Advancing Interdisciplinary Research in Singing:
Development, Education, and Well-Being

AIRS

SSHRC Major Collaborative Research Initiative
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Milestone Document
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I. AIRS PROJECT FRAMEWORK

This seven-year major collaborative research initiative aims to Advance Interdisciplinary Research in Singing (AIRS) through cooperation of over 70 researchers representing every province in Canada and 15 other countries on 6 continents. Aiming to understand individual, cultural, and universal influences on singing and the influences of singing on individuals and societies, the AIRS researchers will focus on three themes: (1) development of singing ability (2) singing and learning, and (3) enhancement of health and well-being through singing. These themes may be regarded respectively as defining what singing behaviours are theoretically possible given mental, physiological, and environmental constraints; what singing behaviours occur in practice, and what are societal implications of singing. Within and across these themes, researchers will share their knowledge and expertise from numerous disciplinary perspectives, including psychology, musicology, music therapy, education, sociology, anthropology, folklore, medicine, and audio and computer engineering. They will share their work audio-visually using a digital library and virtual research environment (VRE), the foundations of which are already established at UPEI. Several common motifs integrate the collaboration: an emphasis on student training opportunities; researcher meetings supported by electronic technology fostering transfer of findings across themes; and an AIRS test battery of singing skills woven through the research themes. The research results will be disseminated through traditional academic means (peer-reviewed journals, books, conferences) and through real world activities and settings (school curricula, homes for seniors, medical interventions, performances). Such dissemination will provide a foundation for decision making in education, health, culture, immigration, and foreign policy.

II. AIRS RESEARCH THEMES:
DEVELOPMENT, EDUCATION, WELL-BEING

The three research themes are broken into sub-themes each of which will first be addressed by a complete literature review as a foundation for empirical research, the gathering of both quantitative and qualitative data on human subjects, and the implementation and associated study of new programs involving singing. A brief description of each sub-theme precedes Table 1, a chart depicting all sub-themes, their leaders, members, number of students, the associated theory or techniques, activities to be carried out, deliverables, timeframe by yearly quarter (14 quarters over the time-frame of 3.5 years) and budget from April 1, 2009 to September 30, 2012. Following the sub-theme descriptions is a description for plans for cross-fertilization within the parent theme and across themes.

Theme 1: Development of Singing and Comparisons with Speaking

In contrast to the great attention directed to language acquisition, little has been directed to singing, yet the ability to sing develops along with the ability to speak. A 3-dimensional approach aims to outline a model of how singing develops in every individual, taking into account perspectives from neuroscience to linguistics, rigorous techniques for determining children's discriminative and motor capabilities associated with singing, and sampling the broad range of skills associated with singing, some of which have language analogues.

1.1 Production and Perception: Laurel Trainor and Steven Brown (McMaster University) and Christine Tsang (University of Western Ontario) will lead a program of research that begins in Year 1 as a basic inquiry into the relation between perception and production of singing and an investigation of the sensory and motor constraints on production accuracy. Year 2 will examine factors affecting singing development such as type of language (e.g., tonal vs non-tonal), formal training, environments (home, school, community), and cross-cultural differences, laying the foundation for beginning to examine in Year 3 the correlation between singing and brain measurements using EEG and MRI, as the basis of a cognitive neuro-social scientific model of singing development.

1.2 Multimodal analysis: Sandra Trehub (University of Toronto) and Frank Russo (Ryerson University) will lead two major projects. The first examines the coordination of movement between parents and infants (across cultures, where possible) in the context of infant-directed singing and speaking. It aims to document the mirroring of facial and body movement between parent and infant through audiovisual capture, electromyographic capture, and analysis of eye-movements. The second project explores age-related changes in children's coordination of body movement in the course of singing. This project, which will focus on children 2-12 years of age, will use audiovisual capture to document children's (i) imitation of sung intervals such as the major and minor third and the major triad (ii) imitation of spoken intonation patterns (iii) performance of a familiar song, and (iv) sung performance aimed at conveying a specific emotion. Other projects include parental categorization of ambiguous vocalizations as song or speech as well as acoustical and phonetic analysis of vocalizations on the melody/intonation continuum.

1.3 AIRS global test battery. Taking advantage of both the 7-year time-span and the global reach that the MCRI affords, Annabel Cohen (UPEI) with Canadian and international team members, will extend and refine a cross-cultural battery already piloted as the foundation of a longitudinal and cross-cultural study. The battery tests voice range, singing back the "easy" minor third interval and other musical elements (scale, major triad),

vocal creativity, singing back a familiar song, and learning an unfamiliar song. Speech and language abilities are captured at the beginning and end of the battery. In contrast to both finer-grained analysis over shorter timeframes and focused cross-sectional comparisons in themes 1.1 and 1.2, theme 1.3 will move more quickly from a broader mantle to map a global framework for understanding singing development. Note: 1.3 was part of 1.1 and 1.2 at the time of submission. Because of its steeper trajectory and later origin than 1.1 and 1.2, the Theme 1 research leaders suggested adding the AIRS test battery as sub-theme 1.3.

Theme 2. Singing and Education

How singing can be taught depends on the natural acquisition of singing skills, principles of learning, general best practices of education, and informed exploitation of new technologies including those that provide access to models of songs, meaningful contexts for songs, examples of vocalists performing, and examples of best teaching practices.

2.1 Learning to sing informally. Patricia Campbell (University of Washington) will lead the research on singing in informal settings, Theme 2.1 will address four discrete tasks: (1) Development of a review of literature published internationally in English on children's musical cultures (particularly those arising through naturalistic, ethnographic, and phenomenological inquiry), with attention to the nature of their songs, singing engagements, and transmission-acquisition processes; (2) Development of a review of literature on artist-teachers of selected world cultures for their pedagogical processes (including singers such as Umm Kulthum and Nusrat Fateh Ali Khan, and instrumentalists like Munir Beken, Hossain Oumami, Sam-Ang Sam, and Ko Nimo for the extent of vocalizations that function as transmission tools); (3) Examination of recording archives of music (e.g., Smithsonian Folkways/Global Sound, Association for Cultural Equity, EVIA/ Indiana University, and university holdings such as UCLA and the University of Washington) for audio- and video-recordings of singers in various world contexts, with special attention to repertoire "fit" for use with children and youth in schools; (4) Seeking out possibilities for developing new content to feature children/youth in songs of their heritage.

