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Performance anxiety: the need for an integrative approach

Giving public performance is a widely applied form of demonstrating knowledge, skill and competence. The topic of this Special Issue *Advances in research on performance anxiety* is timed in accordance with the growing demand for and personal importance of giving a good performance in utterly any domain, e.g., tests, exams, professional talks, sports, arts, and, last but not least, sex. The papers contributing to this Special Issue aim to shed light on the roots of performance anxiety, to show it in the context of emotional labor and professional burnout, to sketch its wide emotional background and its relationship with other psychological phenomena. Theories of performance anxiety emphasize the role of stimulus interpretation and the whole-body response in which physiological processes are part of the emotional and cognitive aspect of responding to threat. The editorial concludes with an introduction of individual papers announcing the possible ways to incorporate new data into the existing knowledge on performance anxiety. Psychological and physiological processes related to performance anxiety and the possibilities to overcome its consequences for the quality of public performance are the main character of this Special Issue.

Public appreciation for the competence, clarity, and attractiveness that make a good performance enhances the importance of the difficulties individuals may face in delivering such a presentation. Performing may be either a perfect context to present one's knowledge and skills, a threat associated with confronting the public, or a mixture of both in varied proportions. The purpose of this volume is to sample recent studies on performance anxiety to show their contribution to the description and explanation of performance anxiety, and to juxtapose various methodological approaches to studying performance anxiety. These papers represent various areas (music performance, sports, and self-presentation) in which performance anxiety may occur in varied populations. The papers also vary in form and methodology: review and empirical, narrative and experimental. They show general and individual factors contributing to the experience of anxiety in the context of performing.

Reviews of the empirical research on performance anxiety in music, sports, dance, test-taking, and other domains (e.g., Hackfort & Spielberger, 1988; Kenny, 2011; Sarason & Sarason, 2013; Smith & Smoll, 2013) emphasize personality, experience including performance preparation, and situational factors as major determinants of the impact of performance anxiety on the quality of performance. Empirical evidence advocates that state performance anxiety negatively affects music performance (Yoshie, Shiemasu, Kudo, & Ohtsuki, 2009; Kenny, 2011), academic performance (e.g., Elliot & McGregor, 1999; Endler, Kantor, & Parker, 1994), sports activities (e.g., Englert & Bertrams, 2012; Zeidner, 2008), and public speaking (e.g., Calamaras, Anderson, Tannenbaum, & Zimand, 2014; Chodkiewicz & Mniszewska, 2015; Merritt, Richards, & Davis, 2001), including preaching (e.g., King, 2014). However, its consequences for both mood and the level of performance may not be unequivocal. While most performers consider performance anxiety debilitating, others find it beneficial and believe it has a facilitative role for their performance (Alpert & Haber, 1960; Hanin, 2007).

A question arises whether performance anxiety is in the most part general anxiety applied to the performance context or whether it has any specific properties that make it unique. The aim of this editorial is to present performance anxiety within the frame of several theoretical approaches that may provide cues for a better understanding of this phenomenon. First, definitions of performance anxiety, as well as its relationship with evaluation anxiety and test anxiety, are put forward to consider its specificity and convergence with other anxiety-related concepts. Next, the cognitive, emotional, and motivational aspects are outlined, followed by the individual differences in performance anxiety. Along with the social context of performance anxiety comprising the important situational factors and the functional aspects of performance anxiety,

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they give a wider view of the adaptive and maladaptive features of this phenomenon. Eventually, the advantages and disadvantages of performance anxiety are analyzed in the light of the actual experience of recognized performers. This paper approaches performance anxiety with consideration for its individualized and relational character. It is an attempt to integrate its cognitive, affective, and motivational elements in a functional frame, with special attention to the emotional aspects of performance anxiety.

Performance anxiety and other anxiety-related constructs

An ability to successfully deliver public performances, highly valued in the educational, professional, and social environment, is often burdened with stress, which makes performance anxiety a common experience. Giving a public performance, besides demonstrating one's competences, puts a performer in the vulnerable position of being exposed to other people's evaluative responses, with its emotional, cognitive, and social correlates and effects. Putting knowledge or skills to the test by exhibiting them in a variety of endeavors, from test taking through public speaking to artistic performances (Kenny, 2011), implies the risk of being judged negatively. A wide range of public performance situations induce "the experience of persisting, distressful apprehension and/or actual impairment of performance skills in the public context" (Salmon, 1990, p. 3), called performance anxiety. Performance anxiety is also defined as a type of social anxiety specific for social interaction (Kenny, 2011; Zinn, McCain, & Zinn, 2000). It is a multilevel construct, comprised of physiological, affective, cognitive, and behavioral aspects (e.g., Tarrant, Jeathem, & Flett, 2010). This type of anxiety is related to contexts that are of great personal or professional importance in which success or failure are extremely ample in consequences (or the performer at least thinks so). Performance anxiety can be limited to performing solo or performing a specific skill or piece.

Performance anxiety can be analyzed in the light of broad social anxiety studies. According to earlier standards (American Psychiatric Association, 1994), performance anxiety was considered a type of social phobia and was perceived through the lens of its phobic quality: a low genetic component and stronger psychophysical response to performing. However, at present, it is classified as a "performance only" subtype of social anxiety disorder, provided that it is restricted to performing (American Psychiatric Association, 2013; see also Hook & Valentiner, 2002). According to the classification of anxiety disorders, performance anxiety can be a chronic or acute adaptive or maladaptive form and they can all be present interchangeably in one individual (Schneier et al., 2014). Performance anxiety can be considered as an example of evaluative anxiety, even though in the literature there is no consistency as to their relationship. Evaluative anxiety is a set of phenomenological, physiological, and behavioural responses that accompany concern about possible failure in any testing or evaluative situation (Sieber, O'Neill, & Tobias, 2013). Evaluative anxiety is difficult to define as its manifestations vary individually. It is a form of general anxiety with a general stimulus as the imminence of actual evaluation, be it taking a written exam or giving a talk.

The self-regulative model of evaluative anxiety emphasizes the interaction of cognitive, emotional and motivational processes as bases for anxiety (for a review, see Elliot & Dweck, 2005). Considering the manifold background of evaluation anxiety comprising self-focus of attention (Kurosawa & Harackiewicz, 1995) and beliefs about whether worry is debilitative or facilitative (Butt, Weinberg, & Horn, 2003), we search for the cognitive--motivational antecedents of anxiety experienced in the evaluative setting of giving a performance. Thus, performance anxiety as the fear of being negatively evaluated (see Kenny, 2011) with the resulting sense of failure is one of the forms of evaluative anxiety in which the audience is present and tracking the course of the performance. Both evaluative anxiety and performance anxiety, with their proposed state or trait form, cognitive, affective, physiological, and behavioural facets (Tarrant et al., 2010), unfold in time with the prevalent elements of anticipation, confrontation, and resolution in the pre--performance, in-performance, and post-performance stages, respectively (Elliot & Dweck, 2005; Kępińska--Welbel, 1997).

