

# Music, technology, wellbeing

## Abstract

In this chapter we will discuss wellbeing, with a focus on how the arts —particularly music— often in tandem with technology, can foster greater development and a more positive lifelong learning experience. We shall be looking at the very notion of ‘wellbeing’ and how this has evolved into something nowadays less strongly related to pathology and we shall rehearse some evidence relating to the symbiotic relationship between learning, the arts, and technology as catalysts for psychological growth and sustaining a healthy bodymind. We shall do this both at a theoretical level, with the rehearsal of published evidence, but also with the presentation of a number of potentially useful vignettes from current practice. These examples should allow us to celebrate the fundamental role that music plays in our lives and echo the importance of fostering musical development, engagement and praxis throughout the lifespan. Technology’s role in this context is argued to be very important, even vital.

## Introduction

Music is generally accepted as a universal human phenomenon; some would even argue, a solely human phenomenon and the very celebration of humanity. We have access to robust scientific evidence suggesting that humans were purposely making sophisticated instruments with the intent to make and/or perform music about fifty thousand years ago (e.g. the aurignacian period flute). One could safely assume that we were using our voices as instruments and also use primitive percussion instruments way before we were making flutes (Himonides, 2019). Some scholars go as far as to argue that music precedes language (Mithen, 2007), and that it is our very innate musicality that was catalytic to the development of early languages. Empirical musicologist Adam Ockelford (Perkins, S., & Service, T., 2013) very graphically argues: “... no, I think music is part of being human. There's no such thing as an unmusical human being. And music is a sort of social glue that holds us all together right from the very early stages mums and babies bond critical pieces of music like a gurgles in fact they grasp the tunes before the words if you listen to a baby as they start to sing a nursery rhyme, you'll get the contour of the melody before the words are properly formed. So you've already got this sort of clothesline of music, on which the pegs of words are strung later on”. There are different arguments about music’s evolutionary functions and why music has become important; mate selection is one of these. There is

also recent published evidence about how music is used in attracting people of the opposite sex. Music has been found to play a major role in the process of mating but also social cohesion, group effort (e.g. like working together in time, going to battle, engaging in sports and physical challenges). Music plays an important role in sexual development, motor scale, conflict reduction, where hopefully people will through music, fight less, and save time passing, which means that if you're sharing time with other human beings, with music, you won't be doing something else which might be dangerous. It is therefore somewhat sensible to infer the congenial relationship between music and wellbeing and, furthermore, the pursuit of happiness. Consequently, it is perhaps natural to see how music interweaves with the core principles of the somewhat young field of positive psychology.

## Background

It is very interesting to witness modern-day ethe and attitudes towards the understanding of whether there is value, meaning, 'effectiveness', necessity, purpose, usefulness, scope and reason for engaging in specific activities. One could hypothesize that much policy, research, funding and political discourse are driven by the new revolution of metrics and 'robust' evidence. This, on the surface, sounds like a very noble—in not necessary—standpoint, but it harbours dangers and can lead to confusion and disastrous decision making. How can this be? Like with many approaches and enquiry, the methodological approach is key. Therefore, 'how' we ask a question, 'what questions we ask' and 'what is our analytical approach' in answering those are of vital importance. Music and the arts in general, even though perhaps the most universal phenomena of humanity, have not been able to escape this pitfall. A number of studies have sprouted over the last decade, claiming to have employed 'systematic' approaches, concluding that music has no positive impact on health and wellbeing. To some, this reverse engineered approach in trying to gauge the effectiveness of something that is an integral part of humanity itself is simply unnecessary; to others, perhaps it is frivolous. If music was not important, it would have become a vestige and followed an evolutionary path towards extinction. So even if this author is known to be a passionate supporter of the need for musicians and music enthusiasts to stop being apologetic for their love and dedication to music, and equally passionate for people under the overarching field to stop feeling obliged to advocate for music because of its other-than-musical benefits (i.e. instead of the fulfilment, joy, satisfaction, eudemonia and pleasure in musicking), it would be important to celebrate the immense power of music holistically, in the fashion of a summary of key points raised by Susan Hallam (2015) and augmented by Hallam and Himonides (2022).

