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KEY CONNECTIONS

PROCEEDINGS OF THE 37th EUROPEAN CONFERENCE
OF EPTA ASSOCIATIONS
AMSTERDAM 22-25 OCTOBER 2015



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Editorial



More than two hundred pianists and piano teachers came to Amsterdam between the 22nd and the 25th of October 2015 to participate in the 37th European Conference of EPTA Associations, organized by EPTA Netherlands under the title of 'Key Connections'. Location was the Conservatory of Amsterdam. It was the second time that the Dutch EPTA branch organized this yearly meeting of the European EPTA associations. The first time took place in 1989.

For the 2015 Conference, the executive board of EPTA Netherlands, presided by David Kuyken and directed by Hetty Floors and Flor Verhey, decided to make a conference that would create a new, innovative style for future EPTA events. In January 2015 a call for papers was sent to all EPTA countries. From the many replies, the executive board made a selection of lectures, workshops, lecture/recitals and 'Key Connection recitals' for a four day program. For the 21 lectures and lecture/recitals, different themes were created: 'Repertoire (composers)', 'Performance', 'Teaching', 'Science' and 'Health'. Next to the lectures, a parallel program of workshops in which visitors could actively participate was held. The speakers came from different countries, not only those located within Europe, but also the USA, South Africa and Israel. In two piano recitals, presidents and other guests from abroad performed pieces from their own countries and from The Netherlands.

Thanks to the versatile program; the high level of the papers, lecture/recitals, concerts and workshops; the smooth organization; the effective and careful assistance of the volunteers recruited from the Dutch EPTA members; and the perfect location, this 37th Conference was felt to be a tremendous success that needed a follow-up by a publication. This special edition of the *Piano Bulletin*, published as *Proceedings of the Amsterdam International EPTA Conference 2015*, contains a selection of 17 articles, based on the lectures given during the conference, as well as a few reports of workshops and the *PechaKucha*. For this issue, Sharon Stewart was added as a guest editor for correcting the English.

The editors of this magazine hope, by publishing the proceedings, to provide the visitors of the conference and the Dutch EPTA-members who were not able to visit the conference with a truly international treasure house of new knowledge about piano playing and teaching. For this reason, the editors of *Piano Bulletin* decided to publish the articles in English.

Christo Lelie,
editor-in-chief Piano Bulletin

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An online version of this magazine can be downloaded at:
<http://www.eptanederland.nl/piano-bulletin>.

I. COMPOSERS - REPERTORY

Photos Emil Golshani.



Jean-Jacques Dünki (Switzerland). Lecture-recital.



Michal Tal (Israel) playing Schulhoff.



Iberian Flavours Emerging from Domenico Scarlatti's and Carlos Seixas' Harpsichord Sonatas

Luis Pipa (Portugal, University of Minho)

Scarlatti on the Iberian Peninsula

The keyboard sonatas of Domenico Scarlatti have long been among the favorite of repertoire choices of both harpsichordists and pianists. His music is not only appreciated due to the virtuosic challenges placed upon the interpreter, but also due to the many expressive pages found in the slower works, particularly stimulating to explore with the immense potential offered by the modern piano. Among the characteristics frequently associated with Scarlatti's musical language is a recurring mention of the Spanish influences, especially his frequent use of Phrygian elements.

One such example comes from W. Dean Sutcliffe, who, in his book *The Keyboard Sonatas of Domenico Scarlatti and Eighteenth-Century Musical Style*, refers to “[...] the harmonic feature traditionally taken as axiomatic to Scarlatti's representations of the Spanish: the Phrygian progression or cadence” (Sutcliffe 2003, p. 116). Later in the same text, and referring to the second subject of the Sonata in E-flat Major (K. 474), the author describes it as sounding “very Spanish, with its turn to minor, Phrygian inflections” (idem, p. 332).



Domenico Scarlatti in 1738. Portrait by Domingo Antonio Velasco.

The persistent association of Scarlatti with a Spanish influence is easily explainable: the Neapolitan composer lived in Spain from 1729, when he first went to Seville for a period of three years, subsequently moving to Madrid, where he remained until his death in 1757. However, the period Scarlatti spent in Portugal as Kapellmeister and harpsichord tutor to the Portuguese Royal Family is often underestimated. Although the date of the composer's arrival in Lisbon had been, until recently, unknown but generally estimated to have occurred somewhere between 1720 and 1721, it is possible today to affirm that Scarlatti arrived in Lisbon by land on the 29th of November 1719 (Doderer 2014, p. 148). This

means that Scarlatti stayed in Lisbon for over seven years prior to his Spanish period, and this fact should, according to Doderer, “impose upon Scarlattian researchers deepened studies”, notably in view of the fact that “important guidelines of the evolutional phenomenon ‘Harpichord – Fortepiano’ were interconnecting in Lisbon during the first half of the eighteenth century” (Doderer 2014, p. 152). I would certainly add to this perspective the pertinence of conducting an extended analysis on the possible influence of Portuguese music and culture on the Italian composer’s musical style.

Scarlatti and Seixas in Portugal

In fact, Scarlatti’s music is inevitably linked to one of the most prolific and remarkable Portuguese composers of all time: José António Carlos de Seixas, or simply Carlos Seixas, as he has become known to posterity. Born in Coimbra in 1704, Seixas learned music from his father, Francisco Vaz, an organist at the New Coimbra Cathedral, having been appointed to substitute him in 1718 at the young age of fourteen. Sometime between 1720 and 1722 he moved to Lisbon, where he taught harpsichord at houses of the Court, later becoming an organist at the Holy Patriarchal Basilica. This means that the interaction between Seixas and Scarlatti at the Portuguese Court would have taken place, and, if one cannot avoid making the assumption that the young Portuguese had much to learn from the celebrated ‘foreign’ musician nineteen years his elder, the personality displayed by Seixas in his works and the admiration Scarlatti nurtured for his young colleague also tend to lead to the conclusion that, at least in a later period of their relationship, the association between the two musicians would have been a mutually-beneficial one.

According to an account made by José Mazza in his *Biographical Dictionary of Portuguese Musicians*, the Italian expressly acknowledged the talent of the young musician in an encounter promoted by Prince Anthony, who “wished that the great Scarlatti, since he was in Lisbon at the same time, would give [Seixas] a lesson, starting from the erroneous idea that the Portuguese, much as they try, will never get to achieve what the foreigners do”, and “as he merely saw him place the hands on the harpsichord, knowing the Giant by his finger, he said: It is your excellency who could well give me lessons”, later telling the Prince: “Your Highness wished me to conduct an examination: know then that this fellow is one of the greatest masters I have ever heard” (Mazza 1945, p. 32).

Although this episode relates mainly to Scarlatti’s assessment of Seixas’ keyboard skills, Mazza also mentions the Portuguese as having composed seven-hundred harpsichord sonatas. This quantity would be absolutely astonishing, given the fact that Seixas died at only 38 in 1742. Although it is not possible to confirm this number, as today there are slightly more than one-hundred sonatas that can be unequivocally attributed to Seixas, this relatively low surviving number has been repeatedly related to the loss that followed the massively destructive Lisbon earthquake of 1755. Nevertheless, these remaining sonatas provide enough evidence of his compositional genius and individuality.

Seixas and the Lusitanian ‘soul’

Those who come in touch with Seixas’ music do not remain indifferent to its richness and originality. Barnett (2012) relates his experience of the first contact



with the composer's keyboard sonatas: "Like so many keyboardists before me, I was swept off my feet at having encountered so many remarkable works of a single composer from Portugal during the first half of the eighteenth century" (Barnett 2012, p. 1). This author also believes that "Seixas, though influenced in degrees by foreign influences, was nonetheless intrinsically Portuguese in his musical style, life, and compositions" (idem, p. 2). Barnett also repeatedly associates with Seixas' expression the idea of 'saudade', a Portuguese word that expresses, in a deep and particular manner, the sensation of nostalgia.

José Eduardo Martins, who has recorded 23 Sonatas by Seixas on the modern piano (see Martins no date), emphasizes the typical aspects of his works, "ranging from the inherent talent of the composer to the geographical aspect, including, in this, aspects that could be linked to Lusitanian nature." For this Brazilian pianist and scholar, Seixas has a "personal technical-keyboard idiom which is inherent only to him" (Martins 2004, p. 63).

British musicologist Macario Santiago Kastner, undeniably the figure who took Seixas off the shelves through his research and editorial work on Portuguese manuscripts, underlines, in the introductory volume of the *Portugaliae Musica* edition of Seixas' eighty keyboard sonatas, the idea that "one of the most attractive features of [Seixas'] personality lies on his Lusitanian genuineness in all its advantages and defaults" (Kastner 1965, p. XII). Already in 1935, Kastner, in the Schott Edition preface to the first volume of *Cravistas Portugueses* (Portuguese Harpsichordists), had stressed that the music of Seixas "acts as an expression of an accentuated personality, genuinely Portuguese" (Kastner 1935, p. 9).

Some fifteen years later, in the second volume of the collection, Kastner makes

it a point to emphasize "how strongly [Seixas] remained attached to the Portuguese identity and character, in spite of the Italian influence, and most in particular the one of D. Scarlatti, and in which in no way he allowed himself to follow blindly the steps of the Neapolitan" (Kastner, 1950, p. 1).

Nancy Lee Harper, American pianist and harpsichordist and former EPTA-Portugal president, had already realized the importance of the Portuguese period and its impact on Scarlatti's music when she elaborated on the existence of Iberian elements in Scarlatti's sonatas (Harper 2002). Having lived in Portugal for an extended period, Harper was able to



Carlos Seixas. Engraving by John Daille after a portrait by Francisco Vieira.

consult directly with Portuguese musical sources and scholarship, which inspired her to publish a comprehensive book on Portuguese piano music, in which the figures of Seixas and Scarlatti (specifically his works related to the Portuguese period) are given particular prominence (Harper 2013).



Concluding remarks: Phrygian inflections as a common Iberian element

At this point, I would like to reiterate the relevance of Sutcliffe’s association of the Phrygian progression or cadence with “Scarlatti’s representations of the Spanish” (Sutcliffe 2003, p. 116) and bring that in connection with the words of one of Portugal’s most reputed of Seixas scholars, João Pedro d’Alvarenga, who claims that the so-called Phrygian progression identified by Sutcliffe, although “used by Domenico Scarlatti, Antonio Soler and occasionally by some other 6 Portuguese composers”, is employed by Seixas “with such consistency in movements of so different nature that it became a formula and a major characteristic of his style” (Alvarenga 2012, pp. 5–6). In fact, these kind of Phrygian movements can be easily perceived in Seixas’ music, as for example in the sequence between bars 6 to 9 of Seixas’ C Major Sonata No. 5 (Fig. 1). A similar harmonic movement is traceable in the beginning of section B of Scarlatti’s C Major Sonata (K. 159) (fig. 2), a sonata that is part of the Fundação do Conde de Redondo manuscript collection of the Lisbon National Library, and which was most likely composed during his Portuguese period (Harper 2013, p. 28; see also Harper 2002, p. 18).



1. Carlos Seixas, *Sonata in C Major, No. 5*, mm. 6-9.



2. Domenico Scarlatti, *Sonata in C Major, K. 159*, mm. 25-7.

No doubt, many of these Phrygian elements can be discovered in many of Scarlatti’s sonatas, and he undeniably reinforced the use of this idiomatic characteristic in his years in Spain, particularly in Seville, with all the richness and exoticism of the Andalusian atmosphere. But definitely, the prior years spent in Lisbon, together with his contact with the Portuguese folk traditions, notably the Fado, a typically Lisbon song, must have certainly had a decisive influence on the Italian composer. As Seixas reportedly never left his native country, and the individuality of his language is widely recognized as portraying a Portuguese identity (see fig. 3 on page 10), and if the Phrygian elements are a consistent part of his idiom, I consider it only fair to acknowledge the decisive influence of the Portuguese period on Scarlatti and refer to the reported Phrygian flavors as Iberian rather than merely Spanish.

Sonata

do menor - c moll

(Moderato, in tempo di Siciliano)

Carlos Seixas

3. Carlos Seixas, Sonata in C Minor, No. 102, mm. 1-10: the characteristic interval $V^{b}b-V$ repeated in the expressively ornamented right-hand sequence of bars 7 and 8 provides an example of Lusitanian nostalgia in which the Phrygian element emphasizes the manifestation of 'saudade'.

Born in Figueira da Foz, Portugal, **Luís Pipa** carried out his musical studies in the Conservatoires of Braga and Porto, where he graduated in 1982 with distinction. He then attended the concert class of Noel Flores at the Academy of Music and Dramatic Arts of Vienna and later obtained the degrees of Master of Music in Performance Studies and PhD in Performance from the British Universities of Reading and Leeds, respectively.

As a pianist he has premiered numerous works, having also composed pieces for piano and chamber music, including some songs. He is regularly invited to give Master Classes and to serve as a juror of different musical competitions in several countries.

He has recorded various CDs for different labels, including repertoire from Bach to the twentieth century. Tracks from his latest CD Portugal have been selected to feature in the official musical selection of the Portuguese Airline Company TAP, including sonatas by Carlos Seixas and 'My Beautiful Blue Country', his acclaimed introspective solo piano version of the Portuguese National Anthem. He is the current President of EPTA Portugal and professor of piano and chamber music at the University of Minho, Portugal.



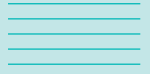
Photo Emil Golshani.

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Notes:

- ¹ *Cravistas Portugueses*, vol. I. Edition Schott, no. 2382.
- ² *Cravistas Portugueses*, vol. II. Edition Schott, no. 4050.



Antonin Reicha and his 36 Fugues for Piano

Jean-Jacques Düнки (Switzerland)

Until the early 20th century, the teaching of music composition essentially consisted of a thorough study of counterpoint.¹ Nowadays, fugues are still heard in student's auditions, exams and competitions; they are loved by some and feared by others. Those performed are almost exclusively by Bach, probably due to Schumann's rule "let the Well-Tempered Clavier be your daily bread."² Nevertheless, there were other contrapuntal and fugue masters, such as Pachelbel, Sweelinck or Frescobaldi, to name but a few. I would like to include the name of Antonin Reicha (1770–1836) among them.

Born in Prague into a family of musicians, Reicha settled with his uncle at the age of fifteen in Bonn. While playing in the orchestra of the prince-elector, he met Beethoven, his future friend and rival. Both young men dreamt of escaping to the musical capitals of the day. Beethoven intended to study with Mozart in Vienna, but after Mozart's death in 1791, only the elderly Joseph Haydn was left among the great living composers. Beethoven was the first to settle in Vienna in 1794; Reicha followed years later, after sojourns in Hamburg and Paris. During these peregrinations, from 1799 and 1803, he composed his *Trente six Fugues pour le Piano-Forte* and dedicated them to his beloved mentor Josef Haydn.³ He even composed a dedicatory poem in French and German, highlighting Haydn as the 'modern Orpheus'. This substantial body of fugues reflects Reicha's lifelong passion both for history and tradition, on the one hand, and experiment and innovation on the other. Years later, Reicha left for Paris and became a most influential teacher there, counting Liszt, Berlioz, Gounod and the young Franck among his pupils.

Reicha summarized his aesthetics years later as follows: "In the genre of the fugue, all parts are of equal importance; the harmony, consisting of 2, 3 or 4 parts, is pure, rich and concise; commonplaces should be carefully avoided [...]. This genre will always be what real connoisseurs and informed amateurs esteem most highly [...]."⁴ Let me add that Reicha included 6-part fugues (written out in six staves!) in this



Antonin Reicha, lithography 1825.

collection. Moreover, his most important innovation consisted of opening the tonal space towards *pantonicity*, thus making any chosen modulation possible. Quite surprisingly, the most appropriate keyboard instrument for the performance of these fugues is still the five-octave ‘Walter’ fortepiano of the 1790s which has the same range needed for the execution of the complete keyboard works of Mozart.

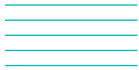


Antonin Reicha, lithography 1804.

To offer a closer insight, I have selected eight pieces which will serve to illustrate Reicha’s approach to fugue writing. We can clearly distinguish two types of fugue subjects. First, those with themes by distinguished masters of the 16th to 18th centuries (Haydn, Mozart, Scarlatti, Händel, and Frescobaldi). The second type, nrs. 12, 24 and 34 of the following selection, use themes of Reicha’s own invention.



Fugue no. 3 in F Minor, 4/4, Molto moderato in four parts is an artful exhibition of fugal means. The subject is taken from Haydn’s F Minor String quartet, Opus 20, no. 5, as a clear dedication to Reicha’s master.



No. 7.
Thème de
W. A. Mozart.

All^o

Fugue no. 7 in D Major, 4/4, *Allegro* in three parts is distinguished by big leaps of the theme, taken from Mozart's 'Haffner' Symphony, K 385.

No. 9.
Thème de
Domenico
Scarlatti.

All^o mod^{to}

Fugue no. 9 in G Minor, 6/8, *Allegro moderato* in three parts quotes the theme of the famous 'Fuga del gatto' by Domenico Scarlatti, adorned with Reicha's playful new counterpoint.



Fugue no. 12 [without key signature], 2/8, *Allegretto* in three parts, introduces a theatrical element and abounds in rests. This sort of humour is reminiscent of Beethoven's oeuvre around the same time.

No 14. Le Thème survent.

avec lequel cette fugue, fantaisie est composée, est de Gerolamo Frescobaldi, un des plus celebres compositeurs au commencement du 16^{me} Siècle à Rome.

Fugue = forme et avec Majesté. *Presto.*

Fantaisie

forme et avec Majesté.

Fugue no. 14 in D Minor, 'Fugue-Fantaisie', 4/4, *ferme et avec Majesté* (in the choral sections) and *Presto* (in the two-part fugal sections), quotes Frescobaldi's Second Mass from his *Fiori musicali*. In addition to surprising modulations and bold theatrical settings, an improvisatory element is omnipresent.

*Adagio. * A 6 Sujets et à 6 Parties.*

** Un a guère cello fugue sur 5 parties en fin pour être en état de l'écouter d'après la manière d'assent à nous.*

Fugue no. 15 in C Major, 2/2, Adagio, in six parts, quotes a line from G.F. Händel's oratorio, namely the chorus 'I will sing unto the Lord'. Reicha's fugue is written out in two versions, on six staves and on two staves.

No 24. 2ème mesure composée. Allegro moderato.

Fugue no. 24 in G Major, 2/2 + 3/4, Allegro moderato, in Reicha's words "2^{ème} mesure composée", is indebted to an Alsatian folk dance in 5/8, as the composer mentions in the preface.



Fugue no. 34 in E-flat Major, 2/2, *Un poco presto*, in four parts, “à deux sujets”, leads us through incredible modulations, in Reicha’s claim ‘d’après un nouveau système’ – in a new [harmonic] system.

Pianist, composer and researcher **Jean-Jacques Dünki** was born in Switzerland in 1948. Following his studies in Basel, Berlin, Paris, Baltimore, New York and London, he was awarded First Prize at the 1981 Arnold Schönberg Competition in Rotterdam. He tours worldwide as a pianist and lecturer with a preference for early 20th century repertoire. First recordings of works by Reger, Zemlinsky, Schreker, Berg and Webern are found in his exquisite discography. He is a freshly-retired professor of piano, fortepiano and



Photo Emil Golshani.

chamber music at the Hochschule für Musik in Basel, Switzerland and presently chairs the board of EPTA Switzerland. As a composer, he has a list of nearly a hundred works from his pen, mainly for keyboard and chamber music. Dünki, also an organizer of large congresses such as ‘Schumann interpretieren’ in 2010 and ‘Liszt – früh und spät’ in 2011, is the author of the book *Schönbergs Zeichen* (Vienna 2006) and editor of books, articles and reviews on interpretation, the latest being *Schumann interpretieren* (Sinzig 2014).

Notes:

- 1 Arnold Schönberg’s composition students from the year 1904 onward, among them Anton Webern and Alban Berg, had to study counterpoint during their first years.
- 2 Schumann, R. (1848) ‘*Musikalische Haus- und Lebensregeln*’, ed. G. Nauhaus (2002). Sinzig: Studiopunkt Verlag, p. 52, item 34.
- 3 The score can be found and downloaded at following address: http://conquest.imslp.info/files/imglnks/usimg/c/4/IMSLP205281-PMLP08970-Reicha_-_036_-_Thirty-six_Fugues_ed.or._R.pdf (12 January, 2016).
- 4 Reicha, A. (1820) *Études dans le genre fugué*, Opus 97, preface, p. 1.

Ferruccio Busoni and the Art of Piano Playing

Geoffrey Madge (*The Netherlands/Australia*)

If any musician is a rewarding subject for discussion or even controversy, Ferruccio Busoni (1866–1924) fits the bill nicely. When writing a short article about Busoni, it is hard to decide what is the most fascinating aspect of his life. Is it the pianist, the composer, the teacher, the essayist, the thinker or the transcriber? All are important for a good understanding of his musical philosophy. I shall limit myself here to the first three aspects: the pianist, composer and teacher. I will discuss several ideas behind Busoni's piano playing as well as his thoughts on interpretation, which are still relevant today and useful for students and professionals alike. I have performed Busoni's piano music for more than fifty years. Some of my conclusions are derived from various sources who were involved with or influenced by Busoni.

Ever since his death in 1924, his piano playing has been considered to be comparable to that of Franz Liszt, the most extraordinary keyboard virtuoso the world has ever known.

Busoni's piano playing was in many ways a continuation of the school of Franz Liszt. The influence of Liszt became even stronger after Busoni turned thirty. His early years were inspired by Anton Rubinstein, not only pianistically but also in his early compositions.

I believe that, throughout his lifetime, Busoni's piano playing can be partly deduced from the style of his compositions in the various periods of his life. For instance, we see a big difference in the works that he wrote around his 'Rubinstein' early years and those of his later 'Liszt' period.

Let me start at the beginning.

The pianistic influence of Franz Liszt on Busoni

One of the aspects of Franz Liszt's piano playing was his use of a *non legato* and *staccato* touch versus the legato. In this he is certainly not alone. We know from the documents of students of Frederik Chopin that he insisted that they first study, *pp staccato*, then later *portato*, and finally a *mf legato* when preparing his compositions. This



Ferruccio Busoni. Photo Louis Held, Weimar. Collection Christo Lelie.

I believe to be an excellent starting point for performances of Busoni's works as well.

According to the reports of students and colleagues, the *staccato* and *non legato* techniques were the foundation of the playing methods of both Liszt and Busoni. Liszt reputedly mentioned this to several students, as did Busoni.

The Busoni technique

According to his English student Ursula Creighton, Busoni did not, in fact, teach technique. What he did was reveal to the student the line of musical interest in a composition from its beginning to the end. A piece had to be convincing with a logical emotional line. This was one of the main characteristics of his own piano playing.

There are a number of important points that need to be clarified concerning the above.

Playing *staccato* while sounding legato: what we hear is not always the way it has been played. Busoni believed that *legato* was an illusion. This doesn't mean that he did not play legato. On the contrary, he was noted for his *legato* sound. The illusion of *legato* can best be heard when a group of notes are played so that they are extremely equal in length. It is perfectly possible, when playing short notes of equal lengths, to sound *legato* even when the technique is *non legato*. A pre-determined amount of *non legato* or *staccato* measures, when well played, can give the illusion of *legato* when listening at a distance in a large hall. The method of playing may be different from what we hear. For a parallel example from a different angle, we may appear to play smoothly and calmly, yet still sound restless or agitated.

So far we haven't discussed the unlimited potential of the pedal (for which Busoni was famous) or the manner in which the dynamics influence the sound. Also, the acoustics of the hall, the quality of the piano and maybe even the audience who, I am convinced, also have a certain 'acoustic', will influence the degree of non legato or staccato.

Busoni's playing used all possible forms of terraced dynamics and articulations. This leads us quickly to another closely related idea concerning Busoni's playing, the concept of terrace dynamics. Busoni's use of terraced dynamics was an important basis for his art of interpretation. Not only the dynamics can be terraced, but also the articulations, both horizontally and vertically. This of course can be extended to large groups of measures and sections.

We can hear this incredible control of terraced dynamics in several of the acoustic recordings Busoni made in 1922, especially the recording of Bach's Prelude and Fugue no. 1 in C. The pedal can be used similarly as a form of terracing passages: with or without, including half pedal etc. If used for an extended period, it provides relief when later passages are played with less or no pedal.

It's a discographic disaster that the Columbia recording engineers were not interested in Busoni's offer to record all of Bach's 48 Preludes and Fugues. His insight into the first fugue is visionary. With the form played so clearly, a complete 'Busoni 48' would have made many later recordings superfluous.

His technical approach

Throughout his lifetime, Busoni gave several clues as to his keyboard thinking, for instance: "I don't swing the fingers." "I don't use the hand." (Kosnick 1971).



I think that these two groups of five words are the important foundation supporting Busoni's instrumental technique. What do they imply?

According to his former student Egon Petri, Busoni often said: "you must play deeply into the keys." These principles of *staccato/non legato* and playing deeply were basic concepts for Busoni's own playing. This can suggest several things, for example that the finger top is played slightly inwards towards the palm, creating a grasping or scraping (a horrible word) of the notes.

Another implication that I discovered when preparing my recording of his solo piano works was the possibility to retain a light continuous forward pressure from the arms to the keyboard. The fingers feel then as if a light forward pressure is transmitted to each key. This applies to both softer and louder passages. The keys need to be played deeply, as Egon Petri mentioned. Busoni hardly moved his torso while performing; if anything, mainly his fingers were active. He took each note with an inward scraping motion of the finger, played from the knuckle.

When his fingers struck the keys, the elbow and forearms tended to move slightly forwards and upwards. An alternative was the use of a slight pressure on each note by the playing finger(s).

He often used different preset positions for his fingers. Slightly curved or flat fingers, often 'straight' before taking the keys. Or as a tripod, playing with vertical fingers usually starting in contact with the key surfaces.

With the upper body remaining motionless, he sat rather high with set fixed joints. The connection from the fingertip to the foot was to allow the bones to be a support to each other. He made a connection from the fingertip to the ground.

Orchestration at the piano

Busoni was a master orchestrator, as can be seen by the numerous transcriptions he made. To achieve this variety of orchestration, he often made use of pre-fixed hand and finger positions. The hand was nearly always in a pronated position with the hands pointing outwards. The upper arms generally held quite close to the body and the arm, through to the fingertips, as one totally fixed unit.

The rebound

Another important concept to consider is his use of the rebound of the playing finger's key in creating the energy for each next playing finger. When one finger goes down, the following rises quickly as a rebound, rebounding upwards as a



1. Busoni - Fantasia Contrapuntistica, 1910, first bars.

reaction to the downwards playing finger, the return journey to the key being slower than the rebound upwards.

He allowed the fingers to rebound with the key, and he often allowed the fingers to retake a key halfway, creating an 'after resonance' and catching this in the pedal. (ex. 1, p. 20).

The great English pianist Harriet Cohen mentions in her book *Music's Handmaid* that Busoni asked her to use a 'squirming' finger, implying that the finger would then remain 'alive' on the note after being played. As a result, this changed the position of the hammer, and this movement of the hammer would in turn change the sound of that note.

Keyboard geography

Busoni said, "Piano playing has to do with keyboard geography" and, "Piano playing is a question of geography and position". (Kogan 2010) He used to ask his students, "if a round pencil was put on the keys, which way will it roll?" Most didn't know which way. Do you? More important is the consequence it has for piano playing in connection to the use of the first joint of the finger as mentioned earlier.

He also gave his students a piece of paper asking that they draw the precise positioning of the black keys in relation to the white keys. "To know where you want to go, it helps to know where you are." Likewise, we could say: "To know how to change what you do, you need to know WHAT you do."

Busoni sat on a large organ bench so as to be able to move freely from the higher to the lower areas of the keyboard.

He always made very quick, light, clear changes of hand positions. They were squarely made, either horizontally or vertically, generally not circular, with the arm being held as a total unit.

Each new position was made just prior to playing as opposed to going straight to the chords or positions in one movement at the moment of playing: always being at the next position prior to the note or chord to be played.