We propose that the factors contributing to performance anxiety could be grouped as internal (e.g., proneness to anxiety, self-efficacy), external (e.g. exposure to an audience), and mixed (e.g., verification of one's assumptions concerning the approach of the audience towards one's performance). Internal factors refer to a performer's individual characteristics, external to the situational context of performance, and mixed consist in interaction and transaction between the internal and external elements that result in experiencing performance anxiety.

Cognitive, motivational, and emotional aspects of performance anxiety

Performance anxiety is a set of physiological, emotional, cognitive, and behavioural responses that intertwine into concern about the coming or ongoing performance. The intensity of this experience depends on the internal, external, and mixed conditions that characterize an individual in a given performance situation. The temporal aspect of performance anxiety can be limited to a performance situation or extended to a pre--performance (most often) or post-performance phases. Individual differences in both the intensity and effects of performance anxiety add complexity to approaching this topic in theoretical and empirical studies. The individual characteristics of a performer seem to form the conditions of specificity and universality of performance anxiety.

On the other hand, performance anxiety is just one of many factors that form a performer's emotional experience and determine the quality of performance. A performer is in a relationship with the environment and his or her emotional

state, which changes dynamically and is comprised of many elements such as appraisal, context evaluation, action readiness, physiological change, expression and action (Oatley & Jenkins, 1992). Emotions are often experienced as mixed states (Hanin, 2007). They can be triggered by information processed at all the levels of activity (Izard, 1994). Coding and decoding of information at the cellular level forms predispositions to certain mood states. The organismic level of information processing related to the organization, unity, and integration of the human being encompasses data stimulating the sensory organs and streaming from within the body. The biopsychological level of information processing integrates genetically prepared reception of the physical stimuli and acquired knowledge about their meaning for the organism. Eventually, cognitive information processing triggering emotion comprises appraisal and attributions (Izard, 1994; Spielberger & Vagg, 1995), all of which constitute the emotional bases of performance anxiety. Thus, the physiological and psychological symptoms of performance anxiety give rise to each other since physiological processes are part of the emotional and cognitive aspect of responding to threat (see Damasio, 2003), and information originating from the bodily processes such as heart rate, sweating, or trembling constantly influences the cognitive and emotional parts of the experience (see Bradley, McCraty, Tomasino, Daugherty, & Arguelles, 2010; Lane, McRae, Reiman, Chen, Ahern, & Thayer, 2009). The elevated level of arousal may generate the fear of contempt and humiliation, an experience that is associated with negative emotional and social consequences.

The cognitive view of performance anxiety emphasizes the role of various cognitive processes, including attention, working memory, and stimulus interpretation. In attentional control theory (Eysenck, Derakshan, Santos, & Calvo, 2007), anxiety is considered an overload of working memory with threat-related cues and apprehensive thoughts. It impairs the functions of the central executive, a limited-capacity component of working memory (see Baddeley, 1986, 2001). Eysenck and colleagues (Eysenck & Calvo, 1992; Derakshan, Ansari, Hansard, Shoker, & Eysenck, 2009) demonstrated that performance effectiveness, i.e. performance quality, is independent of anxiety. On the other hand, efficiency, i.e. the relationship between effectiveness and the use of resources, is reduced by anxiety as negative thoughts interfere with performance-relevant information processing. We can infer that in novice performers performance anxiety will more frequently manifest in an overt form when it decreases the level of performance (effectiveness). On the other hand, in expert performers a covert form of performance anxiety should be more common. Its effects would be unobservable in the quality of performance but noticeable for a performer as stress load or physical weariness, i.e. the psychophysical costs of giving a performance. The given quality of performance is most probably formed as an interaction of expertise in the broader domain of performance, preparedness and other domain-relevant skills, as well as a wide range of a performer's mental resources. On the other hand, research suggests a regulatory function of performance anxiety reflected by perceived control (Cheng & Hardy, 2015). The speech quality of high performance anxiety individuals is rated as lower by observers than by the performers themselves, which is not the case in high social interaction anxiety individuals (Hook & Valentiner, 2002; Hook, Valentiner, & Connelly, 2013).

The role of cognition and motivation for behaviour in performing contexts has been referred to as behavioural inhibition, a tendency to avoid unfamiliar events and people (Chorpita & Barlow, 1998). The core elements of behavioural inhibition, i.e., reactivity (physiological and behavioural responses to sensory stimuli) and self-regulation (voluntary attentional control and response inhibition), are decisive for the actual behaviour during an exam or on stage (see Chorpita, Brown, & Barlow, 1998). A public performance situation seems to comprise motivational ambiguity, and so it calls for further theoretical references to explain performance anxiety.

The Individual Zones of Optimal Functioning model (IZOF, Hanin, 2007) is based on the real experience of the athletes that is optimal for an individually successful performance. IZOF assumes that subjective emotional experience is the core of the psychobiosocial states affecting performance. It focuses on the functional role that such a psychobiosocial state has for an individual's efficiency with the resulting quality of performance. IZOF emphasizes the importance of the context of a given affective state. The perceived intensity of the optimal and dysfunctional emotional states that shows intra-individual dynamics and individual variations contributes to the level of performance. Performers experience the fear of being defeated in a competition and harmed as a consequence of performance that is not good enough. If all these fears are not available to awareness at the moment of giving a performance, they may unconsciously operate to produce tension and impair cognition. They seem to be adaptive mechanisms for those who perform in public. Vivid experience of such aspects of performance as success or failure and fulfilling one's aspirations to achieve certain social, educational, or professional status may serve to satisfy basic needs for safety and esteem (see Maslow, 1943).

Emotion has personal relational meaning: giving a performance may be perceived as a gain or a loss. The situation can be anticipated either as a potential challenge or threat (Schneier, Vidair, Vogel, & Muskin, 2014), and it can be interpreted as benefit or harm (Lazarus, 2001). A fear fight-or-flight reaction is moderated by an approach attitude towards the situation or the predicted outcome of one's action (Schneier et al., 2014). With reference to the general anxiety properties (Schneier et al., 2014), the adaptive character of performance anxiety turns maladaptive when the proportion of anxiety response is inadequate to the intensity of the threat or danger. Performance anxiety is also maladaptive when this state becomes generalized across a class of situations, whatever their threat load.

With reference to performing in public, self-evaluative emotions such as shame, embarrassment, or loss of self-esteem (see Niedenthal, Krauth-Gruber, & Ric, 2006) are related to self-efficacy and meeting one's expectations rather than the moral behaviour with which they are usually connected (Niedenthal et al., 2006). For instance, shame, an apprehension of oneself as a negative object for others (Trower, Gilbert, & Sherling, 1990), is an emotion program that evolved to mitigate the likelihood or costs of reputation-damaging information spreading to others (see Takemura, Delton, Sato, Robertson, Cosmides, & Tooby, 2012). To make a step further, performance anxiety may be a program aimed at preventing shame resulting from failure on stage. Consequently, previous experience with shame on stage might be an aversive memory that may trigger or amplify performance anxiety.

