AIRS MCRI Milestone Document – April 1, 2009 – September 30, 2012
Advancing Interdisciplinary Research in Singing:
Development, Education, and Well-Being

SSHRC Major Collaborative Research Initiative
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Milestone Report
DRAFT June 21-09

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I. PROJECT FRAMEWORK

This seven-year major collaborative research initiative aims to advance interdisciplinary research in singing (AIRS) through cooperation of over 70 researchers from every province in Canada and from more than a dozen countries on 6 continents worldwide. With the objective of understanding 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) the development of singing ability (2) singing and learning and (3) enhancement of health and well-being through singing. The researchers will their share knowledge and expertise from numerous disciplinary perspectives, including psychology, musicology, music therapy, education, sociology, anthropology, folklore, medicine, and audio and computer engineering. They will present and develop 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; an intensive schedule of meetings supported by electronic technology; and components of an AIRS test battery of singing skills woven through the research themes. The research results will be disseminated through traditional academic means (journals, books, conferences) as well as through real world activities and settings (school curricula, homes for seniors, medical interventions). Such dissemination will provide a foundation for decision making within education, health, culture, immigration, and foreign policy.

II. RESEARCH THEMES

The three research themes are broken into sub-themes each of which will first be addressed by a complete literature review that will provide 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, which is 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.

Theme 1: Development of Singing and Comparisons with Speaking

In contrast to the attention that has been directed to language acquisition, very little has been directed to singing, yet the ability to sing develops along with the ability to speak. A 3-dimensional approached will aim ultimately to outline a model of how singing does develop in every individual, taking into account perspectives from neuroscience to linguistics, using the most rigorous techniques available for determining the children's discriminative and motor capabilities associated with singing as well as 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 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. Years 2 and 3 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 examining in Year 4 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: Trehub and Russo will lead two major projects. The first examines coordination of movement between parents and infants in the context of infant-directed singing and speaking, and includes (1) measuring the extent of mirroring in facial and body coordination of parent and infant, through audiovideo capture (including cross-cultural comparisons), electromyographic capture, and analysis of eye-movements. The second project explores body movement and vocal production in development and will investigate cross-sectionally in children of 2-12 years use of the body in (i) imitation of sung target (ii) imitation of spoken target (iii) singing familiar song (iv) interpretation of a sung target that conveys specific emotion. Other projects include parental categorization of ambiguous vocalization as song or speech, and the acoustical, physiological and phonetic analysis of vocalization of the melody/intonation continuum.

1.3 AIRS global test battery. Taking advantage of the MCRI 7-year time-span and the global reach that the MCRI affords, Annabel Cohen, 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 familiar minor third interval and other musical elements (scale, major triad), vocal creativity, ability to sing back a familiar song, and learn an unfamiliar song. Speech and language ability is captured at the beginning and end of the battery.   In contrast to the finer-grained analysis over shorter timeframes and focused cross-sectional comparisons within sub-themes 1.1 and 1.2, this arm of the developmental research will move quickly from a broader mantle in an attempt to map out a global framework.

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, and examples of best teaching practices.

2.1 Learning to singing informally. Patricia Campbell (University of Washington) will lead the research on singing in informal settings, focusing on singing of the songs of one's native culture and songs of unfamiliar, non-native cultures. The emphasis will be on children, and Dr. Campbell will also bring to the theme her expertise on creating song collections representative of cultures worldwide. In conjunction with ongoing exchange programs as well as special assignments, students will collect audiovisual recordings of best practices of informal learning and performance in various American native cultures and cultures in other parts of the world (Africa, Brazil, China, Iceland, Estonia, UK, Australia, as well as Melanesian, Polynesian, or Micronesian Islands, capitalizing on cultures and interests represented by AIRS researchers).

2.2 Formal training of singing. Darryl Edwards will lead a program of research on formal training, documenting what happens in lessons of students of different ages, and across different formal settings and cultures. The research will take advantage of the successive years of the project, such that improvement in performance can be tracked and related to characteristics of pedagogical practice and the student-teacher relation. As well, the benefits of electronic and computer training devices will be explored with the Extemporel Company.

2.3. Teaching through singing. Andrea Rose will lead a program of research on the use of singing to teach non-musical content or curricula, be it messages to live by or standard curricula for example in social studies (with Martha Gabriel), or second language training (with Henrietta Lempert, Jennifer Sullivan, Nathalie Henrich).