2.2 Formal training of singing. Darryl Edwards (University of Toronto) will lead a program of research on the formal training of solo and choral singers in different formal settings and cultures. It will address four discrete tasks: 1) A review of literature and audio-visual resources published internationally for (a) voice pedagogy and (b) choral pedagogy; 2) An overview of live and recorded performances in which performers require formal vocal training; 3) Creation of a database of audio-visual recordings of instructional situations (voice lessons and choral rehearsals); and 4) Empirical studies associated with tasks 1 to 3 designed to document, investigate, and explain: a) teaching sequences found in best practices for different ages (e.g., training of adolescent singers and the changing voice), b) resources, electronic technology and concrete materials associated with best practices, c) interpersonal markers between instructor and singer(s) that contribute to best practices and best outcomes (pertaining to identified values), d) universal, culture-specific, or idiosyncratic singing and teaching styles, e) development in formally trained singers over time, in instructional sessions and in public performance.

2.3. Teaching through singing. Andrea Rose (Memorial University) will lead a program of research for Theme 2.3 focusing on teaching and learning through singing and song. Her team will explore and examine the use of singing as a foundation for teaching and learning in varied formal, informal and online contexts of education. Research areas include (1) review of literature on the use of singing and song in the teaching and learning of both music and non-music concepts, skills, perceptions and attitudes; (2) Examination of e-contexts of K-12 music education and singing as a medium for teaching and learning – specifically a case study of current and evolving e-music programmes in Newfoundland and Labrador through the Centre for Distance Learning and Innovation (CDLI); (3) Examination of male singing practices and developmental trends in the choral/educational context – a case study with the Amabile Choir, London, Ontario; (4) Study of elementary student attitudes toward singing, the role of repertoire choice and teachers' perceptions of issues surrounding classroom singing – a case study at UPEI of music education students and local music teachers; (5) Study of teaching vocabulary in school-aged children and language development through singing; (6) Examination of the use of singing to learn second or other foreign language perception and production of pronunciation, vocabulary, and grammar; and (7) Study that will test effects of singing skill acquisition on broader academic skill learning.

Theme 3. Singing and Well-being

Happier people are healthier people. Researchers in Theme 3 are studying how singing can optimize well-being in the areas of social relations, and psychological and physical health. Well-being is broadly defined as both subjective well-being (feelings of happiness and life satisfaction) and objective measures such as health status.

3.1 Intercultural understanding. Led by Godfrey Baldacchino (UPEI) and Lily Chen-Hafteck (Kean University), researchers will examine singing in the promotion of cross-cultural understanding and the reduction of prejudice through four approaches: (1) extension of Felix Neto's original quantitative studies in Portugal of a 3-month singing intervention, with the aim of replication and determining long term influences (2) in a more qualitative study within Canada, China, Kenya, and Brazil, providing children in their classroom

with four two-to-three-week music-cultural modules from each of the four countries, and tracking the attitudes to these cultures in the short and long term in a multi-year 4-country-site experimental design (3) studying resilience and fragility of songs and singing styles within minority cultures particularly in Islands where several researchers have expertise and connections (4) studying the origin and maintenance of multicultural choirs such as *Common Thread* as the basis for developing new choirs beginning with such a choir at UPEI.

3.2 Intergenerational understanding. Led by Rachel Heydon (Western Ontario), concepts from Heydon's past work on intergenerational art will be translated to intergenerational singing activities. Three interrelated areas will be examined: intergenerational interaction, opportunities for social and content learning, and the process of creating learning opportunities, that is, curriculum development (Heydon); aspects of curriculum including singing processes and outcomes and the role of singing in reminiscence (Beynon); and wellness and engagement outcomes (O'Neill). The group will develop a handbook such that programs can be instituted in homes for seniors as well as within the family or other institutional contexts. Working initially in London, Ontario, the program developed will be further piloted in Seattle and Ottawa (Gick), and possibly then beyond.

3.3 Singing and Health. With a focus on direct benefits of singing for psychological and physical health, Jennifer Nicol (University of Saskatchewan) will lead the examination of such issues as (1) the relative advantage of active versus passive singing in hospital settings and homes for seniors, working with Bradley Vines on the West Coast and Young at Heart Musical Theatre Group for Seniors on the East Coast (2) a grounded theory explaining choir members' understanding of singing as a health promoting activity (3) the role that singing can play in providing enjoyable breathing exercises for chronic and/or terminal lung disease, with pulmonary physician Dr. Janice Richman-Eisenstat (4) the role of singing in high school retention, where education has direct health benefits (5) the benefits of singing for language rehabilitation of stroke victims (6) the role of singing in Alzheimer's disease and in normal aging (7) the role of singing lessons on later life singers.

Cross-Fertilization Among Themes

The value of the projects described above is augmented through cross-fertilization across themes as indicated in Figure 1. The integration of the projects and sharing of results across themes and sub-themes is key to the success. Cross-fertilization is encouraged in many ways as described below.

