

**Towards a conceptual framework for resilience
research in music training and performance: A cross-
discipline review**

“The important thing is not to be cured, but to live with one’s ailments.”
Albert Camus, *The Myth of Sisyphus*

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ABSTRACT: Resilience has become an increasingly ubiquitous term during recent decades, resulting in a prolific and eclectic body of literature. I explore the potential relevance of the concept of resilience to the life world of the musician. Drawing on conceptions of resilience and critical arguments from fields of study as diverse as social ecology, sociology, psychology, anthropology, sport and political economy, I define resilience in a way that might carry meaning for the practising musician. I then attempt to establish to what extent musicians are likely to embody or acquire the characteristics associated with resilience, and to what extent this is actually desirable within an artistic medium. With this caveat in mind I seek to identify risk factors, together with stabilising and destabilising forces that might impact on the musician’s ability to survive adversity. Protective factors are also identified. Following this and in line with current thinking in social theory, I offer some cautions regarding the over-reliance on standard approaches to resilience at the expense of more creative and productive strategies for managing adversity and trauma. Finally, with a view to fostering resilience in the individual musician, I suggest approaches that might inform educational practice.

KEY WORDS: Resilience, music performance, creativity, risk, vulnerability

The purpose of this paper is to explore both traditional and modern conceptions of resilience, with a view to establishing the extent to which the general concept of resilience might be applied to training within an artistic discipline such as music. Musicians draw deeply on personal resources in order to practise their art, and excessive physical, psychological and emotional challenges are both endemic and integral to a performing

career (Brodsky, 2006). It is not surprising, therefore, that music educators are beginning to emulate those in many other disciplines by designing training that is intended to help the individual withstand the necessary stresses and strains of the music profession (*cf.* Burnard & Haddon, 2015). One recent study has suggested that, as has already been happening in some institutions, training should undergo a radical shift of emphasis from concentration on developing the individual as a performer towards the incorporation of a range of supporting activities (for example, collaborative work, entrepreneurism and administration) in order to prepare students better for the diversity of a portfolio career in which they will typically engage after graduation (Latukefu, Burns, O'Donnell, & Whelan, 2014). This pragmatic approach does not advocate strategies derived from positive psychology, where the aim is to change the individual rather than the context, but neither does it fully address some of the main challenges to the development of resilience in musicians. For example, musicians are held to be particularly sensitive to the potentially damaging effects of criticism or perceived failure (Atlas, Taggart & Goodall, 2004; Kemp, 1996). Atlas et al. found that critical feedback can impact negatively on students' motivation, enjoyment, confidence and ability to communicate with teachers. In support of this, Martin and Marsh (2006) suggest that academic resilience depends upon confidence and low levels of anxiety. Also, whatever career path musicians follow, the potential challenges of competition and lack of security that exist for the performer, or indeed the composer, are equally present in other areas of the creative arts. A key aim of this article is to provide insights that might inform the development of training methods in music education that recognise it as a 'special case'.

Resilience is generally defined as the ability of individuals, organisations, systems or objects to withstand adverse events or circumstances, or as "the capacity of a system to absorb disturbance and reorganise while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks" (Walker, Holling, Carpenter, & Kinzig, 2004, p. 2). Since this latter definition is offered in the context of social ecology, it is unsurprising that parallels with music performance are apparent. Nevertheless, although the concept of resilience is now used almost universally in terms of explaining and enhancing conditions for survival and there is a plethora of diverse literature to this effect (*cf.* Earvolino-Ramirez, 2007), there is also a notable lack of consensus as to its precise meaning in terms of constituent features, functioning and sources. Certainly, little existing research directly addresses how the high degrees of occupational stress routinely faced by musicians (Vaag, Giæver, & Bjerkeset, 2014) might impact upon their capacity to maintain either psychological or physical resilience – classical musicians being notably under-represented in the literature. Nevertheless, the quest for resilience is evident in music education (e.g. Latukefu et al., 2014; Wiggins, 2011; *cf.* Jorgenson, 2003) to the extent that it is proposed as a necessary outcome of pre-professional training and as such is recommended to be embedded in curricula and assessment at that level (Latukefu & Verenikina, 2013). Other disciplines, such as sport, aim to foster resilience by creating challenges during training that are additional to those the individual would normally encounter (Collins & MacNamara, 2012; MacNamara, Collins, & Holmes, 2016). Sport, however, is explicitly competitive and there is some evidence that overt competition in creative practice is counter-productive in terms of enabling the evolution of the artist's unique identity that must be at the heart of true creativity (Clarke, 2005; *cf.* Cropley, Cropley, Kaufman, & Runco, 2010).