Groups of notes were played first as chords or as harmonic clusters to clarify each position change, later with the group as it was to be played.

A useful exercise is to practice this with closed eyes. Not only for the certainty of position changes but also for the added effect of an improved sound quality.

Hand and body positions/fingering

Regrouping, first as 10ths, then by playing the first note as an upbeat and continue as descending octaves.



The image shows a musical score on a grand staff (treble and bass clefs) in 4/4 time. The first measure contains a chord of Bb, D, F, Ab, C, Eb, Gb, Bb. The second measure contains a chord of C, Eb, Gb, Bb, D, F, Ab, C. The third measure contains a chord of D, F, Ab, C, Eb, Gb, Bb, D. The fourth measure contains a chord of E, G, Bb, D, F, Ab, C, Eb. The fifth measure contains a chord of F, Ab, C, Eb, Gb, Bb, D, F. The sixth measure contains a chord of G, Bb, D, F, Ab, C, Eb, G. The seventh measure contains a chord of A, C, Eb, G, Bb, D, F, Ab. The eighth measure contains a chord of B, D, F, Ab, C, Eb, G, Bb. The ninth measure contains a chord of C, Eb, Gb, Bb, D, F, Ab, C. The tenth measure contains a chord of D, F, Ab, C, Eb, Gb, Bb, D. The eleventh measure contains a chord of E, G, Bb, D, F, Ab, C, Eb. The twelfth measure contains a chord of F, Ab, C, Eb, Gb, Bb, D, F. The thirteenth measure contains a chord of G, Bb, D, F, Ab, C, Eb, G. The fourteenth measure contains a chord of A, C, Eb, G, Bb, D, F, Ab. The fifteenth measure contains a chord of B, D, F, Ab, C, Eb, G, Bb. The sixteenth measure contains a chord of C, Eb, Gb, Bb, D, F, Ab, C. The seventeenth measure contains a chord of D, F, Ab, C, Eb, Gb, Bb, D. The eighteenth measure contains a chord of E, G, Bb, D, F, Ab, C, Eb. The nineteenth measure contains a chord of F, Ab, C, Eb, Gb, Bb, D, F. The twentieth measure contains a chord of G, Bb, D, F, Ab, C, Eb, G. The twenty-first measure contains a chord of A, C, Eb, G, Bb, D, F, Ab. The twenty-second measure contains a chord of B, D, F, Ab, C, Eb, G, Bb. The twenty-third measure contains a chord of C, Eb, Gb, Bb, D, F, Ab, C. The twenty-fourth measure contains a chord of D, F, Ab, C, Eb, Gb, Bb, D. The twenty-fifth measure contains a chord of E, G, Bb, D, F, Ab, C, Eb. The twenty-sixth measure contains a chord of F, Ab, C, Eb, Gb, Bb, D, F. The twenty-seventh measure contains a chord of G, Bb, D, F, Ab, C, Eb, G. The twenty-eighth measure contains a chord of A, C, Eb, G, Bb, D, F, Ab. The twenty-ninth measure contains a chord of B, D, F, Ab, C, Eb, G, Bb. The thirtieth measure contains a chord of C, Eb, Gb, Bb, D, F, Ab, C. The thirtieth measure is marked with a fermata.

2. Play 10ths, then regroup.

Busoni's hands were pointing outwards. You can see this very often in the positions of the chords in his compositions, especially in the later works.

On the day of a concert he would play his whole program through, slowly and very softly, without expression, using only the fingers.



Busoni had unique ideas on fingering. He often used the same finger for melodies, usually the third and the thumb: see the *Carmen Fantasy* (D-flat section) for instance. Using one finger helps us to realize and hear the distances between intervals. These days we often do not hear real intervals. When using only one finger, they come back to life. This is a good way to practice melodic lines.



Busoni's hands.

3. The middle D-flat section (Andantino) of the Carmen Fantasy, using the third finger for one measure and the thumb for two measures.

Using all the fingers in scale passages, e.g. 1-5/1-5, etc.:

4. Busoni – Klavierübung, exercise no. 1, first bars.

Busoni would slide his fingers from black to white keys.

Comments on Busoni by Egon Petri. He said:

“The speed of the key determines the dynamic, not the weight.”

”Listen to the vibrations of the strings rather than the knocking of the hammer.”

”Think mainly of the fingers and keys rather than the arms.”

(Personal communication).



Busoni and the pedals

One of his specialties was his use of the three pedals in relatively equal amounts. A favorite Busoni quote was: “Not using the pedal is often its best use.”

He would use the sustaining pedal for one section, then no pedal for the next (a sort of terracing with the pedal).

Not putting the heel on the floor when pedaling made it much easier to use vibrato pedal. Additionally, using a pedal vibrato with half- and quarter-deep pedaling with the dampers remaining closer to the strings.

And his speciality: the use of the third pedal in combination with the *una corda* pedal, the left foot on both pedals at the same time.

Making pictures, not just notes

Busoni was already making pictures in his earliest works, which we can see in the early *Macchiette medioevali*, Opus 33a, the *Racconti Fantastici* and the *3 Pezzi caratteristici*, Opus 12.

As a young boy he was fascinated with the lives of the knights and troubadours, all characters with a bold imagination, and applied this fascination to the making of musical pictures. The works mentioned above are all excellent study material for young pianists, melodious and intriguing to play.

Several years later he wrote an incredible series of 24 Preludes. It has always surprised me that they are hardly, if ever, played in concerts. Not only is their musical content superb, but the incredible virtuosity needed for a successful performance is equal to none. They show the technical superiority that Busoni possessed at a very early age.

His practical use of all three pedals certainly would have helped him in making his fascinating colors. This pictorial illusion is helped even more in his later years by his use of the left foot for the *una corda* and the third pedal together, important for the spooky, occult, mysterious sort of sound necessary for the performance of his later pieces.

Surrounding passage work was played as an ornamental background to the main harmonies and themes. Another feature mentioned by the contemporaries of both Busoni and later Liszt: by bringing out the most important melodic idea behind each line, the melos, their playing never seemed bombastic or screamingly loud in fast passages. One could easily imagine that the end result would be a ‘sound picture.’

Many commentators on Busoni the pianist mentioned that he had a whispering sound, unearthly, similar to the sound of an aeolian harp.

According to Edwin Fischer, Busoni often played *fortissimo* in his early years, while under the influence of Rubinstein’s pianism. During his later years he seldom played more than a forte; his playing often sounded as a whisper, especially the in-between and accompanying notes.

He once experimented while performing Beethoven's Emperor Concerto with a very low dynamic. This was well known.

He disliked the word musical: "Only the instruments have this quality" (Kogan 2010 and personal communication with the author).

Busoni's recordings

His students mentioned that his 1915 piano roll recording of Liszt's *Feux Follets* was the closest to his real style of playing, even more than the 9 acoustic discs he made in 1922. In my opinion this 1915 piano roll has not been edited; we hear so many Busonisms in the piano roll recording that it would have been difficult to edit this while retaining its unique character. Even today I think it remains an amazing recording despite being a piano roll.

Of the nine acoustic discs it is generally agreed that his recording of Liszt's *Hungarian Rhapsody* no. 13 was his greatest achievement.

Busoni's compositions

There are large differences between Busoni's early, middle and late styles.

The early period reveals great influence by the great Russian maestro Anton Rubinstein, from whom he had received advice. During this period, his compositions became fully romantic, culminating for instance in the amazing *Variationen und Fuge in freier Form, Opus 22 über Fr. Chopin's C-moll Präludium* with its staggering monumental fugue that lands somewhere between Max Reger, Brahms and Anton Rubinstein.

During the middle period his writing was prolific, including a series of *Etudes* and the *6 Stücke* Opus 33b. His monumental *Piano Concerto*, Opus. 39 is his masterpiece from this period.

He began his third period in 1907 with the *7 Elegien*, works taking him into entirely new regions. He wrote the wonderful *Nuit de Noël* in 1908 and in 1910 his masterpiece *Fantasia Contrapuntistica* in three versions. Following this, the six *Sonatinas* (what an understatement!). The *Sonatina Secunda* was as close as he would ever get to atonality.

Another late masterpiece was the *Toccata (Preludio, Fantasia and Ciaconna)* from 1920, followed by the French-inspired *Prélude et Étude en Arpèges* (1923). This is just a partial selection of some of the major piano solo works.

Some conclusions

How does one practice the Busoni method? Can Busoni's piano style be of use to pianists today? I have tried to compile several points here that I have found useful with some of my advanced students:

- Using the fingers relatively straight (playing on the ball of the finger).
- Playing with hands pointing outwards.
- No unnecessary body movements (even the smallest).
- Take each key; remember the connection mentioned above to the slanting keys. Observe any body movements or tensions in the shoulders or upper arms.
- Always remain relaxed and concentrated, the fingers and hands taking full responsibility for the rhythms and notes.
- With rare exceptions, the fingers remain in contact with the keys, playing deeply.
- All position changes are made squarely, either vertically or horizontally. The

arm being used as one entity: the bones provide the support from the finger top to the spine.

- Play your repertoire slowly with closed eyes, listening and feeling note by note. Judge the distance of positions without looking! Remember Busoni's words "Piano playing is a question of geography and position" (Kogan 2010).
- Try playing each note without any sound and with a slow finger: watch that each hammer travels slowly and steadily right up to the strings, kissing the string. Try this for several weeks; you should notice certain (memory) improvements, more precision and a better sound quality.

Geoffrey Madge was born in Adelaide (Australia). He studied at the The Elder Conservatorium, University of Adelaide. After winning first prize in the Australian Broadcasting Competition with the Brahms Second Piano Concerto, he moved to Europe and finally to Holland where he was appointed in 1971 as senior professor of piano at the Royal Conservatoire in The Hague, a position he held until his retirement in 2006. Geoffrey Madge has always enjoyed presenting daring recitals with strongly contrasting programs, mixing the baroque, classics and 19th century works through to the most recent avant-garde. He has been especially known for his concerts and recordings of many unjustifiably neglected compositions, including among many others the four hour long *Opus Clavicembalisticum* by Kaikhosru Sorabji and his Edison prize winning 6-CD anthology of the piano works of Busoni for PHILIPS.



Photo Arnold Fellendans.

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Erwin Schulhoff - The Lost Generation

Michal Tal (Israel)

Erwin Schulhoff (1894-1942) is one of a number of Jewish composers who can be termed 'the lost generation'. He was one of the brightest figures in the generation of Jewish European musicians whose successful careers were prematurely terminated by the rise of the Nazi Regime in Germany and whose works have been rarely noted or performed.

Erwin Schulhoff was born in Prague on 8 June 1894. Thanks to a letter of recommendation by Antonín Dvořák, he was accepted as a piano pupil at the Prague Conservatoire at the early age of ten. He continued his studies in 1906 in Vienna (with Willy Thern), in 1908 in Leipzig (piano with Robert Teichmüller, music theory with Stephan Krehl and composition with Max Reger) and in 1911 in Cologne (with Lazzaro Uzielli, Carl Friedberg, Franz Bölsche, Ewald Sträßer and Fritz Steinbach). Four years of military service during World War I changed the direction of Schulhoff's life. But action on the Russian and Italian fronts did not prevent Schulhoff from composing, even as he battled to save his hands from frostbite in Russia. He emerged from combat with a sizeable body of new works.

After his military service in the Austrian Army during the war, he resided in Germany until 1924. While studying the piano as a youth, Schulhoff also began to compose, studying briefly with Debussy in 1913 and later with Max Reger. As was the case with the piano, Schulhoff was also successful early on as a composer, winning a major prize in 1918 for an early Piano Sonata (Opus 22). As a young composer, he worked in a variety of post-Romantic traditions, but after (and, in part, as a result of) World War I, he increasingly moved toward the avant-garde in artistic terms, embracing and/or incorporating themes from Dadaism and jazz into his music.

Schulhoff lived in Germany between 1919 and 1923, and during this period performed frequently and composed prolifically. Although he still composed post-Romantic works, mostly in the idiom associated with the so-called Second Viennese School and Schoenberg, by the end of his stay in Germany he had become clearly identified with modernism and the avant-garde in both music and politics. After returning to Prague in 1923 he continued to develop along these same lines but began to incorporate Czech and Slavonic folk traditions as well into his ever-evolving musical palette.

Throughout the 1920s and early 1930s, Schulhoff was moving further to the left in political terms, a movement at once illustrated and embodied by his completion in late September 1932 of *Das Manifest*, his full oratorio based on the text of *The Communist Manifesto*. Schulhoff's political priorities and commitments were made



manifest again the next year, when he visited the Soviet Union, and in the years thereafter, when he became a believer in, and defender of, Stalin's brand of socialism. Regrettably, he increasingly displayed these same priorities and commitments in his music, which succumbed more and more to the principles – and aesthetic limitations – of socialist realism.

On his return to Prague, Schulhoff became the successor of Max Brod as the music critic of the newspaper *Prager Abendblatt*. After 1933, he was unable to continue his career in Germany due to his Communist convictions (he had, as mentioned above, set *The Communist Manifesto* to music) and his Jewish roots. The planned first performance of the opera *Flammen* in Berlin was cancelled. During the 1930s, Schulhoff underwent an artistic transformation; his symphonic jazz compositions were superseded by symphonies in the style of Social Realism. This stood in sharp contrast to his activities as a jazz pianist for Prague radio in Ostrava. In 1941 Schulhoff acquired Soviet citizenship. The German declaration of war with the Soviet Union meant that he was now categorized as being a citizen of an enemy nation. He was initially interned in Prague on 23 June 1941 and subsequently deported to the concentration camp Wülzburg near Weißenburg in Bavaria, where he died of tuberculosis on 18 August 1942.

Schulhoff's eclectic music ranges across an amazing variety of styles, yet his work is always original and personal. His creative output includes one opera, three ballets, six symphonies (his last, No. 6, the 'Symphony of Freedom', was composed just before he was imprisoned by the Nazis) two string quartets and many chamber works. Throughout his life Schulhoff devoted a great deal of time to his career as a pianist as well as his composing. He appeared as both a solo pianist and a chamber player in Czechoslovakia and abroad, in concert halls and in radio studios. His output for piano is impressive: three piano concertos and many solo compositions.

Recordings

The author recently recorded Schulhoff's piano music on Centaur, revealing his varied styles:

Suite Dansante en Jazz (1931) and *Partita für klavier* (1922) reflect the Influence of Jazz and music hall style on Schulhoff's writing. His love of the dance is well stated in a letter for Alban Berg in 1921:

"I have a tremendous passion for the fashionable dances and there are times when I go dancing night after night with dance hostesses [...] purely out of rhythmic enthusiasm and subconscious sensuality; this gives my creative work a phenomenal impulse, because in my consciousness I am incredibly earthly, even bestial..."



1. Erwin Schulhoff – Tango from *Suite Dansante en Jazz*, mm. 1-3.

And almost as with the Baroque dance suites, Schulhoff focuses on the main dances of the twenties: ragtime, tango, foxtrot and the waltz.



2. Erwin Schulhoff – Foxtrot from Suite Dansante en Jazz, mm. 1-3.



3. Erwin Schulhoff – Tempo di Rag, nr. VI from Partita für Klavier, first bars, mm. 1-12.



11 Inventions, Opus 36 (1921) were composed after a pause of ten months in Schulhoff's creative output. In this composition Schulhoff is much more experimental, exploring atonality, the loosening of metrical rigidity and concentrated expression, as well as omitting bar lines, as did the French Erik Satie, whom he never met. The influence of Arnold Schönberg, Alban Berg and Alexander Scriabin is well heard in these condensed miniatures.

Erwin Schulhoff and dancer Milča Mayerová (1901-1977), ca. 1931.



4. Erwin Schulhoff Invention, Opus 36 no. 1, opening.



5. Erwin Schulhoff *Invention Opus 36 nr. 11, opening.*

Sonata no. 3 (1927) is a blend of styles: neoclassicism, the rhythmic energy of Bartók, the folk music elements and echoes of influences of Janáček; all of these intertwine with great emotional intensity and nostalgic longing, freedom and improvisation, and extreme mood changes. The sonata starts and concludes on the same musical ideas in a cyclic way; one might associate them with the cyclic musical ideas in predecessors such as Beethoven. In between, Schulhoff places, with a beautiful symmetric approach, two slow movements: one of them is a funeral march, influenced by Alban Berg's dark atonal world, and, in the center, a *perpetuum mobile* of exciting and intense movement.

Michal Tal was born in Tel Aviv. At the age of sixteen she performed as soloist with the Israel Philharmonic Orchestra. Since then she has performed with all the leading orchestras in Israel, Europe and the USA, the Dutch Radio Orchestra, among many others. She studied with Prof. Arie Vardi, Richard Goode, and Gilbert Kalish and played under the baton of Leonard Slatkin, Eduardo Mata and Luciano Berio. Tal's repertoire extends from Haydn to Ligeti and Berio, as well as numerous premieres by Israeli composers. Among Tal's discography is Erwin Schulhoff's music for piano solo (CENTAUR). Dr. Michal Tal is on the faculty of the Buchmann-Mehta School of music as well as the Givatayim Conservatory, for which she served as pedagogic director. She is the artistic director of The Young Piano Course at the Jerusalem Music Center. Michal Tal chairs IPTA (EPTA Israeli associate) since 2014. www.michaltal.com.





Working with Composers: A Musician's Gift

Ralph van Raat (*The Netherlands*)

Most pianists know a certain feeling of isolation, spending many hours in solitary practice or perhaps puzzled by what a composer might have meant with a seemingly inconsequent use of articulation marks. And, after this intense period of practicing, the experience of actually performing solo and returning home, wondering whether the concert was up to the desired standards.

Working with composers has not only eliminated many of my questions about a score, given the possibility of asking directly, but has also greatly inspired me to practice and perform well. This is because composers are, in most cases, the performer's biggest fans: they help a musician prepare for a concert, they provide the player with positive and encouraging thoughts right before and during the concert, and a lot of them are ready to give him or her, in thankfulness, the most intense hug afterwards. I have heard of many musicians being somewhat scared of asking composers to listen to their playing, but for me, working with composers has led to some of the most rewarding experiences in my career.

Magnus Lindberg

In many cases, composers have helped me with purely technical problems. When I was preparing to perform and record the beautiful *Six Jubilees* by the



Magnus Lindberg.

Finnish composer Magnus Lindberg, I was not sure how to perform a series of seconds (intervals) in a row. After inquiring, I discovered that Lindberg thought of these as the smallest possible cluster-cells of two notes, which could be played using a tilting movement by the thumb, thus enabling quick successions. It proved to be a technique which became very useful, not only in many of Lindberg's piano works, but also in some works by other composers, even earlier ones, such as Ravel, for example.

Tan Dun

When I worked with Chinese composer Tan Dun on his piano work *C-A-G-E*, which is full of extended piano techniques, I was completely stuck on how to play a tremolo directly on one piano string only. It was the composer himself who



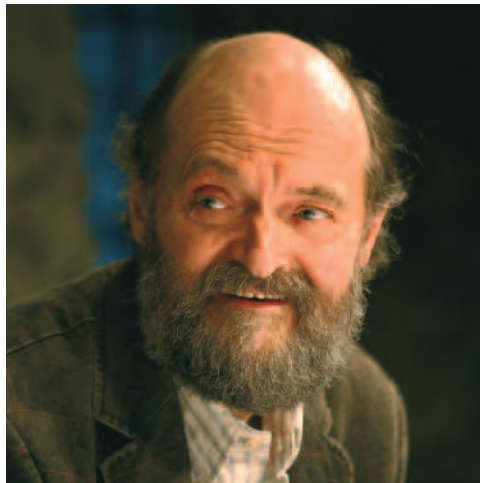
Ralph van Raat with Tan Dun.

showed and taught me how to realize this, tilting the wrist counter-intuitively sideways across the strings and using a flamenco guitar technique called *rasgueado*. It became suddenly possible for me to make the piano actually sound like a guitar or a Chinese *pipa*, a sound I simply had never imagined coming out of a piano or envisioned a pianist as actually producing.

Arvo Pärt

A composer does not need to be an especially proficient pianist him or herself in order to make working with him or her educational. Working with him or her can be an unusually useful musical experience, and very often one which is not easily duplicated in the process of working on the score alone.

One remarkable example which comes to my mind is working with Arvo Pärt. In preparation of a performance of his piano concerto *Lamentate*, it struck me how he often fell silent for a while after I



Arvo Pärt.

I had asked him something. At first I thought this was because of inarticulate questions on my end; it turned out, however, that this was not because of something I said or did, but rather a preference of his to come back to questions at a later time. This tendency for Pärt to let words sink in and come back to them at a later moment is very characteristic also of his music, where silence plays a major role.



In fact, silence is the deciding factor on the course and meaning of the actual sounding notes. From both his musical language and his unique spoken language, I have come to understand how one cannot continue a musical texture or gesture until the previous one is fully understood. Only then can the next musical phrase make sense.

When I asked Pärt to play a passage for me, he at first kindly resisted, not being a pianist himself. However, with some convincing, in the end he did sit down at the piano to play some parts. I will never forget how he closed his eyes and folded his hands after playing each phrase, only to continue after the clashing of resulting harmonies had its full impact. It was incredible how such few notes could be so powerful.



Ralph van Raat with John Adams.

John Adams

Working with composers has often given me an unexpected glimpse into their world of thought, such as the first time I collaborated with American composer John Adams. I worked very hard to be able to play tight and rhythmically-precise interlocking patterns between both hands in the monumental and motoric minimalist piano composition, *Phrygian Gates*. Characteristic of a lot of minimal music (including *Phrygian Gates*) is the steady beat and the often mechanically-precise execution of patterns. These two qualities enable the listener to perceive the changes in texture that occur throughout the piece. After having played the piece for Adams, he told me something unexpected. He said, “Great, but now try to get rid of all the existing ideas about minimalism and play it like Debussy. My music should ideally be conceived as large waves, like those of an ocean, with small water particles, that are more like a group forming the wave than individual water drops. Do not refrain from using internal dynamics; the piece should almost reflect the grandness of nature.”



This entirely new image completely changed the ideas I had about the music. In addition, because this had never been described by any musicologist writing about Adams, or minimalism in general, my guess is that I was not the only one for which this was a groundbreaking concept. Taking his advice into account, I went from playing with relatively fixed wrists and extensive use of finger-muscles to an approach in which my wrists were steering the direction of the fingers in large movements. This technique created, according to Adams, a much more beautiful and appropriate sound color.

Helmut Lachenmann

Sometimes working with composers contradicts general beliefs about their music, as described by others in books and magazines. Such an instance occurred when I was playing the piece *Guero* by the German composer Helmut Lachenmann. This piece is played not by pressing down a piano key in the conventional way, but instead by swiping one's nails on different places around the keyboard. This produces an effect of only of percussive, rattling sounds, with no perceivable pitches. As I



Helmut Lachenmann.

was playing, Lachenmann kept saying: "Sing, sing! Please perform it more as a sonata, it is all about drama and development." It was a highly unexpected piece of advice from a composer who is generally regarded as quite strictly avant-garde and whose scores look and sound everything but orthodox.

Louis Andriessen

Another striking case that comes to mind is my collaboration with Louis Andriessen, who is seen as the primary musical representative of 'The Hague School'. This school of thought has been described by composer Gene Carl



Louis Andriessen.

in magazine *Keynotes* (1987) as follows: "Typical for The Hague School is loud, aggressive, rhythmic, energetic music which is devoid of any neoromantic sentiment [...]" Upon entering Andriessen's home, I noticed a score of Mendelssohn's *Variations Sérieuses* sitting on the music stand of his grand piano, a study object which he gladly received from his friend Martijn Padding, who is another exponent of this specific contemporary style. I did not expect this early romantic work to function as a source of inspiration for these composers; after playing

Andriessen's exemplary piano piece *Trepidus*, however, which epitomizes the description of the style as quoted above, I expected even less the following comment from Andriessen to me: "You can take much, much more time everywhere. Don't be afraid of translating a Rachmaninoff-like bravura to this piece, it is like a contemporary Rachmaninoff! Please use much broader gestures. The earlier recordings you have heard of this piece are from a past period; I would prefer it if you play it in the way you feel it should be played nowadays." Once more, my concept of the piece was changed radically, and the allowances for a natural timing and phrasing proved to save a lot of muscle-power for the end of the piece, which I could, therefore, play very loud, whereas that was impossible before.

Sir John Tavener

Besides all of the invaluable information which is exchanged from the composer to the pianist, the reverse is also true. There is little I have experienced that is as rewarding in music as to be directly part of the creative process of music making, though this process can be quite time consuming and seemingly never-ending. So many times I have encountered composers altering aspects of their work after hearing it live, even decades after the piece was made. My most extreme experience was with Sir John Tavener, who generally wrote music which was conceived directly from his Greek Orthodox beliefs. His piano work *Υπακοë*, a 20-minute meditation on the resurrection of Jesus Christ, was written in 1999



Ralph van Raat with Sir John Tavener.

and very closely resembled elements of a mass, with its slow-moving textures. When I played it for him eight years later, he noticed that the piece should be played much faster in order to make it sound more pianistic. He was very surprised at seeing his own tempo markings and told me he wrote them when he still wanted to ‘convince’ people of his beliefs. By imitating religious music, he thought to evoke the same spirituality. However, almost ten years later, his beliefs of spiritual music encompassed a far broader range of influences, such as raga, Islamic prayer chants and many other sorts of religious styles found in the world. “True spirituality”, Tavener told me, “can only be conveyed by a performer if he or she feels it in the first place. That means adjusting it to the qualities of the instrument and your own personality and taste.” The collaboration led to performing the work almost twice as fast, which in turn had its consequences for the musical phrasing. A renewed publication of the now 13-minute work followed.



Joep Franssens.

Joep Franssens

My concept of tempo has become much more flexible through my years of working with composers. The example above are perhaps extreme; however, almost all of the composers with whom I have worked altered their tempos on the spot, even if it was a slight change. Interestingly enough, it seems that in most cases composers choose to slow down the original tempos when they hear their works again after an extended period of time. According

to the Dutch composer Joep Franssens, perhaps the reason for this is that at the time of composing, composers know every intricate detail so well that the information density, or, in other words, the ability to perceive and understand the succession of musical events, allowed a fast performance for them. After some time, the composers forget these details themselves and are able to hear the work more like someone who hears it for the first time. The information density thus increases, which naturally triggers a slowing down of the tempo so that the listener can follow what is going on musically. In addition, possibly because of a focus on sound colour in much contemporary music, the acoustics and the qualities of the instrument are elements that many contemporary composers want the performer to take into account. American composer Frederic Rzewski even informed me that it all depends on “the temperature of the hall and the position of the moon!”

Conclusion

It is extremely rewarding to work with composers, as it provides a pianist not only with invaluable perspectives on their music and possibly a new perspective on traditional classical repertoire, but also because it creates a sort of comradeship which orchestral musicians have the privilege of experiencing daily. Starting to understand the intricate details of sometimes very complex music, combined with a knowledge of the personalities behind the scores which one gets to know,

makes sharing this music with the audience a highly personal and unforgettable event each time for both the performer and the listeners. After all, this music is made by people who live in our own world, who see the same news, and who share with us their response to these events through their art. To me, contemporary music should, for these very reasons, logically be the music we can most readily identify with, even if it costs some effort on the sides of both the performer and the listener. Contemporary music of this day really is the classical music of our future generations, and I think it is the responsibility for us performers to keep this music alive and communicative for many centuries to come.

Pianist and musicologist **Ralph van Raat** studied the piano with Ton Hartsuiker and Willem Brons at the Conservatorium of Amsterdam. He also studied with Claude Helffer (Paris), Liisa Pohjola (Helsinki), Ursula Oppens at Chicago's Northwestern University and Pierre-Laurent Aimard at the Musikhochschule in Cologne. Van Raat studied Musicology at the University of Amsterdam; he concluded both studies with distinction. He has won multiple prizes. He has performed as a soloist with orchestras such as the Royal Concertgebouw Orchestra, the BBC Philharmonic, the Los Angeles Philharmonic and London Sinfonietta, and he has worked with conductors such as Valery Gergiev, David Robertson and Peter Eötvös. Ralph van Raat has been a Steinway Artist since 2003. Being a strong advocate for contemporary composers in particular, Ralph van Raat has recorded a large number of CDs for various record labels. Since 2006, he has an exclusive contract with Naxos.



