


Country Feature: Music and Medicine in Austria

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Abstract

The interdisciplinary studies of music medicine in Austria focus on collaboration of different sciences investigating the psychological and physiological basis of music making and music listening and to translate the findings into clinical applications. This article describes the history of Austrian music research projects since 1969, when the Research Institute of the Herbert von Karajan Foundation for Experimental Psychology in Music was founded, and the former Research Network Man and Music, as well as current studies at the Institute of Ethno-Music-Therapy and the MusicMedicine Research Program. Since 2002, several (inter)-national conferences with the goal of establishing interdisciplinary dialogues between the various scientific music effect research fields have been organized. In Austria, there are currently three University programs offering training for music therapists and two master programs for elemental music and dance pedagogy. The Austrian Music Therapy Law provides objective professional standards for the entire field of music therapy occupation.

In der interdisziplinären musikmedizinischen Forschung in Österreich kollaborieren verschiedene Wissenschaften mit dem Fokus, psychologische und physiologische Grundlagen des Musizierens und Musikhörens zu untersuchen und die gefundenen Ergebnisse in klinische Anwendungen umzusetzen. Der vorliegende Artikel beschreibt die Geschichte österreichischer Musikforschungsprojekte seit 1969, als im Rahmen der Herbert-von-Karajan-Stiftung das Forschungsinstitut für experimentelle Musikpsychologie gegründet wurde; das frühere Forschungsnetzwerk „Mensch und Musik“, sowie aktuelle Forschungsarbeiten am Institut für Ethno-Musik-Therapie und dem Forschungsprogramm MusikMedizin. Um interdisziplinäre Dialoge zwischen den verschiedenen Feldern der Musikwirkungsforschung zu etablieren, wurden seit 2002 wurden mehrere (inter)nationale Konferenzen organisiert. In Österreich gibt es derzeit drei universitäre Studiengänge für Musiktherapie sowie zwei Master-Studiengänge für Elementare Musik- und Tanzpädagogik. Die objektiven professionellen Standards für das gesamte musiktherapeutische Berufsfeld sind im österreichischen Musiktherapiegesetz verankert.

Keywords

Mozart effect, music effect research, music medicine, music therapy, musicneuroscience, psychophysiology

Introduction

For the rest of the world, Austria is probably thought of as a country which holds classical music as its primary cultural focus. And it is in fact true that music is an integral part of life in this little country. The international popularity of Austria as the “music country” is primarily based on the movie *The Sound of Music*, one of the most successful films of all time. But the musical history of Austria is inevitably associated with the name of Wolfgang Amadeus Mozart, the name which also symbolizes the onset of an era in which the awareness that music is much more than entertainment is increasing every day. The term “Mozart effect” was triggered by a study published by Francis Rauscher and Gordon Shaw in 1995, but the scientific research of the effects of classical music on the human brain began much earlier.

History

The first time the international neuroscience community looked to music was in 1968, in Vienna at the first Danube

Neurology Symposium, a meeting of neurologists who began to discuss music as an ideal stimulus to observe how brain function can be influenced. In 1973, the internationally renowned space physicist Prof Juan G. Roederer, who is also the author of the most comprehensive book on psychoacoustics, was invited to lead a series of conferences at Lake Ossiach in Carinthia. Roederer regarded it as a privilege to be thus in the position to be able to actively promoting a multidisciplinary development. His role was testified by the world-renowned music psychologist Diana Deutsch, who wrote in her guest editorial for the 20th anniversary of the *International Journal Music Perception*,

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... A series of interdisciplinary workshops on the Physical and Neuropsychological Foundations of Music organized by Juan Roederer were held in Ossiach, Austria [between 1973 and 1985 during the Carinthian Summer Festivals], and it was at these workshops that many of us learned for the first time, and with great excitement, about studies on music that were being carried out in other fields. It became clear at these exhilarating workshops that an interdisciplinary study of music, with input from music theorists, composers, psychologists, linguists, neuroscientists, computer scientists, and others, was not only viable but even necessary to advance the understanding of music.²

Needless to say that during these decades, none of the contemporary brain imaging technologies were available to the neuroscientists, and so EEG was the only method that measured how the brain was influenced by the sounds it was exposed to.

In Austria, the first research project³ conducted on this topic took place at the University of Salzburg, the town in which Herbert von Karajan was born, and it was also one of the cities in which he lived and worked.

