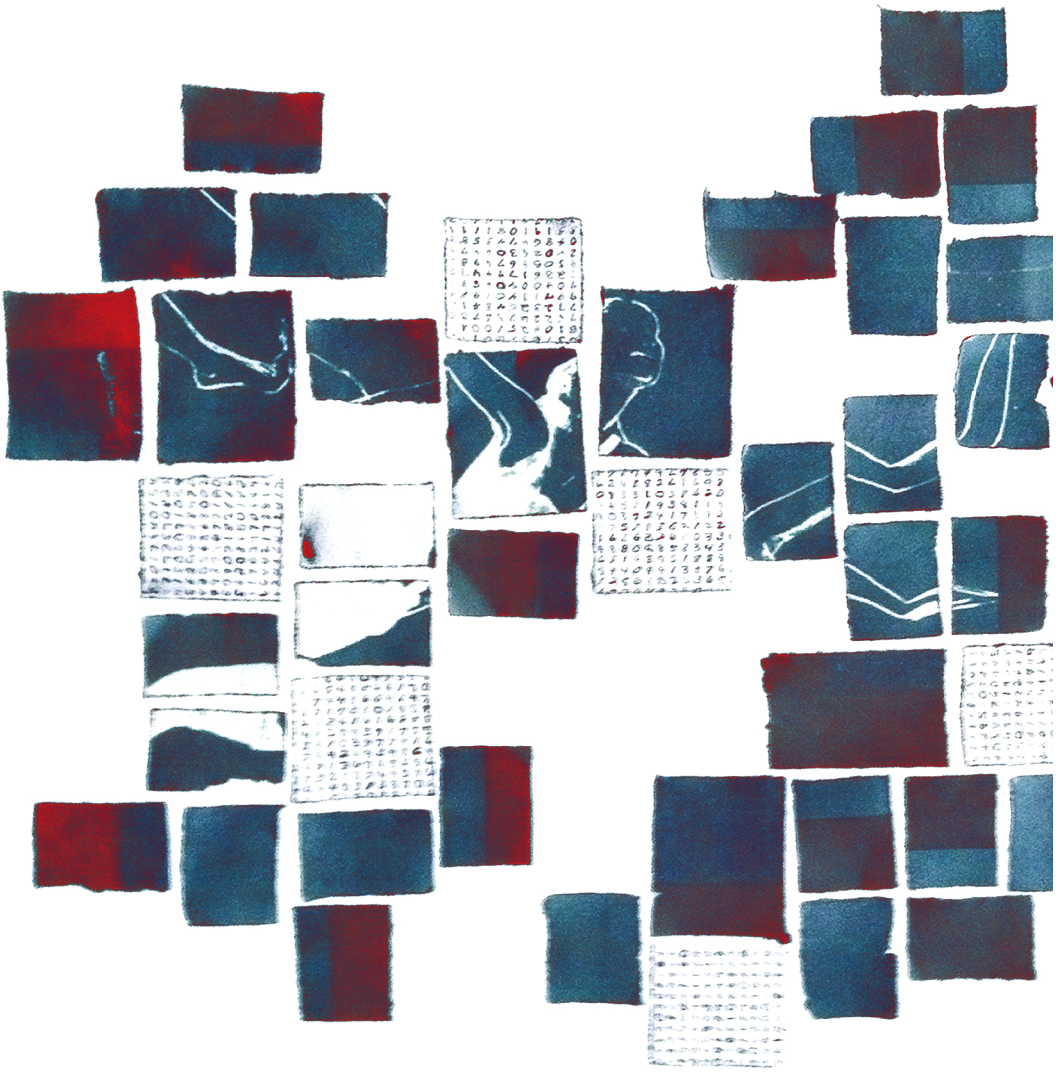
LE RYTHME 2019

◆ Scientific Perspectives ◆ Artistic Research and Theory



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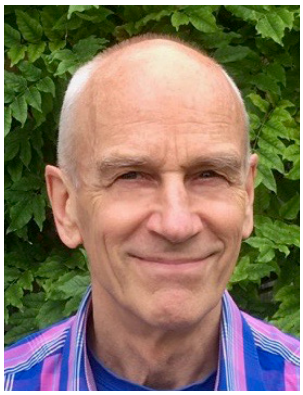
Preface

Paul Hille, Fabian Bautz, Dorothea Weise


With *Le Rythme 2019* we focus on approaches to the evolution of theory in eurhythmics. Earlier issues of the journal have presented valuable contributions concerning theoretical and scientific fundamentals. We have decided to intensify this emphasis. Happily, we received a great response to our request for theoretically-based professional articles, enabling us to offer a multifaceted spectrum of authors from Canada, the US, China, Finland, Sweden, Argentina, Mexico, UK, Germany, Austria and Switzerland.

All of the contributions are in English. Hopefully, this will facilitate understanding within theoretical discourses in the eurhythmics community. Articles can also be found in their original languages on the FIER website (see documents/publications). In the printed issue this is indicated with a QR code at the end of each article; in the PDF version there is a link.

Historic, scientific and theoretical perspectives in the articles are complemented by the chapter *Artistic Research*. Here various artistic processes in eurhythmics are reflected upon discursively. The resulting ideas generate new insights in the intersection between theory and practice. These kinds

of approaches which create artistic and theoretical knowledge are extremely valuable for eurhythmics and should definitely be expanded further.

The spectrum of theoretical subjects in eurhythmics is as wide as eurhythmics practice itself. For this reason, this edition contains a number of abstracts of several larger scientific research projects. In order to include a younger generation of eurhythmics practitioners with their theoretical approaches and intriguing topics, we especially encouraged eurhythmics graduates to submit abstracts of their academic papers. We are delighted to be able to present here nine excerpts from bachelor's and master's theses. Most of the full versions of these papers are available online in their original languages and can be retrieved by link or QR-Code.

We offer our heartfelt thanks to Claudine C.C. Elian and Michael Schnack for enormous help with the translations.

We wish you inspiring reading!

Wien, Luzern, Berlin, April 2019

Paul Hille
Fabian Bautz
Dorothea Weise

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Historic Perspectives

Researching Elsa Findlay: Dalcroze Teacher, Choreographer, Writer

Selma Landen Odom

Dr. Selma Landen Odom is a dance historian with degrees in English literature, theatre history, and dance studies. She was founding director of the York University MA and PhD programs in Dance and Dance Studies, the first offered in Canada. Now Professor Emerita, she is an Adjunct with the Centre for Drama, Theatre and Performance Studies of the *University of Toronto*. She has published articles and reviews, contributed to conferences and organizations, curated exhibitions, and produced videos. Her choreography for Gluck's *Orpheus and Eurydice* based on the staging by Adolphe Appia and Émile Jaques-Dalcroze at Hellerau, Germany was presented in collaboration with Richard Beacham and Karin Greenhead at *Warwick University* in 1991. She co-edited the anthology *Canadian Dance: Visions and Stories* (2004) and co-authored *Practical Idealists: Founders of the London School of Dalcroze Eurhythmics* (2013). Her continuing research focuses on sources, practices, and influences of Dalcroze music and movement education.

This article combines archival research and fieldwork in a microhistory of how Elsa Findlay (1892-1975) shaped her multi-faceted career. One of the first students to train with Jaques-Dalcroze, she influenced countless musicians, dancers, actors, teachers, students, and children after moving to the United States from England in 1921. She left traces of her teaching in Rhythm and Movement: Applications of Dalcroze Eurhythmics *(1971), a classic text that remains in print and is now an e-book. My approach uses Findlay's published and unpublished writings, along with close reading of many related documents, to focus on her practices and interactions with students, colleagues, and broader networks. I also incorporate what I learned from meeting her and watching her teach, and from interviews and conversations with others who knew her.*

Bruce Frumker, Elsa Findlay Collection, Cleveland Institute of Music

Findlay was the first Dalcroze teacher I saw in action. When she invited me to visit her at the *Cleveland Institute of Music* in November 1966, she was in her mid-seventies, a tiny woman with ponytail and quick, protruding eyes. I was twenty-three, a student embarking on research in theatre history. I watched her teach three classes one Saturday. The children, led by her improvisation at the piano, played games such as walking or running to follow the music; singing, clapping, and playing hand drums to match her rhythms; using balls to feel the beat; jumping over sticks in time to her cues, or conversely they jumped and she played their timing. They devised movement individually, yet they learned as part of the group situation. Recognizing and writing notation came easily – they already knew what they were doing. In an atmosphere of artistry and irresistible fun, Findlay imparted the elements, forms, and values of Western classical and folk music.

We spent Sunday afternoon together at her apartment looking at books and photographs of the *Bildungsanstalt Jaques-Dalcroze* in Hellerau, Germany, where she studied from 1911 to 1914. She told about "exhilarating" lessons with Jaques-Dalcroze and her struggle to learn piano improvisation. She recalled Annie Beck's choreography for the school festival productions of Gluck's *Orpheus,* standing up to move and gesture. This first open-ended interview mapped out the Dalcroze world for me and set the course for what became a decades-long project. Findlay provided addresses for colleagues she thought I should meet, and generously lent photographs, journals, and a draft of her own book. Her enthusiasm propelled me to go beyond documents to find the living practice. We corresponded from then on, and I took her advice to meet people, observe lessons, and study eurhythmics myself.

Experiences in the field brought many opportunities to recover and interpret activities from the past. Gradually I collected the stories of overlapping careers and networks, circles of relationship that rippled out through time. Retrieving specific people in working situations inspired me to make a series of microhistories, starting with an article on Mary Wigman at Hellerau, written the year of her birth centenary (1986). Like a detective, I connected details from archives and human sources with research by other scholars to construct focused studies of teachers, students, and supporters. These intersecting narratives provide multiple entry points into the interplay of people, practice, and place in the culture of Dalcroze education. Drawing on the research process she inspired, I follow Elsa Findlay's journey within that larger story.

Hellerau and Manchester: learning and teaching

Findlay's training and apprenticeship occurred in Europe, where she benefited from exceptional role models. She was the daughter of Joseph John Findlay, Professor of Education at *Manchester University*, a prolific writer who championed progressivism, and Charlotte Ann Denne Findlay, a labour reformer and activist in the Liberal Women's Suffrage League. After she was denied admission to a physical education college for being too small, her father read about Hellerau and suggested she apply. Almost nineteen, she arrived when the purpose-built campus north of Dresden first opened in 1911.

Photographer unknown, Elsa Findlay Collection, Cleveland Institute of Music

Findlay flourished in the international learning community of Hellerau. She worked hard in the solfège and improvisation courses of the core curriculum to overcome her lack of musical background, but she loved movement, especially participating in demonstrations and Gluck's *Orpheus* in 1912 and 1913. Years later Findlay evoked the workshop atmosphere (1973):

> One hour a week the whole student body, about 150 of us, met in the large central Hall and M. Jaques would carry out his ideas. All these were so strange and exciting for me and I expect for everyone there. Sometimes these ideas led to full size dances and here Annie Beck developed her ideas in choreography.... The whole Hall was hung with heavy, white material, even the ceiling. Behind these drapes were thousands of light bulbs which were controlled by a switch board. It was an unbelievable experience, movement, music and light (p. 138).

Findlay remembered, "It was quite impossible to sit still" when Jaques-Dalcroze improvised: "He enjoyed his students and, perhaps best of all, he had a wonderful sense of humour and fun" (ibid. p. 137). From him she learned the art of interactive teaching and giving demonstrations. Her teachers Suzanne Perrottet, Myriam Ramberg (the future Marie Rambert), and Annie Beck shared her interest in movement invention. She absorbed modern design and lighting directly by working in the studio-theatre of Adolphe Appia and Alexander von Salzmann. Students, faculty, and

visitors – everyone could find fresh ways to create, perform, organize, and communicate at Hellerau. Transformed by these experiences, Findlay left for Geneva in the spring of 1914 to help teach the movement choirs for the *Fête de juin*, a lakeside pageant composed by Jaques-Dalcroze.

When World War I began that summer she returned to Manchester. Although Findlay worked in the war effort, she focused on becoming a teacher and artist. She taught eurhythmics in several schools in the Manchester and Liverpool areas, and on her own she choreographed and presented mid-day dance recitals with local musicians. She appeared in many of the same venues as dancer Madge Atkinson, who established her *School of Natural Movement* in Manchester in 1918. Possibly they connected, but in any case both contributed to a lively cultural scene in which they danced barefoot and crafted original dance works. Findlay's music ranged from Bach to Debussy to the new piano idyll *Sea Sheen* by Eric Fogg, a Manchester composer still in his teens.

Findlay's eurhythmics demonstrations were informative and enjoyable, according to newspaper accounts she kept from 1919 to 1921 (Elsa Findlay Collection). She often collaborated with her father, one of the foremost British "educationists" to support Dalcroze work through lecturing and writing. When he introduced a program in Huddersfield, "The Professor, explaining the aims and principles of eurhythmics, said that in ordinary dancing more attention was paid to the dance than to the quality of the music, but by the Dalcroze method they got a great deal more out of dancing, for their movements became the expression of thought suggested by the music" (unidentified clipping). The writer next described the demonstration: "The younger children, about twenty in number, took part first. Their interpretation of the music played by Miss Findlay was remarkable for its beauty and simplicity, and for the intelligence which characterised the setting of the music to motion." Through an unusual partnership, J. J. Findlay helped his daughter reach the public and build her professional identity as a teacher.

New York: teaching and choreographing

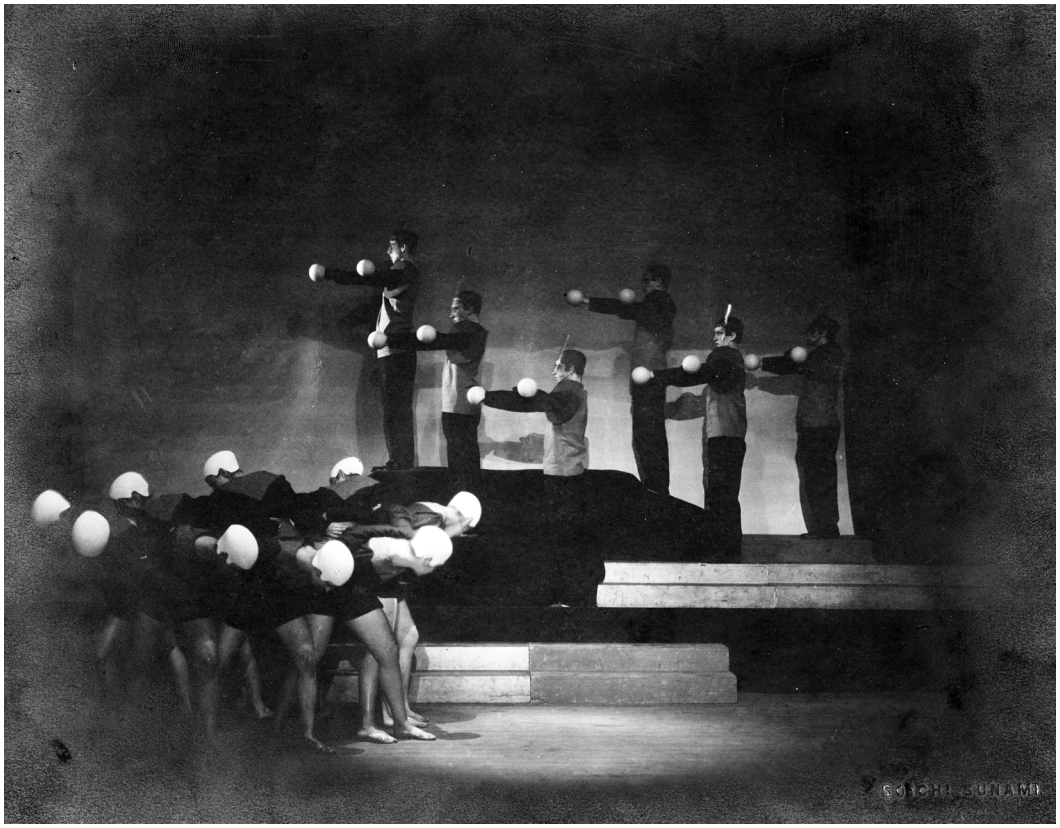
One day Findlay heard from Clara Brooke, her friend at Hellerau, who wanted to leave her teaching post at the *Bennett School* for girls in upstate New York. Findlay leapt at the chance to replace her. She arrived in the United States in September 1921, gave a demonstration at *Columbia University Teachers College* the following March, and soon Peter Dykema, Chair of Music Education, invited her to teach there. As a qualified Dalcroze teacher in New York City, Findlay was much in demand. Energetic and organized, she juggled part-time positions in multiple settings over the next twenty years. A partial list shows that she taught eurhythmics to students and teachers at *Columbia* from 1925 to 1940; adults and children at the *Dalcroze School of Music* from 1923 to 1931; college students at *Hunter*

and *Vassar*; actors and singers at the *American Laboratory Theatre*, which introduced the Stanislavsky method in America; and dancers at *Denishawn*, the school founded by Ruth St. Denis and Ted Shawn in Los Angeles that had relocated to New York.

Findlay gained colleagues and students with links to theatre and opera, dance, music, education, and the press, and through them she found opportunities for creative work. She made her reputation by directing the chorus movement and ballets for the 1926 production of Gluck's *Orpheus* at the *Provincetown Playhouse* in Greenwich Village, which was acclaimed by music critics and revived twice. She described it as an intimate version of the production she had performed at Hellerau. She staged movement for several Greek plays, and in 1934 she choreographed George Antheil's avant-garde opera *Helen Retires* and the American premiere of Sean O'Casey's *Within the Gates,* with incidental music by Lehman Engel.

In her private studio at 264 Fifth Avenue, Findlay offered adult and recreational Dalcroze classes and a professional course including plastic movement, body technique, and pantomime. Her brochure titled "Rhythm" (Elsa Findlay Collection) states, "She has spent the last five years working out her theories of expressive movement and has specialized in the application of the principles of eurhythmics to the art of the actor, the dancer, the singer. Her theories have been developed from actual experiments made in the classroom" (p. 10). The studio was perfect for collaboration. Soichi Sunami, known for his striking images of Martha Graham and other dancers, photographed groups of Findlay's students working on the Appia-style stairs she used. She attracted young dancers and musicians from *Denishawn* and from the company of Doris Humphrey and Charles Weidman, who separated from *Denishawn* in 1928. Findlay presented them in her program Dance Compositions for Ensemble, with music by Ravel, Scriabin, and Beethoven, and *Three Studies in Abstract Design* to percussion, in April 1929 at the *American Laboratory Theatre* (Elsa Findlay Collection). Her group shared the evening with Swedish dancer Ronny Johansson and dance critic John Martin, who directed a parody called *Madonnas at Play*. She had met Martin at "the Lab" and already recommended him to the *New York Times* for the post he held from 1927 to 1962.

The high point was Findlay's *Men and Machines*, performed by fifteen dancers with piano music "especially composed for this occasion" by Henry Cowell. The dance juxtaposed six "machines" repeating arm and step patterns in quintuple time, going faster and faster up and down stairs in the background, with a circle of nine "humans" moving more slowly and variously in the foreground. Sharp dynamic contrasts marked the work's evolving sections, according to Cowell's holograph score (*Library of Congress* Music Division).



Soichi Sunami, Elsa Findlay Collection, Cleveland Institute of Music

John Martin wrote (1936) that her *Men and Machines* "was unquestionably the best of all the dances on the theme of mechanism, for the simple reason that it was not merely an arbitrary imitation of mechanistic motion but identified itself with the life about it" (p. 275).

Her signature work was performed often by changing casts, usually including John Colman, the future Dalcroze master teacher, who told me about the movement and costumes when we met in 1983. Miriam Catheron McCollum recalled (1975):

> These were exciting times, when the Modern Dance was coming into being, and Fin was a leader in the struggle to give dance its proper place in the artistic and theatrical world. To be in her studio then was to be in a state of constant ferment, rehearsing new dances for concerts and for her highly successful production of Gluck's Orpheus, meeting actors and other dancers working to repeal the Sunday Blue Laws against dance, but most of all, trying to keep up with her galloping mind and ebullient spirit (pp. 4-5).

Among those who studied with Findlay in New York were Martha Hill, co-founder of the *Bennington Dance Festival* and director of the *Juilliard* Dance Division; Marion Chace, dance therapy pioneer; Gertrude Prokosch Kurath,

dance ethnologist; and Beryl McBurnie, founder of *The Little Carib Theatre* in Trinidad.

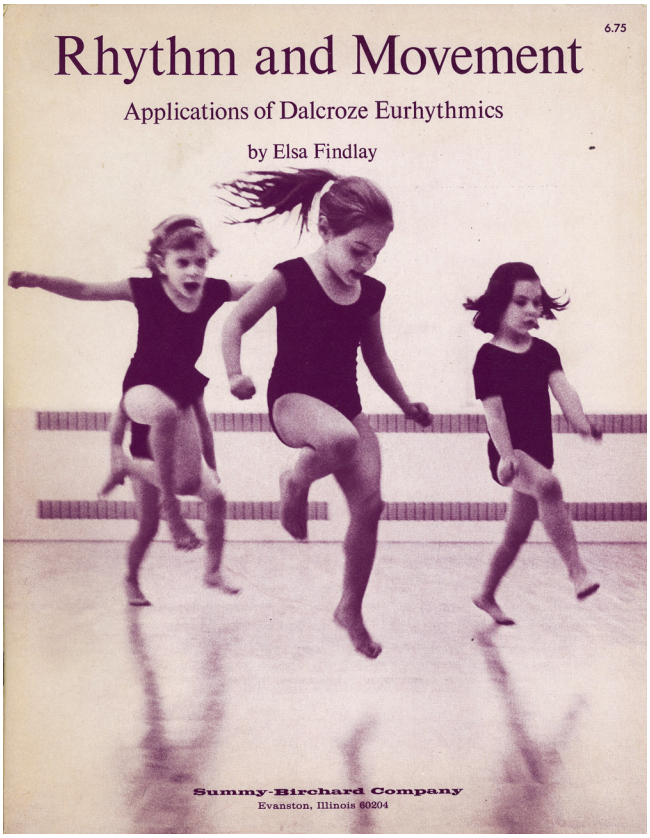
Findlay's group shared programs with José Limón and others during the 1930s, but eventually she stopped renting theatres in favor of producing new work where she taught. At the *92nd Street YMHA* in 1936, she directed the Drama Workshop in a program that included her *Dance of the Yemenites*, Ernst Toller's *Man and the Masses*, and a mimed version of *Poor People*, a song by Marc Blitzstein. Findlay remained active in dance and Dalcroze circles, serving on committees for the National Dance Congress and Festival in 1936, giving practical sessions for Dance Section conferences of the American Physical Education Association, and organizing a Rhythm Symposium for the Association of Dalcroze Teachers in America in 1940. That year her father died and she lost the position she had held longest, when *Columbia Teachers College* dismissed all but its full-time professors. *Teachers College* had sustained her on several levels, by attracting excellent students, supporting her teaching experiments and productions, and stimulating her to study creative writing. She must have lost other positions, too, for there are few traces of what she did during World War II.

California and Cleveland: writing and teaching

Findlay moved to the West Coast and taught eurhythmics at the *University of Southern California* in the late 1940s. From working on the musical comedy *An Angel Comes to Brooklyn* (1945), she learned that film was not her medium for choreography. In New York the collaborative process and live performance were what had compelled her. What could she do on her own? She had published occasional newspaper and magazine articles, and she steadily wrote promotional material for her studio and concerts plus reports and advocacy letters for organizations. In the early 1950s she made a serious effort to write screen plays and television programs. Even though success as a writer in Hollywood eluded her, the challenge of composing with words remained. While continuing to teach part-time, she drafted a text book for music educators.

In 1956 Findlay was appointed head of the eurhythmics program at the *Cleveland Institute of Music* (CIM), one of the most distinguished conservatories in the United States. Founded in 1920, CIM's first music director was Ernest Bloch, who as a teenaged violinist in the 1890s studied composition with Jaques-Dalcroze in Geneva. Bloch brought Jean Binet, who also studied with Jaques-Dalcroze, to introduce eurhythmics at CIM in 1921; Gladys Wells, a graduate of the *London School of Dalcroze Eurhythmics*, and three others taught there before Findlay arrived (Becknell, 1970, pp. 52-59). At last, for fifteen years, she held a single, stable position in a school where eurhythmics was central to the curriculum.

Findlay's teaching encompassed the eurhythmics courses required of all CIM degree and certificate students in their first two years; classes in the children's preparatory program; and workshops and summer courses for music, elementary, and physical education teachers. Artistically, Cleveland was heaven because she could stage works such as *Hänsel and Gretel* and *Noye's Fludde* and, with CIM composer Donald Erb, create new plays for children. In 1966 Dean William Kurzban and Findlay developed a four-year degree program with a major in eurhythmics, the first offered in the United States. Dalcroze specialists John Colman and Loma Roberts Lombardo commuted from New York to teach in the first years. Eminent pianists and improvisers, they both had performed decades earlier in Findlay's *Men and Machines*. David Neal Brown began to teach alongside this remarkable team while completing his double major in organ and eurhythmics; from 1972, after Findlay stepped down, Brown moved the CIM program forward until he retired in 2009. His former student Brian Sweigart and colleagues continue the lineage today.



Bruce Frumker, Elsa Findlay Collection, Cleveland Institute of Music

The other main achievement of Findlay's time at CIM was the refinement and publication of *Rhythm and Movement: Applications of Dalcroze Eurhythmics*

(1971). Her book is a crystallization of wisdom gained from her long career of practical work. Engaging illustrations, musical examples, and concisely-described activities suggest a multitude of ways to explore the key topics of tempo, dynamics, duration, metrical patterns, speech and rhythm patterns, phrase and form, pitch and melody, and creative expression. She concludes with insightful chapters on teaching and working with improvised music, percussion, and repertoire. Five appendices add ideas for movement in space, physical and dramatic exercises, games with balls, action songs, and music, including several compositions by Findlay.

Recently I became curious about the book's 22 photographs and 16 drawings, which contribute such precision and vitality to the written text. Through internet searching, I managed to find photographer Bruce Frumker and artist Brant Gebhart. I was delighted to learn from telephone interviews that both had studied eurhythmics with Findlay at CIM. Aha! I thought, that explains why their illustrations are so extraordinary. They knew what she wanted to show. For Frumker the sense of freedom was "the real magic" in her teaching. He shot "lots and lots" of fast-film photos while seated on the floor, anticipating action to capture exact moments in time. Gebhart's drawings, by contrast, depicted the feeling of actions such as swings unfolding through time and space. How prescient of Findlay to understand that her book needed photographs and drawings to picture eurhythmics.

When I met Findlay in 1966 she was frustrated about not being able to find a publisher. She knew, from frequent guest teaching in universities and at conferences, that people wanted such books. Finally, one of her workshop participants in Oregon connected her with Summy-Birchard, who published *Rhythm and Movement*. Findlay's book is now held by almost 600 libraries worldwide and has been translated into German, Chinese, and Japanese. The current publisher, Alfred Music, confirmed that "given this edition has been in print continuously for almost 50 years it may certainly be considered an evergreen resource for early childhood music education" (Jodi Anderson email, 8 October 2018).

Implicit throughout Findlay's book are the traits that characterized her working life: her love of movement and music, her commitment to interactive practice, her creativity, her energy and enthusiasm, her resourcefulness. In these traits she exemplifies many others who have traveled the pathways of Dalcroze teaching and learning. Findlay built on her strengths in movement, and she addressed her perceived weaknesses in musicianship by striving for the best improvisational skill she could attain and by gladly collaborating with more expert musical colleagues. She functioned independently, coordinated complex responsibilities, adapted to diverse working conditions, and took risks such as choosing new music. Here I have tried to interweave the story of how Findlay shaped her career with reflections on what she gave – directly to her students and colleagues, to strangers she encouraged like me, and to her readers, the future.

Archival materials and personal communications

The Elsa Findlay Collection at the *Cleveland Institute of Music* includes clippings, scrapbooks, photographs, programs, correspondence, and unpublished writings. I also consulted materials in the Jerome Lawrence and Robert E. Lee Theatre Research Institute at *Ohio State University*, Jerome Robbins Dance Division of the *New York Public Library*, and the Music Division of the *Library of Congress*.

Elsa Findlay and I met 19-20 November 1966 and corresponded until 1972. Between 1967 and 2018, I had interviews and conversations about Findlay with Robert Abramson, Bonnie Bird, David Brown, John Colman, Bruce Frumker, Brant Gebhart, Martha Hill, Donald Himes, Gertrude Prokosch Kurath, Madeleine Boss Lasserre, Ruth Murray, Hilda Schuster, Irwin Spector, Nathalie Tingey, and Jean F. Wilmouth, Jr.

Thanks for research help to Jodi Anderson, Yuan-Mei Hsieh, Eiko Ishizuka, David F. Martin, Elizabeth Smigel, and John R. Stevenson.

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Hidden in Plain Sight?
Challenges to the Understanding of Dalcroze Eurhythmics Today

Karin Greenhead

Karin Greenhead works regularly with professional musicians, dancers and those training to teach Dalcroze Eurhythmics in the UK and very widely internationally. Based on her training at the *Royal College of Music*, London, the *Institut Jaques-Dalcroze*, Geneva and her experience as a performer and teacher, she developed dynamic rehearsal techniques for improving musical interpretation and performance. She is a member of the scientific committee for the International Conference in Dalcroze Studies (ICDS) and was a keynote presenter for ICDS3, Québec, 2017. As a member of the Collège de l'Institut Jaques-Dalcroze, Geneva, Switzerland and Co-Director of Studies for the Dalcroze Eurhythmics International Examination Board (DEIEB), she has been much involved in curriculum development and assessment and is currently completing a PhD (a phenomenological investigation into her own practice), presents at conferences and has authored and co-authored articles and book chapters in a range of academic and instructional publications.

A survey of recent conference presentations and publications shows that Dalcroze Eurhythmics (DE) attracts lively attention from Dalcroze practitioners and from a wide range of those interested in music teaching and training, theatre, wellbeing and therapy, history, and neuroscience. At the same time, confusion concerning its nature range from the seemingly entirely fluid to notions of its rigidity and a need for its re-definition and reform.

If it is to live and maintain relevance, any practice bearing the name Dalcroze, while relating to the thought and practice of the owner of that name, must remain useful; it must be applied and developed in response to changing and current needs. It will always require review and recalibration in order to maintain a good balance between its essential nature, the intentions and purposes behind its practices and the ways in which it is applied or taught. The practice of DE has traditionally been handed on from teacher to pupil and little has been written about the underlying thinking that informs how it is taught. Based on the origins of its development and the writings and practice of Emile Jaques-Dalcroze, this article considers the essential nature of DE and makes links with its practice today. It looks at why assumptions, misunderstandings and distortions easily occur and how they could be minimised. Dalcroze practioners are encouraged to inform themselves concerning the nature of their profession and to situate their work in current contexts that clearly need what DE offers. The fundamentally ethical nature of Dalcroze pedagogy is considered, especially when teaching the core of the method: rhythmics.

> First of all we must admit that we will never be able to say all that we think about Eurhythmics because it is not an intellectual, aesthetic, moral or any other kind of domain but an impenetrable web of thought, reflection, art, physical pleasure and aesthetic feeling linked with many other things such as admiration, affection, memories, undertakings, and to try to analyse all that would be as useless as trying to square the circle…even more so. But, we still need to be able to explain if we are to justify ourselves. So then, let's try a little clarification (Martin, 1933/1995).[1]

Frank Martin's words are a reminder of the memories and strong emotions that those who participate in Dalcroze Eurhythmics (DE) classes often have about them and also of the difficulty of arriving at an adequate description of the essential nature of the method created by Émile Jaques-Dalcroze. It is challenging to maintain a balance between the three interrelated disciplines that form the basis of DE: Rhythmics, Solfège and Improvisation with their applications in Plastique Animée (Collège de l'Institut Jaques-Dalcroze [CIJD], 2011). It takes many years to acquire and to make one's own the essential range of complex, personal, musical and movement-related skills together

1 All translations, K. Greenhead

with a good understanding of the underlying principles and practices required to teach them, and to use them expertly in diverse teaching situations. As can be seen from publications ranging from its application to early years, special needs, therapy, music education and training, performers in music and dance, therapy and seniors,[2] DE can and does offer a wide range of beneficial outcomes for its students. It goes deep and is not a 'quick fix' as far as teacher training is concerned. The difficulty in fitting a thorough Dalcroze training into current conventional university courses and teacher training programmes[3] may have more to do with their structures and the contact time permitted than any fault in professional Dalcroze training as such. The question of whether "rhythmician" is indeed a profession[4] has been raised. In essence, the well-trained Dalcroze professional is an expert in music-movement relationships who applies that expertise in chosen fields of his/her interest. Teachers of DE are not ordinary teachers who know a few Dalcroze techniques that they can apply in lessons: they are, or should be, highly trained professional rhythmicians who identify themselves as such, taking a pride in that field, its knowledge and practices and in the professional community to which they belong. In a field of often fluid boundaries and many commonalities, those whose training does not use the name "Dalcroze" as a descriptor may practice their profession with a slightly different emphasis or orientation. For the purposes of this article I will focus my attention on the Dalcroze practice. To understand DE it is useful to look first at the origins of the method, the reasons for its development and the influences upon Jaques-Dalcroze that resulted in his method being what it is.

The origins of Dalcroze Eurhythmics

There was no Dalcroze method until Jaques-Dalcroze started teaching harmony and later solfège at the *Conservatoire de Genève* beginning in 1892 since it was his dissatisfaction with the competences of his students that led him to look, not to theories but to his own experience, for ways of helping them. He noted that while some of the students had an academic knowledge of music and were technically brilliant, they could not improvise or modulate and had no musical feeling, while others with more sense of tone quality and colour had no rhythmic or metrical sense. These defects appeared more serious in those coming from wealthier families. He felt that an analytical habit of mind had de-rhythmicised Geneva society and set about "correcting constitutional faults and developing the natural qualities of future musicians" (Berchtold, 2000, p. 48).

2 See Mathieu's scoping reviews, (2013; 2017); conference presentations (The International Conference of Dalcroze Studies (ICDS), 2013; 2015; 2017) and the centenary Congress of the *Institut Jaques-Dalcroze*, Geneva (2015).

3 Most of those who apply for private courses in Dalcroze training in the UK are already qualified teachers with some years of experience.

4 A profession is "a vocation or calling, especially one that involves some branch of advanced learning or science" (The Concise Oxford Dictionary, 9th ed. 1995).

The turn of the 20th century was a time of social and political reform. The winds of change produced many developments in politics, the arts, education, science, medicine and psychology. These included John Dewey's 'learning by doing', the Olympic, scout and Garden City movements focussing on the health and wellbeing of citizens and an emphasis on more personal, individual forms of expression in all the arts. Jaques-Dalcroze trained in Paris, Vienna, and Geneva at various times, in both theatre and music and was familiar with Delsarte's theories of expression. He worked in cabaret and theatre, as a composer, conductor and accompanist. He had studied and performed with great musicians. As accompanist to the great virtuoso violinist Eugène Ysaÿe, he witnessed and participated in his unusual rehearsal techniques (Jaques-Dalcroze, 1942), which included running and jumping in his room in an effort, he said, to get the *Polonaise* of Vieuxtemps into his body (Christen, 1947). He was inspired by the virtuosity in rhythm and movement of Arab musicians and dancers in Algeria. He composed in a variety of styles including songs for children and composed and put on large festivals in which the public participated. All these experiences were brought to bear on the development of his method, and to them he added the insights of his favourite teachers, especially Mathis Lussy's theories concerning rhythm and musical expression.

Not all teachers are as concerned about their pupils' development as was Dalcroze. His mother was a teacher much influenced by the ideas of Pestalozzi and as a prodigious child in Vienna his creativity had been allowed full rein. There, he had been praised and indulged but when the family returned to Switzerland life became more restricted and he records having been an unhappy student at the Collège Jean Calvin. Reflecting on his life in old age, he wrote:

> When I think of my life as a child at school, I realise that it is the memories of my childhood and adolescence that set me on the path of pedagogical study. From our early years at college, most of the teachers imposed tasks on us without ever explaining the reason for them and – with a few exceptions – they made no effort to get to know us, to be interested in us or to help us. They showed no interest in our hearts or even our minds, their only concerns being the obedience of their little servants and the filling up of our memories. (Jaques-Dalcroze, 1948, p. 195).

The combination of rich and positive experiences in learning and performing and childhood hurts seem to have provided the spur to a core element of the Dalcroze method: the ethical concern for the individual. Jaques-Dalcroze sought to address the whole person, to give him a sense of himself, his creativity and his own wishes and will. He thought that when these were valued and encouraged the student would experience joy and a love of

learning (Bachmann, 1991; Berchtold, 2005; Jaques-Dalcroze, 1921/1967; 1948). To the end of his life he remained concerned with the difficulty of attending sufficiently to each student while teaching the entire group (Jaques-Dalcroze, 1948).

Into 'the impenetrable web': Gaining an understanding of Dalcroze Eurhythmics

It is difficult to find opportunities to watch classes in DE and as a result observers' ideas of what DE is may be based on watching one teacher and only one lesson. Observers need to see many classes in all the branches of the method taught at different levels. Owing to the range, depth and variety of its application, it is important to experience DE practised in different ways by different teachers with different kinds of students if one is to gain a good understanding of it. Similarly, professional students need to study with several, different teachers during their training.[5]

With the passage of time, a number of views have grown up concerning what is or is not properly part of a Dalcroze practice. Some of the more common of these are summarized in Table 1 below. It is clear from this that Jaques-Dalcroze's own writing and his practice should be studied and discussed. Since most of the writings by or about him are only available in French there is an urgent need for translation and the collection and publication of (possibly annotated) articles.

Table 1. Contradictions between some commonly held beliefs about Dalcroze Eurhythmics (DE) and Jaques-Dalcroze's own views and practices.

