Healthy ageing through music and the arts: a conceptual framework

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Paper summary

This paper provides a critical outline of recent literature in the field of healthy ageing in music and the arts, focusing in particular on learning music in older adulthood. The concepts of ‘learning’, ‘cognitive scope’ and ‘wellbeing’ are presented and discussed, and a conceptual framework to underpin practice is proposed. The paper should be read alongside Boog (in preparation) ‘Creative ageing by learning a musical instrument or singing: towards musical geragogy’.

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1. Introduction

The topic of healthy ageing has become something of a ‘buzz subject’ in recent years, with an explosion of press coverage, research and practice. Set within the context of an ageing population, and at a time when lifelong learning is broadly accepted as beneficial to quality of life, it is timely to reconsider the ways in which music and the arts can contribute to healthy ageing. There are many stories detailing the ways that music brings people together, rediscovers old memories, forges friendships, and fosters wellbeing. Yet, there are relatively few studies that systematically research the effects of learning – or relearning – a musical instrument on cognitive scope and/or wellbeing. In reviewing the literature, we do find evidence to suggest that both of these factors are enhanced by instrumental music learning, although there remain significant gaps in understanding. This paper works towards a conceptual framework designed to guide the implementation of new practice that integrates the training of musicians with increased music provision for older adults. In order to focus the literature, and in response to the rapidly growing field, we place emphasis on studies published since the turn of the century.

Prior to commencing with the review, we pause to deal with the central concept of ‘older adulthood’, and, directly connected to that, ‘old age’. We define older adults as any person who has started their old age. This life phase is characterized by rounding up of the occupational phase, starting a new last life phase where people set new targets and draw up the balance of their life. According to the European Society for Research on the Education of Adults (ESREA) (2009), older adults include those in the second phase of their working life, who are typically older than 45 years and up to 80 years plus. Others, such as Gembris (2008) begin this phase at 65 years, at the moment of formal retirement from occupations, labeling the period from 65-75 years the ‘third’ age, and the period from 75-85 and older the ‘fourth’ age. Here, though, we accept that the start of old age is dependent on occupational life, educational level, social class and so forth; for the purposes of this paper we take older adulthood to begin at 50 years.

What follows is a synthesis of relevant literature, brought together in order to frame a conceptual framework for practice. In particular, the concepts of ‘learning’, ‘cognitive scope’ and ‘wellbeing’ are explored in the context of healthy ageing. The paper is not designed to provide a comprehensive overview of these three topics, but rather to use the literature to define our usage of the terms and to expound the basis on which we will build practice.
2. Learning music in older adulthood

2.1 Learning in older adulthood

Gembris and other authors of the book ‘Musik im Alter’ (Music in Old Age) (2008) work towards ‘music geragogy’ (older adult music education). Music geragogy is different from music agogy (agology) (adult music education) which is in turn different from the music education of children and youngsters. Indeed, any educational program for older adults must be tailored to their learning dispositions, abilities, interests, and values (Jorgensen, 2008). The European Society for Research on the Education of Adults (ESREA) (2009) states that ‘the central didactical demand on educational programs for older adults is, besides connecting to the learner’s previous knowledge, the imbedding of learning processes within a social group. Joint learning and social contact with other learners is very important, especially for older learners’ (www.esrea.org).

Dabback (2005), Myers (2008), and Cercone (2008) take andragogy (learning strategies focused on adults) as starting points for a learning approach that fits in with old age, and Van Gerven (2002), Lehmann (2002), Schwanse (2002) and Wytoszynski (2002) describe music teaching practices with older adults in a similar vein. Central to this approach, which is aligned with notions from self-directed and experiential learning, is the focus on the learner. People in older adulthood have accumulated a growing reservoir of experience, which is a rich resource for learning. They are most often motivated intrinsically, as there is no future workplace that requires particular learned skills or knowledge. Older adults need to know why they should learn something and how it will benefit them; it is important that research in this domain takes practice as its starting point.