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 and Lily Chen-Hafteck, 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, South Africa, and Brazil, providing children in their classroom with four two-week music-cultural modules from each of the four countries, and tracking the attitudes to these cultures in the short and long term within a multi-year 4-country-site experimental design (3) studying the resilience and fragility of songs and singing styles within minority cultures particularly within 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 development new choirs.

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 such programs can be instituted in homes for seniors as well as within the family or other institutional context. 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 the direct benefits of singing to 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 The Alzheimer's Society of PEI, and Veteran's Affairs Canada will participate in this sub-theme

III. DISSEMINATION

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. An Annual Meeting will bring team members together either through actual or virtual travel. Other 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 annual community-academic workshops (one of which has already taken place), 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. The development of the AIRS digital library, and the AIRS web-site (virtual research environment), described below are key aspects of 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 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 2a Learning to Sing Naturally can be used by Themes 3a in the study of singing and cross-cultural understanding. The Digital Library team in consultation with representatives of the rest of the project will develop protocols to be used 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, as shown in the central panel of Figure 1.

Figure 1. Screen capture of the Digital Library showing 3 primary collections (Development, Pedagogy, Well-being). Border panels represent the Virtual Research Environment (VRE) of the AIRS website.

AIRS Web-site (http://vre.upei.ca/airs). A virtual research environment (VRE) using DRUPAL Open Source software provides a basis for communication among AIRS members well serves to inform the public in accordance with various 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. As seen in the left-hand panel of Figure 1, the structure includes a calendar, Team Description, (to include images of all participants with description of who they are, their connection to AIRS, what they want from AIRS, and what they bring to AIRS), searchable bibliographic references through Refworks, 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, this means the AIRS start-up meeting in Prince Edward Island in June. A UNESCO-AIRS symposium follows immediately after in July at the Phenomenon of Singing Symposium at Memorial University. Prior to the Annual Meeting, is an AIRS symposium at the Canadian Psychological Association (CPA) focusing on each of the 3 AIRS themes and involving members of three sections of the CPA: Developmental, Health, and Cross-Cultural. In October, an AIRS symposium will take place at the Annual Meeting of the Canadian Acoustical Association. AIRS presentations will also be made at the Society for Music Perception and Cognition, and the Annual Meeting of the American Psychological Association. And this is even before AIRS is off the ground! In Year 2, 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 annual meeting for 2011 will coincide with the 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 at conferences to which AIRS researchers would normally attend such as American Educational Research Association, Canadian Association for Music Therapy, Ethnomusicology Annual Meetings, as a few examples. 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. STUDENT TRAINING

Students are a key component 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 as much good as possible can come from 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. Although not a student award, 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. Travel awards will come from the separate student travel budget and students will be encouraged to present their work at the annual AIRS meetings, workshops or organized symposia. They will be encouraged to publish or co-publish their work. Student presentation awards will be available and will aim to maintain high standards of presentation and high exposure of student work to the faculty researchers. Moreover, students will have first hand access to faculty experts of the AIRS team. The distribution and standards of awards will be governed by the Theme Committees, and overseen and guided by a Student Award Committee. The advertising of the AIRS Student Award Competitions is viewed as one mechanism for highlighting the work of AIRS.

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

V. GOVERNANCE

Central management. The Project Director, Annabel Cohen, is responsible for the intellectual leadership of the team and for the integration of the program's different components. She will usually participate in the organization of workshops and conferences, leads or chairs team meetings and encourages collaboration across projects. She will also lead sub-theme 1c and may participate in any of the projects as they relate to it. Administrative Project Manager (at least half-time) and a post-doctoral fellow with part-time administrative responsibilities, particularly in connection with partners will report directly to the AIRS Project Director. The Administrative Project Manager will track and facilitate achieving goals as identified in the Milestone document and its more refined Gaant chart and will manage the budget and accounting .

Executive Committee. The Executive Committee is responsible for planning and policy and will meet bi-monthly by videoconference. Theme leaders will represent the 9 sub-themes. Where there are two theme leaders, both may attend meetings, but only one may vote. For every meeting, each sub-theme must have representation. Other committees to be represented by 1 vote on the Executive Committee are: Digital Library,

Student, Partner, Stakeholder, and Geographic. Including the Project Director, the Executive Committee includes 14 votes. The Administrative Project Manager, and the PDF manager are ex officio, non-voting members.