Literature reviews for all sub-themes will close with reference to significance for other sub-themes within the superordinate theme, and across sub-themes where relevant. Thus for theme 1.1 (Perception and Production in Development), the literature review will

describe implications for themes 1.2 (Multi-modal) and 1.3 (AIRS test battery) and then for Theme 2 (Education) and for Theme 3 (Well-being), e.g., specification of ages during which learning of non-native songs (theme 3.1) would be most effective. Theme 1.3, due to its broader lifespan developmental trajectory would have relevance to the lifespan scope of 3.2 (intergenerational) and 3.3 (health) subthemes. Other publications arising will also conclude, as appropriate, with implications beyond the immediate sub-theme.
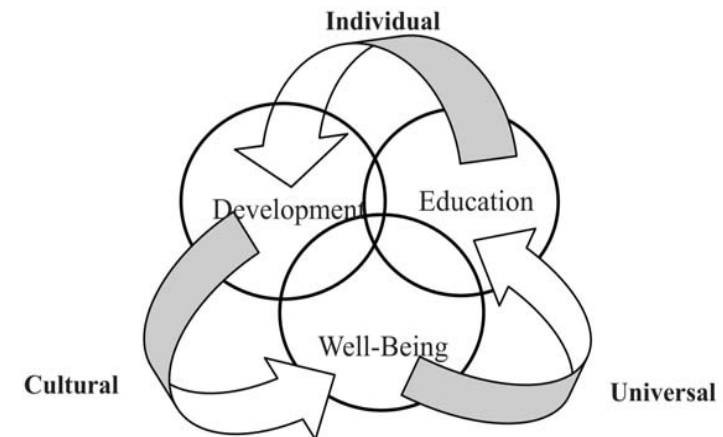
Figure 1. Representation of the integration of 3 Themes

Dedicated Theme meetings will take place every trimester (two virtually and one at the AIRS Annual meeting) during which results of the 3 sub-themes will be shared. A teleconferencing system, already successful for communication across Canada, US, Europe, Asia, and Africa with as many as 16 participants to date, is in place in assisting direct communications within and across themes and sub-themes. Discussion in these theme meetings will focus on a goal of developing a shared theoretical perspective for the Theme that will contribute to integrated theoretical systems for understanding singing and singing development. Opportunities will be taken to transmit findings to members of other sub-themes by postings on the AIRS virtual research environment (as described later).

Theme 1 will look to Theme 2 for confirmation of its models of development of singing. For example, the characteristics of naturally acquired song at particular ages as found by Theme 2.1 should map onto the models of singing acquisition developed by Theme 1. A model from Theme 1 may clarify for theme 3.1.1 the limitations on the age of acquisition of non-native singing styles, or the rhythmic and melodic complexity suited to particular developmental periods.

Theme 2 will aim to develop among its 3 sub-themes a shared framework about learning that clarifies distinctions between formal and informal learning, and between teaching singing and teaching through singing, providing an understanding of how singing itself improves or improves other learning. Their models for learning will be both informed by and will inform Theme 1, as early as the end of Year 2. Their models of learning will also be shared with Theme 3 sub-groups each of which uses teaching and learning, be it teaching non-native songs for improvement of attitudes (3.1.1 and 3.1.2), inter-generational learning (3.2), or learning to sing as a means of benefiting physical and mental health (3.3).

Theme 3 serves to remind Theme 1 and to a lesser extent Theme 2 of the social context of singing. It is also served by Theme 1.1 which will focus on special populations such as those with hearing or cognitive impairments. Theme 1 (with its development of an understanding of the lifespan trajectory of singing acquisition) and Theme 2 (with a focus on learning naturally and formally) will assist Theme 3 with its goals that require learning. Themes 1 and 2 may help to provide guidelines for teaching of non-native songs (Theme 3.1), for choosing age-appropriate material in intergenerational singing (Theme 3.2) and the health promotion activities of theme 3.3. As Theme 3 is more closely aligned to Community than is Theme 1, connections formed between Themes 1 and 3 may open doors to the dissemination of findings of Theme 1. Similarly education is at the heart of 3.2, the Intergenerational singing study, and there will be direct transfer to 2.3 (learning through singing) arising from results of Theme 3.2 by the end of Year 2.

A primary goal of the AIRS Annual Meeting is cross-fertilization across sub-themes. However virtual meetings are potentially daily events via the AIRS virtual research environment and associated digital library. The results of cross-fertilization will be seen in dissemination discussed below. Finally, student support is awarded to projects in part on the basis of the extent to which the supervisor has directed attention to issues of cross-fertilization across themes. Travel exchanges are also viewed in this light.

III. DISSEMINATION OF AIRS RESEARCH RESULTS

Plans for dissemination include writing review papers as foundations for each of the 9 sub-themes; additional research articles, book chapters, journal special issues and monographs or books. The Annual Meeting will bring team members together either through actual or virtual travel. Workshops and symposia will be held at relevant conferences of other societies, specialized conferences directed to singing, or independent initiatives such as regional workshops focused on training such skills as pitch measurement. In addition, numerous other types of non-traditional means for dissemination are listed in the original proposal and include open community-academic workshops, development of a documentary, public

singing events, development of singing games for children and an interactive musical map, and development of intergenerational and cross-cultural choirs or singing festivals. These are summarized in Table 2, p. 9. The development of the AIRS digital library and AIRS web-site (virtual research environment), described below are key to the dissemination plan.

AIRS Digital Library

Led by Mark Leggott (UPEI) and Ichiro Fujinaga (McGill) a digital library will enable researchers to share audiovisual files from all three themes including text transcripts and researcher annotations. A preliminary version of the digital library exists with examples from Theme 1.3 of the AIRS test battery for children of ages 3, 5, 7 years and young adults who received in 5 monthly sessions the 11 components of the battery. Other uses for Theme 1 may include brain-images while singing, or audiovisual recordings of mother-infant singing. For Theme 2, Education, the Digital Library will contain examples of good teaching, both formal and informal, examples of songs of various cultures, and the cultural context of those songs. For Theme 3, Well-being, the Digital Library will be used to share examples of (a) singing exercises that could assist lung patients, (b) established choirs as models for the creation of intercultural choirs, and (c) intergenerational singing activities in senior homes, or in other settings. Entries originating in one theme can benefit research in another theme, for example the songs collected in Theme 1 (Development of Singing) and Theme 2.1 (Learning to Sing Naturally) can be used by Themes 3.1 (Singing and Cross-cultural Understanding). The Digital Library team in consultation with representatives of the rest of the project will develop protocols for use by the entire team, and this common language will foster interdisciplinary communication. The structure of the digital library will reflect the research structure with three primary repositories, one for each of the research themes and sub-themes (to be seen on the AIRS web-site, see next section).