Misunderstandings and erroneous beliefs about DE	Émile Jaques-Dalcroze (EJD)
The piano is the only instrument that should be used in playing for rhythmics lessons.	EJD was interested in and encouraged the use of other instruments while recognising the importance of the piano (Jaques-Dalcroze, 1948).
Body movement alone without materials (objects) should be used in lessons.	EJD, his colleagues, and students regularly used materials in lessons.
The notion of sustained continuous movement is not a Dalcroze concept.	EJD wrote an essay on it (1930) and devised exercises requiring it and for teaching it.
The study of contemporary music is not essential for training in DE.	EJD stated that it should be included (a number of places); engaged with the contemporary music of his time and composed original music himself.

5 This is a condition of the use of the name Jaques-Dalcroze (or Dalcroze).

Teachers should stick to traditional exercises.	EJD stated that teachers must make his method their own and develop their own exercises based on their principles of the method. He said that he himself had only begun this work and that others would complete it (Jaques-Dalcroze, 1948; Berchtold, 2000 and elsewhere).
Traditional exercises are old-fashioned, prescriptive, and no longer useful.	EJD insisted on the importance of various exercises (various publications).
The study of space, movement technique and Plastique Animée are not central to DE.	EJD considered them essential to his method and in Hellerau and Geneva engaged spcialist teachers (some of whom were also rhythmicians) to help in training students in movement.

The identity of Dalcroze Eurhythmics

A comprehensive account of the Dalcroze identity is offered in "The Dalcroze Identity/L'identité dalcrozienne (Le Collège de l'Institut Jaques-Dalcroze [CIJD], 2011; 2nd ed. In press) and freely available online at www.dalcroze.ch. This document focuses on the training of professional Dalcroze practitioners and describes the content, principles and practices proper to the method when training them. Since it addresses the most advanced levels of training, a good knowledge of this publication could inspire and guide course and lesson development more generally.

DE is often described as one of several active ways of teaching basic musicianship (usually to children). This includes pulse, beat, metre, form and literacy. Usually no reference is made to the roots of the method in musical and theatrical performance or to Jaques-Dalcroze's knowledge and love of the great repertoire of classical music and yet it is precisely the art of music and theatre that are the life-blood of DE, the teaching of which has often become too focused on notation. Notation consists of symbols intended to convey certain aspects of music to those who can read it, but what is written depends on the effect the composer desires and the instrument it is written for. Tone dies on the piano. If a composer wants to keep the tone up or make a crescendo on a single note he must write trills or tremolos or use some other device, maybe in the accompaniment, to ensure that listeners and players experience a crescendo. The interpreter has to understand what is meant by what is written. Poor plastique interpretations too closely attached to notation have sometimes had a bad effect on how DE is viewed. Students, performers and audiences need to experience music, not writing.

Two problems need addressing here. The first is the whole concept of rhythm and that of metre. Rhythm is not beat, it is the entire flow of music through time and space including its kinetic, energetic, gestural, phrasal and structural elements. The second is art.

Jaques-Dalcroze experimented with many different ways of describing his method. In relation to art he described moving plastic as "a complete art" (Jaques-Dalcroze, 1919, in Jaques-Dalcroze 1921/1967, p. 147, fn.) and on the same page "Eurhythmics exercises…constitute in themselves a complete art in touch with life and movement". According to Bachmann, in 1924 eurhythmics becomes "not an art but 'a preparation for art'" (Jaques-Dalcroze, in Bachmann, 1991, p. 213). Without art DE risks becoming useful exercises but not a source of inspiration. The artistic and performance aspects of DE, usually first found in the often misunderstood Plastique Animée and in the study and creation of musical repertoire and other works of art, sometimes seem to have got lost. Largely owing to the heavy criticism his work received in Paris, Jaques-Dalcroze lost confidence in Plastique Animée and in what it could be and bring to students (Greenhead, 2009). A clear understanding of how to teach an appropriate movement vocabulary and expressive movement in the context of DE and the various forms in which Plastique Animée can be explored and its potential, is essential to modern training.

The teacher's actions and attitudes are often difficult for lay observers to perceive since so much depends on how the teacher uses musical improvisation in order to create a dialogue with the class, and where instructions are often given musically rather than verbally. It may appear that a series of exercises or games are being performed and that an interested teacher could simply learn them and teach them. The observer may easily miss what lies behind these activities: the intentions, the means of achieving them, the flexibility with which they are applied and the effects they have on learners. While DE can be considered essentially a process and a teaching method of great range and flexibility rather than an art-form in itself, art must be brought to the teaching of it and that teaching is a craft[6] that is both demanding and rewarding for the teacher. As a practice, DE is always applied and therefore is known in its application rather than theoretically.

The application of Dalcroze Eurhythmics

Today, DE is taught at every level of education from pre-school through primary and secondary school and in tertiary education at university. It is also applied in the context of Special Needs education, dance, theatre and therapy training, teacher training and in conservatoires of music to elite

6 Chambers Dictionary 10th ed. (2006) defines craft *n*. as "art; creative, artistic activity involving construction, carving, weaving, sewing" and *vt*. to create or construct esp. with careful skill (from Ger. *Kraft* power). Crafty *adj* cunning; wily. The connection between 'craft' and 'crafty' suggests that craftsmanship requires cunning, an ability to disguise technique and effort as a magician does: we see the result without being fully aware of the process of achieving it.

performers and all who want careers as performing musicians. Although in one sense DE is always DE, the way it is applied is always in question. As the resources the teacher can draw on and the ways in which they can be used are immense, each teacher must craft the lesson or training according to the needs and interests of those who are to receive it. Many of the exercises may be or look similar from one context to another but the reason for doing them, any repertoire used, the explanations given and the way they are built into the lesson will vary if the teacher is to address the class. Addressing the particular group of people in front of one and the individuals within it at that time and in that place is a cardinal principle of DE teaching: it is personal (Berchtold, 2000). DE is situated action in time and space.

In teaching a lesson on phrase and phrasing to dancers, musicians or teachers, the teacher of each of these groups must consider the differences in their basic training and their interests. Musicians are unused to using movement and space; many dancers are unused to listening and responding to sound with their own movement as opposed to set steps; teachers are generally concerned with pedagogical processes, a repertoire of exercises and in how to connect music and movement in their own lessons rather than self-development. In all cases it will be important to include the fine detail and precision of the art of music, movement and performance and the need for improvisation. The teacher models the art of dialogical musical improvisation as communication (Driver, 1933; Vanderspar, 1984) and through this and the use of good repertoire in lessons, opens an artist's way of thinking to the student. Teachers must be artists, craftsmen and women, makers, with a real interest in other people who bring play and creative exploration to their lessons. In this way students are brought into contact with art and the artists within themselves.

In exercises of the "follow the music" type students respond to what they hear in improvised movement and the teacher, in turn, responds to what they do. This improvised dialogue, with given parameters and aims, is a core element of Dalcroze teaching. When students notice that the teacher not only uses improvised music to initiate their response in movement but also improvises responses to their actions, they know they are seen and responded to. This is essential to the whole teaching-learning process and contributes to its inherently ethical dimension.

One teacher cannot be simultaneously a therapist for the blind, deaf or those with special needs *and* the teacher for dancers, actors, musicians *and* the trainer of other teachers *and* the one who works with seniors – DE is capable of addressing more areas and needs than a basic training in the method can cover. There is room for a discussion about the essential training in DE and professional development in its applications.[7]

7 The Institut Jaques-Dalcroze's program for training qualified eurhythmics practitioners to work with seniors is a good example of a professional development program in applying DE to a specific population.

Teaching and learning today

In 2018 as in 1892 conservatoires still produce graduates who cannot improvise or modulate with confidence, technicians who do not communicate well with co-performers and audiences and those with serious weaknesses in rhythm and coordination. Pressure to perform frequently and at a high, technical level can result in musculoskeletal problems and performance anxiety (Greenhead, 2016; Kenny, 2011; Kingsbury, 1998; Steptoe, 2001). Musicianship is still often taught in an academic rather than a practical way.

Émile Jaques-Dalcroze developed his method experimentally as I did mine when developing Dynamic Rehearsal, for applying DE to the rehearsal and performance of concert repertoire (Greenhead, 2016; 2017; Greenhead, Habron & Mathieu, 2016). Every "Dalcrozian" must make the Dalcroze practice his or her own – it is designed to inspire original, creative work – but to do so it has to be fed from the springs and principles that brought DE into existence in the first place. These can be summarised as focussing on:

- Uniting the senses with emotional feeling and intellectual understanding (developing somatosensory-kinesthetic consciousness combined with emotional feeling and reflection) through the exploratory experience of movement-music relationships.
- Rhythmicising these experiences[8].
- Fostering the development of acute, sensory, especially aural, perception and musical understanding through the use of movement, improvisation and space.
- Developing an ability to improvise musically alone, with others and in relation to movement; using improvisation as a tool for teaching and learning.
- Using the traditional canon of Dalcroze exercises including: following the music; quick response; exercises for the development of automatisms and of memory (for example, canon); exercises in use of space, gravity and dynamics; polyrhythm and coordination etc.
- Fostering in teachers a capacity to respond to events and needs as they arise and to create original exercises, and in students a capacity for creative experimentation.
- Developing body-awareness and movement technique: centre, alignment and balance; use of feet; rotation and sustained continuous movement. Points of departure and arrival; co-ordination; use of space and weight.
- Being aware of addressing each student personally as well as the group as a whole. Using solo, pair and group-work to assist students' social development.

8 A discussion of the place and importance of rhythm in these experiences will need covering in another article.

The need for today

Today's musicians and teachers need DE as much as, if not more than before owing to the effects of educational, business and social practices that do not prioritise bodily-based knowledge, practical skills, or personal interaction. There is a growing body of research in neuroscience and in psychology that supports the notion that musical participation is an important activity for human beings and that body-movement plays an important part in this. In addition to the specifically Dalcroze-related studies mentioned earlier there is the work of Altenmüller, Grandjean, Jeannerod, Phillips-Silver, Schiavio and many others in neuroscience and that of Bowman, Dewey, Gendlin, Polanyi, Sheets-Johnstone, Stern and Trevarthen, among others, in philosophy and psychology. All these researchers offer much to DE in foregrounding the importance of personal, bodily and cognitive knowledge acquired through interaction and movement. They show that human beings rely on active bodily experience in the construction of meaning, the development of a sense of self and in building practical knowledge for living and relating. Unfortunately, it seems that research papers are rarely read by governments and educationalists and rather than looking at the strengths and limitations of a given method properly taught. they often see methods as competing with one another. In education, the current fashion is to recommend a 'pick-and-mix' approach to teaching methods rather than to offer training focused on one method that is enriching, creative, rigorous and has commonalities with other, somatic, movement and musical practices. Those advancing the cause of DE need to be aware of current thinking and to be ready to situate their work in the current context – perhaps showing how it can enhance, link to or complete educational aims.

Music has a unique ability to bring people into close contact with their own feelings of all kinds as Gabrielsson's study of Strong Experiences with Music (SEM) demonstrates (Gabrielsson 2011). Only 19% of participants in this study were performers of music. In DE everyone is performing music, acting in relation to music in some way. The processes of DE open up the potential for music-related, transformative experiences that connect students to themselves and to the external world including other people.

In an often virtual world, the strengths of DE lie, not in utopian visions but in its groundedness in concrete experience and an experiential feedback system (Jaques-Dalcroze called it a quick, effective and light network) that is actually the source of its effectiveness. Experiencing personal connectedness brings transformative experience, the feeling that things make sense and that I, as an individual am able to make sense of them and to create my own work. This sense of agency is very empowering: to echo Heidegger, Polanyi, Gendlin, Sheets-Johnstone: I can, I act therefore I am. There is no need to reinvent the Dalcroze wheel but there is a need for a better understanding, knowledge and

articulation of DE on the part of its practitioners and for the dissemination of this knowledge through discussion and publication of all kinds.

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So Far, so Close
Rebuilding bridges through artistic research from Argentina

Lilia Beatriz Sánchez

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Since 1939, when professor Lia Sirouyan, a pupil of Émile Jaques-Dalcroze in Geneva, came to Buenos Aires, until her death in 2000, she developed an intense and passionate work for the sake of spreading the principles and practices of her Maestro, for training eurhythmics professors and for the inclusion of the discipline in high academic level institutions, among others, the Conservatorios Nacionales de Música y Arte Dramático Buenos Aires. *However, with almost no means of communication at her disposal during the war and afterwards, her work remained anonymous and in the isolation of the Jaques-Dalcroze Institute and centers of eurhythmics activity all over the world.*

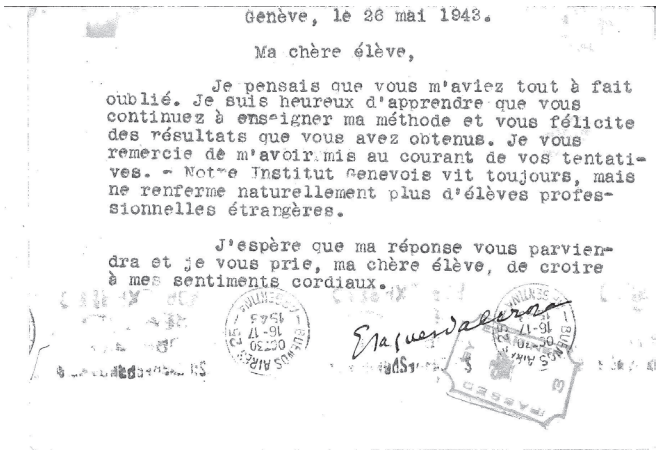
Today, with the return to our country in 2013 of the Argentinean holder of the Diplôme Supérieur Pablo Cernik, the creating of the first postgraduate course of professional training in eurhythmics directed by him and recognized by the Institut Jaques-Dalcroze, renews the hope of rebuilding the bridge that once before united us and that the disappearance of Madame - as we lovingly called professor Sirouyan - would leave truncated. In a globalized world and with the development of new technologies, the relativity of physical distances, times and idiomatic barriers, invite us to build another bridge. The one of a common thought about that Jaques-Dalcroze and his innovating work of artistic-pedagogical investigation, who had anticipated more than a century to what in our days, in the field of cognitive sciences and music education, is known and researched as embodied cognition of music.

In 1983, when I was a student at the piano higher teacher training course of the *Conservatorio Nacional de Música Buenos Aires*, I had the chance to take part in my first eurhythmics class. Professor Lía Sirouyan, née Nercessian, who had studied with Émile Jaques-Dalcroze at Geneva and resided in Argentina since 1939, invited me to take off my shoes and move to the music she improvised on the piano. I accepted her invitation, but I had a certain prejudice as to how useful would be for a pianist to move anything else but their fingers on the piano. From that day onwards, I have never put my shoes back; metaphorically speaking, of course.

Since her arrival to our country, 'Madame' –as we lovingly used to call her– developed an intense teaching work with children in educational and neuropsychiatric institutions, with artists in fine arts schools and music colleges among others, and in 1951 introduced eurhythmics in the training of actors at the *Conservatorio Nacional de Arte Dramático* that continues until today. Finally, she achieved her most precious goal in 1987, by creating the "Eurhythmics Higher Teacher Training Course" at the *Conservatorio Nacional de Música*. It included an application bureau dedicated to pedagogical practice. This office involved around 300 children taking classes of rhythmics, solfège and instrument.

Professor Lia Sirouyan. *Bakú, Azerbaijan, February 12, 1908 – †Buenos Aires, Argentina, December 10, 2000.

Many years went by during which the only news relating to eurhythmics in the world came to us through letters exchanged by Madame with some old colleagues of the Jaques-Dalcroze Institute. The bibliography was rather scarce, always in foreign languages, until the time when we happily received the Spanish edition of 'La Rythmique Jaques-Dalcroze. Une éducation par la musique et pour la musique' of Marie Laure Bachmann in 1998.



Genève, le 28 mai 1943.

Ma chère élève,

Je pensais que vous m'aviez tout à fait oublié. Je suis heureux d'apprendre que vous continuez à enseigner ma méthode et vous félicite des résultats que vous avez obtenus. Je vous remercie de m'avoir mis au courant de vos tentatives. - Notre Institut Genevois vit toujours, mais ne renferme naturellement plus d'élèves professionnelles étrangères.

J'espère que ma réponse vous parviendra et je vous prie, ma chère élève, de croire à mes sentiments cordiaux.

Letter from Jaques Dalcroze to Madame Sirouyan. May 28, 1943.

Jaques Dalcroze´s institute was very far away; our economy, always unstable, made it difficult for us to 'saltar el charco' (cross the pond), an expression widely used by Argentineans in an attempt to minimize the vastness of the ocean separating us geographically, historically and idiomatically from Europe.

The Geneva Congress in 1992, a week attending classes at the Institute in 1995 and a few, though very valuable, visits of Silvia Del Bianco and Iramar Rodríguez to Buenos Aires, were the only opportunities we had to live other experiences in eurhythmics and become aware of the existence of other centers in the world where this discipline was also practiced. But all of them were always very far away. In 1998, upon the integration of the higher education institutions of arts into the present *Universidad Nacional de las Artes* (UNA), the eurhythmics teacher training course and its application bureau were closed. And in 2000, *Madame* passed away. There were only two options left for my few colleagues and me: to accept the challenge of sustaining eurhythmics spaces that had been created in music schools for children, in private and public drama schools, and as the only remaining subject of rhythm and movement at the university teacher training course on musical arts, or…to give up.

Since then and until the return to our country in 2013 of Pablo Cernik, holder of a Diplôme of the *Institut Jaques-Dalcroze*, all those years were plenty of lonely searches, anonymous experiences, uncertainty and the heavy weight of trying to be faithful to the principles of a discipline that 'Madame' had transmitted to us with all her passion and loyalty to her 'Maestro'. And with the little acknowledgement by professionals of institutions that considered eurhythmics something of other times or for spaces limited to children's musical education. Paradoxically, as one door closed when the university eliminated the eurhythmics teacher training course, another one opened; and this is what this article is about.

Getting closer

Research was one of the activities up to that time unknown in the sphere of tertiary-level artistic education that was strongly introduced in the university. The long tradition of university research in the scientific and humanistic fields, caused researches in the artistic world to adopt formats, discourses and methodologies of this type of abstract, predicative and conceptual knowledge. Even though a certain type of artistic knowledge – both theoretical and humanistic– could be more easily adapted, some other types of knowledge, in their own nature, resisted such adaptation.

This is so because "The [artistic] object [of study] has a tacit knowledge […]. It has a 'sensorial density with a high information content of embedded knowledge leading to spaces where science often finds it difficult to capture and describe' (Brix, 2008) […]. It is non-verbal knowledge, with a particular

corporeal coherence, where emotional, analogical and intuitive aspects play a fundamental role." (López Cano, 2015, p. 9)

The old intellectualistic paradigm and the mind-body duality have been questioned by a broad spectrum of disciplines – philosophy, psychology, neurosciences, cognitive sciences – which concluded to agree that, based on a model of embodied knowing, it was no longer possible to consider "the body" as a material condition of our existence, but to consider "my body" as a physical, emotional, intellectual, social and cultural identity, which is built throughout one's life of experiences with multiple meanings. From the point of view of the phenomenology of Husserl and Merleau-Ponty, the lived body is that which "fuses and confuses nature and culture" (Pelinski, 2005, nn); so that …"the conscience is not originally a question of 'I think' but rather one of 'I can' " (Merleau-Ponty, 1945, p. 160); from neurosciences, "rationality can't function without being coordinated with the 'lower' levels of perception, emotion and 'all that weak, fleshy stuff'" (Damasio, 1994, p. 128), and for neurophenomenology "The brain shapes the contents of our sensorial and perceptive processes, and it is so introduced as a tool of knowing embodied in our body." (Delannoy, 2011, p. 69) Such perspectives imposed the need of "[…] abandoning the idea of clear partition lines between perception, cognition and action; […] and, especially, abandoning the research methods artificially separating thought from bodily action." (Clark, 1999, p. 33)

In the field of music cognition sciences, "understanding the music as a body activity implies that the sound game is linked to a particular sense of time and place (space)" (Duby, 2015, p. 13). In Pelinski's view "the immediacy, the phenomenal reality and the spatiotemporal situatedness of embodied perception are traits of a musical experience whose privilege it is to precede and found a musical knowledge in its rationality as well as in its functionality." (Pelinski, 2005, nn) Acknowledging that the "capacity to understand musical contents through body movement stems from the conviction of a corporeal-kinetic-audio seamless unity." (Shifres, 2013, p. 44), and therefore, "the bodily commitment, the movement and the emotional responses to music are currently considered to be cognition modalities." (Shifres, 2013, p. 45). Thus, "human corporeal experience is a constitutive and indispensable dimension of all music: heard or played" (Bowman & Powell, 2007, p. 1094).

Notions such as empathy or motor induction whereby music arouses in us certain motor images (López Cano, Reybrouck (2005); the analysis of sensory-motor processes entailed in instrumental practice; the study of theories on *affordances* (Oliveira, Clarke, Reybrouck, López Cano), contingent action-perception relationships and metaphorical projections of image-schema in relation to musical perception and practice and their epistemic actions, are the bases for the relevance of the role of corporeal nature in musical experiences taking into account the non-dissociated mind-

body connection in action with the environment – of which music is a part – as the way to build musical meanings.

The foregoing was intended to be a more than brief summary of some of the many thoughts, theories and studies of this broad field of knowledge which I found more relevant with respect to embodied knowing. However, as I kept on going deeper in this field, images of experiences lived as a student, and later on as eurhythmics teacher with my own pupils, constantly appeared, and a recurring thought kept coming to my mind: all these authors were making reference, in a quiet and tacit way, to Jaques-Dalcroze's ideas and practices!!!

The revalorization of the body in relation to music and with it (the body), of its actions, feelings, emotions, cognitive and creative capabilities, could not keep me indifferent when facing the lack of knowing or at least the omission of Jaques-Dalcroze´s name within this wide campus of investigation: from the beginning of his searches to solve the difficulties he observed in his students, his major aim was to recover the integration of all the capabilities of a human being in their psychophysical unity for art and for the life itself. It was very rewarding to discover these words of Karin Greenhead that I deeply felt identified with: "His understanding of the music-movement connection is now the subject of research in philosophy, psychology, anthropology and other related fields, even where the name of Dalcroze is little known or not mentioned" (Greenhead, 2015, p. 20).

So close

The silent presence of Jaques-Dalcroze's ideas in all these papers led me to research – in the beginning to prepare the dissertation to obtain my degree in musical arts - the link between music cognition theories and Dalcroze's practices, to support the reasons why eurhythmics learning may constitute a bridge between discourses and reflections of researchers in music cognitive sciences and the so desired union between music and body that for Jaques-Dalcroze in the past and for us at present, continues to be a challenge to be implemented in the professional training of musicians.

To help me in seeking such objective, I found the already known ideas of Jaques-Dalcroze and of Marie-Laure Bachmann, and also the ideas of other professionals who, like Greenhead, shared in the distance and in other languages, the same reasoning, acknowledging the importance of Dalcroze's principles and practices nowadays. "In music, all of its major elements – melody, melodic contour, rhythm and phrasing, cadence points, accents, micro-variations in timing and dynamics, and harmony, among others – are informed by, and draw on, bodily processes. That is why Dalcroze's seminal understanding of the role of the body and movement in music and musical pedagogy is so important to musicians, musical educators, and psychologists today." (Seitz, 2005, p. 431)

The valuable discovery made by Jaques-Dalcroze was the relationship between music and movement considering the specific and common features both have – time, space, energy – which became the core of this discipline, turning it, among others, into the musical method of formation that "most clearly articulates the role of the body in music pedagogy and musical expression." (Seitz, 2005, p. 422) He developed a long path of pedagogical and artistic research – and how it must be considered even when not formalized in the terms of research understood as a specific academic activity –, in search for learning situations where students are involved in their whole corporeal capacity through exercises combining listening, movement, singing, improvisation and creation, in which cognitive aspects are deeply involved; an endless variety of invitations to action in mind and body, thus considering the musician's body as the first musical instrument to be trained.

Learning, the contents of which are transversely addressed in the areas of rhythmics, solfège and improvisation, is given through a path of exploration of musical sensation and musical knowledge together through bodily movement. "Thus, in the exercises, sensing, action, feelings and thinking interact" (Juntunen, 2005, p. 26); because for Jaques Dalcroze, "Eurhythmics is »a bodily way of being-in-sound«" (Juntunen, 2004, Abstract).

From the first conviction Dalcroze's over this "bodily way of being-in-sound", and that in the perspective of embodied knowing we could consider as a "bodily way of thinking-in-sound", there we find how Dalcrozian ideas and strategies acquire new relevance and are highly topical in view of recently developed research. Here, I will state some of the connections I found between practices in eurhythmics and notions and theories of musical cognition related to piano performance.

- Jaques-Dalcroze noted the power of music to arouse motor images. These capabilities of motor empathy or induction are conceived as "forces and energies inherent in musical structure that in turn account for our perception and imagination of tension, resolution and movement" (Reybrouck, 2005, nn). And provided there is movement, there is also time and space. Thanks to this capacity, bodily movement finds its bonds with music: musical time, space and energy find a vehicle to express themselves through a body-instrument that integrates not only aural perceptions, but also visual, haptic and kinesthetic perceptions. These musical forces and energies embodied in actions of the body, enhance a body language that we may consider a "music of the body" that, in agreement with Chion, "is gesture even before producing the gesture (sound gesture)" and therefore "the sound becomes a certain extension of the body […] a sign of its presence […] in the tool of expression" (Chion, 1980, p. 34) when it is projected beyond it and through the acoustic instrument.

- According to the theory of metaphor, sensory-motor experiences are the source domain of abstract structures - image schema - enabling us, through *metaphorization* whose role is the making of meanings, to understand and conceptualize aspects of another abstract domain, in our case, music. "Our bodily experience from the physical world (source domain) to the world of music (abstract domain) results in metaphorized musical notions of musical space, musical time, musical force and musical shape." *(*Brower, 2000, p. 327). Dalcroze's practices in their particular connection between music and movement, multiply metaphorization processes in order to understand musical concepts.
  For those who still today believe that eurhythmics is restricted to children's education, neuroscientists have proved that the "effects of plasticity [of the brain] are not restricted to a critical period in early life, but also modulate functional auditory organization in adults" (Altenmüller, 2015, p. 76). In addition, "[…] it has been demonstrated that visual and rhythmic perception are shaped by body movements in both infants and adults" (Altenmüller, 2015, p. 78), and specifically image – schema "would present here as a real possibility of connection between early bodily activity and the world that continues throughout life, incorporated to the perception-action cycle" (Jaquier & Leiva, 2013, p. 60).
  Translating sounds into movement in the area of eurhythmics, or movement into sound in the area of improvisation, are modes of metaphorical projection from one domain to the other in a double direction. Moreover: to understand both domains and project one on the other, the image-schema would structure how we perceive, how we think and what we do while we move - in the physical space or in the space of the instrument - in relation to music. These Dalcrozian practices offer the possibility of multiple projections into several senses and of building new meanings.
- López Cano quotes Volli, that affordances are "invitations to action"(López Cano, p. 59). They "are present in the morphology of objects by means of which they communicate their functions" (López Cano, 2014, p. 59). He proposes the concept of "musical affordances as a set of motor and bodily actions manifest or hidden, that the music offers us" (López Cano, 2014, p. 69). They "are placed in the middle of effective bodily action and tacit corporeal-motor knowledge. They demonstrate that musical competence is a non-centered knowing distributed between mind and environment. They build a continuous path between the 'outside' and the 'inside' where the body serves as connection point." (López Cano, 2014, 70). Through recurrent perceptive experiences we elaborate representations of aspects of music to which we recur in the form of affordances to use them cognitively in new musical situations. The motor aspects strongly tied up to the genesis of these features, but unlike images-schema, they operate at a more conscious level, since "perceiving and not recognizing is tantamount to not understanding and, therefore,

not to unchain the necessary or appropriate motor action" (Clark, 1999, p. 100). The connection between perception-action-cognition present all the time in a eurhythmics class, offers recurring perceptive experiences of one's body in action through intentional connections with music, where the student is involved with his entire body resulting, in turn, perceiving subject and perceptible object, enhancing the *affordances* through active and conscious perception of the qualities of music and of the qualities of their own body.

- Sensory-motor contingencies are defined as structures abstracted from perceptive experiences based on the relationship between the movement of our bodies and the changes in sensorial information. They operate at consciousness level, even though "it is consciousness related more to know how to do, than know how to explain" (Peñalba, 2008, p. 115). This type of cognition, closely associated with the connection between sound and bodily movement studied by Peñalba in instrumental performance, is a constant feature in eurhythmics practice. The mechanism of feedback loop between perception of the music and of actions of the body facilitates exploration, correction, improvement, automation and adaptation of movements during each exercise. This is extremely important for musicians, because like in global or partial movement of the body, the correction of errors, the development of skills and the search for expressive quality in musical performance occur through auditive, visual, tactile and proprioceptive feedback.

So far, these are some of the relationships found that, in my opinion, support the idea that embodied knowing is the soul of Jaques-Dalcroze´s artistic-pedagogical experiences. Thanks to it, corporality implied in experiences lived in the relationship music – movement in eurhythmics classes, builds bridges towards experiences in the relationship body – instrument. These bridges are neither brief nor temporary, and they are not interrupted in the physical space where movements take place; conversely, they project beyond and through the musician´s body to make of it, the instrument of expression of the music that lives in it.

Far or closed, but together

The return to Argentina of Pablo Cernik, who has made it possible to have for the first time in our country a university postgraduate course in eurhythmics validated by the Jaques-Dalcroze Institute, with the participation of Silvia del Bianco and María Eugenia Arús Leita, resulted in renewed hopes to rebuild the bridge left unfinished upon Madame's departure, and to shorten the distances that have been keeping us apart for so many years. But in addition, the questions that have not been answered yet in the area of artistic research and musical education, enable us to build a new bridge.

How to evade "the Descartes's vengeance […]" when acknowledging that we are "insistently and convincingly stating the inexorable unity of two entities that, paradoxically, we continue to name and think as two different instances: mind and body?" (López Cano, 2013, p. 11). How is it possible to succeed in a deep and genuine transformation of learning practices by integrating all the abilities of human beings for their personal and professional formation as an artist? I am sure that eurhythmics followers all around the world, whether they are far or close, will all agree to a common thought; but dear readers, to conclude, please let me express it in my own language: la Rítmica Jaques Dalcroze, conoce desde hace mucho tiempo, las respuestas a estas preguntas.[1]

Note: All translations from Spanish into English by the author.

For reading the article in Spanish: http://fier.com/documents?filter=3

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1 Jaques-Dalcroze´s eurhythmics found the answers to all these questions a long time ago.

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Theoretic Perspectives

Dalcroze Eurhythmics – a Method, an Approach, a Pedagogy, or a Philosophy?

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In my keynote presentation in the second International Conference of Dalcroze Studies in Vienna 2015, I argued that Dalcroze Eurhythmics is not a method. This aroused several opposite opinions and many interesting discussions. In this article, I want to continue the discussion and consider what using the word method implies, and what the other options of talking about Dalcroze Eurhythmics are, based on my previous studies. I will also discuss how a method, an approach, or any similar such system or framework should be applied according to the current understanding of teaching as reflective practice. Moreover, I will address the recent scholarly debate and critique in music education regarding so-called teaching methods, such as Dalcroze.

Dalcroze as a method or an approach

When considering whether Dalcroze Eurhythmics is a method or not, it is important to define what "a method" means. According to Carlos Abril (2016, p. 17), a method can be described as a set of detailed, sequential, and deliberate series of steps that are designed, systematized, recommended, or used to reach specific learning goals. It focuses on what to teach, how to teach, and when to teach it. It can either mean 'a codified system to teaching and learning that has been described in great detail and practiced by many' (like Kodály) or 'the deliberate pattern of behaviors a teacher employs… to guide students from one point to another over the short and long term.' Often a method 'provides a linear framework for teaching and a step-by-step guide along a predictable path to success.'

Jaques-Dalcroze himself used the word 'method' when describing his pedagogical ideas (Jaques-Dalcroze 1906; 1923; 1935) - although he also concurrently denied that his ideas would constitute 'a method'. He felt he was rather 'offering a guide for teachers and students to use as they wished' (Spector, 1990, p. 115), albeit presented within the framework of his main musical and pedagogical principles (Jaques-Dalcroze, 1935). As Jaques-Dalcroze did not provide instructions for teachers as to how to create and present exercises, or how to improvise them, he left the doors open for the development of a variety of ways to teach and apply his ideas (Juntunen, 2002). In fact, he encouraged variety and change through individual decision and creative choice by teachers (Alperson, 1994, pp. 235–236). Accordingly, from this perspective there is no one way to teach or assess learning (Juntunen & Eisenreich, in print). As Sally Stone (1985, p. 9f) notes, there seems to be as many variations in the approach to teaching Dalcroze as there are teachers, and no manual or handbook exists in which one prescribed method is outlined. Each teacher can apply the main Dalcroze principles in one's own personal way. Currently, both the teaching practices and also the areas in which Dalcroze principles are applied are broadly diverse, and include - in addition to the field of music - theater, dance, cinema, somatic education, special education, therapy, and gerontology (Mathieu, 2010).

Still, most Dalcroze teaching practices share several pedagogical principles, such as the belief that students should not be taught rules before they have an experience of them, in accordance with Jaques-Dalcroze's own ideas (Jaques-Dalcroze 1920/1965, 59–60).

There are several other reasons to argue that Dalcroze is not a method. As stated above, a typical characteristic of a method is that it is used to reach specific learning goals. In Dalcroze, learning takes place in interactional processes and through subjective and transformative experiences (Juntunen & Westerlund, 2001). Therefore, the learning outcomes cannot be predicted beforehand. Even when teaching focuses on predefined musical or non-musical topics, and aims at specific learning outcomes, each participant's experience, earlier knowledge, background, and so forth shape and influence learning in unpredictable ways. A teaching method proceeds according to a sequential series of steps, whereas Dalcroze teaching is learner centered and situated; Jaques-Dalcroze (1921/1980, pp. 195–199) argued, for example, that the personal and cultural differences of students should be recognized in teaching and learning, and that education should not predominate over the characteristic qualities of each culture (Jaques-Dalcroze, 1935).

Still, today Dalcroze is often presented as a method (e.g., Comas Rubi et al., 2014; Greenhead, 2016; Southcott, 2004; Wang, 2008), and the word is widely featured in the literature of the field. There are other frequently used definitions as well. For example, the former director of the Institute Jaques-Dalcroze, Marie-Laure Bachmann, prefers terms such as process, experience, or approach over that of a method (Bachmann 1984, 37; 1991, 24). Likewise, in other writings Dalcroze is often referred to as an approach (e.g. Anderson, 2012; Frego et al., 2004; Johnson, 1993; Juntunen, 2016; Odom, 1991; Seitz, 2005).

> An approach implies a broad theoretical and practical framework that 'organizes knowledge, beliefs, values, and experiences for the purpose of guiding practice. Unlike a method, an approach is not defined by a linear explanation or step-by-step guide for what to do, when to do it, and for how long. Instead, it is a philosophical underpinning and/or a theory of some short that can guide and provide a frame of mind for planning and decision making in the classroom.' (Abril, 2016, p. 17)

Cathy Benedict (2016, p. 349) asserts that 'approaches are used to establish a language and grammar as to how we organize our teaching.'

Dalcroze Eurhythmics as a philosophy, a principle, or a vision of embodied music learning

In today's terminology, it could be said that the understanding of the human being that underpins the pedagogical views of Dalcroze Eurhythmics is holistic (Westerlund & Juntunen, 2005); Jaques-Dalcroze stressed that the body and

the mind were inseparable. As Galvao and Kemp (1999, p.133) note, it was the supreme aim of his approach to fuse the thinking person (involving things such as intelligence, imagination, emotion, and soul) with the physical person (body, senses and action) (Jaques-Dalcroze, 1921/1980, p.x; 1930/1985, pp. vii, 108). Jaques-Dalcroze wanted to resolve the imbalance caused by the intellectualization of musical knowledge and the tendency towards abstractions without practical or bodily connections in learning practices. He wanted the whole human organism to be involved in musical activity. Hence, the basic cornerstone of the Dalcroze approach can be seen as an early critique of the Cartesian tradition within music education (Juntunen & Westerlund, 2011). The Cartesian view includes the dualistic conception of the subject that separates the mind from the body, and understands knowing as being predominantly gained through the visual sense and intellectual thinking, instead of through hearing, feeling, touching, or doing. Jaques-Dalcroze's pedagogical reflection therefore concentrated on searching for ways to combine thinking, sensing, feeling, and bodily action by linking listening and body movement, by making students both bodily and mentally active, and by making his students experience things for themselves (Juntunen 2004; Westerlund & Juntunen, 2005). From this perspective, Dalcroze Eurhythmics can be viewed more as a music education philosophy, philosophic principle, or a philosophical-practical vision than a method.

In my studies, I have approached Dalcroze Eurhythmics from the perspective of the phenomenological philosophy of Maurice Merleau-Ponty (Juntunen, 2004; 2016). The phenomenological notion of human reality arises from a criticism of the dualistic conception of the subject. Phenomenologists, such as Husserl and Merleau-Ponty, argue that the division is in fact an artificial creation of philosophical reflection rather than something based on reality. At the core of Merleau-Ponty's philosophy is the argument that perception and lived experiences play a foundational role in understanding the world. For him, the human body is the primary site of knowing the world. It is not a machine guided by the mind, but an active sensitive entity, oriented towards perceiving and experiencing potential meaning in its world. The body is in a permanent *condition of experience*, and the primacy of perception signifies the primacy of experience.

