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PIANO E TECLAS

Preparing a Recital: Memory, Anxiety and Stage fright

Nastasia Iacob

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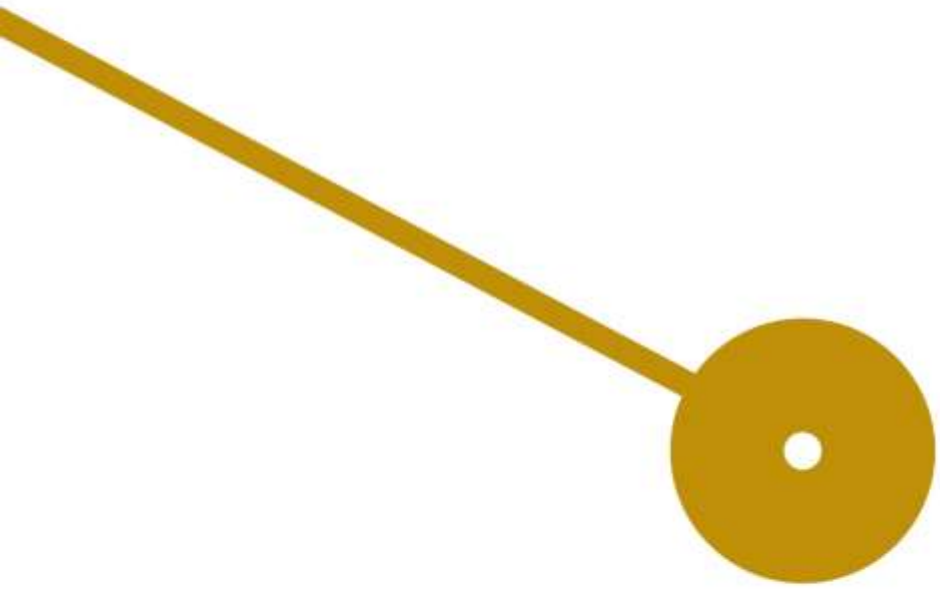

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Preparing a Recital: Memory, Anxiety and Stage fright

Nastasia Iacob

Projeto apresentada à Escola Superior de Música e Artes do Espetáculo como requisito parcial para obtenção do grau de Mestre em Música – Interpretação Artística, especialização Piano e Teclas

Professores Orientadores

Daniela Coimbra
Constantin Sandu

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Resumo

O presente projeto artístico consiste numa abordagem teórica e prática acerca da forma como a memória e o medo do palco podem afetar os músicos durante as suas performances. É apresentada uma visão geral dos mecanismos envolvidos nos processos de memorização, ansiedade e medo do palco, estabelecendo a ponte entre a psicologia e sua aplicação na performance musical. Além disso, o presente projeto artístico aborda o debate acerca das vantagens de tocar de memória ou com partitura e inclui uma breve visão histórica do assunto. São ainda destacados vários pontos de vista de investigadores sobre a forma como os mecanismos de memória, repetição e imaginação formam parte do processo de desempenho musical.

O estudo prossegue abordando um tipo particular de fobia, glossofobia ou medo de falar em público, bastante comum na vida quotidiana e com semelhanças com o medo do palco com que os músicos se podem confrontar. Finalmente apresenta-se um estudo de caso baseado na minha experiência com o medo do palco e são discutidas as implicações dos resultados na conclusão.

Palavras-chave Memória, Ansiedade, Medo do palco, Glossofobia, Recital de piano

Abstract

The following artistic project is a theoretical and practical approach to the way in which memory and stage fright affect musicians during their performances.

An overview of the mechanisms of memory, anxiety and stage fright is presented, in order to create a bridge between psychology and its application in musical performance. In addition to this, the present work addresses the dispute of playing from memory or with score and includes a brief historical overview of the matter. Several researchers' views regarding the mechanisms of memory, repetition and imagination as part of the musical performance process are also highlighted.

The work progresses by addressing a particular type of phobia, glossophobia, the fear of public speech, quite common in mundane life and similar to the stage fright musicians may confront themselves with. Finally, a case study based on my personal experience with stage fright is presented. Implications of the findings of the present work for musicians are discussed in the conclusion.

Keywords

Memory, Anxiety, Stage fright, Glossophobia, Piano recital

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Introdução

The following artistic project is a theoretical and practical approach to the way in which memory and stage fright affect musicians during their performances. Starting with a general psychological explanation, I tried to find as many examples as possible to support the idea that stage fright can be prevented or reduced by specific exercises. An overall awareness that fear is something natural and should not be considered a distressing feature emerges as one of the most important strategies to deal with stage fright. In addition to this, understanding how memory works may help musicians to understand the mechanisms of learning as well as to devise memorization strategies that may enhance their performances.

The first chapter synthetizes the concept of memory. It starts with its psychological definition, continues with an overview of how different researchers have approached the subject and finishes with an explanation of the mechanisms of forgetting.

The second chapter begins with a short general overview of fear. After this, it focuses on anxiety as a common mental health issue, on types of anxiety and on the way it might affect our daily life.

The third chapter creates the bridge between psychology and its application in musical performance. It describes a famous dispute, playing by heart *vs.* playing with score and includes a brief historical overview of the matter. To conclude, it highlights several researchers' views regarding the mechanisms of memory, repetition and imagination as part of the musical performance process.

The fourth chapter addresses a particular type of phobia, glossophobia, the fear of public speech. This type of fear is common in mundane life and represents a fear similar to the stage fright musicians may confront themselves with. From giving a psychological explanation and methods of coping with it, I have gone one step further by presenting several testimonials from famous artists.

The fifth and sixth chapters present a case study based on my personal experience with stage fright and explore some turning points in my musical career. I chose to give these particular examples in order to sustain my point of view regarding the lack of information and application of knowledge about stage fright and memory I observed in the musical educational system.

Finally, the conclusions sum up the aforementioned topics and discuss some of the limitations and strengths of the present work as well as implications for future research, trying, at the same time, to offer some views on what new methods could be implemented in order to help musicians dealing with performance anxiety.

1. MEMORY

1.1. THE CONCEPT OF MEMORY

Human memory is a complex and multifaceted entity that has interested researchers for millennia. According to Tulving[1] and Craik[2] (2000) it is not surprising, since memory represents a key psychological process, allowing us to re-experience events from our past which may have taken place hours, days, months or even many years ago. Memory is also on the basis of key psychological and behavioral processes such as perception, language and movement. And, as the authors argue, memory is also crucial for our sense of consciousness or personal identity.Tulving and Craik define memory as the ability to recollect past events and to bring learned facts and ideas back to mind. However, Tulving and Craik acknowledge that an adequate definition of memory must necessarily incorporate other aspects such as conscious and non-conscious aspects of memory. Additionally, the authors argue for the importance of gaining a deeper understanding of the neural components of the different elements of memory (such as acquisition, storage and retrieval), thus adopting a cognitive neuroscience perspective on memory. Having these definitions as a starting point, memory can be considered according to two categories: it is a process and an outcome. The process through which the brain can store information (storage) and the process through which information can be accessed at particular times (retrieval). Without this faculty, social beings would have a hard time adapting and living functional lives. More, socialization would not exist either, because human beings would not be able to learn and remember social rules, customs, rituals, places or time. Without memory, the world would be a great chaos, with creatures running around disoriented.

[1] Endel Tulving (born May 26, 1927) is an Estonian-born Canadian experimental psychologist and cognitive neuroscientist whose research on human memory has influenced psychological scientists, neuroscientists, and clinicians. He helped separate declarative memory into two distinct parts.

[2] Fergus Ian Muirden Craik (born 17 April 1935) is a cognitive psychologist known for his research on levels of processing in memory.

1.2. THEORETICAL OVERVIEW OF THEORIES ABOUT MEMORY

Since the work of Ebbinghaus[3], the pioneer of memory studies, scientists have been preoccupied with the most adequate way to study memory. Ebbinghaus proposed to study memory processes according to the most rigid precepts of experimental studies in the aseptic laboratory environment. Ebbinghaus performed several tests on his own memory examining his ability to retain lists of nonsense syllables, such as zup and rif, as well as through meaningless trigrams (like sat, ter, feh, qil). He used these odd stimuli in order to make sure that he had memory materials with no previous associations and that he could study how learning proceeded when there was no chance of influence from prior knowledge. He then analysed all his recorded data to find the exact shape of the forgetting curve (Gleitman[4], Reisberg[5] and Fridlund[6], 2011). He found that forgetting is exponential in nature. As it can be seen in figure 1 below, at the beginning the retention of information is 100% since this is exactly the point in time when the piece of information is learned. The retention drops sharply down to around 40% in the first couple of days. It can also be seen that the forgetting curve is exponential: in the first days the memory loss is biggest, later (as can be seen in the right hand side of the forgetting curve) the information can be forgotten but the rate at which one forgets is much, much slower. The forgetting curve clearly shows that it is in the first period after learning or reviewing a piece of information we forget the most. According to Ebbinghaus humans start losing the memory of learned knowledge over time, in a matter of days or weeks, unless the learned knowledge is consciously reviewed time and again.

[3] Hermann Ebbinghaus (January 24, 1850 – February 26, 1909) was a German psychologist who pioneered the experimental study of memory, and is known for his discovery of the forgetting curve and the spacing effect. He was also the first person to describe the learning curve.

[4] Henry Gleitman (January 4, 1925 – September 2, 2015) was a *Professor Emeritus* of Psychology at the University of Pennsylvania.

