WESTERN SYDNEY
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SOUNDING OUT:
MUSIC FOR HEALTH AND WELLBEING

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- → MARCS Institute for Brain, Behaviour and Development
- → NICM Health Research Institute
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- → School of Nursing and Midwifery
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EXECUTIVE SUMMARY

Narratives regarding the health benefits of music have existed since antiquity; in the last century, these benefits have begun to be explored in a more systematic manner. Currently, Australians across all ages, cultures and circumstances listen to music, sing, play musical instruments, or attend concerts on a regular basis. Its ubiquity and significance in society gives music unique potential to be used in a range of holistic approaches and interventions to improve health and wellbeing.

Music can be used to improve health and wellbeing in a range of both informal and more directed ways by everyone from individuals and community groups, to health practitioners and registered music therapists. Western Sydney University (Western) has expertise and interest in the full continuum of music for health and wellbeing. This encompasses individuals integrating music into their daily routine, through to registered music therapists using music as part of targeted interventions to improve a range of physical and mental health outcomes. The evidence base for the contributions of music to health is growing, but questions remain about how best to harness the health benefits of music, for example which music to use, how, when, and why? The primary aim of this White Paper is to enable and support improved health and wellbeing outcomes through music. To do this we summarise current research, identify opportunities and challenges within the field, and suggest ways in which (Western) can engage with key external stakeholders to continue to build a solid research base.

This White Paper combines Western's expertise with input from industry stakeholders and partners to identify four broad areas where music may benefit health and wellbeing across the lifespan: 1) Individual music use, 2) Community music use, 3) Music in healthcare, and 4) The auditory environment. Also identified are three main cross-cutting themes for training and research priorities:

- → Evidence for practice: Extending current research nationally and internationally
- → Education and Training: Opportunities offered
- → Quantifying the economic benefit: Understanding and difference across skill level

Western is in a unique position to offer expertise and capacity through education and research. Western offers one of only two accredited music therapy courses in Australia at masters level, with a strong focus on interprofessional care. We also incorporate music research across multiple schools and research institutes, resulting in broad ranging interdisciplinary expertise in music therapy, music psychology, nursing, social work, medicine and health promotion.

Western is seeking to establish ongoing links with industry: together, we can do more to train professionals, music therapists, volunteers and the community about the health benefits of music, while simultaneously building research evidence for improved practice in music therapy and other clinical areas.

Join us in improving how music is viewed and applied to health and wellbeing – not just as something "nice to have", but as an essential contribution to healthcare in Australia.

WE'RE LOOKING TO INDUSTRY AND COMMUNITY TO JOIN US IN:

- → Establishing a multidisciplinary network of music therapists, health professionals, researchers and other interested community members dedicated to researching and promoting the uses of music in health;
- → Partnering to design and deliver interprofessional training events and research projects on various aspects of the use of music for health and wellbeing;
- → Increasing PhD scholarships and student placements with associated research projects, contributing to the evidence base and training of future professionals in music and health; and
- → Developing a framework for research and service delivery, and an evidence-based online resource for community and health professionals containing guidelines and best practice for the use of music to improve health and wellbeing.

INTRODUCTION

Stories about the power of music exist in ancient myth and literature, including Greek and Judeo-Christian writings, for example, the soothing of Saul by David's harp music (1 Samuel 16: 14-23, KJV). In fact, music in some form occurs in all cultures around the world (Blacking, 1974), and is used for a wide range of reasons.

Australian consumers attend popular and classical music concerts across all age groups (ABS, 2009), while one in five children learns to play a musical instrument (ABS, 2010). Australians also listen to their choice of pre-recorded music, via a range of media sources. The dawn of the digital age has made music even more accessible, with consumers able to choose and create playlists that suit their circumstances and purpose (Koutsomichalis, 2016; Nowak, 2016) including health and wellbeing related needs such as relaxation and motivation. Preferred music is typically viewed positively, and the fact that it is non-invasive (both physically and socially) makes people more open to incorporating it into their lives. The ubiquity of music as something utilised by all ages across broad community circumstances gives it enormous potential to be used in evidence-based interventions in health and wellbeing.

Although the use of the creative arts in healthcare can be traced from ancient times, its acceptance within Western society has changed over the years, influenced by prevailing theory, practice and research (Fancourt, 2017). Biomedical, biopsychosocial and ecological models of health have influenced both the conception of disease and proposed treatments. Current conceptualisations of community-oriented preventative health extend beyond previous split conceptualisations of illness as generated by either mind or body. Integrated approaches now recognise the importance of person-centred holistic care that stretches between hospital and community settings, as conceptualised by the ecological model in Figure 1.

The shift from a typically biomedical model to integrated ecological approaches has led to approaches that may include both physical and cognitive activity, and extend to emotional, social, spiritual and cultural aspects of care and wellbeing. As such, music is currently used in a variety of environments led by persons with varying musical, therapeutic and health professional expertise: from volunteer community members to registered music therapists who have been specifically trained to create and use music as therapy in the applied health context. These are considered as being part of licensed trained "arts therapies" or more generally as "arts programming" (Sadler & Ridenour, 2009). To maximise the potential of music for therapeutic gain, targeted research is required to establish what works, for whom, and when. It is also important to determine the optimal training and skills required to deliver music in its variety of therapeutic uses, whether that be in formal and informal settings, carer or community relationships, or as part of a health service. Further research is also required into the economic benefits of the many services now using music in health settings. Financial concerns are significant for individuals, communities and service providers – what are the real economic advantages of different music types and clinical practice levels?

In summary, a relatively recent shift in ecological approaches to healthcare has led to a burgeoning of services using music to improve health and wellbeing. While many benefits have been identified, more research is required in order to identify optimal information related to evidence based practice, the economic value of applications, and education and training.

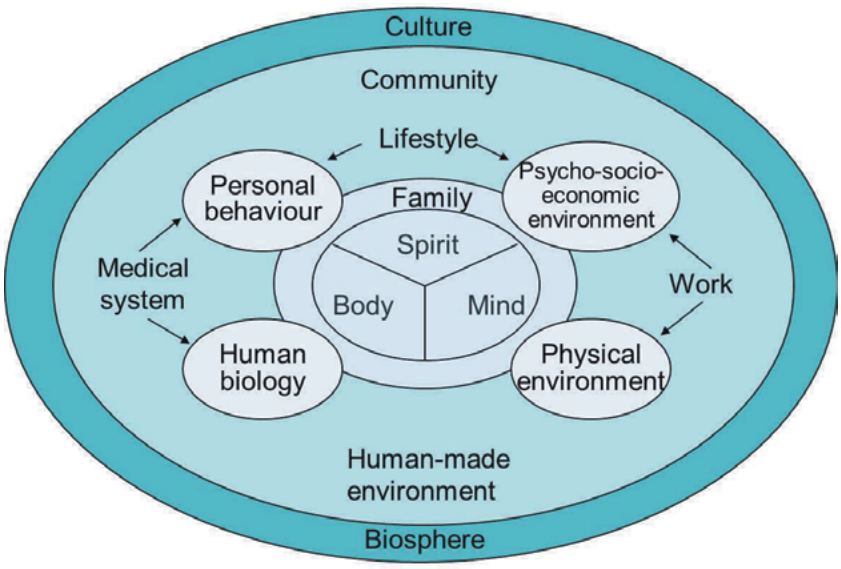


FIGURE 1. The Mandala of Health Ecological Model, from the Association of Faculties of Medicine of Canada (2014, p.11).

1. CURRENT APPLICATIONS

We have organised existing approaches to using music for health and wellbeing across four main environments within the music and health continuum: 1) Individual music use; 2) Community music use; 3) Music in healthcare; and 4) The auditory environment.