Steering Committee. The Steering Committee is a smaller body, a representative sub-group of the Executive Committee which can efficiently address daily issues and report directly to and receive direction from the Advisory Board. It is represented by one person for each of the 3 Research themes (Frank Russo, Patricia Campbell, the Project Director, and the Administrative Project Manager, and the PDF Manager, the latter two who do not vote but to whom the stakeholders and students have direct input.

Stakeholders. Representatives of over two dozen organizations have expressed interests in the activities of AIRS. These stakeholder groups include associations of music teachers, choral leaders and singers, choirs, researchers in music and psychology, and other aspects of human behaviour such as developmental and cross-cultural psychology. These groups are provincial, national, and international. For each stakeholder group, an AIRS student researcher will serve as an individual liaison who will keep the stakeholder informed of AIRS' activities, and offer invitations to attend events and to provide feedback. The stakeholders will be invited to join a Stakeholder Committee that meets twice a year providing feedback to AIRS on the importance of certain issues and the relevance of AIRS findings from the stakeholder perspective.

Partners. The Postdoctoral fellow at the UPEI site will liaise with the dozen AIRS partners which range from companies such as Roland and Apple, having a vested stake in the music industry (which involves singing, singers, and song), arts and cultural establishments (e.g., Confederation of the Arts, ECMA, and Music PEI), and government organizations such as Veteran's Affairs Canada at the national level, and PEI Cultural Sector Council at the Provincial level. The partners will also form a group, with a volunteer chair facilitator (specifically Ms. Henricken-Eldershaw of Alzheimer's PEI). The partners will be asked to join in management of certain projects, such as the application of computer technology to vocal education. Partner letters received prior to 2008 have been reconfirmed and additional letters (have been received) from Roland Canada and the Acoustical Society of America. A non-partner contribution has been received from UNESCO for a particular symposium.

Advisory Board. Two full members of the advisory board are Professor Philip Smith, a former Dean of Arts at the University of Prince Edward Island. A Professor of Psychology he has a vast amount of research and administrative experience (as chair of the provincial Cancer Research Board, and former member of the SSHRC Council). He

has considerable musical training and parent of two young choristers.   Dr. Hilary Apfelstadt, an eminent choral and vocal specialist, and researcher at the Ohio State University, is the President of the American Choral Director's Association (22,000 members). She is a Canadian by birth and had taught at the University of Prince Edward Island in the Faculty of Music early in her career. In addition, Professor Anna-Maria di Sciullo has joined the Advisory Board in an Adjunct capacity. She is a linguist at UQAM, graduate of MIT, and Project Director twice in succession of an MCRI that focuses on the nature of grammatical asymmetry and its broad implications. The acceptance of this special circumstance was confirmed by SSHRC in May 2009. These three strong leader/administrators represent much of the disciplinary breadth of AIRS in psychology, health, music, choral, singing, culture, and language. The specific experience of Professor di Sciullo with the MCRI, of Professor Smith with UPEI and SSHRC, and Professor Apfelstadt with singing and choir leadership cannot help but provide valuable advice and feedback to the AIRS team research 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. Meeting minutes will made available.

Summary of Partner Contribution (to complete)			
This may not be in			
Organization	Staff	In-Kind	Cash
Acoustical Society of America – Musical Acoustics			
Apple Canada			
Can Commission for UNESCO			
Confederation Centre of the Arts			
ECMA			
Extemporel			
Grand Ave Children's Center			
Laurier Centre for Music in the Community			
PEI Music			
Popplestone			
PEI Cultural Human Resource Centre			
Alzheimer Society of PEI			
Roland Canada			
UPEI			
Young at Heart Musical Theatre			
Veteran's Affairs			
Soloway Jewish Community Center			
McGill University (support of mirror system of digital library)			

