

MEMORIZING FOR PIANO PERFORMANCE

The practice of playing 'from memory' is a relatively recent innovation begun by Franz Liszt and Clara Schumann who created a sensation in the salons and concert halls of Europe in the middle of the last century by playing without music. The ability to play without a score is, these days, a central feature of a concert artist's professional competence. Today a young pianist starting a concert career must have 10 or 15 concerti and 6 or more recital programmes ready to perform. International competitions demand a minimum of 3 hours of music. Even student recitals and regional competitions for young pianists commonly require that the music be memorized. Performing from memory is part of the pianist's life.

The demands placed on memory during a performance are immense sometimes requiring the production of over 1000 notes a minute for periods of up to 30 minutes. Most artists know from painful experience that a memory failure can cripple a performance. For the pianist this is a terrifying and painful experience.

Until recently pianists have relied primarily upon the wisdom of their own community to cope with the challenges of their profession. Today, however, pianists are turning to other disciplines, such as psychology and medicine, for help with problems such as performance anxiety and hand injuries. In the present article we bring the resources of contemporary experimental psychology to bear on the problem of memorizing for performance. Psychologists can learn from the pianists' memorization techniques and skill, where pianists can benefit from psychology's understanding of memory processes.

We will first describe three general principles of memory. These principles reflect many years of painstaking research in which psychologists have studied memory performance under carefully controlled conditions in order to isolate each of the factors that affect memory. We will then consider the application of these principles to memorization techniques and problems specific to the piano.

1 There are different kinds of memories or memory codes. Piano performance requires simultaneous use of at least four different types. *Auditory memory* tells the pianist what comes next, providing many of the cues that elicit the music from the performer, while also letting the performer know that things are on track. *Motor memory* is 'in the hands' and can be executed automatically. *Conceptual memory* involves a hierarchical organization of units from major divisions of the piece down to chords, scales, fingering, and notes. *Visual memory* of the score plays a role in the early stages of memorizing while visual memory of the hands on the keyboard becomes more important in the later stages. Memorizing for performance requires strengthening each of these codes separately and developing links between each of

them. People appear to differ in the ease with which they establish the different types of memory. Only through experience with memorizing can each person learn about the characteristics of their own memory systems.

2. You can memorize only what you already know. New memories are constructed out of 'chunks' of knowledge already in memory. This is why an advanced performer can memorize more rapidly than a novice. The expert has more of the necessary building blocks already in memory. Psychologists have found the same difference between experts and novices in every area they have looked at. Chess masters can remember the positions of the pieces in the middle of a game after seeing the board for only five seconds. Novices can remember only a few pieces. It is not that chess masters are gifted with some extraordinary memory capacity. Rather, experts have less to remember than the novices. The expert does not see individual pieces, but configurations of pieces. If the same pieces are placed randomly on the board the chess master does no better than the novices.

Similarly the beginning pianist looking at a score sees notes while the teacher sees form structures: key and chord relationships, common pianistic patterns such as scales, arpeggios, or Alberti bass. So when a work is difficult to memorize it probably means that our background knowledge is not yet adequate for the difficulty of the piece. There is, sadly, no miraculous, overnight panacea for quick, painless memorizing. A student's knowledge of basic theory, harmony, form and experience with similar works will determine how hard a new work is to memorize. Music theory establishes important building blocks out of which a student's conceptual memory for a piece is created. The corresponding building blocks for motor memory are the scales, arpeggios, chord progression, and patterns characteristic of a genre that are built up from the earliest years of training through a rigorous technical regimen. When a section is hard to get 'in the hand' it is because it does not fit these established patterns of movement.

3. The third characteristic of memory that we want to draw attention to is that it is automatic. This seems paradoxical since when we think about memorizing it seems far from automatic. But that is because we only think about memorizing when things are not working automatically for us as they do most of the time. For example, as you read you understand, I hope, the words in this sentence. You think about what we are saying but you are not thinking about what the individual words mean. These automatically 'pop out' of memory and play their expected role in the process of understanding without drawing attention to themselves. This is the way we would like all of our memories to work; to be there to do their job when we need them.

