Chapter 23

Building performance confidence

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Should we be concerned about performance anxiety in child and adolescent musicians? Studies suggest we should, as up to 75% of students experience some form of performance anxiety (Britsch, 2005). Given that most people learn how to play and perform music during their school years, knowledge of how to cope with music performance anxiety (MPA) at this time is crucial for satisfactory engagement with music, whether or not they wish to continue with a music career. Performance anxiety is the most significant psychological issue for performing musicians of any age (Kennedy, 2011), and can be a significant blow to the psychological well-being and optimal performance of a young performer.

Many young people choose to leave formal music education as they enter adolescence (McPherson, Davidson, & Faulkner, 2012). This is at odds with older and more experienced musicians who are more likely to remain engaged in the act of performing even if it feels aversive, rather than avoiding or escaping it, in a phenomenon described by Senyshyn and O'Neill (2001) as "creative yearning." It may be that "creative yearning" reflects a strong personal investment in performing, such that a musician's desire to approach the act of performing (remain in the field) remains stronger than their desire to avoid it (leave the field) (Dollard & Miller, 1950). Sadly, if a young musician becomes overwhelmed by negative emotions due to their inability to control them or play despite them, they may eventually discontinue performing altogether, even if they have not experienced any serious performance breakdowns (Kennedy, 2011). Considering that musical identities moderate musical development in young musicians (Hargreaves, MacDonald, & Miell, 2012), the musical identities of child and adolescent musicians may be too fragile to remain in the field alongside the plethora of aversive emotions, thoughts, and physiological responses they may experience with MPA. Therefore, children and adolescents might require less trauma or distressing anxiety to decide that they no longer wish to remain in the performance "field," and choose to avoid performing and/or music learning altogether.

Using a hypothetical case study of a young musician named Louise, this chapter will illuminate both the debilitating and facilitating aspects of performance anxiety. Current methods to conceive and measure MPA are discussed, including the unclear relationship between MPA and performance quality, before moving into a review of psychological strategies to manage MPA in this age group. The chapter finishes with a summary of practical strategies to overcome performance anxiety which can be used by parents, teachers, and students to help young musicians become more confident in managing performance anxiety and achieve their performance potential.

In Year 5, Louise started learning the clarinet. In order to play comfortably and reduce her anxiety she preferred to perform in a group, or pieces that were technically below her standard and very highly practiced to people that she knew well. At the start of high school she was asked to play a solo at school assembly. She had never performed in the school auditorium before to such a large audience who were also her new peers. She was shy and anxious in daily life, which increased as she entered adolescence. Louise was exceedingly worried about her ability to perform well. Her instrumental teacher and parents simply said, "Don't worry, everyone gets nervous performing,"

and emphasized technical competence: “You’ll be fine if you practice hard enough.” They did not talk about the physical sensations that Louise was experiencing, and that her attention to those sensations would increase the likelihood of her making a mistake or choking on stage. Louise became so anxious before this performance that she wanted to avoid it altogether. After poor sleep and inadequate preparation she squeaked and struggled through a poor performance. After this, she considered giving up altogether. Instead, she found a new teacher who openly discussed performance anxiety and helped her manage it through knowledge and performance practice, encouraging her to play well despite her anxiety. Louise joined the school band and performed in as many solo concerts as she could. Fears and worries about making mistakes were gradually replaced by the joy of communicating to others through music.

Phenomenology

Anxiety is a normal and healthy reaction to perceived danger that triggers a variety of physical, mental, and behavioral changes in order to facilitate a speedy response (WHO, 2004). Similarly, MPA typically manifests as a constellation of three interactive, yet partially independent factors: cognitions, autonomic arousal, and overt behavioral responses (Craske & Craig, 1984; Salmon, 1990). The cognitions or worries that Louise would have experienced in response to being asked to perform at the school assembly include worry about not being able to perform perfectly, fear of making a mistake, fear of being negatively evaluated by others, overestimations of the likelihood and consequences of a negative evaluation of the music performance, and negative self-evaluation in relation to her own high standards for performance quality (Kenny, 2011; Osborne & Franklin, 2002; Osborne & Kenny, 2008).

On detecting danger, a series of hormones would have been released in Louise’s brain including adrenalin and cortisol (the main hormone responsible for the stress response), triggering the sympathetic nervous system (which can occur during excitement *as well as* anxiety) in an almost reflexive urge to escape, or alternatively stand and engage with the threat, which is described in the psychological literature as the “fight-or-flight” response (Barlow, 2002). This elevation in autonomic arousal and tension is characterized by physiological symptoms such as racing heart, dry mouth, rapid breathing, sweating, gastric disturbances, dizziness, and feelings of dread, fear, and panic. Somatic anxiety includes worry about the potential of excessive physiological arousal to negatively effect performance (Gill, Murphy, & Rickard, 2006). Louise most likely demonstrated behaviors such as a frozen expression, signaling her nerves to others and undermining her attempt to effectively communicate her musical repertoire to the audience (Williamson, 2004). Under stress, she would have more difficulty learning, remembering, and executing the complex cognitive (e.g., problem solving) and sensorimotor (i.e., execution and sequencing of controlled body movement) skills required in a music performance (Altenmüller & McPherson, 2008; Kim & Diamond, 2002). The performance-stress model of choking in Figure 23.1 demonstrates how these factors can work together to produce a sub-optimal music performance for Louise in high stress situations, such as a solo at the whole school assembly.