AIRS Web-site/ Virtual research environment (http://www.airsplace.ca).

A virtual research environment (VRE), using DRUPAL Open Source software, provides a basis for communication among AIRS members. It also informs the public in accordance with various viewing permission options. DRUPAL allows each member of the team to submit content directly. The web-site is also the gateway to the AIRS digital library. Currently, on the home-page, the web-site menu, displays paths to a calendar, Team Description, (to include photos of all participants with description of who they are, their connection to AIRS, what they will gain from AIRS, and what they bring to AIRS), searchable bibliographic references through Refworks, and related links. A separate Student section will be established, as will a public face for the web-site.

Annual Meetings, Conferences, and Workshops

The highlight of the year is the annual meeting. For Year 1, an intensive AIRS start-up meeting took place at UPEI in June. A UNESCO-AIRS symposium followed immediately at the Phenomenon of Singing Symposium at Memorial University. Earlier, in May, an AIRS symposium at the Canadian Psychological Association (CPA) focused on each of the three AIRS themes and involved members of three CPA sections: Developmental, Health, and Cross-Cultural. AIRS presentations were also made at the Society for Music Perception and Cognition, and the Annual Meeting of the American Psychological Association. In October, an AIRS symposium took place at the Annual Meeting of the Canadian Acoustical Association. In Year 2, the 2nd International AIRS Expert Workshop will take place in conjunction with the 11th International Conference on Music Perception and Cognition, in Seattle in August 2010. An AIRS presence is expected at the International Society for Music in Education to be held in Beijing earlier that year. The AIRS annual meeting for 2011 will coincide with Neuromusic 4(location unknown). An AIRS presence will be expected at the Vancouver International Song Institute, an Atlantic regional workshop in Prince Edward Island, and at least one other specialized workshop, as well as conferences to which AIRS researchers would normally attend such as annual meetings of the American Educational Research Association, Canadian Association for Music Therapy, and Society for Ethnomusicology. In Year 4, August 2012, the AIRS MCRI mid-term review will bring the Advisory Board, team leaders, other key investigators and representative students to Prince Edward Island in conjunction with the AIRS 4th Annual Meeting.

IV. AIRS STUDENT TRAINING

Students are key to the research progress, and they represent the future of the AIRS project as well as the future of academia and society in general. Hence, more than half the budget is dedicated to them. Still with over 70 research supervisors over a 7-year period, AIRS is careful to see that the most effective use is made of the funds available. Funding will be distributed to students via three mechanisms: (1) compensation in the range of $1000 - $5000 for research work focusing on the goals of AIRS, e.g., collecting data necessary for the various research themes (2) top-up awards in the range of $2000 – $6000 for students already partially funded at their home university who are conducting theses related to the AIRS' domain (3) awards up to the SSHRC stipend limit ($8000, $12000, $15000 for undergraduate, masters and doctoral student) through open competition within a theme. A postdoctoral award to the SSHRC stipend limit of $31,000 in year 3 and 4 will be made for a research proposal most likely to advance the AIRS objectives. Note that this position is distinct from the ongoing PDF/RA position which is part of the central management of AIRS

beginning during Year 1 (see p. 6). Through travel awards from the separate student travel budget, students will be encouraged to present their work at the annual AIRS meetings, workshops, or symposia. They will be encouraged to publish or co-publish their work. Student presentation awards will aim both to maintain high standards of presentation and to expose student work to the broad range of AIRS expert faculty researchers to whom students will have direct access. The distribution and standards of awards will be governed by the Policy and Planning Committee (see Section 5), and overseen and guided by a Student Award Committee. Advertising the AIRS Student Award Competitions is a mechanism for highlighting the work of AIRS.

Students who stay with the project for several years may have opportunities for exchanges across the AIRS network, enhancing exposure to experts, techniques, technology, issues, and cultures. Where possible, reciprocal exchanges between universities will be encouraged so as to simplify the mechanics of moving from one locale to another, and so that university fees will be based on the student's normal fees not those of the host university. Researchers at the following universities have indicated their willingness to receive students: University of Toronto, McGill, McMaster, Ryerson, UBC, UPEI, Harvard, Universities Washington, Cambridge (UK), London (UK), Pretoria (South Africa), Tartu (Estonia), Hokkaido, and Zurich.

V. GOVERNANCE OF AIRS

Central management

The Project Director, Annabel Cohen, is responsible for the intellectual leadership of the team and for the integration of the program's components. She will usually participate in the organization of workshops and conferences, lead or chair team meetings, and encourage collaboration across projects. She will also lead sub-theme 1.3 which connects with all other sub-themes. The Administrative Project Managers and post-doctoral fellow or research associate (PDF/RA) report directly to Dr. Cohen. Deborah Annear, Administrative Project Manager (Finance), manages budget and accounting, and Cynthia Dennis, Administrative Project Manager (Operations) tracks and facilitates progress toward the goals stated in the Milestone Document and specified in its Gantt chart. The post-doctoral fellow/research associate (PDF/RA), in addition to a primary research focus, will have part-time administrative responsibilities, particularly in connection with AIRS partners. Since the time of submission of the AIRS proposal, it is thought that a Research Associate (RA) position may provide a reasonable alternative to the PDF, where the RA may be beyond a normal PDF status--up to 5 years since Ph.D.-- or may be a researcher without a Ph.D. Mention of the **PDF/RA** is reference to this position in the AIRS central management plan.

