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A musicians' health national curriculum initiative

Final Report 2012

The University of Western Australia

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<www.soundperformers.com>

<www.health.music.uwa.edu.au>

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Sound Performers

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List of acronyms used

Australian Institute of Music (AIM)
Australian Learning and Teaching Council Ltd. (ALTC)
Australian National Academy of Music (ANAM)
Australian Society for Performing Arts Healthcare (ASPAH)
Australian Society for Music Education (ASME)
Multi-Media Centre (MMC)
Musicians' Health National Curriculum Initiative (MHNCI)
National Council of Tertiary Music Schools (NACTMUS)
National Review of Music Education (NRME)
Office of Learning and Teaching (OLT)
Performance Arts Medicine Association (PAMA)
Research Collaboration Award (RCA)
University of Western Australia (UWA)
Western Australian Academy of Performing (WAAPA)

Executive summary

Background

Research into the occupational health of musicians and music students shows an alarmingly high rate of performance-related injury risk. The musicians' health national curriculum initiative (MHNCI) is timely and strategic, in its development of a flexible and adaptable means of addressing an area of significant importance for students in the discipline of music at higher education institutions across Australia: occupational health for performing musicians.

Outcomes

The primary outcome of the Australian Learning and Teaching Council's (ALTC) MHNCI is the development, design and production of Sound Performers, a tailor-made online course that offers Australian tertiary music students and institutions essential information on performance health and optimisation in an accessible, flexible and economical delivery mode. It uniquely combines and integrates information on both physical and mental aspects of music performance, and is innovative in its web-based IT delivery platform. This innovative approach to online delivery using the IT platform Moodle provides the potential for unprecedented accessibility to information that has been developed by highly regarded experts in the field of performing arts medicine, and on a large geographical scale. In addition to providing essential health and performance optimisation information for students, Sound Performers will also help to ensure that Australian higher education institutions can better meet their obligations regarding occupational health and safety with regard to music performance courses and performance activity.

Sound Performers can benefit regional universities as much as those in urban centres through online delivery of music performance health education. The IT platform of Sound Performers allows for further development and modification of content over time, thereby augmenting its potential for sustainability. The highly integrated way the delivery of information content has been developed in Sound Performers, combining physical, psychological and pedagogical expertise, is innovative in that these perspectives are usually articulated separately in educational materials focused on music performance health. Textual content is supported by a range of multi-media material illustrating and reinforcing concepts, including custom produced demonstration videos. The project has involved the input and integrated the perspectives of numerous high-profile and respected professional musicians, representing a wide range of musical genres, in order to reinforce the relevance of Sound Performers for young Australian musicians. A key strength of the project is the fact that the content of Sound Performers has been developed under the leadership of Dr. Bronwen Ackermann, a leading expert practitioner in the field of musicians' healthcare and an internationally regarded researcher. This ensures that the educational content is of the highest quality and is

likely to establish a new international benchmark for the delivery of music performance health education for tertiary music students.

The interdisciplinary approach of the project has resulted in new disciplinary synergies and national collaborations, and it has attracted international and national interest. Because of the Moodle IT platform in which Sound Performers has been built, significant future opportunities exist for follow-on initiatives based on this approach, such as professional development, education and training for music performance educators and students in healthcare fields in the higher education sector.

A progressive process of formative evaluation occurred throughout the project, in the form of: a survey of music students' perceptions of performance health, focus group meetings, interaction of the project team with students during video footage collection, peer-assessment from international external evaluators, interviews and dialogue with professional musicians and educators, and feedback from staff at Australian tertiary music schools during the dissemination process.

Sound Performers is hosted on the website soundperformers.com. Access can be obtained by requesting a username and password through the site's home page.

Recommendations

- Sound Performers should be adopted by every tertiary music school teaching music performance in Australia, as this will allow the delivery of essential performance health and optimisation information simply, flexibly and economically to Australian tertiary music students.
- Office for Learning and Teaching (OLT) should consider funding follow-on projects that will allow the approach to be embedded in music performance teaching curricula across Australian higher education institutions, and the IT platform adapted for, and targeted at, other audiences in the higher education sector, such as music performance educators and students in the healthcare professions.
- A source of modest ongoing funding should be identified to pay for hosting and maintenance of the soundperformers.com website long-term.
- The potential to develop sound as an electronic resource for information and education regarding music performance health performers that could serve a wider, global audience should be investigated.
- Follow-on research projects using data collected through the user tracking mechanisms in Sound Performers should be initiated to investigate the medium- to long-term impact of Sound Performers on performance health and optimisation of student users.
- The new networks and collaborations formed during this project should seek funding support to foster new research and initiate new, associated teaching and learning projects, and this network should be expanded to include additional interested international and domestic partners.