1.1 INDIVIDUAL MUSIC USE

Individuals may use music for themselves in various ways. Extensive research from music psychology has focused on how we experience and use music in everyday listening, including the way it connects with our feelings, movements, ability to work with others, language, motivation, social occasions and rituals. Both listening to and producing music employ a vast range of cognitive processes such as auditory processing, attention, memory, and motor control: these intertwine with participants' knowledge, past experiences, taste and preferences to influence their responses.

Music listening is used primarily by individuals as a form of mood regulation, as well as a pathway to developing self-awareness (Schäfer et al., 2013). Music selected by the individual is important in maximising emotional engagement and wellbeing benefits. The emotional qualities of music can also, however, have maladaptive effects, depending on the depressive tendencies of the individual: for example, a recent study showed that sad music contributed to increased feelings of depression for participants who already had a tendency to negative, ruminative behaviours (Garrido & Schubert, 2015).

In the context of formal music therapy extended into the home, music therapists work to support selection and implemention of optimal choices of music for and with the client, based on a wide range of clinical information. For example, well known music therapy approaches, such as the Bonny Method of Guided Imagery and Music (GIM), promotes individual stress management, encouraging clients to use these music listening techniques at home (Grocke & Moe, 2015; Grocke & Wigram, 2006; Short, 2015).

Further research into the mechanisms of GIM is continuing at Western (Short, 2019a; 2019b).

Music listening is also used in the residential aged care setting, often to reduce depression and anxiety in dementia. A growing body of evidence indicates that music therapy is a useful tool for improving the dignity, quality of care and safety of older adults with BPSD (behavioural and psychological dimensions of dementia) such as mood changes, agitation and wandering (Zhang et al, 2017).

Western researchers have led several clinical and applied studies in this area (Short, 2007, 1995, 1992). Sandra Garrido (NHMRC-ARC dementia fellow at Western) is currently investigating the effects of various musical features in customised playlists for dementia sufferers across eight aged-care facilities (Garrido et al, 2017; 2018), and is working to develop guidelines for the use of music for people with dementia.

1.2 COMMUNITY MUSIC USE

Music in the community has the benefit of not only maintaining and improving mental health, but also encouraging social inclusion, particularly for children, adolescents and older adults who may be at risk of isolation, depression and anxiety (Stige, 2002). The use of music provides a normalising and socially appropriate activity, with community choirs and other group music activities providing an opportunity for regular therapeutic engagement when mental health services may not be available or accepted. Participation in choirs by sufferers of stroke or Parkinsons disease provide opportunities to build confidence in a group setting (Fogg-Rogers et al., 2016). Group instrument lessons for healthy older adults have been shown to have benefits for general cognition, mood and quality of life (Bugos et al, 2007; 2016; Bugos & Kochar, 2017; Creech et al, 2014, MacRitchie et al., 2016). At Western in 2019, Jennifer MacRitchie, Roger Dean and Kate Stevens, in collaboration with Andrea Creech at Laval University in Canada, are embarking on an ARC funded project "Maintaining active minds and bodies through older adult music education" (see Appendix). This project is investigating elements of delivery of group music instrument training programmes for older adults aged over 65 years.

Youth and identity

Small groups can provide a therapeutic avenue for expression and formation of identity. Current Western research is showing that, for instance, the Rhythm and Rhymes Adolescent/Adult Program (RRAP), a hip-hop and rap song-writing program in corrective services, is positively impacting behaviours and improving emotional benefits for at-risk youth and adult offenders (Kim Dilati, doctoral project, see Appendix); Western is also investigating the use of music for identity formation for young clients with developmental disability (Izumi Nago, doctoral project, see Appendix).

School-aged children

Many vulnerable children have experienced trauma, perhaps from domestic violence or as humanitarian entrants, and the expressive arts can non-verbally meet their needs and provide a means of expression and recovery. Western has undertaken research and educational projects with KidsXpress – a program which uses creative modalities (including music) in schools to help transform the impact of childhood trauma[1]; the challenge is to extend and support research in this area to understand how this can be applied even

1. http://kidsxpress.org.au

more effectively. A current doctoral project at Western looks at multisensory inputs of music and visual aids for improved music therapy practice to assist vulnerable families with young children (Allison Fuller, doctoral project, see Appendix; Fuller & McLeod, 2019).

Autism Spectrum Disorder and additional learning needs

The increasing incidence of Autism Spectrum Disorders (ASDs) and an awareness of the value of music for multisensory interventions has led to up to 45% of ASD interventions involving music (Srinivasan & Bhat 2013). Further studies attest to the value of music interventions for ASDs, including providing evidence that music therapy may help children with ASD improve their skills in social interaction, verbal communication, initiating behaviour, social-emotional reciprocity, non-verbal communication skills and social adaptation (Geretsegger, Elefant, Mössler, & Gold, 2014; see also LaGasse, 2017). A current PhD study at Western seeks to foster engagement and interaction with music activities for children with autism (Matthew Breaden, doctoral project, see Appendix), and additional music therapy higher degree research research projects are commencing in this area at Western in 2019.

Community mental health

Music is increasingly being used in the community to address the needs of people with mental illness. A proposed project under collaborative development between Western and a local Western Sydney community psychologist is targeting post-traumatic stress issues among military and service personnel, through playing music in a band. Western is also in discussions to develop programs to use music to address the needs of newly arrived humanitarian entrants, especially those from Middle Eastern and African countries. Music can form a non-threatening tool to address relaxation needs and provide a forum for discussion and social interaction. Other similar international studies are currently in progress, for example a study looking at the specialist music therapy method of Guided Imagery and Music (GIM) with Middle Eastern refugees in Denmark (Moe, Beck, Krøier, Messel, Meyer, 2016). A current doctoral research project at Western addresses mental health needs of people with schizophrenia living in the community by exploring the effectiveness of music as a cognitive training program (Tina Read, doctoral project, see Appendix), and a further doctoral project investigates the use of voice in conjunction with meditative practices to improve mental health related to anxiety (Lene Jeffrey, doctoral project, see Appendix).

1.3 MUSIC IN HEALTHCARE SETTINGS

Research increasingly supports the notion that predominantly physical/medical problems can have emotional effects, as suggested by the ecological model of health described earlier in this paper. With a predominantly medical problem, individuals are often reluctant to seek help for secondary mental health issues such as anxiety and depression, and music therapy may serve an important role in providing holistic, ecological care in the context of medical problems and treatment.

Medical treatments are frequently stressful and evidence suggests music can expedite recovery from stress (Bradt et al, 2013; Thoma et al., 2013). An area of considerable interest for Western researchers is the cardiac care continuum, with projects in hospital-based and rehabilitation treatments (Short, 2019a; Taylor, Song, & Short, manuscript under review; Short & Liu, 2018). However, results from these types of studies may be indistinct in regard to physiological effects and more research is needed (Fancourt, Ockelford, & Belai, 2014; McKinney & Grocke, 2016; Short, 2016).

Music is often used in the hospital setting for the management of psychological wellbeing. For instance, a study in progress uses music therapy to reduce antenatal anxiety in those who are hospitalised (Schmied & Kearney, 2018) and has been previously used in home-based perinatal care (Short, 1993). Two current projects are also addressing uses of music to decrease stress and anxiety related to fertility treatment (Alison Short & Natasha Andreadis, see Table 1 and Box 5).

The needs of teenagers undergoing oncology treatment have also been noted, where issues of identity need to be addressed in the recovery process and musical songwriting can be used to affirm treatment milestones. Current proposals exist at Western for further work in this area (Nicole Peel, Caroline Smith, Alison Short, Peter Lewis: see Appendix).