Performance anxiety comprising the current, anticipatory, or recalled emotional states (e.g. Kępińska-Welbel, 1997) accompanying a performance is formed by the optimal and dysfunctional emotional states of different content and intensity. An optimal emotional state is generated as relevant and appropriate for a particular performer under specific conditions. This individualized and relational approach refers to the interaction of the pleasant-unpleasant and the functional-dysfunctional dimensions of an emotional state as emotional background for the high quality of performance (Hanin, 2007). It comprises an assumption that each emotional state can be quantified in at least four categories generated by the interaction of these two dimensions (Hanin, 2007) and, depending on the individual, may lead to a successful, average or poor quality of performance. To make the situation even more complex, an emotional state that is optimal for a small performance may not be optimal for a serious audition. The emotional state may have an energizing vs. de-energizing and organizing vs. disorganizing role for the performance (Hanin, 2007), regulating the efficiency of a performer and the resulting quality of performance. Also, taking an individual differences approach to make between-performer comparisons, the same intensity of performance anxiety in two different performers may be either helpful or detrimental.

Individual differences in performance anxiety

In the context of giving a public performance, the way performance anxiety manifests in an individual and the intensity of these symptoms result from an interaction of such factors as multilevel information processing, a performer's proneness to experience anxiety, estimation of task difficulty, domain-relevant competence and experience, subjective importance of the performance situation, sense of self-efficacy, self-concept, metacognition and external circumstances (e.g. estimated attitude of the audience, status or importance of a performance), as well as past experiences, memories or anticipations, and learning (Hanin, 2007; Elliot & Dweck, 2005). As shown above, there is a wide variety of the elements that contribute to an individual experience of performance anxiety.

Individuals vary in the extent to which they suffer from their psychobiosocial response to the context of performing. Individual differences in performance anxiety have been well established as regards trait anxiety (for a review, see Kenny, 2011), while state performance anxiety has been largely related to its trait-like form, increasing on the day of performance (Ryan, 2005). Performance anxiety, shows positive relationships with neuroticism, the fear of crowds and social situations (Steptoe & Fidler, 1987), irrespective of the level of performing experience. Emotional and cognitive components merge to produce exceptional vulnerability to performance anxiety: a study conducted on actors (Goodman & Kaufman, 2014) revealed that although most actors experienced stage fright, female actors with low emotional stability and an external locus of control would seem to be at most risk.

Specific aspects of performance anxiety are less salient in individuals with higher general trait anxiety, who typically experience anxiety across many situations, of which performance context is an example. Individual differences in the subjective experience of performance anxiety can be traced in emotion, physiology, cognition, and the strategies of coping with it.

Emotion and physiology-related factors of PA

The literature emphasizes the challenging aspects of performance anxiety or stage fright that may hinder performance. Stage fright comprises perceived tension and exaggerated beliefs concerning the importance and consequences of any particular performance (Steptoe, 1989, p. 3). In this definition, affective and cognitive components contribute to the uncomfortable experience preceding a performance. The core emotional experience of performance anxiety is a feeling of anxiety, tension, apprehension, dread, or panic (Steptoe, 2001). These phenomena are common both to performance anxiety and such personality dimensions as neuroticism or trait anxiety. There is empirical evidence of a positive relationship between experiencing temporary stage fright and neuroticism and everyday fear, notably fear of crowds and social situations (Steptoe & Fidler, 1987), irrespective of the level of performing experience.

While the experience of being exposed to other people as a soloist is often associated with an increase in the level of arousal, physiological hyper-arousability inherent in temperamental emotional reactivity is a vulnerability factor accompanying emotional dysregulation (see Strelau, 2008). On the other hand, intense and frequent exposure to the experiences of anxiety or fear accompanying the performing context may challenge the nervous system and lead to conditional overreacting to the circumstances resembling those in which they originally occurred. With reference to a testing situation itself, it has been found that elevated cortisol levels during information retrieval seem to impair recall (Ackermann, Hartmann, Papassotiropoulos, de Quervain, & Rasch, 2013). In a performance situation, such a tendency may manifest itself as increased susceptibility of high emotional reactivity individuals to the disadvantageous aspects of the performance context.

Cognitive personality-related factors of PA

Cognition is another basis for performance anxiety, with interpretation schemes used by those highly prone to this type of stress (see Kenny, 2011). Performance anxiety during public speaking is commonly associated with a wide representation of cognitive failures and challenges, comprising unfamiliarity with the role, insufficient preparation, making mistakes, rigid rules, audience interest, and physical appearance (Bippus & Daly, 1999). If the competences of high personal importance are judged low at a certain occasion of public performance, performers' self-esteem is extremely sensitive to this judgment, especially if it was already low before the actual performance (Harter, 1993). Here, performance anxiety is based on the overgeneralization of the way the performance is evaluated onto the way a performer is evaluated as a person. However, considering that performance anxiety is a specific instance of evaluation anxiety, it is more strongly related to self-efficacy than to self-esteem (Caprara & Cervone, 2000). Self-efficacy that may be mediated by motivation for preparation or skill enhancement (for a review, see Zeidner & Matthews, 2005) is also more predictive of the level of performance (Zimmerman, 2000).

The quality of performance has been shown to generally benefit from task-focus (Wegner & Giuliano, 1980). Yet, it is controversial whether this attentional mode supports performing in public to a greater extent than emotion focus or self-focus (Zeidner, 1998). Research shows that test-anxious individuals are usually highly self-focused. Their attention is more eagerly directed toward their thoughts and feelings about the test than toward the task itself (Carver & Scheier, 1989). Moreover, public self-consciousness – meaning awareness of the self as a social object – strongly correlates with social anxiety (Schwarzer & Jerusalem, 1992) and may therefore contribute to performance anxiety. Also, self-focus related to performance anxiety might have a role in triggering ego defense mechanisms. These findings suggest that performance anxiety resulting in employing ego defense mechanisms is associated with the reduced engagement in preparation for a performance, which might in turn impinge the quality of performance. Speculating about the possible negative individual correlates of performance anxiety, we could think of field-independence (Witkin, 1968 after Matczak, 2000), comprising reduced need for social approval (Witkin & Goodenough, 1977) and psychoticism with the reduced importance of the opinion of others (see Eysenck & Eysenck, 1985).

Strategies of coping with performance anxiety

As mentioned earlier, with reference to performance anxiety most coping strategies are of a cognitive character, comprised of modification of interpretation schemes, task-focus, process-focus (vs. effect-focus), sufficient preparation, and positive self-talk (see Sinico & Winter, 2013), but not searching for social support and avoidance (Biasutti & Concina, 2014). Behavioural strategies that reduce performance anxiety include developing personal confidence, enhancing motivation and skills in managing stage fright, and proper breathing techniques and body communication (e.g., breathing and relaxation; Zakaria, Musib, & Shariff, 2013). The selected ways that emotion can be regulated are by controlling attention to emotionally evocative stimuli and cognitively changing their meaning (see Ochsner & Gross, 2005). Considering these mechanisms of emotion regulation, we can speculate that performance anxiety should be reduced by finding the positive meaning of a threatening situation and refocusing attention from the threat-inducing stimuli to the possible benefits of taking the risk of giving a performance. Indeed, acceptance was found to be more effective than suppression and placebo in reducing both subjective and physiological (skin conductance level) measures of arousal as a proxy of anxiety (Wilson, Barnes-Holmes, & Barnes-Holmes, 2014). Reappraising the anxious arousal as excitement by adopting an opportunity mind-set instead of a threat mind-set was found to be positively associated with the quality of performance (Brooks, 2013). Greater situational mindfulness, as awareness and ability to attend to the present moment with a quality that is open to accept rather than judge (Kabat-Zinn, 1994), predicted lower music performance anxiety (Farnsworth-Grodd & Cameron, 2013). Situational mindfulness comprised increased focus on the positive aspects of the performance, greater self-kindness, and self-acceptance.