[5] Daniel Reisberg is an American academic who is Professor of Psychology at Reed College in Portland, Oregon. His specialty is cognitive psychology, and he focuses on memory, judgment, and imagery, particularly in relation to emotion.

[6] Alan J. Fridlund is a social and clinical psychologist whose interests lie in human ethology (especially nonverbal communication), neuroethology, psychopathology, and sexology.

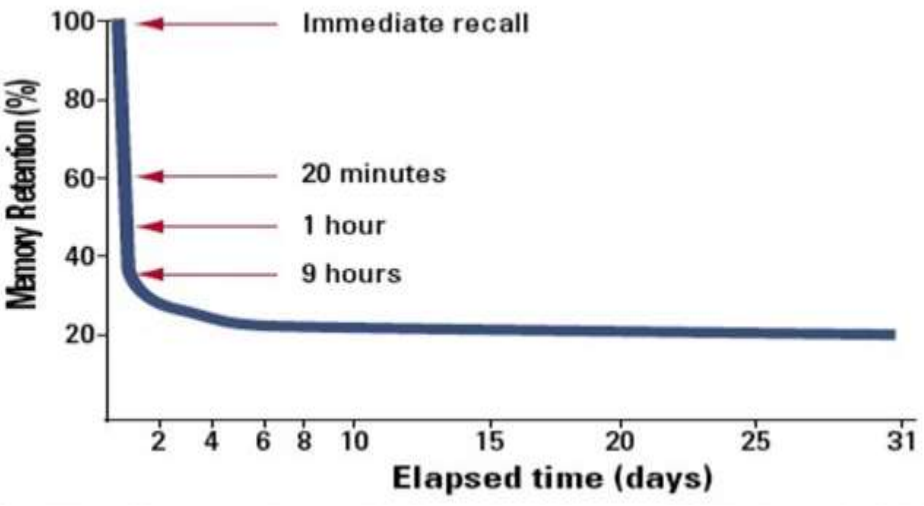

Figure 1 - Ebbinghaus Forgetting Curve. *Retrieved from https://peakmemory.me/2013/06/29/hermann-ebbinghaus-and-the-forgetting-curve/*

Ebbinghaus published his findings in 1885 in his book *Über das Gedächtnis (Memory: A Contribution to Experimental Psychology)*. His book was groundbreaking for besides the forgetting curve, Ebbinghaus also addressed other important aspects of memory, such as the serial position effect or the primacy and recency effect. His main contribution, however, was to demonstrate how the scientific method could be applied to the phenomena of memory. Nearly fifty years later, Bartlett[7] proposed a different view of memory as a tool for adapting to the environment and mastering reality. The subjects were presented with stories that had a meaning, in a natural context, to highlight the characteristics of memory as an adaptation tool. It was highlighted that the subjects, remembering their own stories, showed a tendency to perform transformations in line with expectations based on previous knowledge and experiences. As Gleitman, Reisberg and Fridlund (2011) describe, Bartlett presented British subjects stories from Native American folklore. Many elements of these stories were strange to the participants. When they recollected the stories, the tales became less strange. Bartlett saw that parts of the tales that had made no sense to them (such as the super natural elements) *either were left out of their recall or were reinterpreted along more familiar lines. Similarly, participants often added elements so that plot events that had initially seemed inexplicable now made sense to them* (Gleitman *et al.*, p. 341). In this way, Bartlett proposed that people have schemata, or unconscious mental structures, that represent an individual's generic knowledge about the world. It is through schemata that old knowledge influences new information. Bartlett's idea shifted the concept of memory from being a deposit.

[7] Sir Frederic Charles Bartlett (20 October 1886 – 30 September 1969) was a British psychologist and the first professor of experimental psychology at the University of Cambridge. He was one of the forerunners of cognitive psychology as well as cultural psychology.

Indeed, this was a turning point in the research on memory, which started to be looked at as a process. This perspective considers that any act of remembering requires success at three aspects of the memory process: encoding (the way a memory item is placed in memory), storage (the encoding experience leaves a register in the mental system) and retrieving (moments of recalling or recognition). In other words, first we need to learn something; we need to put something into the memory. As Gleitman *et al.* (2011) argued, although this seems obvious the point deserves a mention because most memory failures are, in fact, failures in the initial acquisition process. To be remembered an item must have some record in the nervous system, must be stored. This record, nowadays known as the memory trace is held in some enduring form to be used later. The final part of the process is retrieval, the process through which one extracts information from storage and uses it.

Some contemporary authors have resumed the concept of engram, invented in 1908 by Semon[8], defined as a trace in memory that stores a certain content of information. It is a permanent change in the nervous system following an experience. The engraver is the second of the three phases that the author used to describe the daily memory processes. The first phase described by Semon was named engraft, referring to the encoding of information in memory, while the third phase was named ecphoria, referring to the way the memory can be recovered. The importance of this conceptualization lies in the fact that not only the intensity of the trace is emphasized in the mind of an individual, which can be attributed to the importance of the respective experience, but also in the recovery processes. Thus, according to this view, an experience is encoded, but the fact that it can be brought back into consciousness and can become part of explicit memories or, on the contrary, remain in the patrimony of implicit knowledge depends on how recoverable is the process of recovery (Craik and Tulving, 1975).

These concepts have been recovered by Tulving (1993), which considers ecphoria as the correspondence between factors related to the external or internal environment (an odor or emotion) and the mnemonic representation that leads to the reactivation of the memory in an explicit form. In this conceptualization, the idea of importance of states of mind, emotions, in the encoding and recovery processes is outlined. Therefore, it seems that individuals possess a knowledge patrimony that, on the basis of certain stimuli, can be brought back into consciousness and lived and narrated by them according to their state characteristics and mental schemes.

[8] Richard Wolfgang Semon (22 August 1859– 27 December 1918) was a German zoologist and Schacter evolutionary biologist, a memory researcher who believed in the inheritance of acquired characteristics and applied this to social evolution. Semon anticipated numerous modern theories and created one of the best known terms in the memory literature, engram.

Atkinson[9] and Shiffrin[10] (1968) proposed a structural Multi-store Model of memory proposing that memory consisted of three stores: sensory memory (SM), short-term memory (STM) and long-term memory (LTM). According to the authors the information passes from store to store in a linear way. Sensory memory is the information you get from your sense, your eyes and ears. When attention is paid to something in the environment it is then converted to short-term memory. If any information is not important then it decays or disappears (forgetting). Once in the short term some of the information is rehearsed and then passed into long term memory. Each store has its own characteristics in terms of encoding, capacity and duration. For instance, the sensory memory has a very short duration (*ca*. ½ second) and very little capacity of storage. Its encoding process is related to our senses. The short-term memory has a limited duration (*ca*. 18 seconds), very little capacity (*ca*. 7 +/- 2 items) and an encoding process that is mainly acoustic. The Long Term Memory has an unlimited duration, an unlimited capacity and the encoding process is mainly semantic (although it can also be visual or acoustic). Figure below shows a scheme that resumes this Model of Memory.

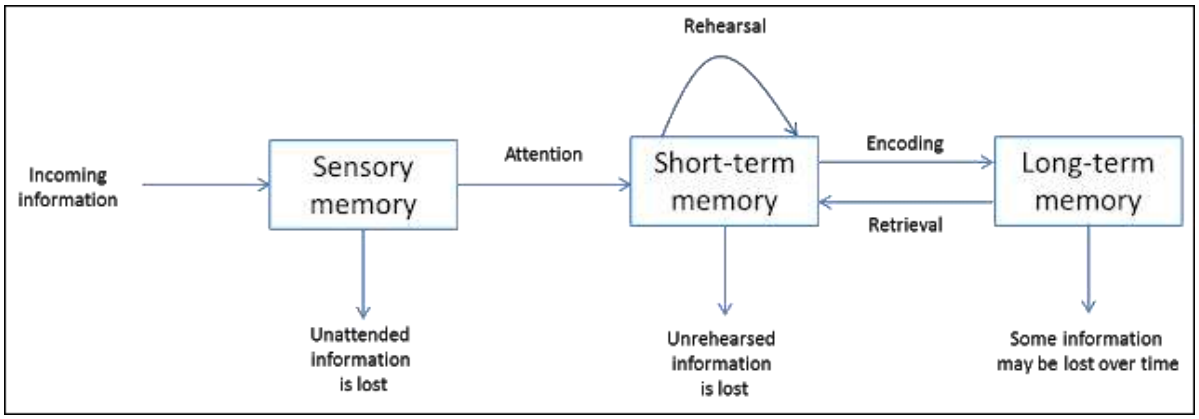

Figure 2 - Atkinson and Shiffrin's Multi Store Model of Memory *(1968). Retrieved from simplypsychology.org*.

The main advantage of this model is that it gives us a good understanding of the structure and process of the STM and researchers could do experiments to improve it and make it more valid in order to demonstrate what the stores actually do. Indeed, nowadays it is known that both short-term and long-term memory are more complicated than previously thought.

[9] Richard Chatham Atkinson (born 19 March 1929) is an American professor of psychology and academic administrator.

[10] Richard Shiffrin (born March 13, 1942) is professor of cognitive science in the Department of Psychological and Brain Sciences at Indiana University. Shiffrin has contributed a number of theories of attention and memory to the field of psychology.