The benefits of music have also been shown in palliative care. A meta-analysis of 51 studies found that music therapy had therapeutic effects on the physical, psychological, emotional, and spiritual suffering of palliative care patients. It was found to be an effective and cost-efficient approach to managing distressing symptoms (McConnell & Porter, 2017); findings which are also supported by previous meta-analyses (Bradt & Dileo, 2010; Bradt, Dileo, Grocke, & Magill, 2011).

Music has also been shown to promote cognitive improvement in recovery from stroke (Zhang, Cai, Zhang, Ren, Zhao, & Zhao, 2016; Bradt, Magee, Dileo, Wheeler & McGilloway, 2010) and to address cognitive deficits in schizophrenia (Mössler et al., 2011). Western students have undertaken invited clinical placements with industry providers in several areas of cognitive rehabilitation and emergency care, and it is expected that further music and music therapy research projects will result from this Western-industry collaboration.

1.4 THE AUDITORY ENVIRONMENT

The indoor sound environment, variously described as being about "music" or about "noise", affects healthcare practices and the consumer. Noise can compromise communication, promote aggravated behaviour and cause stress, if not actual hearing loss. More research is required to analyse the effects of noisy environments, as well as the use of music to improve consumer experiences in those spaces. Western researchers have foundationally examined noise in a number of locations including the emergency department (Short, 2016; Short, Short, Holdgate, Ahern & Morris, 2011; Short, Ahern, Holdgate, Morris & Sidhu, 2010; Ortiga, Kanapathipillai, Daly, Hilbers, Varndell & Short, 2013), intensive care, aged care facilities, fitness centres and stroke wards (Short and colleagues, unpublished student data). Other projects involving Western researchers have looked at the influence of noise on lifestyle activities for older adults and noise as a factor influencing anxiety in restaurants (Williams, 2016; Hogden, Short, Rajendran, & Greenfield, 2015). Music has been used to address noise stress in the emergency department, for example, in a randomised controlled trial using carefully designed music playlists with headphones (Short, Ahern, Holdgate, Morris & Sidhu, 2010; Short, 2019a). Building on previous studies, future research will access local hospital interest, for example, discussions about using music to address noise problems in the perinatal unit. An evolving collaboration with international researchers using music to improve the indoor auditory environment in hospital and treatment settings has been convened by Dr Alison Short as a Conference Roundtable (Short, Weyman et al., 2019), and a resultant international consortium (Auditory Envioronment and Soundscape Optimising in Public Health Spaces – AESOPHS) has been set up to facilitate information sharing about a wide range of musical and soundscape interventions (see Appendix). Collaborative projects are already underway, for example the use of the newly developed Danish "Music Star" (Lund, Bertelsem & Bonde, 2016) for fertility projects; further international and local research projects are anticipated as a result of this international research collaboration.

2. THE CHALLENGES:
RESEARCHING AND APPLYING MUSIC IN HEALTH ACROSS A THERAPEUTIC CONTINUUM

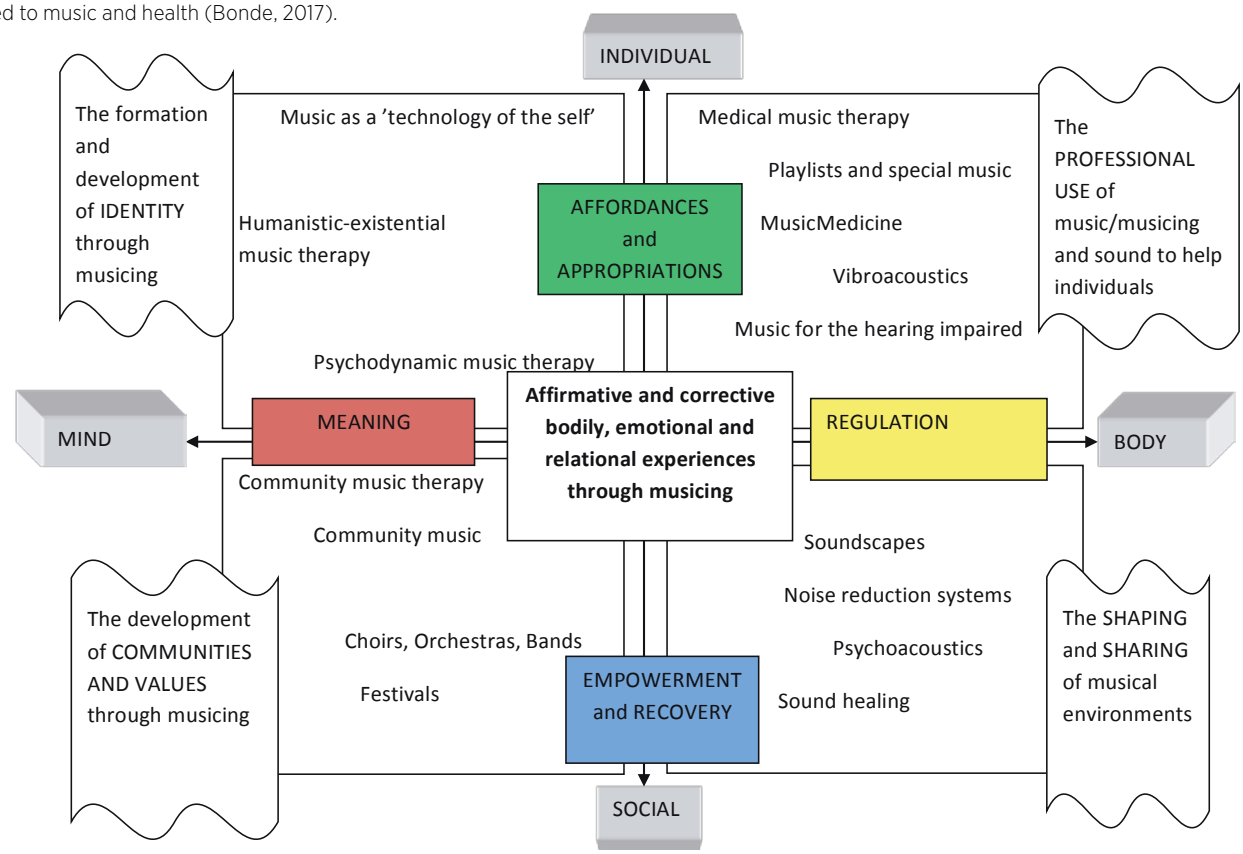
2.1 PERCEPTIONS AND USAGE OF MUSIC FOR HEALTH: THE 'DOSAGE' ISSUE

In terms of evidence for practice, a significant amount of foundational knowledge exists in key music therapy texts (Wheeler, 2015; Grocke & Moe, 2015; Grocke & Wigram, 2006), highly respected meta-analyses (Cochrane Library, Joanna Briggs Institute) and well established journals (for example, Journal of Music Therapy, Nordic Journal of Music Therapy, Music and Medicine, Australian Journal of Music Therapy). Expansion into a field of Music and Health more broadly is, however, long overdue, for both academia and practice (and not simply for music therapy and music therapists). Much like medicinal "dosage" issues, evidence-based research is required to quantify which music should be used, when, where and for whom. Research and clinical practice have established that music can be helpful in a raft of situations, but with only three reports about dosage in the music therapy literature (Berger, 2009; Gold, Solli, Krüger, & Lie, 2009; Short, 2017), there is more work to be done to determine the extent of these benefits and expand the use of music across the therapy continuum. There is a significant gap between intuitive everyday experiential knowledge ("I experience that music makes me feel better"), and research evidence. The intangible and temporal quality of music, as well as differences in individual responses to a piece of music, contribute to the complexity.