Policy and Planning Committee

The Policy and Planning Committee (P&P) will meet bi-monthly by video- or teleconference. Its composition entails: (1) theme leaders representing the 9 sub-themes (with 1 vote per sub-theme) (2) the following committees (each represented by 1 vote): Digital Library, Student/PDF (Andrea Emberly), Partner (Corrine Henricken-Eldershaw, Lee Willingham), Stakeholder (Stephen Clift), Global (Caroline van Niekerk), and Ethics-Statistics-Intellectual-Property (Jennifer Sullivan). Including the Project Director (theme 1.3), the Executive Committee includes 15 votes. The Administrative Project Managers and PDF/RA are ex officio, non-voting members. Where there are two sub-theme or committee leaders, both may attend meetings, but only one may vote. For every meeting, each sub-theme must have representation.

Steering Committee

The Steering Committee, a smaller body, is a representative sub-group of the P&P Committee. It efficiently addresses daily issues and reports directly to and receives direction from the Advisory Board. It is represented by one person for each of the 3 Research themes (Frank Russo Theme 1, Patricia Campbell Theme 2, Jennifer Nicol [interim Mary Gick, Year 1] Theme 3, respectively), the Project Director, the Administrative Project Managers (non-voting), and the PDF /RA (non-voting).

Stakeholders

Representatives of over two dozen organizations have expressed interests in the activities of AIRS. These stakeholder groups include provincial, national, or international associations of music teachers, choral leaders, choirs, researchers in music and psychology, aesthetics, and in other aspects of human behaviour such as development and cross-cultural. The International Congress of Voice Teachers, International Federation of Choral Music, the Vancouver International Song Institute, and the Centre for Opera Studies in Italy are examples of institutional stakeholders available to help collect data and provide research opportunities for Theme 2.2 the Formal Teaching of Singing. For each stakeholder, an AIRS student researcher will serve as a liaison keeping the stakeholder informed of AIRS' activities, and inviting both feedback and attendance of events. Stakeholders will be invited to join a Stakeholder Committee that meets twice a year providing feedback to AIRS on the importance of certain issues that pertain to them and on the relevance of AIRS findings from the stakeholder perspective.

Partners

The PDF/RA will liaise with the dozen AIRS partners ranging from companies such as Roland and Apple, having a vested stake in the music industry (involving singing, singers, and song), arts and cultural establishments (e.g., Confederation of the Arts, ECMA, Laurier Centre for Music and Community, Music PEI, Young at Heart Musical Theatre), government organizations (e.g., Veteran's Affairs Canada at the national level and PEI Cultural Human Resource Sector Council at the provincial level) and co-located facilities for seniors and children (Grand Ave. Children's Center and Soloway Jewish Community Centre). Partners will join in management of certain projects, such as Extemporel's application of computer technology to vocal education, and The Alzheimer's Society of PEI and Veteran's Affairs Canada will participate in sub-theme 3.3 Health and Well-being. Partner letters received prior to 2009 have been reconfirmed (and additional letters are expected from Roland Canada and the Acoustical Society of America). A non-partner contribution was received from the Canadian Commission for UNESCO since the original submission for a symposium at Memorial University (Phenomenon of Singing).

Advisory Board

The AIRS Advisory Board has two full members and one or more adjunct members. Full member Dr. Hilary Apfelstadt, an eminent choral and vocal specialist and Professor at the Ohio State University [moving to Faculty of Music, Univeristy of Toronto, Sept. 2010), is the President of the American Choral Director's Association (22,000 members). Born in Canada, she taught at UPEI early in her career. Full member Professor Philip Smith of the Department of Psychology, UPEI has vast research and administrative experience (chair PEI Cancer Research Board, past member SSHRC Council, past UPEI Dean of Arts). Musically trained, he is a parent of two young choristers. Professor Anna-Maria di Sciullo joins the Advisory Board in an Adjunct capacity. A linguist at UQAM and MIT graduate, she is Project Director of two successive MCRIs that focus on grammatical asymmetry, a topic overlapping with AIRS. These strong leader/ administrators represent the breadth of AIRS in psychology, health, music, choral, singing, culture, and language. The specific experience of Professor di Sciullo with her MCRI projects, of Professor Smith with UPEI and SSHRC, and Professor Apfelstadt with singing and choir leadership provide for valuable advice and feedback to the AIRS team in terms of research, collaboration, integration, training, dissemination and large-scale project management and will provide external accountability. The Advisory Board will meet twice annually and will receive an AIRS annual report from the AIRS steering committee. Their meeting minutes will be made available to SSHRC.

Table 1. Overview of AIRS Research Themes: Membership, Activities, Deliverables, Timetable, and Budget -- April 1, 2009 – September 30, 2012
NB: solid rectangles (Theme 1 ▬; Theme 2 ▬, Theme 3 ▬) at right indicate a date of completion of a deliverable