Contextual aspects of performance anxiety

The external bases of performance anxiety comprise its social aspect, e.g., the perceived attitude of an audience or jury and the importance of an event that regulates the level of perceived threat. Social cognition in performance anxiety comprises attitude formation and a performer's concern with the opinion of others, associated with the need for social approval (see Crowne & Marlowe, 1960). It is a common experience of performers that when a performance is situated in an atmosphere of acceptance, curiosity and pleasure, it promotes positive activation, motivation and engagement. In such circumstances it may be easier to reappraise anxiety as excitement, which is beneficial for the level of performance (see Brooks, 2014). Playful school class presentations in which students share their knowledge of a selected topic and exchange the roles of performers and audience may be an example.

A performer's assumptions about performing are acquired and formed within the process of socialization and education, which often emphasizes the competitive aspect of performance. Thus, performing may seem a contest, duel, or demonstration of power rather than sharing knowledge or skill, marginalizing the role of pleasure and interest in a performer. A common practice of enhancing the evaluative aspect of performance that strengthens ego-centered motives leaves much space for performance anxiety. In such a context, considering the above processes in the functional spotlight should promote viewing performance anxiety as an adaptive advantage that performers might well benefit from.

Performance anxiety as a social adaptation

Performance anxiety can be analyzed in the light of the evolutionary approach that emphasizes two separate causes of any psychological phenomenon: its functional and phylogenetic origin. The questions to consider here are whether performance anxiety is of any functional importance to an individual, and whether the ability to control performance anxiety and overcome its symptoms may be viewed as an adaptive advantage at an individual level. A highly specialized and competitive contemporary work environment promotes the ability to successfully deliver public presentations of any kind. In such circumstances, the ability to overcome stress and maintain efficiency in confrontation with the audience seems to be an important adaptive disposition.

Despite the subjective unpleasantness of anxiety, we should bear in mind its functional nature (Corr, 2011). Anxiety forms an incentive prompting avoidance of the aspects of a situation that may raise the risk of experiencing an actual social threat (see Perkins & Corr, 2014). In the case of performance anxiety, the social threat refers to being perceived as weak with the resulting negative evaluation and its possible consequences for social position and self-esteem. While the adaptive function of anxiety is to protect an individual from danger, performance anxiety would constitute an instinctual, adaptive response to social exposure in the context of performing in public and competition.

The rise of such physiological correlates of performance anxiety as the level of glucocorticoids (cortisone and cortisol) occurs even if no real audience is present (Fancourt et al., 2015). However, giving a solo public performance is associated with extensive exposure to judgment and responsibility for the performance outcome. Fear of social exposure has its roots in confrontation with an opponent or an antagonist. From the adaptive perspective, it is a situation of a potentially dangerous power asymmetry in which anxiety is a warning adaptation. One is alone against many others who may form a powerful coalition against a performer, and for that reason it would not be advantageous to prevent anxiety (see Tooby & Cosmides, 2010). Extrapolating from this general adaptive effect, the less powerful (prepared or competent in a particular domain) a performer feels, the higher the perceived danger (see Wan, 2008). The risk of being negatively evaluated and thus perceived as deficient or inadequate (Elliot & Dweck, 2005) may entail loss of means of making a living, which ultimately forms a threat to survival. The quality of the performance may have consequences for the future access to resources and social position, a loss of which may mean neglect. Huron (2001, p. 47) speculates that "music making may have arisen as a courtship behavior." If so, success in performing might increase the likelihood that the performer's assets in mate selection would exceed the assets of those who fail to perform in public. These aspects are tangible for artists, sportspeople, or speakers whose status in their professional environment depends on their ability to successfully gain maximum support of the public.

In individuals with high motivation to carry on with performing activities and the internal locus of control (Rotter, 1966), performance anxiety, once experienced, may have a protective role. As an internal affective signal associated with low self-efficacy (see Bandura, 1999), it may prompt sufficient preparation preceding further performances. Considering the similar circumstances, performance anxiety as punishment in the operant conditioning scheme (underpreparation – performance anxiety) may encourage achieving a certain level of task-mastery prior to performance in order to avoid anxiety on stage. Actually, pleasant anticipation of a performance goes with intrinsic motivation and feeling of self-efficacy (see Lagendörfer, Hodapp, Kreutz, & Bongard, 2006).

Adopting an interactionist view on performance anxiety, we may expect that the situational context significant from the perspective of one's career raises the risk of high performance anxiety as a state, especially in those with high trait anxiety. Such a situation might be considered from the perspective of inferiority-superiority as being subject to the evaluative response of others and thus "at their mercy." The capability to deliver what one has prepared underlies a success or a failure, of which the criteria are often unclear. The self-presentational theory of social anxiety (Leary & Kowalski, 1995a, 1995b; Schlenker & Leary, 1982) proposes that it accompanies a motivation to make a desired impression on other people with the simultaneous doubt that this goal can be achieved. In humans, "success is achieved not by intimidating a rival, but by attracting positive responses from other members of the group, resulting in prestige" (Price, 2003, after Kenny, 2011, p. 63), which is exactly what public performance stands for. In our species, the processes of selection can involve the relationships between an individual and a group. Behaviours associated with professional achievement contributing to reproductive success may be determined by the relations between the members of a social environment (Sober & Wilson, 1998), such as approval and respect. These speculations concerning the adaptive view of performance anxiety based on more general assumptions concerning anxiety, though not directly testable, form the context that may help to better understand the function of this phenomenon for performers.

Exemplary experiences of performance anxiety

In this section, the somatic and cognitive effects of performance anxiety on live performance are illustrated with the experience of renowned performing artists. Their statements[1] may be divided into five categories: negative somatic effects, negative experience, negative cognitive effects and fear of them, and on the other hand – positive experience and positive cognitive effects of performance anxiety.

[1] All the following statements were found on popular websites and serve illustrative purposes only.

Negative somatic effects

In an interview, Scarlett Johansson admitted that although she gets excited about getting ready for a public appearance, she hates red carpet shows. She gets uncomfortable and scared, perspiring profoundly, with a banging heart and a dry mouth[2]. Renee Fleming reveals that for some time before a performance "nothing had happened to precipitate it [the reaction], nothing had changed, but without warning, my throat closed up entirely."[3] Jack Lydon's experience of performance anxiety is: "(…) Unbelievable, the panic. I nearly die of fear before I go on stage. Something wicked. I can't eat a thing the day before a gig. It'd make me vomit."[4]

Although a difficulty, performance anxiety can be managed in favour of the quality of performance. As Helen Mirren notices: "I still suffer terribly from stage fright. I get sick with fear. Not every night, but at the beginning and on occasion – not necessarily when I'm expecting it. You just have to cope with it – take it on the chin and work through it, trying to use the adrenalin to perform."[5] The actress emphasizes her effort in harnessing the positive energy arising from fear and using nervousness in one's own favour (see Gamble & Gamble, 2015). The intensity of the somatic symptoms of performance anxiety suggests their functional importance and adequacy. The reasons for such a global engagement of an organism, both at the conscious and unconscious levels, must refer to the consequences important for their adaptive functions.