Baddeley[11] (1986) proposed a working memory model, replacing the idea of a unitary Short-term memory. He suggested a system involving active processing and short-term storage of information with three key features: the central executive, the phonological loop, and the visuospatial sketchpad. Since then, the concept of working memory has become increasingly complex and Baddeley (2001) proposed a fourth component of the working memory system, the episodic buffer.

So, the four components are:

(1) Central-executive, resembling an attention system deals with any cognitively demanding task. It is the most important component and uses the phonological loop and the visuo-spatial sketchpad for specific purposes.

(2) The phonological loop holds information in a phonological form (speech-based) and preserves the order in which words are presented,

(3) The visuo-spatial sketchpad specialized in storing and manipulating visual and spatial information

(4) The episodic buffer, which is a temporary storage which is used to integrate and to store briefly information from the phonological loop, the visuo-spatial sketchpad or even the long-term memory (Eysenck[12] & Keane[13], 2000).

The four components of Baddeley's model of working memory and their interactions are shown in Figure 3.

[11] Alan David Baddeley (born 23 March 1934) is a British psychologist. He is professor of psychology at the University of York. He is known for his work on working memory, in particular for his multiple components model.

[12] Hans Jürgen Eysenck, was a German-born English psychologist who spent his professional career in Great Britain. He is best remembered for his work on intelligence and personality, although he worked in a wide range of areas within psychology.

[13] Mark T. Keane (born 3 July 1961) is a cognitive scientist and author of several books on human cognition and artificial intelligence.

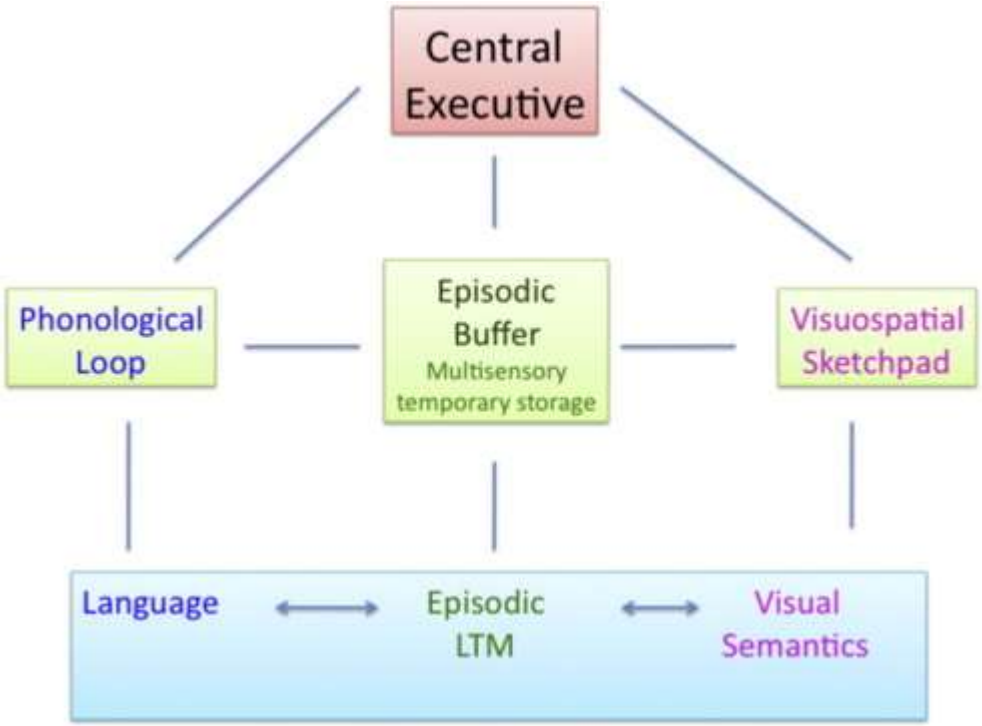

Figure 3 - Schematic diagram of Baddeley's Model of Working Memory. *Retrieved from researchgate.net*

Craik and Lockhart[14] (1972) presented an alternative to theories of memory that postulated separate stages for sensory, working and long-term memory. Instead, the authors presented a framework that considered levels of processing the information. According to this framework, stimulus information is processed at multiple levels simultaneously depending upon its characteristics and on the depth of the processing. The deeper the processing, the more will be remembered. For example, information that involves strong visual images or many associations with existing knowledge will be processed at a deeper level. The theory also supports the finding that we remember things that are meaningful to us because this requires more processing than meaningless stimuli.

According to the authors we can process information in a shallow way or in a deep way. Shallow processing involves maintenance rehearsal (repetition to help us hold something in the STM) and leads to fairly short-term retention of information, whereas deep processing involves Semantic processing, a more meaningful analysis (e.g. images, thinking, associations etc.) of information and leads to better recall.

[14] Robert S. Lockhart is a professor in the Department of Psychology at the University of Toronto.

In sum, Craik and Lockhart, 1972 view focuses on the depth of processing involved in memory and predicts that the deeper information is processed, the longer a memory trace will last. The basic idea is that memory is really just what happens as a result of processing information.

According to Baddeley, Eysenck and Anderson[15] (2015), the concept of working memory is based on the assumption that a system exists for the temporary maintenance and manipulation of information, and that this is helpful in performing many complex tasks. In other words, the working memory acts as a form of mental workspace, providing a basis for thought, for reasoning, comprehension and learning. This approach has continued to prove productive for over 40 years.

As it was seen before, the short-term memory system was assumed to feed information into and out of long-term memory, a system (or systems) assumed to support the capacity to store information over long periods of time. Squire[16] (1992) proposes a distinction between explicit/declarative memory and implicit/non-declarative memory. The difference between the two is that explicit memory is open to intentional retrieval, whether based on recollecting personal events (episodic memory) or facts (semantic memory). For instance, when someone is asked what they had for lunch, the act of retrieving is intentional. When using implicit/non-declarative memory, by contrast, the person does not make an intentional retrieval because it is a type of retrieval of information from long-term memory through performance rather than explicit conscious recall or recognition. An example would be riding a bike. A person rides without explicitly recalling all the motor steps that are acquired and automatized. Indeed, if a person tries to explicitly retrieve them all may not make it to ride at all.

Another type of distinction within the Long-Term memory was proposed by Tulving (1993), who proposed a distinction between semantic and episodic memory. Semantic memory refers to knowledge of the world. It goes beyond knowing the meaning of words and extends to sensory attributes such as the taste of an apple. It also includes general knowledge of how society works like what to do when you enter a restaurant. Episodic memory is the capacity to remember specific single episodes or events. Hence, a given event can be registered in both types of memory a reason why Tulving (2002) argues that although semantic and episodic memory might possibly involve separate systems, they clearly interact.

[15] John Robert Anderson (born August 27, 1947) is a Canadian-born American psychologist.
[16] Larry Ryan Squire is a professor of psychiatry, neurosciences, and psychology at the University of California and a Senior Research Career Scientist at the Veterans Affairs Medical Center.

1.3. WHY DO WE FORGET?

To forget is an art, a necessity and a curse, all at the same time. It may seem a weakness of the human minds, a flaw of the almost perfect mechanism. We forget information that we need to pass exams, to get jobs, to make a good impression. It looks as if we forget in order to make space for new information. But does the brain function like that? Does it have a limited storage space? Do we from time to time need to clean the cache, history and cookies? And what about the times we forget traumatic experiences unconsciously as a form of protection?

As far as forgetting is concerned Kolitz (2019) reminds us the perspective of cognitive psychology. According to Adam Zeman, professor of cognitive and behavioral neurology, at the University of Exeter more commonly, we lose such memories transiently, because we are unable to 'locate' them a failure of retrieval rather than storage, which we can overcome by finding the right cue to bring the memory back to the surface. Another fact is that memory decays as a natural process over time. This is the reason why in the same site Talya Sadeh, professor of brain and cognitive sciences at the University of Negev sates that like colors that fade, memories decay over time.

Baddeley, Eysenck and Anderson (2015), differentiate incidental forgetting and motivated forgetting. According to the authors, incidental forgetting occurs without the intention to forget; motivated forgetting, on the other hand, refers to a broad term encompassing intentional forgetting as well as forgetting triggered by motivations, but lacking conscious intention.

As for traumatic events, the effects on memory seem contradictory. As a result of extremely important events, such as a disease or death, we notice that some people do not remember or have extremely confusing memories about the event and the reference period, or clear and recurrent memories of the traumatic event; others have false memories, and to others buried memories suddenly come to consciousness. People seem to remember their own truth about the facts, to reinterpret the information.

2. FEAR

Most of us have fears, ranging from banal ones, like fear of spiders or fear of being stolen, to fears that paralyze us, like fear of death or fear of an earthquake. All these fears affect us to a greater or lesser extent. However, fear is a survival mechanism that may prove necessary in certain situations because it prepares us to deal with the threat involved. The body's survival mechanism can trigger a real threat, such as a fire or a flood. Moreover, when fear is established, there is a certain stimulus, the release of the so-called hormone of stress, cortisone. It produces ravages in the immune system. Therefore, the mind is launching a fear program that, due to specific emotions, effectively exudes endocrine glands, with all the resulting consequences. As Coimbra (2015) described, in a perceived threatening situation to our integrity, physical symptoms such as increased heartbeat and breath, tunnel vision, dry mouth, sweating or loss of concentration and memory, may occur. All of them are beneficial to deal with threatening situations because they prepare the body for action (fight-flight emergency reaction; see Wilson and Roland, 2002 for a more detailed description).