In my understanding, Jaques-Dalcroze's philosophic-practical vision is in line with Merleau-Ponty's philosophical arguments. Merleau-Ponty (1962) seems to have struggled with the same challenges in a theoretical way within philosophy that Jaques-Dalcroze did in a practical way within music education. Merleau-Ponty's work can be interpreted as an effort to unify the world and our experience of it, and to turn our attention to the importance of embodied, pre-reflective experience. Jaques-Dalcroze identifies the disembodied nature of musical experience and looks for ways to promote embodied musical learning aiming to resolve the imbalance caused by the intellectualization of musical knowledge. Jaques-Dalcroze suggested an

idea that the body is not only an instrument through which musical thinking takes place, but can also be taken as a conscious and explicit object of transformation, and therefore of better musicianship – a view that seems to have been in many ways ahead of his time (Juntunen & Westerlund, 2001).

For me, Dalcroze pedagogy's most valuable aim was to highlight the embodiment of the human being and the embodied ways of learning within music education (Juntunen, 2004). As Odom (1991, p. 10) puts it: 'He initiated a way of teaching based on direct experience, which took the nonverbal, intuitive knowledge of the body seriously.' In its historical context, it can even be read as an early, almost postmodern attempt to break the rise of the modern, rationalistic conception of the human self in music and music education - or as a *counternarrative* (Peters & Lankshear, 1995) in its working against the disembodied epistemology that emphasizes reading skills as well as a rational and distanced analytical approach to music (Juntunen & Westerlund, 2011). As a counternarrative of its own time, Jaques-Dalcroze offered transformative ideas, which rejected technical conceptions of teaching and learning and challenged educators to seek out the students' lived, embodied experiences.

Dalcroze as a pedagogy that applies body movement in music teaching and learning

Dalcroze Eurhythmics not only focuses attention on and promotes the understanding of embodiment in music education, but it also offers pedagogical solutions and exercises to promote embodied musical learning, for example through the use of body movement. Therefore, Dalcroze can be regarded as a pedagogy. In Dalcroze pedagogy, incorporating meaningful body movement experience into the music learning processes is regarded as facilitating and reinforcing musical perception, understanding, expression, and a sense of self, as well as developing bodily and social skills and fostering awareness of the physical dimensions and demands of an artistic performance (Juntunen, 2016). One interpretation of the role of body movement is that it develops above all a bodily knowing of music; that is, a non-linguistic and non-propositional mode of cognition that forms the basis for all knowing, without which conceptual knowing remains mechanical and thin (Juntunen & Hyvönen, 2004).

The belief in the close relationship between music and human-body movement persists, and continues to be noted by scholars. Currently, there is a considerable and growing body of research that examines the role of body movement in music education, in support of Jaques-Dalcroze's ideas. A great deal of recent arguments, not only from music education but also, for example, from cognitive and neurosciences, support the close connection between music, body, and movement - and thus also support the pedagogical ideas of applying body movement to music teaching and learning (Juntunen, 2016).

The current critique towards *methods*

Over the past decades, established music teaching methods have been critiqued and new discourses promoting musical pluralism and authentic learning environments have been offered in return. In the current discussions within music education, some scholars are questioning the role and relevance of so-called music education methods, such as Kodály, Orff, and Dalcroze. In these critiques, sequential and systematic methods are seen as predetermining not only teaching but also learning, which should be situated, creative, and practice-based (Bowman, 2002). For instance, Thomas Regelski (2002) has argued that with prescribed methods, there is a danger of ending up teaching the method instead of music – the tools themselves become the curriculum. He maintains (Regelski 2005) that the methods 'take for granted that they automatically bring about good results' … and, 'in any case, results are not even noted because full faith is placed in good methods.' According to Regelski (2002), the uncritical acceptance of a method ensues the blind faith that 'technical skill alone produces taken-for-granted ends.' When this occurs, he continues, 'good teaching is simply a matter of the standard use of a 'good method' that lacks personal and ethical responsibility for reflective professional practice. John Dewey (1938, p. 22) also warned educationalists that '… an educational philosophy … can become as dogmatic as ever was the traditional education which is reacted against. For any theory and set of practices is dogmatic which is not based on upon critical examination of its own underlying principles.'

Method as stories suggesting an ideal path for musical growth

Indeed, purely following a method uncritically, without applying pedagogical wisdom, can imply such threats. Although teaching methods as such can be problematic in current music education, various methods or pedagogical approaches can, however, be viewed differently. For example, teaching methods can be approached as stories that legitimize a particular version of 'educational truths' and ends, as suggested in my study with Heidi Westerlund (Juntunen & Westerlund 2011). These stories suggest, implicitly or explicitly, 'an ideal story of success' and a direction of growth for the music-learner self. Through rereading and gaining an understanding of a method, and what specific problems related to musical growth it identifies and aims to solve, we can test its power. Jaques-Dalcroze identified music students' poor musical expression as one of these major problems. As a partial solution to this, he developed exercises that offered holistic bodily experiences of music.

In our article (Juntunen & Westerlund 2011), we analyze Jaques-Dalcroze's texts as articulating ideals of how human competencies are developed through music and within music education. Furthermore, we suggest that methods as

stories can be used in today's teacher education in order to develop teachers' cultural metacognition and lead future teachers towards reflective practices. Methods may function 'as heterogeneous and rich intellectual material for cultural consciousness, constant critical discussion, practical testing of ideas, and, above all, for future teachers' learning' (ibid., p. 56). As Abril and Gault (2016, p. 2) note: 'Knowledge of pedagogical practices and approaches is extremely valuable to teachers, insofar as they are examined with thought, intent, and a reflective frame of mind.'

The critique towards methods undermines the fundamental fact that teachers always have working methods, and that our current methods also suggest larger philosophical and educational frames of reference for the teacher's conscious practical decisions (Juntunen & Westerlund, 2011). Similarly, any music education approach alludes to something in the culture of education: it singles out a perspective and points out a possible problem that is meant to be avoided through the systematic use of the given method. Thus, a method is not transparent or irrelevant in learning, but is rather developed within the experience itself. A relevant critique should therefore not be concerned simply with the predefined nature of music education practices, but also with their possibly limited nature when their biases are unreflectively taken for granted, celebrated, and carried out.

This is where engaging in reflection, which has become a commonly recognized element in the professional growth of Western teachers and teaching practices, shows its relevance. Reflection aims at encouraging teachers to take responsibility for their own professional growth and actions, and at making it easier for them to develop their own theories of educational practice, so that they can take a more active role in educational decision-making (Calderhead & Gates, 1995, p. 2). Or, as Loughran writes: "Reflection is effective when it leads the teacher to make meaning from the situation in ways that enhance understanding so that she or he becomes to see and understand the practice setting from a variety of viewpoints" (2002, p. 36).

Reflection, however, often looks like the reflector. Teacher reflection can aim at strengthening earlier habits, at becoming explicit regarding one's already established personal story of good teaching. Hence, the challenge in reflection is to give up the belief in and the search for absolutely right viewpoints, and the unreflective reliance on custom, convention, and tradition. Instead, reflection encourages constantly responding to new situations and changing conditions (Westerlund & Juntunen, 2011). In (Dalcroze) teacher education, reflective practice is related to the recognition of power, and thus to the ethical responsibility of individual teachers. Teachers also need after-the-fact 'reflection-on-action' (Schön, 1987) within a wider critical and socio-cultural frame of reference, which asserts itself in reflecting on the reasons behind actions, assumptions, values, and the culture of education: i.e., the ethics of teaching (Juntunen & Westerlund, 2011). The meta-narratives of music education methods can function as frames of

reference for this kind of reflection. In order to reflect on Dalcroze pedagogy and music education in general from a wider perspective, one therefore needs to grow into adopting a critical stance towards one's own work - into challenging one's own fundamental beliefs and practices concerning music education (Westerlund & Juntunen, 2011).

Conclusion

In this article I have argued that, rather than a systematic method setting the order of and rules for sequenced teaching phases with predetermined ends, Dalcroze Eurhythmics can be considered a meta-narrative that legitimizes a particular version of 'educational truths', suggesting a direction for musical growth; a philosophy or a philosophic attitude that draws attention to a holistic view of the human being and embodied learning and knowing in music; and/or a pedagogy or an approach that points to the role and relevance of the body and body movement in musical action and learning, and includes certain pedagogical principles. Although Jaques-Dalcroze's educational ideas remain relevant in music education and in related fields today, the Dalcroze approach (or any other approach) in itself does not guarantee good teaching, experience, or results – the quality of teaching and learning is always dependent on a spectrum of variables, such as teacher quality, lesson design, and so forth. What really matters is how the pedagogical ideas are applied. A problem arises if a teacher chooses to utilize Dalcroze, or indeed any approach, blindly, without carefully considering its relation to the curriculum and its potential to meaningfully engage learners in a specific context (Abril & Gault, 2016, p.1). As Kohn (1993) suggests (cited in ibid.): "it is a good idea to challenge ourselves…about anything we have come to take for granted; the more habitual, the more valuable this line of inquiry".

Benedict (2016) reminds us that whether something is a method or an approach (or something else) is "depended on the context and the usage" (p. 349) and that there is not nothing wrong with method until it becomes so taken for granted that we forget to question *what*, *how*, and *why* we do what we do. We as Dalcroze practitioners should always keep asking why we are doing what we are doing, and not only be satisfied if something just seems to 'work' or 'entertain' (see, Abril, 2016). Teaching and learning should always be relevant and meaningful for whom the pedagogy was developed: that is, the students or other participants. It has become ever more evident that music education needs to better recognize the students' own viewpoints, their freedom to decide on the *whats* and *hows* of learning (Green, 2008). This idea challenges the earlier consensus that better teaching, meaning clearer ideas on the whats and hows of teaching, is the key to higher student learning and achievement (Westerlund & Juntu- nen, 2011).

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The Link Between Audiation, Embodiment, and Improvisation

Theoretical and experimental approaches

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In Dalcroze pedagogy, improvisation exercises are meant to improve audiation and embodiment skills. Improvisation is also a way for students to demonstrate their mastery of these skills. The link between audiation, embodiment, and improvisation may be evident to Dalcroze practitioners and pedagogues through their first-hand experience, but why this link should be so deserves further consideration. In this article, I argue that understanding this link can actually help define what musical improvisation is in the first place. In turn, this shift in theoretical perspective can motivate a different line of empirical inquiry that is better able to contribute to explanations of how people improvise than studies that focus on novelty and spontaneity. I explain the relevant experimental work that has been done to support this approach, and outline future empirical steps that could further advance this understanding. Finally, I comment on the ongoing relationship between cognitive-scientific research and the real-world musical practices to which such inquiry is inextricably linked.

There is more than one way to be a successful musician. Émile Jaques-Dalcroze's contemporaries were perfectly able to enjoy successful careers as performers, but as Anderson (2011) notes, after Dalcroze noticed that "…many of his students were able to write harmonies and rhythms but not perform them with their body or voice, he became interested in finding a new way of educating them" (p. 27). Dalcroze sensed something was lacking in his students' development. He reconsidered what constituted musicianship, and developed appropriate pedagogical methods to impart these ideals and skills on students.

In particular, Dalcrozian musicianship entails understanding the body through eurhythmic exercises (Greenhead & Habron, 2015), using the full body to understand and communicate musical structure, particularly with regard to the embodiment of rhythm (Seitz, 2005), developing strong audiation skills so that mental hearing can precede playing (Anderson, 2011), focusing on becoming familiar with musical experiences before learning explicit formally defined rules (Juntunen & Westerlund, 2001), and other similar goals that aim to unite mental and bodily aspects of musical experience. Importantly, in Dalcroze studies, these audiation and embodiment skills are linked with the ability to improvise: through practicing improvisation one can improve them, and improvisation is a demonstration of one's mastery of them (Juntunen, 2016).

But taking a step back, why should practicing embodiment and audiation skills facilitate the ability to improvise? Why should the ability to improvise be evidence of having mastered these skills? It is conceivable that such skills would only aid other aspects of musicianship (such as performing written works) without necessarily improving *improvisation* abilities as well, yet the connection is central in Dalcroze's teachings.

The reason for such a link may be clear to those who have practiced and taught these methods, having seen it in oneself and in one's students

firsthand. Nevertheless, further considering the nature of this link can be productive for two principal reasons:

1. Understanding the relationship between audiation, embodiment, and improvisation may actually help us understand better what it means to "improvise" in the first place. It may lead us to a new definition of the term.
2. Framing questions about improvisation in relation to embodiment and audiation provides a set of empirical hypotheses. Scientifically investigating improvisation in this way is arguably more tractable than investigating improvisation in terms of novelty and spontaneity, as many past experimental studies have done.

There are many perspectives from which to engage with such questions of Dalcrozian musicianship, including technical, experiential, and spiritual (van der Merwe & Habron, 2018). Here I am interested in the psychological and cognitive dimensions. In psychological terms, audiation concerns the mental generation of auditory images without the presence of exogenous sound stimulation. Embodiment has many meanings, but for these purposes here, I use the term in its reference to how the motor system and the auditory system interact to co-represent musical structures. As I argue below, cognitive-scientific theories and experimental frameworks can link the concept of improvisation with audiation and embodiment and enrich an understanding of what improvisation is and how people do it, but only if the questions that are brought into the laboratory are properly critically situated. Engaging with the insights from Dalcroze studies can help accomplish this. Altenmüller (2015) noted that Dalcroze studies readily align with modern cognitive science, and I believe this is also true for cognitive-scientific studies of improvisation in particular.

In what follows, I will consider the link between audiation, embodiment, and improvisation from a theoretical perspective, asking how these abilities are linked in principle and how the link can help us better understand what it means to improvise in the first place. Then, I will show how cognitive-scientific experiments can contribute to this line of research, emphasizing the importance and difficulty of asking the right questions in the laboratory.

Theoretical links

Understanding how audiation, embodiment, and improvisation are linked requires questioning what improvisation is. The term has a familiar colloquial meaning: to improvise is to generate novel music spontaneously, in the course of real-time performance. While a definition like this one is intuitive, formalizing a definition is much harder. Terms like novelty and spontaneity are often used to define improvisation, but are themselves quite difficult to define. Does a performance really have to be novel for it to be improvised?

Novel in what sense? After all, the specific content of an improvisation (or, at least very similar content) may have been played and heard before. Does it even need to be the first time that the individual performer ever played something like it? That would exclude a lot of the performances we would otherwise be inclined to call improvisatory. Is improvisation really spontaneous? How spontaneous? After all, skilled improvisers are highly practiced and experienced, and may have improvised similar things before. Even spontaneous performance is predicated on significant prior experience and possibly even specific planning that occurred prior to a particular performance. In the face of these ambiguities, some define improvisation as a continuum, asking instead to what *degree* a particular performance is improvised by trying to quantify the novelty and spontaneity. However, this approach has its own difficulties. Different analysts might disagree on how to measure a performance, which bases the definition more on music analysis than a characterization of what the performer did in the first place.

Given these difficulties, another approach is to define improvisation as a process, as a particular *way* of making music, regardless of how novel or spontaneous an analyst might subsequently measure the music to be. Dittus and Bauer (2015), for example, distinguish between musical products and musical processes. This distinction is helpful in defining improvisation, too. An extremely accurate performance of a transcription of a jazz solo is a different process than the original one that first produced that solo. The initial performance *process* was improvisatory whereas the reproduction performance was not, even though the resultant musical *product* is very similar. But what about the process makes it an improvisatory one?

This is where the link between Dalcrozian embodiment, audiation, and improvisation can be made clear. At the foundation of Dalcroze's motivation to reconsider the values of musicianship is a powerful idea: musicians can know about music in different ways. Different musicians may appear to have similar skills as assessed by their ability to perform works or analyze musical scores. However, the processes by which they organize and execute their movements and their internal experiences and understanding of the sounds may be quite different. For instance, some musicians may be performing with a foundation of Dalcrozian audiation and embodiment while others may not; audiation and embodiment may change how a musician recalls, combines, manipulates, produces, and perceives musical structures. While such differences may not be obvious under certain performance conditions, they may appear more obvious under others, such as listening to the quality of improvisations or assessing a musician's performance on a musicianship test (or, indeed, their performance on cognitive-scientific experiments specifically designed to highlight such differences, as described in the next section).

I have elsewhere described this issue as differences between musicians' ways of knowing (Goldman, 2016), theorizing that improvisatory abilities are predicated on certain ways of knowing musical structures (like a chord,

scale, rhythm). For example, musicians may vary in their ability to link the sound of a chord with its proprioceptive feel, or in how they categorize musical structures. Some ways of knowing facilitate the ability to do what is normatively known as improvising. This allows us to frame questions about improvisation in terms of differences across musicians in how they learn and know about musical structures.

So, Dalcrozian ways of knowing that emphasize audiation and embodiment would appear to be improvisatory ways of knowing in that the pedagogy facilitates the ability to do what is normatively called "improvisation." It is not that audiation and embodiment aid the ability to improvise; rather, those skills may be *part* of the improvisatory process. The particular way improvisers represent, manipulate, and recall musical structures—or, from an extended cognition standpoint, the particular processes by which performers interact with their instruments—may necessarily require audiation and embodiment as part of the improvisatory process of producing music.

All of this being said, explaining how this process works is still hard to do. The reason this theoretical approach contributes something is because it reframes how we can ask cognitive-scientific questions about improvisation. Instead of asking how performers produce novel works spontaneously, we can ask in what ways audiation and embodiment are part of improvisatory processes of producing music. That these processes are linked may seem obvious to Dalcroze practitioners, but it is not typically how questions are formulated about improvisation in the cognitive sciences, as I will describe below. This shift in the definition of improvisation allows other, productive questions to be asked that laboratory experiments are able to meaningfully investigate.

In what follows I will describe the current state of cognitive-scientific experimental work with improvisation, but before doing so, I should note why a cognitive-scientific approach is a valuable one to consider. Explaining the link between audiation, embodiment, and improvisation could be done in many ways within many different theoretical frameworks. Dalcroze himself had his own explanations:

> [Improvisation's] function is to develop rapidity of decision and interpretation, effortless concentration, the immediate conception of plans, and to set up direct communications between the soul that feels, the brain that imagines and co-ordinates, and the fingers, arms and hands that interpret… (Jaques-Dalcroze & Rothwell, 1932, p. 371)

Dalcroze already highlights the importance of "direct communications" between feeling, imagination, and the auditory-motor systems that realize these abstractions. Statements like this are quite compatible with cognitive-scientific inquiry, which can attempt to make evident Dalcroze's theoretical claims about this coordination between the mind and body. Again, there could be many ways to make such a thing evident. Success in the classroom is perfectly

well evidence that this is the case. The reason cognitive science in particular can contribute something valuable here is because its theories and methods are well equipped to explain and distinguish between thought processes. It can thus be used to investigate the role of audiation and embodiment in thought processes of improvisation, and help show how they may differ between people with and without improvisation experience. In what follows, I will discuss how this link has been treated to date in the cognitive-scientific literature, and use the theoretical approach described in this section to suggest how empirical research might productively move forward.

Experimental links

Audiation and embodiment are prominent and related topics in music psychology today. Many researchers are interested in the relationship between auditory images and movement, as well as how these links arise (for reviews, see Maes, Leman, Palmer, & Wanderley, 2014; Novembre & Keller, 2014). Many studies have shown the existence of these links in trained musicians, however few have linked the findings to explanations of the ability to improvise.

Instead, psychological, cognitive-scientific, and neuroscientific studies on improvisation often adopt within-group approaches. Researchers compare the same group of musicians performing under different conditions—such as improvisation vs. rehearsed performance—and examine what differs between these conditions either in terms of something physiological (like brain activity) or something behavioral (like how certain features of their musical performance differ). For example, Limb and Braun (2008) used functional magnetic resonance imaging (fMRI)—a technique that can measure which parts of the brain are active during experimental tasks—to look for differences in brain activity between pianists while they improvised compared with while they played rehearsed passages, and in a behavioral study, Keller, Weber, and Engel (2011) found that pianists played with greater variety of key stroke intensities while improvising compared to playing back those same improvisations after rehearsing them.

The theoretical approach described in the previous section, however, highlights the importance of conducting between-group studies that compare experienced with inexperienced improvisers. It is important to consider variation in audiation and embodiment across groups of musicians who vary in their amount and type of improvisation experience. Music scientists often quantify various dimensions of musical experience (Müllensiefen, Gingras, Musil, & Stewart, 2014) in order to show how experience changes perception and performance, but as a general trend many studies are not as sensitive to the *type* of experience or pedagogy, at least with regard to improvisation. Improvisation experience may be related to differences in audiation and embodiment processes that could not only help characterize

the cognitive processes of improvisation, but may bear on other topics in music psychology as well.

The theoretical approach defined above also highlights the importance of considering differences in how musicians perceive, not just how they produce music. Differences in perception show differences in musical cognitive processes; different ways of knowing and thinking can be made evident, for example, by considering whether certain musicians are more sensitive to certain perceptual features of stimuli, and trying to explain which ones, and why. By observing differences in how improvisers perceive certain features of music, the characteristics of improvisatory ways of knowing can be further understood, and the link between audiation, embodiment, and improvisatory processes can be examined.

Few studies have examined these links, though there are some. Watson (2010) found that jazz improvisation instruction methods requiring aural imitation led to significantly greater gains in performance achievement (as assessed by expert raters) than notation-based methods of instruction. This suggests a special role of audiation and embodiment abilities as part of improvisatory processes. Harris and de Jong (2015) used fMRI to examine differences between "score-dependent" and improvising musicians. They found evidence that improvising musicians engaged brain areas that subserved the mental permutation of musical structures more so than score-dependent musicians. Similarly, Pinho, de Manzano, Fransson, Eriksson, and Ullén (2014) used fMRI to find that experienced improvisers differed in the functional connectivity between frontal brain areas, suggesting more efficient communication between the various kinds of knowledge associated with musical structures. Finally, in my own neuroscientific work (Goldman, Jackson, & Sajda, 2018), my colleagues and I found evidence that more experienced improvisers are more prone to categorize musical structures by their function; that is, different exemplars of a particular functional class of harmonies (e.g., two different voicings of a subdominant chord) were perceived to be more similar to each other than chords in different functional classes (e.g., a subdominant vs. a dominant chord). For less experienced improvisers (but who otherwise had similar amounts of musical training), this categorical effect was absent (i.e., the fact that two chords were within a functional category did not make them sound more similar). These differences in perception were apparent in the brain signal within a few hundred milliseconds of hearing the chords.

This work is still somewhat scarce, but the studies I have just cited can be interpreted together to begin to form a coherent, if speculative, narrative. Part of what allows musicians to improvise is recognizing similarities in function across musical structures (e.g., understanding two different voicings of a subdominant harmony to be the same *kind* of thing). This categorization is not merely music-theoretical (most trained musicians would be able to identify this similarity on a written music theory exam), but rather with regard to how

these structures are perceived, as evidenced by the fact that these differences in categorization can be shown through very fast perceptual processes. This resonates with Watson's work on the efficacy of aural training: part of what aural training may provide performers is the experience necessary to make these auditory-motor categorizations. It also resonates with Harris & de Jong's work showing improvisers ability to mentally manipulate the structures, and Pinho et al's work showing the increased connections between the kinds of knowledge associated with musical structures. Connections between sound and movement may be at the foundation of this fluent communication and categorization, enabling the ability to fluently manipulate, recall, and execute variations on musical structures; this is what one would hope to explain with a scientific theory of improvisation. Note that none of these narrative needs to directly engage concepts like novelty and spontaneity, at least for the purposes of cognitive-scientific inquiry; of course, these concepts are still important to consider in the broader discourse on improvisation. Again, this narrative is speculative, but it gestures towards the possibility of cognitive-scientific work to make progress towards explaining links between audiation, embodiment, and improvisation.

There are many more answerable questions that could fill in more details of this narrative. For example, many of the paradigms used to identify the presence of auditory-motor coupling in musicians in general could be reapplied to improvisers to test whether the effects are stronger for them (e.g., measuring how susceptible musicians are to the priming effects of sound on movement). Neuroscientific methods could further investigate how experienced improvisers represent musical structures. Existing work has shown that improvisers categorize musical structures in characteristic ways. With neuroimaging methods, it could be shown whether these categorizations are explained by auditory-motor brain activity. Finally, in addition to these answerable questions, it must be noted that actually conducting such experiments will inevitably lead to more questions because the explanation of improvisatory processes will gradually change its focus in response to findings, in turn motivating new experiments.

Conclusions

In this article I have raised questions about why it should be that embodiment, audiation, and improvisation are related processes. This question is motivated by Dalcroze studies, and cognitive-scientific approaches can contribute insights into the link between these abilities. I have outlined a way to conceptualize improvisation in a way that is compatible with cognitive-scientific experimental methods, I have shown what kinds of questions can be asked experimentally to advance such an understanding, I have offered a narrative connecting existing studies on the topic, and I suggested how future studies could advance this understanding.

Finally, the value of close collaboration between scientists, practitioners, and pedagogues must be emphasized. The ideas presented in this article would not have been possible without the insights that experienced teachers and musicians provide, including my own first-hand experience as a performer and student of Dalcroze's methods. Often, the theoretical insights do not happen solely because of empirical findings, but also from reflection on experience with real-world musical behaviors. This is not to say that experiments do not also advance or improve this understanding, but rather that both are important towards the goal of understanding improvisation.

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Inner Listening Foundation of all pedagogies

Françoise Lombard

Françoise Lombard is a musician and a teacher of both eurhythmics and the 'Art of Listening'. Having gained the Diplôme of the *Institut Jaques-Dalcroze* and graduated from the Geneva Conservatoire (piano, solfège and harmony), she began to train teachers of eurhythmics in Bienne (Switzerland). She then undertook training in the 'Art of Listening' (the method of François Louche), which she adapted to her own pedagogical teaching for artists, teachers and therapists in Europe and Quebec. She lives in Montreal and divides her professional life between eurhythmics (Canada, USA, Switzerland, Italy), 'Art of Listening' and composition. Together with the singer, composer and video director Michel Comeau, Françoise Lombard signed the creation of 3 CDs: "resonance" (osteophonic voices a cappella), "mon livre à moi" (book-cd for children), "lullabies" (piano/voices without words).
Read more - in english - and watch the videos: www.francoise-lombard.com

The Dalcrozian universe is characterized by the association of body movement with music, and by the development of creativity in relationship to others. Recent research in neuroscience and in the science of emotions has stimulated my curiosity and fulfilled my need to find complementary paths towards musical education and artistic expression, particularly with regard to LISTENING. This vast field that involves the person in their entirety is still little known. The Art of Listening uses the sound of the voice to put the individual in direct relation with their inner world and that of the universe of music within their own body. This approach enriches Eurhythmics and the links that can be established between the two are infinite. Here are some ideas for reflection, followed by examples of exercises.

Dalcroze Eurhythmics has accompanied me since my childhood in a powerful emotional connection. At the Geneva Institute, I felt myself to be part of a large family that was evolving in a world of music, body movement and creativity so natural and integrated into my life, that it took me some time to realize the uniqueness of all that this Dalcrozian universe had printed in my DNA as a musician and teacher. I was very lucky to benefit from such a source of fulfillment.

Nevertheless, one day I had to take a step back in order to discover other horizons and other ways of approaching the music and the human being to enrich my research. Throughout all my training as a musician and pedagogue, I have constantly sought to integrate more fully the dimension of listening, foundation of all forms of communication; a conscious listening, present and always in movement.

The movement of listening

In the Pedagogy of Listening, I found concrete tools to know myself better and to work in a tangible way on my listening. I had understood from interpersonal experience what a listening in movement is and the determining place that it occupies in all pedagogy and in life in general.

A living and present listening is by definition a listening in movement. It means that it collects and connects the physical and psychological feelings, through the emotions and thoughts of the moment. Thanks to the semicircular canals of the inner ear, we pick up sounds and noises throughout the space. Ideally, the listening is thus moving and free, ensuring a permanent exchange between the interior world and the outside world. However, we all carry a history and memories that conditioned it: it has often been blocked by fears or traumatic events, frozen in reflexes of protection or anticipation, confined in habits, prejudices or other barriers. As a result, our listening has lost some of its mobility, for various reasons specific to each human being, depriving us of what is the most

precious: its presence. Without this quality of presence, the conscious and global contact with the body disappears.

Thus, in a solfege class, it can happen that at the beginning of the dictation, the student only picks up the first sounds, because there suddenly arises a concern about the rhythm, which prevents him from being receptive to the sounds that follow. The blockage sometimes appears from the beginning of the dictation, because the student is convinced that he lacks the musical talent to hear successfully and then write what he has heard. This can happen even after singing many melodies, walking and clapping rhythms and doing various rhythmic exercises on musical pieces.

Listening therefore needs to regain its capacity for freedom. This requires taking the time to reclaim one's bodily sensations to inhabit the body and regain self-confidence. A listening in movement gives a simultaneous sensation of openness and availability in oneself and around oneself. It generates pleasure and well-being.

Putting listening into motion

Here is an exercise designed to develop the motion of listening: Standing in a circle, we start by producing a unison sound that lasts the time necessary to install a good quality of listening to oneself and to the group. Each person lets his voice modulate at will. There is only one instruction: listen to oneself and listen to the others. We can move with the eyes open or closed, to seek contact; enjoy the freedom to join the sound of someone else momentarily, to create a dissonance or a consonance, and all this according to our desire, participating without constraint in this soundscape. We let ourselves be guided by what does us good. One always remains attentive to the sensation of the vibration of one's voice and those of others which also resonate in us. With the mouth open, in a nuance varying from *pianissimo* to *forte,* one gradually tames the phenomenon of a blank page on which unfolds a lively collective composition guided by a common listening. We do not give instructions regarding the end of the exercise: it is the listening of all that defines it spontaneously.

Testimonials are often very rich: professional musicians frequently experience a sensation of freedom. The lack of guidance and constraints (score or other) brings the individual back to his body and its sensations and opens the ears. Without any particular expectation of results, one becomes free of fear of the gaze of others and without psychological barriers, listening regains confidence and mobility. Exercises of this type need to be repeated regularly. Each time they will be experienced differently, as the temporal and relational context is never the same.

Between teacher and students

Because each new situation is different, together we encounter the unknown, with the fragility that it implies. I like to ask my students questions about the effect of the various exercises proposed; the human being is complex and the ways of learning are personal to each one. Their answers, sometimes unexpected, often varied, enlighten me. To foster the emergence, development and expression of the inner world of the students, the teacher has the responsibility to create a safe environment in which the student will be invited to take his place, in his own way. We must establish a relationship of trust with our students, knowing that the opening of their listening depends on it. This framework must also be adapted to the needs of the teacher who must ensure his comfort to feel at ease in his teaching.

The place of listening in Dalcrozian pedagogy

Dalcroze's pedagogy evolves in different spheres, but whatever the direction, listening is always the basis. The variety of approaches and the place given to the creativity of Dalcroze teachers offer to each one diversified gateways towards both musical and corporal language. It is a fertile educational field that offers students the possibility of resonating, each in his own unique way. For it is a question of allowing already existing riches or talents to resonate while generating and developing dormant possibilities.

In eurythmics, we can notice that putting the body in motion is not necessarily enough to embody the music. If muscle movement associated with music can enhance the feeling of space and musical movement, it does not guarantee that the student will feel touched by the music and that music will genuinely vibrate within him. Did he have enough space and time for listening to live the music *in* his body? Can he really feel the music deeply if it could not resonate consciously in him?

In solfège, we see that singing the sounds of the scale included in an interval – to recognize it more easily – does not guarantee that one will physically feel the real distance separating the two sounds; this sometimes leaves doubts in voice sight-singing or dictation.

In harmony, the relation between the sounds of a chord or the relation between several successive chords is a world to discover in resonance with one's inner space. When we let the sounds of chords vibrate throughout the body, we experience musical harmony as a succession of impressions and sensations that make us travel in interior landscapes with rich reliefs of emotions, nuances or contrasts. Here again, everyone feels them and experiences them in his own way. The setting in motion of the sensitivity (*emovere* lat. to move) will spontaneously create the meaning of phrasing. Theese immersions in sound provide the ear with safe body markers and are an important prelude to harmonic analysis. Without this inner awakening,

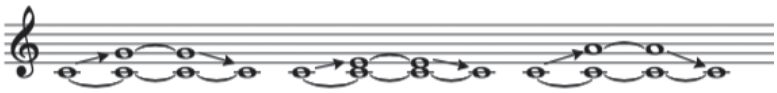
successions of chords may appear more neutral or theoretical. This evolution towards bioacoustics, neuropsychology and the sciences of affectivity is, in my opinion, a logical continuation of what Dalcroze developed.

A solfège grounded in the body

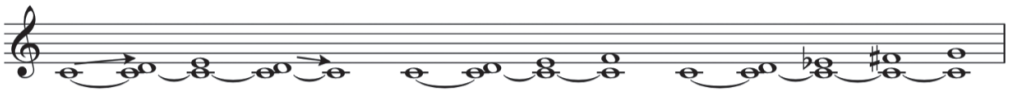
I have already had occasion in various articles to speak of the links that can be established between Dalcroze Eurhythmics and the Pedagogy of Listening, and the importance of the affective dimension in the teaching as well as in any form of learning. Today, I would like to suggest some exercises that one can easily integrate into the Dalcroze universe. Here is a progression of exercises that can be done in groups or in pairs, to recognize the pitch of sounds and the relationship between them:

1. "Make the elevator", that is to say to slide the voice from the lowest to the highest pitch and vice versa, the mouth closed – to clearly feel the movement of sound in the body – and then the mouth open. Do it in a single breath in one direction, or take a breath in the middle of the path if necessary; we insist on listening to the sensation of sound that moves in a continuous movement along the spine. We try not to "skip floors".
2. With the mouth closed, the whole group emits the same sound; then half of the group follows the teacher on another sound (start with the 5th or the 3rd) while the other half stays on the first sound. Make each sound last (we take a breath when we need it, without ever forcing the length of the expiration) to feel what happens. What sensation is connected to this unison? To the interval? Do the sounds of others also vibrate in my body? The sensory and relational experience of unison is not the same as that of two distinct sounds and most of the time, everyone agrees on this point.

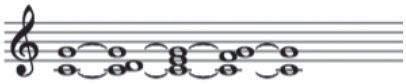
As for the interval, it gives two distinct sensations of different heights in the body as well as a sensation of the distance that separates them. By repeating this type of experiment many times, the bodily perception of these landmarks becomes a more and more reliable support for the ear. We can do the same experiment with all the intervals: start in unison, create the interval and come back in unison. Make both groups experience each of the roles: to remain on the fundamental sound and that to create the interval and return to the base. Invite students to talk about their experiences to help them become aware of what they are going through and make it their own.



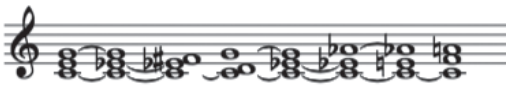
3. Keep a vocal pedal of a fundamental sound to build tricords, tetracords, pentacords and complete scales, as well as to sing simple songs without modulations. The horizontal connection of the sounds of the melody is enriched by the vertical relationship with the tonic, which consolidates the intonation. We accept the friction of the seconds (which often comes back when we leave and return to the tonic in a scalewise movement) and we develop the habit of relying on bodily sensations as much as on the ear. This active participation of the body gives a new foundation and often creates a lot of joy for the person who feels or regains a certain power and a confidence in his abilities.



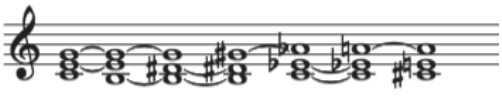
4. Create three groups from which two will hold a sound (fundamental and 5th) and the third will sing half or whole tones between the two, under the teacher's or the student's direction; rotate between groups so that everyone experiences it in all forms.



Then, make one group only keep the bottom sound (later the medium or the top one), and make the other two voices move simultaneously with half or whole tones.



Finally make the three voices move in semitones or tones. The instruction is to stay on the sound as long as you have not received the indication to let it ascend or descend.



This exercise brings to life the close relationship between the resonance of sounds and the resonance amongst people. Harmonic landscape changes are all the more touching when we live them and share them with our whole being.

The influence of our listening on the listening of our students

In order to be fully invested in their own listening, our students need to get in touch with our presence. My piano teacher at the Geneva Conservatory Louis Hiltbrand noted: "Conducting implies availability; it means seeing the movement of life (the relation between sounds) within ourselves as well as without. Look, listen, feel." (Hiltbrand, 1990, p. 113) There is a notion of space and calm to be found in oneself; an availability to welcome the other in his particularities and in his difference; a confidence in one's listening to stay internally in motion, to let oneself be touched by what is happening in the class and at the same time manage each situation adequately. Louis Hiltbrand also said: *"To listen is to speak to silence."* (ibid., p. 141) He had told me that as a little child he would stand in front of his piano, listen to the silence, play a sound and then listen to it return to silence.

It is not easy to find silence in oneself. Our often noisy and agitated thoughts are cumbersome. Most students (except perhaps toddlers) arrive with a listening disposition already conditioned by various types of learning and life contexts, and we are there with our own teaching habits. It turns out that the listening exercises we offer in teaching make us participate as much as our students and also help us to cultivate this inner space.

Build links and find one's place

Standing or sitting in a circle, each in turn (starting by the teacher) makes one sound with the mouth open, addressing it to the group. The person repeats it several times to give himself time to listen to his voice, to recognize himself in his person, to feel the caress of the vibration in his body and to appreciate the feeling of interior and exterior space that this sound reveals him. You can change your sound if the first is not comfortable. The important thing is not to anticipate anything by mentally deciding what you want to do but to let the sound come spontaneously, with the mouth well open. Once the sound is finished, the group responds to the person by making the same sound, like an echo. The aim is to listen to each other without judging or evaluating oneself, to dare to take one's place and to become familiar

being heard by a group (we do not make a sound for ourselves, as if we were in a bubble). The echo gives the opportunity to develop the sense of receptivity: do I really let myself be touched by the response that the group sends me? This response often has a very confirming effect for the person and makes him feel part of the group. It underlines the importance of being recognized first of all for who we are rather than for what we do. This kind of experience then needs time to gather feedback from each other.