In order to understand whether performing musicians might reasonably be considered an atypical case as regards resilience research and training, I start by asking the following questions: What is resilience? Specifically, what is the relevance of resilience to musicians and what constitutes resilience in the context of music performance? In seeking meaningful responses to these questions, I further ask: how is the subject of resilience debated in other (non-artistic) disciplines? It seems that there is considerable divergence between definitions of resilience, but that reference to traditional definitions is certainly worthwhile – specifically those found in the domains of ecology and finance. I relate findings from the broader canon of research on resilience to music performance, in order to discover what aspects of performer’s lives might undermine or indeed enhance their capacity for resilience. For instance, Rutter (2003) proposes that the balance between stabilising and destabilising forces is critical to survival. Since musicians are commonly faced with unpredictable environmental, artistic and personal ‘destabilising forces’ I specifically explore the relevance of this critical aspect to music performance. This is followed by a brief discussion of the relative significance of genetic inheritance and/or environmental factors in determining the capacity for resilience. For example, although most agree that both nature and nurture have crucial roles to play in the development of resilience, their relative degrees of influence and inter-relatedness is still a matter of debate. Further, by virtue of the emotional and psycho-social factors underlying music-making, resilience in music performance may be considered a special case, which further supports the exploration of research on resilience in a range of disciplines. I then suggest a note of caution as regards over-reliance on resilience and strategies to promote resilience in the training and development of musicians. Recent studies question the 21st century characterisation of resilience as the route to surviving disturbing events from the collapse of systems and institutions (e.g. Clarke, 2015) to individual burnout and other psychological trauma (e.g. Harrison, 2012). Resilience might well have been identified as the key to successful survival, but concerns are appearing generally as to whether it is wise to place such a hopeful emphasis on this one non-specific attribute, when imaginative, creative strategies might be more effective for enabling the development and maintenance of long-lasting resilience. For musicians, who are often faced with enduring difficulties, the learning and implementation of such strategies would be particularly useful in the context of music education and training, where resilience is already valued as an agent producing confidence and potential success (Sameroff, 2010). I go on to acknowledge that musicians’ embodied engagement with music and music-making is fundamental to their survival and suggest ways through which these motivational characteristics might themselves either be, or become catalysts of resilience.

What is resilience and what does it mean to the musician?

The term ‘resilience’ (broadly speaking, the ability to survive adverse conditions), as it is currently used, originated in the study of ecology and in this specific context was first introduced by Holling (1973) to describe “...the ability of ... systems to absorb changes of state variables, driving variables, and parameters, and still persist.” Somewhat starkly, but with illuminating clarity, Holling continues, “In this definition resilience is the property of the system and probability of extinction is the result” (p. 17). Interestingly, Holling differentiates emphatically between resilience and *stability*, in that while the former implies the capacity

to change – *adapt* and *persist* in the face of unexpected adverse events or conditions – the latter suggests *resistance* to disturbance and the ability to return to a state of equilibrium (Holling, 1996). This is an important distinction and requires an appreciation of the complex relational and contextual aspects of positive adaptation in the face of adversity (*cf.* Rutter, 1987; Waller, 2001). More recently, Holling’s definition has been applied to the human domain in a variety of disciplines, with the result that psychologists mostly agree that for resilience to be demonstrated, both adversity and positive adaptation must be evident (Fletcher & Sarkar, 2013). Parallels with music performance are apparent in that a musician will indeed need to ‘change’ and ‘adapt’, at the very least, to environmental circumstances, but also, significantly, during the evolution of the individual artistic ‘voice’ that gives the musician his/her distinctive musical (aesthetic) identity (*cf.* Frith, 1996). This is an important consideration since self-identity (distinct from, although part of, social and cultural identity) is a variable that might either enhance or constrain adaptability in the musician, according to the individual’s degree of meta-perception, or indeed, their general trajectory in terms of development. For these reasons alone, ‘equilibrium’, although sometimes useful in, for example, economics and engineering (Proag, 2014), might be considered counter-productive for the artist. In other words, although musicians might theoretically aspire to stability in their lives overall, the term does not sit well with the dynamic and creative process of performing and is therefore counter-intuitive in holistic terms. Holling (1973) also identifies *persistence* as being essential to maintaining resilience; this undoubtedly encompasses characteristics – protective factors – that have been found in successful musicians, such as commitment, intrinsic motivation and determination (Subotnik & Jarvin, 1986/2006; *cf.* MacNamara, Holmes, & Collins, 2008). However, the musician’s intrinsic engagement with music drives the need to sustain an exceptional investment of personal resources – mental, emotional and physical. This drive, albeit embodying persistence, according to Holling (1973), clearly signifies vulnerability, when persistence itself becomes the agent of imbalance, or indeed, collapse; among musicians, more than for any other artists, this is typified by an ongoing and frequently damaging quest for ‘perfection’ (Brandfonbrener, 1988). By the very nature of their art, musicians are vulnerable – when performing, their internal state becomes externalised in order to create meaning, as they make reference to their underlying personal, artistic intention (Frith, 1996). Individual vulnerability can be classed neither as a deficiency, nor, as an integral part of the human condition, as ‘risk’ (Brown, 2012; Felsman & Vaillant, 1987). Vulnerability is inescapable in the context of performance and might in itself increase resilience; there is a dynamic relationship between the two such that, to quote Waller (2001), “[r]esilience is not the absence of vulnerability” (p. 292).