Problems arise when fear exists only in the person's imagination. Because even if it is imagined, it is perceived, the emergency reaction is activated. In fact, when fear occurs, the individual in question can no longer simply coordinate to overcome the real or imaginary danger. You can read an article about an earthquake, and the mind will have the tendency to create all sorts of related scenarios, all imaginable, explains psychologist Stelian Chivu[17](2017).

Chivu calls for the interest in remembering the effect of horror movies on the mind. To control fear, you need to become aware of it and "get friends" with it. This is not to give in to fear, but to learn to overcome it gradually through simple actions. For example, if you are afraid of heights, you may go to a mountain, but you will only climb to where you feel safe. After a while, you will resume action and climb a little higher until you can overcome your fear of heights. Strategies range from cognitive strategies, to more physical strategies (such as breathing exercises, or physical activity, to the use of several prescribed drugs such as anxiolytics, beta-blockers or stimulants. Whatever the strategy used, this should be defined by a specialized professional. In the end, according to Chivu (2017) it is important to come up with a positive emotional program in front of a negative psychic program and by doing so fear gradually integrates to the point where it disappears.

[17] Stelian Chivu is a Romanian contemporary psychologist.

2.1. ANXIETY

Anxiety is a close phenomenon to fear. However, where fear is more raw and stimulus bound (e.g., we fear the dark, flying, or public speaking) with a more physiological response, anxiety is more cognitive (e.g., worrying), future-oriented, and can be diffuse (i.e., we can feel anxious but not really be sure about what). Nevertheless, they go together because at their root evolutionary function, both fear and anxiety are about identifying threats and avoiding them.

Although animals like dogs can clearly experience both fear and anxiety, humans have a reflective sense that makes emotions particularly complicated. The reason that it gets complicated is that our reflective self can have thoughts and feelings about our feelings.

Consider, for example, if you have a public speaking fear, which is one of the most common fears there is. So, there you are, the day before the big talk, imagining giving your talk in front of a rather large audience. The anxiety and fear begins to take hold. And then what? Your reflective self remembers how much your anxiety disrupted your last talk and gets frustrated and fearful that the public speaking anxiety will again interfere. So, now you have two problems. You have the fear. And the fear of fear.

Indeed, Leigh McCullough[18], Kuhn, Andrews, Kaplan, Wolf and Hurley (2003) argued that one of the most common themes for people who have emotional (and relational/identity) problems is that they develop an affect phobia — a fear of negative feelings. When people develop this, they are very vulnerable to vicious negative emotional cycles, because not only is the primary affect system activated in a negative way, but also the reflective system is blaming, and trying to suppress those feelings. This means the whole system is tied up in knots and the original emotions cannot be processed in a healthy and adaptive way.

Anxiety as the human emotion experienced by all people at one point is a normal and fleeting state. Anxiety disorders, however, are different from adaptive fear or adaptive anxiety because they are excessive or they persist beyond appropriate periods. The symptoms of fear and anxiety may degenerate into panic attacks, a situation in which we are already talking about emotional distress. Panic attacks are a particular type of response to fear (American Psychiatric Association, 2013). Symptoms include feelings of fear and anxiety, plus palpitations, stress and sweating.

[18] Leigh McCullough (June 5, 1945–June 7, 2012) was an American psychotherapist, researcher and pioneer of short-term dynamic psychotherapy (STDP). Her treatment model focused on the learned fears of experiencing certain emotions, or what she called affect phobias.

According to Oana (2019), anxiety can be classified as follows:

- Phobias;
- Panic disorder;
- Obsessive-compulsive disorder;
- Acute Stress Response;
- Post-traumatic stress disorder;
- Generalized anxiety

Phobias are an irrational fear that causes the person to avoid certain objects, events and situations that are not a real danger. It may start in childhood or adolescence and often continues to maturity. They are twice as common in women as men.

An obsessive-compulsive disorder is an anxiety disorder in which the person tries to control fear through rituals that reduce anxiety. Frequently appearing images or upsetting thoughts are called obsessions, and rituals (mental or behavioral) to prevent them or to remove them are called compulsions, such as excessive hand washing or excessively frequent showers. A panic disorder is characterized by chronic, repeated and unexpected panic attacks. These attacks are crises due to very strong fear of danger, although there is no reason for this fear. After a panic attack the person affected is always afraid of the time and place where a new crisis might arise. Panic attacks can accompany several types of anxiety disorders, not just panic disorder. The most common symptoms of panic attacks are strong heartbeat, sweating, trembling, shortness of breath, feeling of suffocation, nausea or abdominal pain and dizziness or confusion.

Post-traumatic stress disorder involves exposure to a trauma in which the person experienced a series of intense feelings: fear, helplessness and horror. Rape, war related events, road accidents and natural disasters are common causes of this disorder. The triggering event may be one in which the life of the affected person or of a closed one has been endangered. Perhaps the most serious form of anxiety is the generalized anxiety disorder: excessive anxiety or worries about everyday life events but with no obvious cause for concern. People affected by generalized anxiety are always awaiting disaster - they are constantly concerned with family, work, school, money, health. And things would not be so serious if this concern would not be unrealistic, always taking much greater proportions than required by the reality. In addition to this, people with generalized anxiety might also feel fatigue, insomnia or tiredness when awakening from sleep, restlessness, irritability, irritability, concentration and memory problems, generalized pain or muscle strain.

Oana (2019) also reminds us that anxiety is increasingly present among us - about 25% of the population suffers from anxiety that would require treatment over a certain period of their lives and 25% have less severe anxiety (eg. fear of mice or spiders). According to the author, anxiety may be caused by:

- Hereditary factors - your family history may make you more prone to anxiety disorders than other people
- Brain chemistry - if the neurotransmitters (chemical messengers) are not in balance, the messages cannot be transmitted to the brain properly and thus changes the way the brain reacts in certain situations
- Environmental factors - stressful events, trauma or the use of addictive substances (alcohol, caffeine, nicotine).

Finally, it should be noted that anxiety can be generated or aggravated by conditions or conditions such as:

- Asthma
- Post-traumatic stress disorder
- Several types of medication
- Depression

3. MEMORY AND MUSIC

3.1. PLAYING BY HEART *VS.* PLAYING WITH SCORE

Over the years I have observed that the rigid protocol in classical music whereby solo performers, especially pianists, are expected to play from memory seems finally to be loosening its hold. In September 2016 I went to a concert in the Museu Nacional de História Natural e da Ciência in Lisbon to listen to Ivo Pogorelich[19]. He played works from Chopin, Schumann[20], Mozart[21] and Rachmaninov[22] with score and with a page turner. Even though I was educated to believe that the best concerts would be played from memory, this particular one was a turning point, since I qualified it as the best I have ever attended. From that moment, I started to wonder whether this was a cultural imposition of the piano performing etiquette. In addition to this, it is accepted that pianists nowadays play contemporary music with a score. So, it led me thinking that what matters, or should matter, is the quality of the music making, not the means by which an artist renders a fine performance. This also seems to be the argument of Stephen Hough presented in an interview to Kubik (2018*)* arguing that the most important aspect is to play our best, whether we really play our best with a score in front of us – or these days an iPad in front of us.

In earlier eras there was composed music, which was always played from the score, and there was improvised music. Since performers were almost always composers as well, for a pianist to play a piece from memory would have been considered the height of arrogance, as if the pianist were suggesting that he had composed the piece. So, why play a piece by heart? There is, of course, a strong result on the audience: a program performed by memory leaves an impression of great mastery. As for the performer, memorization allows an in-depth, analytical approach of the piece, which can feed the interpretation. Also, detachment from the score avoids the presence of a page turner who may, in extreme cases, jeopardize the entire recital, should he get lost in the score or accidentally flip many pages. By contrast, some musicians also have good reasons to keep reading the score: it allows them to avoid fear of memory gaps or to save precious hours trying to integrate the score to perfection. Stephen Hough[23] on the interview given to Kubik (2018) claimed that if on the one hand it is useful to memorize a work because it actually leads to a deeper

[19] Ivo Pogorelić (also Ivo Pogorelich; born 20 October 1958) is a Croatian pianist born in Yugoslavia.
[20] Robert Schumann (8 June 1810 – 29 July 1856) was a German composer, pianist, and influential music critic.
[21] Wolfgang Amadeus Mozart was a prolific and influential composer of the classical era. Born in Salzburg, Mozart showed prodigious ability from his earliest childhood.
[22] Sergei Vasilyevich Rachmaninoff (1 April 1873 – 28 March 1943) was a Russian composer, virtuoso pianist and conductor of the late Romantic period, some of whose works are among the most popular in the Romantic repertoire.
[23] Stephen Andrew Gill Hough (born 22 November 1961) is a British-born classical pianist, composer and writer.

knowledge and understanding that feeds the performance on the other hand during the performance it really does not matter if the musician reads the score or an iPad on the music stand.

Let us take the example of theatre (in the most classical way of understanding it and excluding post-dramatic theatre, performance or documentary theatre). An actor cannot appear on stage with the script in his hands, since it will dissolve the fiction that he is trying to create, hence the existence of prompters. However, music itself transports the listener to a fictional universe. As long as the musician does not distract in any way the attention of the listener from the music, there should not be any problem about how the musician chooses to play. As well as in music, actors are often praised for their great memory and the audience tends to disregard the technique or the struggle to reach those levels of emotion.