Negative experience

The Polish actor Andrzej Chyra experiences performance anxiety when he is unsure of the performance, when he knows that it's poor. In this case performance anxiety is the anticipation of shame. His remark refers to the function of performance anxiety as one of the factors preventing the self-conscious emotion of shame. Renee Fleming also confesses that she has "(…) a very difficult time with stage fright; it undermines your well-being and peace of mind, and it can also threaten your livelihood."[6] As an example of a negative experience, Andrea Bocelli, a renowned tenor with a worldwide career, confesses: "Stage fright is my worst problem. A voice is very intimate. It's something of your own. So there's always this fear, because you feel naked. There's a fear of not reaching up to expectations."[7] This experience exemplifies power asymmetry accompanying exposure to the public and the feeling of vulnerability to the unexpected group behaviour. With reference to the behavioural effects of performance anxiety, Martha Argerich, a worldwide famous pianist, is anecdotally believed to have come to the point of purposefully cutting her finger in order to have a serious excuse for cancelling a concert[8] on the high peak of a wave of her avoidance motives concerning a performance.

Negative cognitive effects

Some performers are painfully aware of the negative effects that performance anxiety has on their cognition. Alan Rickman acclaims: "I get stage fright and gremlins in my head saying: 'You're going to forget your lines'." Jane Fonda admits that in order to cope with performance anxiety actors "hide behind the masks."[9] Memory errors can be really annoying, as Barbra Streisand puts it: "Some performers really do well when they forget the words. They forget the words all the time, but they somehow have humor about it. I remember I didn't have a sense of humor about it. I was quite shocked."[10] The feeling of inferiority and elevated public self-consciousness may intensify the effects of the error or memory slip.

However, there are also positive aspects of PA. *The positive experience* includes the feeling of responsibility and respect for the audience, being introduced to the world of performance, and sensitivity as a background for nervousness that accompanies performance together with trust in people. These attitudes to the audience help to build a positive relationship with the public, which reduces the dichotomy between a performer and the audience.

The positive cognitive effects include the focus of attention and narrowing of its field, getting ready for a performance ("A little bit of stage fright, then I'm ready" Faith Hill[11]), and energizing the performance, as Helen Mirren admits in the quotation above. Andrea Bocelli notices: "every audience has its character; I like America – they love me. I suffer from stage fright, but in America not so much"[12], which emphasizes the role of the external environment and the personal meaning of the performing situation for the level of performance anxiety. All these experiences shared by people whose job is to perform in public demonstrate a variety of aspects that performance anxiety brings in to performance.

Summary and practical issues

This editorial presents performance anxiety in the context of the theories that allow integrating its cognitive, emotional, and motivational elements with reference to their functional importance for an individual performing in public. This approach may shed a new light on performance anxiety, whose challenges to social approval and social status may form a direction for further research.

Theoretical consideration of the scope and function of performance anxiety and the empirical research on

[2] http://film.wp.pl/id,101598,title,Scarlett-Johansson-sparalizowana-trema,wiadomosc.html?ticaid=1150e5&_ticrsn=3.

[3] http://socialanxietydisorder.about.com/od/researchresources/a/Quotes-About-Stage-Fright.htm

[4] http://www.brainyquote.com/quotes/keywords/stage_fright.html#mxfw50YxKq95EDLb.99

[5] *Ibidem*.

[6] http://socialanxietydisorder.about.com/od/researchresources/a/Quotes-About-Stage-Fright.htm

[7] http://www.brainyquote.com/quotes/quotes/a/andreaboce582263.html?src=t_stage_fright.

[8] http://www.nytimes.com/2008/08/03/arts/television/03schw.html?_r=0

[9] http://socialanxietydisorder.about.com/od/researchresources/a/Quotes-About-Stage-Fright.htm

[10] *Ibidem*.

[11] *Ibidem*.

[12] http://www.brainyquote.com/quotes/keywords/stage_fright.html#mxfw50YxKq95EDLb.99

its bases and consequences reveal the dual nature of this phenomenon. On one hand, performance anxiety with a predominant arousal component, state-like form, moderate intensity, and its activating effects prepares a performer for an extra effort and helps to rise to the challenge of social exposure and judgment. It appears to be adaptively sound in a situation of facing the public and being subject to evaluation. This context requires taking the risk of confrontation with the audience, which may place social approval and social position in peril, and thus is important from the adaptive perspective. If sufficient preparation precedes a performance underlying a performer's well-grounded sense of self-efficacy, performance anxiety serves as a mechanism that signals the necessity of making an extra effort. It facilitates standing up to the situation and activating competences with the aim to maximize the quality of performance.

On the other hand, it is a common experience of performers that performance anxiety of the exaggerated scale involving prolonged apprehension is a debilitating phenomenon, hindering the quality of public presentation. It reduces energetic activation and implies loss of performance-focus. Deficits in these resources seem to be more profound if a performer maintains the competitive view of a public performance, which is likely to move the attention and motivation from task to self and from the process to effect. The depleting aspect of performance anxiety may also be enhanced by the mutual relationship between a performer and the audience and the way a performer perceives the attitude of an audience. If a performer assumes that the audience is keeping track of his or her failures or if the audience is actually more evaluation- than enjoyment-focused, such conditions tend to affect performance in a negative way. Also, if the level of preparedness is low or subjectively underrated by a performer, anxiety may exceed its adaptive level with debilitating effects for the quality of performance.

These two facets of performance anxiety find correspondence in the motivational ambiguity of public performing that requires trade-off between approach and avoidance tendencies. The results of this process are based on the proportion of the benefits from undertaking the task and the costs of withdrawing from it, as perceived by a performer. One of the motivational mechanisms underlying performance anxiety is the BIS (McNaughton & Gray, 2000; Corr, 2010), producing anxiety when activated and increasing the avoidance motivation to the performance situation that may discourage a performer. With reference to cognition, the BIS, responsible for responding to threat, is activated by a discrepancy between a standard adopted for a particular performance and the way this performance actually proceeds. Through the controlled processing of the potential discrepancy, the BIS reduces the pool of cognitive resources available to manage a performance. Such a drop in one's assets seems to be more salient in persons with a tendency to adopt and maintain self-focused vs. task-focused attitude to performance. The significance of an individual public performance, a performer's motivational tendencies, trait anxiety, and other personality factors as well as the contextual elements of a performance contribute to performance anxiety, constituting its advantageous or disadvantageous effect on performance.

