reggae and a range of contemporary types of music (termed ‘rhythmic music’). Using Zuckerman’s sensation seeking scale in combination with a musical background questionnaire, we investigated the differences in sensation seeking between classical and ‘rhythmic’ musicians.

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The distinction between classical and 'rhythmic' music is one of the most fundamental in Western culture music (Berliner 1994; Monson 1997; Vuust 2000). Classical music is characterised by through-composed (Rumbold 2007), highly structured compositions, being played on acoustic instruments, and is predominantly intended for listening purposes (Martin 1988). 'Rhythmic music' typically involves the use of improvised parts, electrically amplified instruments, and is often used for social purposes such as dancing (Frith 1996; Wicke 1987). The association between 'rhythmic' music and motion, and the focus on rhythm, meter and the sensation of swing in this style of music, is the rationale behind the term 'rhythmic'.

Also, stage performance differs greatly between classical and 'rhythmic' music. Typically, classical musicians sit relatively motionless with their instrument. In contrast, 'rhythmic' musicians often move around on stage attracting visual attention and directly interacting with the audience and the other musicians (Vuust 2000).

Previous studies of personality and music show differences with regard to listening preference (Arnett 1991a, 1991b; Litle and Zuckerman 1986; Rawlings and Leow 2008; Weisskirch and Murphy 2004). However, to date no studies have investigated the role of personality in relation to vocational choice of music career among professional musicians. The role of personality in relation to choice of music career is important, as it may have far reaching implications both in the education style of young people acquiring music skills and in designing musical programmes at music academies. Moreover, the study of musicians' vocational choice and personality traits may be seen as a model for understanding the influence of personality on vocational choice in general.

The Zuckerman Sensation Seeking Scale (Zuckerman 1971, 1994) is specifically developed to determine personal differences in sensation seeking. High sensation seekers are more adventurous, show less impulse inhibition, prefer novelty and seek out new experiences. Sensation seeking is probably governed by an individual level of optimal arousal (Zuckerman 1990, 1979) and can be either adaptive such as engagement in sports and music, and the seeking out of new experiences, or mal-adaptive such as substance abuse, gambling and other risk taking behaviours (Linnet et al. 2006). Sensation seeking typically peaks in adolescence and declines with age. High sensation seekers are more susceptible to a range of adaptive and mal-adaptive behaviours (Puente et al. 2008). Also, male subjects tend to score higher on the Zuckerman test than females (Ball, Farnill, and Wangeman 1984; Zuckerman, Eysenck, and Eysenck 1978). Eysenck described the sensation seeking trait as an underdimension of 'extroversion' (Zuckerman 2004). It is therefore possible that very extrovert or high sensation seeking individuals find difficulty in very rigorous practice routines, and may prefer more intuitive and improvising types of lessons, while introvert or low sensation seeking individuals prefer more structured lessons and a more repetitive style of education.

One of the core differences between the performance of classical and 'rhythmic' music is that the latter involves a high degree of improvisation, whereas in classical music, the precise structure of the music is determined by the score. Improvisational skills require a willingness to take risks, associational flow and a tolerance for novelty. For classical musicians the framework is given beforehand and the challenge lies in interpreting the work of a composer as well as perfecting the necessary motor skills. Therefore, it is a plausible hypothesis that 'rhythmic' musicians are more sensation seeking than classical musicians.

In Denmark, the Academies of music ('musik-konservatorierne') offer education at the highest musical level. In these academies there is a clear segregation between the study programme for 'rhythmic' and classical musicians, rendering an ideal setting for a questionnaire study of the differences between the two types of musicians in a certain age group (between 18 and 30 years of age). In this study, we investigated the relationship between sensation seeking and vocational choice of music career in 'rhythmic' and classical musicians at the academies of music in Denmark. We compared subjects on the Zuckerman sensation seeking scale, practice habits and alcohol consumption. We also used the Spielberger State-Trait Anxiety Inventory (STAI: Spielberger, Gorsuch, and Lushene 1970) to measure 'stage fright' (state) and anxiety levels in general (trait).