Photo Emil Golshani.

II. PERFORMANCE



*Diana Zanberga (Latvia), pianist and ballerina, performing Lepo Sumera's Pardon, Fryderyk.
Photo David Kuyken.*



Photo Emil Golshani.



Understanding Classical and Early Romantic Dynamics 1750-1830

Bart van Oort (The Netherlands, Royal Conservatoire in The Hague)

To play Classical works on a modern piano instead of a contemporary forte-piano means making a translation of sorts. As in any translation, one loses part of the original meaning in the process. The modern player, like a translator, faces two problems: relative unfamiliarity with the language, because two centuries of history have blurred the picture, and a modern instrument which ‘pronounces the musical words’ differently. The first problem is unrelated to the instrument, as it is a question of understanding the musical language. We can solve the second problem when we have a ‘native speaker’ who pronounces the language for us: in this case, the eighteenth century fortepiano. Instead of taking Mozart’s and Beethoven’s notation as the complete and unalterable truth, we must take into account that some aspects of their style could not be notated. Treatises of the time support this assumption: for instance, all treatises before 1800 agree that the application of dynamics belongs to the domain of the performer. As a result, early scores show little or no dynamics at all. The dynamics that *are* notated are, almost without exception, very general.

Pianists of all times have, of course, instinctively understood this: besides dynamics, elements such as timing, rhythm (as opposed to meter), tone colour, tempo, *tempo rubato*, pedalling, balance between the hands, drive and direction, and subtle, speech-like accentuation, cannot be adequately recorded in our musical notation. But the degree to which these unwritten liberties have been exploited has diminished enormously in the two hundred years since Mozart died: with the disappearance of the improvising performer, performance of the Classical repertoire has become less free. Urtext editions have given a further blow to the artistic initiative of many performers: rather than looking for the (often hidden) meaning of the notation, musicians today often seem to literally follow the score while boasting ‘fidelity’ to the text. They take the notation as instructions, rather than descriptions. In this article I will attempt to set parameters for the use of one of these unwritten liberties, namely dynamics.¹

1. Understanding early dynamics

Often no dynamics at all

In much of the early keyboard repertory until ca. 1750, hardly any or no dynamics are notated, even in scores for two manual harpsichords and organ. In fact, one does not even find dynamics in scores for instruments that are highly dynamic, for instance, the Bach Suites for harpsichord, cello or flute.

Bach’s two part Inventions and three part Sinfonias, written for the clavichord, were specifically meant for students to achieve a singing quality of playing: “Am allermeisten aber eine cantabile Art im Spielen zu erlangen.” Yet Bach did not notate any dynamics.



1. J.S. Bach - Flute Partita in A Minor, BWV 1013, first bars. Bach's manuscript.

In early Classical repertory there is a similar lack of notated dynamics. Dynamics were, nonetheless, considered to be of great importance: when Carl Philipp Emanuel Bach summarizes the elements of performance, he mentions dynamics first.² Haydn never indicated dynamics in his keyboard sonatas until the six *Auenbrugger* Sonatas, Hob. XVI/35-39 and 20, published in 1780. Even if it is true that these pieces were written with the harpsichord in mind, this does not explain the similar lack of dynamics in string quartets, symphonies and chamber music from the same period. This did not immediately change with the advent of classicism and the fortepiano, for which composers like C.P.E. Bach, Mozart or Clementi created a powerfully rhetorical, theatrical and, accordingly, dynamic style.

Mozart was one of the first composers to start notating dynamics in the keyboard works. It is very likely that this had to do with the fact that his works were written with publication in mind. But even so, some of his (as well as of contemporaries') later repertory for the fortepiano still did not have dynamic markings. The Sonata in C Major, K. 330 (1781-83, published in 1784), has very few, and his late Sonata K. 545 (1788) - including a highly expressive second movement - has not a single dynamic marking. The genesis of this sonata, described by Mozart himself in his thematic catalogue as 'for beginners', may have something to do with that: it was not published in Mozart's lifetime and first appeared in print in 1805.

Character

If there are any dynamic markings in early scores, they are often found at the opening of the piece. The only dynamics one initially finds are *forte* and *piano*; they seem to indicate character rather than dynamics. C.P.E. Bach explains why these two, seemingly extreme markings, are sufficient, as they carry the possibility of a much broader range of dynamics.³ In his *Klavierschule* (1789), Daniel Gottlieb Türk (1750-1813) confirms that "to indicate every single passage which should be played somewhat louder or softer as the previous or next one, is absolutely impossible [...]." Besides, there are many types of *p* or *f*; this even applies to the basic

dynamic level of a piece.⁴ Particularly interesting is the ‘*Anmerkung*’ (comment) following this paragraph in which he warns against an absolute interpretation of the indication of a general dynamic level. This is exactly what happened half a century ago when literal interpretation of the *p* and *f* markings lead to the (soon outdated) ‘terrace dynamics’.

Many scores before 1800 lack an opening dynamic. Nevertheless, the performer is expected to choose a dynamic which brings out the character. In the language of the early Classical style (ca 1750–1790), for a slow movement, *piano* and, for a lively allegro the marking, *forte* is implied. But how loud one really should play depends on the very personal interpretation of the character. Typically, the second motive has a contrasting marking. Similarly, slow movements often have no piano marking.



2. C.P.E. Bach - Sonata in E Minor, Kenner und Liebhaber V, Wq. 59/1 (1785). First movement, mm. 1-4. Krebs: Breitkopf und Härtel, ca. 1895.

What if there is an opening dynamic?

It follows that with an unusual opening character, the composer will need to indicate an opening dynamic. In C.P.E. Bach's *Für Kenner und Liebhaber* he often asks for a forte opening of a *Larghetto* or an *Allegretto*, which would normally be played *piano*.



3. C.P.E. Bach - Sonata in G Major, Kenner und Liebhaber II, Wq. 56/2 (1780). Second movement, mm. 1-5. Krebs: Breitkopf und Härtel, ca. 1895.

Mozart loved surprising his audience this way, as shown by his letter on the *Paris Symphony* K. 297, in particular concerning the dynamical effect in his last movement Allegro: “Having observed that all last as well as first allegros here begin together with all the other instruments, and generally *unisono*, mine commenced with only two violins, piano for the first eight bars, followed instantly by a forte; the audience, as I expected, called out ‘hush!’ at the soft beginning, and the instant the forte was heard began to clap their hands.”⁵ Mozart uses a similar effect in the *presto* last movement of the Sonata in A Minor, K. 310 (also written in Paris in 1778) and in the K. 279 and K. 333 Sonatas, where he contrasts an imaginary soloist with the orchestral *tutti*.

The performer's domain

Not surprisingly, treatises of the second half of the 18th century treat dynamics as the performer's domain as well. Leopold Mozart leaves no doubt about the responsibility of the performer: "The prescribed *piano* and *forte* must be observed most exactly [...] one must know how to change from *piano* to *forte* without directions and of one's own accord [...]"⁶ [italics mine here and below]." Johann Joachim Quantz says that one of the duties of the accompanist is to understand the dynamics. He recommends the fortepiano over the harpsichord, since it is so much easier to follow the dynamics of the soloist. At the same time: "It may often happen that you must unexpectedly bring out or soften a note, *even if nothing is indicated*."⁷

Johann Adam Hiller in his *Anweisung zum musikalisch-zierlichen Gesänge* (1750) explains why there are no markings of intermediate dynamics. The difference does not need to be as large as *piano* and *forte*, because "there are so many intermediate degrees that we do not have enough names to indicate them all. All of these should be within the power of a good singer."⁸

Türk uses the same argument and adds: "The performer must [...] himself learn to feel and judge which degree of loudness and softness reinforces the character that needs to be expressed. The added *piano* and *forte* only indicate the expression roughly and in a general way."⁹ Even at end of the 18th century, Johann Peter Milchmeyer says that the many degrees of dynamics are hardly ever notated and can only be understood fully by a "very accomplished performer".¹⁰

Understanding the musical language

While in the 18th century the application of refined dynamics is considered to be within the expressive domain of the performer, there are many ways in which composers *did* indicate dynamics implicitly. Many of these implications are straightforward and in fact described in most treatises, even though modern day performers may not always take the hint. The crucial factor is that understanding the implications for dynamics in the score relies on our understanding of the musical language. Shaping the musical language by way of dynamics is done on three levels: diction or articulation, phrasing, and structure.

Diction: speaking the music

In order to 'speak' each musical 'word' (the musical motive) correctly, we need to design the correct emphasis (both accentuation and length). This accentuation depends on the harmonic tension within a musical motive, its gesture, articulation, and the melodic dissonance and consonance. Furthermore, the motive is placed strategically within the bar, which means that rhythm and meter play a role. Haydn, master of diction, uses this last rhetorical device often. The opening theme of his London Sonata in C Major, Hob. XVI/52 is displaced in the development. The subtle change in accentuation changes the nature of the theme. Other striking examples are found at the end of the expositions of Sonata Hob. XVI/32 in B Minor and Hob. XVI/46 in A-flat Major.

Generally speaking, the first beat receives the greatest weight. In case a motive lasts for more than one bar, therefore containing two downbeats, the performer must determine which of the two beats is the 'good' and which one is the 'bad' downbeat.¹¹ There is no Classical repertory in which the bars are not paired in either a good and bad, or in a bad and good bar, or in four bar groups in which the





4. Haydn - Sonata in C Major, Hob. XVI/50. First movement, mm. 1-5 and mm. 61-63. Leipzig: Peters (Martiniessen) 1937.

third is the heavy bar.¹² In addition, four bar groups often occur in development sections where they create a larger flow. Of course composers play with this standard phraseology and exceptions often occur.

Creating a climax: shaping the phrase

Any musical phrase has but one climax. In order to understand where this climax takes place, the performer needs to consider the harmony, the harmonic rhythm, and the melody.

The standard Classical phrase has a regular structure of 8 bars (2+2+4) in which there is a first small highpoint in m. 3, or on the downbeat of m. 4, with the phrase climax in m. 7. While towards 1800 this climax often is identified by the composer with dynamic markings and/or accentuation, there is no such road



5. Haydn - Sonata in C Minor, Hob. XVI/20 (1771). First movement, mm. 1-11. Henle Urtext, 1972.

map in the earlier Classical works. The working of the harmony being of prime importance, the performer would understand that the grammar of the phrase necessitates a dynamic development, resulting in a crescendo-diminuendo towards, and from, the highpoint.

The first motive (two bars) of the opening theme of Haydn's Sonata in C Minor, Hob. XVI/20 consists of four slurred gestures. The first starts on a consonance on the tonic, while the second, one step higher on the scale, is more dissonant and therefore receives more stress; the first bar has a crescendo, although each slur in itself is diminuendo.¹³ The third gesture, on the downbeat of measure 2, is the heaviest of the four, with the most expressive and relatively loudest start of the slur and the largest diminuendo towards the end of the slur. Measure 2 is therefore the good bar and measure one the bad bar. The fourth gestural slur on 16/4 is the arrival point, but still less loud than the downbeat. Its release and diminuendo to V7 on the fourth beat completes the first two bars of the opening phrase; the second bar has an overall diminuendo.

The next two bars build up in a similar way, through measure 3, and arrive at the first, minor climax of the 8 bar phrase on the downbeat of bar 4, illustrated by the expressive notation of the dissonance on the downbeat (the *appoggiatura*), aided by the *Praller* on the second eighth note of the bar, which reinforces the release. Bar 5 seems to parallel bar 1, but the ascent of bar five continues in bar 6 and develops into a rhetorical question to end on the 6 – a questioning harmony – on the third beat. All three ascending, questioning figures may be subsequently louder. Together with the rocket upbeat (with great direction but itself diminuendo), this is a perfect rhetorical set-up for the climax of this phrase on the downbeat of bar 7 (the third bar of the 4 bar group 5–6–7–8), after which each following gesture works towards a release of the tension: bar 7–8 is diminuendo.

Structure: shaping the story

The structure of the piece could be termed as 'the way in which the story unfolds': how the phrases follow each other, the development of the harmonic tension from one phrase to the next, how the various characters interact (the rhetorical "dialogue"). As a result, the tension – and with that, the dynamics – rises and decreases and may flow away at points of arrival.

2. Implied dynamics

Early fortepiano style

Johann Joachim Quantz's comments "Of the keyboardist in particular" may have been addressed to his resident colleague C.P.E. Bach. Or perhaps he learned these dynamic strategies from Bach: "On a harpsichord with one keyboard, passages marked *piano* may be produced by a moderate touch and by diminishing the number of parts, those marked *mezzo forte* by doubling the bass in octaves, those marked *forte* in the same manner and also by taking some consonances belonging to the chord into the left hand, and those marked *fortissimo* by quick arpeggiations of the chords from below upwards, by the same doubling of octaves and the consonances in the left hand [...]"¹⁴

Similarly, in early piano repertory the number of notes has an impact on the volume: more notes means louder, fewer notes means softer. Deeper (as well as



more) basses allow for greater volume, and melodies in octaves have a potential to be louder; consequently, it is safe to assume that a Classical composer asks for a louder context when the basses are deeper and the melody is written in octaves. On the first page of the first movement of his Sonata in D Major, Opus 10 no. 3 Beethoven indicates but one *crescendo* and not a single *diminuendo*. But when texture and articulation are taken into account, a pattern of flexible dynamics arises from the page.

The image shows a page of musical notation for the first movement of Beethoven's Sonata in D Major, Opus 10 No. 3. The score is written for piano and is divided into three systems. The first system contains measures 1-8, the second system contains measures 9-16, and the third system contains measures 17-24. The music is in D major and 2/4 time. The tempo is marked 'Presto'. The score includes various dynamic markings such as *p*, *sf*, *ff*, and *ff*. Blue arrows are placed above the score at measures 2, 8, 15, and 22, highlighting specific musical features discussed in the text.

6. Beethoven - Sonata in D Major, Opus 10 No. 3 (1796/98). First movement, mm. 1-24.
First edition: Eder, n.d.

In measure 2, the double unisons become quadruple unisons, causing a *crescendo* within the prevalent piano character. The *sf* in m. 4 is the climax of a (perhaps minimal) *crescendo*.

The second phrase climaxes on a dissonant D-sharp syncopation in m. 8 (the last note of line 1) which releases in the next bar. The tension build-up towards the D-sharp implies a *crescendo*, again within the *piano* character. This tension comes to the foreground in the *forte* of the third phrase, where another *crescendo* is implied when the hands of the pianist diverge: the right hand rising and the left hand descending, a rhetorical gesture often found in the Classical style. The climax of this phrase is in m. 15 (line 2, m. 7). The tonic D chord in m. 16 has less tension than the dominant on m. 15 and can therefore not be the loudest chord. Finally, the fourth phrase has a notated *crescendo*. Now the performer is asked to develop from the piano to forte character, aided again by the increasing number of unisons, and create three consecutive *fortissimo* accents, the last one forming a climax on the quadruple¹⁵ F-sharp in m. 22 (3rd line, m. 6).

Ornamentation stressing a dissonance or de-stressing a consonance on a harmonic release is still important in the early Classical style, as shown in many of the works of C.P.E. Bach and Haydn, but increasingly less in the works of Mozart and Beethoven.

In the *Empfindungen*, perhaps C.P.E. Bach's most important work for solo keyboard, the ornaments must be understood within the context of dynamics. The turn on the first D de-emphasizes a release from the dissonant E-flat to D. The turn on the second D stresses the increasing dissonance of the repeated D on the I⁶/₄ harmony, becoming V7 on the second line and finally releasing to G Minor (second line, beat 2). After 1800 this type of ornamentation vanished little by little from piano scores.



7. C.P.E. Bachs - Empfindungen. Freie Fantasie für Klavier, H.300, Wq.67, 1787. Mainz: Kreuz, 1950.

Dissonance and consonance

Before 1800, the natural difference in dynamic level between a dissonance and a consonance was never indicated as it was understood: it reflects the normal accentuation of speech. Every treatise before 1800 mentions that a dissonance is to be played louder than the resulting consonance. Quantz: “The more, then, that a dissonance is distinguished and set off from the other notes in playing, the more it affects the ear.”¹⁶ C.P.E. Bach agrees whole-heartedly.¹⁷ His Sonata in G Major from the fourth Volume of *Kenner und Liebhaber* opens on the first downbeat with a melodic dissonance on top of the harmonic dissonance (V); the second downbeat has a melodic dissonance on a harmonic consonance (I). Both dissonances are gently louder than their resolutions, but the downbeat of ‘bad’ bar 2 (de-emphasized by an ornament) is more relaxed and therefore less loud than the downbeat of bar 1, the ‘good’ bar. Naturally, the piano indication reinforces this dynamic pattern.



8. C.P.E. Bach - Sonata in G, Kenner und Liebhaber IV, Wq. 58/2 (1783). mm. 1-4. Krebs: Breitkopf und Härtel, ca. 1895.

The correct performance of the slur

The rapid decay of the fortepiano tone is perhaps the most audible difference between the fortepiano and the modern piano. On a modern piano the tone has a soft attack, develops slowly, and sings for a long time before gradually dying away. The fortepiano tone has a sharp attack and fades quickly, which makes a natural articulation with the next tone easy and logical. The fortepiano touch is therefore fundamentally *non-legato*. If a performer on a five-octave fortepiano (all repertory from the period ca. 1750–1800) wants to play a sounding legato, the only way to do it is by playing *diminuendo*: the dynamic level of each new note then matches the rapidly decaying sound of the previous note.

But this *diminuendo* performance of the slur is not limited to the fortepiano alone: it is a key feature of the Classical style. In his *Versuch einer gründlichen Violinschule* of 1755 (published in 1756), Leopold Mozart makes an enormous

effort to impress on the reader the correct execution of the slur: he explains it in various words no less than 11 times within the treatise.

“[...] Now if in a musical composition two, three, four, and even more notes be bound together by the half circle, so that one recognizes therefrom that the composer wishes the notes to not to be separated but played singly in one slur, the first of such united notes must be somewhat more strongly stressed, but the remainder slurred onto it quite smoothly and more and more quietly.”¹⁸

This execution of the slur will make the performance articulated, clear and light; but also the flow of the piece will change, the gesturing will be more outspoken and will gain in local expressive rubato (the beginning of each slur). The result is a colourful classicism rather than a lush romanticism.

The most occurring slur is the two-note slur, the so-called *Seufzer* (*sospiro*, *sigh*). The *Seufzer* is a key signifier to the entire Classical musical language and plays a prominent role in the music of Haydn, Mozart, Beethoven and all their contemporaries. But even after 1800 the *Seufzer*, although less in the foreground, can be found in music of all composers. Leopold Mozart's two elements defining any slur are crucial to the effect of the *Seufzer*. The first note (often dissonant) is louder and longer than the second, which is (in Mozart's words) “slurred onto it quite smoothly and quietly, and somewhat late.” This leads to a refined rubato, which in a string of *Seufzers* may cause an lilting effect, reminiscent of the French *inégale*. The sweetness and delicateness of this figure explains why *Seufzers* appear so abundantly in the clavichord works of C.P.E. Bach and early Josef Haydn.



9. J. Haydn - Sonata in B-flat Major, Hob. XVI/2 (1750s). First movement, mm. 31-34. Henle Urtext, 1971.

Register

Like the human voice, the early fortepiano has registers; the soprano is delicate, bright, and transparent; the tenor (in which most of the melodies takes place) has a richer tone, the alto and bass registers are increasingly rich and gain in volume as well as length of the tone. The treble does not have a long lasting tone, while its delicacy does not accommodate loud playing. Loudness in the high treble is only possible if the texture allows for it, e.g. a loud and full bass, an active middle voice, a harmonic pattern which allows for ample use of the pedal, and/or a melody in octaves.

In Haydn's rhetorical Sonata in A-flat Major, Hob. XVI/46 (1768) the high note E-flat on beat three (m. 1) is ornamented from above to soften the interval; the dissonant *appoggiatura* is played on the beat. The trills in bar two and three de-emphasize the release of the three *Seufzer* gestures. The sixteenth note gesture in bar 4 starts with a leap of a third from the first to the second note. This is typical for the period: a high note comes after the heavier downbeat and is therefore lifted. Also, in measures 5, 6, and 7 the highest notes are also the lightest notes. The high

C^{III} in m. 9 is lifted from the appoggiatura, again on the beat, and can therefore be performed *delicato*, in accordance with the character of the second phrase.



10. J. Haydn - Sonata in A-flat Major, Hob. XVI/46 (1768). First movement), mm. 1-9. Henle Urtext, 1991.

As indeed in all of his keyboard works, most high notes on the first page of Mozart's Sonata in B-flat Major, K. 333 do not fall on a heavy beat. Of course, Mozart knows how to create a climax on a high note. This climax will need to take place on a heavy beat and must be sufficiently supported by middle voice and bass. In m. 9 there is a climax on F^{III}, the highest note of Mozart's piano.



11. W.A. Mozart - Sonata in B-flat Major, K. 333 (1783). First movement, mm. 7-10. Urtext der Neue Mozart Ausgabe, Bärenreiter, 1986.

Beethoven, using the same five-octave piano as Mozart until ca. 1800 and therefore bound to the same dynamical restrictions in the treble as Mozart, nevertheless wrote very spectacular and loud passages in the treble. In order to not overplay the instrument, he needed to revert to the same techniques as Mozart.

The Alberti Bass starting in m. 21 of the third movement of the *Moonlight Sonata* provides a powerful *agitato* energy. With the start of the crescendo, the right hand melody is written in octaves. When *sforzandos* are indicated, the bass descends lower and lower, allowing for more *forte*. Modern performance has it that this melody can be performed as a lyrical melody, with a rather suppressed left hand. Indeed, the left hand easily gets too loud on a modern instrument, but on the five-octave Viennese fortepiano, the energy and tension arising from a loud and driving left hand is the key element of the *agitato*.



12. Beethoven - Sonata in C-sharp Minor (Mondschein, Opus 27 no. 2) (1801), mm. 20-32. First edition, Cappi, n.d.[1802].

3. Touch

In Beethoven's Sonata in B-flat Major, Opus 81a, (*Les Adieux*), the 1953 Henle Urtext edition gives continuous dots for the left hand, where originally there were just wedges on the first five left hand figures. It seems that Beethoven intended the diminuendo after the highpoint¹⁹ in m. 19 to be achieved not only by bringing down the volume, but also by softening the touch.



13. Beethoven - Sonata in B-flat Major (Les Adieux), Opus 81a, (1809-10). Second movement, mm. 19-20. Henle Urtext, 1953.



14. Beethoven Sonata in B-flat Major (Les Adieux), Opus 81a, (1809-10). Second movement, mm. 18-21. First edition, Leipzig: Breitkopf & Härtel, n.d.[1811].

Similarly, when Beethoven's accentuation, dynamics and pedaling in mm. 37-44 in the third movement are interpreted as lessening the energy, the result is a diminuendo.



15. Beethoven - Sonata in B-flat Major (Les Adieux), Opus 81a, (1809-10). Third movement, mm. 37-44. First edition, Leipzig: Breitkopf & Härtel, n.d.[1811].

In the first edition, the first four quarter notes are marked *ff*, *sf* and have a wedge. The next four (in the same pedal) are still *ff* but without the wedge and *sf*. The next four (mm. 40–41) are *ff* with wedges, no *sf*. In the new pedal these notes will therefore be less loud. The last four have no wedges and no *sf*. The net result is an 8 bar diminuendo, leading to the *p* of the the next passage (although the character change still makes a dynamical break logical). This notation is ‘completed’, and therefore corrupted, in the 1953 Henle Urtext.

4. Interpreting dynamics

When in early repertory dynamics are lacking or notated very generally, the point of departure should be that the dynamics can be completed through interpretation. But dynamics that *are* notated may have a meaning beyond what is expected.

Tempo rubato

Türk identifies a specific type of *tempo rubato* in his treatise *Klavierschule* (1789), which is indicated with dynamics.²⁰ He mentions how one of the possible occurrences of *tempo rubato* is when the metrical accent on a ‘good’ note is transferred to an off-beat, or a ‘bad’ note: “These passages would work poorly when the notes are played exactly according to their notated length. The important notes must be played slow and louder, the less important fast and weaker [...]”²¹



16. Türk - *Klavierschule* (1789), p. 375.

Exactly this type of passage appears in Mozart’s Sonata in C Minor, K. 475, second movement, which is full of *rubato*. There is little doubt that this is an integral part of Mozart’s style (as well as, in my opinion, the entire Classical style).



17. W.A. Mozart - *Sonata in C Minor, K. 475* (1784). Second movement, mm. 21-22. Urtext der Neue Mozart Ausgabe, Bärenreiter, 1986.

Counter accentuation

The slur nowadays stands exclusively for *legato*, lyricism, or phrasing; the additional features of the slur signifying dynamics, (harmonic or melodic) stress and relaxation, or *rubato* may lead to an entirely different understanding. In his discussion of the correct performance of the slur, C.P.E. Bach mentions that the slur can create an accent against the metrical beat.²² Leopold Mozart shows a four bar passage for which he proposes no less than 34 different bowings.²³



18. Leopold Mozart - Versuch (1755), p. 132.

Mozart explains how the extraordinary bowings in no. 11 change “the entire performance” because the heavier first note of each slur falls on a weak beat.²⁴



19. Beethoven - Sonata in G Major, Opus 14 no. 2 (1798-99), mm. 1-8. First edition, Vienna: Mollo, n.d. [1799].

This leads to a surprising conclusion, namely that the regular accentuation in a bar may be changed. If the eccentric and striking slurs in the opening of the *Scherzo* of Beethoven's Sonata in G Major, Opus 14 No. 2 are performed according to 18th century performance practice, the meter of the first two bars is not 3/8 but 2/8; the first note – the beginning of a slur, and therefore heavy – sounds as a downbeat; the same can be said of the beginning of the second slur, and so on. The last note of bar 2 (C-sharp¹¹) is articulated apart from the notes before and after. This note, not belonging to the key of G Major, interrupts the 2/8 pulse. Next, when understood in the 2/8 meter, the first beat of bar 3 is long, and the slur includes the downbeat of bar 4. As there can be no accent under the slur, other than the first note, the 2/8 meter cannot be continued. The listener suddenly understands that he has been fooled by the 2/8 meter and that it really should be a 3/8. The fact that bar 4 has no real downbeat makes it possible to play this trick again in bars 5–8; this *Scherzo* is a rhythmical joke. It is a *scherzo* in the real sense of the word, befitting a composer like Beethoven.

This is part 1 of a two-part article. Part 2 will deal with Messa di voce, Crescendo as rinforzando, Decrescendo vs. diminuendo in Schubert, The question of subito piano, and Subito fortissimo.

After completing his modern piano degree at the Royal Conservatoire in The Hague in 1983, **Bart van Oort** studied fortepiano with Stanley Hoogland, also at the Royal Conservatoire. In 1986 he won the first prize and the special Audience prize at the Mozart Fortepiano Competition in Bruges, Belgium, and he subsequently studied with Malcolm Bilson at Cornell University (Ithaca, NY), receiving a Doctor of Musical Arts degree in Historical Performance Practice in 1993. He has given lectures



and masterclasses and performed all over the world. Bart van Oort teaches fortepiano and is a lecturer in Historical Performance Practice at the Royal Conservatoire in The Hague. Since 1997 Van Oort has made more than fifty recordings of chamber music and solo repertory, including the prize-winning 4-CD box set *The Art of the Nocturne in the Nineteenth Century*, the *Complete Haydn Piano Trios* (10 CDs) with his ensemble the Van Swieten Society, the *Complete Beethoven Piano Sonatas* with Malcolm Bilson and five other fortepianists, and the *Complete Haydn Piano Sonatas* with four other fortepianists. In 2006 Van Oort completed a ten-year, 14-CD recording project, the *Complete Works for Piano solo and Piano four-hands of Mozart*. With his ensemble The Van Swieten Society Bart van Oort recorded various CDs, such as *'Beethoven's Beethoven'* (arrangements by Beethoven), chamber music by Carl Maria Von Weber, *'The Young Genius'* (early works by Felix Mendelssohn), and *'Schubert at Home'*, chamber music by Schubert (including the Trout Quintet). Recent releases include J.C. Bach Sonatas Opus 5 and Opus 17 (two CDs) and Beethoven Symphony 3 and 5 in chamber music arrangements by Beethoven's contemporaries Hummel and Ries. In 2015 Bart van Oort started a 4-CD project with 19th century Nocturnes from France, Russia, Germany and the rest of Europe.