In 1968, Karajan was appointed honorary senator of the Salzburg University. In the same year, he established the Herbert von Karajan Foundation in Berlin, which was devoted to the encouragement of scientific work on the dissemination of conscious musical feeling. The year 1969 marks the foundation of the Research Institute of the Herbert von Karajan Foundation for Experimental Psychology in Music, as part of the Psychology Faculty at the University of Salzburg. Since then, an annual seminar on music and the brain was held immediately after the Salzburg Easter Festival.

The main focus of Karajan's foundation was the collaboration of sciences in an effort to investigate the psychological and physiological basis of music making and music listening. Karajan himself even volunteered as a subject for his foundation's Research Institute for Experimental Psychology of Music Effects at the University of Salzburg.

Research

Karajan's legacy has remained vibrant in current times. In an effort to revive the study of music's impact, Dr Roland Haas brought the Salzburg universities together and, in 2001, initiated the concerted research project, the Research Network Man and Music, based on a scientific concept proposed by Vera Brandes. The specific approach that was followed by the research efforts in Salzburg was based on a comprehensive model that takes into account that music affects the human mind, the brain, the body, and the spirit. The extent of these effects is determined by the current state of the person on many levels, which include external factors. This research model further considers the chronobiological aspects of time and timing as well as the patient's and the therapist's intentions. In addition, when appropriate, the current psychophysiological state of the therapist is regarded as well. Vera Brandes also added the psychology perspective to the research methods that were

applied and conducted qualitative studies parallel to the quantitative and the psychophysiological test battery.

Dr Hans-Ullrich Balzer, a renowned chronobiologist, psychophysiological, and a recognized expert in stress research, was the head researcher from 2002 to 2005, when the laboratory of the Research Network Man and Music at the Mozarteum University was discontinued. Parallel to the development, Prof Dr Gerhard Tucek came to similar conclusions in his observations of the effect of the Makam System of the Traditional Oriental Music Therapy he taught, and appreciated the approach from his anthropological perspective. The research concept of psychophysiological synchronization between man and music offered itself naturally for the studies conducted by his Institute of Ethno-Music-Therapy and included measurements of the therapists during music therapy sessions.⁴

Chronobiology studies the mechanisms of time-based changes in the biological rhythms of bodily functions and their interaction. Dr Balzer explains, "A central problem in the determination of the psychophysiological effects of music is the time factor. The circadian rhythms of the body alternate between phases which determine the response to a particular piece of music to a large extent."⁵

Balzer was also able to demonstrate how certain physiological parameters correspond to specific components contained in the structure of music. Balzer invented a special device that allowed him to monitor how the autonomic nervous system reacts to acoustic stimuli. In 2004, Vera Brandes was invited to translate the results of the research she initiated at the Mozarteum University together with Dr Roland Haas, the university president at that time, into clinical applications of her developments at the Paracelsus Medical University and started the MusicMedicine Research Program.⁶

As the director of the program, Brandes initially continued to use Balzer's physiological test methods in her early studies but added additional research aspects. At first, she focused on the psychological implications associated with music which is used as a complementary therapy in a medical context. The research methods employed in her studies on music and emotions are based on psychological morphology. Brandes also introduced a recorded music program developed for inpatients. Patients report less pain and depression when they listen to music and need lower dosages of pain and sleep medication. The program is continuously played on one of the channels of the patient radio program of the Paracelsus Medical University Hospital, since 2003. Her team also investigated how specially designed music programs can help patients with vascular variability disorders, heart problems, pain, and depression. Together with Prof Dr Julian Thayer and Prof Dr Joachim Fischer, she presented the results of her heart rate variability study at the American Psychosomatic Society.⁷ The current blood pressure study is a collaboration with Prof Dr Franz Halberg and Prof Dr Gerhard Tucek. To expand and consolidate the research efforts, Brandes extended her research projects to hospitals in Bavaria and Vienna. The next research projects are focused on special music programs for the improvement of

cognitive impairment and dementia. The programs that were developed for the treatment of depression^{8,9} are available through a number of doctors and psychologists in the German-speaking countries. The coordination of the research projects is conducted by Dipl-Psych Mag Claudia Fischer, Head Psychologist at the MusicMedicine Research Program.

Conferences

In 2002, Dr Roland Haas organized the first Man and Music Conference in Salzburg. Renowned neuroscientists, music pedagogy, and music education researchers discussed the potential of music interventions for neurodevelopment, learning, and health.