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

Theme 1: Development of Singing and Speaking

	Sub-theme and Leaders	Members	Student Ungrad Master Ph.D			Theory & Techniques	Activities	Deliverables	Year 1 09-10				Year 2 10-11				Year 3 11-12				Yr4 12
			U	M	D				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) Budget: yr 1 $8.5 Yr 2 Yr 3	L. Trainor		1	1	**Perceptual Cognitive**	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 across age	Pilot data			x	x	x	x	x	x	x	x	x	x	x	X
		S. Dalla Bella		1	1	**Brain Imaging**		Refined test					x	x	x	x	x	x	x			
		C. Tsang	3			**Neuroscientific**	Examination of influences of language Hearing impairment	Report					x	x	x	x	x	x	x	x	x	x
		C. Palmer		1		**Developmental**	Examination of influence of music training, environment	Report					x	x	x	x	x	x	x	x	x	x
		J. Sundberg		1		**Psychoacoustics**		Wkshops on Measurement of Singing						x				x			
		S. Ternstrom		1			EEG	Symposium: Brain Imaging & Singing										x	x	x	x	x
		N. Henrich		1	1	**Articulatory Phonetics**	Brain Imaging	Reports (Conf., Articles, Present)									x	x	x	x
		L. Philmore	1	1			Comparative research (perc/prod)	Comparative report and symposium				x	x	x	x	x	x	x	x	x	x	x
		L. Stewart		1		**Birdsong**															
		I. Peretz		1																	
		G. Schlaug				**Evolution**															
1.2	Multimodal (audio/visual/motor) Leaders: Sandra Trehub (U. Toronto) Frank Russo (Ryerson) Budget:	S. Trehub		1	2	Social-Cognitive Development Electromyography Amusia Piagetian Cog Development Play Theory Infant Directed Speech and Song Eye-movements Intonation analysis/linguistics Articulatory phonetics Audio engineering Art Song	Review Literatures	Review, conference report, article	x	x	x	x	x	x		x						
		F. Russo		1	2		Develop Methodology for Singing	Report Pilot method and data		x	x	x	x	x	x	x	x	x				
		Peretz		1			Singing and speaking to infants	Data collected and submitted to digital library		x	x	x	x	x	x	x	x				
		S. Stadler Elmer	1				Singing and speaking to infants cross-cultural studies	Report			x	x	x	x	x	x	x	x	x	
		M. Fredrikson		1			Studies of relation between age, body activity, and 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				
		P. Hauf		1			Analysis of eye-movements / singing	Preliminary Report, and Publication			x	x	x	x	x	x	x	x	x	
		W. Cichocki	1				Comparison of speech and singing intonation within 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				Audiovisual Analysis Parent Infant Singing	Workshop											x	
		R. Sharon		1			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	A Cohen	3	1	Cross-cultural	Review of longitudinal singing tests	Presentation & publication
		PDF/RA	1		Developmental	Pilot tests across lifespan	Initial longitudinal data with representative lifespan start points
		H. Lempert	2			Revise tests for cultural contexts: China, Brazil, South Africa, Can	Extend to different Canadian contexts
		P. Loui	2	1	Music Theory		Test 3 x / year
		J. Sullivan	3		Quantitative	Pilot tests across 4 countries and lifespan ages	Extend data collection to these 4 countries
		M. Forrester	2		Qualitative		
		J. Ross		1	1		Develop comprehensive battery for singing ability across cultures and age	Analyze, notate, transcribe, and submit to DL
		P. Loui		1	1	Psychometrics		Comprehensive screening test for singing ability
		G Schlaug			1	Mel. Int. Therapy	Preliminary model of cultural influence on singing ability	Develop preliminary model of cultural/ individual affect on singing

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

2.1	Learning to Sing Naturally -Native & Non-Native songs; focus on children Leader: Patricia Shehan Campbell	P. Campbell		3	3	Ethnographic	Review of Literature	Review, conference report, article
		B Ilari	1	2		Music Education	Video examples of children singing at play	Report Pilot method and data
		M. Gardiner	1		Communication Theory	Corpus of children's songs: Canadian, American, and other	Data collected and submitted to digital library
		G Welch	2	2	Multiple Intelligences	South African, China, Brazil, Iceland	Data collect and submit
		H. Gudmundsdottir	2	1		Britain, Estonia, Poland, Austria etc	Data collect and submit
		L. Ofarrell	3		Play Theory	Islands	Data collect and submit
		C. V. Niemarck	1	1	1		Corpus of Elders' Songs	Data collect and submit
		E. Mang	3		Arts in Education	Examples of informal teaching within cultures	Transcribe and annotate all of above
					Communication Theory	Qualitative analysis leading to models of development of song repertoire	Model
						Singing vs play, or emotional communication, or art	Interpretation