Notes:

- ¹ In this article I will not comment on accentuation markings, nor on dynamics which may imply the use of a pedal (like *ppp*, which may indicate the use of the moderator pedal in early romantic works).
- ² Bach, C.P.E. (1753 and 1762) *Versuch über die Wahre Art das Klavier zu spielen*. Facs. Rep. Wiesbaden: Breitkopf & Härtel, 1986. Part I, Chapter III: 'Performance' (1753) 2nd edition (1787), p. 87.
- ³ Bach, C.P.E. *Versuch* (1753) Part I, Chapter III: 'Vortrag'. First ed. 29, p. 129.
- ⁴ Türk, D.G. (1789) *Klavierschule*. Facs. Rep. Kassel: Bärenreiter (1972) Part III, §30. p. 349.
- ⁵ Mozart, W.A. Letter to his father from Paris. July 3, 1778. Gutenberg eBook. *The Letters of Wolfgang Amadeus Mozart*, Vol. 1. Transl. Lady Wallace (2004).
- ⁶ Mozart, L. (1756) *Versuch einer gründlichen Violinschule*. 2nd edition (1787) Ch. 12, §8.
- ⁷ Quantz, J.J. (1752) *On Playing the Flute*. Translation of *Versuch einer Anweisung die Flöte Traversiere zu spielen*. Translated by Edward R. Reilly. New York, Schirmer (1985) Chapter 17 'Von dem Pflichten derer, welcher accompagniren', p. 175.
- ⁸ Hiller, J. A. (1780) *Anweisung zum musikalisch-zierlichen Gesange*, Ch II, §8, p. 22.
- ⁹ Türk, D.G. *Klavierschule*, Ch. 6 Part III, §29, p. 348.
- ¹⁰ Milchmeyer, J.P. (1797) *Die Wahre Art das Pianoforte zu spielen*, Ch. IV: 'Vom Musikalischen Ausdruck', p. 48.
- ¹¹ 'Gut' and 'Schlicht', translated erroneously by 'good' and 'bad' instead of 'good' and 'slight'.
- ¹² Exceptions occur, e.g. when repeated accents create a climax or the number of bars is irregular.
- ¹³ See further down under 'The correct performance of the slur'.
- ¹⁴ Quantz, J.J. *On Playing the Flute*, Ch. XVII Section VI, §17, p. 259.
- ¹⁵ The prudent publisher of this sonata stayed within the five octave range of the standard instrument of his time. However, new instruments had already been equipped with the F-sharp^{III} and G^{III}.
- ¹⁶ Quantz, J.J. *On Playing the Flute*, Ch. XVII section VI, §12, p. 227.
- ¹⁷ Bach, C.P.E. *Versuch*, Part I, Chapter III: 'Vom Vortrage', §29, p. 129.
- ¹⁸ Mozart, L. (1756) *A Treatise on the Fundamental Principles of Violin Playing, Translation of Versuch einer gründlichen Violinschule* (1756) by Editha Knocker (1948) Oxford: Oxford University Press (1986) Ch. 7 section 1 §20. The slur is novel enough for his readers that it even needs explanation as a sign.
- ¹⁹ Possibly the placement of this *sf* is more subtle than Henle likes to think and is meant for the second sixteenth note in the right hand.
- ²⁰ Türk, D.G. *Klavierschule*, Ch. 6 Part V, §72, p. 375.
- ²¹ Türk, D.G. *Klavierschule*, Ch. 6 Part V, §72, p. 371. Also see Haydn Sonata in C Minor, Hob. XVI/20. (1771), first movement, m. 14.
- ²² Bach, C.P.E. *Versuch* [is this the complete title?], Part I (1753), Ch. III: 'Vom Vortrage', p. 94, §18.
- ²³ Mozart, W.A. *Versuch* [see above], Ch. VII, Part 1, pp. 131–136, §§ 19–20.
- ²⁴ Mozart, W.A. *Versuch* [see above], Ch. 7, §20, p. 136. See also Türk *Klavierschule*, Ch 6, Part II, §13.

An Introduction to the Consideration of Tone for Pianists



Murray McLachlan¹ (UK)

“Many pianists are firmly convinced that they can put a vast amount of expression into the striking of a single note of the piano: some claim to be able to draw the whole gamut of emotion out of a single key. In reply, the untemperamental scientist points out that, in striking a single note, the pianist has only one variable at his disposal – the force with which he strikes the key; this determines the velocity with which the hammer hits the wires, and once this is settled, all the rest follows automatically [...] It seems clear that, so long as he confines himself to striking single notes, the greatest virtuoso has no greater range of effects at his disposal than the child strumming at his five-finger exercises. To put this last matter beyond doubt, three American Scientists, Hart, Fuller and Lusby, of the University of Pennsylvania, have recently made records of the sound curves of single notes played by well-known virtuosos, and also of the same note played by letting a weight fall on the keys [...] No visible difference can be detected.”²

Sir James Jeans (1937)


Tonal beauty is an essential, possibly the most essential, technical ideal for all instrumentalists and singers. Though Sir James Jeans’ revealing words may dispel some mistaken beliefs about sound production, they can never detract from the essential prerequisite of all practicing musicians: the need to consistently strive for beautiful, commanding and magical sounds.

No matter how experienced or inexperienced you are as a pianist, and no matter what you are working on, always begin by searching for a specific type of sound. Strive for beauty. The quality of tone you produce at the piano is the key to everything that you do.

In searching for beautiful sounds, pianists are battling against two physical truths that are challenging, to say the least: the piano’s rapid decay means that it is not possible to crescendo on a note after you have played it. Secondly, it uses hammers, which every sensitive artist spends most of their time trying to hide. (Hammers strike the strings, making true legato, something that goes hand in hand with really beautiful tone quality, literally impossible on the piano.)

Wave technique

As we strive towards sonic beauty and purity of tone in our daily practice, it will help if our fingers caress and stroke the keys rather than aggressively hit them. Of course good teaching traditionally emphasises ‘anti percussive’ concepts from the very first lessons.³ Most of these have already been discussed in *The Foundations of Technique*, and include physical legato connections (overlaps) between notes, as well as the ‘touch and press’ technique. Pedalling adds another important factor into the equation, one that can radically transform a passage in terms of sound.



Most important of all is the cultivation of relaxed, linear movements. Think in terms of waves and relaxed undulating movements as you play. 'Wave technique' requires physical ease and comfort at the instrument. It encourages greater sensitivity, more legato and enhanced beauty of tone. It takes away from the fact that we are striking strings with hammer heads and moves us onto something more evocative and inspirational. By positioning our hands on the keyboard before playing and either depressing the keys at a 45-degree angle or drawing out fingers away and towards our bodies as we play, we are immediately setting ourselves up for a sensation of 'lifting' our sounds out of the piano rather than of 'dropping' notes down to the floor. Students who complain that they have insufficient power from 'touching and pressing' at the keyboard, compared to when they attack the keys from above, fail to realise that percussive 'attacked' sounds have a rapid sonic decay.

In contrast, sounds produced via relaxed, prepared hands, wave-like arm movements and good coordination have more resonance and carrying power, particularly in large concert halls. Moreover, it becomes much harder to play with clumsy accents and 'bumps' at the ends of phrases when your basic approach at the instrument is tension-free! Smooth pianism and elegant contours are simply much easier to produce when your technique works in terms of waves. By developing sound production in this manner from the first lesson, there is immediately a strong sense of connection between player and instrument. The resulting authority, inner intensity and conviction that evolves comes from relaxed, flowing pianism that begins with sensitive self-listening. It is something that will grow and grow. Of course sound production is not always about beauty and warmth: the approach outlined would certainly be inappropriate for much of the 20th/21st century non-legato repertoire. But I strongly believe that the cultivation of beauty of tone is essential for the core repertoire. Thinking and working by searching for beauty in sonority is the most convincing basic starting point for beautiful, healthy and creative piano playing.

Effortless arm movements and relaxed prepared finger work go hand in hand with pianism and a tone inspired by *bel canto* singing. Perhaps no pianist in history was more impressive in this respect than Jan Ignace Paderewski. With Paderewski's pianism, we are dealing with an artist apparently incapable of producing an ugly sound. Clearly beauty of tone is one of the most vital ingredients in his art. His use of the *una corda* in *forte* and even *fortissimo* passages would be considered unfashionable in many pedagogical circles today, but the results can be more than magical in the romantic repertoire from John Field upwards.

Exercises for the development of sound

Try simple 'sonority tests' at the piano so that you cultivate the ability to 'float' tone. Depress the sustaining pedal, and then gently repeat a single note with one finger slowly. These can be similar, though possibly played at a faster pace, to the exercises given at the start of chapter one and in appendix one of *The Foundations of Technique* (ex.1, p. 55).

Aim for a hollow, disembodied sound as you play. The tone will become more vocally charged and less percussive as you relax into the keyboard. Imagine that the hammers are gently stroking the strings of the note you are playing, rather than attacking them. Slow everything down so that it literally takes much longer

Moderato dolce

Moderato dolce

1.

to play a note than you could ever previously have imagined. Let the keys appear to gradually sink into the keyboard on the repetition of each note. Try to avoid percussive, quickly realised re-strikes of keys as you repeat.

Bebung touch

On grand pianos you can aim for a ‘half’ re-take of the note. Think of this as the *Bebung* touch on the piano.⁴ The *Bebung* touch operates on the piano in terms of half escapement. It only works on grand pianos. Begin experimenting with *Bebung* by playing a note fortissimo then quickly retaking the note with the same finger without lifting the finger off the key. Make the second note (the repetition of the first) as quiet as possible, and try to play it in the same physical movement as the first note. You should feel as though the second note is an echo of the first:

2.


Leopold Godowsky’s pianism embraced extensive use of *Bebung* for repeated notes. It was one of the hallmarks of his pianism.⁵ It is useful to practise this ‘*Bebung* effect’ on single notes and thirds. Players of all abilities can experiment with the exercise above, extending it to all ranges of the piano and using different fingerings as well as double note combinations.

Bebung on the piano is especially useful and expressive for passages containing many veiled repeated notes, such as those in the left hand of Chopin’s Prelude in E minor, Opus 28 no. 4. An editorial note from the old ABRSM Fielden & Craxton edition for this celebrated piece recommends “playing the repeated notes in the left hand with a kind of *Bebung* effect, i.e. without the keys coming up to full height, producing a sustained murmuring”:

Largo

3.





Mastering the *Bebung* touch is extremely useful for developing beauty of tone. It can be applied to all kinds of repertoire and in many different stylistic contexts. It is sad that upright pianos cannot really cope with it, so students who practise regularly on these instruments or on electronic digital keyboards need to make a point of specifically practising *Bebung* whenever they gain access to a grand instrument.

Find the ‘sweet spot’

The term *sweet spot* was originally used in sporting contexts, to describe places where a combination of factors results in a maximum response for a given amount of effort.⁶ In terms of piano playing, we can think about finding the sweet spot in terms of sound production. Through relaxed co-ordination and acute listening skills, it should be possible for us to find beauty and magic in every note that we play. Practising the *Bebung* technique can help us find the sweet spot for a note, as the repeated notes played with half-retakes of the hammer head often sound disembodied, floaty and ethereal in terms of touch and tone.

As they search for beauty of sound, Dina Parakhina has suggested that students may enjoy imagining strawberries under their finger pads. Certainly the image of graceful movements from each finger in turn, allowing the sweet juice of strawberries to gently ooze out over the keyboard, is highly evocative!

This image inspires students towards a slower, more considered and lovingly sensitive speed of finger articulation for each note. Strawberry juice will not ooze out gently when digital aggression and high-speed movements are prioritized!

So searching for the sweet spot in terms of tonal beauty at the piano is mainly about speed. Notes need to be depressed as slowly as possible. In this respect it may be worthwhile to experimenting with flatter finger work. If you want a brilliant, articulate sound, then curved fingers can help, but for depth and sonority, a flatter finger position is more effective, because it encourages you to stroke rather than poke the keys. I recommend varying the degree to which fingers are curved according to stylistic needs. As the quotation from Sir James Jeans at the beginning of this chapter points out, velocity is the crucial factor in sound production. Articulating notes with a slow physical approach is therefore essential if you are striving for the most beautiful sound possible.



Photo Emile Golshani.

Murray McLachlan, Chair of EPTA UK, is Head of Keyboard at Chetham's School of Music and a Senior Tutor at the Royal Northern College of Music in Manchester, England. McLachlan has made over 40 commercial recordings which have consistently received outstanding reviews, including 'key recording' and 'rosette' status in the *Penguin Guide to CDs*. He has performed on all five continents and also serves regularly on juries of international piano competitions. Since 2014 he is also EPTA Executive Committee Chair. McLachlan is founder and artistic Director of the

Chetham's International Summer School and Festival for Pianists, Europe's largest summer school devoted exclusively to the piano. In 2007 McLachlan launched the first Manchester International Concerto Competition for Young Pianists. McLachlan has contributed many articles on piano technique and music to magazines including *International Piano* and *BBC Music Magazine*. He is editor of *Piano Professional Magazine* and of EPTA's *Piano Journal*. In June 2012 the University of Dundee awarded him an honorary Doctorate for outstanding services to music and education. www.murraymclachlan.co.uk.

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Maclachlan, M. (2014) *Piano Technique in Practice*, London: FaberMusic.

Maclachlan, M. (2014) *The Foundations of Technique*, London: FaberMusic.

Notes:

- ¹ This article is taken from Murray McLachlan's second book on technique, published for EPTA UK by Faber Music: *Piano Technique in Practice*. ISBN 10: 0-571-53935-1. Available from the publishers, retail stores and Amazon.
- ² Sir James Jeans (1937).
- ³ This can be seen in many contrasting approaches. Compare the approach of the Russian school with Suzuki teaching and the teaching books of Joan Last. Though the three approaches could not be more contrasted, they are uniform in their insistence on beauty of tone from the first lessons.
- ⁴ Wikipedia: *Bebung* (German word, literally 'trembling') was originally used as a term for touch clavichord playing. By using a rocking movement with the finger and moving it up and down on a key of the clavichord, it is possible for a vibrato tone quality to be projected.
- ⁵ Private conversations with Ronald Stevenson, West Linton, 1990.
- ⁶ In cricketing terms, for example, the sweet spot on a bat is the point at which maximum impact can be made by a batsman. If a ball is struck directly from the bat's sweet spot, then the ball will travel further and faster. Other points of impact on the bat will be less effective.
- ⁷ It is certainly useful to experiment with the position of fingers. Curved fingers may be the norm in classical and baroque music, or when clarity and brilliance of tone are priorities, but many find that it is much easier to achieve rich singing pianism in the romantic repertoire by playing – literally – with flat fingers. Of course Horowitz was well known for this. The crucial point is a stylistic one, and it is fascinating to vary the curvature of the fingers according to the musical demands presented.



Avoiding 'Fugue State' when Playing Bach's Fugues

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Abstract

Musical memorisation is an important part of a pianist's daily life. Since the romantic period, a tradition of playing piano repertoire from memory has spread and become a skill regularly required in piano performances, assessments and competitions. In recent decades, research has given new insights into how pianists memorise. However, few studies are dedicated to the role of the piano teacher during this process and to the development of pedagogical tools to enhance this skill within the classroom setting. This paper is based on a case study carried out at a music conservatoire with secondary school students, having as main purpose the development and pedagogical implementation of strategies for the memorisation of a fugue from J.S. Bach's *Well-Tempered Clavier*. The results were encouraging, in view of the great effectiveness and speed of learning, together with a significant improvement in other performing skills.

Introduction

When pianists play a solo recital, the audience often expect to see them perform extensive repertoire by heart (Hughes 2015). This is a great challenge, demanding the retrieval of large amounts of information and complex musical structures in a stressful situation as a public performance (Williamon 2002).

Over the past few decades, the process of musical memorisation is a topic frequently mentioned in literature concerning musical education. Several pedagogues have written on the subject and proposed different strategies to develop its effectiveness (Blanchard 2007; Gordon 2006; Klickstein 2009). Moreover, researchers have sought to identify (Aiello 2000; Hallam 1997), observe (Chaffin 2011) and test (Rubin-Rabson 1937, 1950) the validity of different memorisation strategies used by musicians at different levels of training.

Recently, some studies have started to develop and employ pedagogical strategies to help beginners (Dakon 2011; Mitchell 2010) and advanced students (Lisboa, Chaffin and Demos 2015) memorise more effectively.

Despite the vast literature devoted to the topic, there is a gap between what has been argued in research and what happens in the practical setting. Although piano teachers often require their students to memorise piano repertoire, memorisation is a skill not often addressed in the classroom, perhaps because there is a common belief that it is up to each student to find their own strategies (Lisboa, Chaffin and Demos 2015). Moreover, more research can explore further the potential impact of addressing memorisation strategies in instrumental lessons.

This research seeks to redress this imbalance through the development and application of a set of strategies based on the existing literature, in order to help conservatoire students memorise a repertoire frequently required in the piano curriculum: fugues from *The Well-Tempered Clavier* by Johann Sebastian Bach.

Method



Participants

The present results are based with three students from a Portuguese musical conservatoire in Porto, aged between 15 and 16 years old. Their level of studies was equivalent to Grade 7 from ABRSM exams.

Material

The piece selected for this study was Johann Sebastian Bach's Fugue No. 11 in F Major, BWV 856, from *The Well-Tempered Clavier, Book 1*. This is a piece often required in the piano curriculum and usually compulsory to be played from memory. Throughout time, pedagogues have highlighted the pedagogical impact of these pieces. Robert Schumann (1860) advises: "Let this 'Well-tempered Harpsichord' be your daily bread. By these means you will certainly become proficient" (Schumann 1860, p. 5). As a polyphonic piece, some considered it a particularly complex piece to memorise. According to Richard (2011) "[...] if you don't have a good method to memorize, it's almost impossible" and "[...] if you can memorize this fugue [Fugue in C Major, Book 1] [...] you will be able to memorize everything!" (Richard 2011, p. 22).

Procedure

This study was developed in three main stages. First, during a period of three months, the researcher observed the student's lessons with their piano teacher and conducted a semi-structured interview. The aim was to understand how the students approached practice and memorisation prior to the study. With the information gathered from this data collection and a research on existing literature, a set of strategies were simultaneously developed.

During the second stage, the researcher joined the piano lessons and started to work the piece with the students. Initially two lectures were given on concepts of musical memory, together with some basic notions on J.S. Bach's fugues. Later, the memorisation strategies were applied in a set of individual and group lessons.

Finally, the students played the fugue from memory in a public performance, and a structured interview was conducted in order to understand the impact of the applied strategies. The interviews and lessons were audio and video-recorded, respectively. The information provided by these sources was transcribed and analysed by means of thematic analysis (Guest, MacQueen and Emily 2012).

Results

Developed and implemented memorisation strategies

The memorisation strategies developed during this research were based on the existing literature, with the intent of gathering information proposed by pedagogues and researchers over the past few decades.

According to existing research, one common strategy among less advanced students is to practise a piece repeatedly from the beginning to the end (Hallam 1997; Lisboa, Chaffin and Demos 2015). This creates a type of memory known as rote memory (*associative chaining*) which develops quickly and almost spontaneously while practising. Whilst playing one passage, the musician remembers what comes

next. However, if something happens during performance, he may be forced to start again from the beginning (Chaffin, Logan and Begosh, 2009). Research with professional musicians has shown that, in order to avoid this problem, they complement these associative chains with what is called *content-addressable* memory. This type of memory allows the musician to start from different points of the piece. Basically, the musicians develop a sort of mental map with landmarks that are highly practised, allowing them to jump to a specific part of the music in case the performance is disrupted (Chaffin, Logan and Begosh 2009).

The strategies developed in this study attempted to contradict the students' tendency to rely on rote memory. With this in mind, the researcher advised the students to start the process of memorisation from the first moment they had contact with the piece (Chaffin and Imreh 1997).

In addition, the students were given guidance to look for patterns and structures commonly found in Bach's fugues. Studies have suggested that musical analysis prior to reading and memorisation of a piece can help musicians develop a clear idea of the 'big picture' and guide the subsequent strategies more efficiently (Chaffin et al. 2013; Rubin-Rabson 1937).

Later, based on the memorisation approach suggested by studies with professional musicians, the students were encouraged to develop a 'mental map' with different landmarks on it (Chaffin 2011). Simultaneously, each student was asked to reflect on their interpretation of the piece and think carefully about interpretive issues such as fingering, articulation and dynamics.

In order to engage the students with autonomous problem-solving and orient them to think critically about each problem, they were advised to read the piece through an unmarked score.

Subsequently, the researcher presented the students with a set of exercises in order to develop different types of memory (motor, aural, visual, and conceptual), based on the assumption that a multiple approach could lead to more effective memorisation (Hallam, 1997). Table 1 presents a brief summary of the strategies applied.

Memorisation strategies	Type of memory developed
<ul style="list-style-type: none"> ✓ Play the voices together, highlighting just one of them in the following ways: <ul style="list-style-type: none"> • with different dynamics • with different articulation (staccato, legato). 	<ul style="list-style-type: none"> ✓ Aural memory ✓ Motor memory
<ul style="list-style-type: none"> ✓ Sing the voices expressively, reflecting on the desired phrasing for them. 	<ul style="list-style-type: none"> ✓ Aural memory
<ul style="list-style-type: none"> ✓ Sing a voice while the remaining are played (Aiello & Williamon, 2002). 	<ul style="list-style-type: none"> ✓ Aural memory
<ul style="list-style-type: none"> ✓ Play musical passages which involve modulations or cadences in chords, so as to understand the harmony and solidify the physical movements involved in the passage (Chaffin & Imreh, 1997). 	<ul style="list-style-type: none"> ✓ Conceptual memory

✓ Visually memorise particular fingerings (Chaffin & Imreh, 1997).	✓ Visual memory
✓ Practice in a very slow tempo while observing the movement of the hands, thus solidifying the image of the physical movements required to play (Aiello & Williamon, 2002).	✓ Visual memory
✓ Play each section indicating verbally, aloud, the entries of the various thematic elements of the work (Chaffin, Logan and Begosh 2009).	✓ Conceptual memory

Table 1. Memorisation strategies developed in order to develop different types of memory (motor, aural, visual, and conceptual).

When the students started being able to play the fugue from memory, they carried out exercises (see table 2) during group lessons that aimed to enhance their concentration and to secure memorisation.

Memorisation strategies	Type of memory developed
✓ Intonation exercise: each student is responsible for a voice and, together, they sing the fugue as a choral work. They should try to sing the voices by memory.	✓ Aural memory ✓ Conceptual memory
✓ Conducting exercise: one of the students assumes the role of conductor, indicating the entries of each voice to the remaining students, who sing the different voices of the fugue with the teacher.	✓ Aural memory ✓ Conceptual memory
✓ Play the piece from the beginning, and when the teacher says 'stop', rise, walk around the room and begin to play from where you stopped (Klickstein 2009).	✓ Conceptual memory
✓ Play sections in reverse order (starting from the last section, continuing to play the previous sections until reaching the beginning) (Klickstein 2009).	✓ Conceptual memory
✓ One of the students begins to play the fugue. When the teacher says 'change', another student assumes the place and starts to play from the point where the music stopped.	✓ Conceptual memory

Table 2. Memorisation strategies developed in order to enhance concentration and secure memorisation.

The strategies were adjusted to each student's learning style, according to their skills for each type of memory. Furthermore, as none of the students reported in the pre-interview strategies involving conceptual memory, there was an attempt to strength and develop it throughout the intervention process.



Impact of the developed strategies

After analysing and comparing the results from the three case studies, the positive effects of the strategies applied were surprising, namely the improvement in memorisation speed and efficacy.

In accordance with previous studies (Hallam 1997), results from the first interview showed that these students tended to see memorisation as something that happened instinctively, using only some strategies advised by their piano teacher. Only one of the students reported developing particular strategies for different types of repertoire. All students saw memorisation as a process separate from initial learning, and when they were first approaching the piece, they were not able to find patterns quickly.

All memorisation strategies applied were well received by the students. Although they were not initially familiar with the patterns and structures commonly found in this piece, after the first lecture they were able to find the thematic material and structure easily.

The mental maps created by the students were based mainly on the structure of the piece as well as the landmarks. One of the students also chose particular fingerings to help him differentiate similar passages. The students could have been influenced by the first lecture, since they were exposed to the particular patterns and structures found in this repertoire.

The debates between teacher and students about interpretive decisions – such as fingering, dynamics, and articulation – were very positive, not just in terms of effective memorisation, but in the anticipation of interpretive and expressive decisions. As suggested by previous studies (Chaffin, et al. 2013), the students were able to create their ‘big picture’ of the piece from the first moment, remaining consistent with their idea throughout the time spent internalizing the piece.

The intonation exercises were not particularly well received in the first lessons. However, after they had performed the exercises, they were usually able to play it from memory afterwards, and their sense of phrasing and awareness of the different voices improved.

The strategies that the students were attracted to the most were the concentration exercises, particularly the one where they had to play the fugue and switch with another student whenever the teacher said ‘change’. This developed a ‘healthy’ competition between the students, motivating them to practice hard at home in order to perform the exercise as effectively as possible. In the end they were able to switch at almost any part of the piece, sometimes even in the middle of a phrase.

All three students memorised the piece very quickly, within two to three weeks, and played the fugue in the final performance without any memory slips. The usefulness of the strategies applied was unanimously recognised by all students during the final interview. One reported:

“I think that I developed new strategies that will be very useful in the future. It was a different experience, and in the end it was not so complicated to memorise the fugue since the way it was approached made it easier to understand and, consequently, to memorise.”

Also surprising was their considerable understanding of the polyphonic structure of the piece and their improvement in terms of other performing skills, such as phrasing and awareness of the different voices of the fugue.

Conclusion

The present study aimed to provide practical solutions for piano teachers in order to help their students improve memorisation, a skill often required in a piano curriculum. The idea was to apply the knowledge provided by pedagogues and researchers in a practical setting and understand the role of the piano teacher in the improvement of this ability.

The results were very encouraging, in the sense that the students were able to memorise a complex piece of the piano repertoire effectively in a very short period of time.

The study has also shown that strategies applied by professional musicians, such as the development of a 'mental map' with different landmarks throughout the piece, proved to be very effective for these students and this repertoire. However, further research is needed, focusing on different levels of learning and with other musical styles.

Although the main focus of this study was to improve memorisation, the strategies also helped the students improve other performing skills.

Results from this study open the door to new paths on future research, namely the implementation of these strategies with musicians at different levels and with different types of repertoire.

In summary, working memorisation in the classroom may bring benefits to piano students, contributing to a more effective use of memorisation strategies and improvement of other performing skills.

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III. PIANO TEACHING

Photos Emil Golshani.



Heribert Koch (Germany) teaching in his workshop 'Feuchtwanger technique'.



Workshop by Damjana Zupan (Slovenia) 'Disconnecting and transforming fear and anger'.



The Art of Improvising as a Means of Connecting with your Sound

Report of the Workshop 'Improvisation'

Robijn Tilanus (The Netherlands)

Deep in the basement of the Conservatory of Amsterdam, I was happy to give a short workshop about improvisation with three candidates and a big audience.

Our first candidate happened to be a piano teacher who had never improvised before in her life. I invited her to sit at the piano. Then, what happens very often, both in music lessons and in performing sessions, happened to her: she stiffened. Everyone could see it and feel it. I asked her how she felt, and she said, "I do feel a little bit tense."