We hypothesised that 'rhythmic' musicians were more sensation seeking than classical musicians and had higher propensity towards alcohol use. Furthermore, since the motor demands are greater and the room for errors is smaller in classical music, we hypothesised that classical musicians would practice more than 'rhythmic' musicians, and have a higher degree of stage anxiety. As personality traits are mostly innate and remain stable throughout life (Fulker, Eysenck, and Zuckerman 1980; Koopmans et al. 1995; Zuckerman 1994) support for these hypotheses would suggest that personality influences the career path of professional musicians.

Methods and materials

Subjects

We recruited students from the 'rhythmic' and classical study streams at the Danish Academies of Music (Aarhus, Copenhagen and Aalborg) for this study. The study was approved by 'The Research Ethics Committee of the Midlands Province of Denmark', under the Helsinki declaration. The academies of music in Denmark represent the highest level of music education and are very prestigious places to study. The number of students that apply at these institutions by far outnumber those that are accepted. The students are evaluated and selected on the basis of strict criteria regarding their artistic and musical level. All of the students have had extensive music training prior to their entrance exams at the academies and most of them go on to pursue a career as professional musicians or music professors after graduation. One hundred and twenty-one classical and 'rhythmic' students volunteered for the study. The questionnaires were handed out and collected on-site at the academies. Students with incomplete questionnaires as well as students studying both classical and rhythmic music in combination were excluded. The final cohort consisted of 95 subjects (59 classical and 36 'rhythmic' students). The students were on average 23 years of age (range 18–31) and had been studying at the academy for one year on average ($SE = 0.15$). Among classical and 'rhythmic' students 54% and 44% were women, respectively. There were no differences between the two groups in distribution of gender ($\chi^2 = 0.86$, n.s.) or age ($F = 0.20$, n.s.).

Materials

The students who agreed to participate completed a psychological test battery consisting of a comprehensive questionnaire concerning demographics and musical

background, including smoking and alcohol use, choice of musical style, musical training and education, musical preferences, practicing routines, motivation for playing music, number of monthly performances and use of substances in relation to performing. We included the Zuckerman sensation seeking scale (Zuckerman 1971, 1994), and the STAI (Spielberger, Gorsuch, and Lushene 1970). The STAI has consistently been found a valid and reliable measure of people's general level of anxiety (trait anxiety) and anxiety experienced in the current situation (state anxiety; Barnes, Harp, and Jung 2002). The trait scale of the STAI has been reported to be reliable at the level of Cronbach's $\alpha = 0.86$ as a measure of internal consistency, and mean scores were 38.07 (SD = 8.20) for males and 38.22 (SD = 8.20) for females in a sample of 976 freshmen at Florida State University (644 females and 332 males; Spielberger, Gorsuch, and Lushene 1970). For this study, instead of asking about the person's experience 'right now', we modified the state anxiety questions by asking subjects to recall how they felt 'just before entering the stage for an important concert'. The trait-anxiety questions were used without modifications. Therefore this questionnaire naturally lent itself as a measure of stable personality differences among those with chronic anxiety levels, and in this case a situational measure of experienced stage fright.

The Zuckerman Sensation Seeking Scale (SSS) is a widely used questionnaire within personality and addiction research (Zuckerman 2007b, 107–143). The questionnaire measures sensation seeking along four dimensions, namely: thrill and adventure seeking (TAS), manifested as a propensity for extreme activities such as skydiving and bungee jumping; experience seeking (ES) expressed in terms of openness towards new people, new traditions and exotic food for example; disinhibition (DIS) as indicated by hedonic, impulse-driven behaviours, such as alcohol and drug consumption, wild parties and hypersexuality; and finally boredom susceptibility (BS) which accounts for how easily a person gets bored by repetitions, routines and predictability. The Zuckermann scale is made up of 40 questions (10 on each dimension), which require a forced choice between two ambivalent answers. Sensation seeking is rated from 0 to 40, with 0 being least sensation seeking and 40 being most sensation seeking. The SSS has been reported to be reliable at the level of Cronbach's $\alpha = 0.75$, and mean SSS scores were 20.75 (SD = 6.11) for males and 18.92 (SD = 4.81) for females in a sample of 336 Canadians (181 females and 155 males; Ridgeway and Russell 1980).