A succession of more recent researchers, while cautioning against too-narrow definitions of resilience (Walker et al., 2004) have developed, and in some senses, refined Holling’s original (1973) concept of resilience in line with their own discipline-specific interpretations. Nevertheless, the capacity to adapt appears consistently to be regarded as a fundamental aspect of resilience across a number of disciplines. For example, Carpenter and colleagues (2001), who study resilience in socio-ecological systems, relate *adaptive capacity* to “mechanisms for the evolution of novelty or learning” and “the existence of institutions that facilitate experimentation, discovery and innovation” (p. 765). This is of considerable interest in the context of music performance in that, arguably, both

observations describe the environmental context ideal for supporting artistic creativity which, although likely to be intrinsically driven, needs conditions in which it can flourish in order to maintain 'adaptive capacity' – for example, empowering a sense of agency through experimentation, risk taking and autonomy in decision making (e.g. MacNamara et al., 2016; Wiggins, 2011). A working environment that excludes the possibility of autonomous artistic decision making has been found to be a key indicator of stress in professional orchestral musicians (Dobson, 2010a). This finding is underpinned by reference to a long established theoretical model of the critical balance between job demands and control, where a high level of demand combined with a low level of autonomy leads to dissatisfaction and strain (De Witte, Verhofstadt & Omey, 2007; cf. Karasek & Theorell, 1992).

More recent definitions of resilience suggest that *transformability*, as well as adaptation, is essential and that there is a distinct and important difference between the two. For example, Folke et al. (2010) define transformational change as a global and fundamental process, in which (either deliberately or forced) significant shifts in defining state variables take place, so that the individual, system or organisation can “recombine sources of experience and knowledge to navigate ... transitions from a regime of one stability landscape to another” (p. 7). In this way, a new system replaces one that has become untenable. This transformational aspect of resilience appears to be amply substantiated in the biographies of successful musicians (MacNamara et al., 2006; 2008), who report negotiating clearly defined developmental transitions to make fundamental changes in their lives. This is supported, generally, by the findings of Folke et al. in that support networks, institutions and significant others are also agents for facilitating transformation. Less is known about externally and/or internally driven psychological processes that might constitute transformation in the musician. For example, it is unclear to what extent the individual's artistic persona either facilitates the capacity for transformation and the ability to thrive in the face of uncertainty, or potentially contributes to their mental instability.

Destabilising and stabilising forces in the lives of performers

Adversity is a broad term, variously defined as anything from significant trauma to the difficulties encountered in everyday life (Fletcher & Sarkar, 2013). Reflecting this degree of variation, many adverse conditions associated with both the backdrop to and the substance of musicians' lives can impact severely, and sometimes constantly, upon their capacity to survive within the profession.¹ If resilience is a property of the individual organism (as Holling (1973; 1996) and others suggest) then the relationship between the musician and the psycho-social performing environment is critical and the identification of risk factors becomes vital. We also need to know how and to what extent individuals are affected differently, not only by the inequities of their environment, but also by their personal characteristics (Eakin & Luers, 2006); both, and the interaction between them over time, influence the likelihood of survival. Identifying areas of vulnerability as potentially destabilising forces is held to be essential in that they can determine individuals' ability to

¹ Survival for the performing musician is a multidimensional phenomenon, drawing on both physical and psychological personal resources. For the purposes of this paper, I reduce its constituent parts to the notion of musicians being able to maintain their general status and trajectory within the profession.

adapt to, and benefit from, change (Walker et al., 2004).