How do you get a memory 'pop out' when you need it? A memory will 'pop out' whenever we are able to recreate a situation similar to that in which we last remembered it. The more similar the present situation to the last time, the more reliably the memory will re-occur.

For example, if you want to recall what you did with your keys, it is a good idea to go to the room where you last had them and retrace your steps. You might see the keys, but, if not, you might remember what you did with them, because you have created a situation similar to the last time you had the keys.

If you want to be able to play a piece from memory starting at the second theme, you need to establish a retrieval cue for that spot. Something you can do that will make the memory you want 'pop out' you look at the opening cord in the score and its fingering and play it. Then you just think of the opening chord and play it. Next time you think of the second theme, the opening bar should be there. But will it? It depends on how similar the circumstances are to the last time you did it. The circumstances include what you have been thinking about just before hand, your emotional state, and the physical setting. The more similar the circumstances the more likely the right memory will 'pop out'. So we practice the piece to be memorized repeatedly so that we have retrieved the memory under a variety of different conditions.

We will illustrate the operation of these three principles of memory by describing some common memory problems and techniques to overcome them.

1. *Memory and performance anxiety.* The physical and psychological effects of performance anxiety are too familiar to musicians. One of the more salient of these is the effect on motor memory. Tension alters the feel of the arms and hands, reducing movement during performance to a fraction of its normal range. Students tell us after a performance that the piano felt hard and that it was as if they had never played the piece before. To us they look stiff and awkward. The effect of this stiffness is to reduce the similarity of the retrieval cues present during performance and during practice. This is a recipe for memory failure.

If you are going to be terrified, then you should practice when you are terrified, or at least nervous. For example, you can practice playing for other people. Memorizing for performance is a matter of making sure that retrieval cues work under the conditions of the performance. In addition, students can be warned about the effects of tension and should be prepared to amplify the gestures that they normally make to counteract its effect. It is useful to actually practice these gestures from early in the learning process. Teachers who have incorporated an awareness of gestures and their effects in learning have been very successful.

2. *Memory failure.* The classic memory problem is one that every pianist has experienced and every

teacher witnesses regularly. The pianist stops during public performance and cannot continue. This happens most often when the pianist relies too much on *motor memory*. The problem is particularly common with young children who tend to rely on motor memory exclusively. The memory cues for motor memory are generated principally by the preceding movements. So relying on motor memory is an all-or-nothing gamble. Once a memory failure occurs there is no way to recover, because the cues are no longer available.

Failure of motor memory is very likely to happen in a public performance. Motor memory is usually established rapidly and under normal conditions is sufficient, by itself, for performance. During performance, however, the tactile and muscular cues important to motor memory can change due to factors such as tension, the different properties of the instrument, even the performer's clothing. As a result the motor, auditory, and tactile cues for motor memory that are generated as the performance progresses are somewhat different than usual. At some point the cues will no longer be sufficient to elicit the next sequence of movements. Without an alternate set of memory cues to call on, the performance grinds to a halt.

To avoid this type of catastrophic memory lapse the performer must have a conceptual and auditory memory of the piece and know where she is at all times. This will not be enough, by itself, to recover from a memory lapse. The knowledge of where you are in the piece must be linked to motor memory. This linkage is established during practice by initiating play at many different points in the piece, and by playing slowly so that you learn to predict and hear the next notes before they are played. The teacher can test for over-reliance on motor memory by asking the student to start in less familiar places, to play very slowly, or with the left hand alone. A useful exercise is to alternate playing at the instrument with playing in the head, silently imagining the music and then continuing to play without pausing. At first the switch can only be made at the beginnings of phrases and motifs. The goal is to eventually be able to make the switch at any point in the middle. When you can do this the connection between the conceptual and motor memory is firmly established.