Statistical analyses

We used Chi-squares to test for differences in distributions of gender and use of tobacco between classical and 'rhythmic' students. We used Analysis of Variance (ANOVA) to test for group difference with regard to age, hours spent practicing, sensation seeking, and state and trait anxiety. Furthermore, we used a two-way ANOVA to test for differences in hours spent practicing (alone or in orchestra) between classical and 'rhythmic' students. Finally, we used a non-parametric Mann–Whitney *U* test to compare the use of alcohol and the number of announced concerts played per week between the two groups.

Results

‘Rhythmic’ students had significantly higher sensation seeking scores than classical students ($F=12.54, p \leq 0.001$; Figure 1). Analysis of the four sensation seeking subscales showed that ‘rhythmic’ students scored significantly higher on DIS ($F=6.10, p < 0.05$) and BS ($F=9.66, p < 0.005$), but only BS remained significant after the Bonferroni correction for multiple comparisons ($F=9.66, p < 0.025$).

Comparing ‘rhythmic’ and classical students on the STAI (Figure 2), we found no differences with regard to general anxiety levels (trait anxiety, $F=0.69, n.s.$). However, classical students had significantly higher state anxiety (stage fright) compared with ‘rhythmic’ students ($F=5.55, p < 0.05$).

Classical students were slightly younger (Mean age: 7.6, SD: 2.95) than ‘rhythmic’ students (Mean age: 9.29, SD: 3.32), when they first began music lessons. These differences were significant ($F=6.60, p < 0.05$). However, classical and ‘rhythmic’ students showed no difference on age when they started playing their instrument of choice ($F=0.38, n.s.$), i.e. the instrument they were accepted with at the music academy. ‘Rhythmic’ students started playing their main instrument when they were on average 12.8 years old (SD = 4.06), while classical students were on average 12.2 years old (SD = 4.96). The majority of both classical and ‘rhythmic’ students reported that their motivation for starting to play came either from themselves or from their parents.

Comparing rehearsal and performance habits, there was an interaction effect between the two groups in time spent practicing solo and in orchestra ($F=26.52,$

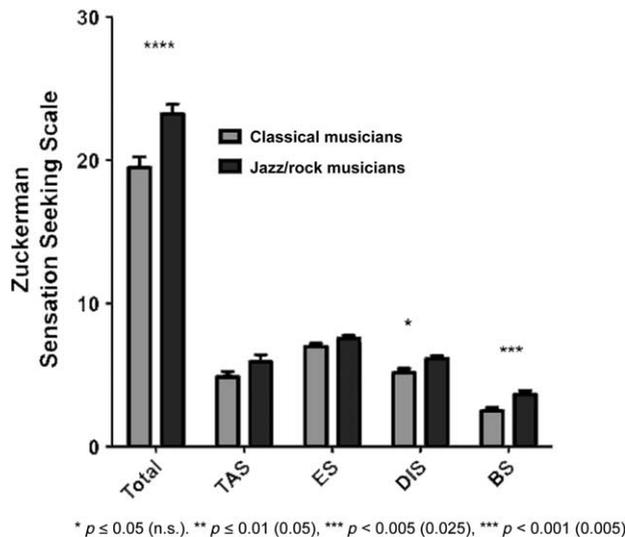


Figure 1. Differences in sensation seeking between classical and ‘rhythmic’ students. Note: Classical students (grey bars) have significantly lower ‘total sensation seeking scores’ than ‘rhythmic’ students (black bars). On the sensation seeking subscales classical students score significantly lower on disinhibition (DIS) and boredom susceptibility (BS), while no differences are seen on thrill and adventure seeking (TAS) and experience seeking (ES). P values in parentheses indicate Bonferroni correction for five multiple comparisons. Only ‘total sensation seeking’ and BS remain significant after Bonferroni corrections.

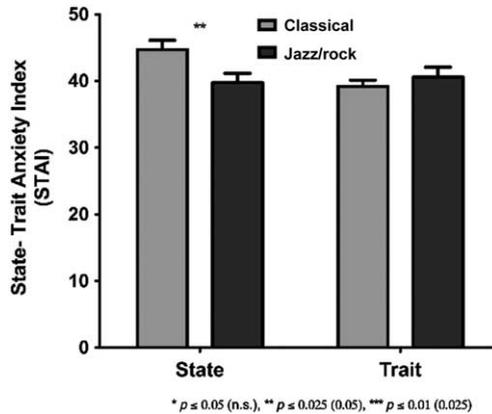


Figure 2. Differences in State-Trait Anxiety Index between classical and ‘rhythmic’ students. Note: Classical students (grey bars) have significantly higher State Anxiety than ‘rhythmic’ students (black bars) related to stage performance (‘stage fright’). It can be seen that classical and ‘rhythmic’ students do not differ in trait anxiety.