If we look back historically attending cultural events was mainly an opportunity for people to socialize. So, in my view, we should be forever grateful to Richard Wagner[24] for turning off the lights at the concert hall of Bayreuth[25], a game changing moment for the artistic world. Furthermore, I believe that especially nowadays, when we have access to so many types of cultural events, so many new aesthetics and new musical experiences, we could let go of these old ways of looking towards the artist. If, in order to keep up with all this an artist needs to make some choices, it should not be up to us, the audience, to judge those choices. Whether a musician plays by heart or with a score, should not influence in any way our perception of the musical message. And most of all, the audience should not expect the artist to perform in ways that feel unnatural to him, just for the sake of avoiding criticism.

Perhaps this is why Stephen Hough stated in the same interview to Kubik (2018, para 18) that:

> *When the obligation to play by heart can dissuade a musician from tackling a piece he considers too complicated, it's obviously not a good thing. Neither should it be a goal in itself. Spending full hours trying to memorize a work, while you can broaden your musical knowledge in other ways, is useless. Of course, memory at age 40 is not the same as at age 19, but this should not prevent artists from continuing to perform. Be gentle with yourself; don't kill your talent while it's still burgeoning. But do not take shortcuts either: memorize the work as if you had to play it by heart, and on D-day, if*

[24] Wilhelm Richard Wagner (22 May 1813 – 13 February 1883) was a German composer, theatre director, polemicist, and conductor who is chiefly known for his operas (or, as some of his later works were later known, *music dramas*).

[25] The Bayreuth Festspielhaus or Bayreuth Festival Theatre is an opera house north of Bayreuth, Germany, built in the 19th-century dedicated solely to the performance of Wagner's stage works.

you feel that you will be at your best by keeping the score open, don't hesitate to leave it on the music stand.

3.2. BRIEF HISTORICAL OVERVIEW

A brief review of this practice's history tells us it is not that old. It is said that when a student wanted to play a piece of music by heart, Chopin[26] (1810 - 1849) would get angry and accuse him of lack of consideration for the composer. For Chopin and his peers, playing by heart was considered as improvising. No longer referring to the score was a sign that the performer was taking ownership over the score (Kubik, 2018).

The 19th century is the century when musical events start to get off the hidden stages of the aristocracy and become public events held in concert halls. This allows a larger audience to assist to the events. In the light of these changes, virtuosity was born. Many soloists would come out, but two of them would stand out: a violinist - Niccolò Paganini[27] (1782 - 1840), and a pianist - Franz Liszt[28] (1811 - 1886). In 1814 *The Allgemeine Musikalische Zeitung*, a well-known German music newspaper, reports the following after a Paganini concert:

> *He plays the most difficult passages in two, three and four voices using his own unique dexterity. He mimics wind instruments, exposes the chromatic scale in the highest register, very close to the bridge, with an almost unimaginable purity. He amazes his listeners with the most difficult passages played on one string and, as if to joke, pinches a bass accompaniment on the other* (Kubik, 2018, para 6).

Niccolò Paganini was the first to change the audience's perception of the soloist. Frederic Chopin wrote about him that: Paganini's mastery cannot be explained by human forces alone and that his art is not simply beautiful, it's an otherworldly wonder. So, it seemed that the audience attended not only to listen to, but also to admire the virtuosity of this soloist who played with their emotions.

After hearing Paganini play at the Paris Opera in 1832, Franz Liszt would be inspired to do the same on his instrument. Eight years later, in London, Liszt would invent the recital. He presented his own

[26]Frédéric François Chopin (1 March 1810 – 17 October 1849) was a Polish composer and virtuoso pianist of the Romantic era who wrote primarily for solo piano.
[27] Niccolò Paganini (27 October 1782 – 27 May 1840) was an Italian violinist, violist, guitarist, and composer. He was the most celebrated violin virtuoso of his time, and left his mark as one of the pillars of modern violin technique.
[28] Franz Liszt (22 October 1811 – 31 July 1886) was a Hungarian composer, virtuoso pianist, conductor, music teacher, arranger and organist of the Romantic era.

new vision of a soloist concert: the pianist plays Beethoven and Schubert's works alone, for a whole evening. Nevertheless, a few years earlier, in Berlin, this discreet revolution started happening with Clara Schumann[29] (1819 - 1896), playing Beethoven's *Sonata Appassionata* without the score. This performance was highly criticized and considered audacious by its audience. And it would be Liszt the one who legitimated this kind of performance. Franz Liszt was a brilliant composer and improviser. He played his own works, improvised, played other composers' works and all these by heart. For more than a century, the solo concert meant mastery of a work from memory and all musicians aspired to have the skills of Liszt (Bălan, 1963).

This of course made a few collateral victims on the side: some performers' memory gaps became legendary, while others could not handle the pressure and completely quit playing in public, such as Glenn Gould[30]. However, there were also those who, after several decades of a prestigious career, decided to ignore the music critics and played with a score, like Sviatoslav Richter[31] did in the last twenty years of his career (Monsaingeon, 1988).

3.3. MEMORY, IMAGINATION AND REPETITION

In music, everything is creation: composition, improvisation, rendering, and audition. Those who compose, who perform or interprets and who listen - are all actively involved in producing or perceiving the world of sounds. The basis of decoding music is memory and imagination.

In order to work properly with these notions, it is first necessary to specify the notion of time to which both terms relate. Music is, by all means, an art of time, because sound events take shape as they are born. As Igor Stravinsky[32] claimed that *the exclusive function of music is to structure the flow of time and maintain its order* (Szamosi, 1986, p.332). We perceive the sounds and rebuild them according to our receptive capacity and active memory support. Memory is involved during audition, to anticipate the progress of music over time and after the audition, to frame its structure and remember it.

[29] Clara Schumann (13 September 1819 – 20 May 1896) was a German musician and composer, considered one of the most distinguished composers and pianists of the Romantic era.
[30] Glenn Herbert Gould (25 September 1932 – 4 October 1982) was a Canadian pianist who became one of the best-known and most-celebrated classical pianists of the 20th century. He was renowned as an interpreter of the keyboard works of Johann Sebastian Bach.
[31] Sviatoslav Teofilovich Richter (March 20 1915 – August 1, 1997) was a Soviet pianist of Russian-German origin, who is generally regarded as one of the greatest pianists of the 20th century.
[32] Igor Fyodorovich Stravinsky (17 June 1882 – 6 April 1971) was a Russian-born composer, pianist, and conductor.

Musicologists such as Carl Dahlhaus[33], Hans Heinrich Eggebrecht[34] or Jonathan D. Kramer[35] highlighted the distinction between absolute time, that is, the chronological time occupied by the composition from the beginning to the end, and the musical time, that is, the time when a piece is presented or evoked. Musical time is formed within the time of listening, in accordance with the expressive needs of music, with forms of rhythmic and thematic organization, which allow the listener to anticipate what will follow (Dahlhaus and Eggebrecht, 1988).

The way of ordering time in music is entrusted to the rhythm. In tonal music, a metronome or a clock scans a sequence of equal pulses. In music, the meter determines the frequency of a defined pulse number through the recurrence of an accent. In the case of a binary meter, the emphasis is on every two pulses, in the case of a ternary, every three pulses and so on. The measure is the distance between the accents and contains the pulsations along with them. The dialogue between time and pace mentioned above creates a directionality and interaction that can facilitate audition. Despite the multitude of ways to interpret this notion, we need to agree with Stravinsky that time is the ordering principle of human experience: *The phenomenon of music is offered to us with the sole purpose of establishing a certain order in things, including, in particular, coordination between man and time* (DeLone, 1975, p.54).

Therefore, the composition of music involves a connection, an order, between the subject that creates and enjoys the musical product, and the time, the creative dimension during which the musical discourse unfolds. Once the meaning of time in the music has been clarified, it is easier to deal with the memory issue, which tracks the memory and is directed to the past, and the imaginative issue, which looks at the image and is directed to the future.

As it has seen before in this work, memory consists of assimilating, retaining and retrieving previously learned information. It is an active process, a dynamic reconstruction pathway, linked to cognitive or emotional factors. The most functional paths of memory retention are the repetition and the depth of processing, given that new information is connected to that already known, whether it has emotional significance or an intrinsic clarity and ordering that makes it easy to understand. Finally, attention is extremely relevant as the ability to determine the reception of the message, both globally and in its specific elements.

[33] Carl Dahlhaus (June 10, 1928 – March 13, 1989), a musicologist from (West) Berlin, was one of the major contributors to the development of musicology as a scholarly discipline during the post-war era.
[34] Hans Heinrich Eggebrecht (born January 09, 1919 – August 30, 1999) was a German musicologist. He was professor of historical musicology at the University of Freiburg.
[35] Jonathan Donald Kramer (December 7, 1942– June 3, 2004) was an American composer and music theorist.

Thus, a composer will have to consider what has been said before if his intention is to allow the audience to remember what they are listening to. In fact, according to Cecca (2018), a musical work normally remains in people's imagination if:

- It is characterized by repetition, in the form of variation and development
- It is written in a language already known or otherwise intelligible in its clarity of exposure
- It has a beginning and an end that affects emotionality
- It has the ability to keep the focus focused without interruption, continuously providing items of interest that do not allow the auditor to be distracted or to move away from the sounds.

Also, for Cecca (2018), in music memory can be considered in many ways. The most significant ones in the context of this analysis are the following:

- The manner in which musical parameters are processed that allows us to remember them and put them into practice (the physiological memory)
- The impression and feelings awakened by those who compose, interpret or listen to it (psychological memory)
- The amount of individual memories referring to the same event, in particular the folklore of a particular country (collective memory)
- The past of tradition seen as a sum of coded structures and formulas found in artworks, which is the repertoire (historical memory).