For example, how do we select relaxing music to reduce pain and anxiety? Certain properties of music are regarded as calming and soothing (such as slower tempo) and these are often generalised to whole genres, for example, ambient or classical music (Grocke & Wigram, 2006; Short & Ahern, 2009). It has been shown that personal preference is key to boosting pain tolerance (Mitchell & MacDonald, 2006) and relaxation (Short & Ahern, 2009). However, self-selection is not necessarily the answer, as some listeners may be drawn to music that contributes to feelings of depression (Garrido & Schubert, 2015).

Under the heading of professional practice in arts and health, Lambert differentiates between "creative arts therapies" and "arts in healthcare", with the latter being careful to avoid any claim of formal diagnostic or therapeutic credentialing, rather seeking to "offer individual and community healing in a broadly holistic sense and to create

FIGURE 2. A conceptual model of activities related to music and health (Bonde, 2017).



more aesthetic environments for givers and receivers of care" (Lambert, 2015, p.8). Lambert notes, however, that there is considerable overlap, some of which relates to the definition and interpretation of "therapy".

Standardised definitions of arts in health still do not exist (Fancourt, 2017). Selected models have been put forward to further explain and systemize music and health applications. Lars Ole Bonde posits that there is a wide range of applied musical activity that may relate to health, with categories such as the impact of musicing on the formation and development of individual identity, the development of communities and values through musicing, the shaping and sharing of music environments, and the professional use of music and sound to help individuals (see Figure 2).

Worldwide, research and applications exist in each of these areas. Curative factors in music have been explored to some extent, but due to the varied taste and preferences of people, music cannot be systemized for specific delivery and application in the same way as the dosage of a medication. An example of research at Western that is tackling this "dosage" issue is seen in Box 2.

2.2 DELIVERY, TRAINING AND SKILLS

Throughout society there are varying levels of knowledge, interest and practice regarding the numerous applications of music for health and wellbeing, and the qualifications of those who deliver them. Media reports can increase awareness of some of the efforts — and benefits gained — in this field (see, for example, ABC's Catalyst episode entitled 'Music on the Brain': ABC, 2016), but are not always clear about relevant elements of evidence and practice: publicity surrounding the documentary film 'Alive Inside' and programs run by the 'Music and Memory' organisation, for example, motivated the American Music Therapy Association to make efforts to publicly clarify the difference between formal music therapy and some broader uses of music (see American Music Therapy Association, 2014).

Western recognises that music is used for health and wellbeing by 1) individuals, 2) volunteers, community members or groups, 3) health practitioners from a range of disciplines and 4) registered music therapists who have been specifically trained and accredited by the Australian Music Therapy Association (AMTA) to assess needs and use evidence-based practice to create and use music as therapy in the applied health context (AMTA, 2012). The level of engagement (1-4) and relationship between practitioner and participant (2-4) within each of these contexts varies in its explicitness and organisation (see Box 3, and Figure 3). Assessment of individual and group needs as well as an awareness of context are critical to the effective use of music.

Where community facilities lack funds to employ a registered music therapist, volunteers and various related health professionals may fill that gap. Opportunities exist in upskilling current staff, increasing awareness of the "dosage" problems and, in some cases, promoting the use of technology and clarifying to administrators the real

BOX 2:

PROJECT TITLE: MUSIC FOR MOOD REGULATION IN PEOPLE WITH DEMENTIA

→ We have conducted several years of experimental research with people with dementia in which we identified how musical features (e.g. tempo) interact with the symptoms individuals are experiencing. For example, we found that music with fast tempos could cause high levels of arousal that were unpleasant for the listener, and that people with a history of depression were vulnerable to adverse responses to music.

→ Based on these studies and in collaboration with a team of caregivers and aged care providers, we have developed a set of best-practice guidelines for music use for people with dementia and for residential aged care.

BOX 3

A TALE OF TWO MUSICS

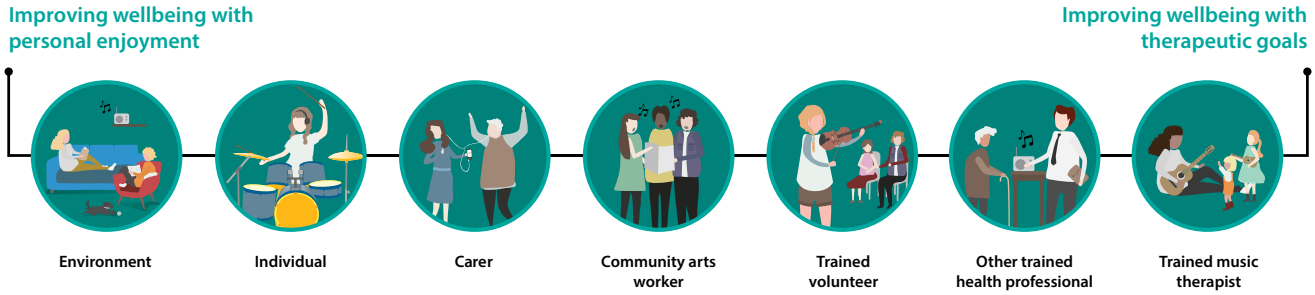
→ Consider an accredited music therapist who clearly establishes the therapist-client relationship and guides the interaction towards achieving distinct therapeutic goals. In another context, consider a conductor of a community choir where the relationship with the member of the choir may be more ad-hoc and the interaction guided more towards making music. In the second example, health and wellbeing goals are achieved as a side-product, rather than as a specific goal.

BOX 4

TRAINING HOSPITAL VOLUNTEERS TO USE MUSIC: THE REVIVE PROGRAM

→ In 2016, Western was engaged by the Prince of Wales Hospital Foundation to provide formal training and supervised guidance to selected volunteers to help them use music with patients in the aged care unit at Prince of Wales Hospital. Staff and volunteers evaluated the effectiveness of the program, noting positive impacts on patient behaviour and wellbeing. The program (and its results) were presented at the 2016 National Volunteering Conference in Canberra (Ehms & Short, 2016), and led to further consulting opportunities for Western with other aged care facilities.

FIGURE 3: Using music for health and therapy: A continuum (original).



economic benefits of having music as part of their health delivery plans. Box 4 shows an example of Western training and evaluation where health professionals auspiced volunteer upskilling within a hospital aged care setting.

The multidimensional use of music for health crosses many disciplines, including music therapy, psychology, nursing, occupational therapy, physiotherapy and social work. Increased interprofessional training and interprofessional collaborative practice have strengthened support for music use within the health arena, which is a welcome development: it also, however, presents challenges, such as learning to "talk the language" of other practitioners. More research and interprofessional collaboration is still needed in this area (Short & Heiderscheit, 2018).

Across the wide range of delivery environments and methods, Western seeks to harness research and knowledge in a way that can promote excellence in using music for health, whether by individuals and community members or by health professionals and accredited music therapists.

BOX 5

INFORMING EVIDENCE-BASED PRACTICE ACROSS THE "MUSIC IN HEALTH CONTINUUM": TRAINED HEALTH PROFESSIONAL & TRAINED MUSIC THERAPIST

A forward thinking fertility specialist asked Western to assist her to improve her use of music to help women with the anxiety and stress engendered by fertility treatments. A staged approach involved:

i. a literature review, providing a summary of relevant evidence to inform the specialist's current practice;
ii. development of a mixed-methods set of evaluations for before and during medical procedures (including interactive application 'The Music Star' – see Technology section of this White Paper);
iii. design of a new intervention with women undergoing fertility treatment, consisting of group music therapy sessions led by a Registered Music Therapist (commencing in late 2019); and
iv. possible future development of individual music therapy sessions for women with particular needs related to their mental health and wellbeing.