Theme 1: Development of Singing and Speaking

Sub-theme and Leaders	Members	U	M	D	Theory & Techniques	Activities	Deliverables	Year 1 09-10				Year 2 10-11				Year 3 11-12				Yr4 12	
								1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.1 Perception and Production Inter-relations Leaders: Laurel Trainor & Steven Brown (McMaster) Christine Tsang U. Western Ontario	L. Trainor	1	1	1	Perceptual - Cognitive Brain Imaging Neuroscientific Developmental Psychoacoustics Cochlear -Implants Suzuki Method Articulatory- Phonetics Birdsong Evolution	Review Literature	Review, conference report, article	x	x	x	x	x									
	S. Brown	1	1	1		Development of tests of relation between perception and production ability across age	Pilot data			x	x	x	x	x	x	x	x	x	x	X	
	S. Dalla Bella		1	1		Refined test						x	x	x	x	x	x	x			
	C. Tsang	3				Examine influences of language & Hearing impairmt	Report					x	x	x	x	x	x	x	x	x	x
	C. Palmer		1			Examine influence of music training, environment	Report					x	x	x	x	x	x	x	x	x	x
	G. Schlaug					Develop/use methods of pitch analysis	Wkshops on Measurement of Singing						x					x			
	S. Ternstrom		1			EEG	Symposium: Brain Imaging & Singing											x	x	x	x
	N. Henrich		1	1		Brain Imaging	Reports (Conf., Articles, Present)										x	x	x	x
	L. Philmore	1	1			Comparative (birdsong) research	Comparative report and symposium		x	x	x	x	x	x	x	x	x	x	x	x
	L. Stewart		1			Sharing information within Theme	(example for all sub-themes)			x		x		x		x		x		x
	I. Peretz		1			Sharing information across Themes	(example for all sub-themes)			x			x			x			x	
1.2 Multimodal (audio/visual/motor) Leaders: Sandra Trehub (U. Toronto) Frank Russo (Ryerson)	F. Russo		1	2	Social-cognitive Devel. Electromyography Amusia Piagetian Cog-Devel. Play theory Inf-Drct Speech/Singing Eye-movements Intonation Linguistics Articulatory phonetics Audio engineering Arts Song	Develop methodology	Report Pilot method and data			x	x	x	x	x	x	x	x	x			
	I. Peretz		1			Singing and speaking to infants	Data collected & submitted to dig. lib.	x	x	x	x	x	x	x	x	x	x	x			
	R. Sharon		1			Singing and speaking to infants cross-cultural studies	Report			x	x	x	x	x	x	x	x	x	x	x
	M. Fredrikson		1			Studies of age, body activity when singing	Preliminary Conf then Written Report			x	x	x	x	x	x	x	x	x	x
	M. Adachi		1			Parental classification of ambiguous song/babble	Conf Report and Publication			x	x	x				x				
	P. Hauf	1				Analysis of eye-movements / singing	Preliminary Report, and Publication			x	x	x	x	x	x	x				
	W. Cichocki	1				Comparisons of speech & singing intonation across cultures (dialects)	Reports (Conf., Articles, Present)											x	x	x	x
	N. Henrich		1	1		Comparison of vowels in speaking and singing	Workshop			x	x	x	x	x	x	x	x	x	x	x
	C. Vincent	1				AV Analysis Parent Infant Singing	Workshop											x		
	H. Guttmons-dottir					Effects of visualizing artsong	Demonstration and report	x				x				x			x	x
1.3 AIRS Battery -cross-cultural Longitudinal (6 yr) lifespan study Annabel J. Cohen (UPEI)	A Cohen	3	1		Cross-cultural Developmental Music Theory Quantitative Qualitative Psychometrics Melodic Inton. Therapy Early childhood Educ	Review of longitudinal singing tests	Presentation & publication			x	x	x			x					
	PDF/RA	1				Develop model; Pilot tests across lifespan	Initial long. data lifespan start points				x			x			x			x
	Stadler Elmer					Revise tests for cultural contexts:	Extend to different Canadian contexts				x	x	x							
	P. Loui	2	1			China, South Africa, Can	Test 3 x / year							x			x			x
	J. Sullivan	3				Pilot tests across 3 countries and lifespan ages	Extend data collect. to the 3 countries					x	x	x	x	x	x	x	x	x
	M. Forrester	2					Extend to other countries					x	x	x	x	x	x	x	x	x
	J. Ross		1	1		Develop comprehensive battery for singing ability across cultures and age	Analyze, notate, transcribe,move to DL						x	x	x	x	x	x	x	x
	S. Falk	1	1				Comprehensive screening test														x
	G Schlaug			1		Test in 3 countries & e.g., Iceland, Germany, Est., etc														
	C. Vincent					Prelim. model of cultural influence on singing ability	Develop prelim. model of cultural/ individual affect on singing										x	x	x	x	x
	C.V. Niemarck		2																		x