$p \leq 0.0001$). Classical students practised a significantly higher number of hours solo ($F = 17.99$, $p \leq 0.0001$), while ‘rhythmic’ students practised more in the orchestra ($F = 11.71$, $p \leq 0.001$; Figure 3). Overall, however, classical students practised more than ‘rhythmic’ students. No group differences were found in the overall number of concerts played, but classical students played a significantly higher percentage of concerts announced through printed and electronic media ($Z = 2.54$, $p \leq 0.01$; Figure 4).

Finally, we looked at the use of alcohol and tobacco among students. ‘Rhythmic’ students drank significantly more alcohol on a weekly basis than did classical students ($Z = 3.34$, $p \leq 0.001$; Figure 5). In addition the percentage of smokers among ‘Rhythmic’ students was significantly higher than among classical students ($\chi^2 = 3.70$, $p \leq 0.05$), namely 25% compared to 10%, respectively.

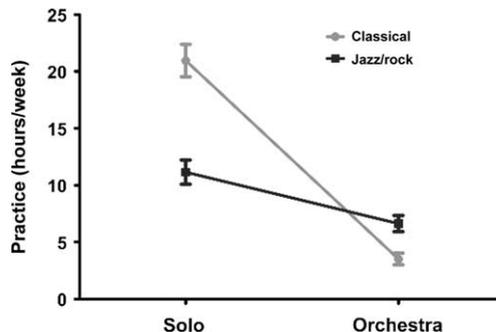


Figure 3. Differences in hours of practice between classical and ‘rhythmic’ students. Note: Classical students (grey markings) practise significantly more hours solo per week than ‘rhythmic’ students (black markings), while ‘rhythmic’ students practise more hours in orchestra. The differences in practise pattern result in a significant interaction effect between the two groups.

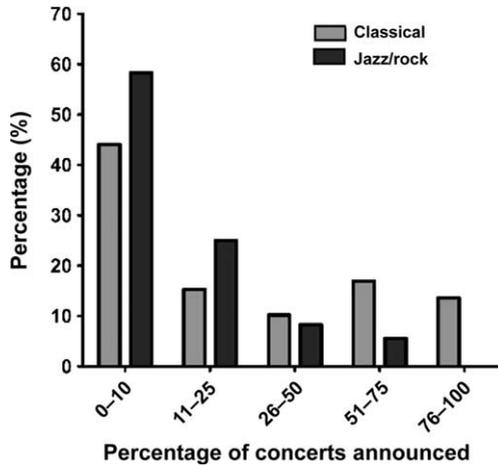


Figure 4. Differences in performance of announced concerts between classical and ‘rhythmic’ students.

Note: Classical students (grey bars) have a significantly higher percentage of announced concerts than ‘rhythmic’ students (black bars).

Discussion

Investigating the influence of personality on career choice using the sensation seeking scale and the STAI combined with a music questionnaire, we found that ‘rhythmic’ students had significantly higher sensation seeking personalities than did classical students. ‘Rhythmic’ students scored higher on the BS subscale of the sensation seeking scale, than did classical musicians. The same was found for DIS, but this tendency did not remain significant after the correction for multiple comparisons. In contrast, classical students had significantly higher levels of state anxiety, when they imagined themselves just before entering the stage for an

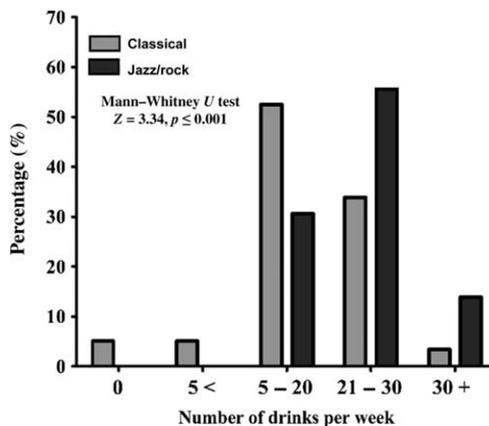


Figure 5. Differences in use of alcohol between classical and ‘rhythmic’ students.