Louise also demonstrated the more explicit behavioral consequences of MPA such as choosing group repertoire over solo, or easier pieces instead of more difficult ones. Whilst this might successfully reduce her performance anxiety, it also results in negative educational consequences, as she resists performing pieces that match her level of skill (Kubzansky & Stewart, 1999), or in the extreme, avoids performing altogether (Fehm & Schmidt, 2006). Like Louise, many young musicians avoid feared performance situations in order to alleviate anxiety, which is a common theme across other types of evaluative situations such as tests and competitions in mathematics

Fig. 23.1 Performance-stress model of choking

Adapted from Jean M. Williams, Robert M. Nideffer, Vietta E. Wilson, Marc-Simon Sagal, and Eric Peper, *Concentration and strategies for controlling it*, in *Applied Sport Psychology: Personal Growth to Peak Performance*, 6e, p. 343 © 2010, McGraw Hill.

and sport. Unfortunately, this limits Louise’s opportunities for performances that could provide positive evidence of her performance capability (to help her reduce worrisome thoughts), and problem-solving opportunities to identify areas for skill improvement. Over time, Louise’s repertoire of adaptive coping thoughts and music performance skills disintegrates (Kenny, 2011). This cycle subsequently escalates the likelihood of a future performance catastrophe (the initial feared event and cause for worry), escalating distress and increasing the likelihood of complete disengagement from music learning. In this way, anxiety-driven avoidance behavior leads to a lack of motivation to perform (Zeidner & Matthews, 2005).

Avoidance also implies hypervigilance—in order to avoid a threatening stimulus, we continuously scan our environment (internal or external) in order to detect the feared event that we wish to avoid, thus making us hypervigilant to anxious and fearful stimuli (Barlow, 2002). Executing a musical task requires minute control over fine motor skills (such as vibrato and bow holds) which can be easily and potentially disrupted by even minor changes in physiological arousal, prompting musicians to become hypervigilant to minor physiological changes and misinterpret them with major significance (Gill et al., 2006). Neurobiologically, hypervigilance to anxious phenomena (e.g., worrying about the potential for making mistakes due to profusely sweating or trembling hands) maintains anxiety by strengthening cellular networks in our brains that are specialized to detect danger and respond with anxiety and the “fight or flight” response (Kasai et al., 2010). The more attention Louise would pay to the potential negative effect of anxiety on musical performance, the stronger the connectivity between cells would become, consolidating performance anxiety material into memory and making it more efficiently retrieved in stressful performance situations. Essentially, Louise was *learning* to be anxious about performing. Conversely, if Louise reduced her attentional focus, the connections between cells would deteriorate, making once-consolidated material more difficult to retrieve. Learning to stop paying attention to anxious

phenomena reduces anxious thoughts and feelings over time (McLaren, 2004, 2013; Schwartz & Begley, 2002). Therefore, a key point of helping Louise optimize music performance would be to reduce hypervigilance to the mental and physical sensations of anxiety.

Child and adolescent musicians are more likely to be anxious in performance if they tend to be anxious across many stressful situations in daily life (i.e., are trait anxious; Spielberger, 1983) and/or are perfectionists. Louise had high trait-anxiety, responding in highly anxious ways across many stressful situations perceived as dangerous or threatening, which increased her likelihood of having high MPA (Kenny & Osborne, 2006; Maroon, 2003; Osborne & Kenny, 2008; Ryan, 1998; Thomas & Nettelbeck, 2014). In a stressful situation, for example, performing solo in front of expert judges, she would more likely experience all three of the cognitive, physiological, and behavioral features of MPA. On the other hand, low trait-anxious individuals demonstrate elevated heart rate, but not cognitive or behavioral features (Craske & Craig, 1984). Importantly, being female contributed to this relationship: young female musicians with high trait-anxiety are more likely to be highly distressed by MPA than young trait-anxious male musicians. Similarly, females and older students are more likely to have higher levels of both perfectionism and MPA (Kenny & Osborne, 2006; Osborne & Patston, 2013). Children and adolescents who have higher levels of performance anxiety are also greatly concerned about making mistakes and have extreme personal standards for excellence, and therefore submit themselves to intense training and practice in order to meet those standards (Kenny & Osborne, 2006; Osborne, 2008). Further variations in cognitive, physiological, and behavioral manifestations of MPA according to age and gender will now be discussed.

Age

Children as young as 3 years of age can show many of the physical and physiological characteristics of adult MPA, such as significant increases in heart rate between practice and recital, and significant negative correlations between self-esteem (particularly social self-esteem), trait, and state anxiety (Boucher & Ryan, 2011; Ryan, 1998). Like Louise, many anxious children articulate cognitions related to fear of making mistakes in front of people, and the negative impact of physiological arousal on performance. State anxiety is significantly higher on the day of a school concert performance, and is positively related to trait-anxiety (Ryan, 2005).

