CAIRSS FOR MUSIC IN ARTS MEDICINE

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CAIRSS (Computer-Assisted Information Retrieval Service System) for Music is a bibliographic database for music research literature. Researchers and practitioners from any location in the world now have online access to, and are able to do computerized searches from, thousands of periodical articles from hundreds of journals published worldwide. CAIRSS is available through the Institute for Music Research (IMR) at the University of Texas at San Antonio. Before describing CAIRSS in detail, we first would like to present its evolutionary history.

The Development of CAIRSS: Charles' Story

During the 1960s, I was a doctoral student working with Dr. E. Thayer Gaston. Considered by many to be "the father of music therapy," Gaston's academic background was in pre-medicine, trumpet performance, psychology, and music education. During his professional life, his pervading interests included the effects of, and responses to, music. When I asked him why there was no full-fledged doctoral degree in music therapy, his reply was that "we don't know enough; there is not a body of research literature to support a doctorate in music therapy." As a result of that conversation, I realized there was a need not only for a thorough investigation of music research literature, but also for a single, comprehensive source of literature pertaining to the influence of music on behavior. Consequently, CAIRSS for Music was established in 1969. From that time until now, I have been engaged in a search to identify and collate medically related music research. Accordingly, I have been trying to discover who is doing what, and where in the world it is being done.

The first results of CAIRSS for Music came in a printed series of three indexes. The first was *Music Therapy Index, Volume I* (Eagle, 1976); written between 1960 and 1975, this volume contained relevant citations, with music therapy as the central focus. An evolving philosophy can be seen in the change of title with the next publication, *Music Psychology Index, Volume* 2 (Eagle, 1978), and especially in its subtitle, *The International Index of the Influence of Music on Behavior: References to the Literature from the Natural and Behavioral Sciences and the Fine and Therapeutic Arts for the Years 1976-77.* This new direction was continued with the publication *of Music Psychology Index, Volume 3* (Eagle & Miniter, 1984), which contained relevant citations for 1978-80. Summary data of the three index volumes include over 6,000 bibliographic entries covering the literature from 1960-1980. These citations appeared in over 1,000 different journals published in 36 different countries and are listed under more than 16,000 keyword descriptors and names of authors found in those references.

With the publication of Volume 3, work on CAIRSS for Music ceased. The enormity of it had become overwhelming. First, my holistic, under- girding philosophy had led me literally to thousands of relevant articles. Second, the revolution in computer hardware and software was in full swing by the early 1980s, and a change in technology for operating CAIRSS became obvious. Third, I realized that an index of citations built only from a listing of keywords in the article titles and their authors (that is, through the KWIC system, or Key-Words in Context) was inadequate. The convergence of these major factors led me to the conclusion that a complete overhaul of CAIRSS was needed and necessary.

After a number of years of reading, researching, and reflecting on the increasing and quickening changes in science--particularly in the worldview, or *die Weltanschauung,* of medicine and other therapy, I began work again on CAIRSS in 1988. The intervening years between 1980 and 1988 had seen a resurgence of profound interest in music and the other arts, as they function in medical and medically related practices, researches, and theories. For example, the International Arts Medicine Association, International Society for Music in Medicine, and Performing Arts Medicine Association were founded. I became aware of an increasing number of national and international conferences specifically oriented to the function and use of music in various medical specialties and settings, and to the remedial treatment of medically-related problems of performing musicians. In addition, several highly related, refereed journals began publication, including *Internationale Zeitschrift für Musik-, Tanz-, and Kunsttherapie, Medical Problems of Performing Artists, Music Perception, Music Therapy Perspectives,* and now *The International Journal of Arts Medicine.* Taking these developments into account, I searched several databases of literature in the medical and behavioral sciences, using the keywords "music" and "music therapy," as well as searching by hand other relevant publications and bibliographies. Pursuantly, a computerized bibliographic format for entry was devised, using 30 fields of information, such as author(s), title, publication, country of publication, ISSN and CODEN designators, number of references in the article, and title and abstract language. Inputting began again.