So, I invited her to go back to her chair, and I started to tell the story of oxytocin. Even today, science does not know much about the creative process. How creativity works, where our ideas come from, remains a mystery. But what science does know is that the hormone oxytocin does play a very important role in the process. The more oxytocin there is in your blood, the more creative you are (and, by the way, the better in state you are to learn, as well). Your body itself makes the oxytocin, only when you feel thoroughly happy and relaxed.

So, when you want to start an improvisation and your body feels tense, you know there is little or no oxytocin in your blood, and before you start playing, you already know your improvisation will not turn out as beautiful as it could be.

How can you influence your body to make the hormone oxytocin? There are a lot of tricks for that. One of my favourite ones involves breathing. Together we performed the following breathing exercise: sit straight up in your chair, put your hands on your stomach, and just breathe slowly into the direction of your hands...

When you are completely relaxed, your breath is slow and low in your body. (When you are stressed, your breath is either quick and high in your body, or you actually stop breathing for a while.) You can turn that the other way round: if you consciously make your breath slow and low in your body, you automatically start to relax. And as a result, your body automatically starts to make the hormone oxytocin.

After this short common exercise, I invited her once again to come and sit at the piano bench, taking the feeling of relaxation with her to the chair. This time, it was obvious she was feeling much better; everybody could see and enjoy it. I asked her, and she said, "I feel good."

Then, I invited her to do the easiest, most basic improvisation exercise I know: Just depress the pedal and play one single tone, listening to it intensely. Use your left hand, because as a rule, your left hand tends to be more intuitive than your right hand.

Improvising is very much about 'being in the now'. So I invited her to wait as long as she needed before playing the single tone. Just sit, wait, until you feel from the inside: 'this is my time'. Until you really long for the tone.

So she did. She played only one key. We all listened to it together until the end, which is always longer than you think.

For me, this is part of the magic of music, that it is possible to 'change your feeling of time'. Of course, that single tone did not last longer than, let's say, 30 seconds. But for me, and I think and hope for many people in the audience, it seemed to last much longer. That's the magic of music. This phenomenon means that you are in what sport people call 'The Zone': a state of mind in which your feeling of time changes. You also can call this state of mind 'Flow'. For the art of improvising, it is great when you are in that state of mind.

Listening very deeply to one tone is one of the most important factors in connecting with your tone.

When, after such an improvisation, your student turns to play Chopin or another composer, they can take with them the feeling of being connected with their sound. And in doing so, their Chopin will sound much more convincing. Just try it...!

Allow your body to move a little bit. I am not talking about big movements. I mean just enough to avoid stiffness. If you don't allow your body to move even a little bit, you will tend to be stiff, and that's what you should avoid. Because, when you are stiff, your brain doesn't have the level of fantasy you need when improvising; the ideas simply don't come as easily!

In fact, this is the basis of improvising: being relaxed and happy, making oxytocin, waiting till you really feel from inside out, 'this is the time', playing one tone, listening intensely to it, and then...

Then you can either stop (which I asked the first candidate to do; she received a big applause). Or, of course, you can go on, which was the pleasure of the next two candidates in this short EPTA workshop. You can go on in different ways.

You can go on with that single tone and play it more times (which we did in the workshop). Then, one tone can lead to another. You can create an improvisation with two tones, with three tones, with more and more tones and chords, et cetera. Throughout the whole process, these improvisations can help your students explore the keyboard, finding out which tones are consonant with each other and which ones are dissonant. With dissonant chords, which tone it is that causes the dissonance (or which tones are). This way, improvisation can help your students understand harmony more deeply.

Then, of course, you can add a pulse in your improvisation.

When your improvisations start developing in length, the way you build them up also becomes an issue. Of course, one single workshop is far too short to dive deeply into the entirety of improvisation; it can just give a glimpse.

There is one thing which you should always be very aware of, among others, when improvising. It's what I call the 'magic border'. At one side of your magic border you are relaxed, you fully sense all the tones you are playing, and your playing is beautiful and natural. At the other side of the magic border, your body feels tense, you start to think too much, and your playing sounds unnatural, stiff, not as beautiful as it could be. Always be sure you are on the good side of your magic border; don't make things too complicated for yourself. It is better to play



a few tones with this good feeling and full listening than playing lots of tones without feeling them or really listening to them. Everybody has a magic border. For example, Bach himself, perhaps the greatest improviser ever, also had one: he could improvise a six-part fugue (!) but not a seven-part one. With great improvisers you don't experience the magic border, because their magic border is far away, and because they always know and feel exactly where it is.

We ended the workshop with an improvisation inspired by a score from Chopin that someone from the audience gave to us. So, I hope that during this workshop we all could get an idea of how to connect with our sound, using the art of improvising as a means.

Robijn Tilanus is a multifaceted piano teacher, improvisation coach, author, composer and performer. She started to play the piano when she was seven years old and wrote her first compositions at a very young age. She took piano lessons from several renowned piano teachers, such as Jan Wijn, Willem Brons and Ramón Valle, and obtained her degree in piano as well as her masters in Biology. She wrote a book on harmony: *The FIFTH Factor – a Practical Approach to Harmony through Improvising at the piano, Listening, Playing, Singing, Composing*, which is considered by the press to be an 'unique masterpiece'. It is translated in German (titled *QUINTessenz*); an English translation is nearly finished and will appear in the spring of 2016. (If you like,



you can opt-in for a special EPTA-reduction and/or receive an announcement when it appears at www.robijntilanus.nl.) She also wrote a book on improvisation: *FREE PLAY: The 7 factors of improvising*, which is a guide for everybody who wants to learn how to play music in an ultimately free way. An English translation is on its way and will appear in the spring of 2017. A compilation of her compositions for piano, *Again and again*, is suitable for pianists with a few years of lessons; it offers invitations to improvise. Through her books, her workshops and her individual lessons, Robijn Tilanus has inspired thousands of music students and music teachers to start improvising and to grow in it. She regularly performs as an improvising pianist. www.robijntilanus.nl.

Interconnections: Performance, Pedagogy, Research



Mary Lennon (Ireland)

Introduction

This paper addresses the conference theme of ‘Key Connections’ by focusing on the interconnections to be found between performance, pedagogy and research in the context of piano teaching and learning. The paper highlights three different sources of literature which can inform piano teaching and draws attention to some of the interweaving roles that piano teachers undertake. Initially, a brief commentary on the traditional piano pedagogy literature is presented, drawing attention to some key concepts and individual perspectives. The role of the ‘artist teacher’, who models practice, is identified and discussed. The paper also highlights aspects of research on instrumental teaching and learning that have implications for piano teachers and point to a potential role for the ‘teacher as researcher’. Finally, the paper draws attention to the growing body of applied research on the ‘practice of performance’ which provides a further source of piano teacher knowledge and introduces the concept of ‘performer as researcher’. The paper suggests that all three literatures – with their varying emphases on issues relating to performance, pedagogy and research – have relevance for piano teachers.

Piano pedagogy literature: Some key concepts and individual perspectives

The traditional literature on piano pedagogy represents a fascinating but somewhat eclectic body of work. In considering this literature, I have examined a representative selection of pedagogical writings in English, most of which emerged during the last century. I am not claiming to cover ALL piano pedagogy literature, and I am not setting out to examine particular ‘schools’ of piano playing or specific techniques. The range and diversity of approaches and the personalised nature of the individual contributions makes generalisation and comparison difficult. Although tables of contents appear to be similar, the actual focus and emphasis of the works can vary greatly between individual authors, presenting an eclectic mix of perspectives on the subject. For example:

Tobias Matthay’s (1913/1932) work is associated particularly with rotation and the use of the arm as well as with timing and rhythmic progression and the concept of ‘motion’ and continuous movement.

Josef Lhevinne (1924/1972) also emphasises rhythm and stresses the importance of musical understanding, aural perception and ‘beautiful tone’.

Abbey Whiteside focuses on the importance of the aural image and the rhythmic impulse, arguing, in the context of technical issues, that ‘only a basic rhythm can co-ordinate the body as a whole’ (Whiteside 1955/1961, p. 6).

Ernst Newman (1956, p. 74) structures his approach around five specific areas: musicianship, technique, practice, performance and methodology.

Ruth Slenczynzka (1961) emphasises practice methods, recommending (amongst other

approaches) silent keyboard practice and drawing attention to the importance of intelligent listening and the 'inner ear'.

Kendall Taylor emphasises the intellectual dimension (in addition to technical and emotional aspects) and points to the need for analysis and 'an informed imagination' (Taylor, 1981, p. 118).

Fanny Waterman's (1983) approach is structured around the concepts of craftsmanship, musicianship, and artistry.

Obviously these soundbites cannot do full justice to the work of these authorities, but I present them as an indication of the vast range and diversity of viewpoints on offer. What follows is a brief overview of some key concepts associated with the literature.

Key Concepts: Technique

An examination of this literature suggests that the history of piano pedagogy is very closely related to developments in technique and performance with an ongoing emphasis on how to *play* the piano rather than on pedagogical issues. While different approaches to technique can be seen to evolve over time, with the original commitment to finger training and independence being replaced by concepts such as weight playing, the use of the arm, relaxation and rotation, an emphasis on technical aspects or the 'mechanics' of piano playing permeates the literature from the viewpoints of how the body works and how the instrument works. It is beyond the scope of this short paper to explore individual approaches, but the diversity of viewpoints must be stressed.

Key concepts: Artistic processes

Some definitions of 'technique' to be found in the literature bring us into the artistic domain. Matthey, for example, suggests that technique and music are inseparable and defines technique as 'the power of expressing oneself musically [...] (Matthey 1932, p. 3). Neuhaus makes links between technique and the 'artistic image':

My method of teaching, briefly, consists of ensuring that the player should as early as possible [...] grasp what we call the 'artistic image', that is: the content, meaning, the poetic substance, the essence of the music, and be able to understand thoroughly in terms of theory of music (naming it, explaining it), what it is he is dealing with. A clear understanding of this goal enables the player to strive for it, to attain it and embody it in his performance; and that is what 'technique' is about (Neuhaus 1973, p. 2).

'Interpretation' also has different meanings for different writers. There is often a perceived tension between concepts of interpretation based on the development of musicianship, analysis and an understanding of style, and interpretation defined in terms of intuitive response and artistry. Kendall Taylor illustrates this tension, observing that "intuition plays a large part in many fine performances, but this intuition must be based upon solid, well founded musicianship" (Taylor 1981, p. 53). Waterman makes a similar distinction, referring to concepts of 'musicianship' and 'artistry', but arguing that "artistry is innate, and therefore cannot be taught but only stimulated" (Waterman 1983, pp. 9-10). Similar distinctions, between 'art' and 'craft' and between observable features and inner processes, can be found throughout the literature.

These inner artistic processes are addressed in some depth by Matthey. He emphasises the role of listening, 'pre-hearing', concentration, memory and 'informed imagination', stressing in particular the importance of listening and 'ear training' in teaching, and suggesting that:

[...] all ear training in the first place signifies Mind-training: training ourselves to observe and notice aural impressions, training our mind to make use of the impressions received through our ear-apparatus. In short, Ear-training to be practical, must mean Mind-training, musically (Matthey 1913, p. 8).

The role of listening and the aural dimension of piano playing can be seen as a key concept throughout the piano pedagogy literature with different terminology used by different writers. One finds references to terms such as 'mental pre-hearing', 'listening desire', 'musical intention', 'aural image', 'the inner ear', 'intelligent listening', and 'critical self-hearing'.

Key concepts: Practice

Linked to the process of performance is the concept of practice, which can be seen as one aspect of the artist's craft and is addressed in most piano pedagogy publications. Practice is seen as an important factor in developing pianistic ability, and indeed, I would argue that one of the important roles of the piano teacher is to show pupils how to practise. Various aspects of practice are discussed in the literature. As might be expected, repetition is emphasised, and there is some discussion around concepts such as 'constructive repetition' and warnings against 'mechanical' repetition.

Different views are expressed on the merits of slow practice, practice with a metronome, separate hand practice and the isolation of difficult passages. There is an emphasis on the importance of developing good habits with regard to accuracy of notes, rhythm, fingering and phrasing and the need to think musically and avoid 'mechanical' practice. Slenczynka refers to the benefits of 'silent practice' (Slenczynka 1961, p. 105), and Kentner (1976/1991) and Taylor (1981) both recommend practising away from the piano, pointing to the role of such practice in memorising.

Key concepts: The 'Artist - teacher' and the 'Apprenticeship of observation'

In considering the pedagogical issues addressed in the literature, I am of the view that the style and content of much of the piano pedagogy literature reflects the much debated master-apprentice mode of teaching-learning long associated with piano teaching. There is generally little discussion of pedagogical issues *per se*, and inherent in this way of teaching is the teacher as performer who provides a model of the musical processes involved. As Jorgensen, in her *Pictures of Music Education*, describes it, "apprenticeship requires teachers to be exponents of the musical traditions they teach and to design approaches that fit the particular students under their care" (Jorgensen 2011, p. 59). This sense of the teacher as artistic role model comes across strongly in the observations of the students of famous teachers such as Chopin, Liszt, Leschetizky and Rubinstein (e.g. Gerig 1974). Matthey, writing in the early 20th century, discusses such issues, warning against illustration without explanation and stressing the need for a teacher to be artistic,



“so that, besides *really* teaching (i.e., explaining and showing), you may also be able to stir artistic fire and enthusiasm in others by actual example, when necessary” (Matthay 1913, p. 14).

Key concepts: ‘Methods’?

While the term ‘method’ is often used in relation to piano pedagogy, the descriptions above cannot be described as providing ‘methods’ of piano teaching. The English pianist Kentner, in his book *Piano*, points out that “what follows is mostly practical advice: no one should expect infallibility, comprehensiveness – or a ‘method’.” He argues that “many methods have many different answers”, and “that for different individuals all the conflicting answers could be right, or at least have *something* good in them” (Kentner 1976/1991, p. 47). In general, in relation to ‘method’, the literature reflects the individualised and contextualised nature of piano teaching.

Key concepts: Practical knowledge/wisdom of practice/tradition

In a way, the Kentner quote above describes the piano pedagogy literature which is characterised by the individualised nature of the writings. Although it defies generalisation, it can be argued that its primary focus is on piano performance rather than on pedagogy. It provides insight into teachers’ practical knowledge, their ‘wisdom of practice’, but its main focus is on piano performance and the artistic processes with which pianists engage. It represents a long tradition of piano playing and a rich repository of musical ideas which can inform piano teaching and learning.



Mary Lennon (right) in conversation with Dagmar Schimmerl (Austria) during a break. Photo Emil Golshani.

Research on instrumental teaching and learning



Piano teaching [...] a profession steeped in history and tradition but also in the present, looking towards the future [...] (Flor Verhey, Opening of 37th EPTA International Conference).

While the piano pedagogy literature discussed above represents a valuable legacy for 21st century piano teachers, the tradition of piano teaching can also be informed by the results of systematic research on instrumental teaching and learning. Here I am reminded of Liora Bresler's observation:

Music educators have engaged in reflection for at least hundreds of years. They hypothesised, listened, observed, and questioned, all to improve the quality of teaching and learning within their own settings [...] What is new is the systematic structure of teacher knowledge and its incorporation into scholarly thinking and discourse (Bresler 1993, p. 16).


This 'scholarly thinking and discourse' now includes a substantial body of research on various aspects of instrumental teaching and learning. Systematic studies on teacher knowledge, teacher thinking and teacher strategies and behaviours have been undertaken (e.g. Carey *et al* 2013; Lennon 1996; Young, Burwell and Pickup 2003). Research has also explored student learning with a particular focus on students' approaches to practice and self-regulating learning strategies (e.g. Hallam 2001; Nielsen 2008; Pitts, Davidson and McPherson 2000). One can observe an increasing emphasis on the importance of developing independent, autonomous learners. Another fruitful area of research is assessment, including studies focusing on self-assessment and peer-assessment (e.g. Blom and Poole 2004; Daniel 2001; Hunter and Russ 1996).

In this context, there is an emphasis on developing students' powers of musical criticism and their ability to articulate their views on performance - their own and that of others. Teacher pupil relationships and interactions have also been explored, both in one-to-one teaching and in group teaching (e.g. Gaunt, Creech, Long and Hallam 2012; Pike 2013; Rostval and West 2003). Other research areas include talent education and the role of parents (e.g., Creech 2010; Davidson, Howe, Moore and Sloboda 1996). The content and focus of teaching and learning has also received attention and aspects such as sight-reading, memory and improvisation have been researched (e.g. Chappell 1999; Ginsborg 2004; Lennon 2000; Williamon 2002).

The topics and studies referred to here are merely representative of a vast body of research covering a wide range of teaching and learning issues of relevance to piano pedagogy, and the references should merely be seen as indicative. While the main focus of the piano pedagogy literature was on performance, this research is primarily pedagogically-oriented. I believe that we are living in a very exciting time for instrumental teachers, and it is incumbent on us to engage with this exciting research, to interweave it into our 'tradition' of piano teaching as we follow our predecessors in continuing to 'hypothesise, listen, observe and question'.

Teacher as Researcher

Recent related research on instrumental/vocal teacher education conducted under the auspices of the Association of European Conservatoires, as part of the



ERASMUS funded *Polifonia* project, explored instrumental teacher roles and the competences needed to fulfil these roles in the ever changing educational contexts and musical landscapes of the 21st century (Association of European Conservatoires 2010; Lennon and Reed 2012). One of the competences linked to the role of ‘Teacher as Reflective Practitioner’ relates to ‘understanding, interpreting and contributing to music education research’ (AEC 2010, p. 53). In this context I would like to draw attention to the concept of ‘teacher as researcher’ and the ‘action research’ paradigm. Action research involves teachers undertaking systematic research within their own practice and is often linked to teachers’ attempts to consciously introduce changes in their teaching (Tim Cain, 2008).

An example from my own experience is ‘The Finland Project’ which involved myself and 8 colleagues researching our experience of using *Finnish Piano School* materials with beginner piano students. The research challenged our thinking on a number of different levels and, for many, transformed our approach to teaching beginners, highlighting issues around creativity and imagination while challenging the traditional concept of a tutor in relation to concepts of sequencing and progression (Lennon and Mooney 2009).

The literature on action research refers to its transformative effects. It describes how the processes of reflection can provide teachers with opportunities to critically evaluate their teaching, to develop and deepen their knowledge, and to articulate and share their ‘wisdom of practice’. In addition, the experience can empower teachers to implement changes in the way they teach and can facilitate continuing professional development and renewal (Noffke 2009).

Researching performance

The third body of literature that I would like to draw attention to in considering the interconnections between performance, pedagogy and research, is research that focuses on the ‘practice of performance’. This area of artistic research, often referred to as ‘practice based’ research or ‘practice led’ research, suggests that the relationship between performance and analysis can be a reciprocal one, rather than a one-way process where musicology informs performance. Two seminal books edited by John Rink (1995, 2002) present a range of perspectives on this topic from authors who bring aspects of both academic scholarship and performance practice to their research. Of particular interest is the concept of ‘performer’s analysis’, a term coined by Rink to differentiate between the kind of analysis in which performers are continually engaged during performance and that which is found in published analyses. He describes how ‘performer’s analysis’ “is not some independent procedure applied to the act of interpretation” but rather “an integral part of the performing process involving considered study of the score, focusing on contextual functions and the means of projecting them” (Rink 2002, p. 36).

I think that this concept in particular, can have implications for the discourse around piano pedagogy. Rink calls for “more informed intuition, more profound conscious thought and greater powers of verbal articulation.” He suggests that musicians learn more rigorous techniques “in order to assimilate terminology and concepts which might heighten their ability to articulate to themselves and others (students, teachers and so on) what is happening in the music” (Rink 2002, p. 41). I believe that ‘performer’s analysis’, and the research literature associated with it, can have a role in educating the ‘reflective performer’ by facilitating a critical and reflective approach to performance studies.

Conclusion

This paper has explored the interconnections between performance, pedagogy and research in the context of piano teaching and learning. The three bodies of literature have been shown to have relevance for piano teachers, and the paper has highlighted the connections between the roles of ‘artist teacher’, ‘teacher as researcher’ and ‘performer as researcher’. It is argued that piano teaching and learning can be informed and enriched when teachers engage across all three dimensions.

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The Taubman Piano Approach: A Coordination of Elements



Dr. Angelin Chang (USA)

*“I’m into something so spectacular, so important, it can’t be just for myself!
Feeling of helping mankind...it would be inconceivable of me to have found
something...and feel that I had a right to keep it to myself.”*

*“The principles of using the fingers are applicable to every instrument.
The basic physiological laws are the same for your hand no matter what you do.
It would be a question of intelligently applying it to the particular instrument, that’s all.”*

*“We’re talking about dedicated, earnest and gifted people. There’s no reason why any of
them should not be able to do exactly what they want to do.”*

Dorothy Taubman

Introduction

The Taubman Approach is known for developing a physiologically healthy technique in piano playing. The techniques have been used to therapeutically treat and rehabilitate use-related injuries in musical performance. Traits recognized and developed using the principles of this Approach are found in natural, coordinated, virtuosic playing.


While the kinesthetic properties of the approach are more effectively realized in-person, this article serves as an introduction and summary of selected items demonstrated during the hands-on workshops on the Taubman Piano Approach presented by Dr. Angelin Chang at the Conservatorium van Amsterdam at the 37th European Conference of the European Piano Teachers Associations (EPTA) in Amsterdam, The Netherlands.



Dorothy Taubman.

Dorothy Taubman

Celebrated as an innovator of revolutionary concepts and principles through analysis of motions required for virtuosity and musical expression, American piano pedagogue Dorothy Taubman (1917-2013) dedicated over sixty years to such research and teaching. Through her approach, she developed a natural and powerful technique for pianists to play effortlessly, unburdened by the physical limitations that block artistic expression. Technical limitations and injury-prone



tendencies in students quickly disappeared. At an astonishing rate of success, she gained a reputation for curing playing-related injuries. With discoveries that challenged the soundness of certain physiological concepts in traditional piano instruction, her work initially encountered controversy. Today, the principles in the Taubman Approach are widely recognized and respected as means for ergonomic functioning at and beyond the piano. Even though professional musical artists have greatly benefited from the mastery of her teaching, many of the principles of her approach were developed with and for teaching children. Applications of the Taubman Approach are suitable for any level of piano playing.

Coordination of movement

While generations of pianists have been effectively helped by principles used in the Taubman Approach, it is critical to understand that all elements of the Approach are to be applied in conjunction with each other in a holistic manner. The following illustrations demonstrate individual elements found in coordinate technique. For efficacy, these elements are not to be used in isolation, but combined together as coordinate movements. These are not mere exercises for practice, but are identifiable properties of a fully functioning, cohesive and naturally virtuosic technique. Technical tools of the Taubman Approach allow for complete musical expression within a healthy approach to instrumental performance execution, free from injury, pain and fatigue.

Alignment

Although this document mainly highlights the playing mechanism in the most direct contact to the keyboard (fingers, hands and forearms), it is imperative to understand the holistic application. For alignment and maximum efficiency, the entire body is balanced not to extreme ranges of motion, but the mid-range. In other words, when angled or twisted to even a slight level of discomfort, an imbalance occurs towards ineffective and injurious use. Generally, with few exceptions, alignment appears as a straight line from the bones of the forearm along through the 2nd and 4th fingers. When in alignment, the fingers–hand–forearm unit has no break/collapse or heaviness at any joint, and a sensation of functional balance (not tense, nor overly relaxed) may be experienced.

Rotation

Forearm Rotation is a foundational element of the approach that is often mistakenly taken out of context due to gross exaggeration of movement. Rotation is like oxygen. The lack thereof is noticed when it is detrimental. However, only a certain amount is necessary to be functional.

Basically, Rotation is simply a back and forth (left-right) turning motion made while the unit from the elbow to fingertips is sensed as an axis. The forearm, hand and finger turn together in one unit as when turning a doorknob, using a screwdriver, or unscrewing a light bulb. The maximum amount of motion to be used is the minimum that is required. This general movement is also known as pronation and supination.

Rotation provides for articulation, speed and power. On a micro-level, when playing on each individual note, a coordinate lifting of the fingers involves rotation. A small ‘preparatory’ motion or slight swing of momentum just before striking a



key is enough to be considered a rotation. This preparation is made in the opposite direction to the actual finger-to-key strike and could be perceived as a small lifting or adjustment of the finger-hand-arm unit. A slight turn to the left occurs immediately before striking a key to the right. When a Preparatory movement is made before a note is played, it is referred to as a Double Rotation. A Single Rotation does not have the extra preparation; as note execution is played towards the left, it already acts as a preparation to play the next towards the right. Double Rotations are used when playing individual fingers going in the same linear direction (e.g. C, D, E). Single Rotations apply when fingers play on notes going in the opposite direction (e.g. C, D, C – left, right, left).

Technical application diagrams and musical examples follow for each concept illustrated.

Forearm Rotation Diagrams

Double Rotation:

Diagram example is for playing on an individual key.

Preparation: made immediately before playing the note.

Play: on an individual key strike per finger.



- Double Rotation to play Left:
 - Prepare (slight turn) Right,
 - Rotate (turn) and play Left
- Double Rotation to play Right:
 - Prepare (slight turn) Left,
 - Rotate (turn) and play Right

Attention:

Rotate above the keys just prior to the hand drop down to strike the key.

Five-Finger pattern: Right hand

(do-re-mi-fa-sol-fa-mi-re-do)



Arrows indicate the direction of rotation motion to approach and play each key/finger.

Ascending (5-finger pattern):

- Prepare Right by a slight lift; Rotate LEFT to play and land securely on 1 (C)
- Single Rotation: RIGHT to 2 (D)
- Double Rotation: Prep Left, Rotate RIGHT to 3 (E)



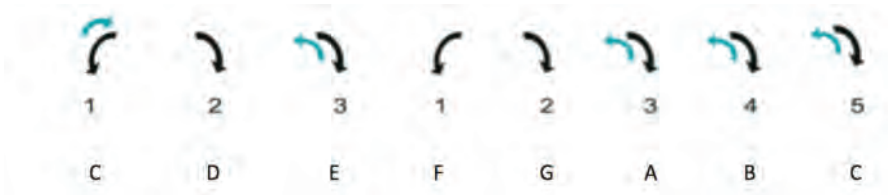
- Double Rotation: Prepare Left, Rotate RIGHT to 4 (F)
- Double Rotation: Prepare Left, Rotate RIGHT to 5 (G)

From the Ascending Pattern: If the rotation is far enough to the Right on 5 (G), it will simultaneously act as a preparation before the next descending finger (4 on F).

Descending (5-finger pattern):

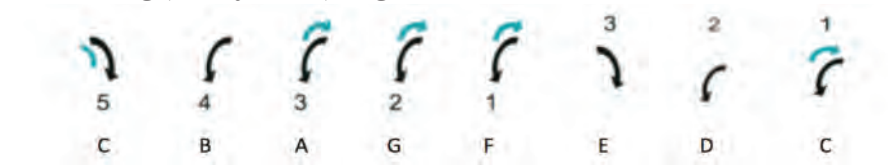
- Single Rotation: LEFT to 4 (F)
- Double Rotation: Prepare Right, Rotate LEFT to 3 (E)
- Double Rotation: Prepare Right, Rotate LEFT to 2 (D)
- Double Rotation: Prepare Right, Rotate LEFT to 1 (C)

Ascending (C Major scale): Right hand



- Preparatory motion to the Right; Rotate LEFT to play 1 (thumb) on C
- Single Rotation: RIGHT to 2 (D)
- Double Rotation (preparation needed as the next note/finger is again played in the same direction to the right): Prepare Left, rotate RIGHT to 3 (E)
- Single Rotation: LEFT to 1 (F)
- Single Rotation: RIGHT to 2 (G)
- Double Rotation: Prepare Left, Rotate RIGHT to 3 (A)
- Double Rotation: Prepare Left, Rotate RIGHT to 4 (B)
- Double Rotation: Prepare Left, Rotate RIGHT to 5 (C)

Descending (C Major scale): Right hand



- From 5, Single Rotation: LEFT to 4 (B)
- Double Rotation: Prepare Right, Rotate LEFT to 3 (A)
- Double Rotation: Prepare Right, Rotate LEFT to 2 (G)
- Double Rotation: Prepare Right, Rotate LEFT to 1 (F)
- Single Rotation: RIGHT to 3 (E)
- Single Rotation: LEFT to 2 (D)
- Double Rotation: Prepare Right, Rotate LEFT to 1 (C)

Single Rotation: Left hand

W.A. Mozart – Sonata in C Major, K. 545, I

- All Rotations are back and forth (Left, Right, Left, Right)



IN and OUT Diagram

ASCENDING (Right Hand): Five-Finger C Major pattern.