The awareness of space by listening

I often propose to the students, distributed throughout the room, to make contact with the ambient space while remaining motionless, with closed eyes, and emitting sounds, one or two with the expiration; I favor this simplicity in order to stay close to oneself. As the sounds belong to the 360° of space, we can very well perceive the volume that surrounds us by following the diffusion of the sounds all around us. Back to silence, we move elsewhere and we start again with other sounds, always together. We do not look for specific consonances or musical harmonies with the group. We let the sounds come spontaneously and welcome whatever comes out, without assessment, censure nor judgment. This freedom from thought enables us to concentrate on the feel of outer space, the feel of the space available within the body, on our quality of presence and on the presence of the other people around us.

We are already trying to combine several elements in a global listening. To summarize what I personally experience in such a situation, I would say: “In listening to the exchanges between my interior self and the outside world, I put them consciously in relationship. This inner gesture requires me to set my listening in motion. By often repeating this experience, I’ll become gradually familiar with listening to space, wherever it is: between me and the others, between me and the walls and ceiling, between the sounds, between sentences (have you ever heard that music is between the notes?), in silence. I will perceive the external space and all that lives in it in my way, because it resonates with my own inner world.”

Relationship and phrasing

The phrasing is always present in the spoken language and is modified according to the intention and the direction that one gives to it. In the same way, when one approaches the musical line and its articulation in the relation, for example by addressing sounds without words to an interlocutor, it generates a natural phrasing, varied and not dissected by too much analysis. This awakening is often provoked by words: I remember certain songs of Jaques-Dalcroze that touched me profoundly when I was young and

of which I would say today that it is my heart that spontaneously expressed the phrasing.

Feeling the rhythm and the pulsation

All that prevails regarding voice, intonation and the quality of melodic expression also prevails for rhythm and pulsation. Even if the movement of the body helps the stability of a pulse or the realization of a rhythm, the addition of proprioception – which grounds the person in his body – will considerably participate in internalizing a tempo or in giving life to a rhythm.

Some ingredients to foster inner listening

The power of simplicity

Simplicity is neither emptiness nor absence. On the contrary, it offers a space of freedom favorable to listening, encounter and authenticity. It often generates a proliferation of sensations of all that lives between sounds, everything that brings us close to ourselves and to the world. Simplicity requests presence. Limit the instructions: these can invade this space and hide a lack of presence.

Slowness and repetition

Living the present changes our relation to the time: it is no longer the slowness synonymous with boredom that prevails, but the slowness that brings together in a whole the different strata of the human being. Repeating an exercise or an experience becomes a valuable way to register vibrant and strong imprints that generate pleasure and confidence. Avoid being in a hurry. Time is required for the learnings to take root in a human vibratory bioacoustic soil.

Deconstruction

To access the simplicity of the world of sensations, we must go in the opposite direction of what we have known. We need to let go of the desire to do well and the fear of disappointing, abandon the reflex of learning through willpower and let go of the markers of tensions (old habits to which we are sometimes unconciously attached) so as to discover the pleasure of what is simpler, more comfortable, broader and more accurate. For example, reproducing sounds by singing IN the body, without thinking about the intervals or the name of the notes gives a new self-perception, a confidence in one's own listening and in one's body; it's a good preparation for analysis.

In conclusion

To experience listening and to talk about it are two different worlds. No theory will ever replace the real-life feeling of it. Only experience brings a deep understanding, and therefore a better self-knowledge. Arousing sensitivity, curiosity and the creative impulse of the individual, while addressing the totality of his being, allows him to reveal himself through his authentic and spontaneous musical expression. Dalcroze has opened an extensive and inspiring way whose many developments are yet to be discovered and explored.

My warmest thanks to Mary Brice for the English translation.

For reading the article in French: http://fier.com/documents?filter=3

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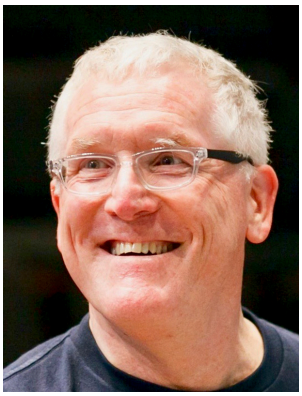
Expanding Our Bodies of Knowledge

William R. Bauer



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In recent decades neuroscientific research has sparked a revolution in cognitive science. Data emerging from this research are giving us more and more insight into specific ways the motor system influences how we hear and interpret sound. It is becoming increasingly clear that, as music students develop the physical skills necessary for performing music, they are also advancing their cognitive development. These and related conclusions suggest that research into the neurological basis for embodied music cognition holds special relevance for Dalcroze teachers. This discussion of recent neuroscientific research into such phenomena as perception-action coupling, common coding theory, and sensory-motor association sheds light on how Dalcroze teachers take advantage of these phenomena, often intuitively, to help students form robust internal models of their acoustical environment and their physical movements. These internal models serve as the basis for musical expression and communication. As we come to understand just how much our physical actions shape our perceptions of music and, by extension, our musical understanding—in other words, just how embodied our musical minds really are—it makes sense that music teachers' pedagogical methods should incorporate more improvisation; not just improvised music, but also improvised movement.

Neuroscience and Dalcroze Eurhythmics: transforming music education

Recent breakthroughs in neurobiology and cognitive science hold great value for Dalcroze teachers. Scientists in these and other fields, using technological tools developed just in the past several decades, have been gathering and analyzing previously inaccessible data in order to understand how the human central and peripheral nervous systems work. A dynamic, complex vision of human cognition is now emerging, revealing the critical role that embodied cognition plays in such highly skilled activities as athletic and musical performance.

It seems that with each new day, neuroscientific investigations are exposing more and more proof that the human motor system plays a key role in the way we hear and interpret sound. It is becoming increasingly clear that, as students develop the physical skills they need in order to perform music, they are also advancing their cognitive development. Going further, revealing just how much our actions shape our perceptions of music and, by extension, our musical understanding—in other words, in revealing just how embodied our musical minds really are—the research confirms a key intuition of Émile Jaques-Dalcroze (1865-1950): Incorporating improvised physical movement in students' musical studies literally and figuratively expands their bodies of knowledge.

Largely on the basis of his sound judgment and astute observation of human behavior, Jaques-Dalcroze anticipated several of the scientific theories now gaining recognition when he founded his innovative approach

to teaching and learning "in and by music" over a century ago. This approach, now called *la rythmique* or eurhythmics, challenged many educational conventions of his day. No doubt Jaques-Dalcroze would be disappointed to see that, in the training of young musicians and in the way music is taught in the conservatory today, those same conventions still exert a powerful influence; but I imagine him taking heart at the unfolding revolution in cognitive science that is rendering those conventions obsolete.

In many ways Jaques-Dalcroze was also boldly challenging a static, oversimplified vision of human cognition that has prevailed until recently, limited as it was by the kinds of data scientists could then gather about the brain in action and how it functions in relation to the rest of the body. As computers, fMRIs, and other instruments enable researchers to surpass these hurdles, the theories scientists are developing can now account for such dynamic, multidimensional human behavior as music making and music learning. The time has come for the conservatory to embrace Jaques-Dalcroze's pedagogical methods wholeheartedly.

These breakthroughs are clearly meaningful for all music educators; but how do they apply to teachers who use Jaques-Dalcroze's pedagogical methods? The literature does not make the answer to this question obvious, as scientists necessarily report on their discoveries using the language of specialists. I make no claims to expertise in these fields, and the literature has grown too quickly for me to keep up with it. Still, I do what I can to follow the latest developments. In this essay, I share some of my reflections on the news coming to us from our colleagues in neuroscience and cognitive psychology, in the hope that the information may shed light on the principles that inform the theory and practice of Dalcroze education.

Toward an ecological understanding of subjective experience

Twenty-five years ago I was thrilled to encounter the work of Antonio Damasio. His eloquent writing made then current neurological research relevant not only to cognitive scientists, but also to theorists and practitioners in many other fields—including ours. *Descartes' Error: Emotion, Reason, and the Human Brain* (Damasio, 1994) poses a viable alternative to the disembodied, computational model of human cognition that continues to exert a powerful influence on the way music is studied in the academy. Damasio's research substantiates the body's critical role in neuroplasticity (the brain's capacity to change). What's more, it reveals specific ways our emotions and motivations enable us to make sense of our lived experience and the world around us.

As he considers the factors that allow consciousness to emerge from our neural circuitry, Damasio finds the human mind manifested in the discrete neurochemical steps that unfold between stimulus and response, mediating between our sensory perceptions and our physical responses to them.

Initially, he locates the mind in our ability to "display images internally" and "order those images in a process called thought" (Damasio, 1994, p. 89). In his discussion of the greater neural complexity a physical action requires, however, Damasio hints at less obvious factors having to do with the intermediate processing that must take place between the stimulus neuron and the response neuron. He concludes that, just because an organism has a complicated neurobiological structure, it does not follow that it will experience conscious awareness.

Four years later, in *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (Damasio, 1999), Damasio enriches our picture further, presenting an ecological understanding of mind. According to this view, consciousness stems from the ways we interact with our environment, and how those interactions affect us. In coming to see the human mind not just in terms of a perceiving organism and/or a perceived object (a sound, for example), but rather in terms of *the relationship that develops between the two*, we begin to grasp how our conscious awareness may stem from the act of forming two interrelated impressions at once: *I am relating to this object before me here and now*, and *my encounter with this object is causing me to change.* (Damasio, 1999, p. 133). Here lie the seeds of a richer understanding of how students' musical perceptions may influence their learning; but I get ahead of myself.

This relationship comes into play in his discussion of subjectivity. Damasio goes beyond identifying subjectivity as a function of consciousness to assert that it also stems from the body's role in shaping experience. Urging the reader to think of what happens when we view a favorite landscape, he fleshes out this idea:

> As knowledge pertinent to the landscape is activated internally from dispositional representations in those various brain areas,[1] the rest of the body participates in the process (emphasis added). Sooner or later, the viscera are made to react to the images you are seeing, and to the images your memory is generating internally, relative to what you see. (Damasio, 1994, pp. 224-225).

The key point here is that, to interface with its environment as smoothly as possible, the organism must actively modify itself (Damasio, 1994, p. 225). In other words, to survive, we must learn and grow.

In the ensuing decades, neurobiological research has confirmed Damasio's ideas by providing more detail about perception and action, and, in particular, about the ways we couple these two functions to facilitate the environmental interfacing Damasio describes. Some of this research is

1 Such "dispositional representations," which consist of patterns of neurological activity that predispose the organism to react to stimuli in particular ways, figure in the formation of habits and automatisms.

driven by the quest to generate computer simulations of human behavior. But how does it apply to music and the ways we learn and teach it?

Shaping music perception: action, reaction, and interaction

I base what follows on an important essay entitled "Action-based effects on music perception," neuroscientists Pieter-Jan Maes, Marc Leman, Caroline Palmer, and Marcelo M. Wanderley, which gives us an excellent survey of recent developments in neuroscience and the relevance these developments hold for music cognition (Pieter-Jan Maes, Marc Leman, et al, 2014). The authors' account of embodied music cognition builds on complex dynamic systems theory, which has enabled researchers to transcend the limitations the reductive, static model placed on our theoretical understanding of sports and the performing arts.

Indeed, several features of music that once made it too complex to investigate with any subtlety—its expressiveness, the participants' subjectivity (encompassing their affective qualities, reflections, motivations, intentions, and metacognitions) and their interpersonal interactions—now make it an ideal area for exploring how embodied cognition works. Because Dalcroze teachers exploit these very features of music to enable their students to produce particular musical and physical results—specifically by increasing their capacity for coupling perception and action—the Dalcroze classroom gives researchers a ready-made laboratory for the study of embodied cognition in action. I imagine a neuroscientist would find it fascinating to see how quick reaction games leverage students' capacity for responsive listening to integrate their cognitive growth with their sensory-motor skill development.

Pieter-Jan Maes, Marc Leman, et al, 2014 concur with Damasio's ecological view of the mind: our bodies are central to our cognitive processing precisely because of the ways we integrate our perceptual and motor systems in our interactions with the world. And they stress the crucial roles action, perception, introspection, and social interaction play in the dynamic process of embodied music cognition. Going beyond Damasio's account of the neurological processes that enable us to perceive and act, they assert that these processes are so closely intertwined, they exert a mutual, reciprocal influence on each other.

Expanding on Damasio's definition of mind, which includes not only attention, but also intentions, moods, and feelings, etc. Maes, Leman, et al. (ibid.) supports a premise fundamental to Dalcroze education: Without using words, music notation, or other symbolic representations (i.e., the stuff of explicit, declarative memory), we can gain access to a listener's mind just through his or her body movements. The authors cite numerous studies that show specifically how a listener's movements can reflect his or her mood, or certain aspects of the music's melody, harmony, rhythm and timbre, as well

as movements the performer made while performing the music and "from which the music originated."

For our purposes it is significant that these features of musical behavior result from the subliminal processing of experience that takes place beneath the level of our conscious awareness. None of these conclusions will come as a surprise to Dalcroze teachers, who already recognize the critical role in music cognition played by our implicit, procedural memory (including muscle memory or motor representations, internal auditory and kinesthetic models, intuitions and feelings that lie beyond easy reach of words). The conventional model for teaching musical concepts (i.e. music theory) generally fails to account for this critical component of music learning because it is largely dependent on explicit, declarative memory (in other words, talking and reading about music, and doing written assignments).

Recent studies also show particular ways the human motor system and the actions it enables us to generate shape the musical mind. Specifically, the common coding theory and a related theory of internal models give us the theoretical framework for understanding the action-based effects on music perception the authors refer to in the article's title (Maes, Leman, et al., 2014). These theories postulate that, by recruiting both sensory *and* motor brain areas—a phenomenon known as "perception-action coupling"—we represent in our brains both "the planning or execution of an action *and* the perception of the (multi)sensory consequences of that action." To those of us who are involved in teaching and learning highly skilled sensory-motor activities such as sports and music making, the theories hold particular interest because they advance our understanding of kinesthesia—a mode of perception that enables us to sense our own bodily motion from within our own bodies—and the related mechanisms of proprioception.

To grasp the significance of these developments we need to consider them in light of neuroscientists' account of sensory perception. Neurologists refer to the pathways of the peripheral nervous system that transmit neural signals from sensory organs to the brain as "afferent." This description applies to all modes of exteroception, such as auditory perception (i.e., hearing). In contrast, they refer to neural pathways that carry signals outward from the brain to the muscles as "efferent" (whether or not we are consciously aware of them).

How do neuroscientists account for our ability to sense and control our own bodily movements? Through an interoceptive mechanism called "reafference." Unlike exteroceptions, which bring sensations we receive from the outside world to the brain, interoceptive pathways transmit the signals for sensations from within our own bodies (such as internal pain) to the brain. But there's more to proprioception than the sensory feedback that reafference gives us about our own actions; it also provides us with critical feed-forward representations that enable us to anticipate and predict the consequences of actions we're about to perform. Common coding theory

"provides a general framework for developing more detailed and testable explanatory models"; but, being still relatively new, the authors acknowledge that, in its present state of development the theory "is not readily falsifiable."

Reaching beyond the established perspective on embodied cognition, the newly emerging understanding described in Maes, Leman, et al. (2014) accounts for the vital role the human body plays in music cognition by focusing on forward modeling processes: "it is not [just] about how the body resonates with the music, but rather about *how predicted sensory outcomes of planned or performed actions can be projected onto the perceived music*" [my emphasis]. The "corporeal mirroring process" entailing "inverse modeling" that the authors describe accounts for listeners' tendency to ascribe intentions, inner feelings, etc. to music. In other contexts, I have used the term "surrogate kinesthesia" to refer to features of performed music that enable us to hear it evoke movement qualities and the emotions driving someone's evolving actions. Similarly, I use the term "surrogate prosody" to refer to musical features that enable us to hear qualities and emotions that inflect our speech with non-verbal qualities of vocal expression. Improvisers harness both surrogate prosody and surrogate kinesthesia to make their music speak directly to, and move their listeners.

A key mechanism underlying musicians' formation of internal models is a process the authors refer to as "sensory-motor association learning." Musical instrument training offers a special case of this mode of learning, which harnesses action-based effects on auditory perception. One of the central ways our actions influence our perceptions is through our ability to predict the auditory consequences of our actions, an ability that depends on sensory-motor associations we have built up over time. The ways performers anticipate, then listen and react to the sounds that result from their playing of a musical instrument serve as a special, but highly illustrative instance of this process. But so, too, do the ways our spontaneous movement responses in a Dalcroze lesson influence our auditory perceptions of the music. When we perform movements to enact a metric transformation of 6/8 rhythms, for example, converting them to 3/4 rhythms, the new movement qualities alter how we hear the same rhythmic values.

This factor also concerns the way Dalcroze teachers adjust their improvisations for movement. Such improvisations create an acoustic landscape for students to move through; so it is critical that we attune ourselves to the ways our touch produces subtle inflections of phrasing, articulation, and accentuation, which students in turn need to react to and reflect in their movements. "An action becomes automatically activated (or, primed) as a result of the mere perception of the auditory consequences normally associated with that action" (Maes, Leman, et al, 2014). Dalcroze students and teachers alike reap the benefits of such embodied cognitive priming when the lesson culminates in an activity that crystallizes the various component skills the students have been acquiring, as automatisms,

into a cohesive skill set, such as those that enable them to improvise with their voices or instrumentals.

A growing body of empirical evidence supports the idea that our auditory perceptions are influenced by "motor resonance", a phenomenon that stems from the ways reafferent feedback models link up with the predictions proprioceptive "feed-forward" models let us generate. For example, problems in the motor system can negatively affect auditory perception. When performing dissociations on the spot, Dalcroze students confront the conflicts created when the music they're hearing at any given moment does not confirm their expectations. In such instances, the "quick reaction" game forces them to constantly remap their motor resonances of the music's surrogate kinesthesia while managing multiple levels of motor activity in real time.

How do action and perception become integrated or "coupled"? Via the process Maes, Leman, et al., 2014 refers to as associative learning. "Through systematically repeated experiences, sensory events [such as sounds] are associated with particular motor acts and excitatory links between both are created, resulting in the development of 'internal models'." While inverse modeling automatically co-activates the corresponding motor representation, the mere planning or execution of the corresponding sensory representation is automatically co-activated via forward modeling. Both modeling processes can contribute to action-based effects on auditory perception. This analysis helps us to understand a key factor differentiating listening to music from learning to produce music with the voice or on an instrument. In the latter case, the practicing that goes into producing meaningful musical utterances alters the way we hear and understand the music we're singing or playing. Similarly, Dalcroze students intensify their listening comprehension of the music they are hearing when they learn how to pronounce and sing it with their whole bodies.

I find the language we now use to discuss the elusive phenomenon these authors call a "motor representation" unsatisfactory. The subjective character of kinesthetic sensations makes them impossible to represent to anyone but ourselves. Could this factor explain why dancers, athletes, and Dalcroze teachers can sound inarticulate when they talk about what they do? In an effort to get a handle on this essentially non-verbal phenomenon, others have wrestled with the limited verbal tools available to us using such words as "motor image," "muscle memory," or "body knowledge." But what are we to call it?[2]

Personally, I think we can get a better grasp of these sensations with the neologism *propriocept*. Using a single word to honor our proprioceptive experience gives the concept sufficient gravitas to hold it up to the privileged phenomenon we refer to with the name "concept." Whereas it

2 In English translations of Jaques-Dalcroze's writings we encounter the term "Motor apparatus" (see Jaques-Dalcroze, 1930, p. 364).

is possible to convey our understanding of a concept through its verbal or symbolic representation, it is much harder to articulate the significance of a *propriocept*, a unit of knowledge that most people know so deeply, they don't even know that they know it! Just as we "conceive" a unit of conscious awareness by thinking a thought, so too can we *proprioceive* a unit of proprioceptive sensation by willing an action. In Maes, Leman, et al. (2014) we learn that, even though a kinesthetic sensation lies just beyond the reach of words, this experience has as sound a neurological basis as any concept. The noun *propriocept* gives us a way to point to that ineffable "feeling of what happens" that Antonio Damasio has shed fresh light on and that we Dalcroze teachers strive to prompt in our students through our design of *audiosomatic* (music-movement or "sound body") environments.

Prescient observations and conclusions

When we consider Jaques-Dalcroze's own ideas about movement and music in light of the current neuroscientific research, we can see ways that he anticipated current developments in cognitive science. He writes that the goal of eurhythmics exercises is to effect a "permeation of the intellectual by the irrational" and "the unconscious by the conscious," and to "instill into the whole life more of naturalness and of abandon [while] at the same time strengthening clarity of vision and developing the will" (Jaques-Dalcroze, 1930, p. 364). Elsewhere he writes that the eurhythmics proceeds outwards "from within," adding that it exerts its influence on the whole body: "Its exercises arouse the muscular sensibility and regulate the relations between the two poles of our being, the physical and the intellectual" (Jaques-Dalcroze, 1930, p. 362). Later he writes that improvisation serves:

> To develop rapidity of decision and interpretation, effortless concentration, the immediate conception of plans, and to set up direct communication between the soul that feels, the brain that imagines and co-ordinates, and the fingers, arms and hands that interpret; and all this, thanks to the education of the nervous sensibility which unites into one organic whole all particular sensibilities—whether auditory, muscular, or constructive faculties—in time, energy, and space (Jaques-Dalcroze, 1932, p. 371).

In light of the dramatic impact that new technology for gathering previously inaccessible neurological data is having on cognitive science, we can look forward to further confirmation of the principles Jaques-Dalcroze intuited when he both conceived and *proprioceived* the practice that bears his name.

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Dalcroze and Disciplinarity

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How do Dalcroze Eurhythmics and Dalcroze studies relate, as practices and disciplines? This article reflects on the nature of inter- and transdisciplinarity in Dalcroze Eurhythmics and Dalcroze studies, using three examples of current and historical Dalcroze practice: (i) the participation of seniors in Dalcroze Eurhythmics; (ii) Dalcroze practice on BBC radio in the 1930s-60s; (iii) and the use of critical philosophy in Dalcroze studies. In discussing theory from interdisciplinary studies, it also examines the relationship between practices of pedagogy and research, and considers what can be gained through working between, or transcending, disciplinary boundaries. Personal reflections on my own journey as a music educator, music therapist and researcher allow me to explore the role of hybridity, improvisation and collaboration in inter- and transdisciplinary research. The article also outlines potential future directions for Dalcroze studies, as an evolving field of transdisciplinary practice.

I dwell in possibility…
Emily Dickinson[1]

Thresholds

Thresholds are places where we pass from one space to another, one time to another, even one reality to another. They signal change. This can be in acoustic, temperature, comfort, like when we leave our house and walk out into the cold and wind. We can cross the same threshold so many times in one day, we hardly notice it. Whereas another, such as walking into an amazing building for the first time, can make us stop and stare in wonder. They are places of opportunity. They offer the promise, perhaps sometimes elusive, that a new experience awaits us. In the art gallery, each new room is a new beginning.

Thresholds can represent struggle and achievement, such as crossing from student to graduate, or interviewee to employee. In such cases, there can be anxiety, even if we have been on that threshold before. It is never the same twice. They are liminal spaces, where – if one dwells – one is neither on one side or the other. They are therefore places of transition and becoming. They are the in-between. Thresholds are places of unknowing, of coming to know, perhaps – we could say – of knowledge in motion.

Finally, thresholds can be places of choice. Sometimes we are compelled to cross, when we leave the womb, or go to school for the first time. At others, we can decide whether we want to cross. We can decide how far we want to explore. And we can decide to cross back where we came from, or to stay. Choice, change, opportunity, struggle and achievement, liminality and unknowing, are what face us as educators and researchers, when we stand on the threshold of inter- and transdisciplinary practice.

1 Poem 657, in Johnson, T. E. (Ed.) (1975). *Emily Dickinson: The complete poems*. London: Faber and Faber, p.327.

Crossing thresholds is an everyday activity, a phenomenon with which we are all familiar. As someone who began his musical journey as a percussionist and a composer, I have found myself crossing many disciplinary thresholds. Such crossings have led me into the worlds of pedagogy, therapy and research. And where these overlap is perhaps where I feel most at home. It is also where I situate my current research focus: Dalcroze studies.

Before discussing Dalcroze studies, this article will consider aspects of Dalcroze Eurhythmics and some definitions of inter- and transdisciplinary practice. Using personal reflections and theory, I hope to promote reflection in our community about these topics, and I end with some thoughts on possible future directions for Dalcroze studies.

Dalcroze Eurhythmics and disciplinarity

Jaques-Dalcroze was himself aware of the interdisciplinarity of his method (Jaques-Dalcroze, 1906). He spoke of the five fingers of eurhythmics: "music, movement, the theatre, arts in education and therapy" (Tingey, 1973, p. 60). This interdisciplinarity derives from Jaques-Dalcroze's own background and breadth of interests. His early pedagogical experiments at the Geneva conservatoire connected his studies in theatre (diction, breathing, gesture), music (piano, composition, conducting and solfège) and "anatomy, physiology and psychology" (Odom, 1998, p. 594). Then, in 1910, the 'Big Bang' of Dalcroze Eurhythmics (Bachmann, 2015, p. 54) ushered in a short-lived, but extremely fertile, period of experimentation which interwove holistic pedagogy and the performing arts. This took place at Hellerau in Germany, a garden city at the centre of which was a specially designed school and theatre, where cross-arts collaborations resulted in new ways to imagine teaching, learning and performance. Several authors note the interdisciplinarity of Dalcroze Eurhythmics in this period, including its connections to modern art, theatre, dance and architecture (Huxley & Burt, 2014; Kuschnig & Pellois, 2015; Loach, 2018). Del Bianco (2017) notes the continued interdisciplinarity of Dalcroze practice, placing emphasis on its therapeutic and social potential (Del Bianco, 2015, p. 184). Therefore, we could say that interdisciplinarity is in the DNA of Dalcroze.

Inter- and transdisciplinarity (ITD)

According to Moran, interdisciplinarity is "any form of dialogue or interaction between two or more disciplines" (2010, p. 14). This makes it a very flexible and indeterminate term, and for Moran, this is where its value lies (2010, p. 14). This allows for "the level, type, purpose and effect of this interaction" (Moran, 2010, p. 14) to be examined in each individual case.

Darbellay (2015a, pp. 165-166) distinguishes between the multi-, inter- and transdisciplinary as follows:

- Multi-disciplinary; two or more individuals or teams work on a problem "in succession and isolation without any real interaction between them";
- Interdisciplinary: there is dynamic interaction between the parties, or within the individual scholar's work, which integrates different disciplinary viewpoints; here "the issues and problems treated [fall] 'between' (inter) existing disciplines"; for example, sociology and linguistics combine in the discipline of socio-linguistics;
- Transdisciplinary; this "process of knowing *trans*-cends disciplinary boundaries, and entails a major re-configuring of disciplinary divisions"; dialogue between scientific cultures can also be described as transdisciplinary, such as the integration of medicine and the arts.

In what follows I focus on the inter- and transdisciplinary, or ITD, exploring some examples of integration and dialogue between two or more disciplines within Dalcroze studies. I have chosen examples from three perspectives: current practice, historical practice and critical narratology.

Three examples

The first example is the participation of seniors in Dalcroze Eurhythmics and the work of researchers who study its effects. Since 2005, research at the university hospitals in Geneva has shown that long- and short-term participation in Dalcroze Eurhythmics for seniors can significantly improve gait variability, balance and reduce their likelihood of falling (Kressig, Allali & Beauchet, 2005; Trombetti et al., 2011). These gains in quality of life and health outcomes indicate Dalcroze Eurhythmics as a means to promote healthy ageing, making this one of the major developments in contemporary Dalcroze practice. As an interdisciplinary dialogue between Dalcroze specialists, scientists and older adults, it is an example of figuring out "how to relate disciplinary expertise to the needs of the community" (Frodeman, 2017, p. 7). Dalcroze practitioners, such as Ruth Gianadda, use their expertise for the wellbeing of others. Researchers, such as Reto Kressig, use their expertise to help society at large understand the outcomes of the work. According to Darbellay, ITD research also represents "a certain rupture within disciplinary routines" (Darbellay, 2015a, p. 167). In the case of Dalcroze for seniors, one can understand the rupture as a new direction in practice and a new form of collaboration.

An earlier example of a rupture within the disciplinary routines of Dalcroze Eurhythmics was Ann Driver's decision to broadcast Dalcroze lessons on BBC radio in the 1930s-60s. The 'Music and Movement' radio programmes gave thousands of school-children access to Dalcroze pedagogy. Driver had been a pupil of Jaques-Dalcroze and was one of the most important Dalcroze teachers in England at that time. Yet, her radio programmes caused

controversy, drawing Jaques-Dalcroze himself into the debate (Odom & Pope, 2013; Pope, 2007). This centred on the fact that Driver could not see the children; she recorded herself in the studio and her lessons were broadcast later. Furthermore, the connection between the children and Driver was not the improvised interaction of a live setting. Nevertheless, as they followed the music, the children were called on to use their imagination, spatial awareness and a wide movement repertoire. The project integrated music education, physical education and radio technology. It certainly transcended a disciplinary threshold, if not transgressed it. In developing the possibilities of distance learning, it has a modern echo in current online learning guided by Dalcroze practitioners (Habron-James, 2017).

My third example is the work of Marja-Leena Juntunen and Heidi Westerlund, who use critical narratology to examine Dalcroze Eurhythmics, one of the Grand Methods of 20th-century music education (Westerlund & Juntunen, 2011; Juntunen & Westerlund, 2011). They show how stories of music education motivate practice and theory. In other words, the ways we describe how we teach and how students learn can reinforce our assumptions about what is 'ideal' in education. With a view to developing reflective music educators, they argue that "By analysing the stories that research brings forth and by colliding different stories with each other, it may be possible… to develop such critical mindsets in student-teachers" (Westerlund & Juntunen, 2011, no page). Identifying such 'storied perspectives' or 'metanarratives' within Dalcroze practice and theory could be another example of a rupture within a disciplinary routine. In terms of interdisciplinarity, here we have a dialogue between Dalcroze practice and critical philosophy.

With these three examples, we can therefore consider ruptures within the disciplinary routines of those who teach, practice, theorise and research Dalcroze Eurhythmics. In our context, 'interdisciplinary practice' refers both to the practices of Dalcroze teachers and to research practices in Dalcroze studies. As such, the distinction between practitioners and researchers becomes problematic. What is research, if not another practice? Interviewing, archival work and data analysis are just three examples of the practical skills of research, which include elements of art, science and craft. These skills can be taught and learnt, and developed through critical reflection, experimentation and innovation. In discussing 'research into Dalcroze practice', we can bear in mind that researchers are also practitioners. This is supported by the 'practice turn' in political science, in which practice is considered as the smallest unit of analysis (Bueger, 2014, p. 383). Everything we do is ultimately a practice of some kind.

Personal reflection 1

I did not set out to become a researcher, though exploration and discovery have always excited me. I knew nothing of Dalcroze Eurhythmics until I

was almost 30 years old, though I loved rhythm, singing and moving to music from an early age. Thus, the last decade has been something of an adventure and, with hindsight, seems like an outgrowth of existing potential. During this time, I have been a student of Eurhythmics, have trained and practiced as a music therapist and have become a researcher, supervisor and research leader. My first qualitative research project was called Moving into Composition. It investigated the experiences of student composers who took a series of Dalcroze Eurhythmics classes and composed music in response to their learning. I undertook this with my wife (Bethan Habron-James), a Dalcroze practitioner and teacher trainer. The Moving into Composition report appeared in 2012 (Habron, Jesusthasan & Bourne, 2012).

In the same year, I became aware that 2013 would be the centenary of the founding of the London School of Dalcroze Eurhythmics. To celebrate this, and to bring together other researchers working in similar areas, I formed a conference committee with a group of international colleagues. Looking back, I was still rather at the edges of the Dalcroze community, yet through my time as a student, my marriage and my first research project, I began to engage in a wider network, an example of legitimate peripheral participation (Lave & Wenger, 1991). The first conference took place at *Coventry University*, UK, in 2013. It was not only a risk for me, but also a step into the unknown for the whole committee. Yet it attracted more than 130 delegates. The International Conference of Dalcroze Studies subsequently became known as ICDS and travelled to Austria and Canada. It is now in its fourth iteration (it takes place in Katowice, Poland in 2019).[2]

Dalcroze studies

The notion of 'Dalcroze studies' raises the question of disciplinary names. This label was chosen to demarcate an open field, focused on Dalcroze Eurhythmics, yet connected to many others. ICDS literature often uses the phrase 'Dalcroze and related fields'. To take a counter-example, it would not have worked to call it the 'International Conference of Dalcroze Education', as not all work in the field of rhythmics/eurhythmics is education focussed; some is artistic, some is therapeutic or community based. In other words, the absence of a disciplinary qualifier is intentional.

Nor did we consider 'International Conference of Jaques-Dalcroze Studies' (as one might, if inspired by 'Shakespeare studies', or 'Jane Austen studies'); the history, practice, theory and philosophy of Dalcroze Eurhythmics and related practices has far more potential than a focus on an individual would allow. Rather, we intended to name a "thematic field of interdisciplinary studies that… cuts across several disciplines or sub-disciplines" (Darbellay 2015b, p. 204). The suffix 'studies' allows us to do this, as it does for cultural

2 www.dalcroze-studies.com

studies, gender studies, migration studies and visual studies, to name a few similar examples.

The first call for proposals, for the 2013 conference, stated that the conference "seeks to promote interdisciplinary dialogue between researchers into Dalcroze Eurhythmics and those from a wide field of related disciplines and practices... We also welcome related presentations on music, movement and the body from a range of disciplines and perspectives" (Habron et al., 2018, p. 30). This, along with the inclusion of keynote speakers from the fields of music neuroscience (Katie Overy), phenomenology (Maxine Sheets-Johnstone) and Dalcroze practice – both historical and pedagogical perspectives (Louise Mathieu, Selma Odom and Joan Pope) – clearly signalled an ITD ethos from the outset. We could argue that the conference organisers made an "explicit claim to adopting an interdisciplinary approach without presenting a single pre-established disciplinary identity" (Darbellay 2015b, p. 204).

The second conference welcomed "presentations on music, movement and the body from a broad range of disciplines (and all their sub-disciplines)" (Habron et al., 2018, p. 31). The third and fourth calls confidently declare that "ICDS is a global, transdisciplinary forum" (Habron et al., 2018, pp. 31-32), which is "open to viewpoints from education, the arts and humanities, and the social, natural, health and life sciences" (ICDS, 2018b). Therefore, we see that we need the language of disciplinarity to talk about inter- and transdisciplinarity.

The need for disciplines

If inter- and transdisciplinary research questions disciplinary boundaries, it can only do so if there are disciplines to question. This is the central paradox: "the very idea of interdisciplinarity can only be understood in a disciplinary context" (Moran, 2010, p. ix). Therefore, disciplines are vital. "The inter- and transdisciplinary style… works on the boundaries of the disciplinary norm while constantly reconfiguring it… it is both continuity and transformation (Darbellay, 2015a, pp. 172-173). Yet, some people cling to the idea that a discipline has solid roots or a pure form. They resist ITD, or see it as 'dilution'. Rather, for me at least, ITD work feels similar to an improvisational process. Whilst improvising, we respond to change and possibility, moving within different flows, being spontaneous and communicating with others. In research terms, we sometimes talk about 'playing with' or 'riffing on' ideas. We can be playful and creative with our disciplines too. ITD is ultimately a social and improvisational activity.

Personal reflection 2

Darbellay writes that although researchers are "distancing themselves from the security of the discipline", the majority still identify with a "home" discipline (Darbellay, 2015b, p. 202). This prompted me to ask: what is

my home discipline? What information can I use to answer this question? I would like to share some thoughts on this, in case it might help others to reflect on their relationship with the discipline(s) in which they work.

As defined by training, I am a musician, composer and music therapist, so my home disciplines would seem to be at least two: music and music therapy. As defined by current professional activity, my disciplines are pedagogy, research, management and leadership. As defined broadly by the types of research I do and the methods I use, I work with models from healthcare (music therapy), social science (music education, music psychology) and the humanities (history, musicology). As defined by the vocabularies and concepts I use, I could enumerate several other disciplines.

Another way to consider disciplinarity would be to look at one's publications. I have published articles on Dalcroze Eurhythmics in journals of music therapy, music education, music psychology and dance (Habron 2016; Greenhead & Habron, 2015; Habron & Van der Merwe, 2017; Van der Merwe & Habron, 2018). Two articles have appeared in journals that explicitly promote ITD research: *TD: The journal for transdisciplinary research in Southern Africa* (Habron, 2014) and *Approaches: An interdisciplinary journal of music therapy* (Habron, 2016).

Finally, collaborations may also hold a clue. I have undertaken research with occupational therapists, health psychologists, Dalcroze practitioners and other music education researchers, who specialise in qualitative and historical research. Therefore, once one begins to reflect on one's "home" discipline, complexity can emerge, leaving one to wonder if one has a home at all. I have a hybrid identity and seem to be a researcher who allows "their thematic focus of interest to direct their research, teaching and publication activities" (Darbellay, 2015b, p. 204), rather than a single academic discipline.

If we can derive evidence of transdisciplinarity from symbolic (qualifications, publications), social (collaborations) and intellectual (research interests, vocabularies and concepts) perspectives, then one more might be the psychological. As someone attracted to collaboration and communicating with others in different fields, I identify with Darbellay when he writes: "the inter- and transdisciplinary researcher is not a lawless hoodlum but the scientific citizen of the world who is moved by the values of information-sharing, passion, pleasure and the circulation of knowledge outside of the logics of hierarchical power" (Darbellay, 2015a, p. 173). This certainly resonates with my personal motivation for promoting the International Conference of Dalcroze Studies to a wide variety of others.