Preschool children's responses to performance situations provide valuable insight into the experience of MPA in this age group as well as potential innate and developmental contributions (Boucher & Ryan, 2011). Children from two daycare centers participated in weekly group music lessons which culminated in two concerts for their families on two consecutive days. Concert activities included group singing, movement, and instrument playing. All children were more anxious before the concert performances, but this differed according to prior performance experience and performance location. Children with prior performing experience reported less anticipatory anxiety than those without prior experience. Performance location also affected anxiety responses. Children from one daycare center who were very familiar with the performance venue responded with less anxiety than those who had never attended the performance venue. The second performance within a short timeframe elicited much lower anxiety responses than the initial performance for all students. This suggests that performance stress in young children can be reduced through performance practice strategies such as rehearsing in (or at least visiting) the performance venue the day before the actual performance.

Like Louise experienced, MPA increases with age and peaks at around 15 years (Chan, 2011; Osborne & Kenny, 2005; Osborne, Kenny, & Holsomback, 2005). Up to a third of adolescent

music students are adversely affected by MPA, which appears to be unrelated to years of playing or musical grade (Fehm & Schmidt, 2006; Rae & McCambridge, 2004). Studies of high school musicians show that MPA is likely to be greater if students have high levels of trait-anxiety, neuroticism, and introversion (Kemp, 1981; Rae & McCambridge, 2004; Smith & Rickard, 2004). Consistent with the social nature of music performance, Louise's anxiety would increase from a solo practice to solo performance in front of a small audience. She was much more anxious performing on her own than in a group, and to adjudicators and/or large audiences than small, familiar ones (LeBlanc et al., 1997; Maroon, 2003). She also used to feel more comfortable playing solo when she was younger (Britsch, 2005). Entering adolescence, the two main triggers to MPA for Louise include cognitions (negative thoughts) and physiological manifestations of anxiety (somatic anxiety) (Osborne & Kenny, 2005, 2008; Papageorgi, 2007).

The increase in MPA in adolescence as experienced by Louise can be explained by the development of formal operational thought (Osborne et al., 2005). The cognitive skill of formal operations is characterized by an increase in retrospection and self-evaluation, particularly in areas of great interest and involvement (Piaget, 1970). The ability to imagine other people's thoughts lead Louise to mistakenly believe that others were as preoccupied about performance failure as she was. This can create anxiety and self-criticism (Kenny, 2000). Adolescence is also characterized by decreased satisfaction with family, encouraging peers to become the focus of attention and increased social-interpersonal anxiety (Kashani et al., 1989). Hence, the new peers were very threatening for Louise. Adolescents are also more likely to evaluate themselves in terms of academic and other achievements (Heaven, 2001). The greater commitment to music exhibited by young people who remain engaged in music learning from childhood to adolescence invites greater expectations from one's self and others regarding performance standard and quality, thereby increasing the likelihood of high performance anxiety (Osborne et al., 2005).

Gender

From late childhood female musicians report higher MPA than their male counterparts (Osborne et al., 2005; Thomas & Nettelbeck, 2014). Social anxiety is common for boys and girls, as peers become the increasing focus of attention, with girls (not boys) becoming increasingly concerned with age (Kashani et al., 1989). Girls also have significantly greater fears of performing in front of others (Essau, Conradt, & Petermann, 1999).

Measures of state anxiety (a person's level of anxiety at any given moment; Spielberger, 1983) in Grade 3 to 7 school students on a concert day show that this can vary according to age. Grade 6 boys report a small decrease in anxiety, and girls a moderate increase. In comparison, Grade 7 boys' anxiety increases, and Grade 7 girls' anxiety decreases (Ryan, 2005). After Grade 4, boys and girls manifest anxiety differently (Ryan, 2004): Girls have substantially higher heart rates than boys immediately prior to but not during a performance, whereas boys' heart rates exceed girls' heart-rate levels during a performance. Interview findings indicate that boys do experience anxiety prior to performing, at which time they claimed to be most anxious (Ryan, 2004, 2005). Boys tend to use physical activity as a coping mechanism to distract them from the impending performance situation, which may also help them to maintain lower heart rates. Boys also demonstrate significantly more somatic anxiety and anxious behavior than girls both prior to and during a recital, such as feet and legs shifting and tapping during playing, shuffling and pacing during measures of rest or in between movements, drying one's hands by touching the body, lip moistening or jaw movements, and adjusting, manipulating, and/or inspecting the instrument when not playing (see Brotons, 1994 for further details on behavioral manifestations of MPA).

On the basis of these findings, we can conclude that MPA increases with age peaking in mid-adolescence, with gender emerging as a distinguishing feature in adolescence. This highlights the need to examine musicians from late primary school and high school according to gender rather than as one homogenous group, potentially requiring gender-specific strategies (Ryan, 2005).