Note: ‘Rhythmic’ students (black bars) drink significantly more alcohol per week than classical students (grey bars).

important concert, but did not differ in trait anxiety. This indicates an influence of sensation seeking personality, but not of trait anxiety on career choice.

The Zuckerman sensation seeking scale has been developed to test the subject's optimal level of sensory stimulation and preference for new experiences and novelty in general. Our results indicate that 'rhythmic' musicians are more inclined to be impulsive and engage in risky activities than classical musicians. The higher sensation seeking score in 'rhythmic' students was mainly driven by their higher score on the BS subscale. The BS items indicate an aversion for repetitive experiences of any kind including routine work and restless reactions when things are unchanging (Zuckerman and Neeb 1979).

A main feature of 'rhythmic' music is its improvisational freedom. This applies to the individual parts of the accompaniment as well as to solos in which instrumentalists are completely free to play whatever they feel like as long as they are playing within the framework of chord sequences. Consequently, the musical scores of 'rhythmic' music are more meant as guidelines than to be played as is. In contrast, the score of classical music is intended to be played note for note and the degree of freedom lies in the emotional phrasing by varying parameters such as intensity, timbre and timing of the notes.

Thus, it is plausible that the observed difference in the BS score is associated with features that are specific to the practise of the two styles of music: 'rhythmic' music being practised in a less repetitive manner and allowing for more individual freedom between different performances of the same piece than the classical style. Accordingly, individuals scoring high on the BS subscale are attracted towards 'rhythmic' music due to the more improvisational and less repetitive nature of this style of music.

Part of this attraction may also lie in the fact that the classical style of music requires more rehearsing. Our data shows that classical musicians practise more overall than 'rhythmic' and prefer to practise by themselves. The motor demands of classical music are larger than for 'rhythmic' music, and a lot of practise is required to excel in this style of music (Jabusch et al. 2009). By practising alone classical musicians have a controlled setting for perfecting their technique. On the other hand, 'rhythmic' students prefer to practise in a social setting, with their band or orchestra (Figure 3). This makes the context of their practise more unpredictable due to the unpredictability of interaction with the other musicians. Hence, the practise of classical music entails more repetition of instrumental exercises and exact lines of music than 'rhythmic' music, in concert as well as in the practise room. It is, however, important to acknowledge that our data does not allow us to conclude whether personality influences practise habits or if the observed differences in practise habits between classical and 'rhythmic' musicians is a consequence of the educational structure differences between the study lines.

The social aspect of 'rhythmic' students' practise routines correlates nicely with their higher sensation seeking. 'Rhythmic' musicians practise more with their band or orchestra than classical musicians, which suggests that 'rhythmic' musicians are more extroverted and seek out social relations, also in professional settings. Additionally, 'rhythmic' styles of music such as rock and jazz are anecdotally associated with sex, drugs and heavy drinking (Driver 2001), which suggests a high level of DIS. The DIS subscale describes an individual's need to engage in social activities and disinhibit behaviours by drinking, partying and seeking variety in sexual partners. In the present study, 'rhythmic' students showed a tendency for higher scores on the DIS subscale of

the sensation seeking scale. In line with this observation, we found that ‘rhythmic’ students drink significantly more alcohol than classical students, although alcohol consumption is within the normal age range for all students. Taken together, our data thus points to an association between ‘rhythmic’ music and a propensity to BS expressed in a musical need for unpredictability and improvisation, and an inherent sociability and predilection for the social behaviour of band playing.