In 2004, the nonprofit organization *saludArt e.V.* organized the first conference on the role of art for health with a focus on the application of music and art in medical therapy and hospital settings. The conference included over 30 presentations rendered by European and American speakers, workshops, concerts, and demonstrations.

The year 2004 also marked the foundation of International Music and Art Research Association Austria (IMARAA) as a close collaboration of music research proponents from Salzburg, Vienna, Styria, Carinthia, and Lower Austria. In 2006, the year of Mozart's 250th birthday, IMARAA with the support of the state government of Lower Austria invited over 40 internationally recognized scientists from the fields of psychology, biology, education, physics, mathematics, psychoacoustics, and medicine, as well as acclaimed artists, to participate in an international conference titled "Mozart & Science—The Impact of Music—A Dialogue of the Sciences and the Arts about the Effects of Music in Art, Education, and Medicine," which took place October 1-4, 2006, in the Congress Casino, Baden, the elegant suburb of Vienna and famous health resort often visited by Mozart's family.

The conference goal was to establish an interdisciplinary dialogue between the various scientific fields involved in the research on the effects of music within their specific contexts. In addition to giving an opportunity for presenting the results of recent research, the conference continued to center on the application of music in the areas of medicine, education, and public health with the intention to lead to a more complete and complex comprehension of the effects of music, in order to acquire a better understanding and appreciation of the profound regulative effects of music on human development and to utilize these effects for supporting human development consciously and responsibly in the future. In this respect, chronobiology contributed greatly to an expansion of the knowledge, presented by other sciences, that is, neurobiology and psychology.¹⁰

The 2nd International Congress for the Interdisciplinary Research on the Effects and the Experience of Music, "Mozart & Science 2008," took place from November 16-19, 2008, in Vienna and was conceived as a forum for discussion of current research focusing on the following aspects:

- cognitive-emotional relationships concerning the processing of music in the brain and in the body, that is, the role

of "rhythm" in the psychophysiological processes and the question as to how it is linked with musical appreciation;

- the continuing debate on the criteria for medical and therapeutic quality in respect of intervention by means of music therapy; and
- third, the latest research findings on the application of music in medicine.

These topics were discussed by 48 international experts in an interdisciplinary context. The conference provided insights into the practice and the results of the evaluation of the use of music in medicine and therapy. It was a specific concern of this symposium to encourage an exchange between the disciplines to lay a firm, verifiable scientific foundation for the reliable application of music interventions in the therapy of acute and chronic disorders. Dr Roland Haas, Vera Brandes, and Prof Dr Gerhard Tucek were responsible for the contents of the program. Mag. Claudia Fischer was responsible for the poster session. The conference program can be found at http://www.mozart-science.org/Mozart_Science_2008_Kongr.124.0.html.

The presenters of the first 2 Mozart & Science conferences were asked to contribute articles to a book, which was titled *Music That Works: Contributions of Biology, Neurophysiology, Psychology, Sociology, Medicine and Musicology*.¹¹ The individual chapters of the book are also available online.¹²

"Mozart & Science 2010"—Music in Medicine and Therapy, the 3rd International Congress for the interdisciplinary research on the effects and the experiences of music—was again an event of IMARAA funded by the Landesakademie of Lower Austria and organized in cooperation with the University of Applied Sciences Krems (International Management Center [IMC]). As an integral part of the congress, the International Association for Music & Medicine held its inaugural conference. It took place at the Kloster Und in Krems, Austria, from November 4-6, 2010, and specified the issues of music therapy and music medicine with regard to the requirements of physicians and health care in inpatient and outpatient settings. The 26 presentations focused on a range of application of music as interventions in the treatment of specific areas: oncology, dementia, epilepsy, depression, neurology, psychiatry, psychosomatics, and trauma. The keynote lectures provided comprehensive perspectives—they were held by Franz Halberg, Halberg Chronobiology Center, University of Minnesota, Minneapolis; Julian Thayer, Ohio State University, Columbus, Ohio; and Alexander von Humboldt Award recipient 2010, Horst W. Korf, Johann Wolfgang Goethe, University of Frankfurt, Institute for chronobiology of the Senckenberg Foundation, Frankfurt, Germany; Petr Janata, University of California, Center for Mind and Brain, Davis, California; Sandra Trehub, University of Toronto, Barry Bittmann, Mind-Body Wellness Center and Yamaha Music & Wellness Institute, Meadville, Pennsylvania; Clare O'Callaghan, Peter MacCallum Cancer Centre & St Vincent's Hospital; Department of Medicine and Faculty of Music, The University of Melbourne, Australia; and Vera Brandes, Paracelsus Medical University, Salzburg, Austria. The first day of the conference was dedicated to workshops and

demonstration. A call for posters was sent to all scientists in the field. Dr Roland Haas, Vera Brandes, and Prof Dr Gerhard Tucek were responsible for the contents of the program. Mag. Claudia Fischer was responsible for the poster session. The complete program of the conference is available at www.mozart-science.eu.