Following Köster (2008) the notion of ‘Expansives Lernen’ (expansive learning) coined by the (late) critical psychologist Holzkamp, is a useful concept for thinking about learning in old age. This notion has much in common with the approach of Smilde (2008, 2009), based on her biographical study into the lifelong learning of musicians. Expansives Lernen is learning connected to ‘enlarging’ the (social) action repertoire and thus empowering. Holzkamp (1995, Beckers, 2005) took himself as an example, illustrating the notion of Expansives Lernen through explaining how he ‘enlarged’ his piano playing capacities through first listening to and understanding the music of Schönberg and later through playing this music himself; he explored new artistic possibilities and in so doing achieved a greater quality of life. Central to this concept is that older adults have motivation for learning when they expect it to have a positive effect on their quality of life. It is learning as motivated action, based on ‘new’ challenges. For Köster (2008) learning and/or development is ‘life–integrated’, it occurs in all stages including the ‘third’ (and ‘fourth’) age. Van der Laan (2007) has the same notion of ‘learning’, arguing that it is action which starts out of an action problem in the form of a challenge (an expectation of enlarging the quality of life), and which generates motivation and expands the social action repertoire. Figure 1, taken from Köster (2008) illustrates the essential relationships between learners’ worldviews, learners’ actions, quality of life, and cooperative learning processes.

Figure 1 also brings Kegan’s (2000) notion of ‘transformative’ learning into play, in particular through the issue of ‘worldview’ or, in other words, one’s ‘frame of reference’ (ibid.). Older adults engaging in expansive learning – that is, learning connected to ‘enlarging’ the (social) action repertoire – will not necessarily have a transformative learning experience; their ‘frame of reference’ may not be transformed. When we use the word ‘empowerment’, then, we refer to the ‘everyday’ action repertoire; repertoires that may increase wellbeing and quality of life, but that are not necessarily transformative. This is not to say, however, that learning music will not be transformative. Fuller and Unwin (2003), in their definition of expansive learning, make reference to “opportunities to extend identity through boundary crossing” (Fuller & Unwin, 2003, p.411), a form of learning that has been shown to prepare music students well for diverse, portfolio careers (Burt-Perkins, 2008). For conservatoire students, the opportunity to work with those of a different generation, with specialised musical and social needs, may well be a truly ‘transformative’ experience that brings with it a shift in identity (or frame of reference) as well as enhancement of a
skill set (see also Leão & Flusser, 2008; Boog, in preparation). Similarly, the experience of learning music – as an entirely new or different way of knowing – may prove to be transformative (and thus also expansive) for older adults. It is these concepts of learning – as based in action, empowerment and (potentially) transformation – that we build on in this paper. We focus predominantly on the learning of older people; for further discussion of the role of teaching older adults in music students’ learning see Boog (in preparation).

In adopting such a stance, it is imperative that the learners’ existing knowledge and motivation is taken as a central concept. Indeed, while research and thinking into learning in older adulthood has developed over the past decades, older adults themselves have often been isolated from the decision-making, or knowledge-generating, processes. In a project designed to address this need\(^1\), Withnall (2008) provides insight into the motivations behind deciding to engage in learning as an older adult: (1) to gain new knowledge and skills, (2) to broaden horizons and be receptive to new ideas [or to engage in ‘expansive’ learning], (3) to maintain an interest in life and a positive outlook, (4) to understand the modern world, and (5) to gain a sense of enjoyment and self-satisfaction. The older adults that she worked with highlighted the difference between what they termed ‘indulgent learning’ and ‘compulsory learning’, where ‘indulgent learning’ is that undertaken voluntarily, often in old age (Withall, 2008). However, the likelihood of adults choosing to engage in ‘indulgent learning’ is determined by issues of gender, race, and class (ibid.), as well as prior learning, employment and place (Biesta, 2008). Figure 2 (Withnall, 2006) illustrates the importance of situational and temporal influences on older adults’ decisions to embark on learning.

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\(^1\) ‘Older people and lifelong learning: choices and experiences’, a project funded by the Economic and Social Research Council’s Teaching and Learning Research Programme (UK).
The ‘meaning of learning’ in Figure 2 comes into clear focus when we conceptualise learning as ‘expansive’ and ‘transformative’. Indeed, although ‘outcomes’ are included in the figure, Biesta et al. (2008) caution that learning is not always valued in terms of outcomes; rather, the process of engaging in learning is valued in its own right. We need to remember that learning may not always have a positive outcome (ibid.). In this paper, though, we position ‘wellbeing’ as a potential outcome (as outlined in section 3), linked closely with the process of learning, the meaning of learning, and the empowerment that it can offer. In so doing, we place emphasis on formal, non-formal and informal learning (see Mak et al., 2007; Smilde 2009 for further information); (re)learning an instrument may or may not involve formal ‘lessons’, may occur individually or in small groups, or may be as part of creative community workshops. While learning in older adulthood may have different forms – as well as different ‘outcomes’ – in each of these contexts, this paper deals with ‘learning music in older adulthood’ as an overarching concept in order to build a starting base for practice (see section 4). In developing this, we move in the following section to consider how learning music relates to cognitive ability.