Measuring MPA

Valid, reliable, and easy-to-use measures for child and adolescent MPA are vital for early intervention and prevention of potentially debilitating levels of MPA. One quick and easy-to-use self-report scale that Louise's teacher could have used to start the conversation about the topic is the Music Performance Anxiety Inventory for Adolescents (MPAI-A) (Osborne & Kenny, 2005), which contains 15 questions assessing the somatic, cognitive, and behavioral components of MPA. Table 23.1 outlines the topics that are covered by the scale, which provide clues as to the most important issues of concern for a young musician. The total score indicates students' overall susceptibility to performance anxiety and effectiveness of intervention outcomes. The scale can also be used item-by-item to identify and target strategies to address individual performance anxiety concerns, and has improved our knowledge of the phenomenology and effective

Table 23.1 MPAI-A items by topic

Item	Topic
<i>Somatic and cognitive features</i>	
1	Before I perform, I get butterflies in my stomach
2	I often worry about my ability to perform
4	Before I perform, I tremble or shake
5	When I perform in front of an audience, I am afraid of making mistakes
6	When I perform in front of an audience, my heart beats very fast
7	When I perform in front of an audience, I find it hard to concentrate on my music
8	If I make a mistake during a performance, I usually panic
9	When I perform in front of an audience, I get sweaty hands
12	Just before I perform, I feel nervous
13	I worry that my parents or teacher might not like my performance
15	My muscles feel tense before I perform
<i>Performance context</i>	
3	I would rather play on my own than in front of other people
11	I try to avoid playing on my own at a school concert
14	I would rather play in a group or ensemble than on my own
<i>Performance evaluation</i>	
10*	When I finish performing, I usually feel happy with my performance*

Items are answered on a 6-point Likert scale: 0–Not at all to 6–All of the time.

*Item 10 must be reverse scored before summing for a total score (original scale in Osborne & Kenny, 2005).

interventions for MPA in adolescents (e.g., Braden, Osborne, & Wilson, 2015; Chan, 2011; Khalsa et al., 2013; Osborne, 2013; Osborne & Kenny, 2008; Osborne, Kenny, & Cooksey, 2007; Thomas & Nettelbeck, 2014).

Conceptualization

As inferred in the previous section, performance anxiety in children and adolescents varies depending on age, gender, level of trait-anxiety, and type of performance. The challenge, then, is how to best summarize the development and chronicity of MPA across different individuals and performance conditions. Given that by its very nature, abject expressions of MPA cross both the anxiety and performance spectra, the following discussion highlights the main theoretical conceptualizations of anxiety from both performance and clinical foundations. Wilson's (2002) three-dimensional model of artistic performance anxiety and the Individualized Zone of Optimal Functioning (IZOF) approaches elaborate on the facilitative effects of anxiety on performance.

Wilson's three-dimensional model of performance anxiety

Wilson (2002) considers context and individual psychological characteristics in a three-dimensional model specifically for artistic performance anxiety. Distressing anxiety arises from a performer's trait-anxiety, degree of task mastery of the performed piece, and degree of situational stress. The optimal or detrimental effect of performance anxiety depends on the interaction between these three groups of factors. For example, a high trait-anxious individual will perform best playing an easy, well-prepared piece in a relaxed environment, whereas a low trait-anxious performer will perform better with a challenging piece in an evaluative environment, such as an exam or a competition. Wilson's theory accommodates cases where highly anxious performers rarely demonstrate impaired performance, nor performance that is inferior to that of low trait-anxious individuals (Strahan & Conger, 1998).

Individual differences in optimal performance

Performance anxiety can vary across individuals for two reasons: first, small changes in context or task-expectancy can lead to individual differences in stress response due to cognitive appraisals of whether the situation is stressful or not (Bandura, 1991; Salmon, 1991); and second, highly anxious performers are likely to engage in a number of pre-performance preparations, such as over-learning, additional rehearsals, or visiting the venue (Kenny & Ackermann, 2009; Kenny, Davis, & Oates, 2004).

Drawn from the sports performance literature, tools such as Hanin's (2000) IZOF model and emotion-profiling instrument, and Greene's (2012) Performance Success program for musicians and Performance Skills Inventory, acknowledge that successful athletic and musical performance occurs when competition anxiety (nervous energy) approximates the ideal level for that athlete or performer, whether it is low, medium, or high. According to Hanin, when an individual's arousal exceeds their zone of functioning, then performance falters. Similarly in Greene's approach, when a performer is unable to regulate their Performance or Audition Energy to their Optimal Energy level, and the gap between these respective energy levels is substantial, then a performer can struggle to control their energy in high-pressure performance situations, and performance is likely to be less than desirable. The main similarity across both models is that it is not the amount of nervous energy per se that is the problem, but rather identifying what amount is most advantageous for each individual.

Kenny's model of MPA development

Kenny (2011) draws from clinical psychology literature to provide a comprehensive, yet parsimonious model which accounts for the development of MPA. It postulates that MPA in young musicians is developed and maintained as a result of three integrating vulnerabilities:

- 1 generalized biological (heritable) vulnerability = young performers who are high in trait-anxiety; plus
- 2 generalized psychological vulnerability = young performers who come from home environments in which expectations for excellence are high but support for achieving excellence is low; plus
- 3 specific psychological vulnerability = young performers who experience frequent evaluations of their performances in a competitive environment, early in their musical training.