At the same time, I began to build a thesaurus and consequent descriptor listing of compatible terminology from the medical and music professions. Many are the nights I have sat at my desk with copies of the *Concise Science Dictionary* (Isaacs *et al.* , 1984), Harrison's *Principles of Internal Medicine* (Wintrobe et al., 1975), *The Merck Manual* (Berkow, 1987), *Physician's Desk Reference* (Barnhart, 1991), and *Taber's Cyclopedic Medical Dictionary* (Thomas, 1981), lying side by side with the *Harvard Dictionary of Music* (Apel, 1969) and *The Grove Concise Encyclopedia of Music* (Sadie, 1988). In short, we are not only building a database for music/arts medicine, but also a language base. This work continues.

Establishing the Institute for Music Research:

Don's Story

My interest in the work of CAIRSS was also stimulated by an encounter with Dr. Gaston. As an undergraduate struggling with a term paper on human musical behavior, I went to Dr. Gaston seeking advice. His response was, "Son, musicians are like people in love: they're happy, but they don't know what they are doing. If you want to know about human musical behavior, you need to look first to the behavioral scientists; they are the ones who can explain human behavior, and music is, after all, a form of human behavior."

My earlier involvement with the literature of the influence of music on human behavior took the narrative form. The *Handbook of Music Psychology,* incorporating the contributions of 13 leading music researchers, was published by the National Association for Music Therapy (Hodges, 1980). It is currently undergoing revisions for a second edition. A second book, *The Significance of Music* (Hodges, n.d.), is as yet unpublished. In it, I am trying to synthesize related literature on the biological, anthropological, sociological, and psychological significance of music.

I had limited involvement with CAIRSS while I was on the faculty at Southern Methodist University, team-teaching some courses with Charles (19771980). The next stage came in the summer of 1988. My son, who was then 14, asked about getting a job. Since he would be gone most of the summer, and a real job was unlikely, I engaged him to type in journal entries at a nickel each. He entered over 1,200 articles into a database. These entries contained only author, title, journal, and citation. I added another 1,600 or so entries over the next few years.

Parallel with the creation of this database were two additional activities that played a role in the creation of the Institute for Music Research (IMR) at the University of Texas at San Antonio (UTSA). One was an invitation to attend an ongoing series of discussions on topics in cognitive neuroscience. These sessions are attended by neuroscientists representing a variety of specialties. Among other topics, they are intrigued by the phenomenon

of music and frequently express interest in knowing what the literature has to say on the subject. From this group has come a number of invaluable professional and personal relationships. One of the co- leaders, Terry Mikiten, is Associate Dean of the Graduate School, Biomedical Sciences, University of Texas Health Science Center at San Antonio (UTHSCSA). Dr. Mikiten is also co-director of the Center for Health Informatics at UTHSCSA; this unit should be a very useful resource as we expand CAIRSS into arts medicine. Another outgrowth of this discussion group is the opportunity to be involved in research. For example, I am just beginning to work with a young man who, as a result of a serious head injury, suffers from hallucinations. The only way these seizures *can* be stopped is for him to listen to certain *pieces* of Mozart! Over time, we hope to understand more about the dynamics of this situation.

A second activity stemmed from discussions with Joe Stuessy, Director of the Division of Music, UTSA. Dr. Stuessy, a specialist in popular music, has long had an interest in the influence of music on teenage behaviors. He has testified at Senate hearings in Washington, D.C. and at a number of jury trials where the question of whether music had an undue influence on a teenager's criminal behavior was at issue. On each of these occasions, it was increasingly apparent that pro and con arguments based on personal opinions would not suffice. Once again, the question arose: What does the literature have to say on the subject?