Broader studies of this nature conducted by Western have attracted interest from many fertility specialists and a fertility clinic: Western intends to seek funding to extend this work in the future. Western is pioneering this innovative application of music and music therapy in fertility treatment: to our knowledge, this work has not been conducted anywhere else in the world.

2.3 MUSIC ACROSS THE THERAPEUTIC CONTINUUM

Given the diverse nature of music and its applications across many community contexts and clinical applications, the over-arching challenge is to understand both the complexity of health needs across the lifespan, and how particular music applications can work to address these needs in a way that makes a difference to people's lives.

At Western we have formulated the idea of a music and health continuum demonstrating a range of uses of music to encourage specific health and wellbeing outcomes. The continuum includes everything from everyday uses of music in individual and community contexts aimed at improving wellbeing through personal enjoyment (for example, individual listening to music, or participating in a community choir), through to formal music interventions with therapeutic goals, administered by trained professionals (see Figure 3).

By describing this as a continuum, we aim to build the use of music for health, from daily living through to healthcare settings and progress the agenda of using music to promote health benefits as an evidenced-based practice. Box 5 outlines an example of Western research examining the use of music for health in a project aimed at lowering the stress and anxiety involved in fertility treatment.

3. THE OPPORTUNITIES: NEW APPROACHES TO MUSIC FOR HEALTH AND WELLBEING

Western has extensive expertise and resources in the field of Music for Health and Wellbeing. Combined with an extensive collaborative network of community groups, school, aged care and hospital stakeholders, Western is in an unique position to shape the future of Music in Health for the betterment of our community.

Three cross-cutting themes have been identified that highlight where significant opportunities exist for impactful research and development.

FIGURE 4: Three cross-cutting themes in Music and Health: Evidence for Practice; Education and Training; Quantifying the Economic Benefit.

3.1 EVIDENCE FOR PRACTICE

Evidence for practice is about i) building the scientific research evidence base for uses of music across the continuum of music for health and wellbeing; and ii) using this evidence for practice for the training of those involved in the applications of music, from carers and volunteers, to medical professionals to music therapists.

With interdisciplinary expertise across fields including music therapy and music psychology, Western is at the forefront of evidence-based research and practice training in the use of music for health and wellbeing. Our researchers are exploring opportunities to integrate research and practice to advance understanding. As with other health professions, the need for evidence-based practice is both an enabler and a challenge. One of the challenges is that some of the methodologies typically used in health-related research are difficult to apply to studies of the effects of music: a double-blind study, for example (where some participants receive the relevant intervention and others do not, with neither the participants, nor the researchers aware of which participants are receiving which intervention), is harder to conduct 'blind' when the intervention very obviously involves music or musical engagement. Accordingly, music and music therapy research now embraces a wide range of methodological tools and approaches.

Music interventions can be complex, and research often occurs in uncontrolled, applied environments. Western is a recognised leader in mixed method and qualitative approaches to research and evaluation, which are particularly useful in such circumstances (see Box 5 for an example).

The Joanna Briggs Institute Model of Evidence-based Healthcare (developed by the University of Adelaide's Joanna Briggs Institute) considers evidence-based healthcare to be "decision-making that considers the feasibility, appropriateness, meaningfulness and effectiveness (FAME) of healthcare practices" (Jordan, Lockwood, Aromataris, & Munn, 2016). This approach reflects a growing movement to expand understandings of "evidence" to include practice knowledge in addition to more formal medical evidence: it also clearly incorporates the use of evidence in the multiple processes of policy development, translation and implementation (Jordan, Lockwood, Aromataris, & Munn, 2016). This approach can be applied effectively to music and health research. Engaging with this broader view of evidence and application, researchers at Western have linked with industry partners to enhance research capacity and embed evidence and research into practice: examples of this work include the following two collaborative industry partnerships facilitated by Western funded and managed research grant schemes.

i. A culture-focused collaborative Music and Health teaching day for both Western music therapy students (50) and Chinese community representatives (50) with the Chinese Australian Services Society (CASS). This was aimed at disseminating evidence-based practical information about music and music therapy whilst also supporting students in understanding Chinese cultural needs in relation to therapeutic practices.

ii. Development and evaluation of training materials for primary school staff to be used by KidsXpress for creative arts therapies service delivery, supported by Western research staff.

Opportunities to collect practice-led pilot data about the role and value of music therapy via Western student placements have also been implemented. Projects at the Royal Prince Alfred Hospital (RPAH) and Nepean Hospital are being undertaken with a view to providing feasibility data for further employment decision-making. This approach also serves as a new Western model for wrapping research around music therapy student placements as an efficient way to gather initial data in contexts where gaps in health industry clinical knowledge currently exist. These projects have also contributed collaboratively to the Western Maternal Anxiety Research Cluster with a student presentation during Research Week industry events in October, 2018. This Western model of integrating research and practice is a feasible way to support further emerging collaborative opportunities by accessing the many Western music therapy students available for clinical placements.

Western researchers have also co-led evidence-based international projects which explore interprofessional clinical and research practice in music therapy (Short & Heiderscheit, 2018) and research evidence about music therapy teaching practices (Heiderscheit & Short, 2016). This work further informs, benchmarks and upgrades teaching practices within the music therapy community around the world. Furthermore, this aligns with Western's strategic priorities to support the development and delivery of community-oriented and culturally relevant education, research and practice across the diverse region of Greater Western Sydney and promote international collaboration in research and teaching (see Securing Success, Western, 2018).

3.2 EDUCATION AND TRAINING

Education and training opportunities at Western aim to increase knowledge about the potential uses of music across the continuum of health and wellbeing. This includes opportunities to educate and upskill individuals, carers, volunteers and health professionals to be able to use music as a tool for their own and/or others' wellbeing.

Generally, individuals seeking to work using music for health need to either complete a music degree, investigate music for themselves through self-directed learning, or do a full masters-level music therapy degree.

The Masters level music therapy training at Western is one of only two accredited programs in Australia, and the Western teaching staff are highly regarded both nationally and internationally (as demonstrated by an invited autobiographical chapter in a book about worldwide prominent music therapists (see Short, 2018), international teaching invitations, and international student exchanges with well-recognised European Masters-level music therapy programs). Music therapy staff at Western pursue quality teaching leading to critical thinking and evidence-based practice, using in-person, online and simulated training approaches (see Short & Fuller, 2018). All students complete 640 hours of clinical practice, including a number of hours in a place where there is no music therapist: this provides opportunities for students to engage in pilot research projects (a recent example of which was a project investigating the feasibility of music therapy to assist with addressing prenatal anxiety at the Royal Prince Alfred Hospital). At Western, opportunities also exist for increased interprofessional collaboration and evidence-based training relevant to applied practice in the use of music and music therapy, both nationally and internationally (Short & Heiderscheit, 2016; Heiderscheit & Short, 2016), including professional development skills-based workshops around new research findings (Short, 2019c). Our music therapy program also takes cultural considerations into account: as a well-accepted cultural artefact, music has the capacity to address and assist with cultural issues related to health and wellbeing. Issues of culture relating to music therapy training include specific uses of music in the forms of songs and rhythms, cultural understandings of the role of therapy, and social and religious practices which may affect the use of music in a wide range of settings such as palliative care, dementia and special education. Innovative teaching and practitioner training focusing on cultural competency in relation to music therapy has been undertaken by Western researchers and students (Short, 2019b; Mackay, Short & Fuller, 2016; Short, manuscript under review), and further collaborative work with educational outputs is expected in this area.