Anxiety may be triggered by conscious, rational concerns or by cues that unconsciously trigger earlier anxiety-producing experiences or somatic sensations. The latter may include earlier aversive performances that drive negative cognitions in subsequent performances. For example, adolescents who report experiencing a traumatic music performance have more negative thoughts about performance than those who have never experienced a traumatic performance (Osborne & Kenny, 2008). Once anxiety is triggered, attention turns inward and is self-evaluative, focusing on somatic sensations and catastrophic self-statements regarding their perceived inadequacy in managing the forthcoming performance. Akin to a self-fulfilling prophecy, the result of attentional focus turning inward to cognitions and somatic sensations, and away from the task of executing the musical piece, increases the likelihood of an impaired performance or performance failure (see Figure 23.1).

This model includes a detailed account of conditioning processes in stressful performances that account for the sequence of negative emotions accompanied by a negative evaluation of the performance by one's self *and* others combined with somatic anticipatory responses, which may or may not be associated with an actual impaired performance or a performance breakdown (interested readers are encouraged to consult Kenny, 2011, pp. 157–65 for details). It accounts for the occurrence of severe MPA in musicians who may or may never have experienced a performance catastrophe. MPA is likely to develop “if not extinguished by appropriate interventions and performance outcomes” (Kenny, 2011, p. 164), and “repeated successful performance may eventually reduce the amount of anxious apprehension experienced before performances so that music performance anxiety does not persist, at least not at severe levels” (p. 162). The model diagram notes this process as “successful performance,” with an arrow pointing to “Exit/avoid MPA” (Kenny, 2011, p. 163).

The suggestions that only successful performances can lead to reduced MPA and that MPA can be avoided and eliminated are two potential difficulties with this model. Performers, parents, and educators may misinterpret this framework in their efforts to assist in managing MPA. Certainly, as in Louise's case, many opportunities to perform with minimal adverse consequences helped her learn that performance is an enjoyable and manageable part of learning an instrument. These points are elaborated further in the “Strategies to overcome performance anxiety” section at the end of this chapter.

MPA and performance quality

Much of the early performance anxiety literature posited a simple relationship between physiological arousal and performance quality, notably due to the Yerkes Dodson Inverted-U curve model (Yerkes & Dodson, 1908). According to this model, moderately difficult tasks are best performed

under conditions of moderate physiological arousal, and insufficient or excessive arousal impedes performance. Hypervigilance to somatic sensations produces cognitive interference, triggering debilitating anxiety and potentially disrupting the execution of skilled behavior resulting in sub-optimal performance (Zeidner & Matthews, 2005). Over time the Inverted-U relationship has broadened to consider a number of moderating factors, including difficulty of the piece and degree of preparation. For example, Louise would be more likely to deliver a good-quality performance with high physiological arousal by playing a less complex (Tassi et al., 2003) and highly practiced (Kokotsaki & Davidson, 2003) piece. A moderate amount of anxiety may *enhance* her performance when her skill level matches the performance demands of the situation (Jackson & Csikszentmihalyi, 1999), *and* she interprets that anxiety positively (Jones, Swain, & Hardy, 1993).

The relationship between excessive levels of MPA and actual impairment of performance skills is unclear in young musicians. Grade 7 and 8 students in a solo and ensemble contest with high state anxiety do not perform as well as those with lower levels of anxiety in the presence of an adjudicator (Maroon, 2003). There is no evidence for either debilitating or facilitating effects of anxiety in 7- to 18-year-old Hong Kong musicians, although state anxiety scores are significantly lower for students who expect to perform better than their daily practice, compared to those who expect to do worse than their daily practice (Chan, 2011). The relationship between reduced performance anxiety and improved performance quality in judged solo performances following cognitive-behavioral interventions in high school music students is inconclusive (Braden et al., 2015; Osborne et al., 2007). This relationship is complicated by the effect of observer's ratings of manifest MPA on performance quality. If Louise was perceived by judges to be more anxious than her competitors, she would be given poorer performance scores, regardless of how anxious she herself felt (Kubzansky & Stewart, 1999). Yet, despite Louise's perception of conspicuous behavioral manifestations of MPA such as sweating, trembling, hyperventilating, and tense musculature in a solo musical performance, these would not be obvious to highly trained judges (Braden et al., 2015), which is an important psychoeducational point for Louise's teacher to emphasize in helping to manage her performance anxiety.

Interestingly, 12-year-old boys who play piano display more anxious behaviors before performing and still subsequently perform better than their female counterparts (Ryan, 2004). It is possible that these behaviors reduce hypervigilance to negative rumination about the performance, thereby allowing them to perform better. Girls with the least state anxiety perform the worst, and those with very high anxiety perform moderately well. Several of the lower-rated performers exhibited behaviors common to anxious musicians, such as memory slips and false starts. Hence it is difficult to know whether or not differences in recital performance quality can be attributed to variations in anxiety. It is possible that performance problems are due to poor preparation, as adolescents with high MPA like Louise invest less effort in performance preparation (Papageorgi, 2007). What we can conclude is that the relationship between an individual's level of anxiety and quality of music performance is not straightforward. As Louise's case study shows, variability occurs due to a range of antecedents such as level of preparation, gender, performance situation, worrisome thoughts and elevated physiological arousal, and covert or overt anxious and avoidant behavior.