The Mozart & Science Conference 2012 will again focus on music in therapy and medicine. It will take place in Krems between November 8-10, at the campus of the University of Applied Sciences (IMC).¹³

In 2014 (July 6-12), Austria will host the “14th WFMT World Congress of Music Therapy” (Cultural Diversity in Music Therapy Practice, Research and Education) in Vienna and Krems. The congress will be organized by the Professional Association of Ethno Music Therapists (BFEM; Berufsverband für Ethnomusiktherapie), which resides in Krems. Prof Dr Gerhard Tucek will be the congress president.

Music Therapy Law

In 2008, the parliament issued the Austrian Music Therapy Law (MuthG, BGBl. I Nr. 93/2008), which came into force on July 1, 2009. Austria is now the only European country that has a law that governs the legal implications of the music therapy occupation. The law includes the protection of the professional title “music therapist” which can now only be carried by professionals who studied music therapy in an accredited institute. There are currently 245 accredited music therapists registered by the Austrian State Ministry of Health,¹⁴ 48 of which are also presented on the homepage of the Austrian Professional Association of Music Therapists (OEBM).¹⁵

Education

There are currently 3 university programs that offer training for music therapists and 2 master’s programs for elemental music and dance pedagogy:

1. Under the direction of Prof Dr Gerhard Tucek, who is also the director of the Ethno Music Therapy Institute in Gfoehl, Lower Austria,¹⁶ the University of Applied Sciences (IMC) in Krems conducts a 3-year music therapy bachelor degree program with 180 European Credit Transfer and Accumulation System (ECTS) credits on a part-time basis.¹⁷ The start of the program, which accepts a maximum of 20 students, is every second year in September (2013, 2015) and ends with the academic qualification “Bachelor of Science in Health Studies (BSc).” Each semester is divided into theoretical, musical, and practical clinical components. After an introduction to basic theoretical and scientific principles, courses in the first year focus on developing specific music therapy skills. Starting in the third semester, this knowledge is consolidated by its application in clinical practice. The degree program aims to combine aspects of personal development and practical experience with critical theory-based reflection.

The program’s mission statement describes music therapy as a distinct type of therapy that combines scientific, artistic, and creative elements in an attempt to stimulate personal expression. It delivers targeted, systematic treatment for people with behavioral disorders and problems resulting from emotional, somatic, intellectual, or social factors. Music is used in a therapeutic relationship between 1 or more clients and 1 or more health care professionals with the aim of

- preventing, relieving, or reversing symptoms;
- altering behaviors or attitudes that require therapy; and
- supporting, maintaining, or restoring the client’s development, growth, and health. It claims to help students to become a fully qualified, skilfull music therapist. The bachelor degree provides the student with the abilities required to practice music therapy as an employee of a clinical or social institution.

Program details: The bachelor program in music therapy comprises 5 semesters of theory and gives students the chance to gain experience of clinical practice beginning in the third semester.

Core Modules: The core elements of the degree program are

- Musical and artistic skills
- Basic theoretical principles
- Fundamental medical principles for music therapists
- Fundamental psychological principles for music therapists
- Scientific fundamentals of music therapy
- Ethics and an introduction to the psychosocial and health law aspects of music therapy in health care institutions
- Music therapy in practice, and personal reflection skills
- Compiling academic papers and presentations

In the sixth semester, the students can choose electives in 1 of the following specialist compulsory subjects:

- Geriatrics
- Pediatrics

It is planned to offer a music therapy master’s program in the fall of 2012.

