

Memory – Dr. Hans Sturm

Introduction

Every musician is required to play from memory at some point. For many, such as opera singers and concert pianists, memorization is a regular part of their concert preparation. Memorization for performance can be very stressful for musicians, adding an additional cause for concern to performance anxieties. However there are memory strategies that can help.

Everyone has had the experience of suddenly being able to remember a name or event long thought forgotten. This experience helps demonstrate that even when our conscious mind believes we have forgotten something, our memories in fact forget very little. At issue is the ability to recall the memory into our consciousness. An insight into how memory works can be illustrated by considering what happens when we try to remember a name. Most often a stream of facts about the person we are trying to recall will come into our consciousness. For instance, such a stream might include an image of how the person looks, where they live, how we were introduced to them, what kind of car they drove, etc. This pattern of remembering indicates that our memories work as an interconnected web. That is to say that our past sensory experiences are loosely linked to one another and recalling a portion of that strand will help retrieve other memories that are linked. Virtually every memory technique employs a method of strengthening the bonds between what you are trying to place solidly into your memory and what you already know. The field of study related to developing memory is called *mnemonics* and has a very long history dating back to the Greeks.

Basic Principles

There are a few basic principles to creating long-term memories.

- The longer you hold thought in your mind, the more easily retrievable the memory will be. The mind requires that you hold each idea for at least 4-5 seconds for a temporary memory to be converted into a more permanent one. However, reviewing and focusing on what you are trying to remember for several minutes will help make the memory more easily recallable. Repeatedly reviewing the memory over time will deepen the memory.
- You cannot remember what you do not understand. Be sure that you completely understand the passage before it can be committed into long-term memory. In music this means understanding the mechanics of performing the phrase, making meaningful connections between this phrase and the surrounds ones, and analyzing the phrase to understand the music at a deeper level.
- You must absorb the thought correctly the first time. The mind is strongly attached to first impressions, underlining the vital importance of approaching a new piece with great care and preparation (see Practicing). If a passage is learned incorrectly, then it will have to be unlearned and relearned, a long process. Furthermore, under stress the first impression will likely be the first one recalled. Analyzing and questioning what you have learned will help to imbed the memory more deeply.

- Sing the phrase. Singing helps to transfer the phrase into long-term memory and also helps you to discover how you might wish to interpret the music. Singing helps to move the phrase from learning the correct notes and rhythms intellectually and links these elements into a more holistic memory including phrase shape, dynamics, articulations, etc.

- In the beginning memorization will take time. Try to be patient with yourself and review previously learned material with some regularity. Studies have shown that with increased practice, memorization becomes faster and easier. However, just as with learning anything, you will encounter plateaus where it seems as if the speed of the memorization process slows. While regular reviewing helps to create more easily recalled memories, the mind tires easily and requires breaks to become refreshed.

Three Senses

We know the world through our five senses. In music we use three: visual, tactile, and audible. To place music as deeply into our memory, we must create the strongest interconnected web of memories possible. For this purpose we need to find a way to create musical memories all three senses and then use strategies to review our ways of knowing for each sense, at the same time recognizing that all of these senses are used simultaneously in performance.

- Visual. Studies have shown that our strongest memories are attached to images. Most people are visual learners and absorb and retain memories more readily when they are attached to images. The most effective way to review musical memories purely for sight, however is time consuming and requires writing out the part. This practice has a long and illustrious precedence. For instance, although both had access to published scores, Beethoven copied the score to Mozart's String Quartet in G Major (K 387) and Brahms copied the score to the St. Anthony Chorale (unsure of the real composer, but used for his Variations on a Theme of Haydn).

-Tactile. Reviewing our memories of how it feels to perform a piece correctly can be challenging. As musicians we review our tactile performance every time we practice, however we are also engaging our hearing. We may also be engaging our sight if we are reading the music or looking at our instrument while we play. Focusing primarily on our memories of tactile sensations requires using our imaginations. One strategy for doing this is a two-step process. First, find a quiet place without any distractions and imagine you are performing the piece. Close your eyes and focus your imagination on every motion that your body makes throughout the duration of the portion of the piece you are working to memorize or for the work's entire duration: every breath, finger motion, bow stroke. Repeat the process as often as necessary to review all the aspects of the performance. The second step is to do this again, but this time physically mimic each gesture as well without the instrument in your hands. (Singers can do this also by mimicking their gestures and using their breathing, but without making a sound.)

- Audible. Ultimately if you do not know how the music goes, you do not know the music. The best review for hearing is singing; singing with every dynamic, articulation, phrase shape, every musical intention.

If you are capable of writing out your part, singing the entire piece, and imagining every gesture that you are required to make during the course of the performance, then you have 3 ways of knowing and have significantly lowered the chances of having a memory slip and, with it, your anxiety.

There are additional strategies you can use. One that I have found to be particularly effective is play in different environments with a variety of distractions. The idea is that you know that you are going to be in a unique place and frame of mind when you perform. Practicing in different places with unexpected distractions creates a familiarity with difference and helps to increase your musical focus. In other words, you are bringing challenges to your practice space and working to make your practice more like a performance, rather than trying to make yourself feel completely relaxed and at home on the concert stage.

As we become more familiar with a piece, our brain groups phrases into 'chunks.' Most often when we have a memory lapse it is caused by our conscious mind asking 'what comes next?' and having a small panic when we can't retrieve an answer. Avoiding this question can be helped by practicing performing the piece using each of the three senses very well and further strengthening that knowledge by practicing from mid-phrase to mid-phrase, rather than always starting in a familiar place.

An exercise that also addresses the concept of freeing up an interpretation while also addressing the memory is called Progressive Emphasis. Take a phrase you know well and repeat it, purposely extending and emphasizing each note in turn. This exercise helps to add more detail to your memory within a 'chunk' and allow you to develop more freedom and subtlety in an interpretation. There will be notes that you would never emphasize, however by drawing your attention to each note in turn with this exercise you will be developing a more refined awareness.

Lastly I would like to recommend Joshua Foer's wonderful book [Moonwalking with Einstein: The Art and Science of Remembering Everything](#). This fun narrative follows Foer as a science writer who becomes an accidental competitor in the U.S. Memory Championship. He shares what he learns from experts along the way and how improving our memories is easier than we think.