First note (thumb on C) is in a neutral position. It will be observed as being played slightly IN, but only enough for balance on the key.

Neutral									
1	OUT				IN				5
C	2		OUT		4				G
	D		3		F				
			E						

DESCENDING (Left Hand): Five-Finger C Major Pattern

(Neutral)									
IN									IN
5	OUT				IN				1
G	4		OUT		2				C
	F		3		D				
			E						

IN and OUT Diagram – C Major scale

ASCENDING: RIGHT HAND

(Neutral)									
IN				IN					IN
1	OUT	OUT		1	OUT		IN		5
C	2	3		F	2	OUT	4		C
	D	E			G	3	B		
						A			

DESCENDING: RIGHT HAND

(Neutral)									
IN				IN					IN
5	OUT			IN	1	OUT	IN		1
C	4	OUT		2	F	3	2		C
	B	3		G		E	D		
		A							

Burgmüller – Arabesque

Right Hand: Single notes, White keys

Attention: First Right Hand thumb (A) in neutral position (only very slightly IN).



i=IN (move in direction of piano fallboard)

o=OUT (move toward edge of key)

Chopin – Ballade in F Major, Opus 38

Right Hand: Harmonic Intervals (alternating OUT, IN, OUT, IN).



UP and DOWN

Up and Down address the vertical elements of piano playing. To adjust for different key heights, the arm unit will naturally adjust its positioning to be relatively higher up on black keys or lower down on the white keys. It is just as important to note that when playing in the same key area, arm weight distribution and tension relief come from changing arm positions as well. While the keys are always played down, the degree of arm height during playing will give the sense of a more upward lift or downward release of weight.

Lateral / walking hand and arm

In order to play notes in different ranges (bass through treble) of the keyboard, moving across the keys involves the entire arm unit with the upper arm passively engaged. The lateral/side arm motion across keys is generally combined with the vertical Up and Down to create a sense of balance between each set of notes, intervals and chords. The arm-to-fingers unit mimic a sense of walking: where each footstep is a secure balance of body weight to the next landing point; each finger is secure and balanced with arm weight transfer from one set of keys to the next location on the keyboard. This assists in arm weight uniformity and stability.

UP and DOWN / Walking hand and arm – Musical example

D=Down

U=Up

Schubert – Impromptu in C minor, Opus 90 no. 1

Combined with Walking Hand and Arm to different notes; repeated chords and octaves:



Interdependence of the hands

For coordinated functioning, different motions of the two hands are kinesthetically learned, recognized and felt as one experience.

Burgmüller – Ballade

Attention:

- Feel that the Left and Right hands are playing down together as octave unisons, not as separate parts
- Sense togetherness when playing 1 (IN) & 4 (OUT) simultaneous in both hands (C and G)



To not bore or overwhelm the reader with complexities, many details have been spared for the sake of simplicity, offering here a broader sense of the Taubman Piano Approach. It is hoped that this article will inspire you, the reader, to discover more tools for healthy practice and teaching in order to develop and express your musical artistry to your full potential. Your feedback and impressions are most welcome.

Dr. Angelin Chang worked with Dorothy Taubman for decades on performance-pedagogy interests in preventative as well as curative use-related best practices. She is America's first GRAMMY® Award winning female classical pianist awarded Best Instrumental Soloist Performance (with orchestra) for her performance of Olivier Messiaen's *Oiseaux Exotiques* with the Cleveland Chamber Symphony. Dedicated to developing the artistic potential of future musicians through developing



Photo William Rieter, CSU.

virtuosity while avoiding performance-related pain, fatigue and injury, Dr. Chang is Professor of Music (Piano) and Law at Cleveland State University (Cleveland, Ohio, USA), where she is Coordinator of Keyboard Studies and Coordinator of Chamber Music. She studied at the (Sweelinck) Conservatorium van Amsterdam and graduated with highest honors from the Conservatoire National Supérieur de Musique de Paris (Premiers Prix), Johns Hopkins University–Peabody Institute (D.M.A.), Indiana University (M.M.), Ball State University (B.A./B.M.) and Interlochen Arts Academy. For further information, please feel free to e-mail Dr. Angelin Chang at angelinchang@gmail.com and visit www.angelinchang.com.

PechaKucha: Seven New Pathways in Teaching



Flor Verhey (*The Netherlands*)

During an international EPTA conference one can expect to receive an overview of new insights into and materials for piano teaching. Yet, the format through which this occurred in Amsterdam was new for EPTA: a *PechaKucha* is a series of multimedial SIX (not a second longer or shorter!) minute presentations that force the lecturers to be extremely concise. For an audience it is an attractive way to digest a lot of information in a short time. All lecturers managed to conform wonderfully well to this unusual format, and the audience was treated to a lively Saturday morning program. The *PechaKucha* was chaired by *Jan van den Eijnden*, senior arts education consultant at the National Centre of Expertise for Cultural Education and Amateur Arts (LKCA) in Utrecht. Russian/Dutch colleague *Olga de Kort-Koulikova* opened with an outline of the historical development in piano teaching.

In this summary, each of the topics will be discussed briefly; sources for further information are added.

***Pianimals in motion* - Karin Gross (Germany)**

Karin Gross is an experienced teacher of children, young people and adults and has developed several materials for beginners. In her *Pianimals*, two volumes with short character pieces, Gross succeeds in combining the transmission of piano techniques with a musically modern and imaginative content. The books contain many gems in a variety of moods, styles and characters, ranging from spooky to romantic or jazzy. These pieces are very attractive and suitable for children from seven to eleven years who have a natural love for animals, but also many beginning adults love these pieces, as they are not childish in the usual sense. Just imagine the pianimalistic company with the sound of *Glow-worms* or *Black Panthers* or *Inspector Bloodhound* or *Zebra Crossings*.

The pedagogical idea is to present, one at a time, a simple technique with an easy-to-grasp structure while rewarding the player with a musical result and captivating sound.

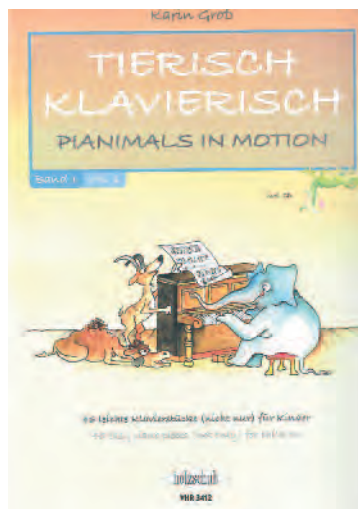
Just recently Gross published her third volume, *Smartly simple!*, with 47 appetizing pieces for the smallest beginners. Meet football players, circus artists and the black windmill.

Tierisch Klavierisch (Pianimals in motion)
volume 1 and 2.

Klein, aber fein! (Smartly simple!)

Holzschuh-Verlag.

<https://www.holzschuh-verlag.de/autoren/karin-gross.html>.



Jazzy rhythms - Remo Vinciguerra (Italy)

Numerous books have appeared from Remo Vinciguerra's hand, emerging from the idea that young adolescents need appealing music with modern rhythms to tempt them to stick to the piano. During the past thirty years Vinciguerra has sought to integrate the inescapable technical program for the study of the piano with the new languages of jazz and popular music. Musical simplicity, easiness and pleasure are the three qualities that make his books so popular.

Some of his titles, all published by Edizioni Curci in Italy, are: *Ciao, Piano! Primo Jazz, I preludi colorati: 12 studi per pianoforte in stile pop*, and *Tempi moderni: pezzi facili e progressivi per lo studio del pianoforte in stile pop*. *Easy Gershwin* offers transcriptions with integrated opportunities for improvising, and the joy of playing together is provided in the series *A quattro Mani* in several styles: *nel 2000*, *nel Blue* and *nel Jazz*. His *15 nostalgic Notturmi* (with CD, 2015) were written for more advanced students. Since 2002 Edition Peters, London, publishes and distributes worldwide a collection of nine volumes, *Crossing Borders*, dedicated to his teaching repertoire for the international market.

Many examples of his music can be found on YouTube. Vinciguerra is a passionate teacher and a prolific publisher. He regularly holds seminars and workshops throughout Italy.

www.removinciguerra.it.

http://www.edizionicurci.it/printed-music/minisito_autore.asp?id=00702.



The table with Remo Vinciguerra's books. Photo Emil Golshani.

Opus Blå, Grønn, Rød and Gul - Kari Fekjar (Norway)

Kari Fekjar has for many years been teaching students of all ages at her own piano school. Essential for her is the tailoring of an approach to educational arrangements to the individual student at any level, and this is what she did in her four volumes for starters, from level 1-4.

In *Opus Blå*, Level 1, the idea is that the music is fun and pleasant to play in a calm and comfortable mood. The lyrics are based to a large extent on nature, activities and the lives of two children in the Viking period. *Opus Grønn*, Level 1 to 1+, adds creative elements – such as making your own variations, developing velocity and listening – all for a good musical foundation. In *Opus Rød*, Level 2-3, one is finally able to play famous original and some arranged pieces from all epochs, from Bach to Mancini, Clapton and Fekjar. *Opus Gul*, Level 4 (also published in German), moves on to favorite pieces from Bach to Lennon/McCartney and more advanced music for piano in several major and minor keys, more polyphonic movements, ornaments and various rhythmic patterns.

In all four volumes the fingering is well-notated. They represent a natural merging of classical and modern styles.

www.musikkforlagene.no
opuspianobooks.no



Mieke de Jong and Erna Fransen. Photo Emil Golshani.

Handy Hands - Mieke de Jong and Erna Fransen (The Netherlands)

Erna Fransen and Mieke de Jong both work as piano teachers at the Music School in Zeist, where they developed this method together, working with groups of young children. The two volumes of *Handy Hands (Bijdehandjes)* were an immediate success following their publication in The Netherlands. In October 2015 a third book was published, *The Mice Book*, with extra songs.

This auditory piano method for 5- to 8-year old children is based upon the principles of 'sing - move - play together'. It presents a combination of singing the songs, moving around and playing the piano, with a lot of attention being paid





to the development of the left hand, for transposing, for playing together and for rhythmic development.

The songs are short and soon become favorites of the whole family. Each song has two pages, the left being for the teacher/parent. The right one is for the pupil and includes the text of the song, a small drawing of the keyboard to teach where to start the song, plus a nice drawing that can be colored.



The authors are in favor of working auditorily as much as possible, with a maximum of one year. Note reading is introduced gradually, and playing with rhythmic cards becomes a part of each lesson.

www.bijdehandjes-piano.nl.

Fun piano games - Primož Mavrič (Slovenia)

Primož Mavrič has developed a passion for piano didactics and is the author of the first handbook for piano practice in Slovenia and Croatia: *From the first tone to the stage – methods for effective practicing of a piano composition*. He is currently writing his second book about piano practice protocols and their programming. He is the president of EPTA Slovenia.

After studying a vast amount of literature from many related fields, including fitness, Mavri developed a framework of three connecting key elements of motivation with piano practice: autonomy, mastery and purpose. His system of fun piano games – whose purpose is to improve not only the students' concentration and desire for practicing but also their cognition, memory and musicality – was presented. *Magic pencil, zigzag game, annoying bugs, eating chains, brave cuckoos and*



Primož Mavrič, Photo Emil Golshani.

background brooks are all techniques which help students become autonomous, precise and motivated students when practicing. These tools can help each student spend less time reading the notes during piano lessons and concentrate more on the essence of musical fulfillment and art in general.



***Piano Lions and Stage Animals* - Annemieke Boot and Mara van Pommeren (The Netherlands)**

In 2014, *Klavierleeuwen* and *Podiumbeesten* were published, two books forming a new Dutch piano teaching method for children. The method is innovative in that it starts with *grasping* as a natural motor skill that is close to a young child and that, instead of note reading, it is based upon a set of two-tone chords that are represented by pictures of animals on octave lines. Each animal represents a different two-tone chord, and they are played with both hands anywhere on the keyboard. This quickly results in all kinds of different timbres and harmonies. The pupil explores the entire keyboard by moving the arms and making gripping movements with the hands. The thumb is involved from the very start. In the first book, *Klavierleeuwen*, the pupil plays ten different animals. Melodies are sung with the accompaniment of both hands playing the different intervals, while ‘reading’ the animals. In *Podiumbeesten*, more attention is paid to piano techniques that are further removed from human nature than the fingerings in *Klavierleeuwen*. The repertoire in *Klavierleeuwen* and *Podiumbeesten* stimulates pupils to express themselves while playing; they immediately get the chance to play real music that encourages the development of the imagination and musicality.

Inspired by the piano methodology lessons by Robert Harris, the young teachers Annemieke Boot and Mara van Pommeren decided to start creating this new teaching method in 2007. The books are currently available only in Dutch, but will be available in other languages in the future.

www.deklavierleeuwen.nl.

***Tonal Tools* – Lieven Strobbe and Hans van Regenmortel (Belgium)**

Musica, Impulse Centre for Music (Hans van Regenmortel), in collaboration with Lieven Strobbe, developed *Tonal Tools*, a kit for keyboard players and teachers that makes an artistic view of musical development with tonal music pivotal (again). Lieven Strobbe, who teaches organ, music analysis and creative keyboard didactics in Leuven and Antwerp, Belgium, merged his experience with creative practice in keyboard learning with recent musicological research on 18th century *partimento* practice.

Tonal Tools translates proven but mainly forgotten expertise into a contemporary approach on tonal music, spanning the baroque, classical, romantic, jazz and pop repertoire by means of common improvisational and compositional principles.

In *Tonal Tools*, nine ‘components’ serve as keys for a more aural, creative and tangible approach to tonal music from the very start and through a high professional level. *Tonal Tools* is applicable to any tonal idiom. It is not a straightforward method; *Tonal Tools* can be interwoven with your usual didactics according to your own pace and needs. Expect a better integration of musical understanding and skill from your pupils, a more reliable memory and better sight-reading ability,

not to mention a broadened musical imagination, enhanced expressiveness and a joy for playing tonal music.

As a valuable extension to keyboard teachers' existing professional expertise, *Tonal Tools* opens new artistic and (auto)didactic perspectives, including idiomatic improvisation and composition, re-composition of existing works, as well as new ways to deal with the music and practices of the past.

www.tonaltools.com.

Conclusion

Considering these seven presentations of recent materials, we note that all authors are not only passionate piano teachers, but they have actually taken the trouble to design a systematic concept, to develop new materials and to arrange and publish it all with the purpose of sharing it with colleagues and future generations of students. We can only be admiring and grateful for their perseverance. Some have accomplished this toward the end of their teaching career, others at the beginning.

What did they add to existing 'mainstream' piano methods? I would say tentatively that we can discover certain trending directions:

- More creativity, and not just from note reading to playing, but more elements with improvising and games.
- More auditory skills development: sing and play, sing and accompany, play with tonal tools.
- More group lessons and materials for the very young, with singing, moving and imagination as essential natural elements.
- Attention for motivation and methods of practising: How do we keep young people at the piano?
- Reconsidering fundamental elements: from tonal tools to alternative 'note' reading (e.g., animal symbols for the grasping of intervals).
- Multi-styles: less emphasis on classical styles only and a natural combination of all styles.



Lieven Strobbe explaining his Tonal Tools to an EPTA member. Photo Emil Golshani.




*Behind the tables, from left to right: Mara van Pommeren and Annemieke Boot, Primož Mavrič, Kari Fekjar.
Photo Emil Golshani.*

Hopefully a *PechaKucha* type of format becomes part of each EPTA conference, so that we can further discuss these directions and inspire each other for future works and development of materials.



Flor Verhey studied at the Utrecht Conservatory with Herman Uhlhorn and Sumiko Nagaoka and is a piano teacher in Nieuwegein. She is one of the founders of 'BUZZING-pianodagen', where adult amateur players meet to discuss special topics of piano repertoire and history. Since 2007 she has been a board member of EPTA Netherlands, and since 2011 vice-president. She was member of the organizing committee of Key Connections and responsible for the PechaKucha.



The Study Lab Project: An Evidence-based Approach in Preparing Students for a Public Recital

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In the study lab project, six students of an elite-level music academy were provided with several alternatives for their usual practice routines. In ten days they prepared themselves for a recital of approximately thirty minutes, applying methods borrowed partially from sport sciences and sport psychology, and overall with a strong emphasis on quality rather than quantity of practice. Students employed deliberate practice and studied reflectively, methodically, purposefully and with full focus. Furthermore, they used imagery and performed two try-outs. The experiences of the students were monitored using logbooks, interviews and a questionnaire. Overall the study lab was experienced as very valuable and instructive, making clear that alternative ways of practicing can be more satisfying than common routines.

Introduction

Traditionally the emphasis in music pedagogy is on the quantity of practice (e.g. Duke, Simons & Davis Cash 2009; Madsen 2004). In relation to this, the importance of massive amounts of practice has received much attention through the work of Ericsson and colleagues (a.o. Ericsson, Krampe & Tesch-Römer 1993). Ericsson's stimulating though somewhat controversial idea (see, for example, Hambrick, Oswald, Altmann, Mainz, Gobet & Campitelli 2013) that with sufficient practice (e.g., 10,000 hours) anyone can excel in any domain, has famously foregrounded the quantity of practice, training or study. However, Ericsson equally stressed the importance of the quality of training. The term he used for high-quality training was *deliberate practice*, that is, "a highly structured activity, the explicit goal of which is to improve performance" (Ericsson et al. 1993 p. 368). Important features of deliberate practice are planning, goals, feedback, and awareness of progress. Recently, several authors judged the quality of practice to be decisive for the quality of performance (e.g., Bonneville-Roussy & Bouffard 2015; Duke et al. 2009).

In the study lab project, six students of an elite-level music academy were provided with several alternatives for their usual practice routines. In 10 days they prepared themselves for a recital of approximately 30 minutes, applying methods partly borrowed from sport sciences and sport psychology, and overall with a strong emphasis on quality of practice rather than quantity.

The study lab consisted of six elements. The first two relate to deliberate practice: (1) Focus attention on planning, study goals and progress. (2) Practice in blocks

of 20 minutes, followed by a break of 5 minutes, as advised by Klickstein (2009), so as to be fully focused during practice.

The next two elements were borrowed from sport sciences and theories of motor control and learning: (3) Practice with an external (rather than internal) focus of attention, and (4) Apply principles of differential learning. Practicing with an *external focus* implies attention to environmental information or the intended outcome of a skilled action. An external focus “promotes a more automatic mode of control” whereas “an internal focus induces a conscious type of control, causing individuals to constrain their motor system by interfering with automatic control processes” (Wulf 2013, p. 91). Many studies show better learning outcomes with an external focus of attention (see Wulf 2013). *Differential learning* entails practicing with much variation. As people never really make identical movements but solve the motor problem anew each time, the advice is not to train the brain to pursue identical performances, but to use variations (a.o. Schöllhorn, Sechelmann, Trockel & Westers 2004).

The final two elements were derived from sport psychology: (5) *Use mental imagery* and (6) *Practice under pressure*. Imagery is a well-known intervention to help improve sport performance and may also be valuable for studying in music. Finally, while usually much time is spent on mastering the music (technically), less time is spent on actually preparing for performing in front of an audience, even though this is an essential part of the job. During the study lab students were exposed to pressure by performing two try-outs in front of a small audience (see Oudejans & Pijpers 2010; Williamon, Aufegger & Eiholzer 2014).

In summary, the aims of the present study were threefold: (1) Provide students with alternatives for their habitual study patterns. (2) Stimulate a focus on the quality of practice. (3) Prepare students for playing in front of an audience. The experiences of the participants were monitored using logbooks, an evaluation questionnaire and interviews.

Method

Participants

Six students (2 women, 4 men; 2 wind instruments, 2 pianos, 1 string, and 1 percussion) agreed to participate in the study lab. They were in their 4th (final) bachelor year (mean age 22 years), with close to full time availability for the study lab and willing to comply with the assignments and other activities in the study lab. Confidentiality of the data collected was guaranteed, and participants gave us written permission to audio-record the interviews. The procedure complied with the criteria outlined by the ethical committee of the Faculty of Behavioural and Movement Sciences in the Ethical Review Regulations.

Material

Logbook. The participants received a logbook for daily registration of:

- goals for that day
- time spent practicing
- completed study activities and assignments
- evaluation of assignments
- assessment of progress
- accomplishment of goals.



An important aim of the logbook was to stimulate and support students in purposeful and methodical practicing.

Assignments were divided into the following three groups:

1. Deliberate practice and concentration:
 - Reflecting on points for improvement immediately after practicing (awareness, plans, goals).
 - Practicing in blocks of 20 minutes, followed by 5-minute breaks.
2. Sport sciences and theories on motor learning and control:
 - Apply an external focus of attention (e.g., focus on how the music sounds).
 - Use variations, e.g., vary light intensity, the chair you are sitting on, the order of musical sections.
3. Sport psychology:
 - Imagery. See, hear, feel yourself playing the music, your own affective reactions when coming on stage, and/or the musical message. Imagery instructions complied with the principles of the PETTLEP approach (Holmes & Collins 2001).
 - Practice under pressure. Prior to the final performance, participants performed their recital twice in two try-outs in a simulated setting.

Evaluation questionnaire. Participants evaluated how often they had done the prescribed assignments on 5-point scales (1 = hardly ever; 5 = very often) and how valuable the assignments were (“The assignment was valuable”: 1 = completely disagree; 5 = completely agree). Finally, some general questions regarding the study lab were answered (also on a 5-point scale).

Interviews

In the intake interview participants were individually informed about the study lab and asked for their commitment. They answered questions about their usual training routines and average number of practice hours. In two *interim interviews* their progress was discussed. An *exit interview* went deeper into the student’s answers to the evaluation questionnaire.

All interviews were transcribed verbatim. Two researchers independently analysed the interviews on 10 a-priori themes (e.g., focus of attention, deliberate practice, overall experience). The proportion of statements in the interviews independently selected by both researchers and classified under the same theme was 84%. Differences were discussed, leading to an ultimate agreement of 98%.

Procedure

In November 2014 there was an introduction meeting for the participants and other people involved in the project: five students of Human Movement Sciences (HMS) who supported the study lab; teachers and researchers of the Conservatorium van Amsterdam (CvA) and HMS. In January the intake interviews were held.

The study lab started in March 2015 on a *Monday*. In the first meeting we provided information about the study lab and asked the students to make a practice

plan. They participated in a mental imagery 'experiment' in which they had some practice with mental imagery and received precise instructions on how to use imagery. Then we explained the procedure for the logbooks and handed out the music that students were required to play during their recital, making it clear that they were to practice the recital without further advice from their main teachers. The music was selected by the students' main teachers and was pretty tough, yet possible to master in 10 days. Wind players, cellist and percussionist practiced 4 times with a pianist (two CvA teachers) who accompanied them in the recital.

On *Tuesday* individual feedback was given on the practice plans. On *Thursday* participants played part of their recital (length varying from a few to 20 minutes) in one of the CvA concert halls in front of about 10 people (teachers and students). On *Friday* the first interim interviews were held, and the students attended lectures about learning and attention.

In the second week, on *Monday*, students played their complete recital under similar conditions as on *Thursday*. On *Tuesday* the second interim interviews took place, and a lecture about stress and coping was given. On *Thursday* or *Friday* participants performed their recital in a relatively small concert hall outside the CvA. The audience (25 on average) consisted of teachers of the CvA, fellow students, students of HMS, and family and friends of the participant.

The following *Wednesday* the evaluation questionnaire and exit interview were completed.

Results and Discussion

Practice hours

One of the ideas of the study lab was to stimulate students to focus on the quality of practice rather than practice as many hours as possible. The average time spent practicing amounted to 170 minutes (range 104–208) per day, almost three hours. This included practicing, reading the music, listening and imagining. In the intake interviews participants mentioned that they normally practice between 1½/2 hours (wind instrument players) and 6 hours per day. Despite the limited time available for preparing the recital (10 days) and the relatively difficult pieces, the average amount of practice time was thus not more than usual. Admittedly, however, the participants spent quite some time on other activities in the study lab (attending lectures, listening to performances of their fellow students, working on logbooks, etcetera). As one of the students said in the exit interview: "In my mind I did not have much time left for other things." Nevertheless, outcomes seem in agreement with the conclusion of Duke et al. (2009) that not only the amount of practice but also the quality of practice is crucial for the final result.

Applying principles of deliberate practice and practicing with full concentration

An important aim of the study lab was to urge students (1) to evaluate their progress with a view to determining the next steps and (2) to practice with full concentration. In the evaluation questionnaire, students reported how often they did that and how valuable they thought these methods were. Scores are presented in Table 1.



Assignment	How often (range)	Valuable (range)
1. Reflect. Be aware of your points of improvement and use this in practice.	4.8 (4-5)	4.8 (4-5)
2. Practice in blocks of 20 minutes, with full focus, followed by 5 minutes breaks.	3.8 (1-5)	4.5 (3-5)

Table 1. Scores for the assignments about deliberate practice and the 20 + 5 minutes blocks (1 = hardly ever/completely disagree; 5 = very often/completely agree).

Deliberate practice was used very often and experienced as highly valuable. The '20 + 5 minutes' scheme also scored high on value but was less frequently chosen. The interviews confirmed the positive evaluations of both assignments and provided a potential explanation for the lower mean score for how often the '20 + 5' scheme was used: The one participant who did not use the scheme said that he simply forgot the time when practicing, which seems to indicate that he practiced with full concentration. In conclusion, stimulating students to practice reflectively, methodically, purposefully and with full focus was successful and experienced overall as valuable by the participants.

External focus of attention and variations in practice

Table 2 presents the scores for four questions in the evaluation questionnaire concerning assignments stimulating students to adopt an external focus of attention.

Assignment	How often (range)	Valuable (range)
1. Focus attention on the feeling you want to convey; try to play this.	4.0 (3-5)	4.5 (3-5)
2. Translate the music into colours, objects, or events.	3.2 (2-4)	3.6 (3-4)
3. Focus on your accompanying musician and the sound of the music you produce together.	3.8 (3-5)	4.8 (4-5)
4. Focus on the effects of playing; how do the notes sound?	3.3 (2-5)	4.3 (4-5)

Table 2. Scores regarding external focus of attention. (N=6, except question 3, N=4).

Scores indicate that students regularly used an external focus, yet certainly not always. They experienced it as valuable. In contrast to motor skills in sports, where the external focus is often quite obvious (e.g. the hole in golf, or the rim in basketball; Wulf 2013), in music it is more difficult to decide what an appropriate external focus is. The suggestions offered in the assignments were based on discussions with musicians and not on scientific evidence. Nevertheless, the students experienced them as helpful.

Scores with regard to 'differential learning', inviting participants to use variations in their practices, are presented in Table 3.

Assignment	How often (range)	Valuable (range)
1. Vary elements in the environment (light intensity, sitting on other chair, et cetera).	2.3 (1-3)	2.7 (1-4)
2. Play while doing something else (moving your shoulders, listening to the radio).	2.5 (2-3)	3.5 (3-4)
3. Vary in your performance of the music (rhythm, accelerations, decelerations).	3.3 (2-4)	3.7 (3-5)
4. Change the sequence (randomly choose a page, the last page first, et cetera).	3.3 (2-4)	3.8 (3-4)

Table 3. Scores about variations in environment and music.



Scores for differential learning assignments were relatively low. This was confirmed by the data in the logbooks. Students did not often use variations nor did they rate their value high. We will not speculate about the reasons and conclude that students may need more guidance to experience these assignments as valuable (provided that they are!).

Imagery and training under pressure

The imagery assignments were related to three different functions of imagery (see also Martin, Moritz & Hall 1999): mastering the music, affecting one's own feelings (of tension, self-confidence) and conveying the musical message. As shown in Table 4, the scores for these three functions differed considerably.