In practice, coping strategies comprised of control of interpretation schemes, self-efficacy or task focus, training the attentional control, and conscious regulation of the perfectionistic and catastrophic tendencies should counterweigh the emotional vulnerability to performance anxiety and its possible links to trait anxiety as an evaluative or social anxiety. Insight into the manifold background of performance anxiety and the way it is experienced may help to work out a means to reduce its debilitating effects and enhance its facilitating role for public performance.

Contents of the special issue

The papers contributing to this Special Issue extend the specific unobvious contexts in which performance anxiety is anchored. In the introductory empirical paper *Attachment quality is associated with music performance anxiety in professional musicians: an exploratory narrative study*, Kenny investigates a variety of attachment themes in biographies of professional orchestral musicians and their relationship with music performance anxiety. This narrative study, run with open-ended in-depth interviews with ten professional musicians, brought data later analyzed using content and thematic analysis. It was revealed that early relational trauma may be a relevant etiological factor in the music performance anxiety symptomatic of musicians. The paper forms the basis for a proposal to extend the symptomatic approach by attachment-informed life-course context in understanding and treating severe music performance anxiety.

The following paper by Szczygieł entitled *Service with a fake smile and emotional exhaustion. Does emotional intelligence matter?* explores the costs of emotional labor aimed at maintaining pleasant facial expressions in customer service employees. Low ability to conceal real emotions and fake positive emotions may lead to performance anxiety in a workplace. It was found that more extensive use of surface acting during interactions with customers is associated with more symptoms of emotional exhaustion, but high emotional intelligence prevents this effect. We may predict that high emotional intelligence could help to avoid performance anxiety in individuals performing in public.

Sankaran's review entitled *Learned helplessness in sports: The role of repetitive failure experience, performance anxiety and perfectionism* shows the link between repetitive failure in a performance and learned helplessness. The role of performance anxiety and maladaptive perfectionism underlie thinking traits that may affect motor performance when these traits moderate the effects of consecutive failure experience. A typical profile of an athlete is presented, emphasizing susceptibility to choking under pressure as an outcome of perceived uncontrollability and performance anxiety. Such themes as burnout and potential interventions are further developed.

The paper *Waiting for the concert. Pre-performance emotions and the performance success of teenage music school students* by Kaleńska-Rodzaj analyses emotions that adolescent musicians experience prior to giving a solo music performance and explores the function of these emotions for performance quality. The study shows the prevalence of ambivalent emotions such as hope, but also sadness, joy, and anxiety in musicians' pre-performance emotional state. Cluster analysis reveals six basic aspects of this state: high and moderate music performance anxiety, calmness, mixed emotions, joy with background fatigue, and excitement. Again, it is shown that positive and mixed emotions form a large portion of the affective background for performance quality.

The empirical paper *Psychometric properties of the Kenny-Music Performance Anxiety Inventory modified for general performance anxiety* by Kantor-Martynuska and Kenny has a twofold advantage. First, it analyses the psychometric properties of the Polish adaptation of the *Kenny Music Performance Anxiety Inventory – Revised* (K-MPAI-R, Kenny, 2009), modified as the *Kenny Performance Anxiety Inventory (K-PAI)* for a general population of individuals with experience in public performance in fields other than music. Second, it explores the relationship between performance anxiety and affective disorders, cognitive dispositions and temperamental characteristics such as general anxiety, depression, attentional control, behavioural inhibition, behavioural activation, and reward susceptibility. The authors analyse the structure of performance anxiety in a general population of those who perform in public.

As this Special Issue demonstrates, performance anxiety is a common experience for those who give public performances of any kind. Further work should aim to apply the knowledge concerning the bases and context of performance anxiety. Students of any age should be given an opportunity to be a part of the audience and perform in a safe and friendly atmosphere. The effects of such performance should be subject to constructive analysis and correction. Skills of emotion regulation should be systematically trained in those who perform to reduce emotional labour, professional burnout, and the resultant risks for physical and mental health. More awareness of the positive goals of presenting in public would leave more resources to care for the quality of performance. Research should focus on studying performance anxiety in natural contexts, with insights to intrinsic motivation and the level of preparedness. The populations of sportspeople, musicians, and speakers might benefit from participating in such research as part of their general academic background.

References

Ackermann, S., Hartmann, F., Papassotiropoulos, A., de Quervain, D.J.F., & Rasch, B. (2013). Associations between basal cortisol levels and memory retrieval in healthy young individuals. *Journal of Cognitive Neuroscience*, *25*, 11, 1896–1907.

Alpert, R., & Haber, R.N. (1960). Anxiety in academic achievement situations. *The Journal of Abnormal and Social Psychology*, *61*, 207–215.

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders* (Fourth Edition). Washington (DC): American Psychiatric Association.

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders* (Fifth Edition). Arlington, VA: American Psychiatric Publishing.

Aufegger, L., Perkins, R., Wasley, D., et al. (2016). Musicians' perceptions and experiences of using simulation training to develop performance skills. *Psychology of Music*, advance online publication. https://doi.org/10.1177/0305735616666940.

Baddeley, A.D. (1986). *Working memory*. Oxford: Oxford University Press.

Baddeley, A.D. (2001). Is working memory still working? *American Psychologist*, *56*, 851–64.

Bandura, A. (1999). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology*, *2*, 21–41.

Biasutti, M., & Concina, E. (2014). The role of coping strategy and experience in predicting music performance anxiety. *Musicae Scientiae*, *18*, 189–202.

Bippus, A.M., & Daly, J.A. (1999). What do people think causes stage fright? Naive attributions about the reasons for public speaking anxiety. *Communication Education*, *48*, 63–72.

Bradley, R.T., McCraty, R., Atkinson, M., Tomasino, D., Daugherty, A., & Arguelles, L. (2010). Emotion self-regulation, psychophysiological coherence, and test anxiety: results from an experiment using electrophysiological measures. *Applied Psychophysiology and Biofeedback*, *35*, 261–283.

Brooks, A.W. (2013). Get excited: Reappraising pro-performance anxiety as excitement. *Journal of Experimental Psychology: General*, *143*, 1144–1158.

Brooks, A.W. (2014). Get excited: Reappraising pre-performance anxiety as excitement. *Journal of Experimental Psychology: General*, *143*, 1144–1158.

Butt, J., Weinberg, R.S., & Horn, T.S. (2003). The intensity and directional interpretation of anxiety. Fluctuations throughout competition and relationship to performance. *The Sport Psychologist*, *17*, 35–54.

Calamaras, M.R., Anderson, P.L., Tannenbaum, L., & Zimand, E. (2014). Public speaking anxiety. In: L. Grossman & S. Walfish (Eds.), *Translating psychological research into practice*. (pp. 253–258). New York: Springer Publishing.

Caprara, G.V., & Cervone, D. (2000). *Personality: Determinants, dynamics and potentials*. Cambridge University Press.

Carver, C.S., & Scheier, M. (1998). *On the self-regulation of behavior*. New York: Cambridge University Press.

Cheng, W.-N.K., & Hardy, L. (2015). Three-dimensional model of performance anxiety: Tests of the adaptive potential of the regulatory dimension of anxiety. *Psychology of Sport and Exercise*, *22*, 255–263.