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Chapter 1: Project rationale and aims

The musicians' health national curriculum initiative (MHNCI) project was awarded funding through the Australian Learning and Teaching Council Ltd. (ALTC) priority projects scheme in 2009, with The University of Western Australia (UWA) as lead institution and The University of Sydney as partner institution. The funded work of the project began in August 2009 and concluded in April 2012. This chapter will outline the project's rationale and aims, as articulated in the project proposal (2009).

1.1 Project rationale

The national review of school music education (NRSME) final report: *Augmenting the Diminished* (Australian Government, 2005) highlights the value of music education in Australian society, citing both music's well-recognised positive effect on health and well-being and the urgent need to better resource and improve the delivery of music education in Australia as issues of national importance. In her covering note, Review Chair Professor Margaret Seares asserts that "raising the quality and status of music education will have a positive impact on the breadth and depth of aesthetic, cognitive, social and experiential learning for all Australian students, and, ultimately, for our society at large." [1]

The need to raise the quality of instrumental music education is noted in the NRSME final report as one of the key areas needing improvement. It is recommended that one means of achieving this will be to enhance the quality of pre-service (i.e. tertiary) and in-service (post-tertiary) training of music educators, including instrumental specialists.

The act of playing a musical instrument involves an integral physical relationship between the performer and instrument as it is by using particular movement combinations that sound is produced. There are strong parallels between the activities of the performing musician and the sports athlete, as both rely on mental skills and the efficient use of their bodies to maximise performance, and both train to do complex sequences of physical actions through concentrated repetition, often for long hours. However, in Australia the teaching of instrumental music performance at the tertiary level, where many professional musicians and teachers receive their essential performance and pedagogy skills, still lags far behind the world of elite sport with regard to gaining a deeper understanding of performance psychology, basic principles of anatomy or training in movement on the instrument from a biomechanical perspective as part of a musician's course of study. Little information is usually provided to students about the impact of loadings on muscles and joints, or the health risks they may face.

Research has shown that up to 25 per cent of music students who enter tertiary music schools already have some kind of playing-related musculoskeletal injury, and that 70 per cent of these face the likelihood of sustaining an injury so severe that it will impede their ability to perform.[2] Even more alarming, recent research in Australia shows that pre-tertiary students are equally at risk, with 67 per cent of children instrumentalists reporting a playing-related musculoskeletal problem and the level of risk increasing with every

additional year of playing.[3] Medical conditions occurring frequently among musicians include musculoskeletal problems, overuse syndrome, neurological conditions, hearing loss, and mental health issues, many of which are considered to be preventable.[4] The risks associated with some of these conditions have been shown in some cases to be instrument-specific.[5] These kinds of medical problems add to the overall cost of health care, resulting in soaring insurance premiums, days lost from work and an increased likelihood of developing subsequent and, sometimes, permanent injuries.

The global burden of such disease is large while prevention strategies and their implementation are relatively low cost; hence, implementation of such prevention strategies should be regarded as a high occupational health priority for musicians.[6] The World Health Organisation (WHO) has recognised that appropriately integrated promotion of occupational health and safety and healthy work habits means that better occupational health models need to be incorporated into educational curriculum.[7] Australian tertiary music schools—the training ground for the music teachers and performers of the future—up till now have not addressed these important occupational health issues adequately in their courses and, given that musicians are statistically at high risk, it is vital that occupational health be incorporated into the tertiary music performance curriculum.

1.2 The solution: A national musicians' health tertiary curriculum

The brief of the ALTC MHNCI's project was to design and develop a component to address this significant gap in the current music performance teaching curricula in Australian tertiary schools of music and effect the vital change in culture that will help both to reduce the prevalence of performance-related medical problems among musicians in Australia, and to ensure the teaching of healthy music performance and teaching practices for future generations of students. Curriculum changes to address this have already been adopted by some international tertiary music schools.[8] It is important for Australian tertiary music education to embrace this imperative if it is to keep pace with international best practice.

Following the NRSME recommendation for a collaborative approach in improving Australian music education, our project provide interdisciplinary teaching and learning leadership from the fields of music education, distance learning and occupational health in Australia. While there have been a few attempts in individual Australian tertiary institutions to promote a higher level of music performance health awareness,[9] a broadly based national collaborative approach in addressing this will not only assist in expediting the changes necessary in order for Australia to match or exceed international best practice, but also will help to ensure the sustainability of these important changes, not least because it will have the capacity to inform the teaching of music performance at all levels: tertiary, secondary and primary, in both urban and regional Australia.

At the application stage, the proposal for this project enjoyed the support of peak music education and performing arts healthcare bodies, such as the Australian Society for Music Education (ASME) and the National Council of Tertiary Music Schools (NACTMUS). This is testimony to the importance of this project as a step forward in developing a curriculum

initiative to address this important aspect of tertiary music education in Australia.