Most importantly, we shall try to stress the importance of what music *can* do, not what music *will* do. This distinction might appear to be confusing, but it is actually crucial in helping us become liberated from the tyranny of causality and move towards positive potential, opportunity, flexibility and freedom. Causality in itself is almost certainly not 'tyrannical'; quite contrarily so, it is absolutely vital to pursue causal pathways in many aspects of life and enquiry, often to protect ourselves and loved ones, and to stay alive. Challenges, though, exist when we try to do this with everything, especially when that is complex, context specific, dynamic, ever evolving and as unique as every single human being that lives and has ever lived! Interestingly, this discourse about what music *can* do versus what music *will* do can be interwoven with and supported by the evolution of the notion of *wellbeing*.

Research in health and wellbeing has usually been centred on either jeopardy (i.e. when health and wellbeing are under threat) or pathology (i.e. when health and wellbeing had already been affected). This naturally led to the need for conducting intervention-type research in order to explore how these pathologies could be cured, reversed or rectified. This is the mainstream way in which we conduct medical research.

With the development of modern society, the continual increase of socio-economic status globally, the increase in wealth, health, access to education and sense of life satisfaction and wellbeing, we started augmenting our scope of enquiry and began looking at health and wellbeing in a more holistic way. We started looking at comfort, health and happiness as part of everyday life and no longer as variables 'of problem' inside a researcher's lab. This has naturally introduced the need for employing different methodological approaches, often highly qualitative, human-centric and often focusing on making sense of discourse and reported lived experiences. Unfortunately, policy makers, politicians and funding bodies continue to require 'hard evidence' in order to support societal and educational initiatives and, even more unfortunately, 'hard evidence' is often misunderstood or misinterpreted as evidence that comes from research that followed very specific methodological and analytical frameworks, mainly the paradigm of randomized controlled trials (RCTs), which are the golden standard of research in medicine and related fields. Furthermore, in order for advocates for music and the arts to engage with 'the game' of hard evidence mining and provision, they have conducted and/or participated in research that tried to employ components from the medical research paradigm. This has led to a number of studies that introduced independent variables such as "musician" and "non musician"; "musical" and "amusical"; "formally trained" and "informally educated" and, even more worryingly, interventions that were presented or treated as deterministic, such as "received tuition"; "engaged with music technology"; "participated in choral singing"; "played in a djembe drum circle"; "used the iPad"; "collaborated online". One might wonder, how do we classify someone as *non musician?*, or even who is an *actual musician?*, how do we measure the

levels of musicianship?, can somebody be exclusively formally trained?, what happens to that very person after they've watched  $n$  videos on YouTube? Similarly, we might have some questions about whatever was presented as the actual intervention: is the offering of  $x$  number of hours of lessons on subject/topic  $y$  for  $z$  number of sessions a compiled, deterministic, standardised and identical experience for all students that participated? To a scientist in a laboratory, it often appears to be; to any person that has ever taught in their lives, the answer is likely to be a very passionate *no*, if they decide to take the question seriously. There are simply too many confounding factors at play and it is fairly impossible to look at direct impact of music on a specific outcome. Consequently, if someone wanted to assess education, learning, and development by distilling findings from enquiry that employed foreign (i.e. non fit-for purpose) methodological approaches, they would probably lead themselves to misunderstanding, confusion and misconception. What if, for example, we wanted to measure the effectiveness of a Covid-19 new vaccine by interviewing people? What if we wanted to do the same thing by observing them in the street? Both are valid methodological approaches; they are just not appropriate for what we aim to research. Gladly, the majority of people that understand education, learning and development are also conducting appropriately designed research and are sensitised in their analyses of the datasets and the interpretation of their findings.

In assessing the evidence-base in a more inclusive way, Hallam and Himonides (2022) present the following summary of findings regarding the power of music:

Music *can* have a positive impact on many different areas in our lives. In a social context, music *can* play a major role in fostering cohesion (but it can also be catalytic in conflict). It *can* support cohesion within sub groups, while at the same time it can be used for intensifying bias against other groups.

For the individual, music *can*:

- promote aural perception, leading to enhanced language and literacy skills;
- support the development of spatial reasoning and subsequently some elements of mathematics;
- support memory functions, executive functioning, intellectual development, creativity and academic attainment;
- enhance the performance of fine and gross motor skills; and
- support personal and social development.