Finally, Cecca (para 23) also claims that imagination is the essence of the creative perception of music and reminds us of Baruch Spinoza[36], who devoted his attention to imagination, arguing that:

> *Since nothing is ever presented to the minds but in the form of perceptions, and since all the thoughts derive from what was once presented in the mind, it appears that it is impossible for us to conceive or to form an idea of a particular thing having another origin than ideas or impressions. No matter how much we set our attention outside of us, however much we push our imagination to the heavens or to the limits of the universe, it is true that we cannot step outside of us even with one step, nor can we conceive any kind of existence, without those perceptions that have appeared in our*

[36] Baruch Spinoza (born Benedito de Espinosa, Portuguese; later Benedict de Spinoza; 24 November 1632 – 21 February 1677) was a Jewish-Dutch philosopher of Portuguese Sephardi origin. One of the early thinkers of the Enlightenment and modern biblical criticism, including modern conceptions of the self and the universe, he came to be considered one of the great rationalists of 17th-century philosophy.

limited content. This is the universe of imagination; we have no idea of our own, apart from the ones produced.

According to Spinoza's vision, there are three functions of imagination: metaphysical, artistic and scientific. For us, the most important exposure is obviously the artistic one, represented by the ability to reproduce new ideas by reorganizing, simplifying or creating connections between previous impressions. Imagination enables the interaction between the work of art, the audience and the situation that determines the actually re-elaborated perception of the auditory phenomenon.

According to Elvira Brattico[37], Pauli Brattico and Thomas Jacobsen[38] (2009) the key to musical audition is essentially defined by three factors:

- The emotional factor (the power to move or create certain states)
- The hedonistic factor (determines pleasure or repulsion)
- The aesthetic factor (the reference to cultural and artistic standards that are taken as a model).

The last point exposes one of the main reasons for the difficulty of accommodating contemporary music: audience expectations are immediately defamed because of the removal of the "classical music" canons here understood exclusively as historical shortcuts. The gap created is very difficult to fill. An effort of obedience, understanding, and imagination is necessary to allow us to overcome those aesthetic categories we have become accustomed to. And because fantasy is immutable, it can be developed through personal, socio-cultural and artistic-musical deepening, which can in turn broaden our imaginary's references.

As a musician repeatedly practices the instrument to gain the ability to connect his mind and body (muscles) to his musical intent, so we all have to dedicate daily to our imagination exercise. For example, the composer should always be in touch with his creative and visionary side, which he should train and cultivate at all times. During his lifetime, Maurice Ravel[39] devoted six hours a day to musical composition, considering this not as a determined act of inspiration, but as an incessant search for solutions that can be found in an intense imaginative effort. Brattico *et al.* (2009) claim that the same process must also take place for the listener and that we must not admit, according to

[37] Elvira Brattico and Pauli Brattico are researchers at the Center for Music in the Brain, Department of Clinical Medicine, Aarhus University. Their current projects focus on Music Learning and Neuroaesthetics of Music and its Clinical Applications.
[38] Thomas Jacobsen is a German professor of experimental psychology and behavioral neuroscience at the Helmut Schmidt University.
[39] Joseph Maurice Ravel (7 March 1875 – 28 December 1937) was a French composer, pianist and conductor.

Protagoras of Abdera[40], that man is the measure of all things but rather to intensify the effort of imagination, the faculty that makes us human more than any other.

[40] Protagoras (c. 490 BC – c. 420 BC) was a pre-Socratic Greek philosopher. He is numbered as one of the sophists by Plato.

4. GLOSSOPHOBIA – FROM AN EVERY DAY ISSUE TO HOW IT AFFECTS MUSICIANS

4.1. GENERAL DESCRIPTION OF GLOSSOPHOBIA

Fear of talking to an audience (glossophobia) is part of the social phobia group and affects about 75% of people. Glossophobia manifests itself as a psychological and emotional blockage that occurs when the person is in a position to hold a public speech. For this reason, those who suffer from glossophobia face professional career barriers and have difficulty in dealing with them. However, studies show that people affected by glossophobia can easily carry out other activities to an audience, as long as they do not involve verbal communication. Although this phobia can develop during childhood, it may occur unexpectedly, especially during adolescence or in young adults (Smith, Segal and Segal, 2019).

The authors explain that phobias have a negative impact on everyday life, interfering with its activities. They can also contribute to reduce self-confidence by limiting work efficiency and, in extreme cases, can make social interactions more difficult. Although most people with phobias are aware that their fear does not have a rational basis, they often do not have the power to do something to keep it under control, and only in very few cases are able to eliminate it. Sometimes, just remembering the phobia object can lead to a strong state of anxiety.

Although the reason for the occurrence of glossophobia cannot be definitely named, one of the most common trigger factors is the response to a traumatic event through which the person concerned has passed. A common reason for people suffering from glossophobia is based on a lack of self-confidence and involves the fear of being laughable in front of an audience. Also, people who have been reared in a stricter environment are more likely to suffer from this social phobia.

Regardless of the cause of phobia, the symptoms are generally similar. However, their intensity is variable and can be perceived differently, starting with a mild state of anxiety and until the imminence of a panic attack. Symptoms of glossophobia usually intensify as the moment of speech approaches. These may be of two types: physical or psychological. Physical manifestations of glossophobia include:

- Difficulty in breathing normally
- Tachycardia
- Chest pain
- Abundant sweating
- Dizziness
- Trembling

- Nausea
- Loss of appetite, stomach pain
- Chills
- Headaches.

Psychological manifestations include:

- Panic and anxiety
- Feeling of self-detachment
- Fear, resistance, desire to avoid discourse.

4.2. HOW TO DEAL WITH GLOSSOPHOBIA

Since the fear of speaking publicly hinders the personal and professional fulfillment of those affected, it is advisable to treat it from the incipient stages. There are both specialized treatments and fear-fighting exercises that can be tried in a familiar environment (for example at home).

For those who are trying to control their own phobia, psychologists such as Smith *et al.* (2019) recommend that they follow a few steps:

4.2.1. Understanding and accepting fear

It is recommended that the person becomes aware of the problem and is able to see the irrational part of his fear. The most effective method of fighting a phobia is the gradual, repetitive exposure to the causal object. In the case of glossophobia, the individual is urged to keep small speeches, whenever possible and at any occasion. To practice fluidity in speech, the patient can start by speaking at home in front of a mirror. By repeating the experience, the person is helped to realize that the situation does not represent a threat or a danger, and with each attempt might gain more self-confidence, feeling that is able of controlling the situation. Psychologists also recommend that a list should be drawn up in which the person should list the situations in which he or she has to make a speech. It is advised to specify the main worries and fears, but also to list the benefits that doing the public discourse might bring.

4.2.2. Setting up a fear scale

If the simple idea of speaking publicly causes anxiety, a gradual approach is recommended, starting with a situation that the person can control and then progressing to the point where one feels control of the situation.

Examples of steps of the fear scale within the case of glossophobia can include:

- Tracking and analyzing speeches
- Writing a written speech
- Reading aloud the speech
- Reciting the speech in front of a mirror
- Reciting the speech in front of a group of known people

It is important to have gradual and repeated exposure, as the person gradually becomes accustomed to the idea of taking a speech.

4.2.3 Relaxation techniques

There are a number of relaxation techniques that can be tried at home to overcome the state of anxiety. However, these techniques do not prevent the installation of the phobic attack.

4.2.4. Breathing exercises

Before taking a speech or in case of anxiety caused by the idea of speaking in public, it is recommended to try some breathing exercises. At the moment of agitation, there is a tendency to breathe jerky, irregularly, without providing an optimal supply of oxygen. Serious cases can lead to hyperventilation, breathlessness, palpitations and tachycardia.

Steps to achieve a normal breathing rate:

- Keep comfortable, with a straight back, one hand on chest and one on the stomach
- Inspire by during four seconds
- Hold breath for seven seconds
- Expire for eight seconds, tightening the abdominal muscles
- Repeat the exercise for several minutes until the anxiety is diminished.

4.2.5. Progressive relaxation of the muscles

This relaxation technique helps to eliminate muscle tension by gradually moving from one muscle group to another. It is advisable to relieve this stress before taking a speech. To accomplish these exercises, the person adopts a comfortable position and gradually croaks and relaxes different muscle groups:

- Forehead muscles: lift the eyebrows wrinkling forehead for five seconds, then return to normal
- Eyes: close tightly for five seconds, and then relax
- Lips, cheeks and muscles that train the jaw: pull the tips of the lips outward and keep strained for five seconds
- The muscles of hands and arms: stretched forward, and hold the fists steady for five seconds, after which the elbows bend
- Shoulders: lift up to the ears, strain
- Dorsal muscles: In a horizontal position, the back is arched and curled for five seconds
- Abdominal muscles: bent for five seconds
- Legs: bend thighs, keeping legs as tight as possible, then pull ankles against body, holding fingers flexed.

Regarding specialized treatment, cognitive-behavioral therapy has proven to be very effective in diminishing phobic symptoms. It combines two different types of therapies: cognitive and behavioral. Cognitive behavioral therapy: it is generally used to treat depression and anxiety and involves a relationship of collaboration between the therapist and the patient. The psychologist collects information about the patient's personal history and works with him according to the individual needs.