Positive emotions in performance

Ryan's (2004) finding that boys who displayed more anxious behaviors prior to performing subsequently performed better provides tantalizing evidence that the experience of anxiety before or during a music performance is not necessarily associated with negative performance outcomes in young musicians. In a study of gifted 15- to 19-year-old musicians, Fehm and Schmidt (2006) found that although 73% identified anxiety as having a negative influence on their performance,

almost half the students reported that it had a somewhat positive influence on their performance (although no details were obtained about what those facilitative effects might be). A positive or negative interpretation of anxiety is mediated by an individual's performance history and previous experience with elevated arousal levels, degree of skill or task mastery, self-confidence, self-belief in one's ability to execute the task correctly, and control over physical and cognitive anxiety symptoms (Gill et al., 2006; Kenny, 2011; Rapee & Medoro, 1994).

If Louise had perceived the music performance as a stressor that was controllable, then the stress hormones cortisol and catecholamine, which stimulate anxious responding, would not have been released (Davis et al., 1999). Even with high anxiety, if Louise also had high self-confidence, she would be more likely to experience anxiety as facilitative, regardless of performance outcome (Hanton, Mellalieu, & Hall, 2004; Jones, Hanton, & Swain, 1994). Therefore, like Louise's teacher had done, interventions to facilitate achievement outcomes in learning and performance should not be directed toward decreasing the degree of negative emotion, but rather increasing the amount of positive emotions directed to the task (Pekrun, Elliot, & Maier, 2009). Indeed, the typical "fight or flight" response in high anxiety states tends to motivate success-oriented students to "fight," that is, to approach a performance situation and undertake the necessary preparation required to achieve optimal performance outcomes (Martin & Marsh, 2008). Success-oriented students tend to be optimistic, proactive, and positively orientated to tasks, and respond to setbacks and failure with optimism and energy (Covington, 1992).

Interventions

Performance psychology techniques drawn from the sports domain have a strong evidence base in performance enhancement in recent years following treatment with athletes for performance anxiety (Murphy, 2012; Williams, 2010). Sport and music performance have many overlapping features: both require high levels of motor control and learning, mastery over mind and body, the necessity for implicit recall and smooth performance, and the presence of an audience which may invoke enjoyment of excellence and/or psychological pressure (Yoshie et al., 2009). Performance psychology techniques address the "cognitive, emotional, behavioural and psychophysiological inhibitors of consistent, excellent performance" to support individuals to "consistently perform in the upper range of their capabilities" (American Psychological Association, 2011, p. 9). Positive psychology draws upon character strengths and positive visualization, encouraging flow, and the close study of what occurs during an optimal performance (Csikszentmihalyi, 1990).

Only a handful of studies have empirically tested whether a psychological intervention is effective in reducing MPA in this age group. A recent study tested a six-week program of three weekly Kripalu-style yoga classes for advanced adolescent musicians (mean age 16 years) participating in a summer residential training program at a prestigious music performance institute, compared to a no-intervention control group (Khalsa et al., 2013). Students who participated in the yoga classes reported significant reductions in MPA during group and solo performances. This study suggests that the physical postures and movements, meditation, attention control, breathing, and deep relaxation activities of yoga may be a useful way to manage MPA in adolescence.

Two other studies have evaluated more comprehensive psychological skills programs in school settings. In the first reported study to empirically evaluate anxiety management techniques for MPA in adolescent musicians, Osborne et al., (2007) implemented a combined group-individual cognitive-behavioral intervention program to reduce MPA and improve performance quality for 23 students (mean age 13.87 years, $SD = 1.22$ years) at the Sydney Conservatorium of Music High School. They were assessed using the MPAAI-A, State-Trait-Anxiety Inventory (Spielberger,

1983) and the Anxiety Disorders Interview Schedule for DSM-IV (Child version, ADIS-IV:C, Silverman & Albano, 1996). Physiological measures of heart rate and frontalis muscle tension were also taken. Prior to commencing, students gave an unaccompanied solo performance of 2–3 minutes demonstrating their highest level of musical proficiency. Students were then randomly allocated to the Music Performance Enhancement Program (MPEP) as a cognitive-behavioral performance psychology intervention, or were required to perform the piece of music only as a behavior-exposure-only (BEO) condition.

The MPEP was delivered over seven sessions: three one-hour group sessions (weeks 1, 3, and 5) after school, and four 45-minute individual sessions (weeks 2, 4, 6, and 7) within school time. Group sessions covered the following topics which were followed up with students in their individual sessions: psychoeducation regarding the physiological, cognitive, and behavioral aspects of MPA; relaxation strategies; goal setting; cognitive restructuring and self-talk performance diaries; and performance routines, choking, warm-up decrements and paralysis-by-analysis. Within two weeks of finishing the program all students completed the same self-report and diagnostic interview as pre-intervention, and performed the same piece of music as their first performance with accompanying physiological measurements.