Western also provides education and training opportunities for students outside of the formal music therapy program: a single approved "Music and Wellbeing" undergraduate learning unit exists at Western as an elective that can be taken by any undergraduate student, and plans are underway to include this unit as a sub-major within the School of Health Sciences offerings, with a view to contributing to interprofessional health education.

Opportunities also exist for Western to provide training at the community level: for example, Western was engaged by the Prince of Wales Hospital to develop resources and train volunteers in the use of music for health in an in-patient aged care ward (The ReViVe Music Melodies Program, as detailed in Box 4). The results from the implementation of the ReViVe program were jointly presented at the Volunteering Australia National conference (Ehms & Short, 2016), sparking industry interest which ultimately led to additional music therapy student clinical placements, within hospital and other aged care facilities. Western are also looking to raise awareness and educate the general public about how individual music can be used to assist with mood regulation: on this front, for example, Western researcher Dr Sandra Garrido is working with a mental health organisation and

potential end-users to co-design and develop a smartphone app ('Moody Tunes') to help adolescents with depression monitor their own healthy and unhealthy behaviours with music.

Technology

People using music and music therapy can greatly benefit from knowledge about technology to both support and provide health and wellbeing interventions (Magee, 2014). Western has a unique combination of researchers and music technology support across music, music therapy and engineering to drive this area of innovation, with both current researchers and recent graduates presenting workshops and papers about uses of technology in music therapy practice at conferences such as the Australian Music Therapy Association National Conference and Professional Development Seminar (Carlin McLennan, Rachael Mackay, AMTA, Sydney, 2018). Emerging technologies, now integral to music and health, also provide exciting training opportunities. A range of open access applications are now freely available via smartphone and tablet devices: however, Western researchers have the capacity to innovate greatly beyond standard approaches (for example, Sandra Garrido's smartphone app 'Moody Tunes' developed in collaboration with mental health organisations and potential end-users). Advances in music technology have facilitated access to traditional instruments: the use of lightweight keyboards, for example, helped enable a study of the benefits of music learning for older adults (see MacRitchie, Schabrun & Chipchase, 2016). A current project led by Western researchers Jennifer MacRitchie, Andrew Milne and John Taylor, in collaboration with aged-care partners, is investigating the music-playing needs of older adults in residential care. Through a user-oriented design process, they are working to design new musical technologies that are sustainable and easy to use for residents and staff. Western are looking for industry and community collaborators interested in assisting with the development and upscaling of these new smartphone apps and instrument technologies.

Western is also using advances in technology to help gather detailed data on music instrument performance in laboratory conditions. Work at Western has led to the development of new instruments, such as the E-music box (Novembre et al., 2015). This has increased accessibility to music-making forms that can be studied in a universal manner rather than restricted to those with specific expertise. Music therapy students and practitioners have also identified opportunities to use technology to enhance engagement in therapy, for example by clients with severe physical disabilities. Western music therapy student research proposals have been developed in this area, and the newly developed music playlist interface, the Danish "Music Star" (Lund, Bertelsem & Bonde, 2016) is currently being used in a Western research project related to fertility treatment.

In recognition of these opportunities, Western researchers Jennifer MacRitchie and Alison Short are developing guidelines (primarily for registered music therapists) around the use of music technology in relation to music and music therapy. The process was initiated through a Summer Research Scholarship project (see Appendix) and will involve consultation across the university and industry. Western has considerable capacity to drive this particular type of project through 1) music therapy lecturers and research staff, 2) music therapy student research proposals related to their music technology training at undergraduate level, and 3) industry connections. Western are seeking partners to progress new initiatives.

3.3 QUANTIFYING THE ECONOMIC BENEFIT

Economic considerations play a significant role in the employment of staff and the funding of health and aged care. In some instances only volunteers are available to assist with delivering music and health programs; in others, staff from related professions are expected to upskill to deliver music interventions; and where possible a qualified music therapist is employed for a full music therapy program. Drivers of financial considerations include current and changing funding models for aged care, disability services and hospitals.

Growing demand for music interventions is being driven by media such as many ABC news and current affairs items, the NSW Health Arts and Health Policy, academic research, and a general recognition of the health benefits of music. Yet despite this, employment of musicians and music therapists remains limited. Some managers who are not fully aware of the benefits of trained music therapists, or may regard a one-off performer or volunteer piano player as equivalent to a music therapist. Each has their benefits depending on context: for hard-to reach clients with specific health or aged care needs, the trained music therapist will have some clear advantages, including careful attention to the therapeutic relationship surrounding the music. Another option is for trained music therapists to, in turn, train volunteers to deliver specific interventions (as per Western's work with the Prince of Wales Hospital in the ReViVe program, described in Box 4). The issue of how many and which staff to employ (volunteer, other professional, music therapist) ultimately becomes a management and health care governance issue (Ehms & Short, 2016).

Western researchers collaborated to lead an industry-funded collaborative survey examining integrated services across 295 cancer service providers/oncology units in Australia (Smith, et al., 2017; Smith et al. 2018). Music therapy was found to be among the most commonly provided psychological wellbeing services (alongside art therapy, meditation and relaxation). However, services were influenced by economic factors including cost of the complementary therapy, availability of volunteer services, limited service availability (not available full time) and under-representation of both low SES and Aboriginal and Torres Strait Islander patients. These treatments were often viewed as a "non-essential" or "luxury item" when considering the extra costs incurred. However, participants reported their experiences of these services as "essential to recovery". Multiple Cochrane and systematic reviews (for example, Aalbers et al., 2017; Kamioka et al., 2014; van der Steen et al., 2018) attest to the value of music therapy across many fields of practice, although gaps still exist in formal reviews across the entire lifespan and scope of clinical practice, and further work is required to ensure that solid and integrated evidence is available to inform service delivery and health management decision-making processes.

There is evidence that the benefits gained through the use of music interventions can reduce costs elsewhere: for example, a patient-directed music intervention was found to be cost-effective for reducing anxiety in mechanically ventilated ICU patients (Chlan, Neidecker, Heiderscheit, & Skaar, 2018). An opportunity clearly exists to argue the economic benefits of music interventions, and to alert staff at all levels to both the economic and person-centred benefits of both music therapy practice and broader music initiatives.

We have begun this process by establishing local relationships within Western Sydney, for example:

- Western was approached by South Western Sydney Local Health District ('SWSLHD') Palliative Care staff (Short, 24 May 2017) to conduct an informal presentation on the benefits and applications of music at end of life;
- Liverpool and Camden inpatient palliative care services requested Western music therapy student placements (see SWSLHD, 2017); and
- Further NSW Health hospitals requested and placed music therapy students within their care settings, including Goulburn and Liverpool Hospitals (Stroke Rehabilitation Units) and Bankstown Hospital (Emergency and Paediatric Units).

4. WORKING TOGETHER FOR SYSTEMIC CHANGE:

THE ROLE OF STAKEHOLDERS IN MUSIC AND HEALTH

The nature of music and health applications naturally leads to community and health care applications, and in doing so fosters industry collaboration. In addition, the nature of an applied course such as music therapy requires clinical placements in industry settings and naturally leads to collaboration.