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2 The role of different learning contexts, including formal, non-formal and informal learning will be explored through practice (see Figure 3).
2.2 Learning a musical instrument in older adulthood

In comparison with the large body of literature on learning in older adulthood, there is relatively little that addresses the specific topic of learning a musical instrument. While musical development has long been a topic for music education and psychology research, it is only recently that this has been extended to include learning in the ‘third’ or ‘fourth’ age. This is despite a growing consensus that there is interest amongst older adults to engage in music making (Bruhn, 2002), and plentiful examples of community programs offering musical experiences from singing in choirs to music therapy workshops in residential settings. The concept of ‘lifelong learning’ now has a firm hold in educational, psychological, and music educational literature (see for example Morgan-Klein & Osborne, 2007; Smilde, 2008), yet the notion of (re)learning an instrument in older adulthood has received significantly less attention.

In recent years, however, there has been a small burgeoning of projects and research addressing this area. While some of these have explored the effects of instrumental learning on aspects of health and wellbeing (see section 3), others have addressed the cognitive, motivational and practical issues involved in learning music in older adulthood. Taylor & Hallam (2008), for example, in their small scale study with adult keyboard learners in the UK, mirror figure 1 in suggesting that motivation for learning a musical instrument is influenced by lifelong musical experiences and understanding. However, as Iritani (2002) points out, adults accrue a large knowledge of music and musical form regardless of whether or not they have received formal music education. Indeed, we know that music typically plays a large part in people’s lives (DeNora, 2000), although many people may not have had the opportunity to make music themselves. Those who do make music in older adulthood, then, are not necessarily ‘different’ from others in society in any marked way, although they will need to be open to ‘taking a chance’ (Coffman, 2007). In line with our conceptualization of ‘learning’, we can expect older adults to come to instrumental lessons with a host of (musical) skills, knowledge and expectations regardless of their previous (musical) experiences.

There will, though, inevitably be differences to take into account between older adult and child learners; we cannot ‘transpose’ what we know about musical learning in childhood onto musical learning in older adulthood. Studies in musical development have only relatively recently begun to consider older adults, with (false) assumptions that ‘music can only be learnt when you are young’ dominating colloquial knowledge. As Wiedemann (2005) points out, while adults may have particular needs in terms of sustaining and developing their motor skills, aspects of ‘crystalline’ intelligence (general knowledge, vocabulary) rise during adulthood, so that working with older adults is most certainly not the ‘deficit’ model that it was once considered (see also p.7).

Wiedemann proposes, though, that older adults require teachers who understand and incorporate ‘manual and mental’ capability, and who offer constructive criticism that reflects often high-expectations and fear of failure (ibid.). Given that many older adults will not have engaged in a formalised learning experience for many years (Bruhn, 2002), it is also important that the learning situation provides space for the learners’ individualised aims and objectives (their motivation for ‘action’). As Dabback (2005) argues, programs must be tailored to participants’ needs and wants, dispelling myths that older adults have no desire to make music, prefer passive musical experiences, are satisfied with mediocre performances, or lack capacity for music making (Dabback, 2005). While our conceptualization of learning supports our agreement with the falsity of the first three myths in this list, it is necessary to consider further the cognitive scope of older adults, how this relates to music, and the role that music can play in enhancing this area of health. What follows is not intended as a comprehensive review of the copious literature on music and...
neuroscience; rather, it is a brief synopsis of how this literature might inform this emerging conceptualization.

2.2.1 Cognitive scope and music

We know from studies on wellbeing that physical health and cognitive ability directly influence wellness. Often, though, older adults are confronted with physical and cognitive deficits such as impaired visual perception, dental problems, decreased accuracy of movements and impaired hearing (Boyer, 2007; Cohen, 2006, 2009; Dabback, 2005; Gembris, 2008; Hartogh, 2008; Hartogh & Wickel; Heseker, 2008; Richter, 2008; 2008; Schmidt-Ott, 2008; Spahn, 2008; Wickel, 2008). When older adults (re)start learning a musical instrument they may be limited by physical and cognitive restrictions, but the two do not necessarily go hand in hand. ESREA (2009), in a review of longitudinal studies in cognitive psychology, could not provide evidence of a general age-related decrease in cognitive ability. Research on cognitive resources is focussed on three central areas: intelligence, memory and action control. Kliegel & Jäger (2008) conclude from their review paper that while the capacity to build new links between arbitrary information units seems to be particularly impaired in older adulthood, some aspects of intelligence may increase during the ageing process. Drawing on research in developmental psychology, they introduce the concept of plasticity (Plastizität), differentiating between ‘fluid and crystallized intelligence’. While many people claim that their intelligence seems to decline as they age, research suggests that while fluid intelligence begins to decrease after adolescence, crystallized intelligence continues to increase throughout adulthood.