THEME 2: SINGING AND EDUCATION – TEACHING SINGING AND USING SINGING TO TEACH

	Sub-theme and Leaders	Members	U	M	D	Theory & Techniques	Activities	Deliverables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2.1	Learning to Sing Naturally -Native & Non-Native songs; focus on children Leader: Patricia Shehan Campbell U. Washington	P.S. Campbell		3	3	Ethnographic	Review of Literature	Review, conference report, article	x	x	x	x	x									
		B Ilari	1	2			Video examples of children singing at play	Report pilot method and data					x	x	x	x	x	x	x	x	x	
		M. Gardiner	1			Music Education	Corpus of children's songs: Canadian, American, and other	Data collected and submitted to digital library					x	x	x	x	x	x	x	x	x	
		G. Welch		2	2	Communication Theory	South African, China, Brazil, Iceland	Data collect and submit						x	x	x	x	x	x	x	x	x
		H. Gudmunds-dottir	2	1		Multiple Intelligences	Britain, Estonia, Poland, Austria etc	Data collect and submit						x	x	x	x	x	x	x	x	x
							Islands	Data collect and submit							x					x		
		C. V. Niekerck	1	1	1	Play Theory	Corpus of Elders' Songs	Data collect and submit					x	x	x	x	x	x	x	x	x	
		E. Mang	2				Examples of informal teaching within cultures	Transcribe and annotate all of above						x	x	x	x	x	x	x	x	x
		K. Stevens	1			Arts in Education	Qualitative analysis leading to models of development of song repertoire	Model											x	x	x	x
		K. Szego				Communication Theory	Singing vs play, or emotional communication, or art	Interpretation											x	x	x	x
2.2	Teaching Singing in Formal Settings: including focus on lifespan Leader: Darryl Edwards (U. of Toronto)	D. Edwards		1	1	Choral Pedagogy	Review of literature on voice training	Conf presentation and publication					x	x	x	x	x	x				
		S. Demorest		1	1	Bel Canto	Review of literature on choral training	Conf presentation and publication					x	x	x	x	x	x	x	x	x	x
		H. Abeles		1		Art Song Children's Education	Reviews of above from global perspective	Conf presentation and publication					x	x	x	x	x	x	x	x	x	
		R. Sharon		1		Adult Education	Review of gender differences; benefits, , glee clubs	Conf presentation and publication						x	x	x	x	x	x	x	x	x
		J. Ginsborg	1	1		Educational Psychology	Audiovisual examples of good practices of all of the above	Submitted to Digital Library; transcripts					x	x	x	x	x	x	x	x	x	x
		S. Shin-bouey	1				AV recordings of practices sessions, longitudinal	Submitted to digital library, transcripts, develop theory of teaching singing					x						x			
		Carol Beynon		1			AV examples of solo performance	Apply theory to solo						x								
		Xie Jiaxing		1			AV examples of choral performance	Apply theory to group							x	x	x	x	x			
							AV examples of above cross-cultural	Apply theory to global setting									x	x	x			
2.3	Teaching through singing Leader: Andrea Rose (St. John's)	A. Rose		1		Literacy 2nd Language	Review of lit. of use of singing to teach curricula, basic skills, behavior	Lit. rev. – conf. present; pub. article					x	x	x	x	x	x	x	x	x	x
		K. Szego		1		Media and education Educational Technology	Studies of E-contexts for teaching music in K-12 curriculum	Commence empirical studies; data collection within classroom					x	x	x	x	x	x	x	x	x	x
		M. Gabriel	3			Health Psychology	Elementary student attitudes toward singing, role of repertoire choice, teacher's perception of issues surrounding classroom singing – views of music education students and music teachers	Interviews, analysis of data; **workshop**, book chapter					x	x	x	x	x	x	x	x	x	x
		J. Countryman	2			Acoustical phonetics Psycholinguistics Curriculum																
		J. Sullivan	2				Singing and vocabulary curriculum	Conference presentation; paper					x	x	x	x	x	x	x	x	x	x
		H. Lempert	2				Singing and 2nd language grammar	Conference presentation; paper					x	x	x	x	x	x	x	x	x	x
		N. Henrich					Studies of pronunciation foreign language	Conference presentation; Thesis					x	x	x	x	x	x	x	x	x	x
		M. Gardiner					Correlational studies of Kodaly training and other academic performance in school	Measures of correlation; conference presentation					x	x	x	x	x	x	x	x	x	x

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THEME 3: SINGING AND WELL-BEING

No	Sub-theme and Leaders	Members	U	M	D	Theory & Techniques	Activities	Deliverables	Yr1 1	2	3	Yr2 4	5	6	7	8	9	Yr3 10	11	12	13	Yr4 14
3.1	3.1 Cross-cultural Understanding — Leader: G. Baldacchino (UPEI); Lily Chen-Hafteck (Kean)	G. Baldacchino		2		Attitude Change	Review literature	Literature Review – presentation,				x	x	x	x	x						
		L.Chen-Hafteck	3			Critical Period		publication											x			
		F. Neto	2			Sociology / Ethnographic	Develop teaching modules Can, Brazil, China, Kenya	Teaching modules for different cultures					x	x	x	x	x					
		Kati Szego	1	2		Social Psychology		Qualitative results							x	x	x	x	x	x	x	x
		C. v. Niekerk				Male choirs	Replicate Neto Portuguese study	Determ. time course of attitude change								x	x	x	x	x	x	x
		J. Russell			1	Intergroup Relations	Extend latter for longer, and Canada	Examine whether works in Canada									x	x	x	x	x	x
		J. Mitchell	1			Intercultural Curriculum	Case studies of resilience within Islands	Theory of song resilience					x	x	x	x	x	x	x			
		R. Parncutt	1			Intercultural-Music Pedagogy	Multicultural choir development	Form international choir 1					x	x	x	x	x	x				
		K. Tilleczek		2					Form international choir 2					x	x	x	x	x	x	x	x		
		L. O'Farrell	1						Interview Common Thread Choir							x	x	x	x	x			
		P. Campbell			2				Develop handbook of choir formation											x	x	x	x
		Frank Russo	1				Develop book on singing and Islands	Collect articles publish book	x	x	x	x	x	x	x	x	x	x	x	x	x	
3.2	Intergenerational Understanding — Leader: R. Heydon (UWO)	R. Heydon		1	1		Review of literature	Presentation				x	x	x	x							
		C. Beynon		1		Intergenerational education	Site visits	Reports of sites					x	x	x	x	x					
		M. Gick	1	1		Educational theory	Establishment of prototype	Wrtten pilot protocol.l						x	x	x	x	x				
		S. O'Neill			1	Art Education	Recording and study of benefits	Report benefits and compare with art							x	x	x	x	x			
		P. S. Campbell		1		Early Childhood Ed	Replicate at same site	Report on new participants								x		x	x	x	x	
						Older Adult Ed																
		S. Clift	1			Gerontology	Extend in London, Ottawa, possibly other (eg Seattle)	Explore other venues and repeat											x	x	x	x
						Choral training	Analysis of data	Determine results are worthy of report									x	x	x	x	x	x
						Choral Direction	Presentation of results	Present results at major meeting										x		x		x
						Cultural Anthropology	Reporting of results	Obtain feedback and create paper													x	x
								Draft handbook														x
3.3	Singing and Health Benefits — Leader: Jennifer Nicol (Saskatchewan)	J. Nicol		1	1		Illness specific singing interventions	Review Literature			x	x	x	x			x					
		S. Clift		1	1	Music Therapy / Counseling Psychology	breathing exercises for lung disease (Roland partner)	Analyse, present paper, publish, involve Roland				x	x	x	x	x	x	x	x		x	
		J. Richman-Eisenstat	1	1		Grounded Theory / Health Policy	Language rehab, (Melodic Intonation Therapy)	Publish paper describing specific benefits of singing				x	x	x	x	x	x					
		Rena Sharon		1	1	Medicine / Evolutionary Perspective	Protocols for Alzheimer's	Measures of well-being, use test battery					x	x	x	x				x	x	x
		Ian Cross		1	1	Neurology	Secondary school activity program to assist retention	Presentation and publication of results				x	x	x	x	x	x	x	x			
		Godfrey Schlaug		1	1	Psychiatry	Singing clubs for seniors	Extend British work to Canada			x	x	x	x	x	x	x	x	x	x	x	x
		Bradley Vines		1		Health Psychology	Singing for any group	Evaluation of other special groups					x	x	x	x	x	x	x	x	x	x
		Chris Blanchard		1			Practica for students	Complete practica involving singing					x	x	x	x	x	x	x	x	x	x
		Mary Gick		1	1																	
		Laura Young																				