In the case of glossophobia, the therapist works with the patient so as to find out the source of mistrust and to help the patient to better understand the fear of speaking in public (cognitive component). The Behavioral Therapy component is meant to provide suggestions and ways to solve the problems that could cause glossophobia.

Sometimes accompanying cognitive-behavioral therapy, a specific medication could be recommended.

- Administration of serotonin reuptake inhibitors - a group of prescription-only medicines for serious social phobias, panic attacks or major depression that affects serotonin levels in the brain. Examples of such drugs include Prozac or Zoloft.

- Beta-blocking drug administration - a group of prescription drugs that diminishes the physical symptoms of stress by influencing the activity of adrenaline and noradrenaline hormones in different tissues. Example of such drugs: Propranolol.
- Benzodiazepine: A group of prescription medicines for the treatment of anxiety or sleep disorders. They also improve feelings of fear or restlessness and facilitate adaptation to less favorable conditions. Example of such drugs include Diazepam, Napoton, Rudotel, Xanax.

In my opinion, performers should be better informed and should be aware that glossophobia is a common syndrome to all professionals who have to deal with being in front of an audience. Even though most of the time it is referred to as a fear of public speaking, performers, due to the nature of their public activity, may also equally be affected. By creating a general awareness regarding the subject, many types of negative behaviors (substance abuse, anxiety or depression, among others) can be avoided or, if they already exist, can be treated. Since it is an issue that I have been confronted with, I decided to make this research and to better understand its mechanism, rather than to fall into the trap of self-loathing and resentment.

4.3. MUSICIANS AND STAGE FRIGHT

Those who manage to enter the highly competitive field of classical music must have or indeed develop a wide range of physical and mental attributes in order to be able to deal with the physical and mental requirements of public performance. These include cognitive and social skills, motor-specific abilities but also determination and resilience, not to mention the ability to manage their time and to be responsible for their physical and mental health. Whilst musicians are ranked high in high-skilled level of professional satisfaction, they are also among the top five groups that have a high degree of risk and predisposition to mental illness.

According to a poll conducted on about 2000 professional musicians, the largest sample so far, conducted at the International Symphony Conference and Opera Operators (Fishbein, Middlestadt, Ottati, Strauss and Ellis, 1988) 24% of the participants suffered from stage fright, 13% reported acute anxiety and 17% reported depression. The highest levels of performance anxiety were generally triggered by solo performances, while orchestral musicians have rated auditions as the most stressful. It seems that musicians are preparing their lives to be able to successfully perform various musical pieces in front of the audience. Many of them, however, are in constant struggle with the deadly enemy of their career: stage fright.

Research shows that people who have performance anxiety are a lot more reluctant than those with generalized social phobia, regarding seeking treatment / therapy. These findings are valid even in the U.S. and in Germany, where services for mental health are free. There may be some features of the personality of the musicians affected by performance anxiety (introversion and lack of social abilities) that sabotage their attempts to seek appropriate treatment. The results of a study that investigated stress and adjusting styles of musicians showed that when they have difficulties related to musical interpretation, students seek support from friends in the first place, followed by teachers and thirdly by their family. Specialist's help (e.g., psychologist, social worker, psychiatrist) was the most rarely requested.

Aliette de Laleu (2017) highlights Scimeca's[41] description of stage fright as *the nervousness a person feels before performing which paralyses them and seems to prevent them from facing a unique situation (para 1)* and reminds us that stage fright has affected thousands of musicians including top professionals like Glenn Gould[42], Renée Fleming[43], Vladimir Horowitz[44], Frederic Chopin or Leopold Godowsky[45].

Sarah Steffen (2011), in an article presented to the newspaper *Made for Mind* presents the psychiatrist Deirdre Mahkorn[46] from the University Hospital in Bonn who treated 45 musicians suffering from stage fright. Some of the psychotherapist's patients simply stuck and failed to get their interpretation done because of the stress and pressure they were subjected to on stage. Others, even if they have not experienced unpleasant experiences so far, live with the fear that something bad will happen. According to Mahkorn the physical and mental requirements involved in the study and interpretation, the permanent competition and evaluation of the career and the pressure and expectations of family and teachers are factors that augment the musicians' vulnerability to anxiety. She explained that many patients come from families with high professional ambitions and that the idea that they must be the best has been imprinted since they started studying an instrument. Mahkorn also argued that stage fright is a taboo subject among the musicians. Although many face

[41] Daniel Scimeca, *Knight of the National Order of Merit*. He is President of the Syndicate of Homoeopathic Medicine (SMH). Director of Teaching at the Medical Society of Biotherapy (SMB). Secretary General of the French Collegiate Union of Surgeons, Doctors and Specialists (UCCMSF).

[42] Glenn Herbert Gould (25 September 1932 – 4 October 1982) was a Canadian pianist who became one of the best-known and most-celebrated classical pianists of the 20th century.

[43] Renée Lynn Fleming (born February 14, 1959) is an American opera singer and soprano. Fleming has a full lyric soprano voice. She has performed coloratura, lyric, and lighter *spinto* soprano operatic roles in Italian, German, French, Czech, and Russian, aside from her native English.

[44] Vladimir Samoylovich Horowitz (October 1, 1903 – November 5, 1989) was an American classical pianist and composer born in the Russian Empire.

[45] Leopold Godowsky (13 February 1870 – 21 November 1938) was a Polish-American virtuoso pianist, composer and teacher.

[46] Deirdre Mahkorn, Consultant Psychiatrist on Stage Fright.

this problem, no one wants to publicly acknowledge this, much less the fact that they are being treated. If the problems faced by artists, such as traction or anxiety, are made public, musicians feel that may be bypassed by the show organizers.

The Bonn Cabinet is not the only in Germany to deal with musicians anxiety problems. According to Claudia Spahn (2011) head of the Freiburg Institute for Music Medicine, in the same interview to the newspaper *Made for Mind* given to Sarah Steffen, artists are forced to bear the burden of a very competitive profession. She refers that at the auditions instrumentalists have to compete with hundreds of candidates for a position in the orchestra and that in those cases it is necessary to look for an optimum physical and mental state. Especially because they only have a few minutes and a single chance to prove they are the best. Usually when patients arrive at a psychotherapist, they have already exhausted over the years some of the known techniques. Medication and alcohol are the most appealing options, as the desired effects occur in a very short time. Beta blockers, medicines that many musicians call, slow down the heartbeat and also help eliminate nervousness. The small vices of artists are also taboo subjects. However, Claudia Spahn concluded that being a musician should not be considered a disease and so musicians should not have to take drugs permanently to be able to sing or play.

Regarding this type of behavior, Aliette de Laleu (2017) presented a work in the website francemusique.com describing an overview of the troubling situation. She talked about the documentary film *Addicts' Symphony* [47] in which the composer, musician and recovering alcoholic James McConnel put together for a concert a group of 10 classical musicians who were battling addiction. All were professional musicians and had fallen under the pressure, the difficulty of the artist's life, and stage fright. The only way they could keep going was to take medication or to find refuge in alcohol. One of the participants, cellist Rachael Lander began suffering panic attacks on stage at the age of 14 (para 5): *I had this overpowering feeling of not being able to move in the way I wanted to – I felt trapped.* Drinking alcohol was the only way she could deal with the problem. *When I drank, these attacks stopped. I also took Valium and beta blockers,* said the musician. Indeed, Rachel Lander claimed that *addiction problems are widespread among classical musicians, for many reasons. There is the lifestyle, the odd hours, working weekends, post-concert socializing. Many players use alcohol and beta blockers to control their performance anxiety. And then, after the 'high' of a performance, musicians can struggle to 'come down' and therefore drink to relax – which becomes habitual*.

[47] In this documentary the composer and musician James McConnel examines music's extraordinary transformative power, as he unites ten classical musicians whose lives have all been blighted by addiction, in an orchestra, for a performance with the London Symphony Orchestra.

Violinist Tom Eisner, is also very familiar with stage fright having explained to Laleu (2017 that in spite of having played the violin for 20 years, he felt like he was a beginner. He also commented that he felt like he was walking to his execution when he entered the stage. To be able to proceed with his career, he started to take tranquilizers. The same thing was going on all around him and he reported that it was frequent to see colleagues use alcohol to steady their nerves. Alcohol was a very common tranquillizer in the world of classical music, especially among the older generation of concert performers. Eisner also reported that *looking back* to 1987 there were at least 10 musicians who routinely would go to the pub in the 15-minute morning break, followed by even more drinking in the longer lunch break. Although alcohol and tranquillizers were used by many musicians to deal with their stage fright, according to Eisner the new generation seems to have found other ways of coping with anxiety, namely a wider practice of physically activity and better awareness of physical and mental wellbeing.

Artists are increasingly using their own body to manage their stress and relax naturally by running, cycling and getting physically fit. However, I believe that the ones who actually made peace with these problem are the ones who would be able to find joy and satisfaction in their jobs.

CONCLUSION

The present research brought into discussion the many layers of memory and anxiety from different perspectives and disciplines. This approach provided an overview of the afore-mentioned layers, underlining the distinction between the two concepts. While discussing the topic from a particular field of research would have extended into a more academically valid examination, the purpose of the work was to better contextualize how memory impacts on anxiety and vice-versa. As such, my main interest was to understand the psychological mechanisms involved in artistic performances, in order to better understand my journey as a musician, especially when confronted with stage fright.