For musicians, environmental risk factors are many and varied and there is now a modest body of empirical research that reaches a degree of agreement about the nature of some of the potentially destabilising forces to which musicians are chronically exposed (e.g. Dobson, 2010b; Kenny & Ackerman; 2009; Morris, 2013; Parasuraman & Purohit, 2000; Vaag et al., 2014). From this literature it is apparent that challenges faced by musicians undoubtedly constitute significant risk factors. Of these, uncertainty and unpredictability are key – a more or less universal lack of professional and financial security, threats to work/life balance, anxiety and considerable external pressures are all continuing, and sometimes debilitating sources of stress for many musicians, even at the highest levels of expertise. Illness and psychiatric problems are common outcomes when meaningful social and professional participation is denied (Karasek & Theorell, 1992). It has been shown that musicians suffer considerably higher levels of mental health problems such as anxiety and depression than the general population (e.g. Vaag, Bjørngaard, & Bjerkeset, 2016). In many cases performance is adversely affected; constant state stress impedes flow (Kirchner, Bloom, & Skutnick-Henley, 2008) and itself becomes a further source of damaging stress. The mental strain induced by the pervasive backdrop of threat (real or perceived) can be compared to that experienced by more apparently stressful professions such as firefighting or military service (*cf.* Paton & Violanti, 2011). Furthermore, chronic exposure to stress can induce long-term neurological impairment (Ashokan, Sivasubramanian, & Mitra, 2016), overwhelming the ability of individuals to cope. In some cases persistence becomes too onerous, survival is compromised and the musician ‘drops out’ in one way or another (Burland & Davidson, 2002).

In addition to lack of security and the ever-changing demands of the music profession, one of the most devastating and personally challenging situations for performing musicians – and one that can result in the professional equivalent of ‘extinction’ – is injury (physical or psychological). This can impair, interrupt, or even permanently preclude the musician’s practice (Guptill, 2011; Paarup, Baelum, Holm, Manniche, & Wedderkopp, 2011). Physical injury (most commonly musculoskeletal) is a common outcome of the pressure to continue performing (e.g. Brandfonbrener, 2003; Kok, Huisstede, Voorn, Schoones, & Nelissen, 2016) at a time when positive adaptation to the situation could improve resilience. For example, injury might have a positive influence if it alerts the musician to the need to modify some aspect of their technique. Furthermore, musicians share characteristics that are likely to compound susceptibility to injury. Among these are anxiety, which tends to manifest in excessive tension, and perfectionism, which leads to over-practising and striving for unachievable goals (Guptill, 2011; Jabusch & Altenmüller, 2004; Marchant-Haycox & Wilson, 1992). Although positive adaptation can often be achieved by seeking expert help, the very nature of the musician’s insecure and competitive lifestyle means that injury is often made worse by reluctance to disclose, despite ever increasing reliable sources of diagnoses and treatments (e.g. Wynn Parry, 2004). Research into musicians’ physical and mental health and wellbeing has proliferated in recent years; this has done much to enhance physicians’, teachers’ and performers’ understanding of a range of adverse physiological, biomechanical and psychological conditions that performing musicians regularly encounter (see www.musicalimpact.org for an excellent example of recent progress in this respect). These include injury related to over-use (Watson, 2009) and anxiety and stress related to both

performance itself and to the adverse working environment (Kenny, 2011; Steptoe, 2001); both are endemic and tend to be regarded as more or less normal hazards of the profession. In this case, what may appear to be stoicism (and on the surface, resilience) in fact undermines the possibilities of adaptation because adaptation involves acceptance in the first place and willingness to make necessary changes in order to 'persist'; stoicism – that is, 'putting up with it' – is therefore not true resilience. This resonates with the contemporary world of finance, where the normalisation of crises (i.e. the expectation that they will occur regularly) excludes a more radical approach to seeking causative factors (Brassett & Holmes, 2016) and, ultimately, sustainable financial security. Besides potential exposure to physical or psychological 'injury', musicians are also likely to be predisposed psychologically towards self-destructive behaviours, supporting the commonly held view that creativity and mental disorders are closely linked (Dobson, 2010b; Frosch, 1987). If the very essence of the musician can be a destabilising force, then, although the basic tenets of Holling's (1973) definition can be seen to underlie music performance, the fact that music is an artistic endeavour appears to create complexities that take us beyond general definitions of adversity and may in part account for musicians' unusually extensive use of psychotherapy and psychotropic medicines (*cf.* Vaag et al., 2016). The psychological implications of the conjunction of the creative persona with the necessarily stressful lifestyle warrant due consideration when resilience is being more widely researched and advocated.

In this respect it is particularly the individual conceptualisation of risk and the role of resilience in enabling the motivation to survive performing-related adversity that is of interest. It may be that in some cases "[t]he capacity to transform the stability landscape itself ... to create a fundamentally new system" (Folke et al., 2010, p. 3) is required, when the current system becomes untenable. For the musician, serious disruption of the *status quo* of their performing lives through injury, for example, would precipitate the need for transformation as identified by Folke et al. In this case the resilient musician would be able not only to accommodate to life-changing circumstances, but also to survive through transformative adaptations such as a significant change of career direction. Examples of such adaptations include those made by two renowned pianists who maintained their careers after losing the use of their right arms. Paul Wittgenstein (1887-1961) did so by performing and commissioning works for the left hand only, many of which are still played today. Cyril Smith (1909-1974) partnered his wife, Phyllis Sellick, in piano duets; they inspired a number of new works for three hands (MacNamara et al., 2016; Smith, 1959).