DIGITAL LIBRARY

	Sub-theme and Leaders	Members	Student U	M	D	Theory & Techniques	Activities	Deliverables	Yr 1 09-10 1	2	3	4	Yr 2 10-11 5	6	7	8	Yr 3 11-12 9	10	11	12	Yr 4 12 13	14
4.0	Digital Library	M. Leggott	1			Digital Library	Survey of singing analysis, synthesis available	Report				x	x	x	x	x						
		I. Fujinaga		2	1		Survey digital lib for music and singing	Report				x	x	x	x	x						
	Leaders Mark Leggott (UPEI) Ichiro Fujinaga (McGill)	G.Tzanetakis	1			Music Information Retrieval	Needs and use assessment of researchers	Survey and report	x	x	x	x	x			x		x		x		x
		B. MacWhinney					Evaluation of current AIRS DL	Report, and web resource				x	x	x	x	x						
		S-A. Selouani				Pitch analysis	Consideration of Talkbank, CHILDES, and ComNET	Report				x	x	x	x	x						
		D. Huron		1		Time analysis	Demonstration of several prototypes	Show at meeting				x	x	x	x	x						
		T. Leonard	1				Evaluation of prototypes	Report				x	x	x	x	x						
		M Sundar Rajan	1			Voice synthesis	Issue of permissions & digital rights	Show at meeting				x	x	x	x	x	x	x				
		C. Vincent					Issue of payment for recordings of cultural material	Report				x	x	x	x	x	x	x	x			
		S. Ternstrom				Voice analysis Audio recording	Issue of mirroring	Create at McGill				x	x	x	x	x	x	x				
		J. Sundberg				Digital rights managemt Statistical analysis	Data entry in current system & creation of transcripts	Report and solution				x	x	x	x	x	x	x				
		B. Frankland				Portable Audio	Develop applications for inputting data to the DL	Applications & Handbook for ingestion								x	x	x		x		

Table 2 – Estimated number of students involved and publications or creative works arising from research conducted by each of the 9 sub-themes + Digital Library																		
Theme	U	M	PH	total	Review Articles	Work-shops	Record-ings	Present-ations	Symposia Organized	Proceedings Papers	Articles Published	Book Chapters	Books or Monographs	Edited Volumes	Choirs created	Festivals	Games	Student funding (Excludes travel)
1.1	6	9	4	19	1	1		5	1	3	3	1		1				
1.2	3	6	3	12	1			6	1	2	5	1		1				
1.3	12	6	2	20	1	1	1	10	1	2	3	1	1	1			1	
Total 1.0																		
2.1	8	9	6	26	3	1	1	3	1	2	3	1				1		
2.2	2	7	2	11	2	1	1	3	1	1	2	1						
2.3	9	2	2	13	1	1		3	1	1	2	1		1				
Total 2.0																		
3.1	10	6	3	19	2	1	1	3	2	2	6	12	1	1	2	1	1	
3.2	2	4	2	8	1	3		3	1		3	1						
3.3	2	9	6	17	2	1		3	1		2			1				
Total 3.0																		
4.0	4	3	1	8	1	4		2	1	2	2						1	
PDF's (5.5)																		
Total	58	61	31	150	15	14	4	41	11	15	31	19	2	6	2	2	3	

AIRS Project Director Annabel J. Cohen

Administrative Project Manager – Deborah Annear

Anick Lamarche Postdoctoral Fellow & Partner Liaison (TBA)

AIRS Advisory Board
Hilary Apfelstadt
Philip Smith
Maria Di Sciullo (Adj)

AIRS Steering Committee (4)
F. Russo (Theme 1), P. Shehan Campbell (Theme 2), J. Nicol/M. Gick (Theme 3) A. Cohen Project Director

AIRS Policy and Planning Committee (15)
1 vote from each of 9 Sub-themes + 1 from each of 6 remaining Teams: Digital Library, Global, Ethics, Partners, Students & Stakeholders

Individual

Development   Education

Well-Being

Cultural   Universal

| **Global**
C. v. Niekerk | **Ethics, Statistics &
Intellect. Property**
Brad Frankland | **Digital Library**
Mark Leggott
Ichiro Fujinaga | **Theme 1**
Development in
Singing & Language
Frank Russo | **Theme 2**
Education
Patricia Campbell | **Theme 3**
Well-being
Jennifer Nicol/
Mary Gick | **Partners**
C. H-Eldershaw
L. Willingham | **Students/PDF**
Andrea Emberly | **Stakeholders**
Stephen Clift |

Organizational Chart
AIRS MCRI
Advancing Interdisciplinary Research in Singing
SSHRC Major Collaborative Research Initiative

1.1 Perception & Production
Laurel Trainor
Steven Brown
Christine Tsang

2.1 Natural Learning Within Cultures
Patricia Campbell

3.1 Cross-Cultural Understanding
Godfrey Baldacchino
Lily Chen-Hafteck

1.2 Multimodal AV
Sandra Trehub
Frank Russo

2.2 Formal Vocal Training
Darryl Edwards

3.2 Intergenerational Understanding
Rachel Heydon

1.3 AIRS Test Battery
Annabel Cohen

2.3 Learning through singing
Andrea Rose
Jennifer Sullivan

3.3 Health
Jennifer Nicol