2.2	Teaching Singing in Formal Settings: including focus on lifespan Leader: Darryl Edwards (U. of Toronto)	Darryl Edwards		1	1	Choral Pedagogy	Review of literature on voice training	Conf presentation and publication
		Demorest		1	1	Bel Canto	Review of literature on choral training	Conf presentation and publication
		Harold Abeles		1	Art Song Children's Education	Reviews of above from global perspective	Conf presentation and publication
		Rena Sharon		1	Adult Education Educational Psychology	Review of gender differences; benefits, , glee clubs	Conf presentation and publication
		Jane Ginsborg	1	1		Audiovisual examples of good practices of all of the above	Submitted to Digital Library; transcripts
		Sung-ha Shin-bouey	1			AV recordings of practices sessions, longitudinal	Submitted to digital library, transcripts, develop theory of teaching singing
		Carol Beynon		1		AV examples of solo performance	Apply theory to solo
		Xie Jiaxing		1		AV examples of choral performance	Apply theory to group
						AV examples of above cross-cultural	Apply theory to global setting

2.3	Teaching through singing	A. Rose		1		Literacy	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		2nd Language Media and education Educational	Studies of effectiveness of curricula modules with and without singing	Commence empirical studies; data collection within classroom			x	x	x	x	x	x	x	x	x	x
	Leader: Andrea Rose (St. John's) Helped by Kati Szego	M. Gabriel	3			Technology Health Psychology	Studies of teaching language (pronunciation, grammar, vocabulary) with singing	Spec. study of singing and pronunciation		X	X	X					x		
		J. Countryman	2					Singing and grammar improvement		X	X	X	X	X	X	X	X	X	X
		J. Sullivan	2					Singing and vocabulary		X	X	X	X	X	X	X	X	X	X
		H. Lempert	2																

THEME 3: SINGING AND WELL-BEING

3.1	Cross-cultural Understanding	G. Baldacchino		2		Attitude Change	Review literature	Literature Review – presentation,		x	x	x	x	x				
		L. Chen-Hafteck	3					publication						x				
	Leader: G. Baldacchino	F. Neto	2			Critical Period	Develop teaching modules in Canada, Brazil, China, and S. Africa	Teaching modules for different cultures		x	x	x	x	x	x			
		Kati Szego	1	1		Sociology		Qualitative results			x	x	x	x	x	x	x	x
	Lily Chen-Hafteck	K. s		1		Ethnographic	Replicate Neto Portuguese study	Determine time course of attitude change			x	x	x	x	x	x	x	x
		K. Russell			1	Social Psychology	Extend latter for longer, and Canada	Examine whether works in Canada			x	x	x	x	x	x	
		J. Mitchell	1				Case studies of resilience within Islands	Theory of song resilience		x	x	x	x	x	x	x	x	
		R. Parncutt	1			Male choirs	Multicultural choir development	Form international choir 1			x	x	x	x	x	x	
		K. Tilleczek		2		Social Psychology		Form international choir 2			x	x	x	x	x	x	x
		L. O'Farrell	1					Interview Common Thread Choir			x	x	x	x	x	
		P. S. Campbell			2			Develop handbook of choir formation				x	x	x	x	
		Frank Russo	1															

3.2	Intergeneration Understanding	R. Heydon		1	1	Intergenerational education	Review of literature	Presentation		x	x	x	x	x			
		C. Beynon		1			Site Visits	Reports of sites			x	x	x	x			
	Leader: R. Heydon	M. Gick		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	
	C. Beynon (assisting)	P. S. Campbell		1		Early Childhood Ed Older Adult Ed	Replicate at same site	Report on new participants			x		x	x	x	x
		C. Tzang	1			Gerontology	Extend in Seattle, London, Ottawa, PEI	Explore other venues and repeat				x	x	x	x
		S. Clift	1				Analysis of data	Determine results are worthy of report			x	x	x	x	x	x
		J. Nicol	1			Choral training	Presentation of results	Present results at major meeting			x		x		x
		A. Cohen	1			Choral Direction	Reporting of results	Obtain feedback and create paper					x		x
						Cultural Anthropology		Create handbook							