The value that Western students and staff can add to industry and practice has been demonstrated in (above-mentioned) projects with Chinese Australian Services Society (CASS), Prince of Wales Hospital (POWH) and KidsXpress. Evidence of their value has been disseminated by conference presentations at the National Volunteering conference (Ehms & Short, 2016) and a collaborative presentation at the Australian Music Therapy Association National Conference (Short, Fuller, Rockett, Ehms & Wong, 2017). The SWSLHD Health and Arts Reference Group has been informed by a hospital-wide student project conducted at a tertiary teaching hospital which looked at staff attitudes to arts and health applications. Western researchers have also collaborated on music and health projects with the ABC, Qantas, ACT Health, NSW Health (SWSLHD, SESLHD), fitness centres, aged care and community providers, among other partners (see Table 1 and Appendix for more detail).

Current approaches to university engagement with industry look beyond teaching and research practices to "engaging scholars with the public in creating knowledge that is of value to both scholars and society" (Glass & Fitzgerald, 2010). In this context, Western seeks impact, engagement, industry collaboration, dissemination, and translational research. We are striving to involve industry in the teaching process in order to produce industry-ready graduates. We seek meaningful and innovative teaching activities that demonstrate service and engagement with the community. We recognise that industry seeks graduates who do not require substantial further training and increasingly values university connections for both teaching and research.

Glass and Fitzgerald's review framework for academic industry engagement has seven guiding characteristics:

i. Responsiveness – Are we listening to the communities? Understanding and reaching out;
ii. Respect for partners – Respect for skills/capacities in collaborative projects;
iii. Academic neutrality – University as neutral sources of information even on contentious issues;
iv. Access – Assist with what may be confusing for outsiders; equal access for all to engage;
v. Integration – Outreach in education related to service and teaching; interdisciplinary;
vi. Coordination – Groups/departments work together, with engagement/translation activities;
vii. Resource partnerships – Resources and costs, strong and healthy relationships.

Western researchers have applied these principles in previous industry engagements (Short, Fuller, Rockett, Ehms & Wong, 2017), and intend to continue to use them to ensure the success of our industry engagements for mutual benefits in practice, research and education.

Collaborative industry engagement is greatly valued by Western, and the contributions of all stakeholder participants are much appreciated. Past and present Western research projects have involved collaboration with industry across our model (of four broad areas where music may benefit health and wellbeing across the lifespan, and three main cross-cutting themes for training and research priorities): selected examples of collaborative projects are provided in Table 1 on page 17.

As we continue to engage with stakeholders on the use of music for health across the continuum of therapy, future opportunities lie in this type of co-designed research between academia, industry and community. Together, we can identify where we can best contribute research evidence for the future through rigorous evaluations of services and interventions, developing best practice uses of music over a variety of skills and environments, and contribute to training and/or resources for the better integration of music into healthcare.

TABLE 1: Selected research projects including industry collaboration. For a wider selection of research projects, please see the Appendix.

Title/Focus	Personnel/Notes	Evidence for practice	Education & Training	Economic Benefit
Project 1: "Evaluating the use of music to address anxiety for women undergoing gynaecological and fertility treatments" Project 2: "Facilitated group music therapy sessions to support women undergoing fertility treatments"	A.Short & N.Andreadis (Fertility consultant)	✗	✗	
Interactive music-making in residential care	J.MacRitchie, A.Milne, J.Taylor & aged-care providers	✗	✗	
Music therapy and perinatal care	V.Schmied, A.Short & local health districts	✗	✗	
Perceptions of staff applying music & art in healthcare	A.Short, J.MacRitchie, S.Dion (student) & local health districts	✗	✗	
Developing guidelines for music use in dementia care	S.Garrido & aged-care providers	✗	✗	
App development healthy/unhealthy music use for wellbeing	S.Garrido & mental-health service providers	✗	✗	
Hip-Hop Therapy: An approach to working with offenders with severe mental health conditions	K.Dilati (Western doctoral project) & correctional services	✗		
Creative arts therapies interprofessional training	A.Short & trauma recovery service providers		✗	
Music therapy for health and wellbeing with Chinese communities	A Short & Chinese Australian Services Society		✗	
ReViVe Music Melodies Project: Using music aged care with volunteers	A.Short, S-E.Ehms, and local health district	✗	✗	
Music therapy and palliative care	A.Short and local health district		✗	
Improving patient satisfaction and reducing delirium risk for elderly patients: Music as an environmental intervention in the emergency department (ED).	A.Short (supervisor), collaboration with local health district & University of New South Wales	✗		
Exploring the feasibility of a purpose-designed music therapy relaxation program to reduce risk factors in cardiac recovery after major cardiac events: Pilot study and research capacity development.	A.Short & local health district partners	✗		✗
Exploring the benefits of teleintervention music therapy for children with hearing loss: A pilot project	A.Fuller & R.McLeod with early intervention provider	✗	✗	

5. THE OUTCOMES:
USING MUSIC TO IMPACT HEALTH AND WELLBEING IN GREATER WESTERN SYDNEY AND BEYOND

A thorough consolidation of evidence with recommended directions for future research is essential. Western is well placed to lead this work, hosting one of only two professional music therapy programs in Australia and having access to empirical music research expertise as well as interdisciplinary support and expertise from researchers in nursing, medicine, health sciences, complementary medicine, education and arts. This White Paper consolidates areas of potential development and proposes innovative new directions for future research from benchtop to real-world applications. This is supported by staff with extensive research track records, widely acknowledged international reputations, and established links to the health industry.

Research knowledge created by Western has already been translated into policy and practice for relevant industry impact. Examples include the sound/noise environment in hospitals (for example, Improving the Guidelines for Emergency Department Design by the Australian College of Emergency Medicine; Informing evidence based guidelines for birthing environments in Australia, Qld Centre for Mothers and Babies) and best-practice guidelines under development for music use for people with dementia and in residential aged-care. For the future, we envisage continuing to develop policies focusing on the uses of music for health throughout a range of community and healthcare contexts, looking to increase access for those who would find such services essential to living well.

As detailed in previous examples of guidelines arising from Western research, Western already has traction in informing practice, with the evidence generated from current research collaboration impacting consumer care and service provision across a wide range of applications related to health and wellbeing. This White Paper and associated industry consultations have consolidated existing individual connections between the researchers in music and health at Western and specific industry providers. These connections have brought stakeholders together to expand and cement links between music therapy, psychology, nursing and medical programs and other relevant areas. For example, many new student clinical placements have been initiated with both hospital and aged care providers, and most have expressed interest in further collaboration. Our priorities for future co-designed research between Western and professional practices include evaluating existing music provision and integration with healthcare services, as well as designing new interventions across a range of therapeutic contexts.

In addition to current research funding and higher degree research students, the emerging plan of using student clinical placements and wrapping research around them is expected to be a model rolled out across many placements and facilities. Such pilot studies then form evidence for the development of larger research grant proposals and collaborative funding applications.

In turn, this fosters a wider multi-disciplinary set of expertise to propose scalable research projects that will influence not only the use of music at local or regional levels, but also nationally. This serves the purpose of consolidating and leveraging existing music psychology and music therapy expertise to combine with other areas of the university to promote excellence across a range of applications of music and health.

This work will continue to focus on the key priorities of:

- → Building the research evidence base through co-designed research;
- → Generating opportunities for professional development and creating educational materials for best practices for using music for health applications across the therapeutic continuum; and
- → Contributing evidence towards the economic benefit of music use across healthcare contexts.

6. FUTURE DIRECTIONS

Western holds considerable expertise and research capacity, and seeks to link with industry to ensure that credible evidence is used when applying music to health. Working together, we can improve the evidence base regarding the health benefits of music. We can use research evidence to train volunteers, professionals, music therapists and the community, in turn improving knowledge and practice in a wide range of settings and applications.

In an era of increasing health needs, both preventative goals and active treatment can be addressed by applications of music for health and wellbeing. These range from anxiety reduction to technologically assisted music making; from increasing awareness of evidence based practice to educating volunteers, health professionals and trained music therapists. These advances occur in the context of a global research and health endeavour, and many ongoing opportunities exist for international and multi-site collaboration.