Assignment	How often (range)	Valuable (range)
1. Apply imagery to master the music.	4.0 (3-5)	4.3 (4-5)
2. Imagine coming on stage in the concert hall where you play your recital or the enthusiastic reactions of the audience. Experience your feelings.	2.3 (2-4)	2.7 (1-4)
3. Imagine feelings or emotions that reflect the musical message you want to convey.	3.0 (1-5)	3.8 (3-5)

Table 4. Scores for the mental imagery assignments.

For the first function imagery was used often and experienced as (very) valuable. The intake interviews showed that, normally, students use imagery only incidentally (4 participants) or not at all; their experience with it was limited. Yet they evaluated its use as a tool to master the music very positively. Limited experience with imagery is a likely explanation for the lower scores for Assignments 2 and 3; these functions are more difficult to realize. Participants probably need more instruction, supervision, and practice in order to fulfil the potentials of imagery in these applications.

The exit interviews revealed that the try-outs provided a much-appreciated experience to train under pressure. Two quotes illustrate this:

“The two try-outs were nice and helpful.”

“Without those try-outs I would have been much more nervous.”

The overall experience

The overall evaluation of the study lab was clearly positive (see Table 5), and participant quotes in the exit interview illustrate this:

“A very successful experience.”

“Very useful.”

“Good experience.”

“It was specifically instructive.”

The answers to two other questions further testify to the success of the study lab. All students responded positively to the questions: “Would you participate in the study lab again?” and “When preparing for your examination, do you intend to apply elements from the study lab?”

Question	Score (range)
1. Overall, the study lab was a valuable experience.	4.5 (4-5)
2. I learned a lot during the study lab.	4.3 (4-5)

Table 5. Scores for the final two questions in the evaluation questionnaire (1 = strongly disagree; 5 = strongly agree).

These positive evaluations do not mean that the participants were satisfied with all the elements nor that there were no suggestions for improvement. The restriction of not asking their main teacher for advice about the music for the recital was a difficult limitation for 4 of the 6 students. At the same time they indicated: “It is not only a negative experience. I am happy that I could make it also without [the] advice of my teacher.” The short time available for preparing the recital was experienced as stressful by all participants and had disadvantages: “More time would have resulted in mastering the music at a higher level.” At the same time, participants were satisfied with and surprised by the progress they had made in 10 days. Five students mentioned that they would have appreciated more advice and guidance, specifically when doing the assignments.

Limitations and Conclusions

There were several limitations to this study. First, it provides no evidence for the effectiveness of the practice methods employed in the study lab. Such evidence would require a controlled experimental set-up of the study, which is hard to accomplish for several (practical) reasons. Furthermore, the results are based on experiences of only six participants and five represented instruments, leaving open the possibility of specific biases. Finally, although originally planned, there was no systematic grading of performances by the main teachers, because they could not all attend (all) performances of their students. Several spontaneous remarks they made were, however, (very) positive, as performances had exceeded their expectations.

Despite these limitations, it is safe to conclude that the study lab was experienced as valuable and instructive. The benefits of deliberate practice – stimulating students to study reflectively, methodically, purposefully and with full focus – is beyond discussion for the participants. The try-outs that served as a way to practice under pressure appeared valuable and deserve a fixed place in any conservatory curriculum. It was also enlightening to see that students were able to prepare a recital in such a short time span without the help of their teachers. Most importantly, however, the study lab showed the students that other ways of practicing are possible and may even be more satisfying than their usual routines.

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Photo Emil Golshani.

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IV. SCIENCE



Photos Emil Golshani.

What Neuroscience Can Tell Musicians about Learning and Memory

Dr. Lois Svard, DMA (Bucknell University, USA)

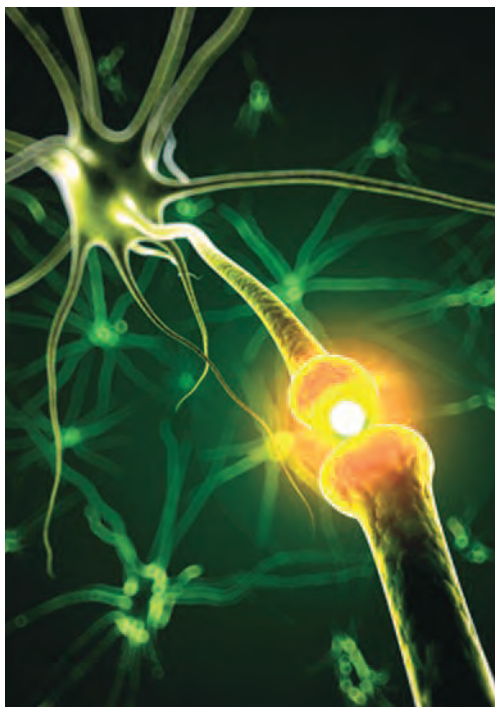
Most piano teachers have experienced a student coming to a lesson, attempting to play a piece from memory and then having major memory problems. The student cries out, “But I played it perfectly in the practice room!” And the teacher thinks, “How can that be possible after what I just heard?”

Learning and memory are significant issues for piano students as well as for professionals. For many musicians, fear of having a memory slip in performance is a major cause of performance anxiety, and performance anxiety can erode self-confidence, cause us to play less than our best, and have a damaging impact on a career.

Fortunately, psychologists, neuroscientists, and learning and memory researchers have made significant progress in the past two decades in understanding the brain mechanisms underlying learning and memory. If we have a basic understanding of how the brain wires itself as we learn and memorize, we can then adopt practice strategies that encode learning and memory more securely, thus helping to alleviate performance anxiety and allowing us to perform with greater confidence.

According to neuroscientist Daniel Levitin (Landau 2012), when we sit down to play a piece of music, our brain has to execute what is known as a ‘motor-action plan’. The sequence of events that make up that piece of music must unfold in a particular order, note following note, pattern following pattern, phrase following phrase. As we practice the motor movements, we are strengthening the neural circuits in our brains. Our fingers seem to move as though on their own, but the signals are coming from the brain.

But sometimes that motor-action plan is interrupted. We hear a noise in the hall, we inadvertently miss a chord or series of chords and suddenly, we don’t know where we are or what comes next. Our *implicit* memory is still intact – the memory of *how* to play the piece. If we put the score in front of us, we can continue to play without a problem.



Artist's illustration of neurons connecting.
© Sebastian Kaulitzki/Fotolia.com.

What we have forgotten is some detail of *explicit* (also called declarative or conceptual) memory – the notes in a complex chord, a fingering pattern, the difference between the second and first statement of the theme, some specific detail about the piece. Whether or not we will be able to reactivate the motor-action plan and continue playing depends on how quickly we can access our explicit or conceptual memory.

Many students think that learning a piece comes first and memory is a second step. But neuroscientists call learning and memory two sides of the same coin. Learning is the *process* by which new information is encoded in the brain, and memory is the *encoding* itself. So how a musician learns, or practices, the musical information is key to how that musical information is encoded and to successful recall at the time of performance. Learning and memory are inextricably intertwined in the brain.

Stages in learning and memory

We are able to learn and memorize music, languages, academic subjects, or anything else due to the brain's ability to *encode, consolidate, store, retrieve* and *reconsolidate* information.


Encoding is the first step in the learning and memory process. When we sight-read a new piece of music, our sensory perceptions (auditory, visual, tactile) and motor movements, as well as initial impressions of conceptual information (key of piece, fingering, etc.), enter the brain as patterns and are converted into representations in the brain, representations that will eventually be turned into long-term memory. Psychologists tend to speak of these representations as memory traces, neuroscientists as neural pathways.

The brain has about 86 billion neurons (Herculano-Houzel 2009) that can combine in an infinite variety of ways. One neuron connects to another at a point called the synapse, as can be seen in the illustration. Chains of connected neurons form neural pathways, and as we learn a piece of music, neural pathways are formed connecting visual, auditory, kinesthetic, proprioceptive, emotional, and motor areas of the brain. All of these areas are additionally connected to other areas of the brain involved in processing factual knowledge of the piece, forming vast neural networks representing that particular piece of music. An array of photos of actual neural pathways in the brain can be accessed on the website of the Human Connectome Project (<http://www.humanconnectomeproject.org/gallery/>).

Because visual, auditory, motor and other brain areas are all connected in the process of learning music, we are able to look at a chord or pattern, know how it will sound, the movement we will need to play it, and, if we have studied theory, how to name it.

Initially these pathways or memory traces are part of short-term memory. If we do nothing, they will disappear. But if we want them to enter long-term memory, we practice. And as we practice, the brain changes these pathways: strengthening, organizing, filling in blank spots, making connections to previous knowledge and skills, and transferring to long-term memory. The synapses (connections from one neuron to another along the pathway) become stronger, and transmission becomes faster. This is the consolidation phase and is the basis for learning and memory.





Storage is the third part of the learning and memory process. We have no control over *where* the brain stores information. Various aspects of a piece of music are stored throughout the brain – visual in one area, auditory in another, emotional in another, motor plan in another, theoretical or historical information in yet other areas.

But we can control *what we pay attention to as we practice*, because that will determine what information, and how much information, is encoded and how securely it becomes consolidated and stored in long-term memory. The fact that various aspects of music are stored in different parts of the brain would suggest that the more attention we pay to multiple aspects of the piece – visual, auditory, motor, theoretical – as we practice, the more brain areas we are involving in memory (to be discussed further under ‘practice strategies’).

Retrieval is the part of the process that we rely on when we perform, and it is what we worry about prior to performance. During retrieval, the brain reconstructs all of the various elements of the piece. It revisits the neural pathways that were formed when the memory was encoded. How well we remember depends on the strength of those pathways.

But the act of retrieving a memory also changes it, and this is the *reconsolidation* phase. We never play a memorized piece the same way twice. The tempo may be altered; we may change a fingering; dynamics or interpretation may be slightly different; we see patterns we hadn’t noticed before; we take risks because we know the piece better. The performance of the piece changes, and the memory itself changes. It reconsolidates and is again stored until the next time we perform or play from memory.

What kind of practice is best for ensuring secure memory?

Most people are convinced that focused, single-minded repetition of the material to be learned is the best way to study or practice, whether learning a Beethoven Sonata, conjugating French verbs, or working on a tennis serve. Researchers refer to this kind of practice as ‘massed’, and in sports, it is usually called ‘blocked’ practice.

For musicians, repetition tends to feel good because we can hear and feel that we are playing better at the end of the practice session than at the beginning. But massed or repetitive practice has been found in one research study after another to be the least productive way to practice, and that’s why the student who has been practicing by repetition doesn’t tend to play well when he comes to the lesson.

During repetition, one is drawing on short-term or working memory. But by the time the student arrives at the lesson, he must use long-term memory, and the material hasn’t been transferred to his long-term memory. We need to use repetition to gain motor skills, but simply having the motor skills to perform a piece is different from memory. And there are better ways to achieve solid learning and memory than through repetition.

What does practice need to accomplish?

(Chaffin & Imreh 2002)

1. Meaningful encoding of musical material. We must encode not only the

motor skills necessary to play a piece, but also the conceptual material with details that we could talk about or write down: the structure, key relationships, patterns, complex chords, fingerings, textures, how the second statement of the theme differs from the first, etc.



- 2. Use of a well-learned retrieval scheme.** We need to determine a retrieval structure, places in a piece where we can access the motor-action plan. Researchers call these places retrieval cues; musicians often call them landmarks. These are the places where we can access chunks of long-term memory, where we can restart the piece if we have a problem.

The structure of the piece is, in itself, a ready-made retrieval scheme (Sonata form, ABA form, Rondo, etc.). But other retrieval cues are more individualistic and will vary from musician to musician. They might be key changes, difficult fingerings, complex chords, or whatever serves as a cue for us to remember particular places, other than the beginning of the piece, where we can access long-term memory and restart the motor-action plan.

- 3. Rapid retrieval from long-term memory.** Most of the time, our practice consists of solidifying motor skills. But when we have a memory slip, it isn't our motor skills (implicit memory) that we have lost. It is our explicit or conceptual memory, our memory for factual details of the piece. We must practice accessing our conceptual memory at the same speed as we play the piece.



Practice involving effort leads to longer-lasting learning © Tipyashina/Fotolia.com.

Practice strategies

Researchers in learning and memory have discovered that learning is deeper and longer lasting when it requires more effort. The following practice strategies will be more challenging than repetitive practice, but they encode and consolidate information in the brain more securely, allowing us to feel more confident about

memory when we perform. Additional practice strategies, as well as further information about those discussed here, can be found under the categories of *memory* and *practice* at www.themusiciansbrain.com.

1. **Random practice** is more effective for both motor skill learning and for explicit memory. We often practice a piece from beginning to end. But if we mix up the sections of a piece, alternate different technical or musical challenges, practice phrases of one piece interspersed with phrases from another, it forces the brain to consolidate the different kinds of learning associated with the various technical or musical challenges inherent in each musical section or segment we are practicing.
2. **Practice retrieval from long-term memory.** We often don't begin practicing a piece from memory until we think the entire piece is memorized. But we should try playing short segments from memory almost as soon as we learn them. Of course we will make mistakes, but as long as we fix them, we force the brain to distinguish between correct and incorrect information earlier in the learning process, and the correct information becomes encoded and consolidated more securely. And practicing segments that begin with our retrieval cues will help us to consolidate those places where we can access chunks of long-term memory if we experience a memory lapse.
3. **Use all learning styles.** We tend to rely on the learning style that is most automatic for us, whether auditory, visual, or kinesthetic. But if we concentrate on the learning styles that are not as comfortable and are more of an effort, we force the brain to encode and consolidate more information, adding neural circuitry that helps in recall. If auditory learning is the most comfortable for us, we should practice visualization. If we tend to learn kinesthetically, we should practice hearing the piece in our minds. The more information the brain has encoded and consolidated, the better our recall.
4. **Practice extremely slowly.** Think of a piece you are working on and play it at quarter tempo, or even eighth tempo. That probably will not be easy. Extremely slow practice forces us to really think about what comes next – we can't rely on automatic motor movement. If, at a slow tempo, you can't remember, you have to look up the musical information, and the brain adds this information to the neural circuitry, making the connection stronger.
5. **Motor imagery.** We know about, and often use, auditory and visual imagery when we are learning a piece. We are less likely to use motor imagery. Neuroscientists have known for quite some time that imagining the movements necessary to play a piece while you imagine hearing it activates all of the same brain areas as physical practice – with the single exception of the motor cortex, which sends impulses to the muscles to move. Motor imagery is practice, but a kind of practice that forces us to really concentrate. We quickly find out what we don't know and can then encode and consolidate the correct information into the existing neural pathways.

6. **Sleep.** Researchers have known for some time about the importance of sleep for memory consolidation. Recently, researcher Sarah Allen (2013) at Southern Methodist University, Dallas, Texas, discovered that motor skills involved in playing a piano melody improve in both speed and accuracy after a night of sleep.



With the exception of sleep, all of these practice strategies require more work than repetitive practice, but they cause the brain to make distinctions between different musical and technical challenges, to recruit more neurons as necessary, to strengthen neural pathways, to make those pathways faster, and to consolidate our memory more securely.


Using these practice methods will not ensure that we *never* have a memory slip. Brains are complex, and lots of things can trigger a momentary memory lapse. But the more ways information is encoded in the brain and the more practice strategies we have used to consolidate that information, the more resources we will have available to us should a memory lapse occur, allowing us to perform with greater confidence.

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national Society for Music Education (Beijing and Thessaloniki), Music Teachers National Association (Las Vegas, Anaheim, Milwaukee), the World Piano Pedagogy Conference (Phoenix), the London International Piano Symposium, and the European Piano Teachers Association (Amsterdam). She has taught a university course exploring the applications of current neuroscience research for making music, has written several articles, and writes *The Musician's Brain*, a blog that has introduced readers in more than 90 countries to some of the latest research in neuroscience and music.



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Linguistics in Teaching



Justin Krawitz (South Africa/USA)

The similarities between music and language have long been the subject of serious inquiry. Music follows certain rules just as languages are bound by their grammars, and music notation abides by particular conventions much as languages are notated according to orthographic norms. The proximity of music and language is perhaps more obvious to singers, who find verbal text and musical line converging in almost everything they perform. For pianists, however, the connection may be a little more abstract, and the benefits of a more explicit word-tone connection are often lost on those who do not need to consider verbal text in the course of music-making. Creating texts to fit instrumental melodies can help students clarify musical issues on many different levels, and by turning to the field of linguistics, we can refine the way we implement this pedagogical tool.

Piano teachers have long made up words to the music of their students in an effort to enhance the learning process. This shows us abiding by that common tenet of education: moving from the known to the unknown. Our mother tongue constitutes some of the most fundamental knowledge we have. We all acquire expert proficiency in our native language quite naturally and can draw on this knowledge at will, so it makes sense that we might refer to it in teaching new concepts.

On a micro-level, thinking about the phonetic properties of language can foster an increased sensitivity to articulation. The inventory of sounds that a language has is not always transparent when looking at the way that language is written. English spelling is notorious for being extremely inconsistent in the way it represents sounds in writing. In order to refer to sounds more accurately, linguists have developed the International Phonetic Alphabet (IPA), in which each symbol refers to only one sound. These symbols can be used to notate consistently the sounds of the world’s languages, with IPA transcriptions often given in square brackets. Figure 1 shows the IPA symbols for sounds that occur in English, along with a word that contains an example of each of those sounds.

The study of phonetics makes us more aware of the particular qualities of the various sounds that combine to make up the words we produce in speech. Some of the variables that apply to these sounds include place of articulation

p	t	k	f	s	θ	ʃ	tʃ
pen	talk	can	five	six	thanks	she	teacher
b	d	g	v	z	ð	ʒ	dʒ
bed	does	get	very	zero	this	television	jacket
h	l	r	w	m	n	ŋ	j
hat	leg	read	wet	mother	nurse	sing	yes
ɪ	i:	u:	ʊ	eɪ	ɪə	əʊ	
hit	been	food	foot	page	here	know	
ə	ɜ:	ɔ:	ɒ	aɪ	eə	aʊ	
ago	first	bought	got	five	there	house	
e	æ	ɑ:	ʌ	ɔɪ	ʊə		
pen	cat	car	but	voice	poor		

1. Simplified Version of the IPA.¹

(where the sound is made) and manner of articulation (how the sound is made). Figure 2 shows the consonants of the English language (notated using IPA symbols), arranged according to place of articulation (columns) and manner of articulation (rows).

	Bilabial	Labio-dental	Dental	Alveolar	Post-alveolar	Palatal	Velar	Glottal
Plosive	p b			t d			k g	
Affricate					tʃ dʒ			
Fricative		f v	θ ð	s z	ʃ ʒ		(x)	h
Nasal	m			n			ŋ	
Lateral				l				
Approximant	w				r	j		

2. Table of English Consonants.²

Plosives – also known as stops – are sounds that are produced by stopping the airflow in the vocal tract and then suddenly releasing the air. The airflow could be constricted by the lips (as in the bilabial plosives [p] or [b]) by pressing the tongue against the alveolar ridge (as in the alveolar plosives [t] or [d]) or by pressing the back of the tongue against the soft palate, or velum (as in the velar plosives [k] or [g]). Plosives are particularly useful in demonstrating to a student the different grades of staccato that are possible and are most appropriate when trying to achieve a strong sense of articulation at the start of a note. Plosives can be *aspirated* (followed by a strong puff of air) – as in the [k^h] in English ‘coffee’ – or *unaspirated* (without the ensuing puff of air) – as in the [k] in Dutch ‘koffie’ or English ‘scoff’. The little ‘h’ in the English example [k^h] is the way that aspiration is indicated in IPA. In the context of the piano lesson, the teacher might present two sounds to the student, one aspirated and one unaspirated, and ask the student which is closest to the staccato they want to produce. This encourages the student to clarify more precisely the articulation they want in a given spot and potentially broadens the palette of articulations upon which they draw.

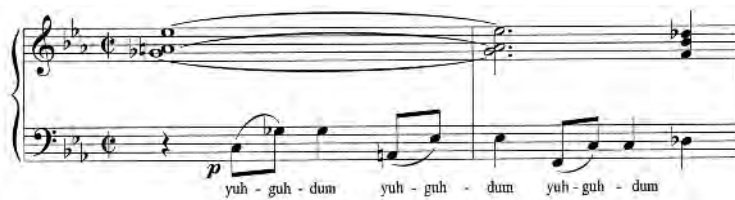
In opposition to plosives, we have sounds known as *continuants*. In continuants, the oral cavity is not completely closed, so the sounds have a longer duration than stops, and that duration can be extended at will. Continuants include *fricatives* (e.g. [f] or [z]) – in which the oral cavity is closed just enough to create friction, but not to stop the airflow – and *approximants* (e.g. [w] or [j]) – in which the airflow is even less constricted. Continuants are especially useful in training students to avoid overly strong or abrupt articulation. In an *Adagio* with staccato crotchets, we might encourage a student to think of the nonsense syllables [wɑ:] or [fɑ:], rather than [p^hɑ:] or [t^hɑ:], in order to better match the articulation to the character of the music.

One more important distinction to make when considering the qualities of various consonants is that of *voicing*. In figure 2, we notice that consonants are often grouped in pairs, where place and manner of articulation are the same for both sounds. The only difference between the sounds in these pairs is that the first is *unvoiced* and the second is *voiced*. In a voiced consonant (e.g. [d] or [z]), the vocal chords are activated; in an unvoiced consonant (e.g. [t] or [s]), the vocal chords do not vibrate. Especially in the context of plosives, unvoiced consonants tend to

give a clearer, more percussive sense of articulation. Voiced consonants, by contrast, tend to better facilitate legato, because the vocal chords continue to vibrate without interruption.

I should emphasize that it is not necessary for the piano teacher to know all these technical terms from linguistics, and it would certainly be inappropriate to ask a student, “Do you hear that staccato as an unvoiced aspirated alveolar plosive or a voiced bilabial approximant?” Rather, the usefulness of the discussion above is in how it might encourage us as teachers to be sensitive to the particular qualities of the different sounds we produce in speech, so we can more effectively work on articulation with our students.

Beethoven’s Piano Sonata in E-flat Major, Opus 81a provides ample opportunity for applying this pedagogical strategy. The figure in the left hand in mm.75ff. posed a challenge to a recent student. Her tendency here was to give an undue accent to the first quaver (which, in fact, falls on a weak sub-division of the beat) and to compress each pair of quavers, leading to rushing through mm.75-6, and consequently through much of the development section. The tendency towards compression likely stems from the technical challenge of the repeated note (second quaver to crotchet). To help the student, we began a discussion about the figure centered around what kind of sounds (i.e. consonants) she wanted on each note. We came up with the nonsense syllables yuh-guh-dum – or [jʌgʌdʌm] in IPA – for each of the groups of two quavers plus crotchet. Beginning with the [j] helped to alleviate the accent on the first quaver. The voiced plosive [g] helped to keep the student from rushing into the second quaver, because of the clear sense of articulation it implies. The voiced plosive [d] on the crotchet helped the student not to compress the preceding quaver and ‘fall’ into the crotchet. Finally, the phrase of nonsense syllables helped the student conceptualize the figure as one gesture, which included a clear shape and sense of destination. The result of this process was that, when practicing and performing the piece, the student could think of one clear linguistic analogy for the figure, [jʌgʌdʌm], that incorporated a profusion of information that otherwise might have been conveyed with a multitude of negative instructions: “Don’t rush! Don’t compress the second quaver! Don’t make a bump on the first quaver!”



3. L. van Beethoven: Piano Sonata in E-flat Major, Opus 81a, first movement, mm. 75-76.

When we take a step back from looking at the individual sounds of language and instead consider entire words, we open up another way of working on musical gesture with our students. Words are characterized by various stress patterns. The different configurations of strong and weak syllables are sometimes referred to as prosodic units or *feet*. The five basic feet are *trochaic* (strong-weak, e.g. HA-ppy, FA-ther), *iambic* (weak-strong, e.g. be-HOLD, re-TURN), *dactylic* (strong-weak-weak, e.g. CARE-ful-ly, YE-ster-day), *anapestic* (weak-weak-strong, e.g. un-der-

STAND, in-ter-RUPT) and *amphibrachic* (weak-strong-weak, e.g. ba-NA-na, con-TAIN-er). Again, the object is not to be able to use the technical terms (such as *trochaic foot*) to refer to the various stress patterns, but to be able to refer to words that demonstrate these patterns when appropriate. By referring to the stress patterns of words with which students are already familiar, we can help them correct deficiencies in their playing. For example, often students will not play an anacrusis with the correct sense of stress, giving too much of an accent to the pick-up and not conveying the gestural connection between anacrusis and downbeat. Having the student think of words whose stress pattern matches the musical gesture can help them grasp the musical gesture more palpably and convey it more convincingly. Words like ‘ago’, ‘away’ and ‘again’ inherently convey a sense of upbeat to downbeat.

Polyrhythms present a familiar case where students get caught up in abstract mathematical division of the beat and often never achieve an organic sense of rhythm. Figure 4, excerpted from the second movement of Mozart’s Piano Concerto in C, K.467, contains an example of four notes against three. Attempts to fit the RH semiquavers mathematically between the LH quaver triplets gives a horribly mechanical result. If we can have the student continue the triplet motion they have set up in the left hand, and think of an appropriate word for the sixteenth notes in the right hand (e.g. ‘relatively’, ‘reasonably’, ‘caterpillar’), the result is likely to be more natural. Students’ inherent knowledge of the rhythm of words is remarkably easy to transfer to their musical performance. We need only guide them in finding an appropriate verbal analogy.

The image shows a musical score for a piano piece. It consists of two staves: a treble clef staff for the right hand and a bass clef staff for the left hand. The time signature is 4/4. The right hand part features a melody of sixteenth notes with lyrics written above it: "Play - ing four - against three, re - la - tive - ly sim - ple." The left hand part features a steady accompaniment of quaver triplets. The score is divided into three measures. The first measure has the lyrics "Play - ing four -", the second "against three,", and the third "re - la - tive - ly sim - ple." The right hand part in the first measure has four notes, while the left hand part has three notes, illustrating the 4:3 polyrhythm mentioned in the text.

4. W.A. Mozart: *Piano Concerto in C Major, K.467, second movement, mm. 24-26.*

On a broader level, texting of melodies can help clarify melodic inflection and phrasing. Figure 5 shows an excerpt from Schumann’s Piano Concerto in A Minor, Opus 54. This example demonstrates how texting an instrumental melody can be a sophisticated tool for solving numerous pedagogical issues. Typical issues that we encounter in student renditions of this phrase include rushing through the RH quavers, an unconvincing sense of line, a bump on the A-flat quaver in the melody at the end of the first measure, and a bump on the A-flat quaver in the melody in the second measure. To help the student avoid an accent on the A-flat at the end of the first measure, I recommend an analogy with an initial weak syllable in a word that follows an iambic (weak-strong) stress pattern, e.g. ‘today’. In order to encourage an appropriate enunciation of the quavers in the melody at the end of the second measure, I would ascribe each of them its own syllable, rather than resorting to melisma. To avoid a bump on the first of those quavers, I would recommend a syllable that begins with a continuant (e.g. the approximant [w]), as opposed to a plosive. To encourage the student to convey the phrase with a convincing sense of line, I would work to develop a text the natural form of

which echoed that of Schumann's melody. The result I came up with was: 'If not today, why not tomorrow?' This has the additional advantage of implying a yearning that matches the affect of the music. While this is not a prerequisite, it might further help the student to clarify their intent when playing this phrase.



5. R. Schumann: Piano Concerto in A Minor, Opus 54, first movement, mm. 156-158.

How does one help a student to develop this potentially sophisticated pedagogical tool? Rather than throwing the student in the deep end by asking them to develop a fully coherent text that matches a musical phrase in terms of articulation, rhythm, phrasing and all other nuances, the strategy of texting should be developed sequentially. I recommend three steps. Using a melody from a piece that the student is working on, first have the student develop a series of nonsense syllables (akin to scat singing), guiding them to make sure the sounds match the articulation desired in the melody. Then have them find words that match the music in both articulation and rhythm. These words can be strung together in nonsense combinations without making any sense. What is important is developing a sense of the rhythm of words and how this can be matched in music. Finally, have the student develop a verbal phrase that makes linguistic sense, and also matches the melody in articulation, rhythm and musical phrasing.