Whilst it is nice to think of oneself as a "scientific citizen of the world", being a disciplinary edge-walker can feel otherwise. Thresholds can be strange places, where one sometimes feels unsure of oneself or misunderstood by others. For example, studying spiritual experience in Dalcroze Eurhythmics, as I have done over the last five years (Habron & Van der Merwe, 2017; Van der Merwe & Habron, 2018; Habron & Van der Merwe, in review; Van der

Merwe & Habron, in review), may show "creative marginality" (Darbellay, 2015a, p. 172), but critical reaction to this work has sometimes placed me at the edge of what others in the discipline of Dalcroze studies seem to feel is acceptable. This is the risk one takes in doing ITD research.

Possible future directions for Dalcroze studies

Dalcroze studies is an evolving transdisciplinary field that includes the practices of pedagogy, therapy, performance and research itself. Related disciplines, such as music technology (Nijs, 2018), music psychology (Seitz, 2005), health musicking (Navarro Wagner, 2016), music therapy (Habron, 2014) and neurologic music therapy (Altenmüller & Scholz, 2016) have recently been connected to Dalcroze Eurhythmics, often by researchers not writing from the perspective of a Dalcroze practitioner. These few examples alone provide many tools and perspectives for us to understand how phenomena such as entrainment, metaphor, embodied music interaction and non-verbal communication operate in Dalcroze practice. They also leave open the possibility of integrating tools from other disciplines, such as anthropology, ethnomusicology, sociology and the digital humanities, and even generating an interdisciplinary theoretical framework for Dalcroze Studies.

In terms of research topics, previously unexplored aspects of human experience are being investigated. These include multiculturalism (Shin & Mathieu, 2017), communities of practice (Pretorius, 2018), online learning (Habron-James, 2017) and spirituality (Van der Merwe & Habron, 2018). These are all healthy signs for the interdisciplinary future of Dalcroze studies. But what potential remains? I would like to consider briefly some future directions for Dalcroze studies from the perspective of methodology.

Empirical research in Dalcroze studies has used many strategies, including randomized controlled trial (Trombetti et al., 2011), narrative enquiry (Juntunen, 2002; Habron & Van der Merwe, in review), phenomenology (Van der Merwe, 2015), interpretative phenomenological analysis (Van der Merwe & Habron, 2018), case study (Habron-James, 2013; Pretorius, 2018) and document analysis (Habron & Van der Merwe, 2017). There are many examples of historical research to choose from, such as Kuschnig and Pellois (2015), Odom and Pope (2013) and Nash (2011). The same could be said of philosophical studies (Juntunen & Hyvönen, 2004; Juntunen & Westerlund, 2001, 2011; Westerlund & Juntunen, 2011). Finally, some methodological tools, such as ethnography and autoethnography, are currently being applied for the first time.[3] However, to my knowledge, other modes of enquiry, such as action research, arts-based educational research (ABER) and practice-as-

3 This refers to: (i) a project being undertaken at North-West University, South Africa (Dalcroze-inspired activities at a care facility for older adults: An ethnography) by Liesl van der Merwe, Janelize van der Merwe and Catrien Wentink; and (ii) the ongoing autoethnographic doctoral research of Diane Daly (Ireland) and Bethan Habron-James (UK).

research, remain untapped. The latter would consider Dalcroze practice itself as a form of research and this could open up many new avenues of investigation.

The topics available to researchers in Dalcroze studies are limitless. Yet it is also possible to replicate existing studies and to develop current topics. For example, the success of the seniors work in Geneva, as disseminated via researchers, the *Institut Jaques-Dalcroze* and the media, has helped to spread this application of Dalcroze practice internationally. Researchers in the countries concerned have responded by investigating this work and developing its status as evidence-based practice (Treviño & Bermudez, 2016; Ferguson-Stegall et al., 2017). As social prescribing (referring patients to non-clinical interventions in the community) becomes ever more widely practiced (Bickerdike et al., 2017) and life expectancy increases (WHO, 2018), there will be more opportunities for work with seniors. This is perhaps a gift for Dalcroze and related eurhythmics practices, given they are social activities that bring tangible wellbeing outcomes.

Coda

As Darbellay writes, "the threshold of disciplinarity should be developed; however, it should be simultaneously reflected on and exceeded" (Darbellay, 2015b, p. 203). This is both the opportunity and challenge of ITD research. Thresholds are made to define boundaries, but they are also made for crossing. They are made for movement. As I hope to have shown, the edges of disciplines or thought styles are liminal places, marked not only by complexity and unknowing, but also by opportunity and curiosity. We can dwell on these edges and in the in-between. We can dwell in possibility.

Note

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Eurhythmics and the Brain. A Neuroscientific Perspective

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Statements about educational/developmental effects and benefits of eurhythmics are mostly derived from Jacques-Dalcroze's seminal ideas and associated principles and/or are based on heuristic considerations. The present paper explores eurhythmics from a neuroscientific perspective and suggests hence a complementary theoretical framework. Focusing on music and body movement, this involves particularly (i) neuroplasticity as an underlying mechanism of learning and personal growth, (ii) the Default Mode Network (DFM) as a neural basis of creativity and self-reference, (iii) epigenetics as (the study of) modalities to influence gene-expression by cultural activities, (iv) the reward system as a eurhythmics-sensitive structure that generates pleasure and positive emotional traits, (v) neuroaesthetics as a scientific way to explore the experience of beauty, and (vi) quantum consciousness as the most profound fusion of music and mind. Taking these aspects into account, the article points out that they only serve as an epistemological means to better understand central-nervous processes of eurythmics, but and does not jeopardize the pole position of artistic activities that form the intangible core of this school of thought.

It is common knowledge that Émile Jacques-Dalcroze had the strong impression his pupils would need kinaesthetic and body-related experience to disclose the miraculous nature of music. This discovery was the source of his seminal work that spread all over the world and greatly contributed to the development of creativity, body-awareness, and inner balance.

What is subsumed under the umbrella term 'eurhythmics' proved to be of high advantage for individuals—of course, not only children—and a wealth of experiences witness how this way of artistic experience and personal empowerment is in harmony with human nature and the principles of the organic evolution of culture.

Eurhythmics convinces through practice. However, the more it gets involved in domains of developmental psychology, public health, and preventative medicine, the more scientific approaches are called into play. According to today's standards, these comprise evidence based medicine, research on neuroscientific and genetic backgrounds—i.e., the so called underlying mechanisms—and studies on health-associated socio-cultural networks.

There are plausible arguments that eurhythmics are about to open up new areas that require interdisciplinary approaches. In a nutshell: Figuring in new fields needs to know the ropes. In this context, the present article tries to shed light on central nervous processes and principles that are linked to eurhythmics.

Neuroplasticity

How can we learn? How can we grow? How can we acquire cultural techniques? How can we become unique individuals? From a neuroscientific perspective, these processes go hand in hand with what is called

'neuroplasticity' (Costandi, 2016), i.e. the brain's ability to learn and to re-organise itself by forming neural connections—the synapses—and thus to build highly individualised neural networks—the 'hardware' of our selves.

Brain plasticity—which is an alternative term for neuroplasticity—can be seen as a giftedness that makes a difference between the human mind and the intelligence of machines. Owing to still undiscovered, mystical principles, the evolution seems to have used specific DNA-codes as a carrier of vital information for neuroplasticity (McClung & Nestler, 2008). Genetics, brain plasticity, and the biological evolution of mankind are closely interrelated and point out that culture is not just an appendix or an add-on phenomenon of the 'homo sapiens', but an inseparable feature of our inner nature (Wexler, 2011).

In this context and with high relevance to the theory of eurhythmics, brain research revealed a close connection between music, movement, and brain plasticity. Herholz and Zatorre (2012) from McGill University, Montreal, reviewed EEG- and fMRI-studies on brain plasticity induced through musical training. Results are compatible with Groussard et al. (2014) who highlighted the power of music to increase structural brain changes, hence 'brain maturation'. In this regard, Jäncke (2009) cuts to the chase: "Music drives brain plasticity".

Moreover, Schlaug (2015) from Harvard Medical School highlights music and motor actions as a joint booster of brain plasticity. Accordingly, several studies emphasise brain plasticity promoting effects of dance (Karpati et al., 2015) and stress the benefits of physical exercise for neuroplasticity and cognition (Hötting & Röder, 2013).

These studies provide convincing arguments recommending eurhythmics as powerful way to support brain maturation, personal growth, and learning abilities. In this context, researchers also shed light on the interplay between improvisation, creativity, and brain plasticity (Duffau, 2014; Beaty, 2015). Additionally, they consider music making a vital tool for promoting brain plasticity across the life span (Wan & Schlaug) and provide—although unintendedly—health-related arguments for generation-spanning eurhythmics.

Default mode network

Creativity is a main feature of human beings and a necessary prerequisite for socio-cultural dynamics and progress (c.f., Pope, 2005). Moreover, creativity has always played a crucial role for eurhythmics (Hall, 1925). From a neuro-sciencific perspective, creativity has to be classified as one of the most complex human qualities and cannot be assigned to a singular brain area such as, e.g., the primary generation of a visual image, i.e. the transformation of neural information into a sensory representation in the primary visual cortex of the occipital lobe.

Broadly speaking, the phenomenon of creativity is based on complex, dynamic interactivities of various brain regions that form the so called

default (mode) network (Beaty et al., 2014), shortly DMN. This comprises units such as the posterior cingulate cortex, the precuneus, the medial prefrontal cortex, the angular gyrus, and the hippocampus (Ramirez, 2015) and is closely inter-related with self-reference, self-relevant imaginations, and emotion-processing, and modulates the interplay between creative processes and executive functions (Heinonen et al., 2016).

With high relevance to eurhythmics, a study from the University of New Mexico (Bashwiner et al., 2016) showed "that musically creative people ... have greater cortical surface area or volume in a) regions associated with domain-specific higher-cognitive motor activity and sound processing ..., b) domain-general creative-ideation regions associated with the default mode network ... and c) emotion-related regions ... These findings suggest that domain-specific musical expertise, default mode cognitive processing style, and intensity of emotional experience might all coordinate to motivate and facilitate the drive to create music".

In a nutshell: the default mode network is a neural system that greatly modulates our selves, can be regarded as a form of inner intelligence, vision, and creativity, and is obviously highly music-sensitive. While Western school systems strongly focus on cognitive tasks and the acquisition of pre-designed algorithmic thinking, activities such as in eurhythmics can provide an adequate counterbalance to facilitate a holistic individual development that matches the human nature.

Evolutionary creativity

Evolution is creative. Of course, this may be considered just a well-sounding slogan without any scientific significance. Nonetheless, what higher ideas have led to the phenomenon that we can experience joy or find the sound of a harp beautiful? Certainly, we can talk about random variation and selection—but how got the criteria for selection determined? On the one hand such questions involve religions and myths, on the other, however, they inspire ideas of the evolution as a creative player 'who' invented things such as the DNA and the beautifully coloured fish in the deep see that never can delight a spectator's eyes as there is no light in such depths. Creativity seems to be a leading principle of evolution and not just an ornament of leisure time hobbies.

Closely related to such thoughts, we have to realise that without creativity human culture would have been impossible. Moreover, studies on the evolution of mankind criticise that "creativity has remained largely unexplored as the dynamic underpinning of cultural evolution" and propose "a dynamic theory of creativity into models of cultural evolution" (Fogarty et al., 2015). Taking into consideration that human beings are equipped with a creative disposition that needs appropriate support to blossom and bloom calls scientifically based criticism of educational systems into play. As

discussed above, algorithmic tasks and repetition of pre-defined cognitive patterns rather will inhibit creativity that needs environments that give way to the discovery of body-movements, vocal expressions, symbols, and beauty.

Vice versa, the human biological system is not only the material basis for creativity but also modulated by creative acts. In other words: culture shapes the human genome (Laland et al., 2010). In this context a Finish study (Portin, 2015) speaks of the still continuing co-evolution of genes and culture. Such findings let us assume a circular process of mutual imprints: a creative interplay of culture and genes. On that basis, eurhythmics has to be regarded as a means to modulate the interdependency between biological and cultural evolution. This leads us to further issues of creativity and epigenetics.

Epigenetics, music, and movement

The DNA determines our somatic disposition to hear, to invent, to enjoy, to empathetically understand others—simply, the total our personality, life-styles, and cultural living space. And yet, this is not a one-way principle. As mentioned above, also culture has an impact on the human genome. Both DNA and culture are not invariant entities but rather subject to dynamic changes and alterations, through dissimilar modes though.

This phenomenon greatly involves what is called 'epigenetics'—simply speaking, inheritable changes in gene function that do not involve DNA-modifications. Biochemically, epigenetics have much to do with DNA methylation and histone modification, states, that determine the gene expression, i.e., the mechanisms that allow genes to form certain phenomena. As the term 'epigenetics' covers a wide range of genetically relevant topics, distinct definitions gain momentum (Deans & Maggert, 2015):

> It has become clear, however, that different investigators ascribe different definitions to the term. Some employ epigenetics to explain changes in gene expression, others use it to refer to transgenerational effects and/or inherited expression states.

Studies on epigenetics suggest a brisk interplay between music and epigenetic mechanisms such as (Brigati, 2012) "how communication and emotion, prime hallmarks of music, can be linked to transmissible, biochemical change". Surprisingly, this Italian study involves three core topics of Eurythmics: music, communication, and emotion. In this context, particularly recent trends in Chinese eurhythmics emphasised the vital importance of interactivity—in Chinese language—hu dong—and criticised Eastern Asian practices of Orff-education that replace inner worlds and creativity by imitation and drill.

Epigenetic structures were even used to generate musical patterns, namely (Brocks, 2015)

> a method that transforms methylation patterns into music. The resulting musical pieces show decent complexity and allow the audible recognition between music and underlying methylation state. This approach might therefore facilitate the recognition of complex methylation patterns and increase awareness for epigenetic regulation in the general public.

Whereas creative body expression and dance are obviously underrepresented in the field of epigenetic research, particularly health-oriented physical exercise seems to have become a topic of interest in epigenetic circles (Denham et al., 2014):

> The emerging field of exercise epigenomics is expected to prosper and additional studies may elucidate the clinical relevance of miRNAs [micro Ribonucleic acids] and epigenetic modifications, and delineate mechanisms by which exercise confers a healthier phenotype and improves performance.

Synthesising translational epigenetic findings yields a promising framework for epigenetics and eurhythmics, a novel, sense-making perspective in anthropologically and biochemically oriented cultural pedagogy.

Pleasure & reward system

The World of Hinduism calls it 'Diwali'—the festival of lights that stands for the triumph of light over darkness and good over evil. By contrast, 'our' world is overshadowed by inner darkness and a loss of happiness. Kerri Smith (2014) states that "depression is a major human blight" and international health-statistics indicate an average prevalence of about 5%, Switzerland, e.g., ranking at 6,16%. Physiologically, being in low spirits, negative emotions, and depressive states have closely to do with low levels of serotonin and hyperactivities of the Amygdala, those almond-shaped kernels in the temporal lobes that greatly modulate emotions.

In stark contrast to these functions, there is a complex structure in the brain that generates pleasure, good mood, and positive emotions. Moreover, it is closely associated with operant reinforcement and incentive salience, hence its importance to learning and the acquisition of cultural techniques. This so called 'reward system' comprises several functional units such as—probably most characteristically—the nucleus accumbens and the ventral tegmental area. In general, the reward system is considered a dopaminergic complex that also involves other neurotransmitters such as GABA.

Neuroimaging studies showed that pleasure we derive from music is closely interrelated with activities of the reward system. Based on comparative literature studies, Zatorre (2015, p. 202) pointed out that specifically "the dorsal and

ventral striatum release dopamine when listening to pleasurable music, and activity in these structures also codes the reward value of musical experts."

Congruent with the standpoint of the author of this article, various studies consider (Mavridis, 2015) "the nucleus accumbens ... the most important pleasure centre of the brain" and—in a literally poetic style—call it the 'king of neurosciences' and dopamine its 'crown'. With distinct relevance to eurhythmics, that study concludes that "music stimuli can significantly increase extracellular DA [dopamine] levels in the NA [nucleus accumbens]."

Traditionally, eurhythmics focus on an inner, artistic, aspect, and an outer one that concerns the promotion of personal growth and learning abilities. In this context, findings of a Spanish study (Ferreri & Rodriguez-Fornells, 2017) "shed new light on the relationship between music, reward and memory, showing ... that music-driven reward responses are directly implicated in higher cognitive functions and can account for ... differences in memory performance".

From a neuropsychological perspective, there are good arguments that eurhythmics not only creates good mood on the spot, but contributes to a positive emotional trait and a welcoming attitude that can serve—as a certain add-on value—as a viable means to prevent depressive and negative emotional states.

Neuroaesthetics

There have always been two miraculous areas that seemed untouchable by neurosciences: creativity and aesthetics. Both are so closely intertwined with the essence of human being, and both have so much to do with the scientifically intangible arts that a realistic and sense-making approach seemed to be beyond reach. Neuroscientific aspects have been touched upon above. Applying neuroscientific methods to explore aesthetics eventually resulted in the novel discipline of neuroaesthetics (Chatterjee & Vartanian, 2014):

> Neuroaesthetics is an emerging discipline within cognitive neuroscience that is concerned with understanding the biological basis of aesthetic experiences ... aesthetic experiences emerge from interaction between sensory-motor, emotion-valuation, and meaning-knowledge neural systems. Neuroaesthetics draws from and informs traditional areas of cognitive neuroscience including perception, emotion, semantics, attention, and decision-making.

Referring to topics such as the default mode network, research focused on the interrelation between creativity and music-associated processes. Neuroaesthetics, however, seems to rather feel attracted by the visual arts (Kranjec, 2015; Marin, 2015) and literature, particularly prose fiction (Burke, 2015).

Concerning music, Brattico and Pearce (2013) studied neural mechanisms and structures involved in perceptual, affective, and cognitive processes that "generate the three principal aesthetic responses: emotions, judgement, and preference". Highlighting that "much is known about the frontotemporal brain mechanisms underlying perceptual and cognitive musical processes, and about the limbic and paralimbic networks responsible for musical affect", the authors qualified that "there is a great deal of work to be done in understanding the neural chronometry and structures determining aesthetic responses to music." This opinion applies analogously to neurophysiological issues of eurhythmics.

With relevance to eurhythmics, Calvo-Merino et al. (2008) stressed brain functions, namely bilateral activity in the occipital cortices and in the right premotor cortex, that can elucidate the anthropological significance of dance: "This sensorimotor response may explain why dance is widely appreciated in so many cultures." This study provides first aspects, albeit it concerns the perception of dance and not the self-active movement itself.

Concerning active rhythmic motor-performance and using Positron Emission Tomography, Brown et al. (2006, p. 1157) reported, e.g., that

> movement to regular, metric rhythm, compared to an irregular rhythm, implicated he right putamen in the voluntary of metric motion. Spatial navigation of leg movement during dance, when controlling the muscle contraction, activated the medial superior parietal lobule, reflecting proprioceptive and somatosensory contributions to spatial cognition in dance.

Obviously, these elements also occur in eurhythmics. Further studies that explicitly referred to the neuroaesthetics of dance spoke of activation within a broad network of mirror system regions and the involvement of striatal and cerebellar components, particularly when more complex rhythmic sequences were performed. Nevertheless, due to the fact that gaining neurophysiological data about perception is easier than investigating brain activities during body movement, most studies focus on the sensory side of the coin (c.f., Cross & Ticini, 2012).

On the one hand future neurophysiological and neuroaesthetic investigations on eurythmics in vivo are most likely to provide new insights into associated mechanisms and benefits. On the other hand we have to be aware that these approaches only yield data about correlated central-nervous activities and underlying mechanisms, but do not at all replace the essence and the aesthetic nature of the educational and artistic practice in eurhythmics.

Quantum consciousness

Particularly neurosciences and neuropsychology consider consciousness a phenomenon emerging from central nervous processes, hence the proposition that the brain serves as hardware of our consciousness. Nonetheless, since the famous discussion between Karl Popper and John Eccles about the transition from matter to mind, this 'interface' has posed myriads of questions and is—particularly to sciences related to—a tough nut to crack.

As literally all attempts to discover a direct transformation from matter to mind failed, ideas came up whether scientists had posed the right question and if solutions had rather to be found below biological strata. Today, such considerations go hand in hand with quantum consciousness. Reviewing the relevant literature, Baars and Edelman (2012, p. 285) explained:

> Penrose and Hameroff have proposed that consciousness may be viewed as a fundamental problem in quantum physics. Specifically their 'orchestred objective reduction' (Orch-OR) hypothesis posits that conscious states arise from quantum computations in the microtubules of neuron … Current quantum-level proposals do not explain the prominent empirical features of consciousness. Notably, they do not distinguish between closely matched conscious and unconscious brain events, as cognitive-biological theories must.

These approaches implicitly criticise the dominant role of the allegedly rational cognition in educational systems and indicate that—from a 'quantum psychological' perspective—the human mind is much more than the ability to apply acquired algorithms, know facts, and form logic arguments. Broadly speaking: the theory of quantum consciousness seems to coincide with principles of eurhythmics, highlighting that the consciousness of aesthetic senses and artistic creativity can be regarded as a vital principle of the human nature.

In a certain proximity to these theories, Mastnak (2013) speaks of subatomic consciousness and suggests a theoretical framework that focuses on qualitative transitions between clear-cut strata, namely the systemic (organism), the biological (e.g., mitochondria), the molecular (e.g. histones), the atomic, and the quantum level. Criticising that sciences widely ignore the qualitative changes between these levels he suggests an 'inspired quantum field' being the most profound entity that is omnipresent and neither matter nor mind.

Similarities between these assumptions and medical theories from other cultures such as the Chinese Qi 气 could inspire new approaches towards the human phenomenon. Moreover, in this ultimate sphere the essence of mind, body, and sound seem to merge. Such views, that greatly support the human value of eurhythmics, greatly require interdisciplinary approaches comprising cultural anthropology, bio-medicine, physics, philosophy, aesthetics, and

the arts. This emphatically calls for robust and interdisciplinary theories of eurhythmics.

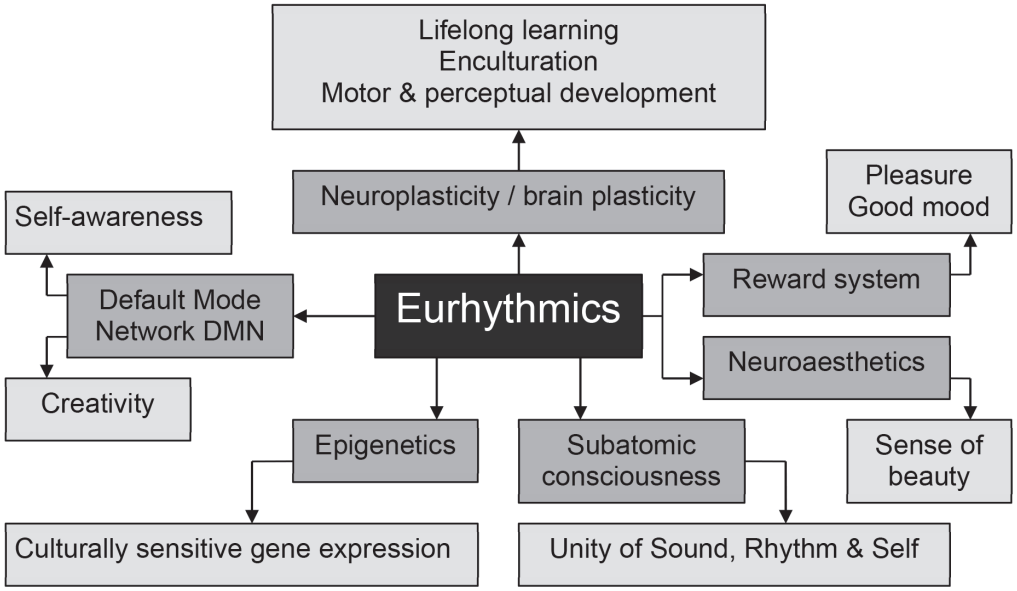
Discussion

There are still no realistic means to directly measure central-nervous effects of eurhythmics and thus to provide an immediate verification of the neural and neuropsychological benefits referred to. But there are—also comparable to recent ways in medical research—promising possibilities of meta-syntheses that are designed to yield novel theoretical frameworks. In plain English: there are enough robust singular studies upon music, movement, individual growth, and neural processes to construct a plausible theory of what is going on in the brain while performing eurhythmics. The present article can be seen as an attempt in this direction.

At the same time we have to be cautious to avoid the common mistake of overestimating natural sciences. For instance, merely biologically oriented psychiatry tended to replace the actual person with a physiological model of his/her disease, a mode with highly devastating and personality-destructive consequences for the individual. The proposed framework is not more than a means to elucidate physiological processes that can be understood as a neural counterpart of artistic activities in eurhythmics.

These views strongly encourage interdisciplinary approaches that comprise domains such as neurosciences, psychology, cultural anthropology, ethnology, and aesthetics. The essence is the actual creative and aesthetic moment and not the scientific model that is just a means to mirror these processes on a theoretical basis. Nonetheless, there is a certain trend to claim the rationale behind educational and artistic practices.

The thoughts and concepts of Jacques-Dalcroze were as ingenious as, e.g., Freud's theories of the subconscious. With the passing of time, however, such seminal ideas risk to turn into ideologies and lose their innovative spirit. Similar to reforms in psychoanalysis that made an effort to embed its essential ideas in relevant sciences, eurhythmics are also called to go in for scientific research to strengthen experience-based opinions and heuristic reflections. We are probably at an exciting turning point of eurhythmics where best practice is about to turn into science based best practice.



Central nervous functional units can be assigned to core topics of eurhythmics.

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Brain Mechanisms of Motor Control in Musicians

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In this article, brain mechanisms of motor control in musicians are reviewed. First, I briefly summarize the effects of musical training on brain function, brain connectivity and brain structure. Here, I address factors inducing and continuously driving brain plasticity in dedicated musicians, arguing that prolonged goal-directed practice, multi-sensory-motor integration, high arousal, and emotional and social rewards contribute to these plasticity-induced brain adaptations. Subsequently, I briefly review the neuroanatomy and neurophysiology underpinning musical activities by focusing on motor planning and motor control. Finally, I review the literature on changes in brain structure along with the acquisition of musical skills. These structural adaptions in the gray matter of the brain and in fiber-tract density associated with music learning are critically discussed. In a short final paragraph I will relate these findings to the Dalcrozian ideas of eurhythmic studies.

Performing music at a professional level is one of the most demanding and fascinating human experiences. Singing and playing an instrument involves the precise execution of very fast and, in many instances, extremely complex movements that must be structured and coordinated with continuous auditory, somatosensory and visual feedback. Furthermore, it requires retrieval of musical, motor, and multi-sensory information from both short-term and long-term memory and relies on continuous planning of an on-going performance in working memory. The consequences of motor actions have to be anticipated, monitored and adjusted almost in real-time (Brown et al., 2015). At the same time, music should be expressive, requiring the performance to be enriched with a complex set of innate and acculturated emotional gestures.

Practice is required to develop all of these skills and to execute these complex tasks. Ericsson and colleagues (1993) studied practice behaviors and considered not only time invested in practice but also quality of practice. They proposed the concept of ”deliberate practice” as a prerequisite for attaining excellence. Deliberate practice combines goal-oriented, structured and effortful practicing with motivation, resources and focused attention. Ericsson and colleagues argued that a major distinction between professional and amateur musicians, and generally between more successful versus less successful learners, is the amount of deliberate practice undertaken during the many years required to develop instrumental skills to a high level (Ericsson & Lehmann, 1996). Extraordinarily skilled musicians therefore exert a great deal more effort and concentration during their practice than less skilled musicians, and are more likely to plan, imagine, monitor and control their playing by focusing their attention on what they are practicing and how it can be improved. Furthermore, they can be eager to build up a network of supportive peers, frequently involving family and friends.

The concept of deliberate practice has been refined since it became clear that not only the amount of deliberate practice, but also the point in life at

which intense goal-directed practice begins are important variables. In the sensory-motor domain, early practice before age 7 years leads to optimized and more stable motor programs (Furuya et al., 2014) and to smaller yet more efficient neuronal networks, compared to practice commencing later in life (Vaquero et al., 2016). This means that for specific sensory-motor skills, such as fast and independent finger movements, sensitive periods exist during development and maturation of the central nervous system, comparable to those for auditory and somatosensory skills (Ragert et al., 2003).

Performing music at a professional level relies on a range of sub-skills, which are represented in different, though overlapping brain networks. Auditory skills such as sensitivity to timing variations (e.g. "groove") and to micro-pitches (e.g. tuning of a violin), or auditory long-term memory (e.g. memorizing a 12-tone series), are mainly processed in the temporal lobes of both hemispheres with a right hemisphere bias (Zatorre, 2001). However, signs of auditory and musical expertise can already be detected in the ascending auditory pathway at the brainstem level (Skoe & Kraus, 2013). Sensory-motor skills, such as low two-point discrimination thresholds (the ability to discern that two nearby objects touching the skin are two distinct points) and high tactile sensitivity (e.g. left fifth finger in professional violinists), bimanual or quadrupedal coordination (e.g. for piano and organ playing), fast finger movements (e.g. right hand arpeggios on the classical guitar) or complex hand postures (e.g. left hand on the electric guitar), are represented in premotor, motor and parietal cortical areas, and in subcortical brain structures such as the basal ganglia and the cerebellum (Altenmüller & Furuya, 2015). Emotional and performance skills are supported by individualized prefrontal and orbitofrontal cortical regions and in the limbic system. Self-monitoring, anticipation of consequences of one's actions, motivation and focusing attention (all contributing to goal-directed "deliberate" practice), recruit a highly diverse network, including lateral prefrontal cortices, parietal cortices, limbic structures, and particularly motivational pathways, including the accumbens nucleus, and memory structures such as the hippocampus (Zatorre & Salimpoor, 2013). All of these regions and the interconnecting nerve fibers are subject to modifications in function and structure in association with musical practice, a phenomenon which is based on brain plasticity.

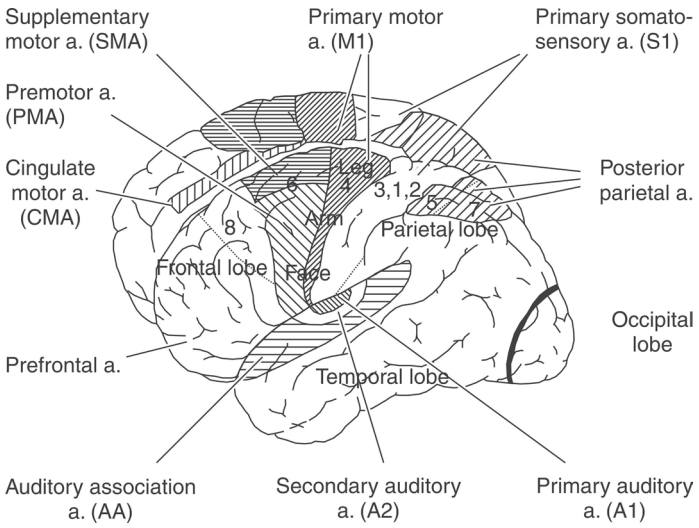

Fig. 1. Brain regions involved in sensory and motor music processing. (The abbreviation "a" stands for "area.") Left hemisphere is shown in the foreground (lower right); right hemisphere in the background (upper left). The numbers relate to the respective Brodmann's areas, a labelling of cortical regions according to the fine structure of the nervous tissue.

Brain plasticity denotes the general ability of our central nervous system to adapt throughout the life span to changing environmental conditions, body biomechanics and new tasks. Brain plasticity is most typically observed for complex tasks with high behavioural relevance activating circuits involved in emotion, motivation and reward. The continued activities of accomplished musicians are ideal for providing the prerequisites of brain plasticity (for a review see Schlaug, 2015). In musical expertise, the above-mentioned processes are accompanied by changes in the function of the brain's neuronal networks, as a result of a strengthening of synaptic connections, and in changes of its gross structure. With respect to mechanisms and microstructural effects of plasticity, our understanding of the molecular and cellular processes underlying these adaptations is far from complete. Brain plasticity may occur on different time scales. For example, the efficiency and size of synapses may be modified in a time window of seconds to minutes, while the growth of new synapses and dendrites may require hours to days. An increase in gray matter density, which mainly reflects an enlargement of neurons due to increased metabolism, needs at least several weeks. White matter density also increases as a consequence of musical training. This effect is primarily due to an enlargement of myelin cells which wrap around the nerve fibres (axons) and dendrites, greatly contributing to the velocity of the electrical impulses travelling along them. Under conditions requiring rapid information transfer and high temporal precision these myelin cells adapt by growing, and as a consequence nerve conduction velocity increases. Finally, brain regions involved in specific tasks may be enlarged after long-term training due to the growth of structures supporting nervous function,

for example, in the blood vessels that are necessary for oxygen and glucose transportation (for a comprehensive review see Taubert et al., 2012).

The effects of musical training on brain structure

Since the age of phrenology, neuroscientists have tried to relate extraordinary skills to changes in brain anatomy. For example, at the beginning of the twentieth century, Auerbach (1906) reported that the middle and posterior thirds of the superior temporal gyrus were larger than normal in several postmortem studies of the brains of famous musicians. Modern brain-imaging techniques such as high-resolution magnetic resonance imaging (MRI), voxel based morphometry (VBM), and tensor based morphometry (TBM) allow precise determination of gray and white matter volume in predefined brain regions. A relatively new technique that can be used to study differences in fiber tract volume and direction is diffusion tensor imaging (DTI). This provides information about white matter microstructures by measuring diffusion properties of water molecules that move preferentially along the myelin sheets of axons. The degree of diffusivity is quantified as fractional anisotropy (FA), a measure allowing the assessment of orientation and direction of axons and their degree of myelination (Bandettini, 2009).

In the **sensory-motor domain**, extensive musical practice during childhood and adolescence might have a strong effect on the maturation and the development of brain structures involved. Keyboard players have been a preferred group to study structural brain changes due to a high demand on bimanual dexterity and the possibility of assessing behavior such as speed and regularity of finger movements with MIDI-technology (Amunts et al., 1997; Bangert et al., 2006). In the first study that examined structural differences between musicians and non-musicians, Schlaug and collaborators (1995) showed that professional musicians (pianists and string-players) had a larger middle section of the **corpus callosum** compared to a non-musician control group. This finding was ascribed to an increase in myelination in the crossing fibers of the hand areas of both hemispheres, related to the high demands on bimanual coordination. Different research groups using a range of methodological approaches have replicated this finding (Steele et al., 2013, Gärtner et al., 2013).

A causal relationship between piano training and enlargement of the corpus callosum was established in the longitudinal study by Hyde et al. (2009). Other fiber tracts have been investigated in musicians: in a diffusion tensor imaging (DTI) study with pianists, Bengtsson and colleagues (2005) found that the size of several white matter tracts correlated with the estimated amount of musical practice during childhood. These structures included the posterior limb of the internal capsule, a part of the corticospinal tract descending from the motor cortex to the spinal cord, and fiber tracts connecting the temporal and frontal lobes. Although the total number of

practice hours during childhood was lower than in adolescence and adulthood, these adaptations support the idea that the central nervous system exhibits greater plastic capacities during early stages of development and maturation periods. However, some studies have reported lower fractional anisotropy in musicians in the corticospinal tract connecting primary motor areas with the spinal cord (Imfeld et al., 2009), and in the arcuate fasciculus, the fiber tract connecting auditory and pre-motor regions (Halwani et al., 2011). According to Schlaug (2015) these discrepant results may be explained by the fact that these fiber tracts are aligned in a less parallel manner than in non-musicians due to increased axonal sprouting and more branching of axons. In future, imaging technologies may provide a more fine-grained picture of nervous tissues.

Concerning the size of **primary motor cortex**, various findings have been reported. In pianists, the depth of the central sulcus, often used as a marker of primary motor cortex size, was larger in both hemispheres but compared to non-musicians more pronounced on the right hemisphere, corresponding to the non-dominant left hand function (Amunts et al., 1997; Schlaug, 2001). It was argued that years of manual motor practice of the non-dominant left hand produced this effect on the right hemisphere. For the dominant right hand and left hemisphere this effect was believed to be masked, since it undergoes some form of fine-motor training in everyone who writes and performs other skilled sensory-motor tasks with that hand. As was observed for the corpus callosum, there was a positive correlation between the size of the primary motor cortex and the onset of instrumental musical training.

Again, a causal relationship was established in the above-mentioned longitudinal study in child piano novices, with an increase in gray matter density in the right motor hand area associated with 15 months of piano training (Hyde et al., 2009). A recent investigation into middle-aged pianists revealed some interesting details concerning the effect of ongoing expertise on life-long plasticity (Gärtner et al., 2013). Pianists who continued to give concerts and practice for a minimum of three hours a day showed not only larger motor hand areas, but also larger foot areas in the sensory-motor cortices of both hemispheres than pedagogues who had majored in piano performance, but who had practiced for less than two hours a day over the last ten years. This result relates to the important role of pedaling in piano performance. Pedaling is a highly refined skill requiring spatiotemporal control in the range of millimeters and milliseconds in order to adaptively modulate color, expressivity and loudness of the music.

It is now well established that along with increasing expertise, not only enlargement but also reduction of neural structure can be observed. This was first established in a study of pianists targeting the middle putamen in the basal ganglia; a brain region involved in automation of motor programs. Granert and colleagues (2011) measured the skill level of piano playing via temporal accuracy in a scale-playing task. These authors found that the

higher the level of piano playing, the smaller the volume of gray matter in the right putamen. This reduction was ascribed to an optimization process of neuronal networks within the putamen, leading to fewer, but more efficient and stable dendritic and axonal connections in this area of the motor basal ganglia loop.