The MHNCI project represented a collaborative national strategy focused on healthy music performance among Australian higher education institutions which teach music performance. Itpromoted a necessary change in tertiary music schools' curricula by forging an innovative independent learning tool for use by students enrolled in tertiary music performance courses. Following a literature survey of international best practice in the teaching of music performance health, it drew on the best aspects of approaches at international institutions to create a unified approach tailored for the Australian higher education sector that can be delivered online. In so doing, it has provided the possibility to significantly improve the teaching of music performance in Australia in terms of health and, therefore, performance outcomes.

This project is ground-breaking in its interdisciplinary integration of theoretical and practical elements combined from several fields: health, music performance, music pedagogy, the use of IT in higher education learning and teaching. By drawing on currently available technology and IT solutions in higher education, such as Moodle, this inclusive approach makes it possible for the curriculum to become available for students in both urban and regional centres throughout Australia through online delivery.

The successful development and dissemination of the approach will assist in promoting long-term cultural change within the sector, thereby having a sustainable positive impact on the teaching of music performance in Australia.

1.3 Benefits to the wider community

This project has the potential to make a significant impact on the wider community through:

- the improvement of healthy music performance teaching practice at primary through secondary levels long-term by augmenting the curriculum at the tertiary level with a health education component;
- the reduction of rates and risks of injury to performing musicians in Australia, whether for students, amateurs or professionals through promotion of health awareness and sound ergonomic, biomechanical and psychological principles in the teaching of music performance at tertiary level;
- our long-term vision of making the curriculum content available to the wider Australian and international community: in particular, to music teachers and students outside of the Australian tertiary music environment, such as students in the healthcare professions;
- the promotion of awareness of how a sound approach in terms of health outcomes can benefit performance quality.

Chapter 2: Project outcomes, approach and impact

This chapter describes in detail the project outcomes, approach and impact of the project on the tertiary music sector in Australia.

2.1 Project outcomes: Overview of Sound Performers

The principal outcome of the MHNCI project is the design and development of Sound Performers, a performance health curriculum that has been designed to be delivered online to tertiary music students in Australia through the website: soundperformers.com. This innovative approach offers several advantages over conventional classroom teaching with regard to performance health.

Firstly and most importantly, soundperformers.com allows for the broad dissemination of performance health information developed by experts in the field of performing arts healthcare to a large constituency within the Australian tertiary education sector. The curriculum has been designed to allow user institutions the flexibility to incorporate this component into their existing or future courses as appropriate.

Secondly, it focuses on performance optimization through healthy practice, rather than simply known health risk factors faced by performing musicians. Because physical and mental wellbeing are crucial prerequisites to successful performance, Sound Performers approaches effective and efficient performance and practice from the perspective of the students: in terms of their performance outcomes. This also is intended to promote student motivation to engage with the topics.

Thirdly, web delivery offers Sound Performers the capacity to incorporate multimedia resources, track progress and facilitate independent learning and, therefore, student self-efficacy. A major part of the project development work was dedicated to collecting and editing video footage specifically intended to be used for demonstrations of the key concepts discussed in the written information of the soundperformers.com website, as applied to musical performance. Written information is also supported by still pictures and diagrams, and this multimedia content has been applied to specific instrument groups wherever possible in order to maintain a high level of engagement and communicative efficacy as an independent learning tool.

Finally, Sound Performers has been built in the IT open-source platform, Moodle, which will allow for changes and further development of the site in the future, helping to ensure its sustainability and longer term impact on the tertiary music school sector in Australia. Access to the site will be restricted in the initial stage of uptake by partner and non-partner universities following conclusion of the project, in order to protect the very significant intellectual property invested in Sound Performers by the content authors. This will ensure the project team can maintain control of site use, limiting access initially to enrolled students at Australian tertiary music schools.

Students are introduced to the concept that physical and psychological wellbeing are the foundation for any type of performance, whether in the field of music or other fields, and that tuning their bodies and minds are as important as the care they take of their instruments to ensure they are capable optimal performance and protected against performance-related injury.

Sound Performers is divided into six modules, which are intended to be done sequentially and which contain many cross-references, hyperlinks and supporting audio-visual material developed during the life of the project, or contributed by members of the team and specialist practitioners. The introduction text is supported by a video testimonial by high-profile conductor and educator Richard Gill, OAM, endorsing the course as being valuable for music students.