Such triumph over adversity is by no means universal, however, and it must be acknowledged that the capacity to adapt and transform may be constrained by a number of state variables, such as the individual's musical identity/self-concept and motivation to innovate, reorganise and develop in unfamiliar ways while still retaining function and control (*cf.* Carpenter, Walker, Anderies, & Abel, 2001). It may be deduced that characteristics such as these are evident in successful musicians at both practical and artistic levels; they have certainly been shown to be significant in the developing musician (e.g. McPherson et al., 2012; Sameroff, 2010). It is worth noting that over-reliance on the influence of significant others in the transition (transformation) from student to professional – identified by Jørgensen (2000) as typical of the master/apprentice relationship – can inhibit the evolution of the artistic independence and awareness of self that is so necessary for survival as a musician (*cf.* Gaunt, 2008; Presland, 2005). Similarly, the

ability to learn can be inhibited when high occupational demands are combined with lack of opportunity to participate in decision making (De Witte et al., 2007).

So far some clearly defined adverse conditions encountered by musicians have been identified, but others, such as vulnerability, for example, can have positive as well as negative consequences. It may be that for this reason, resilience should be conceptualised in different ways for musicians than for other organisms. In relation to music performance, ambivalence is a fundamental characteristic of resilience. Musicians are undoubtedly vulnerable when they expose their whole being in public performance – expressed by Slobin (1993) as “the simultaneous projecting and dissolving of the self” (p. 41), but vulnerability and other potentially stressful aspects of performance (for example, intentional risk taking) can also be sources of almost hedonistic satisfaction – that is, related to innate psychological needs – and are thus powerful sources of motivation for the performer (Holmes, 2011; Persson, 2001; cf. Deci & Ryan, 2000).² It is therefore possible that, through the catalysts of courage and risk taking, vulnerability becomes, itself, the agent of transformative experience. This echoes the assertion that “vulnerability is the core, the heart, the centre of meaningful human experience” (Brown, 2012 p. 12). Similarly, other defining characteristics of the performing artist such as sensitivity and creativity (Wiggins, 2011) are highly valued as potentially transformative agents during end-of-life palliative care, for example (Hartley, 2007), yet they are also often linked with mental disorder (Vaag et al., 2014; Vaag et al., 2016). It seems that some intrinsic elements of music performance have the potential both to stabilise and destabilise, and individuals’ exposure to stress must be balanced by their ability to function effectively while absorbing its effects. In the case of vulnerability, emotions that have a positive, adaptive function may also act as protective factors (cf. Ong, Bergman, Bisconti, & Wallace, 2006). Thus the negative outcomes of stress are mitigated by an embodied engagement with both the music and the meaning of music that characterises the experience of performing (cf. Gallagher, 2006). It has been suggested that “when we are engaged (absorbed in flow), perhaps we are investing, building psychological capital” (Seligman, 2002, p. 116). This implies a deep level of commitment, which, together with a belief in the ability to control outcomes, supports the notion of positive psychological capital as a personality-based approach to resilience (cf. Britt, Shen, Sinclair, Grossman, & Klieger, 2016). In these examples, resilience for the musician is intimately connected with the complex relationship between vulnerability and agency, which has also been identified in the context of music education (Wiggins, 2011). This divergence from the way vulnerability is used as a technical term in the context of the study of the natural world shows that while clear insights may be gained, adopting definitions of resilience from other disciplines is not necessarily straightforward or advisable.

Despite mounting anecdotal evidence, it is clearly difficult to quantify destabilising forces in music performance, but on the more positive side, and on a practical note, it has been suggested that the musician’s psychosocial work environment embodies protective factors such as “personal dispositions, family coherence and social resources” (Vaag, 2014, p. 205). For example, when writing about musicians in New Orleans following Hurricane

² Interesting motivational similarities with finance can be observed here, where excessive risk-taking is driven by greed and the lure of short-term profitability.