Until recently, it remained an open question, the degree to which these structural and functional brain changes are influenced by age at onset of musical activity and by cumulative practice hours over particular periods of life. These factors have often been confounded and it was generally believed that early commencement of musical activity, along with increased life practice time, resulted in enlarged neural representations underpinning auditory or sensory-motor skills. Steele and colleagues (2013) were the first to investigate the morphology of the corpus callosum such that they could compare its white-matter organization in early- and late-trained musicians who had been matched for years of training and experience. They found that early-trained musicians had greater connectivity in the posterior part of the corpus callosum and that fractional anisotropy in this region was related both to age at onset of training and to sensory-motor synchronization performance. They concluded that training before the age of 7 years resulted in changes in white-matter connectivity that may serve as a scaffold upon which ongoing experience can build.

Inspired by this work, and since in this study neither gray matter density nor the size of specific brain areas were analyzed, we designed a similar brain morphometry study in a group of 36 award-winning professional pianists (Vaquero et al. 2016). We kept cumulative life practice time constant, but split the group into 21 pianists who had started their musical training before age seven, and another group of 15 who had started after that age. We compared brain anatomy between these groups, and between musicians and age-matched medical students who were non-musicians. In addition, 28 pianists from the sample completed a scale-playing task, in order for us to obtain an objective measure of their pianistic abilities and temporal precision. Compared with non-musicians, pianists showed more gray matter in regions associated with learning (hippocampus), sensory and motor control and processing (putamen and thalamus), emotional processing and the reward system (amygdala), and with auditory and language processing (left superior temporal cortex). However, they also showed *less* gray matter in regions involved in sensory and motor control (postcentral gyrus) and processing of musical stimuli (right superior temporal cortex), as well as structures that have been related to music-score reading (supramarginal gyrus). Moreover, among the pianists it was observed that the size of the right putamen correlated significantly with the age at which music training began: the earlier they started to play the piano, the smaller the volume of gray matter in the right putamen (see Fig. 2).

In keeping with the interpretation of the results of Granert et al. (2011) reported above, pianists who started earlier in life optimized functionality of neural structures involved in sensory-motor processing, motor learning and motor memory. This is reflected in the behavioral task: those pianists who had started their musical training before age seven played with higher regularity than those who started after that age, even though all of the pianists practiced for the same number of hours around the time of the study and had achieved the same level of proficiency. This is an important scientific proof of common knowledge, expressed in proverbs such as "a tree must bend while it is young." With respect to brain sciences, it is an interesting phenomenon, showing that even for highly complex motor tasks, sensitive periods in the nervous system exist (Furuya et al. 2014). However, as we have seen, such windows of opportunity can depend on domain, genetics and continuing training.

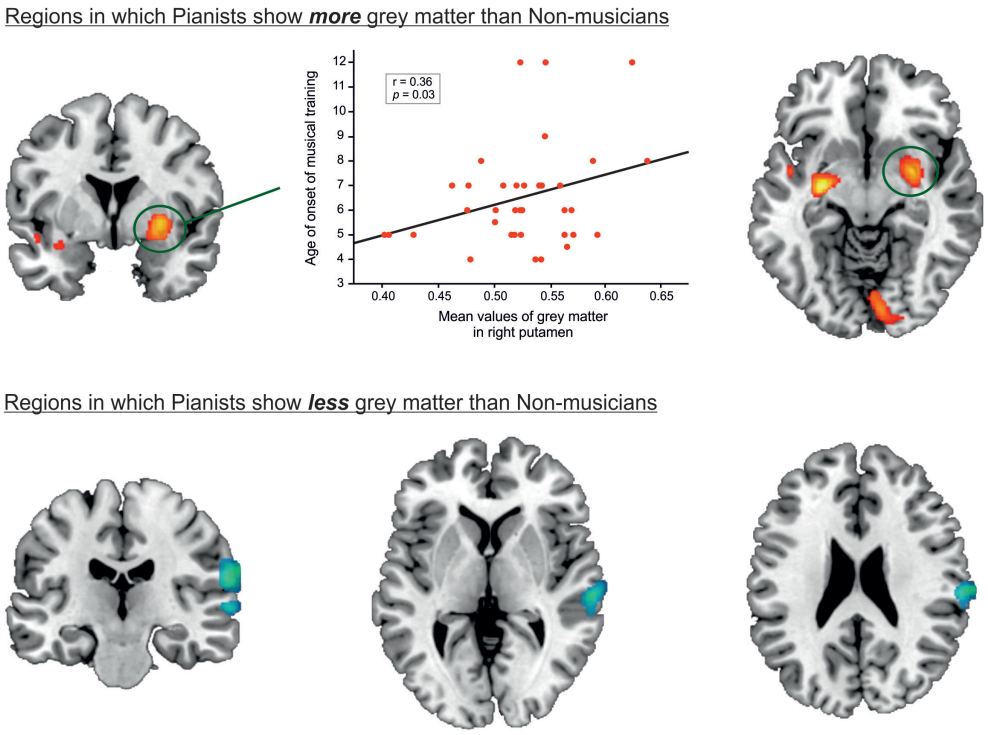

Fig. 2. Summary of the results of the study on pianists by Vaquero et al. (2016). Courtesy of Lucia Vaquero and Antoni Rodriguez-Fornells (with permission). Explanations are given in the figure and text.

Brain plasticity as prerequisite and result of expert performance in musicians

In the preceding paragraphs, I have demonstrated how musical activities, such as learning to master an instrument and to perform in public, induce brain plasticity. These central nervous adaptations are in most cases

beneficial but in some circumstances may be detrimental, as illustrated in musician's dystonia. Age at commencement of practice, amount and quality of practice, genetic predisposition, and accompanying conditions, such as stressors or muscular overuse, determine the quality and nature (adaptive or maladaptive) of these brain changes. Furthermore, the brain's "sensitive periods", when it is best shaped, seem not only to depend on hereditary factors but also to vary in different sensory, motor and cognitive domains. I propose the concept of metaplasticity, conceptualized above with a scaffold metaphor: intense musical training in childhood can bring about lifelong change in both structure and functions of auditory, sensory-motor, and emotional systems. These not only enhance musical skill acquisition and guard against disorders triggered by extensive training, but also serve as ingredients for better shaping life-long neuronal development.

I would like to conclude this article with a general remark related to eurhythmic studies and the Dalcrozian approach. At the core of many of Émile Jaques-Dalcroze ideas was his strong believe in the interrelatedness, or unity, of auditory perception, somatosensory and visual experience and movement structuring. In order to facilitate this process of multisensory-motor integration, Dalcroze developed techniques that combined hearing with physical movements transferring auditory perception into a holistic bodily experience. This means he was directly addressing brain plasticity, acting on increased connectivity between auditory, sensory-motor, visual and emotional areas. His main goal was to develop the inner ear to facilitate musical thinking, reading and writing music without the help of an instrument. In neuroscience, such a capability could be termed audiation, describing the ability to think in sound, i.e. to recognize, remember and manipulate complex musical patterns mentally. Finally, probably his most revolutionary contribution to brain-science is his pedagogical approach to teaching students to trust in their instrument, the body by increasing mental and emotional awareness. Here again, the plasticity of the nervous system is a prerequisite. In modern terminology, we could say Dalcroze Eurhythmics aim at creating a stable embodiment of the outer world, through multisensory-motor integration and through audiation. With respect to the indirectly quoted ideas of Dalcoze, I refer here to a selection of Dalcroze works, specifically "Le rythme, la musique et l'éducation", Paris 1920; 1935 [Rhythmus, Musik und Erziehung. Benno Schwabe, Basel 1921]

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Eurhythmics goes China
Thoughts on Culture-Sensitive Eurhythmics in China

Cheng Xie

Cheng Xie was born in 1988 in Hanzhong, China. After working for two years as a music teacher at a secondary school in Xi´an, he continued his studies in music education and eurhythmics at *University of Music FRANZ LISZT Weimar*, Germany. 2015 he won an award at *Internationales Rhythmikfestival*, Remscheid, Germany, presenting his performance "Taiji". In October 2015, Prof. DDDr Wolfgang Mastnak at *University of Music and Performing Arts*, Munich, Germany accepted him as doctoral student in music education. His research focused on eurhythmics in music education in China. His doctorate he received in 2018, was awarded with *Kulturpreis Bayern 2018* in Munich, Germany. He has attended workshops in music education and eurhythmics, and presented at the ISME world conferences in Glasgow (2016) and Baku (2018). Since 2018 he is working as a lecturer at *Beijing Dance Academy* in Beijing, China.

Eurhythmics is recognized worldwide. From the beginning there was an international imprinting. To point out, what is to be understood by "culture-sensitive" the term has to be differentiated from pure adaption, from interculturality and from enculturation. Summarising, culture sensitive means the cautious imbedding of a pedagogical concept into a certain cultural setting. Central aim is to present the main results of the research project of the author in Munich and China. Research issue was to figure out, whether culture-sensitive eurhythmics will be accepted in China and how it can be used there. The evaluation of the expert interviews made clear that there are good future development opportunities for its application. There is also a look at suitable elements of Chinese culture to be used in a culture-sensitive way of teaching. The research focused on Peking-Opera, especially its colours, costumes and decorations, masks, movements and percussion instruments. Finally, some social and cultural particularities of China are discussed.

Chinese Music Education

Development of Chinese music education until 1978

Chinese music pedagogy has unfolded as a reflection of the country's economic and political development, that is, it either accepted influences or, in turn, succumbed to stagnation. Music and music education also played an important role in ancient China. In addition to the schools for the training of junior staff of high officials, there were also country schools for boys, which were mostly carried by extended families, and in which simple songs and dances were practiced (Nolte & Weyer 2011, p. 144 ff.). In the schools for higher official juniors, instrumental play and music theory were part of the training, the singing lessons were part of the language education (Nolte & Weyer, 2011, p. 150). As with ancient rituals, the connection between poetry and music and between language and dance has been important (Bauer, 2017, p. 71). Fundamentally important was the Confucian idea of an educationally oriented musical instruction (Nolte & Weyer, 2011, p. 167). However, music education in the modern sense did not develop until the end of the 19th century, the time of the last Chinese imperial dynasty, Western colonial powers than brought their school system to China alongside their culture, notably in mission schools (Hong Jiang, 2015, p. 126 ff.). During the period of the Republic of China (since 1912), the country opened strongly to Western art such as opera and ballet. At the same time, the first music associations and educational institutions were founded, which were the basis for later music academies and colleges. The education of music teachers in today's comprehensive sense, however, was not yet seen as important, because what was mainly done by teachers in school was singing or playing the piano or organ. The education system was based on the

models of Japan and Germany. During the period of the Japanese invasion (1937-1945), the development of music education stagnated due to the war.

After the Chinese Civil War in 1949, the People's Republic of China was founded. Initially, efforts in the country were focused on reconstruction of the country. However, the state educational system was reformed, especially after 1958. Music as a subject was included in what students had to learn. Chinese folk music became important, but "classical" European music also enjoyed a high reputation. The cultural revolution of 1966, however, covered the entire cultural, scholastic and university fields and ended the renewal movement. Intellectuals in particular were sent to work in the countryside, and singing at school only served propaganda purposes. As a combination of traditional and political renewal the "model opera" emerged as a special form of music theater.

Music education in China since 1978

After the end of the Cultural Revolution, since 1978, China has opened to the world. An orderly school system was set up and the efforts were also aimed at a more sophisticated education of music teachers at general-education schools. The "Singing Lesson" developed to "Music Lesson" (Zhonghua Zheng, 1993, p. 160). New teaching methods were based on the model of Western countries. Already in the 1980s, Chinese professor Liao Naixiong met Carl Orff and spread his 'Orff Schulwerk' in China. After studying in Japan, Ms. Miu Li brought the Dalcroze method ("Rhythmik", known as Eurhythmics in the English-speaking world) to China. Due to the economic reforms, the country opened up further and further. As a result of globalization, Western pop culture has also become present in China. In universities, the exchange with lecturers from other countries, especially from Europe and North America, has become very common.

"New System" can be mentioned as a special example of China's openness to the ideas of Eurhythmics. "New System" is a faculty of Music Education at the *Central Conservatory of Music* in Beijing, which was created by the special efforts of Professor Gao Jianjin. Teachers trained in Europe make an attempt to change the Chinese system of teaching music in school and develop a music-pedagogical system for China's schools. Special emphasis is placed on the practice of teaching – which is not common in China.

The current state of eurhythmics in China

The current state of adoption of Western music-pedagogical concepts, such as eurhythmics, into the Chinese educational system is sobering: Western lecturers, often university lecturers, are enthusiastically received in China's universities and conservatories and present their ideas and methods in special courses. Such courses, as well as the courses of private training

institutes, provide an introduction and cover some basics of the subject, but it usually does not go any deeper than that. There are some (Western) textbooks dealing with elementary music practice (mostly the *Orff-Schulwerk*), which were translated into Chinese and are used to a limited extent. An adaptation that takes fully into account the special characteristics of China does not exist yet. The transfer of eurhythmics to China seems to be a one-sided affair. Very rarely Chinese people add some of their own thinking and culture to the concept of eurhythmics. There is a lack of really well-educated Chinese teacher who creatively teach eurhythmics in conjunction with Chinese music culture. Traditional and contemporary Chinese culture remains largely ignored as a medium or work tool (Vogel-Steinmann 1979: p. 32) for teaching eurhythmics in China. Following these considerations, it was obvious to ask if this one-way street could be changed to a meeting place. In this context, the idea of a "culture-sensitive eurhythmics" for China emerged (Cheng Xie, 2018 p. 2).

Cultural Sensitivity

Cultural sensitivity and adaptation

Culture-sensitive in this context means that a music pedagogical concept is carefully embedded in a specific environment. This goes far beyond just making certain adjustments to the application of the concept as they already can be found: For example, in a music book, songs that belong to typical Christian festivals (Christmas, Easter), are sometimes replaced by songs that are typical for festivals of the other country (e.g. Chinese Spring Festival). Culture-sensitive here means that the entire philosophical background, pedagogical conditions and cultural peculiarities of a country are taken into account in the development and implementation of a pedagogical concept of music and movement.

Culture-sensitive and intercultural

A culture-sensitive approach differs from intercultural music education. The latter is already being practiced in the multicultural societies of the West in connection with the education of pupils with migrant backgrounds (Merkt, 1993, p. 141 ff.) or in connection with a polyaesthetic education (Krakauer 1993: p. 29 ff.). However, there are certain similarities between the culture-sensitive and the intercultural approach: Both want to draw attention to the possibilities of mutual cultural enrichment and promote understanding and tolerance in the context of cultural encounters (Schatt, 2007, p. 108). But a culture-sensitive lesson is not primarily aimed at integrating elements of a "foreign" culture into the classroom so that it can be better understood. Rather, it is about fitting a (new) music pedagogical concept into the educational and cultural framework conditions either by teachers

of one's own country or by culture-sensitive teachers from abroad, so that neither the teaching methods as such, nor the lesson content seems to be "compelled from outside". Getting to know the local cultural conditions is of great importance. These can be taken into account, getting accepted and reflected.

Culture sensitivity and enculturation

As a by-product in China`s special situation, a culture-sensitive approach can attract attention to cultural expressions, which are in danger of being forgotten soon. Pupils who spend their spare time almost exclusively on Western pop culture can, on the one hand, experience new facets of popular and improvised music in their lessons. On the other hand, their interest in traditional Chinese culture can be reawakened with the help of a "modern" pedagogical method, with careful and appropriate means. Such traditional Chinese forms of expression include, in particular, movements, music and objects from the so-called "Beijing Opera" (JingJu). JingJu is not an "Opera from Bejing", but a form of traditional Chinese music theater that has emerged since the end of the 18th century as a fusion of various local forms of musical theater. A culture-sensitive approach in this context can be understood as a form of supporting enculturation (Callo, 2002, p. 63) for young Chinese people, thus helping them to reestablish a relationship with regional culture. This, therefore, is not about the question whether Western or Chinese culture and cultural expression are „more valuable", but to reduce aversion, shyness and possibly even shame and feelings of inferiority in relation to certain traditional forms of expression. Therefore, a Chinese student does not have to identify himself just on basis of the Western pop culture, but is able to develop something new and own by dealing with traditional art forms.

Culture-sensitive and "Glocalisation"

The ideas just sketched correspond in a certain way to a form of «glocalization», what is, culturally speaking, a combination of «global» and «local» thinking, meaning a sort of return to the own identity while considering local peculiarities. The term «glocalization» (Robertson, 1998, p. 197), which Robertson made known in Japanese business jargon, is also a form of cosmopolitanism in which all cultures are recognized and respected as well. Nevertheless, local and regional roots are important. To my understanding, this can be transferred to the extent that not only contemporary localities (see the example of hip-hop: Klein, 2003, p. 89), but also traditional localities in a globalized environment is preserved, so that cultural diversity still remains intact.

RESEARCH PROJECT ON THE ACCEPTANCE OF EURHYTHMICS IN CHINA

My research project addressed the fundamental question of whether culture-sensitive eurhythmics in China would meet acceptance and could be applied. In addition, it was to be investigated which elements of Chinese culture could be used for culture-sensitive Eurhythmics. It was therefore not primarily a task to develop a concept which can be used directly in everyday teaching. However, with regards to specific characteristics of the Chinese education system, there are some suggestions for teaching eurhythmics.

Course of the research project

To answer the research question, the main source of knowledge were expert interviews. Seventeen experts from China were interviewed based on a structured guideline interview. The chosen experts are cross-section representatives of Chinas music education sector: Principally university professors of different ages and from different Chinese provinces, and in addition experts from the music-teaching practice in school, the music publishing area and the private education sector. The interviews were conducted and transcribed in Chinese (Mandarin). Anonymized summaries of the interview contents were prepared in German, whereby the choice of content of the summaries was ensured by peer review. Finally, with the help of appropriate specialized software, an analysis was carried out using previously created codes. A separate part of the interviews was a questionnaire, which all experts should fill out; the evaluation led to revealing data visualized in pie charts.

Results of the research project

The evaluation of the interviews has revealed that the experts viewed critically the current state of Chinese music education. Experts repeatedly complained about the dominance of Western influences and criticized the lack of an own music education system. In the training of music teachers, too much emphasis is placed on pure “playing techniques” (singing, piano), while the concepts of teaching practice are neglected. Strikingly an expert quoted a popular aphorism according to which Abin (a well-known artist on the instrument of the erhu), Liu Tianhua (a popular composer) and Mei Lanfang (one of the most eminent Jing-Ju-actors) today would possibly not pass the entrance examination at university. Experts also reported about actual conditions of the school system: Passive learning is predominant, courses are overcrowded and there is a lack of space for developing creativity and interaction.

Based on these findings, the experts see a real need and good development opportunities for the three pedagogical concepts of Orff, Kodály and Dalcroze in China. They justified this with slowly emerging innovative guidelines in the national curricula. In addition to the publishing industry and the increasing university offers, the organizations already founded (for example the Orff Society) and also the «New System» impulses for innovative music lessons, reflect national interests. The current development also includes a state pilot project «Bring XiQu to school» («XiQu» is the Chinese music theatre). It is planned to develop and carry out various offers, which shall provide space for Eurhythmics contents and methods in connection with the Chinese music theatre. In addition to the academic interest, according to the evaluation of the expert interviews, there is also a certain economic incentive. Private training institutions noticed a keen interest, training offers are constantly increasing, and the number of participants is high. The international exchange is also a factor. The esteem that music pedagogical concepts as Eurhythmics enjoy in the academic field is described by one expert in an impressive way: "An *experiential learning* alters to the traditional forms of teaching, in which only singing and following the instructions of the teacher had been important; it makes the lessons livelier, so that the students show more interest!" Another expert said self-critically that he had spent too much time in piano and vocal techniques, although after graduation it were more important to know how to teach and to motivate students.

However, the experts also pointed out problems. They lamented the lack of skilled workers, the lack of in-depth understanding of the concepts (especially regarding Dalcroze) and a lack of adaptation. So far, pedagogical concepts like eurhythmics were often practiced in a way of pure imitation, without consideration of Chinese culture. In addition, the inadequate space capacities and the too large teaching groups were mentioned.

Based on this, the experts almost always endorsed the establishment of culture-sensitive eurhythmics. They also considered the connection between JingJu (Peking Opera) and the fundamental ideas of eurhythmics to be fruitful and openly revealed. The artistic elements of this traditional Chinese music theater could be included in Eurhythmics lessons. Even though some experts emphasized that traditional Chinese culture should not be distorted in the context of eurhythmics lessons, most experts, however, saw more opportunities than risks.

Of special note is that the experts pointed out commonalities between traditional Chinese culture and the basic idea of eurhythmics with its combination of music and movement: Chinese culture has always been a unity of poetry, music and dance. An interesting Chinese aphorism proves this in an impressive way: "If the language cannot express a feeling, then one sighs; if the sigh cannot express the feeling, then one sings; if even singing cannot express the feeling, then one moves involuntarily!" The research question could therefore be answered that culture-sensitive eurhythmics,

integrating certain elements of JingJu, especially movements, rhythm, masks, costumes and colors, are considered to be useful and accepted in China. It should therefore be implemented in practical teaching concepts.

The evaluation of the questionnaires yielded the result that out of the general goals of eurhythmics (Danuser-Zogg, 2013, p. 49) the promotion of perception skills, the development of social competences as well as the training of movement and coordination was considered particularly important. Therefore, following and extending the known description of tools and goals of eurhythmics (in particular, Danuser-Zogg, 2013, p. 51), a model of culture-sensitive eurhythmics can be presented, which puts the human being and his culture in the center what at the same time enriches eurhythmics.

Culture-sensitive eurhythmics and characteristics of China

Suitable elements of JingJu (Peking Opera)

JingJu (Peking Opera) is a multimedia art form that integrates various artistic expressions. In addition to the music, presented on various traditional musical instruments, and the vocals, a variety of movements that include acrobatics and martial arts play a major role, but are by no means limited to them. Besides, the masks, costumes and other decorative items of the traditional figures on stage have a great importance. Finally, the speech sounds (Luo Gu Jing) are very interesting.

The music of the JingJu, especially the vocals, often sounds “strange” to today’s audiences, even in China. Therefore, the artistic elements of the JingJu that are suitable for eurhythmics lessons must be selected carefully. They should meet two requirements: On the one hand they must represent the Chinese culture, on the other hand they must be relatively easy to realize and to understand. Therefore, it is a good idea to use masks and decorative objects in their typical color scheme. But it is also a good idea to take a closer look at the JingJu movement vocabulary. Although often found in ways of stylization, the execution of movements provides space for creativity and improvisation with personal expressions. This applies to the particularly differentiated hand movements and to the steps and gestures, which tell the connoisseur of JingJu important things about the roles and the action. Finally, the use of a diverse percussion instruments is interesting. Those instruments are particularly important for the events on stage. In this context, the typical speech sounds (Luo Gu Jing) can be presented and practiced in a simple way. In accordance with the spirit of Eurhythmics, to promote the perception skills, it is possible to learn how to connect the rhythm of music, embodied by the Luo Gu Jing, with movements on stage.

Social and cultural characteristics

For culture-sensitive eurhythmic lessons in China it is important to look at some more specialties, because the practice must fit the situation and conditions of the country, or at least be based on those. In particular, these are the following circumstances:

Chinese students are under enormous pressure to perform. The school system is very performance and exam orientated. Cognitive skills, especially subjects as mathematics, are, even more than in the West, of considerable importance in national school leaving exams which determine the future life of each student. As consequence, studying is paramount throughout the entire school life. Physical exercises are greatly neglected. Only very slowly it becomes clear, that this is an unhealthy and one-sided burden. For the practice in eurhythmic lessons, this means that, in the first place, the skills for movement and coordination must be improved again very carefully.

It is interesting that the Chinese philosophy, similar to eurhythmics (Feudel, 1965, p. 28 ff.), has a unifying view on body, mind and soul. The "union of heaven and men" can generally be regarded as the basic idea of classic Chinese philosophy. The YinYang sign expresses the balance of the polarities. This sign - as an early proof of a connection between Eurhythmics and Chinese philosophy - can also be found in the first printed works by Jaques-Dalcroze and at the festival building in Hellerau (Xie, 2015, p. 27).

Eurhythmic education in Western countries, especially outside school, is ideally done in small groups (Bankl, Mayr & Witoszynskyj, 2009, p. 32). However, this is not possible (at least for the time being) in school lessons in China. The usual class size in China is about fifty students. Music lessons are still based on a lecturing teaching approach. These two factors need to be handled creatively. Unless new special classrooms are built, the existing spaces must at least be reorganized to create room. In addition, the teacher must be proactive and develop ideas so that culture-sensitive Eurhythmic lessons can take place in various small groups. These small groups could have related tasks. The use of modern media (such as videos) should not be spared. In addition to piano and voice improvisation, the eurhythmic lessons can be enriched by a variety of Chinese percussion instruments used for simple improvisation.

Finally, the meaning of "demonstration" and "imitation" in Chinese pedagogy must be handled with care. In the West a common prejudice about China is, that Chinese are only able to "copy" and not to be creative themselves. This is partly due to ignorance of Chinese educational culture. Demonstration and imitation are, according to traditional Chinese understanding, rather seen as essential parts of the teacher-student relationship (Brandl, 2007, p. 32). Imitation does not mean "copying", but ideally triggers one's own creative process. Perhaps this can be compared with mimetic processes that bring images to life for the recipient, which he himself develops based on his own

personal experience (Gebauer & Wulf, 1995, p. 171). In China, there is the revealing remark: “to suggest from one example to three other examples”. According to this understanding, students should reflect on an example given and establish their own references. Properly understood, such a process implies in turn that also the teacher responds to the thoughts developed by the student. This pedagogical idea can therefore be made fruitful in the development of creative processes and improvisations in eurhythmics.

In general, the culture-sensitive eurhythmics presented, is an open concept, which not only allows further developments but also considers them as desirable. Culture-sensitive Eurhythmics can find its own special way to China, where it will be combined with the characteristics and peculiarities of this great nation and culture.

Note

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Artistic Research

A Dance of Shadows through Arts Practice Research

Diane Daly

Diane Daly is a violinist and chamber musician. She has been a member of the *Irish Chamber Orchestra* since 1998 and has toured the world with many prestigious ensembles including the *Academy of St. Martin in the Fields*. She is in huge demand as a chamber musician, performing at major international festivals. In other genres she has performed alongside and recorded with Sir Paul McCartney, Rod Stewart, The Corrs, Bono, Shania Twain, Katie Melua and plays in her own gypsy jazz trio. She is currently undertaking an Arts Practice PhD and is the recipient of a scholarship from the Irish Research Council. She is Course Director of the MA in Classical String Performance at the *University of Limerick* where she also teaches Dalcroze, Kodály and improvisation. Based in Co. Clare, she works extensively as an animateur, coach and workshop leader and directs, from the violin, the Irish Chamber Orchestra Academy international string ensemble.

Photo: Lucy Dawson

This article is inspired by the PhD research I am engaged in, relating to the potential effects of Dalcrozian preparation techniques on my professional performance practice. I shall explore the Arts Practice paradigm I have used for this research. and then describe how these elements combined, in the preparation for a performance of Ysaÿe's Second Solo Violin sonata.

An arts practice research journey

In 2015, and in the midst of a rich and varied career as a classical violinist, I embarked on a research journey. The destination was unknown, but the sense of quest driving it was tangible. I was seeking what I felt was my lost musicianship and I had enlisted a guide - Émile Jaques-Dalcroze.

My career has been built through an application of the conventional approaches to practicing the violin: technique building combined with the learning and memorising of classical repertoire. However, I have long been haunted by a suspicion that my focused training as a violinist operated to the detriment of my development as a musician. I was first introduced to the ideas of Dalcroze as a student many years ago and have used his methods as a teacher throughout my career. However, I never applied his ideas to my own professional practice, although I realized early on, that my training in musical performance was dominated by intellectualism, theory and traditional practices of the very same kind that Dalcroze observed in conservatoire students who were evidently technically gifted yet musically hidebound (Jaques-Dalcroze, 1945, p.140).

As part of a process of expanding my musical self, I embarked upon PhD research in which I aimed to apply the philosophy and methodologies of the Dalcroze method to my own practice as an elite performer. The University of Limerick, Ireland, offers a PhD in Arts Practice that suited my interests as it is specially designed for performers to reflect on their performance

practice (Nelson, 2013). If I wished to understand the value Dalcroze has for my practice as a violin performer, then I needed to perform. In order to document the value of an experiential 'music education through movement' method, then I needed to move and experience. Only then can it be demonstrated 'that practice as research not only produces knowledge that may be applied in multiple contexts, but also has the capacity to promote a more profound understanding of how knowledge is revealed, acquired and expressed' (Barrett & Bolt, 2010, foreward).

Arts Practice research is an experiential, subjective approach in which the researcher's feelings and intuition are the subject of study and source of data. Any quest for objective truth is replaced by an acceptance of shifting, subjective realities. This model fits well within the whole experiential ethos behind the work of Jaques-Dalcroze. As painter Paul Perrelet said, 'It is not possible to form an opinion on Eurhythmics without having taken part in it' (Dutoit, 1965, 11). Arts Practice research is a model in which hard facts and empirical truths are impossible. Instead there is a sense of "liquid knowledge", something that "runs through your system" (Abramovic in Nelson, 2013, p. 52). This has been, and still is, a most extraordinary journey, in which my preconceived ideas of 'linear' learning have been challenged almost every day. My practice is extremely broad and varied, but this investigation embraces it in its entirety.

Arts Practice research requires a variety of documentary methods, all of which need to reflect the qualitative and subjective nature of the process of inquiry (Creswell, 2013; Denzin & Lincoln, 2018). My chosen methods are autoethnography (Bartleet & Ellis, 2009; Chang, 2008) and arts based methods (Leavy, 2009; Bochner & Ellis, 2003). I have used journaling, poetry and other forms of artistic expression alongside data gathered from others, through interviews, focus groups and by inviting written inputs. In an unprocessed form, this data–may not resemble the data of traditional research. It does not look to many, like research data 'should'. It takes the form of poems and journal entries. There is no filter and frequently no structure. I write from the first person, weaving between my narrative and theoretical voices (Clandinin & Connolly, 2000). The result I am aiming for, is what Pelias described as "emotionally vulnerable, linguistically evocative, and sensuously poetic" (Pelias, 2004, p. 1).

For example, my poems contain information relevant to research not just in their direct meaning but in their structure. The rhythm and the flow of my words represent how I hear music. They contain repetition, contrast, accent, silence and timing - all from Dalcroze's list of 'subjects', elements we experience in the course of our daily lives and in the arts (Le Collège de l'Institut Jaques-Dalcroze, 2011). In the words of Barbour, "I look for words that do more than communicate abstract ideas. I want to use sensory-rich images in hopes that a reader can feel the words and not just see them on the page" (Barbour, 2011, p. 49).

By following this approach, I hope to create a space for myself within my practice in which I can search for, and document epistemic knowledge. This space is vital for creativity and inspiration. Professional classical orchestral and chamber musicians rarely have enough time to find such a space and as a result often end up losing the very joy and essence that initially brought them to a career in music. I am fortunate to have this opportunity and I hope that my research will generate findings that although personal to me, may inspire and resonate with other fellow musicians.

The performance

Performance lies at the heart of the Structured Arts Practice PhD programme at the Irish World Academy of Music and Dance at the *University of Limerick*, in the form of two concerts which provide a place for the researcher to aim for, test ideas and gather feedback and data from themselves, collaborators and audience members. From the very first day of my doctoral studies I had been planning the angle I would take in approaching my first major performance. I had mulled many ideas over, searching for the one that would feel just right. I knew it needed to include certain basic elements:

1. Playing the violin
2. Incorporating the Dalcroze method
3. Connecting the threads of my investigation

Ysaÿe's Second Sonata for solo violin Opus 27 by Belgian violin virtuoso Eugene Ysaÿe fulfilled all three criteria, made even more significant because of the deep and significant relationship between Ysaÿe and Dalcroze (Christen, 1946). Dalcroze had been developing his method for around five years when he met the violinist and composer, whereupon he described himself "seduced by his vitality, the strength of his convictions, his scorn for conventions, and by the ardor of his feelings" (Jaques-Dalcroze, 1942, p. 42). As he was engaged as piano accompanist to Ysaÿe, he was able to witness first-hand how Ysaÿe used his body to interpret and practice the music he was learning (1942). "He liked to work his technique in darkness or with closed eyes, to better—he said—go back to the source of the physical movements…..And I often surprised him . . .in his room delivering himself of an expressive mime putting his entire body into motion, rhythmically and plastically, while the right arm and fingers maintained all their lightness for the performance of the virtuoso strokes" (p. 44). "The sound vibrations,» he (Ysaÿe) said, «must penetrate us entirely right down to our viscera, and the rhythmic movement must enliven all our muscular system, without resistance or exaggeration." (p. 44). Another wonderful anecdote is where Dalcroze enters Ysaÿes' room, concerned at the grunting noises coming from within. He is surprised to see Ysaÿe hitting the air with his fists, rising up on every blow as trying to break open the ceiling.

"I'm studying the Polonaise of Vieuxtemps" said Ysaÿe, "it has to get inside me" (Christen, 1946, p. 78, footnote).

Having selected a piece with direct association to Monsieur Jaques, I used a number of Dalcrozian learning strategies to prepare for my performance. I spent many hours in the practice room 'practicing presence', as I believe it is one of the main factors connecting my Dalcroze work to my violin playing. I simply cannot 'do Dalcroze' without being fully present and engaged. It demands full unification of my mind and body, a state of being I am neither accustomed to nor can achieve easily. I can quite happily play the violin for hours and not be present at all. I believe that performance anxiety can stem from this lack of presence when practicing, because at the moment when you stand in the spotlight with all eyes upon you, you are "caught in the headlights", compelled to recognize your own presence. If this presence was part of the usual condition when playing, the transition from practice room to concert hall would not be so alarming. I designed a specific warm up routine that I incorporated into my daily practice to enhance my physical, mental and spiritual connection. This included stretching with breathing, T'ai Chi and Yoga exercises, mindfulness practice and a gentle but firm determination to eliminate distraction and to not engage with the endless negative chitter chatter inside my head.

A second element involved preparing for this performance by working on the music physically. I hoped this would result in a different kind of performance experience. This involved many hours of creative rehearsal experimentation, including exploring 'Dynamic Rehearsal', devised by Karin Greenhead (2016). This included, using a ball to represent the way the music moved, showing the intensity, the line, the phrasing and the harmonic structure. I also worked intensively with the Italian Dalcroze Diplômée, Ava Loiacono, over a period of five months. This wonderful collaboration brought the work and principles of Jaques-Dalcroze to the heart of my preparation and resulted in a multi-modal performance on the 6th February 2018.

Another aspect concerned memorisation. Playing from memory forms part and parcel of the typical training of Western Classical musicians, but the focus is on cerebral memory, at the expense of the holistic. As a child, I was forced to practice the same piece over and over again, and it became easy for me to play automatically without the music. It was never a problem for me to memorise large works. I could see in my head exactly where I was in the music. Since I entered the professional world of a chamber musician, over 20 years ago, my score has always been there, on my stand and I have lost this automatic ability. When I perform from memory now, I have to make more effort to concentrate on it. Through my journaling I saw a connection between this 'performing from memory' element, and two of my current areas of investigation: performance anxiety and disembodiment.

As I usually learn music from memory through my visual sense and the muscular sense in my fingers, I have wondered where else in my body this

memory might reside. In an interview with Prof. Mícheál Ó Súilleabháin (2018) we discussed whether as a classical musician I have lost an element of somatic learning by being so dependent on the printed notation. I therefore tried more holistic Dalcroze-infused techniques. I played passages from my feet, and from my armpits, simply by directing attention and sending specific signals. I played sections focusing on releasing my torso. I put down my violin and moved sections. I used scarves on the beach and sang one line while stepping with the other. These techniques had a profound effect on releasing nuance and subtlety in the music I had neglected, due to my preoccupation with the technical playing of the violin. Dynamic contrasts and colours became more vivid to me. I worked on the concept of 'sing and play', singing each note of a chord one by one, before 'allowing' the finger to 'find' the note. I would then play the note, matching the tuning and the sound quality. By allowing the connection between my ear and fingers to develop, I could trust my fingers to feel their way rather than me 'putting' them into a particular chord cluster. This was significant for me. First of all because Dalcroze wrote at great length on the subject of building neural connections between the ear and the body, but also because of the ways in which it changed how I practiced. I turned one of the sections into a plastique animée, mapping out my emotional responses to each phrase, so I could see where the moments of tension and release were, and expressing this insight in movement. I explored the architecture of my phrases through movement and the concept of 'one phrase, one breath'.

I wished to explore how 'showing the movement of the music' physically while playing, would affect my sound and music making. Would the incorporation of the time-space -energy elements of my Dalcroze work, into both my violin playing and body movement on stage, enhance or detract from the performance experience for me or for my audience? There was only one way to find out. I devoted many hours improvising in movement while playing each section, sometimes spending as much as a whole day on a single bar. Gradually I was able to develop a 'movement map' that helped me to connect my body, my violin and bow, and my sense of what I wanted the music to say. The effect of combining all these techniques was that memorising the music became less of an anxiety, as I was now developing a stronger sense of inhabiting the music from within.

New realms of performance production

Another significant fact in creating the performance was presentation. When I read about Dalcroze's huge scale theatrical productions I was inspired to incorporate production elements, not normally factored into classical performances.

With Ava Loiacono's encouragement, into the performance, I incorporated a complex lighting element, my own movement while playing, elements

of puppetry and a large, tensioned screen of elastane lycra cloth, behind which thematic motifs were brought to life and actualized by Ava's body movement. Together, we worked on exploring different colours for each movement, constantly reflecting on how this exploration of subtleties affected our interpretation of the music. We tackled the issues of how to put light on me, but not on the screen and vice versa, and how to create lighting that brought out the meaning in the music. It was an extremely rewarding, challenging and inspiring experience.