It can have a positive impact on wellbeing, although in some circumstances the impact can be negative. Finally, music can support physical and mental health, particularly when used in conjunction with other treatments.

# Practice

The power of music is celebrated hereafter in two quite diverse 'vignettes' with which this author has had the opportunity to be involved. They are presented here as a reminder of how important music and musicking are, both at a societal, but also at a personal level.

## Safeguarding Afghan musical heritage

It is often said that the first thing that a totalitarian regime, dictatorship or autocracy do the moment they assume power is to try to control (or even completely ban) the arts, and particularly music. Regretfully, a somewhat 'milder' manifestation of this is also evident in democratic countries that are governed by deeply conservative and right-wing ideologies, with the ostracization of Arts subjects in education and the reduction of funding throughout the artistic sectors.

Such an unfortunate example is that of the rich musical heritage of Afghanistan. Since the 1978 coup d'état and the assumption of power by the Taliban, music was targeted and banned. Ethnomusicologist John Baily, a scholar who has dedicated his professional life in studying Afghan music says: "... it has been impossible for anyone to do the kind of research we did — freely attending and recording musical events like outdoor picnics, weddings and concerts. In any case, public music-making on that scale closed down. Even after the fall of the Taliban regime in 2001, the status of music remained highly contested". In 2012, this author developed a free online resource (accessible openly at <https://oart.eu>) that aimed to offer information about the Rubab, the national musical instrument of Afghanistan. The technology introduces visitors to the Rubab's tuning and playing, using notation, audio recordings, photographic material, and a large number of multi-angle instructional videos that feature John Baily himself playing the Rubab. Since its launch, and at the time of writing, the Online Afghan Rubab Tutor (OART) has received over three million visits. What is very powerful, though, is that although there is a very good number of visits from the Afghan diaspora and enthusiasts around the world, the majority of interactions and the majority of comments and e-reactions to the video content originated from within Afghanistan. There are numerous messages of gratitude and appreciation, often prayers, from Afghan people offering thanks for teaching them and safeguarding their musics. It is very disheartening to see all the hard work that has been conducted since 2001, particularly that within the Afghanistan National Institute of Music (ANIM), founded and directed by Dr Ahmad Sarmast, being demolished within one week of the Taliban resuming power in the summer of 2021. ANIM was annexed; musical instruments were destroyed; music was banned, once again. Technology, though, continues to play a crucial role in safeguarding the cultural heritage of

Afghanistan. OART and numerous other resources shall remain unsilenced, regardless of the daily attacks that they receive. The opening paragraph of the OART leads to a powerful verse from Maulana Jalaluddin Rumi:

*Do you know what the voice of the rubab is saying?*

*"Come follow in my steps and find the way;*

*Since through error you'll discover what's right,*

*Since through questions you'll end up with answers."*

## Singing without a voice-box

In the numerous decades of this author's professional involvement with music, no other paradigm of the power of participating in group musical activity comes close to that of the world's first alaryngeal choir, founded and supported by the British charity Shout at Cancer. Laryngectomy is the surgical procedure of the complete removal of the laryngeal assembly (aka the voice box). This is predominantly performed onto individuals in advanced stages of throat cancer. This is a highly invasive procedure that results in massive anatomical and functional changes in the body. After laryngectomy, patients no longer breathe from the mouth and nose, but through an opening in the neck. Patients' mouths become directly connected to their gullet and stomach. With the removal of the laryngeal assembly, which also includes the vocal folds (formerly known as vocal cords), patients lose their ability to 'phonate' (i.e. produce a voice) normally and have to spend a long time in copious rehabilitation and training in order to develop new ways of communicating. There are four main ways with which this can be achieved but, currently, what is considered to be the norm is 'tracheoesophageal speech', where a surgical puncture allows the placement of a replaceable unidirectional valve that diverts air from the trachea into the esophagus. By blocking the external stoma (i.e. the hole) and applying pressure that has been measured to between 7 and 8 times the amount of pressure that is required for normal phonation, laryngectomees learn to divert air to the installed unidirectional valve towards their newly developed pharynx and introduce vibrations that can be articulated as sounds. These sounds are the laryngectomees' "new voice". This new alaryngeal voice is quite variable amongst individuals, has a limited frequency range, and is of much less energy and more limited range, compared to what we call a normal voice. This, on top of the actual trauma, agony, pain and discomfort that the operation and consecutive treatments have on the laryngectomee, introduces an incredibly challenging new reality where individuals have to develop a new identity through this new instrument for communication. One simply has to think of the general aversion that most of us have to hearing our own recorded voice... Imagine hearing a completely different voice... ; a different and also quite 'abnormal' one.