Students must agree to the terms and conditions of the soundperformers.com website before entering and participating in the Sound Performers course, including agreeing to a disclaimer regarding injury risk, developed by the project team in consultation with the legal services department at The University of Western Australia. In addition, student participants are offered the opportunity to participate in research that explores the impact of the Sound Performers course on student perceptions of their own performance health, both physical and mental. This cross-sectional survey was initially designed and administered early in the project as part of our ongoing evaluation approach, in order to assess student perceptions concerning the priority of the topic areas we planned to include in the course. In order to maximise its potential to yield information about the state of tertiary music students' health in Australia, we involved a postgraduate student (Michael Ingle) enrolled at The University of Sydney under Bronwen Ackermann's supervision to collect data on the impact of Sound Performers on self-reported performance health of student participants during the initial roll-out of the course. Students are invited to complete the survey before beginning the course, upon its completion, and will be contacted three months after completion to take the survey again.

2.2 Outline of topic modules

The musician's body:

Information on functional anatomy is rarely provided to musicians as part of their formal studies, yet a basic understanding of how the body works is fundamentally important for anyone using it to perform complicated and repetitive tasks over many hours, such as musicians. The topics in this module provide information on body structure and function, and how this is applied or relevant within a music performance context. Sub-topics include:

- The Bony Skeleton
- Muscles
- Move Well, Play Well: Performance Biomechanics
- The Nervous System

- Respiratory Function and Health
- Hearing and auditory function
- Torso
- Head and Neck
- Upper Limbs (shoulders, arms, elbows, wrists, hands, fingers)
- Lower Limbs (hips, legs, knees, feet)
- Body Cavities (mouth, nose

Posture and performance:

Learning to adopt postures that allow muscles and joints to be able to move in the best way possible to achieve musical expression with the least amount of strain on the body is of paramount importance for music students at tertiary level. Postural faults can contribute to problems with technique, thereby inhibiting the student's progress, and increased likelihood of injury in the immediate or more long-term future. This module deals with a range of significant topics related to performance postures and includes anatomically specific information as well as images and videos related to each sub-topic. Sub-topics include:

- Standing posture
- Sitting posture
- Postural supports
- Ergonomics

Sound Performers:

This section of the curriculum focuses on injury prevention and management. It begins with an introduction based in the research literature, which discusses the alarming rates of occupational injury among musicians in Australia and internationally. It emphasises that playing with pain is abnormal for musicians, and that at the elite level—such as that to which many tertiary music students aspire and attain—the risks of a performance related injury increase because the number of hours spent increases and the level of challenge in the tasks rises. This module provides essential information to music students about the following sub-topics:

- Risks to Good Performance Health
- Injury Appraisal
- Tissue Healing
- Rehabilitation
- Back to Performing
- The Role of Rest
- Where Should I Go for Help?

Move well, play well:

This section of the curriculum is focused on movement as applied in music performance. It is comprised of the following sub-topics:

- Performance Biomechanics
- Kinetic Chain Principles
- Movement Imagery

Performance psychology:

The integration of the performance psychology module in Sound Performers and hyperlinks between it and other modules which focus on physical aspects of performance health is one of the key innovative aspects of the teaching and learning approach in the course. Most often, psychological aspects of performance are treated as a separate domain from physical aspects, and there is often heavy emphasis on issues related to debilitating levels performance anxiety and its impact on the performer. While performance anxiety is one area discussed in the performance psychology module, equally important are the sections devoted to the mental skills needed in personal practice, skill acquisition, performance that is unaffected by anxiety, and injury rehabilitation. The intimate relationship between mental and physical processes is explored and explained in this section of the course, in a way that goes well beyond popular notions of the "mind-body connection". Students are given not only factual, research-based information, but techniques and tools for developing aspects of mental processes that can significantly and positively impact on their learning habits, performance quality, physical and mental health. The following sub-topics are included in the performance psychology section of the Sound Performers course. These include:

- What Are Mental Skills?
- Phases of Mental Skill Development
- Emotional States
- The Ups and downs of it All!
- Unpleasant emotional states
- Confidence
- Self-efficacy
- Arousal-Performance Relationship
- Imagery
- Concentration Skills
- Routines
- Goal Setting
- Psychological aspects of injury

Fit to play:

This module focuses on the importance of physical fitness for music performance and provides guidance to music students about how to achieve it. It is divided into the following sub-topics:

- Warming Up and Cooling Down
- Cardiovascular fitness
- Fit to Play
- Stretching
- Special Exercise Considerations
- Performance Diet
- The Effect of Alcohol on Performance
- Approach

2.3 Time line

The work of the project began in mid-2009 and lasted until April 2012. The project's activity occurred in four phases, each lasting approximately eight to nine months.