Photo: Lucy Dawson

This reflected Dalcroze's view of art in its grand holistic sense, from the smallest muscles in the performers' bodies to the relationships between the stage managers and lighting technicians. Every tiny detail was my responsibility, and everything had to be thought through meticulously from printing programmes, to inviting an audience. The greatest source of problems for me came from the need to work in areas where I had no experience or expertise, namely, the realm of production and lighting. I believe that this engagement with every detail and concept of the overall production enhanced my embodiment of the music and brought me closer to Jaques-Dalcroze's world. Every decision-making process brought me ever closer to a deeper connection with the piece.

Performance 6th Feb 2018 Theatre 1 Irish World Academy of Music and Dance

The performance itself passed in a blur of energy – my own but also that of the audience. As part of the research I had included a data collection element for after the performance. Remaining true to the principles of arts practice rather than a set questionnaire, I provided paper and art materials for people to be able to express their feedback however they wished. Audio recorders

were also on hand for those who wished to express themselves in that way and a specialist focus group took place directly after the performance. I will not end this article with a tidy summation of that which was learned or what it meant. Instead I shall close with an expression from myself, a poem, and some of the feedback from members of the audience.

Here is an excerpt from a poem I wrote about the performance shortly afterwards.

'Dance of Shadows'

It's time to go on. I panic.
I feel I am not the slightest bit ready.
I go on, give my presentation, feeling strange but calm.
The lights go off, my cue to start.
This strange calmness is really unusual. What does it mean?
Am I embodied?
I SEE the theme. We are connected.
I am dancing with death here. Ava and I are one.
Am I nervous? NO!!! don't ask that.
Second movement, I love this bit. I let my body take over.
Death theme, Whoops, slipper sock is falling off.
Doesn't phase me. All part of the story.
Is this feeling embodied, or does thinking that, mean I am not?

The shadow movement. Am feeling the 'lonely' variation, the 'plea for help' variation, the 'intimate' variation, the 'shadow has got me' variation, the 'I tease you' variation, oh my God, I just did the 'chase' and yes, now it's the 'proud', joyous victorious theme. YES, I am proud and victorious. This is great. I am connected. I am feeling. I am present.
It's now Hell. It's all red. The light and movement is leading me. It feels wonderful. I can feel the Furies.

No memory lapses yet. AAGH don't think that. Breathe.
Oh no, I've got a cramp in my right hand.
What the hell? That's never happened before.
Don't panic Diane!
'Soft hand, soft hand, soft hand, soft hand' I instruct gently but firmly.

Whew, it's gone. Am nearly there.
I feel really powerful and overwhelmed by the emotion of the music. I know this piece SO well. My emotions are playing it for me. The final theme, is part of me. I feel the anger, the sadness, the conversation with death.

The coda, I feel the character behind the screen. I walk away from it, I feel confident.

It's over. I breathe out 3 times.
I feel relieved.
I feel sad.
Is that it?

Voices from the audience

Your performance opened a door to a new way of experiencing soloist work. Bringing narrative and imagination to triggering empathy in your audience. The personal engagement gives a different dimension to your performance. You change the focus on what was important to be shown. It was not about you playing, but about you sensing, telling, giving, exploring and feeling the music. By doing that you engage in a different dimension and so does the audience.

Jazmin Chiodi, Dancer, choreographer and festival director

I think this is amazing. I think this should be practiced a lot, this sort of thing for all sorts of audiences, from kids … to experienced. Because I think it really, really can enhance the music and … especially to get rid of this sort of distance people might have towards classical music … you know, immediately drawn in because … your other senses are working also. And makes it clearer and makes it accessible.

Joachim Roewer, Principal violist, ICO

I think she's working on a fantastically exciting part of music and I feel that's she's on the cusp of doing something incredible… and that's what really interesting about this PhD… which is about reexamining how music connects, how you use visuals to do it. It's a really exciting project and she's the only person on this island that I know of, pursing this kind of research … so it's fantastically brilliant.

Brian Irvine, Composer

Three minutes edit of the performance on video: https://www.youtube.com/watch?feature=youtu.be&v=wW_pH5ao0Nw&app=desktop

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Opera Instincta – An Invention and a Finding

A transdisciplinary work for 5-12 nervous systems, voice & movement, language & music

Hilde Kappes

Hilde Kappes is a singer and musician, graduate in eurhythmics, film-music and radio-play composer, author, and a Somatic Experience Practitioner after Peter Levine. Since 2007 she teaches the fields of voice and movement, performance and presence at universities and colleges in Germany, Austria, Switzerland, Spain and China, and gives seminars such as “The Art of Moving Music”, “The Humor of Voice”, “The Song of the Elements” or “ Rhythm of the Nervous System”. The coaching of choirs and bands, ensembles of all genres and solo artists is also part of her field of activity. She has been performing nationally and internationally with her own solo and band programs for 25 years. Most recently in Buenos Aires and Uruguay with the Voice & Body Rhythm group “Bande Cuerpo”. She received several awards, including the Rhoner Sur Prizes / Bolzano and the Prix Pantheon / Bonn for her solo performance. In 2016 she founded the work and method of ’Opera Instincta’.
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Opera Instincta *is an artistic project founded by Hilde Kappes in 2015 with the aim to explore processes in the nervous system, especially the functions of the so-called Social Engagement System (Porges, 2010), within the artistic process. In doing so, it strives for a form that is able to permanently change and transform itself.*

According to the methodology of the subject eurhythmics/music and movement, supplemented with elements from theatre pedagogy, the participants are working with voice, movement, music (text, language, visual arts, film) in an interdisciplinary and multidimensional way. By means of the five creative instruments: intuition, interaction, improvisation, imitation, and identification, a method is developed which focuses on the topics ENCOUNTER – RELATIONSHIP – CONTACT – COMMUNICATION. In this way, the effect on the outside *and back on the* inside*, that is to say: on the audience and back on the acting artists, the continuous activity of the mirror neurons, and the permanently changing and pulsating resonance between human beings become the main aspect of spontaneous action and elaboration of creative material. The actors are developing a vocal and performance repertoire that focuses on instinctive reactions. Clichés, role models, or creative constraints are examined artistically or extended ad absurdum. The continuum of feeling, of physical and mental awareness of change and presence, as well as the concentration on processes in the nervous system as self-transferring phenomena, (based on Peter Levine's method of Somatic Experiencing) are here of primary importance and manifest themselves as the artistic intention of the Opera Instincta.*

[…] for he whose heart is full of feeling,
it urges him, according to his means of expression,
to communicate it also to others.
(Jaques-Dalcroze, 1920, transl. by Patrick Pohlman)

As a eurhythmics teacher, a performance and vocal artist, and due to my additional training in Somatic Experiencing (SE), I came across fundamental possibilities to deepen my work with music, voice, and movement. The training of SE (Somatic Experiencing/trauma healing) by Peter Levine deals with the regulation of processes in the autonomous nervous system that involve our voluntary and involuntary reactions. The awareness of physical sensations and the search for resources ensuring the greatest possible security, orientation and the development of healthy boundaries is extremely important for a feeling and creative (artistic) person. This induced me to develop a stage work concept which, at the same time, functions as a teaching principle as well as a form of education.

The *Opera Instincta* delves into the phenomenological aspects of eurhythmics, exploring what is happening physiologically-biologically when contact, relation and resonance are triggered by the interaction of improvised or arranged music, movement, and voice. It's a performative field which, at the moment of the event, is able to create expression and regulation for all

participants and which deals with the topic areas of instinct and intuition. The occurrence of resonance and its effects between artists and observers are explicit topics of the Opera Instincta. Hereafter, I'd like to summarize shortly the three different methods which I'm using:

- As the basis of the Opera Instincta, eurhythmics which was founded by Émile Jaques-Dalcroze at the end of the 19th century ensures the interaction of various fields and means (Konrad, 1984; Schaefer, 1992) like tools/material for voice, movement and music within the parameters of time, dynamics, space and form.
- The theatre pedagogical work of Jacques Lecoq enables the identification with elements by means of neutral masks. Due to the resulting new facets of expression in movement and, later, also in the voice, the acting repertoire can be extended (for further information see list of references).
- Somatic Experiencing (SE) after Peter Levine and the integrated instrument of Focusing (Gendlin, 2007), in particular in connection with the so-called *Felt Sense*, are used to experience consciously sympathetic and parasympathetic regulation, to hold contact, to consciously build borders and to detect, to hold, but not to reinforce "active fields".

The neuropsychological findings of the polyvagal theory by Dr. Stephen Porges (2018), which play a major role in the training of Somatic Experiencing, have been my point of departure to sound out and deepen the potential of eurhythmics in the Opera Instincta, a constantly changing process which is anticipated and adapted to the space, its history and energy as well as the history and capabilities of the people involved.

The interaction of voice and movement, and the effects of music, sound and rhythm on the vocal expression of the individual, are important parts of the research, as well as the fact that contact, communication, relationship and resonance have a strong effect on voice and singing.

As a teacher, I'm often confronted with a sense of shame and shyness, as well as an immense pressure, which the singers are imposing on themselves while improvising because of their idea how it should be. On the other hand, I regularly witness a great liberation when the voice is coupled with movement in space. When the individual singers are at their places again, confusion often arises partly caused by the uncertainty of having to combine their knowledge from the classical singing lessons with that which they learn in the improvisation class.

The flexibility of the voice is closely tied with the feeling in space and the connection with the group. As a very particular instrument, the voice has to be trained differently than any other musical instrument. It is coupled with reactions of the nervous system and especially with the complex phenomena of resonance. The latter is not only generated by the observer, but everything in and around the singer has an effect on them: space, time, temperature,

odor, incidents before and after, muscle tone, flexibility, grounding and confidence, mental condition et cetera. On the other hand, we are not only at the resonance's mercy, but we are also able to participate in it and (re-) gain control where it is necessary. However, this is hardly possible without the active involvement of our body. It needs confidence and security on a biological level to obtain an embodied presence. Without this, it often requires an enormous strength to present the whole range of oneself or to speak and sing in front of an audience.

Essentials for a regulated nervous system

Eurhythmics initiates personal and artistic processes. In conjunction with SE, these can be deepened even further. This concerns in particular the strengthening of the social engagement system. This system is active if we possess enough liveliness (sympathetic nervous system) for our activity and enough tranquility (parasympathetic nervous system) for our overview and access to our potential. The building of resources, the strengthening of capacities, the increase of resilience, the dissolution of defense strategies and over-activations, the decrease of embarrassment and shyness, the building of Containment (after the British psychoanalyst Wilfred Bion), as well as reorientation, security and promotion of social responsibility within the artistic events, all this can be effected by eurhythmics due to connections of various fields and means.

Also the theatre teachings of Jacques Lecoq, which I use to extend expression, impinges on the nervous system in a regulating way. However, there is one restriction: processes which cannot be communicated consciously, and do not have the necessary duration to become actually internalized, will not be entirely effective. The Opera Instincta approach tries to give more attention to the highly effective neurological processes in time and space without losing the spontaneity of expression.

Contact – orientation – security

The theory of Stephen Porges explains why, in the case of intense incidents (traumata), the ventral vagus, the slightly younger branch of the parasympathetic nervous system, will largely prevent contact channels or limit them to a solely mechanical function. As a result of Somatic Experiencing, which concentrates on processes of the nervous system, a discharge of bound energy effects the revitalization of the system of the ventral vagus, which leads to a 'renegotiation' of orientation with the other person, as well as an activation of the capability to show binding behavior. This results in an improvement of orientation in space and towards oneself, as well as of physical sensation. Therefore, a reorientation becomes possible,

which often causes a strong emotional, physical and mental vitality: the so-called positive reactivation of the social engagement system.

If the ventral vagus does not function properly, in other words, if the nervous system is over-activated or in 'shut down mode', in most cases, the contact with the sensory organs is also restricted. This has consequences for the whole physical system of the affected person. The sensory responses of the affected person, such as perception of space and time, the capability to build healthy structures, the assessment of his needs, feeling secure in group contexts, et cetera, will operate in a state of uncertainty which has to be permanently compensated for. This leads either to a high arousal level or a spontaneous and enduring heaviness, tiredness et cetera. Also, permanent changes between being highly activated and being very tired are possible.

To feel the coherence of closeness and distance, and to be able to deal consciously with tempi and time, is not self-evident. Small children in the phase where they are wary of strangers give a vivid example of this: their steps, through which they slowly develop confidence, can be characterized as "dose adapted" (analogous to Somatic Experiencing, see below): they stay in safety, then dare a small step ahead and return to the safe place, their mother/father, if they consider it necessary; sometimes they also scream. In this way, they are oscillating with their nervous systems. This kind of pendulum is also used by Levine (2010) for his Somatic Experiencing: the movements of the sympathetic and the parasympathetic nervous system, extension and contraction, back and forth with the rhythm, the individual's own tempo. With regard to contact and relationship that are built out of a safe environment, there we can also talk about musicality, timing and sense of tact. The method of eurhythmics is playing with closeness and distance to explore space and time, lengths and brevity, density and width in a musical and physical way. Of course, this game also interactively influences the social capabilities of the individual. He will see whether he is feeling comfortable with closeness or distance and adjust his movement behavior accordingly with it. Eurhythmics is aimed to artistically deepen and sensitize the relationship between the practitioner and their body and the space around them also on the sensory level. In Somatic Experiencing, the orientation of the client towards space is seen as essential for a regulated nervous system, e.g. to restore the personal balance. It's not necessary to emphasize that creative processes are essential for the restoration of vitality.

Perception and inclusion of space

In the Opera Instincta process of improvisation, every participant has his own secure place. It can happen and is intended that an artist will spontaneously step back behind the events. It is important to learn that stepping back is not equal to 'doing nothing' but also means to give space and containment for others or just observe. However, an artist can also step back if something

is just getting "too much" for him. Our vitality and conviction can only be authentic if we have control over our spontaneous actions. This may sound illogical, but our instincts and 'lower' functions are components of a whole system in the triune brain. Some persons tend to overact if they lose control over their innermost security. This is prevented by the possibility to step back.

A regulation is not only necessary if participants are showing reactive behavior. It is always useful to enable access to higher developed brain areas (social engagement system) and in this way to the actual (artistic) potential. The revitalization of the system of the ventral vagus (in the course of an individual SE session) is recognizable by changes and reactions of the senses and sensations of the client. The capability of the eyes to hold the gaze becomes conspicuously different, and mostly the eyes become clearer. This entails a lot of sensations. With regard to the perception of space, the participants often state that single objects or even half the room is perceptible again, which is accompanied by a feeling of surprise and joy. Parts or even half of the body can become perceptible again in a way that they had not been felt before: "structured", "vital", "solid" and "comfortable" are attributes which are often named.

Closeness and distance

Within the artistic process, the perception and inclusion of space is not only important from creative viewpoints, but also with respect to the nervous systems of the acting persons. Often artists draw so much self-affirmation from their artistic expression that they simply forget the surrounding space. Somatic Experiencing and Focusing are the tools to counteract this. A participant who always takes a place at the front and avoids the places behind possibly lacks a feeling for closeness and distance, or of the division and design of space, which has an effect on the audience.

Within the scope of the Opera Instincta there is at least one day per week with a focus on the topics space, closeness and distance to the edge of the stage and the audience. Sometimes one or two participants will need an additional Somatic Experiencing session to deepen the topic of space. The result can be an enormous gain of power of their voices if they have physically integrated this *behind*. (Of course, there are also opposite cases in which participants lack the courage to step in the front.) After all, as improvising artists, we do not have a director who would tell us where we have to stand in the room. But, instead, we are our own directors and want to have all means at hand to know and feel that every choice and change we make in the space, every closeness and distance has an effect on each of us and on the audience.

Shortly before the ventral vagus serves its purpose again (which can take shorter or longer periods of time), micromotions in the neck set in, which

can be supported by Somatic Experiencing and should be monitored with regard to slowness and fineness. These impulses are, a sign from the nervous system that a reorientation in space should begin. Within the process of the Opera Instincta, we take the time to bring these micromotions to an end. We also use the group process to activate the system of the ventral vagus. The individual receives support and attention by the group. We consciously refer to each other and re-negotiate the events permanently in a non-verbal way. Therefore, the conscious perception of the activity of the ventral vagus has a direct impact on spontaneous impulses and events of expression in the group. Keeping contact and, at the same time, focusing on oneself, not losing sight of oneself, is a high art.

It is important to point out that "keeping contact" does not mean an overprotective overestimation of all the other person's actions, but a maximum awareness of everything that is happening. Improvising in a group often leads to catapulting out of too much "charge" and, sometimes, to a lack of subtlety. A lack of focusing on resonance and physical sensation can result in avoidance of pauses for fear of emptiness. Short steps can engender immense changes. To create an effect, the artist needs time and space: for himself, for the other participants, as well as for the observers. This strengthens presence.

Physical and psychological power of music

Instinctively, an artist in their creative process is seeking for a form of security; they are designing means to create for oneself a field to feel secure in and to let presence occur. This means that in artistic-creative processes, whether solo or in a group, we always have to deal with the meaning of a "secure field" and the question of what it means not only to have an idea, but also to represent it. Being an artist is one thing, but to put oneself safely in the world is something else.

The process of artistic design is similar to that of the nervous system. Both have to do with the balancing of charge/discharge, tension/relaxation, closeness/distance, of tempi, space, time and dynamics. Within the developmental phases of a form, a human being encounters himself and possibly undetected *material*. The phases consist of: inventing (spontaneity/instinct), feeling (affect), changing (regulation), analyzing (cognition), possibly returning to inventing, and finally determining/establishing (completion).

Émile Jaques-Dalcroze spoke of a "musicalization of the arts" and the necessity to establish eurhythmics as a method for dancers, actors, opera singers, et cetera. In my opinion, every person regardless of musicality or talent follows his inherent *rhythmic-musical principles*. Where nowadays various music-pedagogical approaches compete with each other, we try to make clear with the Opera Instincta (and with eurhythmics) that improvising and designing by means of music, voice and movement can strengthen the

whole personality and form a "secure" community. The development of (nonverbal) communication competences due to interaction of the means above has a major influence on the vitality and balance of a human being.

> "[…] and if the whole system of rhythmic education is building up on music, this is simply because music is an extraordinary psychic power, a power arising from the spiritual life and will to expression which due to its stimulating and regulative force is able to organize all of our vital functions […]" (Jaques-Dalcroze, 1920, transl. by Patrick Pohlmann).

In an artistic field, whether it is improvising or designing, good timing and coherence are the responsibility of us all. Our awareness and our capability for regulation are determinative for our effect and impact on the audience as well as for the way we learn. In the beginning, the time that is created due to the slowing down and the concentration on, and training of, the Felt Sense is initially perceived as irritating. However, after regulation, creative impulses generally happen with much more self-confidence, and the expressiveness of the participants becomes more primal and vigorous. The experiencing of time takes on a different importance. Due to observation and sensing we reach the 'lower regions' of the brain and let what is sensed rise up again to the limbic system and the neocortex (Bentzen, 2016). We act instinctively, feel and react, recognize and designate, understand and feel again, always with an eye on the 'whole of society': a composing person on his path! A pack of designing nervous systems in space! A group of individuals creating time!

Witnessing and containment

The more this happens, the more resonance in general increases, as also the nervous systems of the people in the audience begin to react to the events on stage. Regulation has something to do with discharge or, as Levine calls it, "biological completion" (2010). Having a witness means to enter into a field of resonance and to learn to trust in the other person.

In our Opera we are, as well, witnesses of actions. Everybody trusts in the other participants and all together affect the audience as a *comprehensive nervous system*. At best, we create a space for all in the room. We have a creative way to deal with otherness. We value the fact that a neutral space is made available and welcome a healthy mix of levels. By giving this freedom to others, it is possible to create a huge awareness of Containment. As a result of this, the participants are able to comprehend the meaning of this term, allowing an image of a vessel to form before their spiritual eye, also in a physical way. Sometimes, this even means to forego a clear methodology/didactics, maintaining "only" the space for internal and external movements, enabling "adaption" (ger. Anverwandlung) (Rosa, 2016), and the possibility to rethink the traditional hierarchy of student and teacher.

To develop presence for everything that happens in space and within ourselves changes the experience of time and becomes a physical experience with a practical, biological effect on the observer. In a composition for orchestra, all instruments have to follow the musical flow, and yet everything has to be well thought out. In this case, there is a composer who solely makes all the decisions. In contrast, the Opera Instincta arises as a group event in the moment. It consists of improvisation and at the same time of designing. Every participant has to provide his talents and vitality in the "right degree", to ensure the flow and keep contact.

By connecting improvisation with designing and the social engagement system, the Opera Instincta is a higher form of group communication. In principle, it is applicable wherever people come together, and is of importance for personal and community development. The Opera Instincta can be used to make possible interaction between the arts at universities as well as between faculties. But it can also be applied to orchestras and theatre ensembles, as well as in areas that do not have to do with the performing arts, like schools, companies, institutes and institutions. Its application is useful wherever people need new access to music or want to regain a spontaneous access to their internal and external movements, but also for those who would like to experience the meaning of a secure group structure.

What Opera Instincta is about

Our project, Opera Instincta, is based on the thesis that without the promotion of a consciousness of our own instincts in conjunction with creative expression, it is not possible to generate a really natural and holistic structure. Without an inner balance of all components of the human body, the cognitive capabilities, and also the emotional intelligence and the individual expression, an inner growth is hardly possible. Vitality and individuality are inhibited wherever there is no place for the natural expression of human beings, where reality and the non-real become blurred and performance pressure creates adapted, deformed people or "normopaths" (Maaz, 2017). The objectives of the Opera Instincta are the promotion of individuality, clarity of reactions and consciousness of form, the development of resonance, empathy and community, and the integration of testimony and awareness for the social engagement system into creative processes.

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Beauty/Schönheit/ Skönhet

An artistic research project in music and dance

Susanne Jaresand, Maria Calissendorff

Susanne Jaresand, University graduate 1982 Dalcroze Eurhythmics at the *Royal College of Music* in Stockholm where she was working between 1996 – 2013. Appointed professor in 2004. Artistic Director of Dance Education Modern/Contemporary, *Balettakademien Stockholm* starting 2011, and Assistant Professor at *Luleå University of Technology*, Acting Department, starting 2013. She received grants from the Swedish Research Council in January 2014, that will continue to 2016; "Listen to listening, Counterpoint in dance and in music in a listening Attitude". Jaresand is active as professor in movement and eurhythmics, choreographer and musician. At nearly fifty own choreographies, she has also been involved in numerous productions at the main scenes in Stockholm. Susanne was the director and choreographer for the divertissement at the Nobel dinner in 2000. She was the director and choreographer to the mini opera *Queen Christina* (Swedish Television) premiered in London.

Maria Calissendorff has a master of fine arts in music education and a PhD degree in musicology with focus on music education. She works as a Senior Lecturer at the Department of Education, *Stockholm University*, Sweden and teaches at the teacher education programme and supervises degree projects at all levels. Her current research concerns orchestra musician's path from beginner stage until employment in a professional symphony orchestra. She is also involved in an art research project investigating the *physical listening* in dance and music interacting.

In an artistic project we investigated the points of contact between choreography and music composition in a listening stance, where the meeting between the artists was visible and audible. Collective creative processes arose from this attitude of listening. One way to bring forth the listening stance – and not only uni-directionally, as when a choreographer uses a through-composed piece of music – was to let a composer write music to a dance, choreographed in silence. The performance gave the opportunity to change rituals around listening that are predominantly current in an attempt to resuscitate the eyes, ears, inner and outer attention to a reflective listening; to take these thoughts where the body goes and break the patterns of embodied and cognitive ways of thinking. In a position of stillness, one can renew, breath, give and open up to new opportunities. The cognition/corporeality of the dance became a way to listen to music.

This article concerns an artistic research project, *Beauty/Schönheit/Skönhet* (Beauty/Schönheit/Skönhet, 2014a; 2014b) where we want to emphasize the complexity in listening in the artistic processes that emerge in both dance and music, and the space in between.

The project concerns in gesture in music and dance, and more specific, the similarities and differences between the audible in music and the physically audible in dance. It refers to a phenomenological discourse within the philosophy of hearing, which highlights the aesthetic and social implications of listening and thus also illuminates hierarchical aspects. Contrary to how the eyes relate the world through objectification and classified distance, the hearing is directed towards proximity and procedural openness. Listening is a fundamental phenomenon in human relations (Wallrup, 2002). Music often serves as a structural basis, which gives form and shape to the dance/music as a whole (Olsson, 1996). This approach requires a choice of strategies that build on the understanding that it is both possible and appropriate to contemplate these questions in artistic practice. A practice where dance and music work together, and the artistic research happens *in* and *through* the art. We want to develop a theoretical field as well, which can be relevant to and enriched by these artistic fields.

With these concepts of listening in the artistic research environment, and in the academic, philosophic and scientific world, it is important that listening is made visible and audible in a broader sense. We use the artistic expression, dance and music, in order to demonstrate a new way of creating meaning through a common denominator – listening.

Aim

The project aimed to find structures where choreography and music composition could be made visible in relation to each other in a listening attitude, where both art-forms had the musical element as a common denominator.

Questions that were important to deepen the theoretical aspects of the project were:

- What methods were developed for choreographic creation that embody the qualitative aspects of movement in relationship to the movement within music?
- What methods were developed for compositional creation that embody the qualitative aspects of sounding in relationship to the sounding within movement?
- What new artistic forms emerged through this listening interaction?

Background

In this project listening is a key concept. To deepen and broaden understanding of the usage of this concept, we take up a philosophical discussion around the sense of hearing that has emerged during the last decades and intensified the last ten years. This discussion has mostly been in connection with phenomenology, either within the tradition or in critique of it. However, the common point of departure is that listening has had a hidden place in philosophy, where sight quickly is established as the primary sense in that which came to be called "ocularcentrism" (Espinet, 2009).

Music is an activity for the whole nervous system, whose impulses organize bodily activity. These activities can both be outer (movement/dance) and inner (emotion). In order to internalize the music through the whole person, a natural connection between music and movement/dance is needed. All musical sound is created through movement, which means that it is possible to understand the human body as a musical instrument. Through practices in rhythmics, plastique/movement and ear training, music is placed in the whole person. Movement/dance is an equal part in this language, music/rhythm, where the movement of the body is used to represent the musical element (Jaques-Dalcroze, 1920).

Jaques-Dalcroze claimed that musical expressiveness could be taught and does not depend solely on natural talent and also that prominent musicians often had an instinctive physical connection to music. He trained students in each of the musical elements so that they could represent these elements physically. This physical listening resulted in a virtual lexicon of musical translated movements as follows (Jaques-Dalcroze 1920, p. 150 in Jaresand & Calissendorff, 2013, p. 190):

"Music	**Dance**
Pitch	Position and direction of gestures in space
Intensity of sound	Muscular dynamic
Timbre	Diversity in corporal forms

Time	Time
Rhythm	Rhythm
Rests	Pauses
Melody	Continuous succession of isolated movements
Counterpoint	Opposition of movements
Chords	Constellation of associated gestures/movements
Harmonic successions	Succession of associated movements
Phrasing	Phrasing
Construction/form	Distribution of movements in space and time
Orchestration	Opposition and combination of diverse corporeal forms“

The training of the body includes movement from breath, gravity, rotation and exploration of the body's center in relation to the periphery. The training also helps to develop a sensibility in the nervous system. Jaques-Dalcroze method aims, on the one hand, to create a number of automatisms and a solid context in muscle function and, on the other hand, to establish and protect communication between our spirit's two poles, body and mind, and expand our natural rhythms.

Method

Those who took part in the project were a choreographer, a composer, a conductor, 16 dancers (three soloists and 13 company dancers) KammarensembleN (Swedish Chamber Orchestra, 18 musicians), a string quartet and a researcher. The research thereby involves collaboration between experts with complementary skills, experienced artists and researcher.

This collaboration, will create the opportunity to gain empirical knowledge which could otherwise be difficult to attain through the more unilateral perspective of conventional academic research. Since the project is an artistic research project, it could only take the form it did. The research is *through* art which does not make it possible to distinguish the explicit research methods from the artistic process as they are interwoven. This also means that all contributors were involved in the artistic process that also became part of the method. Although the research methods are qualitative with observations and interviews (Bryman, 2008), the presentation of the results from the project are not in the traditional way of qualitative research. The concept of reflective listening is, for all participators of this project, an important parameter as a methodology for analysing how music and dance inter-operate, and how choreography creates a kind of listening, which can transform music into a physical experience.

Artistic process – implementation

The project was comprised of choreography for sixteen dancers and music in two parts: a newly written work, *Force and Beauty* by Sven-David Sandström, for KammarensembleN and solo violin, and a string quartet, *Fragmente-Stille, An Diotima,* by Luigi Nono.

In an initial stage, the dance was choreographed in silence, which the composer listened to and created a sounding counter-voice for. This was a way to emphasize the open listening attitude, not only uni-directionally, as when a choreographer uses a through-composed piece of music, but to let the composers write music to dance, choreographed in silence. It was the dance's intrinsic rhythm, melody, dynamic, the orchestration of the dancers, that became the inspiration and frame for the composition of the music. The dance created a voice to the music and the music gave a voice to the dance. Then two independent musical artistic expressions emerged, woven together.

Results

Methodology development for composition

When composing to dance one should have a pre-understanding that the music is part of a dance and music performance and therefore have a communicative relationship, and take a listening attitude towards the structure and content of the performance. It is also important to know what function and what relationship the music will have to the dance. Should it be a carpet of sound, a creator of a mood, an atmosphere or should the music clarify or enhance the dance expression? In this project the music was a counter voice, either as a voice for the choreographer to have as a frame for the dance, or as a counter voice in music to a pre-choreographed dance. This means that the composer must listen to the physical expression, the music of the dance and analyze its structure and make a composition with this "dance score" as the starting point. While experience a movement in space one can either *see* the contours and hence the form of the body or *hear* the nonsounding music that comes out from the vibrations in space, the air, made by the movements. In this process of creativity, the sounding music must be open to the music of the dance, to hear the "dance score", and have this score as a frame for the sounding composition. The choreography should then be open for interpretation in accordance with how a music score is interpretable for the conductor and the musicians.

Nono

The string quartet *Fragmente-Stille, An Diotima*, can be divided in four parts, and the choreographer changed so the last section to become the first. Thus, there was a clean, direct start to the performance. The original

first part of the quartet has a hidden, tentative telling aspect that carries the dramaturgical risk of giving a narrative entrance, thus estranging the participants from reflective/physical listening (see Jaques-Dalcroze, 1920). Instead, a non-narrative dramaturgy arose, based on an arhythmic temporality that opened the possibility for the creation of meaning. Luigi Nono makes the differentiation of sound materials understandable for the listener through the lengthening of sounds and the use of silence. The listener is not overwhelmed with information, but has the chance to reflect on every sound or constellation of sounds. Silence can challenge the listener to discover her or himself. It is the understanding of this reflection in our inner self, in silent space and memory, reflection and self-insight that opens up the element of the *fermata*.
The feeling of slow fragmentation through painful hesitation.
The "dance score" was created from the string quartet parts, where the same possibility for cognitive/bodily reflection in the stillness emerged. The dance created a counter-voice to the quartet in a state of reflective listening.

Methodology development for choreography

In the project the choreographer leads the work and catches initiatives, characteristics and artistry of the actors through following activities: design movement's graceful and musical value in relation to the musical vision for the performance. This is an activity as specific and thorough as in the design of an orchestral work; both musically and spatially, to explore knowledge about the counterpoint, phrasing, cooperative polyrhythmic movements and harmonization of the dance. It is also about the relationships between movement, body positions, levels, and the space that surround them. The aim is also to train the dancers listening in being inside of and facing the music with the musical integrity within the dance, without being controlled by or follow impulses directly *from* the sounding music.

This means close cooperation, which in a spirit of curiosity allows composers to appreciate that their work is being interpreted as a counterpart in dance and that the musicians are willing to open their listening towards the dance. This requires that the choreographer has a large network of not only dancers, but also of musicians and composers. The role also includes getting the visual scenic expressions (light design, set design and costume) to enhance the musical values, so you can avoid a storytelling that possibly alienates the mutual listening.

The artistic choices of the choreographer in this project was also to create a sketch like "dance-score" from a music score, a kind of two voices harmony. In this coexistence, the music score, is then interpreted and expressed in dance. The challenge now is to find a flow in a give-and-take in the interpretation of the sounding score according to: instrumental groups, solo parts, volume, timbre, time, rhythm, pause, melody, counterpoint,

harmony, phrasing, structuring, orchestration. And how the dance will be structured: number of dancers, quality of movement, muscle dynamics/ tonus, diversity in corporal forms, duration, rhythm, phrasing, continuous succession of isolated movements, the distribution of movements in space and time, varied movements in the opposition and combination, succession of associated movements. The choreography is then further developed in silence, to find its "own music" within the dance, a process in which the dancers are co-creating alongside the choreographer, creative by their individuality, experiences, imagination and knowledge. This is indispensable for the artistic expression of the performance. There are also relationships between the rhythms of the dance and rhythms of the music, the sound volume and size of the choreographic gestures, the musical textures such as polyphony, homophony with its special organizations of instrument voices and the analogue choreographic organizations of the dancers, the timbre of the instruments or sounds and characters of the individuality of the dancers (see Background). The dancer listens to the music *through* the dance sequence created in silence, and thus an artistic meeting occurs with the listening as the common denominator. This cooperation should be carried out with great accuracy, especially with the regard to the interception of the quality of the non-psychological movement that arises in the work of the musical elements transformed into dance. The process also includes an accuracy of timing with regard to the appropriation of the movement.

Interpreter, dancer

The dance sequence is based on the interaction between listening to the natural rhythm that occurs in the dance improvisation, and forming of movements by the choreographer in a musical listening purpose. The sounding metrics of the music are not controlling nor limiting. Then the dance sequence is danced to the sounding music, to listen for "meeting places" – tones – which through coincidence, intuition, knowledge and experience will occur. It is important to give the dance a scale of expressions in a musical cultivation, which gives the body both full control of all available elements of dynamic and agogic nature, and the opportunity to experience every nuance of the music in order to express them through the muscles. This investigation must be complemented with knowledge about agogic and spatial laws, to anchor variations in the time value through a physical listening.

The listening permeates every part of the process and should be analyzed as follow:

1. The dancer's own improvised sequence in relation to the intentions of the choreographer.
2. The co-dancers improvised sequences in relation to their own nature as a dancer.
3. The unanimous dance in relation to the sounding music.

4. The physical listening of the listening attention from the audience.

Interpreter, musician

The role of the musician is based on listening on the interpretation put forward through the interaction between the co-musicians' value, the relevance of the interpretation to the meeting with the music of the dance and find a repeatability and in that a deeper listening to the dance.

The music by Nono was composed with intervals of silences, in which the musicians can open up their listening out in the space of the dance. It means an expansion of the knowledge about the equal expressions of dance in relation to the sounding music. Parts of this music was based on improvisational models, that lead to a greater interaction between the musician and the music of the dance, through a collective listening.

New artistic forms

The project aimed to find structures where choreography and music composition could be made visible in relation to each other in a listening attitude, where both art-forms had the musical element as a common denominator. Instead of performing both musical pieces, one after the other, they were performed in a dramaturgy where they were played at the same time, and each in their own time structure, giving dramaturgy to the performance. In combining the two music pieces, a "third" piece of music emerged for the dance, which partly gave a counter-voice and partly gave the primary voice of the music something to relate to. This meant that the conductor and the musicians in KammarensembleN and the string quartet were part of a musical whole, which also included the choreographers' and dancers' interpretation of the music which became an independent voice.

In the meeting (see figure 1 below) between KammarensembleN, the string quartet and the 16 dancers, a listening emerged which was

- two-voice part – when one of the orchestral bodies played to the corporal music of the dance trio
- two-voice part – when one of the orchestral bodies played to the 16 dancers
- three-voice part – when one of the orchestral bodies played to sequences where the dance trio had one part and the other 13 dancers had another
- four-voice part – when the two orchestral bodies played in the determined time structure at the same time and each for themselves, to sequences where the dance trio had one part and the other 13 dancers had another.

The dance trio expands to a sextet on one occasion, and the dancers in the dance trio also make their own solos.

Specifically, in the dance trio and string quartet opening sequence (13 minutes), one could decode a listening integration between the dancers and the musicians. In that part of the work there was an unprepared/prepared process where the intensive silences were followed by sounding and bodily discharges where a multiplicity of relations in different times emerged, developed and transformed. The outer structure was set, with an inner area of possible space for performance.

The time structure (see figure 1) was laid out as a dramaturgical frame for the performers to relate to, and the complexity in the interweaving of the different voices were intercepted and decoding by the listeners/spectators. The improvised temporality in the opening sequence, with the string quartet and the dance trio, were not possible for the most part in the continuation with the dancers and KammarensembleN. Instead, the greater emphasis lay with the dancers' interpretation of the sounding time of the music, which could vary as the piece unfolded and as a whole. Here the communication between the choreographer's and conductor's understanding of tempo in the different sections of the music was of great importance. The choreographer illuminated the dancers' musical approach with sequences of movement relating to the sounding music, and returned to the conductor. In some sequences, one or more of the musicians were free to follow the music of the dancers, and in the last sequence the solo violinist went out onto the dance stage and joined the dance trio. In this part, it was complexity in the consonant structure of the dance and the music that yielded the opportunity for new meaning and understanding for the listeners/spectators.