Chodkiewicz, J., & Mniszewska, J. (2015). The Polish adaptation of the Public Speaking Anxiety Questionnaire. *Psychiatria Polska*, *49*, 95–105.

Chorpita, B.F., & Barlow, D.H. (1998). the development of anxiety: The role of control in the early environment. *Psychological Bulletin*, *124*, 3–21.

Chorpita, B.F., Brown, T.A., & Barlow, D.H. (1998). Perceived control as a mediator of family environment in etiological models of childhood anxiety. *Behavior Therapy*, *29*, 457–476.

Corr, P.J. (2010). Automatic and controlled processes in behavioural control: Implications for personality psychology. *European Journal of Personality*, *24*, 376–403.

Corr, P.J. (2011). Anxiety: Splitting the phenomenological atom. *Personality and Individual Differences*, *50*, 889–897.

Crowne, D.P., & Marlowe, D.A. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, *24*, 349–354.

Damasio, A. (2003). *Looking for Spinoza.* London: William Heinemann.

Derakshan, N., Ansari, T.L., Hansard, M., Shoker, L., & Eysenck, M.W. (2009). Anxiety, inhibition, efficiency, and effectiveness. An inves-

tigation using the antisaccade task. *Experimental Psychology*, *56*, 48–55.

Elliot, A.J., & Dweck, C.S. (2005). *Handbook of competence and motivation*. New York: Guilford Press.

Elliot, A.J., & McGregor, H.A. (1999). Test anxiety and the hierarchical model approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, *76*, 628–644.

Englert, Ch., & Bertrams, A. (2012). Anxiety, ego depletion, and sports performance. *Journal of Sport & Exercise Psychology*, *34*, 580–599.

Endler, N.S., & Parker, J.D.A. (1992). Coping Inventory for Stressful Situations (CISS): Computer Program User's Guide. Toronto: Multi-Health Systems, Inc.

Eysenck, M.W., & Calvo, M.G. (1992). Anxiety and performance: The processing efficiency theory. *Cognition and Emotion*, *6*, 409–434.

Eysenck, M.W., Derakshan, N., Santos, R., & Calvo, M.G. (2007). Anxiety and cognitive performance: Attentional control theory. *Emotion*, *7*, 336–353.

Eysenck, H.J., & Eysenck, M.W. (1985). *Personality and individual differences: A natural science approach*. New York: Plenum Press.

Fancourt, D., Aufegger, L., & Williamon, A. (2015). Low-stress and high-stress singing have contrasting effects on glucocorticoid response. *Frontiers in Psychology*, 6. https://doi.org/10.3389/fpsyg.2015.01242.

Farnsworth-Grodd, V., & Cameron, L. (2013). *Mindfulness and the self-regulation of music performance anxiety*. International Symposium on Performance Science, ISBN 978-2-9601378-0-4.

Hackfort, D., & Spielberger, C.D. (1988). *Anxiety in sports: An international perspective.* Hemisphere Publishing Corporation.

Hanin, Y.L. (2007). Emotions in sport: Current issues and perspectives. In: G. Tenenbaum, R.C. Eklund (Eds.), *Handbook of Sport Psychology* (pp. 31–58). New Jersey, John Wiley & Sons.

Harter, S. (1993). Causes and consequences of low self-esteem in children and adolescents. In: R. Baumeister (Ed.), *Self-esteem: The puzzle of low self-regard* (pp. 87–116). New York and London: Plenum Press.

Himmelhoch, J., Levine, J., & Gershon, S. (2001). Historical overview of the relationship between anxiety disorders and affective disorders. *Depression and Anxiety*, *14*, 53–66.

Hook, J.N., & Valentiner, D.P. (2002). Are specific and generalized social phobias qualitatively distinct? *Clinical Psychology*, *9*, 379–395.

Hook, J.N., Valentiner, D.P., & Connelly, J. (2013). Performance and interaction anxiety: Specific relationships with other-and self-evaluation concerns. *Anxiety, Stress & Coping: An International Journal*, *26*, 203–216.

Huron, D. (2001). Is music an evolutionary adaptation? *Annals of the New Your Academy of Sciences*, *930*, 43–61.

Izard, C. (1994). Cognition is one of four types of emotion activating systems. In: P. Ekman & R.J. Davidson (Eds.), *The nature of emotion: Fundamental Questions* (pp. 203–208). New York: Oxford University Press.

Kabat-Zinn, J. (1994). *Wherever you go, there you are*. New York: Hyperion.

Kenny, D.T. (2011). *The psychology of music performance anxiety*. Oxford UK: Oxford University Press.

Kępińska-Welbel, J. (1997). *Trema egzaminacyjna u studentów Akademii Muzycznej im. Fryderyka Chpina w Warszawie. Praca doktorska* [*Music performance anxiety in students of Fryderyk Chopin Music Academy in Warsaw*]. Wyższa Szkoła Pedagogiki Specjalnej, Warszawa.

King, J.S. (2014). Managing debilitating performance anxiety in preaching. Dissertation Abstracts International Section A: Humanities and Social Sciences, 74(11-A)(E).

Kurosawa, K., & Harackiewicz, J.M. (1995). Test anxiety, self-awareness, and cognitive interference: A process analysis. *Journal of Personality*, *63*, 931–951.

Lagendörfer, F., Hodapp, V., Kreutz, G., & Bongard, S. (2006). Personality and performance anxiety among professional orchestra musicians. *Journal of Individual Differences*, *27*, 162–171.

Lane, R.D., McRae, K., Reiman, E.M., Chen, K., Ahern, G.L., & Thayer, J.F. (2009). Neural correlates of heart rate variability during emotion. *Neuroimage*, *1*, 213–222.

Lazarus, R.S. (2001). Relational meaning and discrete emotions. In: K. Scherer, A. Schorr, & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 37–67). New York: Oxford University Press.

Leary, M.R., & Kowalski, R.M. (1995a). *Social anxiety.* New York: Guilford.

Leary, M.R., & Kowalski, R.M. (1995b). The self-presentational model of social phobia. In: R.G. Heimberg, M.R. Liebowitz, D.A. Hope, & F.R. Schneier (Eds.), *Social phobia: Diagnosis, assessment, and treatment.* New York: Guilford.

Maslow, A.H. (1943). A theory of human motivation. *Psychological Review*, *50*, 370–396.

Matczak, A. (2000). Style poznawcze [Cognitive styles] (Vol. 2. pp. 761–782). In: J. Strelau (Ed.), *Psychologia. Podręcznik akademicki* [*Psychology. Academic handbook*]. Gdańsk: PWN.

McNaughton, N., & Gray, J. (2000). Anxiolytic action on the behavioural inhibition system implies multiple types of arousal contribute to anxiety. *Journal of Affective Disorders*, *61*, 161–176.

Merritt, L., Richards, A., & Davis, P. (2001). Performance anxiety. Loss of the spoken edge. *Journal of Voice*, *15*, 257–269.

Niedenthal, P.M., Krauth-Gruber, S., & Ric, F. (2006). *Psychology of emotion. Interpersonal, experiential, and cognitive approaches*. New York and Hove: Taylor & Francis Group.