Following the intervention, students who participated in the MPEP reported lower MPAAI-A scores and performance fear than students who were in the BEO group. There was no difference between groups in performance quality. Generalized Anxiety Disorder (GAD) diagnoses decreased by 50% for both the MPEP and BEO groups, and Social Phobia (SocP) decreased by 84% for MPEP and 50% for BEO. Students in the MPEP group also demonstrated significantly less performance avoidance than the BEO group. There were even more striking reductions in MPA for the adherent students (see Figure 23.2). Social phobia diagnoses in the adherent group were eliminated entirely after participating in the program, combined with a 67% reduction in GAD, and a greater decrease in performance fear than the non-adherent group.

This study included a concert condition in which all students performed the same piece of music to an audience of friends, relatives, and Conservatorium staff one month after completing the program. At this concert state-anxiety scores for the adherent group reduced dramatically, demonstrating ecological validity (Osborne, 2008). These findings reveal that psychological skills training can significantly reduce MPA and performance avoidance within a school setting, and may also provide psychological benefits in other areas of students' lives.

A subsequent study by Osborne (2013; Braden et al., 2015), "Unleash your Music Potential," evaluated the manualized performance psychology program "Thinking Skills for Peak Performance: Unleash your Potential!" (Brandon & Ivens, 2009) as an early intervention strategy for Year 7, 8, and 9 students at a non-selective Catholic girls school. The program is grounded in cognitive-behavioral, performance, and positive psychology principles to build students' self-knowledge in relation to achieving a peak performance. In this study, a randomized wait-list control design with a larger sample size was used to delineate the effect of time from intervention which was not possible in the Sydney Conservatorium High School study (Osborne et al., 2007). The "Unleash your Music Potential" program included eight sessions covering peak performance, personal strengths, planning and goal setting, motivation, positive self-talk, relaxation, imagery and visualization, stress regulation, and recovery after disappointments or setbacks. Three solo performances performed in front of two judges acted as both a behavioral exposure and an outcome assessment of manifest MPA. Additional outcome measures included self-reported state (pre-performance) and trait (non-performance) MPA, motivation to learn and perform music, and expert ratings of performance quality and observable behavioral manifestations of MPA.

Fig. 23.2 MPAl-A scores pre- and post-intervention by group

Reproduced from Margaret S. Osborne, Dianna T. Kenny, and John Cooksey, *Impact of a Cognitive-Behavioural Treatment Program on Music Performance Anxiety in Secondary School Music Students: A Pilot Study*, *Musicae Scientiae* 11(2) (Special Issue), p. 67, doi: 10.1177/102986490701105204 © 2007, The Author.

Self-reported MPA reduced significantly for all students after completing the program. MPA scores continued to decline two months after completing the program for the first intervention group, showing both maintenance of gains *and* continued improvement after program completion. There was also evidence of improved performance quality. In contrast, there appeared to be no effect of the intervention on judge-rated behavioral manifestations of MPA.

Significant improvements were also observed in music performance resilience as measured by the Motivation and Engagement Scale for Music (MES-M) (Martin, 2008). Improved self-efficacy scores indicated that students were more likely to want to perform in order to achieve a successful outcome, rather than to avoid failure. Performance preparation improved through increased planning, effort, and persistence, showing improved autonomy in achieving successful outcomes, with a commensurate reduction in self-handicapping and withdrawal behaviors. In short, as a result of the intervention, students' music performance preparation strategies became more self-regulated.

Both studies demonstrate that performance psychology programs, which teach young musicians the mental skills needed to enhance personal confidence and competence to perform at one's best, lead to significant reductions in MPA when delivered within the school environment.

Strategies to overcome performance anxiety and achieve an optimal musical performance

Louise is more likely to achieve music performance excellence when three factors are working in tandem (see Figure 23.3):

- 1 musical competence (e.g., adequate skill development, practice, and task mastery);
- 2 physical well-being (e.g., adequate nutrition, sleep, and fitness); and
- 3 psychological well-being (e.g., positive and realistic self-statements and realistic self-appraisal of performance quality) (Kenny & Ackermann, 2009; Williamon, 2004).

Fig. 23.3 Contributors to optimal music performance

Parents and teachers can support Louise's psychological well-being in music performance by helping her to understand that:

- 1 an optimal or "peak" performance (one where performers think and feel they are performing at their best) is not a perfect performance. It is one where mistakes are fewest and/or minor problems are recovered from quickly (Williams, 2010). Musicians *do* make mistakes, and this does not necessarily mean performance failure;
- 2 poor performances provide valuable information on how to learn to improve performance in future events (see, e.g., the achievement and motivation literature on mastery and performance goals by Dweck, 2012 and Martin, 2010);
- 3 experiencing anxiety prior to, during, or after a performance is not inherently maladaptive and should not be avoided *per se*; in fact, it is our natural nervous system response providing us with alertness and energy to face any challenging situation; and,
- 4 anxiety may actually *enhance* performance.