Katrina in 2005, Morris (2013) found that most of the musicians in that area lost everything they possessed to the encroaching sea, including their instruments and archives. Since they were already poor, it would seem impossible that they could have persisted and survived professionally faced with this series of catastrophic events. Yet the reverse was the case: the musicians of the town, despite their circumstances, were *more* resilient, on the whole, than other residents in similar positions. It is worth therefore considering what protective factors might have existed to enable this degree of survival. Morris identified several such factors using a qualitative approach involving semi-structured interviews with ten of the musicians. It was notable that they reported absorption with their art and their general enjoyment of making music together as an important factor in their ability to persist, together with the opportunities music gives them for emotional expression. They clearly place high value on their network of mutual social support within the musical profession, as appears to be the case also among classical orchestral players (e.g. Brodsky, 2006): musical persona and psychosocial environment cannot really be separated. Family and environmental support systems are described appropriately by Friborg, Hjemdal, Rosenvinge, and Martinussen (2003) as *protective resources*; one example is the supportive family and study environments reported as an important protective mechanism by MacNamara et al. (2016) in their study of the effects of adversity on musical prodigies. In related work, Phillips and Strachan (2013) argue that the well-known longevity of certain rock groups can be attributed, at least in part, to the nature of the group, how the members promote it, and how they interact within it; the group as an organisational form then becomes a self-protecting factor. It could be argued that successful negotiation of group roles and processes contributes to social and artistic resilience, in relation to music performance if not in other domains, and thus plays a role in survival.

How might the balance of genetic inheritance and environmental factors affect the development and sustainability of resilience in musicians?

It is not yet clear to what extent resilience or the individual's capacity for transformation might be genetically predetermined or environmental, depending on a combination of circumstances and events either planned or contingent. Recent research on resilience differentiates, for the most part, between psychological resilience as a set of personal characteristics such as resourcefulness and self-efficacy (ego-resilience) and resilience as a dynamic, developmental process (e.g. Earvolino-Ramirez, 2007; Luthar, Cicchetti, & Becker, 2000). If resilience is more of a process than a state (that is, not necessarily predicated solely on personal characteristics) the implication is that environmental forces can be managed in such a way as to enable positive adaptation in the face of adversity. This particular view is expressed by Ungar (among others) who suggests that "resilience is less an individual trait and more a quality of ... social and physical ecology" (2011, p. 1). Further, there is some evidence from sport psychology that a range of inter-related personal characteristics can be trained: resourcefulness, for example, can be learned (e.g. MacNamara & Collins, 2009). Such findings contrast strongly with the more traditional, Darwinian claim that inherited characteristics predominate in determining success (see Vitzthum, 2003). Contemporary support for this claim is to be found in sport studies making use of recent advances in molecular gene research that enable the isolation of specific genomes favouring certain elements of sporting activity, either singly or combined with

other variants (e.g. Eynon et al., 2010). However, just as it is too simplistic to assume that the ability to become a successful athlete can be predicted on the basis of genetics, so it should not be assumed that resilience – or indeed musicality – is solely the product of inheritance. Indeed, it can actually sap motivation to overemphasise (or possibly blame) the influence of either inheritance or environment on development (Sayed, 2010). The complex relationship between innate character traits and learned skills certainly needs to be understood better, but the dualism and indeed polarisation implied by the nature-nurture debate has rendered it redundant (Davids & Baker, 2007). While Masten (2001) held resilience to be an inherent human characteristic, Rutter (2003) described its development as subject to “immense individual variation” (p. 490), being dependent on many state, trait and environmental variables and sociological context, all of which shape, and are shaped by interacting developmental processes.

Extending these twin aspects of resilience to musicians, it is evident that, in addition to innate personal resources, the capacity for resilience may lie to some extent in inherent domain-specific attributes that govern the dynamics and musical functioning of the individual (*cf.* Walker et al., 2004). Such attributes are embodied in intrinsic motivation and determination that, although potentially mediated by environmental circumstances, cannot be taught as such (see Subotnik & Jarvin, 1986/2005) – or at least, not to the degree that would predispose the musician towards ‘survival’ in adverse conditions. This view is supported by studies that argue persuasively for a high degree of motivation being predicated upon keen sensory awareness (Gagné, 2003), particularly auditory awareness (Gagné & McPherson, 2016) which, together with early sensitivity to elements of musical structure (e.g. harmony, rhythm, melody, timbre: Winner & Martino, 2000) constitutes high ability – or, in both psychological and socio-ecological terms – ‘capital’ (*cf.* Britt et al., 2016; Folke et al., 2010). Similar individual traits are identified, albeit in a different context, by Earvolino-Ramirez (2007) who nominates characteristics such as self-determination, high expectancy and self-esteem as among those that define resilience.

It is significant that the notion that an intrinsic engagement with the substance and essence of music is essential to the capacity to *persist* and *survive adverse conditions* has some resonance with structures and conditions that enable the same processes within organisms, that is, “the conditions for persistence” (Holling, 1973, p. 2).

Can resilience as commonly conceived be counter-productive?