3. *Memorizing starts with the first reading of the piece.* When most people talk about 'memorizing' they are talking about deliberately setting up retrieval cues and practising using them. This is useful, but it is important to recognize that memorizing occurs whenever we play a piece, whether we are trying to memorize or not. Memory for a piece starts to develop from the first time we hear or see it. A lot of memorizing occurs incidentally, not as a result of deliberate effort. This is something to be thankful for. But this does mean that we must be careful how we practice so that we do not learn the wrong thing. For example, fingering must be established at the initial one or two readings of a piece,

otherwise motor memories are created that must be overlaid and the work is compounded.

4. *Memorizing is too hard.* Many students simply give up on memorizing because they find it too hard or too intimidating. This can happen if playing from memory is introduced too abruptly, if the segments to memorize are too large, or if memorization begins too late in the learning process. Memorizing is a gradual process of weaning oneself from the score. The student should start by memorizing small segments—a phrase, half a phrase, even a measure. Those with more experience can start with larger units. Even for small segments, playing without the score is not an all-or-nothing matter. Playing from memory should be interspersed with playing from the score because, initially, performance from memory will be halting and unsatisfying. Just like the motor performance, the memory skill has to be practiced to become fluent and automatic.

Difficulty in establishing a conceptual memory for a piece may be due to a lack of understanding of the music. An unfamiliar style, complex vertical harmonic structure, contemporary or polyphonic music all represent challenges to memorization. Teachers can promote understanding of a piece by analyzing and explaining form, harmonic relationships, modern compositional techniques, and contrapuntal development.

5. *Preparing for performance.* The retrieval cues that the performer uses evolve continuously during the process of learning a piece, following a crescendo-diminuendo pattern. As the piece is memorized, the performer first adds to the memory representations which become more complete,

complex, and varied as details of phrasing, dynamics and expression are added. As recall from memory is practised, however, the cues become automatic. Instead of thinking about what note or phrase to play the performer is increasingly free to think about expression, holding back a crescendo here, bringing out a theme there.

During performance, the memory cues established early in practice can be allowed to function automatically, although must still be refreshed by maintenance work during practice. In performance only the most crucial cues are still consciously attended to. These are incorporated into the emotional and aesthetic structure of the piece which becomes the main focus of attention during public performance. Memorization thus brings the performer closer to the music, by providing the freedom to focus attention on the expressive aspects of performance.

Conclusion: Over the years pianists and other instrumentalists have amassed a body of wisdom and practice about memorization that enables performers today to accomplish feats of memory that would have seemed astonishing a century ago. By examining these practices from a perspective of a psychological understanding of memory processes we can gain a deeper understanding of why some practices are effective. We hope that a better understanding may lead to further improvement in memorization practices. In spite of our many successes, memorization remains a major obstacle to performance for many pianists.

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COMPETITIONS

BERYL CHEMPIN BEETHOVEN PRIZE FOR PIANISTS at *Birmingham Conservatoire*. This was held on 22nd March, 1994, at Birmingham Conservatoire, when five pianists competed. The first prize of £200 was awarded to *Paul Halpin*, who will represent Birmingham Conservatoire at the **Beethoven Society of Europe Inter-Colleges Competition** which will take place on 16th December at the *Austrian Institute* in London. Further details from the Secretary, BPSOE, 28 Emperor's Gate, London SW7 4HS. Tel. 071-373-7307.

PARKHOUSE AWARD 1995 for piano and string ensembles (duo, trio, piano quartet) will be held from 27th to 30th March at *Wigmore Hall, London*. The winners of the 1993 award were the *Bartholdy Trio* from Paris. For brochure and details: GBZ Management, 7-11 Kensington High Street, London W8 5NP. Tel. 071-231-8372.

THE 1995 STRAVINSKY AWARDS INTERNATIONAL PIANO COMPETITION for young pianists up to the age of 22 at *Champaign-Urbana University, Illinois*, from 1st to 11th June, 1995. There will be several special prizes including the 'Grand Prix Ivo Pogorelich', 'Haydn Prize' and others.

Contact: The Secretary, 1003 West Church Street, Champaign-Illinois 61821 USA.

5th INTERNATIONAL SCHUBERT PIANO COMPETITION, DORTMUND, from 24th September to 1st October, 1995. Details of enrolment from Secretary, Rheinlanddaum 24, D-44139 Dortmund.