Oatley, K., & Jenkins, J. (2013). *Understanding emotions*, 3rd Edition. Wiley.

Ochsner, K., & Gross, J.J. (2005). The cognitive control of emotion. *Trends in Cognitive Sciences*, *9*, 242–249.

Price, J.S. (2003). *An evolutionary perspective on anxiety and anxiety disorders, new insights into anxiety disorders*. F. Durbano (Ed.), ISBN: 978-953-51-1053-8, InTech. doi: 10.5772/52902. Available from: http://www.intechopen.com/books/new-insights-into-anxiety-disorders/an-evolutionary-perspective-on-anxiety-and-anxiety-disorders.

Perkins, A.M., & Corr, P. (2014). Anxiety as an adaptive emotion. In: W. Gerrod Parrott (Ed.), *The Positive Side of Negative Emotions*. The Guilford Press.

Rotter, J.B. (1966). Generalize expectancies for internal versus external control of reinforcement. *Psychological Monographs*, *80*, 1–28.

Ryan, C. (2005). Experience of music performance anxiety in elementary school children. *International Journal of Stress Management*, *12*, 331–342.

Salmon, P. (1990). A psychological perspective on music performance anxiety: A review of the literature. *Medical Problems of Performing Artists*, *5*, 2–11.

Sarason, I.G., & Sarason, B.R. (2013). Test anxiety. In: H. Leitenberg (Ed.), *Handbook of Social and Evaluation Anxiety* (pp. 475–496). New York: Plenum Press.

Schlenker, B.R., & Leary, M.R. (1982). Social anxiety and self-presentation: A conceptualization and model. *Psychological Bulletin*, *92*, 641–669.

Schneier, F.R., Vidair, H.B., Vogel, L.R., & Muskin, P.R. (2014). Anxiety, obsessive-compulsive and stress disorders. In: J.L. Cutler (Ed.), *Psychiatry*, 3rd edition (pp. 168–X). New York: OUP.

Schwarzer, R., & Jerusalem, M. (1992). Advances in anxiety theory: A cognitive process approach. In: K.A. Hagtvet & T.B. Johnsen (Eds.), *Advances in test anxiety research* (Vol. 7, pp. 2–31). Lisse, The Netherlands: Swets & Zeitlinger.

Sieber, J.E., O'Neill, H.F. Jr., & Tobias, S. (2013). *Anxiety, Learning and Instruction* (p. 23). Routledge: New York and London.

Sinico, A., & Winter, L. (2013). Music Performance Anxiety: Use of Coping Strategies by Tertiary Flute Players. In: G. Luck & O. Brabant (Eds.), *Proceedings of the 3rd International Conference on Music & Emotion* (ICME3), Jyväskylä, Finland, 11th–15th June 2013. University of Jyväskylä, Department of Music.

Smith, R.E., & Smoll, F.L. (2013). Sport performance anxiety. In: H. Leitenberg (Ed.), *Handbook of Social and Evaluation Anxiety* (pp. 417–454). New York: Plenum Press.

Sober, E., & Wilson, D. (1998). *Unto others: the evolution and psychology of unselfish behavior*. London: Harvard University Press.

Spielberger, C.D. (1983). *Manual for the State-Trait Anxiety Inventory STAI (Form Y)*. Palo Alto, CA: Consulting Psychologists Press.

Spielberger, C.D., & Vagg, P.R. (1995). *Test Anxiety: Theory, assessment, and treatment.* Washington D. C.: Taylor & Francis.

Steptoe, A. (1989). Stress, coping and stage fright in professional musicians. *Psychology of Music*, *17*, 3–11.

Steptoe, A. (2001). Negative emotions in music making. In: P. Juslin & J.A. Sloboda (Eds.), *Music and Emotion: theory and research* (pp. 291–308). New York: Oxford University Press.

Steptoe, A., & Fidler, H. (1987). Stage fright in orchestral musicians: A study of cognitive and behavioural strategies in performance anxiety. *British Journal of Psychology*, *78*, 241–249.

Strelau, J. (2008). *Temperament as a regulator of behavior: After fifty years of research*. Clinton Corners, NY: Eliot Werner Publications.

Takemura, K., Delton, A.W., Sato, K., Robertson, T., Cosmides, L., & Tooby, J. (2012). Cross-cultural differences and similarities in proneness to shame: An adaptationist and ecological approach. *Evolutionary Psychology*, *10*, 352–370.

Tarrant, R., Jeathem, J., & Flett, R. (2010). What has music and sport anxiety taught us about test anxiety? *Psychology Journal*, *7*, 67–77.

Tooby, J., & Cosmides, L. (2010). Groups in mind: The coalitional roots of war and morality. In: H. Høgh-Olesen (Ed.), *Human Morality & Sociality: Evolutionary & Comparative Perspectives* (pp. 91–234). New York: Palgrave MacMillan.

Trower, P., Gilbert, P., & Sherling, G. (1990). Social anxiety, evolution, and self-presentation (pp. 11–46). In: H. Leitenberg (Ed.), *Handbook of Social and Evaluation Anxiety*. New York: Plenum Press.

Yoshie, M., Shiemasu, K., Kudo, K., & Ohtsuki, T. (2009). Effects of state anxiety on music performance: Relationship between the Revised Competitive State Anxiety Inventory-2 subscales and piano performance. *Musicae Scientiae*, *13*, 55–84.

Wan, H.Y.A. (2008). *Physical and Mental Issues in Piano Performance: The Interrelationships between Physical Tension, Performance Anxiety, and Memorization Strategies*. Saarbrücken: VDM-Verlag Dr Müller.

Wegner, D.M., & Giuliano, T. (1980). Arousal-induced attention to self. *Journal of Personality and Social Psychology*, *38*, 719–726.

Wilson, C.J., Barnes-Holmes, Y., & Barnes-Holmes, D. (2014). The effect of emotion regulation strategies on physiological and self-report measures of anxiety during a stress-inducing academic task. *International Journal of Psychology and Psychological Therapy*, *14*, 1–15.

Witkin, H.A. (1968). Psychologiczne zróżnicowanie i formy patologii. *Przegląd Psychologiczny*, *16*, 75–104.

Witkin, H.A., & Goodenough, D.R. (1977). Field dependence and interpersonal behavior. *Psychological Bulletin*, *84*, 661–689.

Zakaria, J.B., Musib, H.B., & Shariff, S.M. (2013). Overcoming performance anxiety among music graduates. *Procedia: Social and Behavioral Sciences*, *90*, 226–234.

Zeidner, M. (1998). *Test anxiety: The state of the art*. New York: Plenum Press.

Zeidner, M., & Matthews, G. (2005). Evaluation anxiety: Current theory and research. In: Elliot A. J., & Dweck, C. S. (Eds.), *Handbook of Competence and Motivation* (p. 141–163). New York & London: The Guilford Press.

Zimmerman, B. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, *25*, 82–91.

Zinn, M., McCain, C., & Zinn, M. (2000). Musical performance anxiety and the high-risk model of threat. *Medical Problems of Performing Artists*, *15*, 65–71.