Resilience is a contested term in many areas and the potentially insidious effects of substituting resilience as it is conventionally conceived for more robust and durable management strategies have been identified (Brassett & Holmes, 2016). Similarly, interesting questions arise as to whether the responsibility for resilience lies with the individual or, potentially, with higher authorities that constitute ‘the environment’, in which case, the resilience of a system as a whole needs to be considered (Haldane & May, 2011). Either way, the concept of resilience now tends to be perceived as a pervasive convenience – a universal solution to diverse economic and social problems, although not necessarily a way of maintaining stability over time. As such, considerable investment in fostering resilience has been undertaken by many different agencies, from governments (see UK Cabinet Office, 2011) and organisations including banks, to professions such as medicine and educational environments (Martin, 2008), the overall purpose of such initiatives being

to encourage self-sufficiency and the ability to ‘bounce back’. A note of caution is warranted here; it has been proposed that the now familiar term ‘bouncing back’, rather than characterising resilience, can actually undermine the capacity for resilience in the long term; that is, it becomes unsustainable in the face of continued adversity (Harrison, 2012). As Holling (1973) suggests, true resilience means that an organism must be able to maintain stability *over time*, rather than merely coping. In this case, despite the innate human instinct for survival, there may also be adverse psychological consequences for the individual. It has been shown that individuals use problems as an impetus for positive change, for example in the context of poverty (Harrison, 2012) and it has been claimed that, in sport, adversity can be interpreted as opportunity and, as such, is a reliable driver of progress (Sayed, 2010). But these approaches cannot necessarily be sustained in the long term and may not, therefore, promote true resilience. Drawing on resilience training in fields such as medicine, education and the military, sports psychologists have further suggested that resilience can be developed in the individual and that to build a degree of ‘trauma’ (i.e. adverse conditions) into training programmes will foster and encourage resilience in athletes (Collins & MacNamara, 2012). For musicians, it may be that the attempt to ‘train’ resilience along these lines might stifle the individual’s ability to develop their own creative coping strategies that in the long term could sustain greater career longevity. It is likely that musicians’ capacity for resilience, in the long term, lies in the strength of their relationship with music that underlies their identity as musicians. True artists cannot objectify the means whereby they express themselves and externally imposed interventions that interfere with the individual ‘voice’ may actually prove counter-productive. There is evidence that early exposure to mild stress that is, crucially, *under the control of the individual* can promote psychological resilience later in life, and that a degree of stress can have adaptive value (Ashokan et al., 2016). This is aptly likened by Ashokan and colleagues to a form of “inoculation” (p. 1) and as an evolving process is very different from training interventions designed to ‘test resolve’ as with challenges built into sport training.

To what extent could we (or should we) control/foster resilience in musicians?

It is worth noting that music has been identified as a positive factor in fostering clients’ and patients’ resilience in many different fields including music therapy (Pasiali, 2012), community health and welfare (Dillon, 2006), pain control (Bernatsky, Presch, Anderson, & Panksepp, 2008) and palliative care (O’Callaghan, 2009). In these examples, the physiological and psychological effects of music (Hodges, 2009; Juslin, 2009; Rickard, 2004) are used as powerful tools to promote resilience in various adverse conditions and the effectiveness of these kinds of intervention is not in dispute. Might music then also have physiological and psychological effects on those who make it? In other words, do musicians experience music as life-enhancing, even when challenged by destabilising personal and environmental circumstances? The literature (e.g. Guptill, 2011) suggests that this is indeed the case, which would contribute to the emotional engagement and motivation to persist that characterises the successful musician.

There is no reliable evidence as yet that approaches to fostering resilience in other disciplines are likely to be effective and can be translated usefully into training programmes for performing musicians. As we have seen, there are some differences between the early ‘scientific’ definitions and measurement of resilience and those used in the context of

artistic disciplines in which experience shapes behaviours that cannot be predicted. There is evidence that musicians' autonomy and control over their performing and professional lives enhances their sense of agency and thus their ability to survive (Martin, 2008; Vaag; 2014). This evidence relates to both the individual and environmental aspects of resilience. It is possible to recognise and make use of protective factors in the environment that shift the locus of control to the musician, allowing them to develop their own individual, creative patterns of behaviour that could benefit all aspects of their life. This might need quite radical changes in patterns of music education, where control lies, more often than not, with significant others such as parents and teachers rather than with the developing musician. This can significantly undermine the individual's ability and confidence to adapt and if necessary diversify along lines similar to those illustrated by the biographies of musicians such as Paul Wittgenstein and Cyril Smith (Brown, 2012; *cf.* Vaag, 2014).

Latterly, entrepreneurship skills have also been recommended to facilitate survival, but this raises two issues: first, it is argued that entrepreneurship is a component of personality, related to achievement motivation (Chell, 1985; Fisher & Koch, 2008) and second, teaching entrepreneurship skills represents an interventionist approach that has the potential to derail the core artistic attributes on which the musician's persona is built. Resilience in musicians needs to grow organically, supported by sensitive and intuitive guidance.