Sensation seeking as a personality trait is found to have a strong biological component. The heritability of sensation seeking is quite high (58% according to Fulker, Eysenck, and Zuckerman 1980) and both twin-studies and DNA-tests have found a genetic link for sensation seeking (Koopmans et al. 1995). This suggests a causal relation between personality trait and lifestyle. Being a professional musician implies a lot of self-driven practise and constantly changing working conditions. It is a mix between work and leisure, and thus choosing music as a career is also a choice of lifestyle. In extension, according to our data, musicians tend to begin their musical education at a very early point in life. This was indeed the case for the musicians participating in our study reporting to have played persistently from an early age. Thus, it seems possible that people are predisposed, not only by musical talent but also by personality, to become professional musicians within a specific style of music. High sensation seekers seek out high arousing activities and careers matching their personalities, and low sensation seekers seek out controllable environments (Zuckerman 2007a, 107–143, 309). There is some evidence, however, that excessive exposure to a specific environment and a strong identification with icons (Cheung and Yue 2003) may influence an individual’s choice of career. Also, age dependent factors such as younger people’s preference for popular, danceable, ‘rhythmic’ music compared to older people’s appreciation of classical music (Franek 2008) might influence choice of musical career.

While sensation seeking supposedly is a marker of personality differences between classical and ‘rhythmic’ musicians, the STAI did not point towards an intrinsic difference in anxiety level. Instead, we found marked differences between levels of anxiety related to stage performance indicating that classical musicians are more plagued by stage fright. This difference is possibly due to the embedded challenges of the dissimilar musical practices of ‘rhythmic’ and classical music. As classical music is highly structured and allows very little room for errors, it seems plausible that performing in a classical context might be more stressful than a more improvised ‘rhythmic’ concert. Improvised music allows for more individual freedom, which makes it easier for the musicians to adjust their playing according to individual musical strengths and weaknesses. Stage performance might therefore be perceived as less stressful for ‘rhythmic’ musicians.

An alternative explanation for the differences in stage fright could be attributed to the differences in stage performances. ‘Rhythmic’ musicians are in general more physically active on stage than classical musicians. It is plausible that physical activity may distract the musicians from fear-related symptoms that are known to exacerbate the feeling of nervousness (James 1894). On the other hand, high physical activity shares symptoms with anxiety such as increased heart rate, blood pressure and respiration, which for ‘rhythmic’ musicians may be attributed to motor activity instead of stage fright. Furthermore, physical activity is known to elicit endorphins in the brain (Boecker et al. 2008), which induce pleasant feelings.

Practise habits may also influence the level of stage fright. In theory, the more the practise situation resembles the performance, the better the transfer of knowledge

should be between the two tasks (Morris, Bransford, and Franks 2009). ‘Rhythmic’ musicians’ social practise routines are closely aligned with their performance on stage. While this might help ‘rhythmic’ musicians feel more comfortable on stage, it does not apply to classical musicians whose individual practise in many cases is more detached from the actual concerts. ‘Rhythmic’ musicians may also experience more social support from their band because they spend more time together. In brief, there are probably a number of factors contributing to the observed difference in stage fright between classical and ‘rhythmic’ musicians, which are not due to individual differences in anxiety levels but rather a consequence of musical rehearsing and performance practises of the two styles of music.

A limitation of our study is that musicians may represent a special population. A career in music differs a lot from full-time office work, for example: work hours are different; the borders between work and leisure are probably less sharply drawn; and musicians are often extremely committed to their profession, which makes musicianship more of a lifestyle than a profession. Furthermore, according to our data, the choice between musical styles is often made in childhood, relatively independently of external advice, which makes the process of choosing a career in music different from many other paths to a professional career. These characteristics may at the same time uniquely affect musical career among musicians, and limit the possibility of comparison with other vocations.

In conclusion, individual sensation seeking levels differed between classical and ‘rhythmic’ students, affirming an influence of personality on career choice, whereas the differences in reported stage fright between the groups was probably related to differences in inherent requirements and typical practise routines in classic and ‘rhythmic’ music. These results may have implications not only for the understanding of the different styles of music, but also for the structuring of music lessons in general in that classical and ‘rhythmic’ musicians may benefit differently from different teaching paradigms. The finding that rhythmic musicians are more sensation seeking than classical musicians suggests that these musicians benefit more from group activities and teaching in less structured environments allowing for a high degree of improvisational freedom. Moreover, individual sensation seeking levels may have to be taken into account when trying to optimise learning paradigms. The larger degree of anxiety experienced in relation to stage performance by classical musicians should be addressed in the one-to-one teaching typical of the classical educational programmes and in specific courses in performance management as well as in relation to student concerts at the academies of music.

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