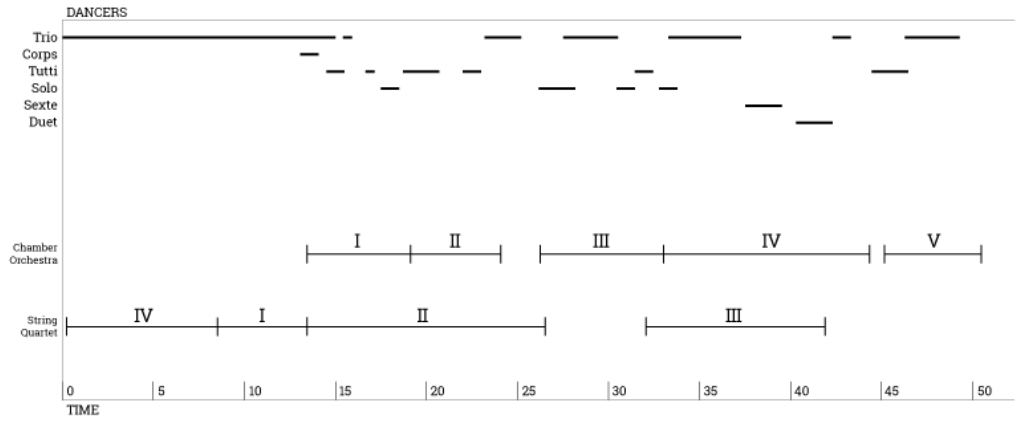

Figure 1. Graf showing time structure for the voices of the dance and the music

Discussion

The overall idea of the research program was that, with experience in choreographed dance, one can access a physical listening, forcing a particular kind of attention, which returns the music to a bodily experience.

The performance gave the opportunity to change the rituals around listening that prevails in an attempt to revive the ear, eye, inner and outer attention, into a listening thinking, to bring the conscious where your body goes, and break the habit, the expected. The mind and corporeality of the dance and music become a way to listen and express music.

The research will lead to the transfer and exchange of skills and experience from the different fields, techniques and disciplines in the performing arts. The project also developed a systematization of the concept of choreography from a radical, unconventional perspective in the field of research. Artistic, pedagogic and organizational development and input are necessary for this process, with flexibility for new ideas and opportunities.

The opportunity afforded by the performing arts to illuminate human interaction in an intrinsic space can yield tools for the raising of competence in art in general. The main point here is to reflect both practically and theoretically, based on an understanding of quality and quantity, from a standpoint of critical listening. Another point of departure is to reflect upon and elucidate the traditional, conventional methods of choreography, which are employed to meet pre-determined goals, and instead find new ways to take part in the collected resources for research. This includes reflection on how those resources are disseminated to create conditions for artists to work as independent, professional researchers. Artistic research can create remarkable connections between different disciplines, and through this it also develops the artist's individuality. Artistic research is invaluable in our complex information society, in which scientific and artistic skills are increasingly balanced on a more equal basis.

As the project has developed and addressed questions first and foremost, about the development of artistic methodology, it has also generated new questions to investigate:

- How will listening take on a larger meaning, be restored, take a greater place in artistic, philosophical and academic discussions; the curious and undecided listening, the hearkening?
- Is there the need for movement which is understood as music? What is the function of rhythm in that inquiry?
- Can the incomprehensibility in music be found in dance, or does dance have to be comprehensible because of its corporeality?
- Where in this process does the transition occur in the embodied listening from its own natural rhythm/temporality to the time of the stage?
- How does reflective listening emerge?

Movement lies at the heart of these concepts as the basis for all art forms, the feeling for space/time through movement. It is important to emphasize the study of the body's natural rhythms and, through their automation, create enduring rhythmic images in the mind, to connect muscle action with

linguistic/musical processes. This includes to work against the shortage of interconnection between different attitudes and the absence of a continuous movement – a movement that we need to experience in every living manifestation of a continuous concept.

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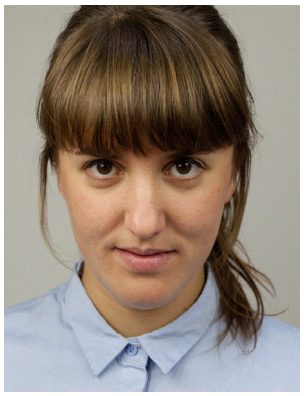
Abstracts of Academic Papers and Research Projects

Synaesthetic Perception Processes in the Mediation of Experimental Music

Lisa Baeyens



Lisa Baeyens is a flutist, improviser and music teacher living in Berlin. In 2017 she completed her studies in “Eurhythmics/Music and Movement” at the *Berlin University of the Arts* with her thesis on synaesthetic perception processes in the mediation of experimental music. After that she started studying the Master of Music Improvisation at the *University of Music and Theatre Leipzig*. She plays and is active in various bands, ensembles and performance projects and is also active as a composer, among others for the art film “Mindscape Universe” produced in 2017. Since 2014 she has been teaching at the Music School Berlin Spandau, where she has been head of the Inclusion department since 2017.

In my work I have dealt with the effect of synaesthetic perception on the experience and mediation of experimental music. Experimental music is here referring to music from 1950 onwards, which is composed, but whose composition conceals a part of unpredictability and always leaves the interpreter space for his own realisation and interpretation of the composition. Music as an experiment - how can synaesthetic perception fertilize musical experiences?

Research into the phenomenon of synaesthesia has increased considerably since the 1980s and can be regarded as a "part of basic research for understanding processes of perception and consciousness formation" (translation: L.B.), as Kerstin Hallmann says in her dissertation "Synaesthetic strategies in art mediation".

Since ancient times, sensory perception has generally been divided into the five individual senses of seeing, hearing, touching, smelling and tasting. However, there have always been efforts to question this division. Over the past 100 years, philosophical phenomenology, neuroscience and new inter- and transmedial art forms have made it clear, among other things, that the model of individual sensory modalities has limits and that there are phenomena or appearances in our everyday lives that cannot be perceived or explained through the individual senses, but rather involve a holistic experience of perception.

On the basis of neuroscientific, philosophical and educational-theoretical considerations, this work demonstrates that synaesthesia can be understood as an elementary mode of perception and an enrichment for experiencing and dealing with experimental music. Synaesthetic processes can extend the conventional perspectives of learning and perception, as this work proves with practical examples and empirical values. This in turn can have effects on general educational processes and concepts. And thus presents new challenges and opportunities for music mediation, especially for experimental music.

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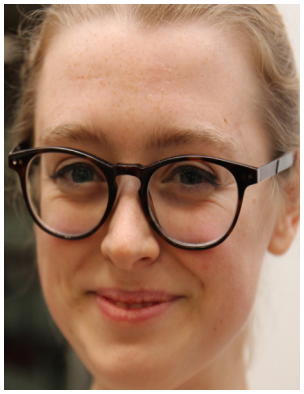
Original Title

Synästhetische Prozesse in der Vermittlung von Experimenteller Musik. University of the Arts (UdK) Berlin (2017).

For reading the full version in German: https://www.musikbewegung.de/studieninformationen/schriftliche-abschlussarbeiten/

Evaluating the Phenomenon Flow in Eurhythmics Education for Adults

Anna Großberger



Anna Großberger, BA in eurhythmics in Vienna (2018) started taking lessons in violin, piano and voice at the age of six. From 2013 she studied Music and Movement Education/Eurhythmics at the *University of Music and Performing Arts in Vienna* (MDW), where she specialized in voice, vocal improvisation, and music and movement education in therapeutic and inclusive educational settings. During her studies she explored different dynamics and structures in her teaching to initiate *flow* during her eurhythmics classes for adults. Anna Großberger is currently studying her master's degree in eurhythmics at the *University of Music and Performing Arts Vienna.*

"Today I was in flow" is a frequent sentence used by participants to describe their state of mind during eurhythmics classes. *Flow* describes an intense absorption in an activity that is independent of age, sex and origin of the acting person. What potential does eurhythmics have to allow flow and how can it be initiated into educational settings with adults?

One possibility to pursue these questions is to compare the characteristics of flow as defined by Mihaly Csikszentmihalyi with the action fields of eurhythmics as identified by Eleonore Witoszynskyj: music, movement, development of creative and social abilities, and the sensation of perception. Furthermore the importance of lesson structure and dynamics during eurhythmics classes for adults based on realistic lesson planning is crucial to initiate flow. As flow is often misinterpreted as an unrealistic feel–good concept this thesis illustrates that it is a worthwhile state of mind that supports concentration and individual learning processes, it requires effort and exact teaching strategies as well as a high level of flexibility and vigilance of the teacher. To sum up, it is shown that, because of its process orientation eurhythmics has a great potential to initiate flow.

Original Title

Beleuchtung des Phänomens Flow im Rhythmikunterricht mit Erwachsenen. Universität für Musik und darstellende Kunst Wien (MDW) (2018)

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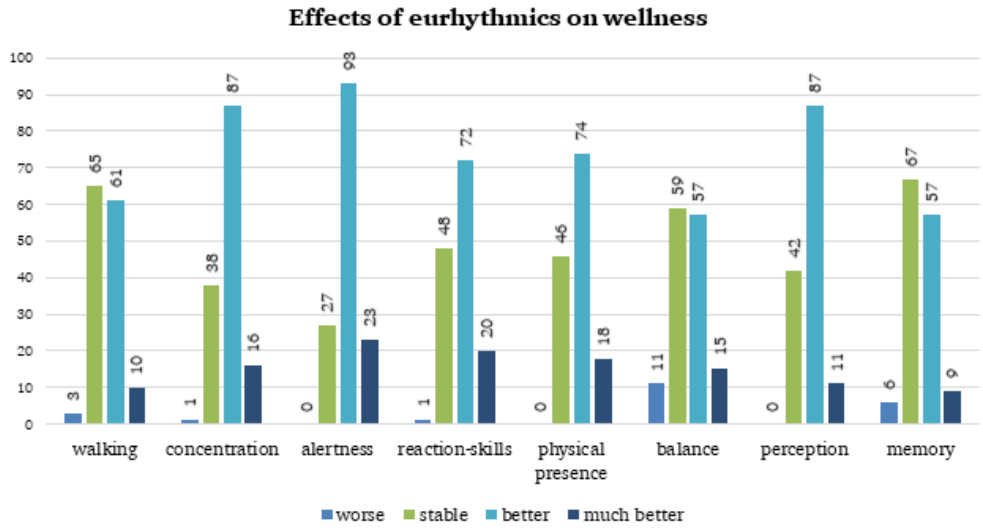
Eurhythmics Improves Seniors' Gait Safety – Even After Several Years of Eurhythmics Lessons

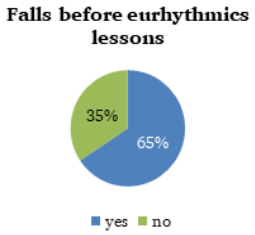
Patricia Hofmann

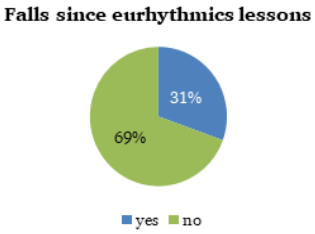
Patricia Hofmann is a eurhythmics teacher with training in CAS eurhythmics for seniors, HKB Bern; Continuing education for senior citizens, *Institut Jaques-Dalcroze*; NDS eurhythmics in special and remedial education HKB Bern; Diploma of eurhythmics from the *Conservatory of Zurich*. Fields of Activity: Experience with people of different aptitudes from young to old, eurhythmic lessons in special education schools and institutions, in retirement homes and music schools, head editorial office of the journal *Rhythmik Schweiz*, courses in Switzerland and abroad. www.bepositive.ch

(Translation C.C. Elian)
As part of my *Certificate of Advanced Studies* (CAS) eurhythmics training for seniors at the *Hochschule der Künste Bern,* I discussed in one of my two theses the question of whether even after several years of eurhythmics lessons, the beneficial effects of the practice continue. For this purpose, I distributed an exploratory questionnaire in all my 13 classes, which are attended by over 200 senior citizens. The results are presented in graph 1.



Additionally, questions were asked about falling and stumbling, and under „Comments" they could also write about their own experiences with eurythmics lessons.





As can be seen from the statistics, attending regular eurhythmics lessons over several years resulted in clear improvements for senior citizens and it has in several ways widened their competence. Consistency in practice brings returns and sustains a higher quality of life. This is evident in the reduction of falls by more than 50%, as well as in all other areas, which have also improved by more than 50%. The consistent level is encouraging to me for it means that no degradation takes place, but rather there is a stable favorable outcome.

From their personal feedback, the following points should be mentioned: The lessons in eurhythmics increase the participants' security, their stability, and their mindfulness. Also, the communal nature of the practice improves the mood of each participant. The group after class is much livelier and more upbeat than at the beginning. For many of them, forgetting the worries of everyday life, if only for a while, is very valuable.

Finally, the interaction of all the parameters strengthens and secures their gait. If I think of the results of the Trombetti study (Arch Intern Med. 2010), which shows that falls are reduced by 54% after six months of eurythmics, then my analysis after

several years of eurythmics teaching not only highlights this aspect but further confirms their findings. If many a stumble does not end in a fall, much has already been achieved.

Original Title

Die Wirksamkeit der Seniorenrhythmik auf die Gangsicherheit auch nach mehreren Jahren Rhythmikunterricht / CAS thesis, Senior Eurhythmics according to Dalcroze, University of the Arts (HKB), Bern 2018.

Further informations: info@bepositive.ch / www.bepositive.ch

Discipline Related Conflicts in Eurhythmics Classes – with Preschool and Elementary School Children

A solution approach based on space, time, energy and form

Tabea Kohler

Tabea Kohler studied vocal pedagogy at Wiesbaden Music Academy (2011-2015). She worked as vocal coach for the Wiesbaden girls choir. With great joy she participated in the project "Singen in Grundschulen – Singing in Elementary Schools", where she taught singing to classes of 6- to 9-year-old children. Here she was first faced with the numerous challenges larger groups of children entail. 2016-2018 she studied Music and Movement (MM) at the *University of Music Trossingen*. Part of her final exam was an eurhythmics performance with a class of 9-year-olds which was an excellent opportunity for studying the applicability of the method presented here. Currently, Tabea Kohler works as a freelance eurhythmic and singing teacher.

In eurhythmics classes teachers are often challenged with discipline related conflicts. My thesis attempts to find solutions that will not interrupt class, and work without suspending or admonishing the child. Therefore a model was constructed to analyse conflicts without regarding the child's preceding intentions, and providing an alternative way of acting through the specific means of teaching eurhythmics. Thus, the reaction focuses and deals exclusively on the audible and visible aspects, which can be influenced directly.

Four common aspects of music and movement, which in this thesis applied to the lesson as a whole, were chosen as parameters: space, time, energy and form, hence creating a suitable system for describing and analysing every action in eurhythmics classes; e.g. during a stop-and-go dancing game children are moving fast. At a specific signal they have to stop and stay motionless (TIME). They need muscle energy for the movements and body tension during the stops (ENERGY) and they have to organize their movements in SPACE. Two children keep moving and eventually are throwing themselves onto the ground, laughing. So, instead of stopping the movement it persists (TIME), and ENERGY is not converted into body tension, but noise.

However, space, time, energy and form have to be balanced to build a harmonious whole. A dysfunctional group situation can be remedied by changing the parameters. A possible reaction then is to change the parameter FORM: rather than simply stopping at the signal, the children now have to pose for an imaginary photo, i.e. cease moving and put on a smile. It is now easier for all children to succeed in the task with regard to time and energy without explicitly dealing with the disruptive children. The thesis does not argue against disciplinary consequences in class in general. But if the goal is to avoid interruptions as long as possible, the model may serve as a helpful tool to increase the teacher's flexibility.

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For reading the full version in German: https://www.musikbewegung.de/studieninformationen/schriftliche-abschlussarbeiten/

Intra-Orchestral Interaction

Klara Kramer

Klara Kramer, BA in eurhythmics in Vienna, 2018, started playing the violin at the age of six. She joined various chamber ensembles and gained her first orchestra experiences at the age of nine. Over the years she was a member of several orchestras including the *Upper Austrian Youth Symphony Orchestra*, the *Student Orchestra of the Bruckner University Linz* and the *Young Philharmonic Orchestra of Lower Saxony*. She played with these orchestras in the Czech Republic, Russia, Croatia, Spain, Germany and Austria. From 2008 she studied at the *University of Music Linz*, taking violin lessons with Wolfram Wincor at the *Anton Bruckner University*. There she also began studying improvisation for strings in 2017. During her musical education, Klara took vocal, flute and piano lessons. Klara Kramer is currently studying her master's degree in eurhythmics at the *University of Music and Performing Arts Vienna*.

In this thesis the perception skills required of an orchestra musician and the possibilities of their improvement using the methods of eurythmics are discussed. Elemental operations of perception generate memory contents which are needed for the correction and anticipation of the musicians' movements and the resulting sound. Additional elements, which exhaust the individual orchestra musician's capacities of perception and attention are investigated. A high amount of sensory input needs to be processed and the musicians' actions need to be compared and adapted to this input.

For example, the sound produced by the musician must be compared with the incoming sound and visual stimuli produced by the orchestra. Due to its limited capacities of attention and perception, the human brain is only able to focus on one matter at a time. This limitation can be overcome by alternating the focus between the most important stimuli. Both the ability to differentiate sound and a quick reaction time are fundamental to the individual's integration into the orchestral sound. The intra-orchestral interaction can be improved by a permanent anticipation of movement and sound and depends, on one hand, on the musicians' reflective thinking and, on the other hand, on the intuitive recognition of intentions and emotions enabled by mirror neurons.

Based on studies, this thesis discusses several examples and analyses the sensory-motor and interpersonal synchronization of musicians as well as the role of perception, interaction, and communication in an orchestra. Intriguing findings are that the quality of an orchestra depends on attitude, motivation and mutual respect in the communication both among musicians and between musicians and conductor. In conclusion, the thesis provides suggestions for how methods of eurythmics can lead to an expansion and deepening of orchestral rehearsals.

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Rhythm and the Body

An analysis of the perception and effect of musical rhythm with a focus on the significance of music and rhythm education

Barbara Krepcik

Barbara Krepcik, born in Vienna, BA in Music and Movement Education/Eurhythmics at the *University of Music and Performing Arts in Vienna* (MDW); BA in musicology at the *University of Vienna*. She teaches at the Institute for Elementary Pedagogy and works as a freelancer specifically and creatively with people of all ages and educational backgrounds. She works as a multiplier for teachers at the Pedagogical University of Lower Austria (*Pädagogische Hochschule Niederösterreich*) and artistically as a dancer and choreographer in dance and performance projects. She is co-founder of and performs as a dancer with *TanzCompanyELLA*, which specializes in pieces for children in educational institutions, theatre productions and street festivals.

(Translation Pat Burton Helm)
Many disciplines confirm the effect of music on the human body. Music can arouse, soothe, or elicit goose bumps. The focus of this book is to investigate the connection between rhythm and body movement. Why is it that the mechanism of music has such a direct effect on our system of movement? Why do humans have the capacity to synchronize themselves with the rhythm of music?

Using psychological and neurobiological research on music can help us find answers to these questions. The body, the spirit and the soul are described as capable of resonance, which have frequencies that can be excited through external rhythm. In addition, prenatal experiences embody the motor effects of rhythm. It is apparent that the fetus experiences strong rhythmic movements, which are connected as well when the fetus also senses unconsciously the mother's step and heartbeat sounds.

Hearing rhythmical music causes synchronization of movements spontaneously. On the other hand, motor activity corresponding to the perceived rhythmic pattern is essential. Body and rhythmic skills go hand in hand. Eurhythmics concerns the interrelation of the elements in common between music and movement. Eventually Émile Jaques-Dalcroze discovered and described the meaning of the corporal movement for the musical and rhythmic understanding. Other skills of musical rhythm are used in eurhythmics. The book shows that rhythms express not only corporal, but also emotional components, facilitating thought processes and enabling their synchronization in the social context. A pedagogy that requires rhythm with direct and wholistic energy promotes the holistic human development of personality, incorporating simultaneously motor facility, the social emotional factors and cognitive capabilities.

The results of the scientific research is seen as ground work for eurhythmics. Music and movement education offer exactly that, a modern educational system, based on newest and most effective scientific principles.

This Bachelor thesis appeared as a book:
Krepcik, B. (2012). *Rhythmus und Körper. Eine Analyse der Wahrnehmung und Wirkung von musikalischem Rhythmus mit Fokus auf den Stellenwert der Musik- und Bewegungspädagogik (Rhythmik)*. Remscheid: Re Di Roma-Verlag.

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Eurhythmics as a New Approach in School Music Teaching in China

Mo Li

Mo Li obtains a PhD and is lecturer at *East China Normal University* and *Shanghai Conservatory of Music*. When she was a visiting scholar of the Teacher's College of the Columbia *University New York*, she started her Dalcroze Eurhythmics training with Ann Farber, Lisa Parker, Ruth Alperson, Cynthia Lily and Lesslie Upchurch. In recent years, she devoted herself to promote eurhythmics in China. She contributed herself to international eurhythmics exchange actively, organized several eurhythmics workshops in Shanghai which was directed by eurhythmics teachers from Germany, Austria and the USA. She also established the first "Music Teaching method based on Eurhythmics" course in Shanghai, as well, she conducted teaching experiment based on Dalcroze methods in the elementary school in Shanghai. Her research on eurhythmics localization of China was supported by the *Shanghai Pujiang Talent* Program and several papers of her research were published on the main music pedagogy journal in China.

Music teaching is not only an important aspect of school arts education, but also one of the core contents of the holistic education. It plays an important role in the whole process of human development.

In this article, we mainly discuss the value and the possibility of establishing eurhythmics education in China. We also trace the development of eurhythmics in China in the past thirty years and highlight expectations for the near future. In this research, we found that the music teaching in China faces various problems. These include an overly rigid teaching mode and an emphasis on theoretical knowledge and one-way teaching. Practice and experience are ignored, and this leads to a dull, boring and inflexible music classroom, lacking the educational significance of music teaching. There is urgent need for teaching models that emphasize a kind of experience-oriented, active and inspirational music education.

Based on the questionnaire survey's result, it was found that most of the music teachers in China consider eurhythmics as an ideal approach to changing music classes in school. The music teachers' desire for reform is strong and demonstrates a positive attitude towards the concept and methods of music teaching through eurhythmics. We are convinced that eurhythmics music teaching will surpass the existing methods of music education with its concept and methods. It will raise quality and be beneficial to the realization of the vision of the reform of music teaching.

Reference

MoLi, The Reform of Music Teaching Practice Based on Eurhythmics, 基于体态律动的音乐教学实践变革[D] East China Normal University, 2018.

Phrasing

Elisabeth Pelz, Bettina Rollwagen

Elisabeth Pelz holds a university degree in eurhythmics and teaches at the *University of Music Lübeck* (graduate program Bachelor of Music and Master), at the Private Conservatory Hamburg (graduate program Bachelor of Music and vocational training for artists with disabilities) as well as in public schools in Hamburg (cooperation with *Jugendmusikschule Hamburg*). With the association *Bildungswerk Rhythmik e.V.*, she offers a vocational training leading to the degree "Rhythmikpädagogik (BWR)" and acts as deputy president of the association. At the *Institut für Bewegungs- und Lernentwicklung*, Furthermore, she lectures for a postgraduate qualification in the domains of learning, movement and development. In addition, she directs music and a theatre performance for laypersons aged 4 to 85 years and teaches workshops in Germany, Austria, Switzerland and China.

Bettina Rollwagen is a certificated Movement Analyst (*Laban-Institute N.Y.*) and movement-teacher, M.A. (Cologne). She taught ten years dance- and movement-theatre and psychomotricity at a culture centre in Hamburg as well as *Laban Movement-Analysis* in pedagogic and therapeutic fields. During that time she continued her studies in movement language in history, art-history and ethnology at the *University Hamburg* (MA). Later she created different dance/theatre/film projects for children with special emotional-social needs. Extended studies in neurosciences, cognitive science, dyslexia therapy. In 2007 she founded the *Institute for movement and learning development* (IBL). Leadership of the education-training program: Somatic base of personal growth and learning-skills. She is also lecturer at different universities such as Hamburg, Heidelberg and Zürich and she writes reports in several journals. www.bewegteslernen.org.

(Translation C.C. Elian)
Based on various types of phrasing taken from the analysis of movement and music within their neurobiological contexts, it is shown that phrasing is an indispensable creative tool in music and movement/eurhythmics for children, adolescents, and adults, and in a figurative sense, also in everyday rhythms of life. Five types of phrasing with favorable effects on quality of life and learning for all ages are discussed, namely: the phrasing of beginning, execution and completion; that of effort and recovery; the simultaneous and/or successive phrasing of multisensory learning; the phrasing of impulse; and finally, the developmental psychological phrasing of attachment, autonomy, and empathy.

This article refers to various aspects of phrasing in movement and how to consider it in relation to developmental psychology. Typical disorders show what happens when healthy phrasing is neither exemplified nor experienced. The 21st century is characterized by globalization and digitization, however embodied abilities such as phrasing and skillful action are primarily experienced and learned through sensory contact. It takes physical processes and activities for them to be stored in our implicit memory. When we understand phrasing from a somatic foundation, we can increase awareness, and empower processes underlying our health and creativity in order to actively use them.

Embodied in ancient Greece by the god *Kairos*, phrasing has to do with the opportune moment and the right measure. Nowadays, people often complain about the lack of time, but they lack a sense of feeling and proportion for what is possible and for healthy phrasing in the world of experience. Over time, lack of phrasing can even affect health and personality development. Last and not least, phrasing is also an essential element for any artistic gestalt in eurythmics.

Bettina Rollwagen outlines from a movement analysis point of view, the biological and neurophysiological processes and their effects on our somatic foundations; and with examples of teaching sequences and methods from the field of eurhythmics, Elisabeth Pelz illustrates the types of phrasing and their effects.

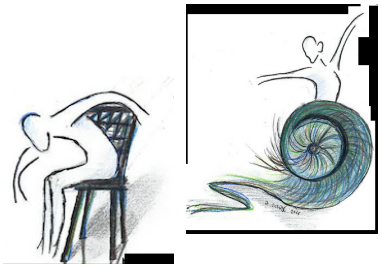
The full text will be published in: Steffen-Wittek, M., Weise, D. & Zaiser, D. (eds.) (2019): *Rhythmik - Musik und Bewegung. Transdisziplinäre Perspektiven*. Bielefeld: transcript (in print).

Dance Along ... a Learning Platform for Music and Movement Teachers

Andrea Schär

Andrea Schär, *1993, Master of Arts at *Zürcher Fachhochschule* in Music Education; Specialization in Music and Movement, Eurhythmics at *University of the Arts* Zürich (ZHdK, 2018). Teaching Diploma for Lower Secondary Education; subject music (PH Bern, 2013; Berne University of Teacher Education). Teaching assignment for the *Universitiy of Applied Sciences of Special Needs Education* (HfH, Zurich) and ZHdK. Practitioner of dance, music and movement for people of all ages, capabilities and with any requirements. Diploma in dance (Zumba, Ballroom Dances). Involvement in dance, theatre und performance. Faciliator of workshops and further trainings.

Dancing while seated – comparison between chair and wheelchair



Whether experienced consciously or unconsciously, our daily life is full of movements. Many of them can be broken down into small elements, which rearranged, can be combined into a form of dance. Every human being has individual physical and cognitive skills influencing their movements. The basic theme of my master thesis recognizes these characteristic skills possessed by every person and proposes ways of strengthening them in a personally customized way.

It is the purpose of my thesis to introduce various possibilities of movement, and to bring selected elements of movement into a form of dance through the use of variation and combination. Additionally, music and movement teachers find in these possibilities support for their own practical work.

As a final product, a learning platform for music and movement teachers will be accessible to assist them in maximizing their options for offering personal creative expression through movement. Above all, the variability and adaptability of the elements of movement should be emphasized. The learning platform presents users with videos and drawings of movement elements that can be used with the target groups (elderly people and paraplegics). The flexible handling of the selected movement elements makes it possible to specifically extend and support the range of the groups‘ movements.

In addition, a dance program that includes elements of the learning platform and which was implemented by two groups of elderly people and one group of paraplegics, will be presented. From them, it becomes evident that dance and movement can be performed despite physical impairments.

Original Title

Tanz mit ..! Eine Lernplattform für Musik und Bewegungspädagogen. Tanzen im Sitzen – ein Vergleich zwischen Stuhl und Rollstuhl. Master thesis University of the Arts Zürich (ZHdK) (2018).

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Jaques-Dalcroze Eurhythmics for People Affected with Parkinson's Disease

Anne-Laure Schlaubitz Garin

Anne-Laure Schlaubitz Garin first studied special needs education. A passionate lover of music, she obtained a certificate of piano. She then obtained a Master in Jaques-Dalcroze eurythmic pedagogy. Combining both fields of expertise, she teaches eurythmics in Geneva, primarily to adults with mental and psychological disabilities, to elderly people and to people affected with Parkinson's disease.

Since 2017, after completion of a pilot project with the Neurology Department of *Geneva University Hospitals*, the *Institut Jaques-Dalcroze* in Geneva offers eurythmics lessons for people affected with Parkinson's disease.

Parkinson's disease is a progressive nervous system disorder mainly affecting motor function. Main symptoms are resting tremor; absence or slowness of movements (akinesia/bradykinesia) characterized by difficulties in initiating and conducting a movement till the end of the action; and rigidity, with loss of fluidity of movements. Additionally, gait is affected (risk of fall). Sequential, repetitive and simultaneous movements are impaired. Over time, cognitive functions may also be altered. The voice may be affected by monotonous tone and hypophonia; reduction of facial expressions can also occur. All these symptoms impact activities of daily living and can induce anxiety or depression. As no curative treatment is available, pharmaceutical and surgical interventions aim to decrease symptoms. However, previous research has demonstrated that auditory or visual stimuli improve gait by creating new neuronal connections (brain plasticity).

Eurythmics, allying music and movement in a large variety of multitasking exercises might help people affected with Parkinson's disease outside of the medical setting. Musical improvisation in eurythmics lessons allows fine adjustment between the teacher and the participants, and also permits many variations within an exercise. The use of diverse objects (including balls, hoops, and scarves) enhances visualization of the movements, and is a help in conducting large and energetic movements. The spatial component in eurythmics activates gait and movements in various and changing tempi and directions. Both cognitive skills (such as memory or planning) and affectivity are also activated while exercising. Finally, compared to ordinary lessons, the environment must be physically and emotionally secure. All exercises should also be realizable while sitting, allowing each participant to progress at his or her own pace. Two teachers should also be present to ensure the safety of the participants.

Original Title

La Rythmique Jaques-Dalcroze au service des personnes ayant la maladie de Parkinson. Master thesis Haute École de Musique, Geneva (2017).

For reading the article in French: http://fier.com/documents?filter=3

The Event of Attention in Movement Improvisation

A study of Nancy Stark Smith's "Underscore", based on Bernhard Waldenfels' phenomenology of attention

Eva Schorndanner

Eva Schorndanner, Diplom degree in Music and Movement Education / Eurhythmics at the *University of the Arts Berlin* (2017). B.A. in Ethnology, *Albert Ludwig Universität Freiburg* (2009). She works as a freelance musician and performer, music and movement teacher, and artistic director. Her musical work spans classical music, folk and improvisation. She performs with AndiamoSon as harpist and singer and is a member of the *Colin-Maillard performance collective* (www.kollektiv-colin-maillard.jimdo.com/). For the fourth year in a row she will be working as organizer and teacher of the international dance festival "Contact and Flow" in Mexico (www.contactandflow.com). As part of *AndiamoKollektiv* she also leads national and international dance theatre projects for children and youth (https://vimeo.com/167476533). In 2018 she organized and curated her first artistic encounters between German and Mexican musicians and dancers, supported by the coproduction fund of the *Goethe Institute* and by the *German Federal Association of Cultural Education for Children and Youth.*

"Movement improvisation is an attentional practice." (de Spain 2014, p. 167)

Kent De Spain regards attention as a defining characteristic of movement improvisation: he describes the process of sustained attention guiding body and mind into a state of presence – the basic state which is essential for improvisation takes place. He thus defines movement improvisation as an attentional practice. This paper sets out to explore what the features of the 'event' of attention are and how they inform the practice of movement improvisation. Moreover, the paper asks to what extent movement improvisation can be defined as an attentional practice.

In part 1, important concepts related to attention are clarified and described from a psychological and philosophical perspective as well as in terms of kinematics. Particular emphasis will be placed on Waldenfels' phenomenological approach, allowing us to apply the concept of attention to a concrete improvisational model. Part 2 and 3 are devoted to the concept of movement improvisation and its subcategory of contact improvisation. In part 4, drawing on Bernhard Waldenfels' theory of attention, the connections between attention and movement improvisation are used to examine Nancy Stark Smith's model of the "Underscore", and the aforementioned questions are discussed.

Both psychological and philosophical research associate attention with perception, which in turn plays a central role in practical work in motion. According to Waldenfels, the making of new experiences through the interplay of being affected by and responding to something lies at the core of the phenomenon of attention. By analyzing the "Underscore" from a phenomenological perspective, it emerges that the specific processes that Waldenfels describes as the constituent parts of the event of attention are also found in movement improvisation. Moreover, they are a necessary precondition for the process of improvisation, in the absence of which the required state of presence in the moment cannot be achieved. This confirms the thesis formulated above, according to which movement improvisation is a form of attentional practice.

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Original Title

Aufmerksamkeitsgeschehen in der Bewegungsimprovisation, University of the Arts (UdK) Berlin (2017).

For reading the full version in German: https://www.musikbewegung.de/studieninformationen/schriftliche-abschlussarbeiten/

The Effects of Dalcroze Eurhythmics on Psychological and Physical Variables

Elda Nelly Treviño

Dr. Elda Nelly Treviño is a professor at the Facultad de Música of the *Universidad Autónoma de Nuevo León* (UANL) in Monterrey, México where she also directs and teaches piano at her independent school *Música Viva*. She is active as a consultant, guest faculty, cultural promoter and collaborative pianist within México and abroad. Elda Nelly holds a PhD in Psychology (Summa Cum Laude) from the UANL, a BM and MM in Piano Literature and Pedagogy from the *University of Texas* at Austin, and the Dalcroze Certificate and License from *Carnegie Mellon University*. She has received numerous academic awards such as the Prize in Auditive Arts UANL 2009, FORCA Noreste 2010 for international artistic residences, and the *Joint Research Program Matías Romero* 2016-17 from the *National Secretary of Foreign Relations of Mexico*. Her research interests are: the positive effects of music and movement practice in different domains of life.

The increase of the population of older adults worldwide, challenges societies to find sustainable, non-pharmacological interventions with positive effects for this population. Studies suggest that artistic activities have positive effects in the lives of older adults. From the perspective of positive psychology, Dalcroze Eurhythmics is centered on the psychological and physical domains of the human being. During sessions of Dalcroze Eurhythmics the persons listen, feel, and express music developing their innate musicality through the integration of body movements. Sessions of Dalcroze Eurhythmics are divided in activities of improvisation, coordination, ear discrimination, and musical expression.

Objective: to evaluate the efficacy of Dalcroze Eurhythmics on psychological and physical variables in older adults through an eight-week intervention. Hypothesis: the music pedagogy DE has positive effects on psychological and physical variables.

Materials and method: quasi-experimental design with quantitative analysis using SPSS 24 with measures pre-post, and manual qualitative analysis in a sample of $N = 60$ ($M = 73$ years) divided in three experimental groups and a control group. The instruments used were the Spanish versions of the following questionnaires: (a) psychological variables: WHOQOL-BREF, MMSE, PANAS, SDFSS-2, SFSS-2, TMT; (b) physical variables: WHOQOL-BREF, the Tinetti test, coordination and rhythm test; (c) structured interviews.

Results: the positive difference was statistically significant post-test in a few of the indicators of the variables of study; therefore, the research hypothesis is partially accepted.

Conclusion: From the perspective of positive psychology, Dalcroze Eurhythmics is a sustainable non-pharmacological music education which addresses the cognitive, affective, social, and physical dimensions of the human being. For this reason Dalcroze Eurhythmics can be used to promote healthy ageing through the psychological and physical variables studied related to the functional and intrinsic capacities of older adults, thus improving subjective wellbeing. Yet, further longitudinal studies are needed in this field.

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Striving for Connectedness

The principle of emotional resonance according to Barbara Gindl with special consideration of pedagogical approaches of Eurhythmics/Music and Movement Education

Una Minou Wiplinger

Una Minou Wiplinger, BA in Eurhythmics/ Music and Movement Education at the *University of Music and Performing Arts Vienna* (mdw). As a piano and voice pedagogue, she is also active as artist and educator in the fields of dance and theatre for children and adults. Freelance dancer, musician, eurhythmics practitioner. Member of the dance and performance company *schallundrauch*.

In my thesis, I examine the origin, effect, and meaning of emotional resonance for the human being. I also look into the question: which prerequisites are necessary to create experiences of resonance, especially in teaching eurythmics? At first, I consider the concept of resonance from the point of view of various scientific disciplines (physics, psychology, music, etc.). Then I introduce the starting point of this work, namely, the reciprocal understanding of resonance according to Barbara Gindl, PhD, a Swiss music therapist. Resonance, reflection and cooperation also find their counterparts in embryonic development and human biology. The latest findings from bonding and brain research are related to the phenomenon of emotional resonance and underline its central importance on all levels of human existence.

Finding resonance is a basic human need and the basis of every relationship. It requires a willingness for resonance, and conscious attention thereto. Music, especially as approached through eurythmics, represents a fitting opportunity to make resonant experiences tangible. By using the example of musically accompanied movement, I show how spaces of resonance can be created.

Original Title

Das Streben nach Verbundenheit. Das Prinzip der emotionalen Resonanz nach Barbara Gindl unter besonderer Berücksichtigung pädagogischer Ansätze der RhythmikMB. Universität für Musik und darstellende Kunst Wien (MDW) (2018).

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