We ask industry collaborators to join us in achieving the following goals within the next 1-3 years:

- Establishing a multidisciplinary network of music therapists, health professionals, researchers and other interested community members dedicated to the uses of music in health which meets online quarterly. Music and health is a multidisciplinary context requiring collaboration between the fields of music therapy, psychology, health sciences and nursing. This network will help to i) build the evidence base through collaborative research and ii) to raise awareness amongst the general public and health professionals of the uses of music in multiple health and therapeutic contexts.
- An additional 10-15 placements for music therapy students within a variety of community and health service providers, with research projects rolled into the timeframe.
- An additional 2-4 co-funded PhD scholarships contributing to the evidence base of music and health.
- Design and funding of 2-3 foundational projects with industry partners investigating topics including the use of technology in music therapy.
- Completion of a research project, for example, on the economic value of music and health for the different levels of expertise offered by i) music therapists and ii) other trained health professionals.
- Delivery of two national research symposiums related to music and health, providing translational materials and disseminating relevant research information.
- Partnering with industry to deliver 3-5 interprofessional training events related to music therapy and music for health, with industry partners actively involved in the pedagogical development of the training materials and delivery of the education where possible.

These steps will aid our endeavours to achieve the following goals within the next 3-5 years:

- Development of a framework for research in music and health, extending this to service delivery. Establishing common outcome measures (recognising that outcomes will differ across the continuum from music therapists and health practitioners, to community, volunteers and individuals) and integrating these into research projects in music and health will also help to increase the evidence quantifying the economic benefits of the various levels of expertise.
- Development of an evidence-based online resource for community and health professionals. This will collate evidence in music and health research across the different therapeutic contexts and health concerns, linking to current guidelines and best practices for using music for wellbeing.

From our base in Western Sydney, Western are in a unique and powerful position to consolidate our extensive knowledge, research and expertise and to harness this as a sustainable resource to benefit local, national and international communities. We possess the demonstrated capacity and willingness to partner with eager and interested stakeholders, across many fields of endeavour, to ensure that all people can benefit from the many applications of music to health and wellbeing.

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8. APPENDIX

Current Western Sydney University research related to music and health

Title/Focus	Personnel/Notes	Evidence for practice	Education & Training	Economic Benefit
The specific effects and methods of Man-Tra Music Therapy on mental health: Using the voice as an attentional instrument to build resilience and support wellbeing within a music therapy framework	L.M.Jeffrey (Western doctoral project)	✗	✗	
Project 1: Evaluating the use of music to address anxiety for women undergoing gynaecological and fertility treatments Project 2: Facilitated group music therapy sessions to support women undergoing fertility treatments	A.Short & N.Andreadis (Fertility consultant)	✗	✗	
Developing resources for establishing the Auditory Environment and Soundscape Optimizing in Public Health Spaces (AESOPHS) international research consortium	A.Short and International consortium	✗	✗	
The Middle Eastern Oriental songs (MEOS) project	W.Garrido and A.Short, with Syrian refugees living in Berlin, Germany	✗	✗	
Interactive music-making in residential care	J.MacRitchie, A.Milne, J.Taylor & aged-care providers	✗	✗	
Music technology training for music therapists	A.Short and J.MacRitchie	✗		
Music therapy and perinatal care	V.Schmied, A.Short & local health districts	✗	✗	
Perceptions of staff applying music & art in healthcare	A.Short, J.MacRitchie, S.Dion (student) & local health districts	✗	✗	
Therapists' attitudes towards complimentary therapies: national survey data	J.Taylor (supervising Western student project)	✗	✗	
Alternatives to physical restraint use in intensive care	N.Blay (supervising Western student project)	✗		
Maintaining active minds and bodies through older adult music education	J.MacRitchie, R.Dean, K.Stevens, and international collaborator A.Creech	✗	✗	✗
Creating a ritual end of treatment song for adolescent oncology patients	N.Peel, C.Smith, A.Short & P.Lewis	✗		
Developing guidelines for music use in dementia care	S.Garrido & aged-care providers	✗	✗	
App development healthy/unhealthy music use for wellbeing	S.Garrido & mental-health service providers	✗	✗	
Figurenotes: Facilitating musical engagement for individuals with special needs	M.Breaden (Western doctoral project)	✗		
Hip-Hop Therapy: An approach to working with offenders with severe mental health conditions	K.Dilati (Western doctoral project) & correctional services	✗		
Utilising visual aids to assist structuring group music therapy programs for vulnerable families with young children	A.Fuller (Western doctoral project)	✗	✗	
Schizophrenia: A musical approach to addressing enduring cognitive impairment	T.Read (Western doctoral project)	✗		
The essential of the creative arts in trauma recovery: Developing and piloting an in-service teacher training module	A.Short & trauma recovery service providers		✗	
Creative arts therapies interprofessional training	A.Short & trauma recovery service providers		✗	

Title/Focus	Personnel/Notes	Evidence for practice	Education & Training	Economic Benefit
Noise Sensitivity, Annoyance and Anxiety in Indoor Restaurant Environments	A.Short (supervising Western student project)	✗		
It's not just listening to music: Use of voice in the context of GIM therapy	A.Short and music therapy practitioners	✗	✗	
Differentiated self and integrated self in improvisational music therapy on an individual-Communal Continuum	I.Nago and music therapy practitioners (Western doctoral project)	✗		
Music therapy for health and wellbeing with Chinese communities	A.Short & Chinese Australian Services Society		✗	
Evidence based training in professional music therapy	A.Short & international collaborator A.Heiderscheit with international music therapy practitioners	✗	✗	
Interprofessional research in Guided Imagery and Music: Working collaboratively	A.Short & international collaborator A.Heiderscheit with international music therapy practitioners	✗	✗	✗
Music therapy and palliative care	A.Short and local health district	✗	✗	
ReViVe Music Melodies Project: Using music aged care with volunteers	A.Short, S-E.Ehms, and local health district	✗	✗	
Improving patient satisfaction and reducing delirium risk for elderly patients: Music as an environmental intervention in the emergency department (ED).	A.Short (supervisor), collaboration with local health district & University of New South Wales	✗		
Exploring the feasibility of a purpose-designed music therapy relaxation program to reduce risk factors in cardiac recovery after major cardiac events: Pilot study and research capacity development.	A.Short & local health district partners	✗		✗
Addressing psychosocial issues after a Percutaneous Coronary Intervention (PCI) procedure using music: A pilot study	A.Short (supervisor), collaboration with local health district & University of New South Wales	✗		
Determining music and music therapy needs in aged care	A.Short and aged care providers	✗		✗
Exploring the benefits of teleintervention music therapy for children with hearing loss: A pilot project	A.Fuller & R.McLeod with early intervention provider	✗	✗	
Developing a culture-centred music therapy framework	A.Short & A.Fuller	✗	✗	
Linking industry and academia to promote music and music therapy initiatives: Strategic reflections from three different partnership engagements	A.Short, A.Fuller and health, education and cultural service providers	✗		
What should I do now? Critical thinking in music therapy training and practice	A.Short & A.Fuller	✗	✗	
Designing narrative for professional development: A case study of an international professional development program about cultural competence	A.Short and music therapy practitioners	✗	✗	
Addressing the auditory environment: Impact and influences on health and therapy	A.Short, E.Weymann and international consortium	✗	✗	
Music, imagery and physical health: Applying Guided Imagery and Music (GIM) and related methods to music therapy practice	A.Short and international music therapy practitioners	✗		

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