These points lead into four areas in which psychological skills can be integrated with technical practice to increase young musicians' ability to control performance anxiety and optimize musical performance.

1. Manage physiological arousal, but don't expect to give your best performance being relaxed

Breathing and relaxation strategies such as yoga lead to significant reductions in MPA in adolescents, yet incorporating relaxation training into exposure-based treatments for anxiety does not necessarily lead to improved outcomes. The focus of psychological treatment in challenging social-evaluative performances such as oral presentations or music performance is to develop a tolerance for the natural rise in physiological arousal (Velting, Setzer, & Albano, 2004). This is a

crucial point to note in managing MPA, because a moderate amount of arousal is necessary for good musical performance. Therefore, it is *not* recommended to advise Louise that she should feel relaxed before performing. The discord between the belief that “I must be relaxed in order to perform well” and the inevitable “fight-or-flight” sensations of elevated heart rate, dry mouth, sweating etc. is likely to inspire a sense of confusion and failure before she has even played the first note. Louise can be put at ease about performance anxiety through education about the natural anxiety response to challenging situations, and identifying her own zone of optimal functioning (see tip 4).

2. Build positive emotions toward performing

Interventions to facilitate achievement outcomes in learning and performance should not be directed toward decreasing the degree of emotion *per se*, but rather, increasing the amount of *positive* emotion directed to the task (Pekrun et al., 2009). As in Louise’s case, this can be done by emphasizing artistic expression, and the purpose of a musical performance as an opportunity to communicate one’s unique interpretation of the emotional intent or story composed within the piece, rather than “not making any mistakes” which can facilitate rumination over the potential for errors (Ryan, 2004). Framing errors as an inevitable part of the learning process has a performance-enhancing effect compared to the negative effect of framing errors as events that should be avoided (Andersen, 2009).

3. Performance simulation

Mere exposure to public performance does not automatically lead to a decrease in anxiety. What is required for anxiety management skills training to lead to performance-specific outcomes is to integrate it with performance practice. Louise was encouraged to build up levels of physiological arousal to approximate the levels experienced in actual performance, to enable her to be confident in executing musical skills *despite* elevations in physiological arousal. Through simulation training, she can deliberately practice coping with internal and external performance anxiety triggers so that they are readily engaged in performances (Greene, 2002; Williamon, Aufegger, & Eiholzer, 2014). Adverse consequences associated with early evaluative performances should be minimized by offering frequent, low-stress opportunities to perform so that she can learn that performance is an integral, enjoyable, and manageable part of learning her instrument. The repertoire should be within her technical capability, and well learned before performing.

4. Identify your own IZOF

By working on these elements, Louise can identify her IZOF. IZOF analysis can be as simple as using video recordings of music performances and keeping a performance diary noting each event, recording preparatory and pre-performance thoughts and behaviors, rating level of preparation and anxiety (say, out of 100), and providing her own feedback on performance outcomes (again rating, say, out of 100). Over time this builds an individualized database of thoughts and actions leading to successful performances which can be summarized to generate an individualized “how to” list of constructive behaviors and strategies that can kick-start an optimal music performance.

Conclusion

This chapter has reviewed our knowledge of performance anxiety in child and adolescent musicians and provided information about psychological strategies to manage overwhelming MPA that can be readily incorporated into instrumental/vocal training. Anxiety was discussed as an adaptive reaction to perceived danger, and common manifestations through thoughts, behaviors,

and physiological sensations were summarized, including a brief description of the neural mechanisms underpinning these manifestations. The instinctive desire to avoid performances perceived as threatening and thus anxiety provoking was discussed as a maladaptive means to performance success, as this encourages a deterioration of musical skills which can spiral into a self-defeating and self-fulfilling prophecy of performance failure, reinforcing the primary fear of MPA. Conceptualizations of MPA drawing from music and sports performance literature were summarized to show that the experience of MPA is not detrimental to performance per se. Rather, the effect of anxiety as facilitating or detrimental to the quality of a performance depends on the young musician's performance history, their experience and skill in managing the spike of physiological arousal prior to and during a performance, their level of musical skill or task mastery, and self-confidence. Building confidence will improve their ability to perceive anxiety as conducive to good performance. It is hoped that the information presented in this chapter will help in our collective efforts to support young musicians like Louise to understand themselves as performers, and apply strategies to manage performance anxiety so that they feel joy, happiness, and satisfaction as they strive for musical excellence and deliver performances that demonstrate their full potential.

Reflective questions

- 1 Look back on your own musical development. Can you remember instances where you experienced a “fight or flight” response? What happened to trigger each response? To what extent did you find MPA exhilarating or debilitating?
- 2 What are the benefits of addressing psychological well-being to enhance music performance?
- 3 Explain the different ways young musicians experience MPA.
- 4 What techniques might be used to benefit a child or an adolescent who is experiencing MPA?
- 5 How can parents, teachers, and educational institutions facilitate a supportive learning and performance environment that minimizes adverse consequences and encourages excellence, particularly in the early stages of music learning?

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