Now imagine trying to use this voice in order to perform basic, everyday, tasks, like call somebody on the phone, ask for something over the counter in a pharmacy, perhaps report a stolen credit card to your bank. It is possible that we walk past and/or interact with numerous people that suffer all kinds of ailments daily, and outside our awareness. Laryngectomees cannot 'hide'... the moment they wish to perform one of the most basic human functions—to communicate—curious heads start to turn. This is perhaps one of the reasons why incidents of depression and social isolation are particularly frequent within throat cancer patients. The charity Shout at Cancer was founded in 2015, by medical doctor Thomas Moors. Dr Moors aspired to develop activities and interventions that would help throat cancer patients to deal with rehabilitation post laryngectomy and to regain confidence in finding their 'new voice'. One of the numerous things that he'd achieved is the creation of the world's first alaryngeal choir; a choir of people without voice boxes. Few examples could be more powerful than that of a group of people without voice-boxes that still wish to sing and, furthermore, perform in front of audiences. The choir comprises people with different backgrounds, a small number used to be professional musicians, some used to love participating in musical activities, and some had never done so; singing as laryngectomees was their first ever performing experience. The choir has engaged in different projects, with different artistic directions: some performances involved jazz and poetry, some involved classical music, some festive music, some even involved beatboxing (Moors et al., 2020). The alaryngeal choir members have been reporting their experiences and offering feedback continually. Overwhelmingly, the feedback has been positive; but not always... Music *can* cause this!

Sara, an active member of the Shout at Cancer choir testifies:

*I used to love to sing, and I never thought it would be possible, but I did sing We Are The Champions by Queen in front of them all...*

Another choir member says:

*"From having NO VOICE, just silent cries, I now speak again and sing in a choir"*

In 2021, Shout at Cancer received *The Queen's Award for Voluntary Service*; this is the highest award given to volunteer groups across the UK.

## Sounds of Intent

A final example of the powerful synergy of music and technology in fostering the development of children and young people with complex needs is the *Sounds of Intent* project (<https://soundsofintent.org>). The Sounds of Intent research project was set up in

2002 jointly by the Institute of Education (now UCL Institute of Education), Roehampton University, and the Royal National Institute of the Blind. The research team had developed a framework of musical development that covers the whole range of ability from profound and multiple learning difficulties (PMLD) to those with autism, with or without exceptional musical abilities (so-called savants). This framework led to the development, by this author, of the world's first and still the only free online portal that allows parents, carers and practitioners to access valuable resources for supporting their pupils. The online resource, launched officially in 2012, is freely available to anyone who wishes to use it, and works on all platforms, though it is particularly well suited to touch-screen technology, such as tablets and smartphones. The software enables ideas for promoting children's engagement with music to be viewed and downloaded, and for individual children to be assessed.

Teachers, therapists, other practitioners and parents can register to assess their children's development online. Assessments can be made as a one-off or over a period of time. The results can be printed out as numbers or in graphical form. This unique resource is not just helping registered practitioners; all of the available audio-visual materials, assessment guidelines, musical materials and other information are openly available to teachers, carers and practitioners without the need for registration. Since its launch in 2012 and to the time of writing, the Sounds of Intent portal has received over 12 million visits and different resources have been downloaded in excess of 4 million times. Nearly 8 thousand individual pupils are being assessed formally on the site, by nearly 900 registered practitioners, representing approximately 400 schools around the world. Sounds of intent is not just a remarkable exemplar of how technology can support the musical development and wellbeing of people in need; it is also perhaps one of the very few examples, globally, where research and practice within the bodymind diverse world (e.g. PMLD, SLD, MLD, under the general umbrella of special educational needs and disability) is informing mainstream practice (Himonides et al., 2017). Since the establishment of Sounds of Intent, there has been a successful launch of Sounds of Intent in the Early Years (<https://eysoi.org>) and the possibility of adopting the original framework for use in research and practice within the later years is currently being researched by colleagues in Canada (Professor Andrea Creech's work called Creative Later Years).