What are fluid and crystallized intelligence? Kliegel & Jäger (2008, p.73) refer to the life span theory of Baltes et al. (p.73). According to About.com, psychologist Raymond Cattell first proposed these concepts and further developed the theory with John Horn. The Cattell-Horn (Horn & Cattell, 1967) theory of fluid and crystallized intelligence suggests that intelligence is composed of a number of different abilities that interact and work together to produce overall individual intelligence. Cattell defines fluid intelligence as "...the ability to perceive relationships independent of previous specific practice or instruction concerning those relationships" (see also Kliegel & Jäger, 2008). Fluid intelligence is the ability to think and reason abstractly and solve problems. This ability is considered independent of learning, experience, and education. Examples of the use of fluid intelligence include solving puzzles and coming up with problem solving strategies. Crystallized intelligence, on the other hand, relies on past experiences and learning. Situations that require crystallized intelligence include reading comprehension and vocabulary exams. This type of intelligence is based upon facts and rooted in experiences, and becomes stronger as we age and accumulate new knowledge and understanding. According to Knox (1977), "fluid and crystallized intelligence are complementary in that some learning tasks can be mastered mainly by exercising either fluid or crystallized intelligence" (p. 420). Although fluid intelligence peaks in adolescence and begins to decline progressively, crystallized intelligence continues to develop. One conclusion of Kliegel & Jäger’s chapter is that older adults who start learning to play a new musical instrument – and who have no or only little former experience with such a learning situation or with music – may find it more of a challenge than those with previous experience of, or exposure to, music. But such a conclusion is generalized, and not yet rooted in empirical data. A highly motivated older adult might encounter more difficulties than a youngster – ranging from the

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3 Intelligence is the general capacity to solve problems and to handle situations by knowledge. Memory is encoding, stacking and retrieving from information and experiences, and is prospective as well as retrospective. Action control is about resources that concern planning, coordination and controlling goal-oriented action and cognition.
deterioration of short-term memories to difficulty with musical concepts (Dabback, 2005) – but he/she might well have a completely different set of objectives, working on creative aging, wellbeing, or quality of life. Certainly, a programme for teaching music to older adults should take crystallized intelligence into account, allowing older adults to assert and build their accumulated knowledge.

In its reliance on past experiences, crystallized intelligence also provides a link with the role that memory plays in music making experiences for older adults. Indeed, Sacks (2007) argues that much musical memory is situated ‘deep’ in our memory; in many music activities with older adults the music and songs are from childhood or formed as part of remembrance of, for example, special life events (Cohen, 2006, 2006, 2008; Koga & Timms, 2001, Perlstein, 2002, 2006; Smilde, 2008, 2009; Söthe, 2008). Edmonds (2009), in her online overview of neurological studies that investigate the relation between active and passive music experiences, summarizes new insights into the question of where our brain processes ‘music’, as well as the relationship between music and emotions:

“Hearing a piece of music is strongly tied to memories. If this is the song that was playing during a first kiss, then the medial prefrontal cortex, where memory is stored, is activated. Since this is one of the last brain areas to fall prey to the ravages of Alzheimer’s disease, researchers have found that people with the condition can remember songs from long ago, even when they can not remember what they did yesterday Similarly, in a study of a woman who had damage to her temporal lobe, researchers found that while the woman was unable to distinguish between melodies, she still had the emotional reaction that you might expect from hearing happy or sad melodies. As knowledge in this area has grown, programs for brain exercises, often including memory training and the training of calculation and language capacities, have flourished.” (Edmonds, 2009 online)

So can learning to play a musical instrument at an elderly age have a positive effect on cognitive ability? While there is much written about this, there remain few empirical studies. Bugos et al. (2007), however, conducted an experimental study in which they tested “Individualized Piano Instruction” (IPI). They hypothesized IPI as a possible cognitive intervention with a variety of skills and tasks, which may have the capacity to integrate multiple neural networks and thus mitigate or prevent age-related cognitive decline. Participants (all of whom had a certain aptitude in piano playing) in the experimental group were subject to a rigid IPI regimen, with three hours of piano practice required per week. The authors found strong indications that their hypothesis was confirmed, and that its effects were transferred beyond musical cognitive domains.