The main approach of the artistic project was to establish a theoretical background on the subject from various fields, disciplines and specialties. Consequently, I have shifted my original idea of researching the experiences of other musicians and chose to speak about my personal experiences. I believe that the results of the project formed a base for a more in depth research regarding the process of memorizing music (and its subsequent emotion-based components). Since now I am more aware of the consequences of stage fright, how, why and when it appears, I am ready to move one step forward in a future study developing experimental work that could test musicians from various backgrounds and create new practices regarding ways of memorizing music. I think that further research on the topic could also be conducted by interviewing fellow colleagues who would offer their insights and personal experiences on the topic at hand.

On a personal note, by doing this research, I have managed to be more aware of my actions and my memorizing processes. I am sure I will be in a continuous learning and improving process my whole life and I am glad I had the chance to make this subject the starting point in my personal development journey. I strongly believe that all the anxiety attacks and overwhelming emotions happen because of the lack of guidance during the early years of learning a new instrument. I would add that one of my future goals is to develop a course that would make young students embrace and be aware of their emotions, whilst learning memorization techniques that could make them feel stronger and less afraid of failure.

I believe that *anxiety* is one of the key words of the 21st century. Everybody is speaking about it, everybody is aware of its existence, but it is still viewed as a taboo subject. Instead of being viewed as a scary term that reflects weakness and lack of mental balance, it should be embraced and approached with kindness in order to be treated or at least kept under control.

- EDUCATIONAL IMPLICATIONS

The low level of self-confidence as well as the negative dysfunctional emotions that were described in this work, namely in the glossophobia section, should trigger an alarm signal for specialists in the field of music education, as well as those in the field of health. These results may suggest the need for reassessment of teaching methods and techniques, as well as the inclusion of intervention strategies and / or techniques that increase the self-confidence of the performers. In this sense, the use of strategies such as constructive feedback, relaxation methods, memorizing strategies, techniques of time management and effective practice, should be taken into account while teaching and learning music.

Referring strictly to the musical education from its earliest stages, there are several ways in which teachers can make a difference. Their first responsibility should be prevention. This might be done through building and maintaining the self-confidence of students. Selecting a repertoire that represents a challenge, but does not exceed the technical and interpretative possibilities of the students might also be one of the teachers' strategies. There is also a need of encouraging the use of the learned techniques even after the end of the lessons, during the individual study.

A good knowledge and understanding of the student can help creating a positive atmosphere during instrumental lessons, converting negative thoughts into positive thoughts, reinterpreting physiological symptoms, creating realistic expectations for interpretation, organizing auditions within which the students can test their training and experience small successes. Indeed, the thorough preparation of instrumentalists for presenting themselves in front of an audience also includes mental training.

The development of specialized teacher education programs where teachers, together with psychologists, can be actively involved in the prevention, detection or intervention of performance anxiety disorders could be a major step in the future training of instrumentalists. Finally, I believe that teachers, parents and audiences should be more tolerant and start to acknowledge that performance arts involve real human beings that are allowed to make mistakes.

BIBLIOGRAPHY

Aliette de Laleu (2017, December 5). Stage-fright. Making life a Misery for Musicians and Singers. *France Musique*. Retrieved from https://www.francemusique.com/musical-knowledge/stage-fright-making-life-misery-musicians-and-singers-15583.

Allgemeine Musikalische Zeitung 1798-1848 (1814). Retrieved from https://ripm.org/pdf/Introductions/ALZintroEnglish.pdf.

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders*. Arlington: American Psychiatric Association.

Atkinson, R. and Shriffin, R. (1968). Human memory: a proposed system and its control processes. In K. Spence and J. Spence (Eds.). *Psychology of Learning and Motivation: Advances in Research and Theory*, vol. 2, pp. 89-195. New York: Academic Press.
DOI: 10.1016/S0079-7421(08)60422-3.

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

Baddeley, A. (2001). Is working memory still working? *American Psychologist*, 56(11), 851-64.

Baddeley, A., Eysenck, M., and Anderson, M. (2015). *Memory*. London: Psychology Press.

Bălan, T. (1963). *Franz Liszt*. București: Editura Muzicală.

Brattico, E., Brattico, P. and Jacobsen, T. (2009). The origins of the aesthetic enjoyment of music – A review of the literature. *Musicae Scientiae*, 13(2 Suppl), 15-39.
DOI: 10.1177/1029864909013002031.

Cecca, C. (2018). *Creativitatea Timpului, Memoriei și Imaginației în Muzică*. Retrieved from http://www.arhitext.com/2019/02/14/creativitatea-timpului-memoriei-si-imaginatiei-in-muzica-caterina-di-cecca/

Chivu, S. (2017). *Cum Funcţionează Frica. Ce se Intâmplă în Organism în Momentele de Panică şi cum ne Distruge Sistemul Imunitar*. Retrieved from https://adevarul.ro/locale/galati/cumfunctioneaza-frica-intampla-organism-momentele-panica-distruge-sistemul-imunitar-1_592409065ab6550cb85e52d4/index.html.

Coimbra, D. (2015). Simptome psihopatologice ale studenților din colegiile de muzică – studiu de caz. În D. Călin *(*Ed.). *Studii de Didacticã a Educației Muzicale – Analize, Eseuri, Portrete*, pp.156-166. București: Editura Muzicală.

Craik, F. and Lockhart, R. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning & Verbal Behavior*, 11, 671-684.

Craik, F. and Tulving, E. (1975). Depth of Processing and the Retention of Words in Episodic Memory. Journal of Experimental Psychology: General, 104 (3), 268-294.

Dahlhaus. C. and Eggebrecht, H. (1988). *Che Cos'è la Musica?* Bologna: Il Mulino.

DeLone, R. and Wittlich, G. (1975). *Aspects of Twentieth-century Music*. New Jersey:: Prentice-Hall.

Ebbinghaus, H. (1885). *Über das Gedächtnis. Untersuchungen zur Experimentellen Psychologie*. Leipzig: Duncker & Humblot (Book from the collections of University of Michigan Book digitized by Google from the library of University of Michigan: https://archive.org/details/berdasgedchtnis01ebbigoog).

Eisner, T. (2014). Stage fright can lead to addiction, even in the world of classical music. *The Guardian*, 20 August. Retrieved from https://www.theguardian.com/commentisfree/2014/aug/20/stage-fright-addiction-classical-music-alcohol.

Eysenck, M. and Keane, M. (2000). *Cognitive Psychology: A Student's Handbook*. Philadelphia: Psychology Press.

Fishbein M., Middlestadt, S., Ottati V., Straus S. and Ellis, A. (1988). Medical problems among ICSOM musicians: overview of a national survey. *Medical Problems of Performing Artists*, 3(1),1–8.

Gleitman, H., Reisberg, D., and Fridlund, A. (2011). *Psicologia*. Lisboa: Fundação Calouste Gulbenkian.

Kolitz, D. (2019). *Why Do We Forget?* Retrieved from https://gizmodo.com/why-do-we-forget-1831865406.

Kubik (2018). *Does Playing a Piece by Heart Make us Better Musicians?* Retrieved from https://www.francemusique.com/classical-music/does-playing-piece-heart-make-us-better-musicians-15726.

McCullough, L., Kuhn, N., Andrews, S., Kaplan, A., Wolf, J., & Hurley, C. L. (2003). *Treating affect phobia: A Manual for Short-term Dynamic Psychotherapy*. New York: Guilford Press.

Monsaingeon, B. (1998). *Sviatoslav Richter: Notebooks and Conversations*. New Jersey: Princeton University Press.

Oana, D. (2019). *Anxietate.* Retrived from https://www.csid.ro/semne-si-simptome/anxietate-11230433.

Schacter, D., Eich, J. and Tulving, E. (1978). Richard Semon's theory of memory. *Journal of Verbal Learning and Verbal Behavior*, 17(6), 721–743.
DOI:10.1016/s0022-5371(78)90443-7.

Smith, M., Segal, R. and Segal, J. (2019). *Do You Suffer from Glossophobia*? Retrieved from https://www.helpguide.org/articles/anxiety/phobias-and-irrational-fears.html.

Squire, L. (1992). Memory and the Hippocampus: A synthesis from findings with rats, monkeys, and humans. *Psychological Review*, 99 (2), 195-231.

Steffen, S. (2011). Stage fright clinic helps musicians tackle their fear on stage. *Made for Mind*. Retrieved from https://www.dw.com/en/stage-fright-clinic-helps-musicians-tackle-their-fear-on-stage/a-14764604.

Szamosi, G. (1986). *The Twin Dimensions: Inventing Time and Space*. New York: McGraw-Hill.

Tulving, E. (1993). What Is Episodic Memory? *Current Directions in Psychological Science*, 2(3), 67–70. DOI:10.1111/1467-8721.ep10770899.

Tulving, E. (2002). Episodic Memory: From Mind to Brain. *Annual Review of Psychology*, 53, 1–25.

Tulving, E. and Craik, F. (2000). *The Oxford Handbook of Memory.* Oxford: Oxford University Press.

Wilson G. D. & Roland D. (2002) Performance anxiety. In Parncutt R. and McPherson G. (Eds.). *The Science and Psychology of Music Performance: Creative Strategies for Teaching and Learning*, pp. 47–61. Oxford: Oxford University Press.

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MÚSICA - INTERPRETAÇÃO ARTÍSTICA

PIANO E TECLAS

Preparing a Recital: Memory, Anxiety and Stage fright

Nastasia Iacob