## Epilogue

It is somewhat of an impossible task to unpack the power of music within such a short body of text. Nevertheless, it is hoped that the rehearsed summary of evidence, in tandem with the diverse vignettes, succeeded in offering a brief celebration and can perhaps support the



argument for a continued —and inclusive— dialogue about music’s role in health and wellbeing throughout the lifespan. It comes as relatively surprising that this discourse is quite sparse within positive psychology nomenclature. The role of technology is also an important part of this discourse. Technology has so much to offer outside of the stereotypical perception as a sterile ‘tool’. The global pandemic has led to some claiming a ‘paradigm shift’. This author is not particularly convinced that the paradigm has ‘shifted’; it seems that life during the pandemic has ‘amplified’ the role of technology, be it to keep learning going, to keep us in contact with loved ones, to share video clips on social media of people singing from their balconies in Italy, to the sprouting of countless virtual choirs, to sharing the guitar licks of astronauts in space, in order to uphold morale. The technological humanity and the musical humanity have been in tandem from the beginning. So, perhaps it doesn’t matter how many spoonfuls of music help the medicine go down... perhaps what matters is how important music is to humans and the preservation of their humanity.

## Discussion Points

1. The English Baccalaureate, or EBacc, excludes creative, artistic and technical subjects from counting in school league tables. Do you think that this undermines creativity, and to what extent? What do you think is the impact of this onto future generations?
2. How does the “future classroom” look, in your opinion, and why so? What is the role of the arts, and music specifically, in that future classroom?
3. Can you think of other examples where the arts and music have been (or are being) controlled by totalitarian regimes? What parallels can be drawn between those?

## Suggested Resources

1. The Online Afghan Rubab Tutor (OART): <https://oart.eu>
2. Shout at Cancer: <https://www.shoutatcancer.org>
3. Sounds of Intent: <https://soundsofintent.org>
4. Inspire-Music: <https://inspire-music.org>
5. The Impact of Music on Human Development and Well-Being: <https://www.frontiersin.org/research-topics/7467>

# References

- Hallam, S. (2015). *The power of music: A research synthesis of the impact of actively making music on the intellectual, social and personal development of children and young people*. International Music Education Research Centre (iMerc) Press.
- Hallam, S. and Himonides, E. (2022). *The power of music: an exploration of the evidence*. In Press.
- Himonides, E., Ockelford, A., & Vogiajolu, A. (2017). Technology, SEN and EY. In A. King, E. Himonides, & A. Ruthmann (Eds.), *The Routledge companion to music, technology, and education*. Routledge, Taylor & Francis Group.
- Himonides, E. (2019). The Misunderstanding of Music-Technology-Education: A Meta Perspective. In G. E. McPherson & G. F. Welch (Eds.), *The Oxford Handbook of Music Education*, Volume 2 (pp. 432–456). Oxford University Press.  
[https://doi.org/10.1093/oxfordhb/9780199928019.013.0029\\_update\\_001](https://doi.org/10.1093/oxfordhb/9780199928019.013.0029_update_001)
- Mithen, S. (2007). *The singing Neanderthals: The origins of music, language, mind and body*. Harvard Univ. Press.
- Moors, T., Silva, S., Maraschin, D., Young, D., Quinn, J. M., de Carpentier, J., Allouche, J., & Himonides, E. (2020). Using Beatboxing for Creative Rehabilitation After Laryngectomy: Experiences From a Public Engagement Project. *Frontiers in Psychology*, 10, 2854. <https://doi.org/10.3389/fpsyg.2019.02854>
- Perkins, S., & Service, T. (2013, February 18). The Story of Music Question Time. In *Music and the Brain*. BBC Radio 3. <https://www.bbc.co.uk/programmes/b01qqfm8>