The primary benefit of resorting to linguistic strategies in piano teaching is that they give the student concrete, readily comprehensible analogies to otherwise abstract problems. Texting of piano music fosters creativity and opens up an easy dialogue with the student – about rhythmic gestures, the kind of articulation they want, the affect of a piece – without ever needing to get bogged down in technical terminology or abstract concepts like *portamento* or *agogic accent*. Because the verbal text provides such a concrete point of focus for the student, the strategy of texting can even help improve focus in performance and thereby aid in alleviating performance anxiety. If a student is thinking of a verbal phrase that happens to incorporate all your discussions about how to play a particular musical phrase, there is no room for the student to ruminate on thoughts that will undermine their confidence – thoughts like, 'don't make a bump now', 'don't rush that note', 'don't play that staccato too short'. Texting of untexted music is potentially a robust problem-solving technique which, at the same time, encourages student independence.



South African pianist **Justin Krawitz** is Assistant Professor of Piano and Piano Pedagogy at the University of Northern Colorado. Previously he has served on the faculties of the University of Cape Town, the University of Wisconsin- Madison, and Luther College. His diverse performance experience has included recitals at venues such as the Chateau Kroměříž as part of the Forfest International Festival, a world premiere inside Cape Town Central Train Station, participation in outreach concerts at the Madison Correctional Facility in Wisconsin, and work as a recording artist for Czech Radio.

Dr. Krawitz is an active clinician, with regular invitations to give master classes and pedagogical workshops at music schools from Raleigh to Reykjavik. He has been published in the *EPTA Piano Journal* and the *ISSTIP Journal Tension in Performance*, which he joins as editor in 2015. Krawitz is also a contributing editor of the *Martinů Revue* and a board member of the International Martinů Circle. http://www.unco.edu/arts/music/music_faculty/krawitz.html.

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Notes:

¹ *A Simplified Version of the IPA*. From *An ESL Teacher's Guide to Eritrean Language and Culture* (Megan Bowden, n.d.).

² *Table of English Consonants*. From *Phonology and Phonetics Review* (Pamela Rogerson-Revell, n.d.).

V. HEALTH



Photos Emil Golshani.



Pianists' Hand Biomechanics and Evenness Touch Control: Heritage and New Knowledge

Dr. Sang-Hie Lee, MM, EdD, PhD (USA)

This paper is an extend abstract of the oral presentation at the 2015 International Conference of EPTA Association, Amsterdam. A full report will be submitted to *Neuroscience and Biomedical Engineering Journal* in May 2016.

Context

The history of piano technique can be traced to the beginning of keyboard playing around 1700 when “European life was full of stringed instruments – spinets, virginals, clavichords, and harpsichords” (Parakilas 1999, p. 9). With Cristofori’s invention of the hammer action at about the same period, the ergonomics of key touch control changed drastically. Parallel to the development of the piano action throughout the 19th century in Germany and Austria, England and France, and North America, piano techniques have progressed from the finger technique to the emphasis on the use of arm and its weight and relaxation techniques (Boardman 1954). With the advent of the ‘modern piano’, with its longer and tauter strings, iron frame, large sounding board, and sturdy wood case, pedagogues such as Ortmann (1929, 1962, 1984) explained piano playing with the physiological mechanics and coordination of the entire upper body. Today’s pianos with duplex scale, fan-shaped strings, and soft, *sostenuto*, and damper pedals allow variable resonance that pianists can explore with their touch technique to realize an extreme control of tone production.

Ergonomics is a science that pursues the interface between human body and machine. In piano playing, ergonomics seeks to understand hand touch control in producing the desired tones by using exact motions at the minimum waste of energy. In studying pianists’ ergonomics, it is necessary to investigate pianists’ hand biomechanics and piano tone production. Piano-playing hand biomechanics includes measurements of hand size and shape (anthropometry), motion analysis, and muscle tension and release. In recent years, bioengineers, movement scientists, ergonomics specialists, physical-therapy researchers, physicians, and piano pedagogues have studied different aspects of pianist’s biomechanics (e.g., Wagner 1988, Furuya et al. 2011, Van der Steen et al. 2014, Wings & Furuya 2015, Boyle et al. 2015, MacRitchie & McPherson 2015, Lai et al. 2015). However, there are only two published articles to date (as far as I am aware) that have examined pianists’ hand biomechanics in direct relation to tone production (Lee 1990, 2010).

There is common curiosity among aspiring pianists, teachers, and the public alike concerning whether there is an ‘ideal’ hand type for optimum piano technique and what the features might be. On hand span, Kentner (1976) commented that Liszt’s hands had “deep-lying connective tissues between the fingers,” that gave him an “unusual degree of independence” (p. 50). This can be interpreted as Liszt’s hands being characterized by a large span between fingers and intrinsic muscles to support strong finger motions. Perry (2004) cited Rosen (1999), who observed

that Richter could reach the twelfth, while equally renowned pianist Hofmann, only an octave. Regarding finger length, Kentner (1976) went on to say that Ferruccio Busoni, Sergei Rachmaninoff, Moriz Rosenthal, and Emil von Sauer had long fingers; while Eugen d'Albert, Alfred Reisenauer, Teresa Carreño, and Vladimir de Pachmann, had short ones. In recent years, some pianist-pedagogues have experimented with the use of small-keyed pianos for small-handed pianists (e.g., Boyle 2013). However, the average 'skilled' pianist plays the octave comfortably without incurring pain and injury.

The study

Our research interest is focused on skilled pianists—including pianists who are enrolled at a large urban professional music school, university piano professors, and concert artists. The purpose of the study was to see if the performance quality measured by evenness of touch control is influenced by specific hand biomechanics.

Method

We recruited four groups of skilled pianists on a volunteer basis (N=31). We applied a comprehensive hand measurement model developed by our team, adopting Wagner's model (1988), motion capture at 14 finger joint and intra-finger points, and quantified performance outcomes to examine relationships among hand biomechanics, music performance outcomes, and motion capture.

Skilled pianists are classified into four categories: artists (n=9), graduate pianists (n=8), undergraduate pianists (n=5), and injured professional pianists (n=9). We defined hand biomechanics by hand length and width, composite finger lengths, composite finger spans, hand and arm weights, the weight ratio between them, and ulnar deviation at the wrist. The performance outcomes in playing seven piano tasks were measured by temporal and dynamic evenness touch control on the piano keys, quantified in MIDI data generated from a hybrid acoustic-electronic piano, Yamaha AvantGrand (2010). A DataGlove 5DT was used to capture motion at 14 points (MCP, PIP and intra-finger points-IMP) to compare an injured and a healthy pianists' joint motions while playing a rapid scale.

We used SPSS to run statistical analysis. Because our purposive sample number was small (31), we used parametric as well as non-parametric analyses. Nominal variables (sex and classification) are described as frequencies with mean values \pm SD and compared using X² analysis or Fischer's exact test as appropriate. Test for normal distribution was performed using the Shapiro-Wilk normality test. Normally distributed data were analyzed with parametric tests and non-normally distributed data with non-parametric tests. All Hand biomechanics, with three exceptions (ulnar deviation, hand and arm weights), were normally distributed. Group means for all normally distributed measures were compared using the t-test for two-variables sets or ANOVA test for more- than-two-variable sets. Comparisons between groups of non-normally distributed datasets were compared using a Mann-Whitney U test or Kruskal-Wallis test. Spearman rank correlation tests (vs. Pearson r) were used to measure the strength of association between the predictors and the dependent variables. Multiple linear regression models were created to identify independent variables that predict changes in performance variables. P value \leq 0.05 was considered statistically significant.



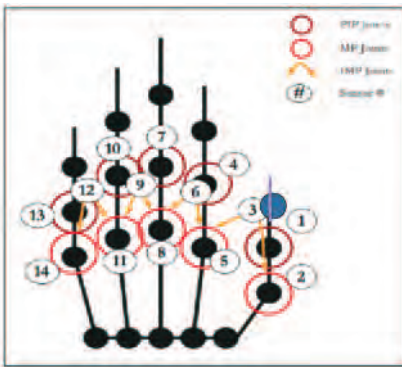
Results

There were no differences in hand biomechanics among the four pianist groups. As expected, significant differences in hand size, shape and weight were observed between male ($n=16$) and female ($n=15$) pianists; importantly, however, there were no significant differences between male and female in finger spans 1-5, 2-4, 3-5, ulnar deviation, and hand-arm weight ratio.

There were no significant differences between male and female pianists in all performance evenness touch control. Among pianist groups, in *legato* playing, graduate and injured pianists were not significantly different from artists in articulation evenness ($p=0.83$, $p=0.523$ respectively) or in tempo evenness ($p=0.60$, $p=0.15$ respectively), while undergraduate pianists showed significant differences from the artist group in both temporal ($p=0.045$) and articulation evenness control (also $p=0.045$). In *staccato* playing, injured and undergraduate pianists were significantly different than the artists in tempo evenness control ($p=0.024$ and $p=0.042$, respectively). Overall, artists and graduate pianists' articulation and temporal evenness controls were superior to the injured and undergraduate pianists. No significant differences were observed in dynamic evenness control between gender or among groups.

Relating performance outcomes to hand biomechanics, hand length was positively related to fourth-finger sustain in playing a Cortot exercise that required the fourth finger sustained down while playing the rapid five finger scale ($r=0.437$, $p<.05$). Hand width was positively related to dynamic evenness in *legato* and *staccato* playing ($r=0.367$, $r=0.422$, $p<.05$ respectively) and fourth finger sustain in Cortot exercise ($r=0.376$, $p<.05$). Finger length was related to fourth finger sustain in Cortot exercise ($r=.467$, $p<.01$). Finger Span 1-5 was positively related to *legato* and *staccato* dynamic evenness control ($r=0.394$, $p<.05$ and $r=0.593$, $p<0.1$ respectively). Finger Span 1-3 was related positively to *staccato* dynamic evenness control and fourth-finger sustain ($r=0.459$, $p<0.1$ and $r=0.441$, $0<.05$ respectively). Both finger spans 2-4 and 3-5 were positively related to *staccato* dynamic evenness control ($r=0.48$, $p<.01$, both same). No temporal evenness, i.e., tempo and articulation, seem to be influenced by hand biomechanics.

Multiple regression analysis results showed that the model with all predictors (all hand biomechanics) together influenced key velocity evenness (dynamic control) in *legato* playing and the model with composite finger lengths influenced 4th-finger sustain.



1. Fourteen marker points measuring ROM.

Next, we compared the motion capture of an injured and a healthy pianist at all 14 finger motion points.

The injured and healthy pianists showed a different range of motion (ROM) across all motion capture points. The injured pianists demonstrated small ROM at all points except small increases in third and fourth metacarpal phalangeal (MCP-knuckle) (see points 10 & 12 in Figure 2). The injured pianists used the smallest motion at intra metacarpal (IMP-motion between fingers 3 and 4), 4th



2. Movement range of motion (ROM) between fingers and finger joints.

between fingers 1-2 and 4-5 (see points 3 and 12). We also note active ROM of fifth-finger PIP (see point 14 in Figure 2). This may be because the pianist lifts the fifth finger to propel the weak finger to articulate tones in rapid scale playing.

Summary and Conclusion

Our study demonstrated comparisons of hand biomechanics among four groups of skilled pianists and between male and female pianists. Our data also compared skilled tone evenness and fourth-finger sustain control among the four groups. While there was little difference in pianists' hand biomechanics overall, apart from the obvious difference in size between male and female, our data showed little difference in performance control between sexes. We interpret these findings to indicate that only a few specific hand biomechanics (e.g., span and mobility) influence only certain evenness performance control aspects (e.g., articulation and velocity). Further analyses comparing individual pianists' hand data in playing specific piano tasks (e.g., arpeggios, octaves, scales, etc.) will reveal more specific information.

We conclude that pianists, regardless of differences in their hand shape and size, train technical skills with the traditional techniques that include finger technique, arm and its weight, and physiological coordination to master one of the most fundamental skills, i.e., dynamic and temporal evenness and individual-finger sustain touch control.

Our motion data comparison between an injured and healthy pianist, both professional-level pianists, showed that the healthy pianist used much more active motion at all finger joints and particularly larger intra-finger motion than the injured pianist. We wonder if the injured pianist's lack of finger and between-finger motion created the tension which caused the injury at the elbow joint or if the less active finger motion overall is the result of the injury. This is a poignant question as the injured pianist is a jazz pianist who did not follow traditional piano training. We conclude our scientific study with a keen sense of the importance of our three-hundred years of heritage in piano technique.

Acknowledgement:

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MCP (metacarpal phalangeal, i.e., fourth finger knuckle) and fifth PIP (proximal interphalangeal) (see points 9, 11, 13 in Figure 2).

The healthy pianist used almost maximum ROM in IMP (intrinsic motion between fingers 2-3 and 3-4) (see points 6 and 9 in Figure 2) and active ROM in IMP



Dr. Sang-Hie Lee has distinguished herself as an innovative performer-researcher. As founder of Ars Nostra, she performs new music by colleagues and contemporaries at international venues. Lee's cutting-edge research on pianists' biomechanics and collegiate musicians' fitness training program are published in refereed research journals. Dr. Lee received a BA in piano performance from Ewha Woman's University with honors, MM in piano performance from the American Conservatory of Music in Chicago, an EdD with specialization in piano performance and pedagogy from The



Photo Emil Golshani.

University of Georgia, and a PhD in higher education with concentration on academic affairs from The University of Michigan. She has served as Associate Dean of the College of Fine Arts and currently is Professor of Music at the University of South Florida.

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Note:

Missing volume and page numbers are due to electronic journal format. *Neuroscience* 284 is the volume number.

Pianists' Muscles – A Key Connection



*Dr. Hara Trouli (UK),
Performing Arts Medicine Specialist*

Introduction

The muscular co-ordination of a piano player is a highly organized function that ultimately leads to the acoustic musical result. One can only be amazed by the complexity and the multi-level structure of the neuromuscular system which, in balance with the need for mental and emotional input, provides the necessary electrical and chemical circuits that act as the key connections for harmonious play.


Although this function works well most of the times and develops gradually through the experienced and close guidance of the piano teacher, there are times and particular circumstances when this equilibrium may be disturbed. This happens following injury, illness, psychological adversity or technical misuse. It is not so uncommon to have disturbance of the muscular coordination and even the playing stamina of a pianist after a fall, a broken bone, a joint problem or a nerve entrapment – to name just a few conditions that occur in the general population and from which pianists cannot be excluded. It is unfortunately not uncommon either – and particularly among the young, ambitious and competitive younger pianists – to see the phenomenon of fatigue, pain in the arms and hands and sometimes even involuntary loss of control of the intricate movements of piano playing. These problems can be worrying and sometimes difficult to solve.

With the development of Performing Arts Medicine, we have been able to study and interpret these conditions and subsequently help and advise pianists accordingly. We make a diagnosis and we design our treatment options taking into consideration the individual needs of the pianist. Medical science attempts to identify problems and to provide – in collaboration with the piano teacher or the piano performer – a positive solution not only for cure but also for prevention.

It is important to emphasize early education regarding the physiology of piano playing and the possible injuries that may be endured during a pianist's career. The road to successful identification and treatment of problems comes from two directions: one from the physician and one from the pianist. And when the pianist is a student and the teacher is involved, it is this teacher who will become the primary source of information and who will raise concerns when things are not exactly right.

The muscles

It is not the purpose of this article to write about anatomy and the function of muscles and tendons. That would be the content of a successful seminar, part of music school curriculum or a text book. It is rather the principle of muscle work and ergonomics that we try to identify as a potential aid to pain-free piano work. Again, without the valued experience and observational skills of a piano teacher this cannot become possible, and it is the duty of the medical professional to reach out and share knowledge with the music educators and their students.



The arm is the main apparatus for piano playing as it emerges from the trunk and suspends in freedom of movement. The remaining body's movements, the sitting posture, the leg and foot positions, the principles of physiologic alignment of the spine, the head and the pelvic base, are also important for the playing technique, and they can be responsible for injuries or other painful syndromes. The freedom of movement of the arms relies on the correct and ergonomic arrangement of the rest of the body, and this complete muscle coordination and balance becomes the key physiological connection for achieving injury-free piano playing.

Hand muscles – either intrinsic (those that originate and insert within the hand) or extrinsic (those that originate elsewhere in the arm and insert in the hand) – have been studied and evaluated by researchers since the early years of performance science. Hand surgeons and anatomists have been fascinated by the detailed and complex hand work that piano playing requires and the effect that position, tension and motion have on various painful conditions. Tubiana describes how, for the thumb, the intrinsic muscles exert the most force and, for the rest of the fingers, it is the extrinsic muscles that produce more force (Tubiana 1988). Some years later Watson notes that when the wrist is deviated from the neutral position – either in flexion and extension (downward and upward position) or ulnar and radial deviation (sideways position) – the tendons of one set of muscles are stretched, and this may limit the angle through which the finger joints can be moved by their antagonist muscles (Watson 2009). In other words, the knowledge of the anatomical relationships of muscles and the positioning of the joints can detect the energy, hence the tension, that is required for pianistic motion.

The whole arm suspends from the *scapula* (shoulder blade) which in turn, via the *clavicle* (collar bone), attaches to the *sternum* (breast bone). When one thinks of arm movement and with particular reference to pianists, it is essential to look at the movement of the whole arm, including the shoulder and the scapula, and not just the distal segments of the wrist and hand. It is through this long kinetic chain – the series of articulations of bones from fingertips to *sternum* and all the muscles, tendons, and ligaments that accompany them – that the arm movement is conducted. The balance in muscle recruitment should be distributed to all muscles from the larger ones near the trunk to the smaller ones in the periphery of the arm.

How important is the knowledge that the shoulder blade is attached to the ribs in the back? Muscles that allow sliding and rotating of the *scapula* on the posterior chest wall contribute to the freedom of arm movement. These muscles are often a site of tension (Watson 2009). The idea of body mapping that serves as the principle in many relaxation and postural techniques is essential. It helps the musician to mentally pin point the area of the body that is problematic, and, with the knowledge of how muscles behave, this may lead to release of unnecessary tension. Many musicians know this and successfully practice and teach these techniques. Carola Grindea was a pioneer of these principles, raising awareness of potential musicians' injuries with her insights (Grindea 2004).

Muscular tension, which can be the route of pain, is now better understood, and ways for relieving over-contraction or unnecessary contraction are now applied by medical professionals who work in collaboration with the musicians. Hand size and shape, sitting and posturing as well as positioning of the head, neck and arms are extensively researched. The musician must be seen as a whole and the

limb also viewed as a whole, particularly in relation to the instrument played and the interface between the digits and the musical instrument (Winspur and Warrington 2010). The small hand size and hand span of pianists have been studied (Sakai and Shimawaki 2010), and individual movement characteristics in piano playing have been shown to determine the muscles at greater risk of playing-related disorders (Furuya et al. 2012).

Away from the instrument, upper limb warm-up and general fitness have also been emphasized (Wynn Parry 2008). The piano is not an instrument that can be carried around and, although solutions have occasionally been given with miniature instruments, simple structured exercises help the pianist to maintain fitness, enhance performance and protect from rebound injuries. Even after an injury or a neurological condition and when muscle work needs to be retrained, the essential rehabilitation regime is based on the understanding of how muscles heal, recover and return to play. Any technique that ignores this knowledge may have suboptimal results for the recovering pianist.

After injury

We have studied and are practicing the method of surface electromyography for the identification of muscle tension and also for the retraining of these muscles through real time biofeedback. We accompany this method with visual assessment through video and with musical instrument digital interface (MIDI) assessment. These methods cannot be isolated from the biomechanical, sensory and motor function of the hand, arm and rest of the body of the pianist. We therefore complement our assessment and treatment with detailed clinical examination and monitoring of the progress of our pianist/patient which is always individualised and adjusted to each pianist's particular needs.

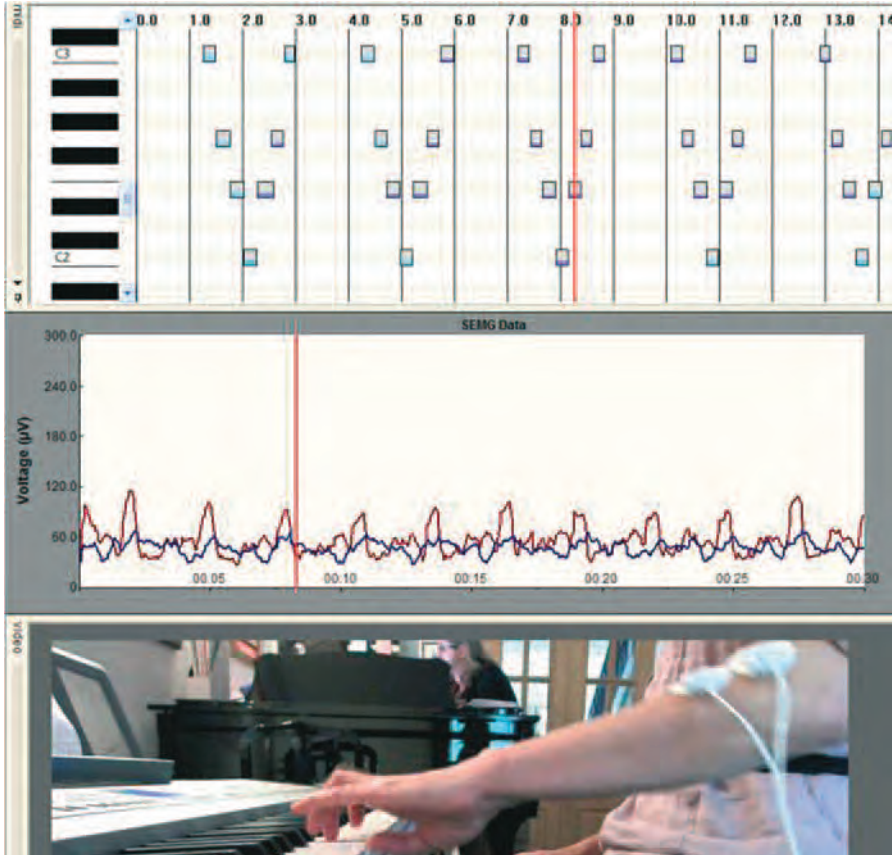
In a literature review performed for the years 1985–2000, it was noted that electromyography in musical performance was used for research, observation, norms for comparison, diagnosis, comparison of playing techniques and biofeedback training (Kjelland 2000). Lai *et al.* (2008) measured intrinsic muscle contractions by electromyography when studying the use of motor units by pianists, and Wagner (2012) presented a biomechanical analysis based on size and shape of the hand, resistance of the joints and muscle forces. Riley *et al.* – who pioneered this multimodal assessment of surface electromyography, video and MIDI – concluded that this multimodal method provided the performer with extensive information about the physiology of his performance and that it can be helpful in identifying and correcting technical problems and resolving repetitive stress injuries (Riley et al. 2005, Riley 2011, Riley 2014).

We follow the method developed by Riley and ProformaVision® which includes a MIDI keyboard, cameras to film the playing hands and a set of surface (skin adhesive) electrodes placed on top of the studied muscle groups. These muscle groups can be in the hands, arms, shoulder, neck or back of the pianist. We then ask the pianist to perform selected technical tasks, and the muscle activity, the positioning and the key articulations are captured on computer screen. Measurements can be made, and comparisons help us monitor progress. When the pianist performs tasks by looking at the images produced on screen, they engage in tension release or controlled muscle recruitment that serves as a biofeedback mechanism for retraining.





In this picture, we see an example of this method with the MIDI, surface electromyography and visual assessment showing a pianist playing C Major arpeggio with the left hand and indicating unnecessary recruitment of the shoulder muscle for such a task as well as energy deficient hand positioning



Many approaches to injury and rehabilitation have emerged in recent years and have been applied in different settings with or without the collaboration of a medical practitioner. We would like to believe that with the development of Performing Arts Medicine and the training of doctors, physiotherapists and others in this new medical field, stronger collaborations will enable better outcomes for all injured musicians.

Dr. Hara Trouli was born in Athens, Greece, where she graduated from Medical School and from the National Music Conservatory with a Piano Performance Diploma with Distinction. She lives in London, UK, where she has worked for many years in Orthopaedics. In 2012 she graduated with Distinction from the Masters Degree in Performing Arts Medicine at University College London, and since then she also works as a Performing Arts Medical Specialist. In 2010 she became chair of the International Society for Study of Tension in Performance (ISSTIP). She has embarked on a number of research projects on health problems of musicians,



Photo Emil Golshani.

her main interest being the voluntary and involuntary motion of pianists' hands. She has presented in international conferences such as the European Federation for Surgery of the Hand in Paris and Dublin, the International Symposium of Performance Science in Auckland, Vienna and Kyoto and the Performing Arts Medicine Association Symposiums in the USA. She also gives talks at EPTA regional and national conferences. She has taught in the MA in Performance Health at West London University, and she teaches Anatomy and Physiology of the musician in music schools. She lectures for the MSc in Performing Arts Medicine at University College, London where she is also the course coordinator. Hara practices privately in London, UK, and in Athens, Greece, and at the British Institute of Modern Music (BIMM) and the British Association of Performing Arts Medicine (BAPAM). haratrouli@gmail.com, www.haratrouli.com.

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VI. KEY CONNECTIONS - PHOTO ALBUM

Photos Emil Golshani.



EPTA Netherlands president David Kuyken.



Discussing piano technique during a break.



Table with several CDs, books and magazines.

Dagmar Schinnerl (Austria) giving her workshop 'Music & More - Multifaceted concert performances in music schools'.



Discussion with the audience after the lectures of Niklas Pokki (left, Finland) and Marcel Baudet (The Netherlands), moderated by Steven Faber (right).





Marcella Crudeli, founder of EPTA Italy (left), in conversation with EPTA members during a coffee break.

Reading the Program Book.

Antiquarian music books for sale.



Registration at the entrance of the conservatoire.







Attention by the audience during a presentation.

Recital by Hande Dalkiliç (Turkey).

Dianne Bolte (The Netherlands) giving her workshop Dispokinesis.





EPTA Netherlands president David Kuyken (left) announcing the lecture 'Bach and Dance' by Kris Verhelst (Belgium).

Remo Vinciguerra (Italy) at the piano during his PechaKucha presentation.

Recital by Marcella Crudeli (Italy).



EPTA-News

Dutch EPTA prize 2015

Although it was not a part of the conference, we take the opportunity here to announce the 2015 winner of our yearly thesis prize, the EPTA Frans Schreuderprijs, named after the founding father of EPTA Netherlands. With this prize, EPTA encourages future colleagues to contribute to the quality of piano education and playing in The Netherlands. Submission is open to piano students of Dutch conservatories, and the prize is awarded to the best research paper or master thesis. The prize consists of: a bronze statuette, € 500 and the possibility to publish an article in the *Piano Bulletin*.

In November 2015 the prize was awarded to the Greek *Garyfallia Katsimiga* for her master thesis *Interpretation of the music of the late 18th/early 19th centuries in the modern piano – A performer's view*. In June 2015 she finished her Master of Music at the *Prins Claus Conservatorium* in Groningen (The Netherlands), under the guidance of Paul Komen en Peter Mak.

The jury awarded the prize especially for the video that was part of her thesis and that is published on YouTube. <https://www.youtube.com/watch?v=337hxXMKkuk>.



Garyfallia Katsimiga.



Hetty Floors.

From the jury report: *“It is this video that made a strong impression on the jury. It is very well produced and represents a modern way to explain the topic to those who will be inspired by a first introduction. The author presents several examples with great clarity, care and enthusiasm, with beautiful playing by the author herself. In the practice of teaching this easily accessible video could be of great value as an inspirational invitation to make ‘informed decisions’ as an individual performer of all repertoire from this period.”*

Hetty Floors, secretary of EPTA Netherlands.

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