3.3	Singing and Health Benefits	J. Nicol		1	1	Music Therapy	Illness specific singing interventions	Review		x	x	x	x	x			x	
		Clift		1	1	Counseling Psychology Grounded Theory	e.g., breathing exercises for lung disease (Roland partner)	Analyse, present paper, publish, involve Roland		x	x	x	x	x	x	x	x		x
	Leader: Jennifer Nicol (Saskatchewan)	J. Richman-Eisenstat	1	1		Health Policy Medicine	Language rehab, (Melodic Intonation Therapy)	if singing has specific benefits		X	X	X	X	X	X	
		Rena Sharon	1	1		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	Presentation and publication of results		X	X	X	X	X	X	X	X

					Area	Milestone	Deliverable	Timeline
					Psychiatry	assist retention		
		Godfrey Schlaug	1	1		Singing clubs for seniors	Extend British work to Canada	x x x x x x x x x x x x x
		Bradley Vines	1			Singing for any group	Evaluation of other special groups	x x x x x x x x x x x
		Chris Blanchard	1					
4.0	Digital Library Leaders Mark Leggott (UPEI) Ichiro Fujinaga (McGill)	Mark Leggott	1		Digital Library	Survey of singing analysis, synthesis	report	x x x x x
		Ichiro Fujinaga	2	1	Music Information Retrieval	Survey digital lib for music and singing	report	x x x x x
		G. Tzanetakis	1					x x x x x
		Brian MacWhinney			Pitch analysis	Evaluation of current AIRS DL	Report, and web resource	x x x x x
		Bradley Frankland			Time analysis	Consideration of Talkbank and CHILDES, and ComNET	report	x x x x x
		David Huron		1	Voice synthesis	Demonstration of several prototypes	Show at meeting	x x x x x
		Teresa Leonard	1			Evaluation of prototypes	report	x x x x x
		M Sundara Rajan	1		Voice analysis	Issue of permissions & digital ritghts	Show at meeting	x x x x x x x
		Mike McAdam			Audio recording	Issue of payment for recordings	report	x x x x x x x x
		Apple Canada				Issue of mirroring	Create at McGill	x x x x x x x
					Digital rights management	Data entry in current system and creation of transcripts	Report and solution	x x x x x x x
					Statistical analysis Portable Audio		Guidelines for ingestion	x x x x

Table 2 – Estimated number of 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
1.1	6	10	4	20	1	1		5	1	3	3	1		1				
1.2	3	7	5	15	1			6	1	2	5	1						
1.3	14	4	2	16	1	1	1	10	1	2	3	1	1	1				1
Total 1.0																		
2.1	11	9	6	26														
2.2	2	7	2	11														
2.3	1	8	5	14														
Total 2.0																		
3.1	10	6	3	19	2	1	1	3	2	2	6	12	1	1	2	1		1
3.2	4	4	2	10	1	5		5	1		3	1	1					
3.3	1	8	5	14	2	1		3	1		2							
Total 3.0																		
4.0	4	3	1	8	2	4		6	1	2	2							1
Total	58	66	35	159														

AIRS Project Director
Annabel J. Cohen

Administrative Project Manager

PDF /Research Associate & Partner Liaison

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

AIRS Steering Committee   (4)
1 from each of Themes 1, 2, and 3 + Project Director

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

Global

Ethics, Statistics and Intellectual Property

Digital Library
Mark Leggott
Ichiro Fujinaga

Theme 1
Development in
Singing & Language

Theme 2
Education

Theme 3
Well-being

Partners

Students

Stakeholders

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

1.1
Perception &
Production
Laurel Trainor
Steven Brown

1.2
Multimodal AV
Sandra Trehub
Frank Russo

1.3
AIRS Test Battery

Annabel J. Cohen

2.1
Natural Learning
Within Cultures
Patricia Campbell

2.2
Formal Vocal
Training
Darryl Edwards

2.3
Learning through
singing
Andrea Rose

3.1
Cross-Cultural Understanding

Godfrey Baldacchino
Lily Chen-Hafteck

3.2
Intergenerational
Understanding
Rachel Heydon

3.3
Health

Jennifer Nicol