Phase 1

The initial development phase of the project began with a literature review to survey international best practice in the delivery of music performance health information to students enrolled in music performance courses and units at selected overseas tertiary institutions. This provided the project team with a point of departure from which to begin to design and develop a music performance health education program for Australia.[10]

Broad consultation occurred with team and reference group members, who provided input concerning content and focus areas for module topics, as well as advice concerning online delivery and distance learning. The reference group and team included expertise from a diverse range of relevant fields, including performing arts healthcare, tertiary music education, neurophysiotherapy and distance learning. Focus group meetings were held in Perth, Melbourne, Sydney and Brisbane in which prospective topic areas for the MHNCI online performance health course were discussed and refined.

Following this process of consultation, as part of the project's ongoing formative evaluation process the tertiary music students health survey was designed and administered to 276 tertiary music students at three Australian higher education institutions. This cross-sectional questionnaire was a modified version of the performance health survey developed by the Australian Research Council-funded *Sound Practice* project, led by Ackermann, studying the occupational health of Australia's professional orchestral musicians.[11] This gave the team a snap-shot of Australian

undergraduate music students' perception of their own performance health, and particularly which topics they felt were of most interest and relevance to them. The results of this questionnaire show that students judged the importance of most topics as identified by the team as being of high importance, with most topics receiving a mean score of over 7.0 on a 10 point scale) and that student interest in music performance health education being included as a formal part of their tertiary course was also high.[12] This underscores the timeliness and significance of the MHNCI project and its relevance to curriculum review and renewal in the Australian higher education context.

Project team leader Wijsman contacted by email or letter most tertiary music institutions in Australia to inform them about the MHNCI project and its potential benefits for their students, including producing a printed brochure about the project and inviting expressions of interest in participating at a later stage. Several heads of music schools expressed interest in students at their institution participating, with staff at the Australian National Academy of Music (ANAM) particularly keen.

A project website was established that is hosted at UWA, providing basic information about the project, its aims, personnel and inviting expressions of interest.[13]

Phase 2

Over time, the team was expanded to include consultants from the fields of performance psychology, audiology, video production and IT development, who contributed to the content development and delivery mechanism. This enabled the content of Sound Performers to be designed in a highly integrated way with regard to the physical and psychological aspects of the program, a feature that represents an innovative aspect of the approach in this project. Project team meetings were held in Perth and Sydney during this phase of the project work.

Project leader Bronwen Ackermann led the development of the curriculum content, including authoring the texts for all but two sections. The performance psychology and hearing modules were authored by performance psychologist, Paulette Mifsud, and audiologist, Ian O'Brien, both experts in those fields. However, Ackermann consulted regularly with team members and associated consultants regarding the conceptual design and delivery of the content, and this allowed its progressive evolution and eventual refinement.

An essential aspect of the project content development was the collection and presentation of video footage to support the text information online. The process of collecting this footage involved four steps: 1) recruitment of student volunteers at six Australian tertiary music institutions to participate in filming sessions with Bronwen Ackermann, who directed all these film shoots on location or in professional studios; 2) filming interviews with professional musicians about their views on music performance health and the topic areas selected for the curriculum; 3) filming exercise and movement videos with the project's assistant, Vanessa Ropa, as a model; and 4) filming workshops that would give student users a taste of techniques and approaches to performance health, such as Mental Skills for Performance, Alexander Technique, the Feldenkrais®

Method and Pilates exercise classes.

A model for the delivery of web-based content supported by video was developed and successfully trialled in the school of physiotherapy at The University of Sydney by team member, Dr. Colleen Canning, and initially the project team sought to base the delivery of a music performance health curriculum using a similar IT delivery platform, which used Adobe Flash Player® to stream video content. However, early on in the development process it became clear that Flash Player® delivery would not meet accessibility standards established at Group of Eight Universities, and that it had other limitations which might eventually impede the sustainability of the online delivery approach. IT project manager Chris Thorne identified the open-source platform Moodle as an option that would allow for the integration of high-definition video content into associated text, user tracking and data collection, and long-term provide the project leaders the capacity to modify and manage content independently. He initiated building a prototype hosted on the server of his IT consultancy, VRShed, which hosts the content of Sound Performers.

At this stage of the project activities, at the end of 2010, the project team conducted an external evaluation activity involving the creators of the dancer wellness project, an analogous web-based performance health web education resource for dancers. Gary Galbraith and Karen Potter are ex-professional dancers and professors of dance at Case Western Reserve University (Ohio, USA). The dancer wellness project[14] began as an education project, and now serves the performance health needs of the international dance community. Galbraith and Potter offered advice and an experienced perspective on our project and development process, focusing on the technological aspects and realisation of the concept in an IT platform, and pedagogical aspects.

Phase 3

Once video footage was collected, the team engaged the services of a video production team to edit and produce the video clips that would then be integrated with text content in the curriculum. Caine Chennatt, of the multi-media centre of the faculty of arts, humanities and social sciences at UWA, undertook final carriage and responsibility of this aspect of the project and liaised with the project team during this aspect of the project's development. During this phase, the IT platform using Moodle was also progressively developed and tested. Sound Performers for the web-based music performance health course was chosen as a name, and a visual identity was designed, which also serves as the basis for the watermark used on all the videos streamed through the project course website.