With all these activities as background, we began to dream of a way to focus our research interests. Through strategic planning efforts undertaken by the entire University, the Institute for Music Research was founded in the fall of 1991. Two- year startup funds were provided by the University to support research in music psychology and music technology. By Board of Advisors action, the first project of IMR was to be CAIRSS.

The Current Status of CAIRSS

As Charles began to work on CAIRSS again, the immensity of the project once more became evident. On a visit to San Antonio, he was shown the music database that Don and his son had created. It was apparent that Don's database, while narrower in scope and not as sophisticated or detailed as the new CAIRSS, actually worked and was already being used by his graduate students. Charles' database was more magnificent in scope and elegant in design and, therefore, too huge to be immediately practical without massive funding. Further discussions led to the idea of merging the two databases and of having IMR take over the technological and disseminating aspects of the combined project. Thus, this first phase has been accomplished; the two databases have been merged and the means of disseminating the information has been determined. This initial version contains complete bibliographical citations, including author(s), title, journal, ISSN, and CODEN fields. Now that the System is operative, external funding is being pursued so that the grander vision of CAIRSS can proceed.

David Sebald, a music technology specialist in the Division of Music at UTSA, spent many hours investigating various options for a delivery system. Eventually he settled on the NOTIS system. NOTIS is a comprehensive software system for libraries, allowing them to carry out a wide range of management and processing functions and also to offer an online catalog. It is the NOTIS cataloguing capability that is being used for CAIRSS. NOTIS automatically runs on INTERNET, a worldwide computer network that makes it accessible to all users.

It is not possible to implement a project as colossal and visionary as CAIRSS without the help and support of many individuals. CAIRSS was actually begun at the University of Miami and continued at Texas Women's University; however, the bulk of the work has been done at Southern Methodist University (SMU) over the last 17 years. Since 1988, SMU music therapy graduate assistants, David Luce, Thomas Mogyardy, Susan Plyler, and Cathy Weldin, have been particularly dedicated to the success of CAIRSS. Dennis Bowers, Director of the Center for Instructional Technology in the Arts has been especially helpful. At UTSA, Dr. Stuessy, Dr. Sebald, and William Lee, Dean of the College of Fine Arts and Humanities, have been particularly helpful. Library and computer staff members John Conyers, Sue Tyner, and Fred Zapata, along with computer programmer Jack Frost, have provided invaluable services in setting up the System.

After many months of progressing by fits and starts, and the dedicated involvement of many people, CAIRSS for Music is now available on INTERNET as a free bibliographic service to researchers and practitioners

anywhere in the world. Although all the bibliographic records from SMU and UTSA have been entered into one database, they may be thought of as comprising two sets of data. One set of data contains an expanded citation of every article that has ever appeared in 13 different journals. These 13 have been deemed "primary journals," because 50% or more of the articles have direct application to the database. This means that many citations also occur from such categories as art, dance/move-merit, drama/theater, and poetry, as well as music education, music psychology, music therapy, and performing arts medicine. These journals are:

Arts in Psychotherapy
Bulletin of the Council for Research in Music Education
Contributions to Music Education
International Journal of Arts Medicine
Journal of Music Therapy
Journal of Research in Music Education Music Perception
Medical Problems of Performing Artists
Music Therapy
Music Therapy Perspectives
Psychology of Music
Psychomusicology
Update: Applications of Research to Music Education

This dataset from these 13 primary journals contains well over 3,500 enhanced citations.

The second set of bibliographic data comes from a variety of sources, including other databases (principally medical, musical, and psychological), as well as reference listings from hand searches. This set currently contains over 2,000 enhanced citations published in over 500 journals from 31 different countries in 14 languages. By the end of summer 1992, this dataset is projected to include well over 4,000 relevant citations from articles in approximately 1,000 different journals--which have already been identified. The strategy is to input the most recently published references, progressing back in time. Information for both of the two sets of data are taken directly from the article; that is, the pertinent reference is identified, the complete article ordered, labeled, and filed. (Hence, many file cabinets!)