2. Music Therapy Program at the Art University Graz¹⁸: This is a new 4-year program under the direction of O Univ Prof Mag. Gerhard Wanker, Dr med univ Monika Glawischnig-Goschnik, Dipl-Musikh Christian Münzberg, and Dr Urs Rüegg is offered on the same legal level as the program conducted in Krems by Prof Dr Gerhard Tucek.
3. University for Music and Art Vienna—Music Therapy Program¹⁹: The graduates of this music therapy degree program are qualified to practice music therapy on the basis of their comprehensive interdisciplinary theoretical and practical education. The students earn theoretical and practical competence that allow them to design and conduct music therapy treatments, as well as to reflect, document, and evaluate these therapy treatments. Next to the theoretical and practical artistic education, a priority is set on learning music therapy

methods and their uses and on the development of a counselor training through experience and private therapy sessions.

Directors: Univ Prof Angelika Hauser-Dellefant, Univ-Prof Dr Thomas Stegemann;

Length of study: 8 semesters split into 2 sections of study;

Final examination: theoretical thesis, oral and written final diploma;

Examination academic title: “Magister artium/Magistra artium” (Mag.art.);

Career title: qualified music therapist;

Prerequisites for admission:

- a higher education entrance qualification or the equivalent (eg, Abitur, Matura, Swiss Maturitaet);
- proof of sufficient knowledge of the German language;
- successful completion of the entrance examination

Deadline for the entrance examination for the 2012/2013 school year: May 31, 2012²⁰

4. Carl Orff Institute at the University Mozarteum in Salzburg under the direction of Univ Prof Mag. Sonja Stibi²¹

General Information

- integration of music and dance within artistic areas and pedagogical transmission;
- combining experiential “hands-on”-oriented teaching with theoretical support in reflecting and analysis;
- practical orientation by observing and participating in groups which have been set up at the Orff Institute for people of different age groups and of differing abilities, as well as working together in social and special pedagogical establishments and general training schools;
- individual arrangement of studies with diverse optional choices and possibilities for concentrated studies in one area.

Bachelor’s Degree Studies: Elemental Music and Dance Pedagogy

This study program presents an access to different fields of practice in music and dance pedagogy which are integrated in the studies in the form of practical group work. In a close interaction with practical artistic and pedagogical activities and with a basis of didactics and theory, the student will be qualified for an insightful pedagogical-artistic job.

The studies are developed on the basis of one’s concrete experiences all of which further the accomplishment of the central task of necessary artistic and pedagogical technical and scientific knowledge and skills. They additionally enable the formation of a concentrated training which in turn is the basis for further skills in specific professional fields. The studies are 8 semesters long with a total of 174 semester hours (240 ECTS-credits).²²

Master’s Degree I: Elemental Music and Dance Pedagogy

The master’s program enables an expansion of scientific, pedagogical, and artistic skills especially at the conclusion of the baccalaureate studies in Elemental Music and Dance Pedagogy. With regard to its contents of closely related studies, it places the competence for scholarly and artistic work under proof. The studies are 2 semesters long with a total of 29 semester hours (60 ECTS-credits).

Master’s Degree Program II: Elemental Music and Movement Pedagogy

This master’s program enables the implementation of elemental music and movement pedagogy in a special way into a field of work which is defined by a previous pedagogical or professionally related graduate study at, for example, a fine arts university, a teaching college, or conservatory of at least 6 semesters. The studies are therefore directed toward target groups beyond the graduates of the baccalaureate studies of Elemental Music and Dance Pedagogy with corresponding training. The studies are 2 semesters long with a total of 46 semester hours (60 ECTS-credits).²²

5. The Paracelsus Medical University plans to offer special training programs in music medicine for medical professionals in 2013.

Conclusion

The perspectives for music in medicine in Austria are generally positive. There is still some bias from the music therapy field, inter alia based on questions regarding the causes of the therapeutic effects of Music Medicine interventions and whether certain music medicine interventions may also be classified as music therapy or not,²³ but the music therapy law has had a positive influence as it provided objective professional standards for the entire field. The discontinuation of the basic research efforts which were conducted in Salzburg between 2002 and 2005 puts a halt to the exploration of a comprehensive model that could provide a basis for further developments of music in medicine on many levels. However, the support of the state government of Lower Austria, the City of Vienna, the Austrian National Bank, and many additional sponsors made it possible to introduce, through the series of conferences, the state of the art in international research to the Austrian public and to conduct clinical trials on the effect of music for specific diagnoses that are unparalleled in the field.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: The first author owns shares of Sanoson GmbH, a company which offers therapeutic music programs developed by the author.

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Bios

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