A preliminary external evaluation was conducted in face-to-face by Bronwen Ackermann by Prof. Dr. Eckart Altenmüller of the Institut für Musikphysiologie und Musiker-Medizin (Hochschule für Musik, Theater und Medien, Hannover, Germany), during June 2011. He reviewed the text content at that time and made suggestions as well as providing positive feedback about both the content and approach.

A Research Collaboration Award (RCA) proposal was submitted at UWA in 2011 by a

team of collaborators including the MHNCI project leaders, the IT project manager, and researchers in Queensland and New Zealand. Though unsuccessful, the prospective collaborative team remains interested in seeking other opportunities to develop this research collaboration.

The project leaders undertook a tour of Australian higher education institutions in November 2011 to inform teaching and management staff about the MHNCI project and Sound Performers, as part of the project's dissemination strategy. Institutions visited included the University of Queensland, the University of New England, The University of Newcastle, The Australian National University, The University of Melbourne, and the Australian National Academy of Music.

Two papers based on the project work and the results of the Tertiary Music Students Health Survey were drafted by project leaders Ackermann and Wijsman for planned submission in early 2012.

Phase 4

Once a working prototype of the Moodle site with essential content loaded was online, the team engaged in a process of editing and refinement. A final face-to-face team meeting involving the project leaders, Paulette Mifsud, and the IT team occurred in February 2012. Video content was then finalised for each module, along with images, diagrams and drawings, all of which support or illustrate the concepts and information presented in text. Quizzes have been designed and integrated into modules in the Moodle platform that will serve as a means of testing the effectiveness of Sound Performers. In addition to reinforcing the learning process for student users, tracking the results of these quizzes will provide a mechanism by which the effectiveness of Sound Performers as an independent learning tool on performance health for tertiary music students can be tested.

A second and final evaluation of Sound Performers was undertaken by Professor Altenmüller in April 2012 (see Chapter 3).

Chapter 3: Dissemination, evaluation and linkages

3.1 Dissemination

Dissemination activities for the project occurred throughout all phases of project work. These included:

- Face-to-face and email contact with heads of music at Australian higher education institutions, distributing information about the project and its aims, and soliciting expressions of interest in participating.
- Presentations at national and international conferences, such as the Australian society for performing arts healthcare annual conference (2009, 2011) and the performing arts medicine association (PAMA, USA) annual symposium (2010) generated significant interest in the project and forged new networks with colleagues in the USA and Europe. Future presentations at national/international conferences are planned for 2012 and 2013.
- Two papers on the project by Wijsman and Ackermann are due for submission in early 2012 to peer-reviewed journals.
- Presentations about the project during a dissemination road show during November 2011 and meetings with staff and students at six Australian higher education institutions and schools of music, all of which are interested in embedding Sound Performers as part of their curricula. This resulted in discussions between the project team and management at several tertiary music schools about the possibility of building a consortium of partner institutions to raise funds to support the hosting and maintenance of Sound Performers in the short and medium term.
- Contact between the project team and leaders over the life of the project with staff and students at six tertiary schools of music, especially in the course of video footage collection, provided informal opportunities to promote the project and interest stakeholders in its activities and aims.

3.2 Evaluation

This project adopted a process of progressive formative evaluation which occurred throughout the project, in the form of:

- Contact between the project team and leaders over the life of the project with staff and students at six tertiary schools of music, especially in the course of video footage collection, provided informal opportunities to promote the project and interest stakeholders in its activities and aims.
- The tertiary music students health survey (2010), a cross-sectional survey that helped the project team to assess self-reported performance health of Australian

student musicians. The results of this survey informed the choice of topics and their presentation in Sound Performers.