Conclusion

A number of aspects of resilience are critical for musicians working towards and aiming to sustain a career in music performance. First, inherent physical and psychological characteristics undoubtedly play a part, but genetic influences can also be enhanced or challenged by environmental situations and events. The quality and quantity of developmental opportunities and support appear to be significant factors in career longevity, but are not universally apparent in all successful musicians. The life world of the musician, sometimes referred to as their personal 'musical reality' (Persson, 2001) emerges from their emotional and physical engagement with music and music-making that is well-nigh impossible to describe holistically or quantify meaningfully. The musician's strong conviction that music is the most important feature of their life can drive their struggle to overcome environmental disadvantages. Developing and maintaining resilience is thus an evolving process that is heavily dependent on the "interaction between environmental demands and the personal, social and organizational resources brought to bear [on them]" (Paton & Violanti, 2011, p. 5). The conventional rhetoric around resilience may not therefore be relevant to musicians, since interventions have to be planned carefully for them as individuals, emphasising their self-awareness, particularly as to their conceptualisation of risk and sensitivity to environmental features, both of which might be genetically determined (*cf.* Rutter, 2003).

Second, some characteristics of performing musicians, specifically those associated with artistic identity, clearly have the capacity to facilitate resilience in that they motivate the musician to 'stay afloat' or, to use the language of resilience research, adapt and transform themselves as necessary. As we have seen, however, the will to persist, if not balanced by the capacity for adaptation, can easily lead to injury or mental disorder: outcomes that can preclude sustainable careers. In short, characteristics such as drive and risk-taking can both help and hinder the capacity for resilience. Similarly, the vulnerability associated with

artistic endeavour can be a strength as well as a weakness and the balance between the two needs to be recognised when considering strategies designed to promote resilience. It has been shown that musicians also need to feel a sense of agency in their artistic lives – witness the many orchestral musicians who feel that being deprived of the authority to make artistic decisions is a major source of stress. Lack of career structure and insecurity are endemic in the music profession, but mitigating factors include the individual's engagement and sense of artistic purpose, and social and professional support networks to be found or developed in the environment. These positive factors are essential to the development and maintenance of resilience and should form the core of training for resilience, unlike interventions designed to change the individual that are likely to be less effective.

Third, the recommendation that musicians undergoing training could more effectively survive the exigencies of the profession by taking on roles peripheral to music-making through developing entrepreneurial and administrative skills in addition to, or even instead of performing is gaining momentum (e.g. Burnard & Haddon, 2015; Latukefu et al., 2014); these skills are now increasingly part of the curriculum in many conservatoires. My contention is that musicians should be encouraged to develop as 'artistic entrepreneurs', whatever career path they eventually choose – that is, to use creative entrepreneurial thinking in their instrumental and/or vocal learning and performance; this is an approach that might apply equally to composers. To do so involves developing the confidence and security to think innovatively, improvise, experiment, discover their own level of sensitivity to environmental factors (which may well be inherited) and find their own approaches to risk taking. The capacity for change relies on openness and recognition of the key role of the imagination in dealing with uncertainty (*cf.* Brassett & Holmes, 2016). This approach is still far from evident in many conservatoires, where tutors rarely have the advantage of appropriate opportunities for staff development and one-to-one tuition is barely monitored. Despite persuasive cautions as to the limitations of the master/apprentice model, it largely remains the norm (Daniel & Parkes, 2014; Gaunt, 2008). Rather than aiming for root-and-branch reform of the system, the challenge for those responsible for planning and implementing curricula is to find ways to embed opportunities for students to learn from the expertise and inspiration of their teachers by example, while simultaneously developing independence and self-belief, both artistically and creatively – in other words, to establish self-efficacy through enlightened mentorship that recognises the life world of the learner (*cf.* Ritchie, 2015).

Finally, music performance students are heavily dependent upon the environment within which they study. Individual resilience, although crucial, does not necessarily have the same function or goals as organisational or institutional resilience (the failure of which is exemplified by the many banking scandals of the past decade) and there can be a tension between the two. The individual resilience of the musician can still be undermined by difficult environmental circumstances; the development of training programmes for resilience therefore needs to be informed by empirical research exploring the relationship between individuals and their environments in the world of music performance. One further line of research might be to consider individual versus organisational perspectives. This could ask how the findings from research with rock groups with extended lifespans might be applied to entities such as chamber groups, orchestras, or indeed educational institutions, to show how they develop resilience, and its impact on their members' individual capacity

for adaption and transformation.

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