The thesaurus for CAIRSS, mentioned previously, is an ongoing task (as is the input of citations). However, at the time of this writing, the thesaurus is organized in two sections: music (e.g., type of musician, instrument, and performance medium; and type of music specialty, such as music education, history, theory, and therapy) and medicine (e.g., medication, physiological system, and type of medical specialty, such as anesthesiology, neurology, obstetrics, and surgery). From the thesaurus, a list of over 2,000 keyword descriptors has emerged thus far. The thesaurus is being developed from keywords taken directly from the entire article and its abstract (if available), not just the title of the article. Our aim is to allow for accurate and productive searches.

Future Directions

Currently, CAIRSS is in the beta test stage. Selected persons from around the country are logging in to try out the system. It is expected that CAIRSS will be opened to all users by fall 1992. Recently, two researchers have offered their own sets of data to add to the System and it appears that citations from the three printed indices (Eagle, 1976, 1978, 1984) will be added as well. This should, therefore, put the total number of citations in CAIRSS (when it first becomes available) at between 15,000-20,000 articles. If appropriate external funding can be obtained, the following additions will *be* made to CAIRSS for Music/Arts Medicine:

- Citations from the 13 primary journals will be entered immediately as new issues are published.
- A determination of additional primary journals will be made.
- Scanners will be obtained and permission sought from copyright holders to input published keywords and abstracts.

- More discrete information fields will be included, such as medical specialty, type of research reported, and music stimulus used.
- A more intensive effort will be made toward developing the thesaurus and keyword listing, as well as creating abstracts for those articles that do not have them.
- The search for relevant literature in arts medicine will be broadened to include additional art forms beyond music, earlier years of publications (retroaetive research), unpublished manuscripts, books and chapters in books, theses and dissertations.
- Permission will be sought from copyright holders to provide hard copies of articles to users. There is already a hard copy of each cited article in the CAIRSS database and, if an article is not readily available to the user, it would be possible to fax or mail a copy. Ultimately, permission will be sought to store the entire article electronically and make it immediately available to users.
- A computerized bulletin board service will be made available for users to share information: (a) on arts medicine literature, (b) about current researeh, (c) about questions and answers to immediate and long-range problems, such as those of a practical, research, or theoretical nature, and (d) about information on relevant professional activities, such as conferences and symposia. Ultimately, the service is seen as a means of establishing a networking system among arts medicine colleagues.

Summary

CAIRSS for Music/Arts Medicine has been in preparation for 23 years. Initial efforts resulted in the publication of three hard-copy volumes: *Music Therapy Index, Volume I* and *Music Psychology Index, Volumes 2 and 3.* Through the recent collaborative efforts of those at SMU and the Institute for Music Research at UTSA, efforts have been and will remain dedicated to producing an online, computerized database in arts medicine that is available worldwide. By fall 1992, the first phase of these latest efforts will be realized and be made available to all users. The goals of CAIRSS remain:

1. To promote scientific inquiry into all aspects of the function of music and the other arts among medically related researchers and practitioners.
2. To establish a state-of-the-art computerized information retrieval service system for recording information of scientific value in arts medicine.
3. To serve as a clearinghouse for all information relevant to arts medicine, both published and unpublished.
4. To facilitate networking among colleagues in arts medicine and other interested persons.

Intentions are to offer CAIRSS essentially as a free service; however, there may be a modest registration fee simply to pay for copying and mailing the instruction manual and thesaurus. We are not planning at this time to charge for the actual online searches. It is important that users be registered so that they may receive information about changes in log-on instructions and important updates to the System. If you wish to be notified as soon as CAIRSS becomes available for general use (projected for fall 1992), please send your name, address, phone, professional affiliation, and Internet address to: Dr. Donald A. Hodges, Director, Institute for Music Research, Division of Music, University of Texas at San Antonio, San Antonio, TX 78249.