- Focus group and reference group meetings (2009-2012) allowed the project to gain input on prospective project content from appropriately experienced health and music professionals drawn from the tertiary music sector, the healthcare professions, and researchers with experience and interest in music performance health.
- Feedback and interaction with project team members during video footage collection (2010-2011) focused on aspects of individual participating students' performance health, further informing choices made about content and its presentation from a pedagogical point of view.
- Peer-assessment from external evaluators with experience in a cognate field of performing arts education (dance) during the development phase of the project (2010).
- Interviews and dialogue with professional musicians and educators provided a valuable occupational health perspective on topic content and how to best achieve learning outcomes for students (2010-2011).
- Feedback from staff at Australian tertiary music schools visited during the dissemination road show regarding the needs of individual institutions (2011).
- Thesis research by Master of Music candidate at the University of Sydney, Michael William Kennedy Ingle, evaluating the effectiveness of Sound Performers for a group of student musicians who participated during the trial phase of the project.[15]
- Two-stage external evaluation of the project primary output, the website soundperformers.com, by an international leader in performing arts medicine, Prof. Eckart Altenmüller of the Institut für Musikphysiologie und Musiker-Medizin, Hochschule für Musik, Theater und Medien, Hannover, Germany (2011 and 2012). A German neurologist and researcher, Altenmüller has been running a series of health lectures to the Hannover Hochschule für Musik for over 10 years and trains healthcare professionals in musicians' performance health. He agreed to give his input on the curriculum once a draft version was available for viewing, as well as making some suggestions in relation to content during the planning stages, such as ensuring high quality multimedia was included in the presentation of material. His comments underscore the high calibre of the educational content and delivery approach of Sound Performers, and its potential to make a significant impact not only on Australian music education but internationally also. In his final review, Professor Altenmüller wrote of Sound Performers that it is:

  "excellently conceptualized and I am sure it is a major step forward to improve wellbeing and health condition in musicians all over the world! Congratulations. I like the whole concept, the elegant way to combine written information with instructive figures, excellent videos, and small interviews. I am sure that this information will be extremely useful and the way it is presented will make it enormously attractive for both, students and performers. The way, how for example nerve compression syndromes, such as carpal tunnel syndrome, cubital tunnel, thoracic outlet a.s.o. is explained is masterly. I hope the Web-site will

find many users!”[16]

3.3 Linkages

- Presentations by the project leaders at national and international conferences have attracted significant interest on the part of music educators and researchers in the field of music medicine and music education.

- The interdisciplinary approach of the project has resulted in new disciplinary synergies and national collaborations, which have attracted international and national interest in terms of follow-on research and teaching and learning projects from staff at The University of Queensland and University of Auckland.

- Similarly, the formative evaluation approach resulted in significant international linkages being formed with performing arts educators in the USA (Galbraith and Potter/The Dancer Wellness Project and Case Western Reserve University) and an important research and teaching centre in Europe (Altenmüller, Institut für Musikphysiologie und Musiker-Medizin, Germany).

Chapter 4: Innovation, strengths and challenges

4.1 Innovative aspects

The key innovative aspects of this project are:

- Online delivery of music performance health education in Sound Performers is designed for a geographically disparate and diverse Australian student population that can benefit regional universities as much as those in urban centres.

- The highly integrated way the delivery of information content has been developed in Sound Performers, combining physical, psychological and pedagogical expertise, is innovative in that these perspectives are usually articulated separately in educational materials focused on music performance health.

- The IT platform allows for further development and modification of content over time, thereby augmenting its potential for sustainability.

- Textual content is supported by a range of multi-media material illustrating and reinforcing concepts, including custom produced video material.

- The project has involved the input, and integrated the perspectives, of numerous high-profile and respected professional musicians representing a wide range of musical genres in order to reinforce the relevance of Sound Performers for young Australian musicians.

4.2 Project strengths

- The development of Sound Performers is timely in that it addresses an area of significant importance in higher education curricula and occupational health in the discipline of music across the country: music performance health. This will help to ensure that Australian higher education institutions meet their obligations regarding occupational health and safety with regard to music performance courses and activity.

- Sound Performers has been designed and developed under the leadership of Dr. Bronwen Ackermann, arguably Australia's leading expert in the field of musicians' healthcare and an internationally regarded researcher and practitioner in the field. This ensures that the educational content is of the highest quality and is likely to establish a new international benchmark for the delivery of music performance health education for tertiary music students.

- One aim of the project team was to present information on performance health to music students in a way that retained its factual accuracy but did not overwhelm users with a medical or technical perspective. The approach of our team meant that pedagogical and

healthcare perspectives could become fully integrated and the content delivered in way that was both accessible and highly informative.

- Because of the flexible IT platform in which Sound Performers has been built, its development as part of the MHNCI project lays the foundation for significant future opportunities based on this approach, through follow-on initiatives that can result in professional development, education and training for music performance educators and students in healthcare fields in the higher education sector.

- The online delivery design of Sound Performers promotes student self-efficacy through independent learning and feedback via assessment mechanisms built into the modules in the course.

4.3 Project challenges

- Whilst appropriately targeted and focused, given that no exact model or template for the development of a teaching and learning initiative of this kind in music performance existed previously, at the proposal stage the project team underestimated the scope of work that would be needed to produce specialised, edited videos from over one terabyte of collected footage and the development of the custom-built IT platform. Achieving all aims and deliverables in the trajectory outlined in the project proposal proved to be impossible in the timeframe of this project, even with extensions. For example, although a trial of the prototype using enrolled music students was originally envisaged in the project, the complexity of IT development and web programming, along with significant delays in the project with regard to video production, meant this was not possible during the funded life of the project. T

- The length of time to produce the project's educational material also prevented realisation of the team's vision to produce a version of the materials on DVD, since the website content development took so much longer than previously anticipated, especially finalisation of selected video material. In addition, once the team had explored IT delivery options the decision was made to develop the educational content in Moodle, meaning that production of a simple DVD version was less practicable, since the interactive features of the soundperformers.com website could not be replicated easily in DVD format without a significant amount of extra IT work and time. Adaptation of the materials in Sound Performers for DVD format remains an aspiration of the team and may be pursued as a post-project joint commercialisation venture between UWA and the University of Sydney upon application to OLT.

- As the project team did not initially include higher education-based expertise in video production, negotiating a path forward that met the specific needs of this project within the context of commercial video production proved to be costly in terms of time and funds. While excellent footage forming the basis of audio-visual material in Sound Performers was collected by these providers, the commercial editing process had many delays. The eventual involvement of the multi-media centre (MMC) in the faculty of

arts, humanities and social sciences at UWA facilitated the completion of necessary video editing work for the project in an efficient and economical way that enabled the team to complete the prototype website. The support of the MMC for the project enabled a creative synergy which has resulted in highly attractive and educationally relevant clips that support the written material of Sound Performers and paved the way for further collaborative work on follow-on projects.

- Translating the vision of the project team for an interactive online independent learning tool to teach music students about performance health into reality posed numerous challenges for the project leaders and IT team at every stage of the project.

- Despite the generous provision of teaching relief funds for the project leaders in the project grant award, the agreed 0.2 FTE loading was an inadequate reflection of actual work time spent on the project. In addition, the unclear status of the project within the context of workload provisions at both partner universities was problematic. As the project funding was not related to research activity, being rather focused on an important teaching and learning initiative, recognition of the value of the grant award in terms of staff workloads or output was unclear and largely unrecognised, despite its enormous potential to generate future research and acknowledged importance within the tertiary music sector.

Chapter 5: Next steps and recommendations

5.1 Next steps

With the completion of the MHNCI project, the next steps for the initiative will focus on strategies for sustainably embedding Sound Performers in the teaching curricula of tertiary music institutions which have expressed an interest in participating in the next phase of development of this initiative. In addition to The University of Western Australia, other institutions expressing interest include the Western Australian Academy of Performing Arts (WAAPA) of Edith Cowan University, The University of Queensland, The University of New England, The University of Newcastle, The Australian National University and The University of Melbourne, as well as the Australian National Academy of Music. The project leaders have discussed strategies for building a consortium with these Australian tertiary music schools to support and contribute to Sound Performers at the next stage of development of the initiative.

The next steps for the initiative will include working towards securing ongoing support for website hosting and maintenance, and the continued development of Sound Performers. This will ensure the sustainability of the approach and its capacity to grow and expand so that versions which can serve other constituents in the higher education sector, such as tertiary music educators and students in healthcare professions, can be developed. Professional development for teaching staff in music performance needs also to be provided in order for the approach to be implemented in a way that ensures that Sound Performers is adapted to the curricula of Australian tertiary music courses in the most effective way, since much of the information it contains is as new to teachers as it is to students.

5.2 Recommendations

- The importance and quality of Sound Performers is demonstrated in comments by the project's external evaluator, and the expressions of interest on the part of institutions wishing to adopt Sound Performers as part of their music performance teaching curricula. OLT should therefore encourage every tertiary music school in Australia to adopt Sound Performers as it allows the delivery of essential performance health and optimisation information simply, flexibly and economically for any higher education institution.

- OLT should consider supporting follow-on applications by the project team for funded projects that will allow the embedding of Sound Performers across Australian higher education Music curricula, and the approach and IT platform to be adapted for other audiences in the sector, such as music performance educators, and that it can form the basis of important and necessary professional development activity for staff in tertiary music schools.

- Research should be generated on the impact of this approach not only on the performance health of student users, but also their performance quality, from the data collected using tracking mechanisms built into Sound Performers.

- The new networks and collaborations formed during this project should be fostered to engender new research and teaching and learning projects and funding applications, and that this network should be expanded to include the additional international and domestic partners who have expressed an interest in partnering with the existing team.

- A user licensing system should be established, whereby license fees paid by new partner institutions that were not involved in the MHNCI project will generate a source of modest income to pay for hosting and maintenance of the site long-term. This is essential in order for the initiative to reach its full potential and long-term aims to embed music performance health education into Australian tertiary music curricula substantially and permanently.

- The capacity and potential of Sound Performers to serve a wider, global audience as a source of information and education regarding music performance health should be investigated, through the establishment of a consortium of partner organisations willing to contribute and support this initiative.

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