With the exception of the work of Bugos et al. (2007), however, and the more general recently obtained knowledge as summarized by Edmonds (2009), there is little knowledge about the cognitive aspects of music activities (active music making or passive listening to music) of older adults aged 55+; even less is known about older adults whose (re)start playing an instrument or singing. There is very little research that focuses on the aging processes and its consequences for professional musicians/singers (Bruhn, 2002), although more and more research focuses on the therapeutic effects of music for older people with dementia (see Sherratt et al., 2004 for a review). Positive benefits of music as a therapeutic tool for dementia patients have been reported on language (Brotons & Koger, 2000), agitation levels (Clarkson, Cassidy & Eskes 2007) and autobiographical recall (Foster & Valentine 1998), although there is evidence to suggest that benefits may be subject to temporal limits (Bruer, Spitznagel & Cloninger, 2007). There is far less research with ‘healthy’ older adults, perhaps because ‘music’ is different from language, or experiencing pictures, when it comes to the working of (parts of) the brain. As Sacks (2007) argues,
we do not yet know where or how the brain-work for music is situated.

However, knowledge about music and the brain grows fast, and research continues to deliver evidence pointing to positive effects of music on aspects of cognition in the elderly. Johansson (2006), for example, concludes (in line with Kliegel & Jäger, 2008), that the adult brain has “considerable plasticity”, with listening to music for three hours, for example, temporarily altering the auditory cortex. Furthermore, Thompson et al. (2005) conclude that listening to music enhances attentional processes in both healthy older adults and dementia patients. Johansson (2006) cautions, though, that “complex and widespread activation in many brain areas is seen while performing, listening or mentally imaging music, activity that varies with training, previous exposure, personal preference, emotional involvement and many other factors” (p.49). Edmonds (2009) lends weight to this, arguing that “music activates so many parts of our brain that it's impossible to say that we have a center for music the way we do for other tasks and subjects, such as language….Regardless of where the brain activity takes place, it does seem to differ based on a whole host of factors, including how much experience with music the person has, whether he or she is hearing live or recorded music and whether or not the music has lyrics.” Certainly in accordance with Burgos et al. (2007), knowledge of a musical instrument will affect the way that the brain hears music, as will accumulated knowledge of music: “songs can trigger neurons in the motor cortex, leading the listener to tap their foot and boogie; their cerebellum gets into the act, trying to figure out where a piece of music will go next, based on all the other songs it has heard before” (Edmonds, 2009). While less is known about the effects of playing music in older adulthood, there is some evidence that this has a positive effect on brain activity, although it may be that such effects are limited as age increases (Habib & Besson, 2009). While, then, research points to a positive connection between music and brain activity, knowledge of the brain’s response to music remains linked to ‘a whole host of factors’ specific to the music itself and the individual in question (Gembris, 2008, Hartogh, 2005; Sacks, 2007).

Given our ‘holistic’ conceptualization of what learning in older adulthood is about – and the equivocal nature of much current research – to limit ‘outcomes’ to cognitive scope would appear overly reductionist. Indeed, cognitive skills are only one potential ‘health’ outcome of music making in older adulthood. We are reminded by Linda Rose, founder of Music for Life, that outcomes – in this case with dementia patients – can often be far less tangible or measurable:

“Engagement [in music] aims to encourage less isolation, a sense of being part of something, of being recognized and respected. Staff often report significant changes in behavior…changes may reveal themselves slowly, sometimes noticed after the project has left. They are small and sometimes seen only in the absence of certain patterns” (Rose 2009, cited in Renshaw 2009).

In the following section, we explore outcomes that move away from cognitively-based understandings towards issues of wellbeing, empowerment and agency, linking back with our initial conceptualization of learning.
3. What do we mean by wellbeing?

In their review article, Ryan & Deci (2001) introduce two central and frequently cited viewpoints within academic literature on wellbeing: the ‘hedonic’ approach, with its focus on happiness and positive affect, and the ‘eudaimonic’ approach, with its focus on meaning and self-realization. While the two approaches yield different methodologies and research questions, the general consensus is that studies of wellbeing should take both into account (Ryan & Deci, 2001; Stewart-Brown & Jannmohamed, 2008). Central facets of such a conceptualization, according to Ryan & Deci, include personality, emotions (or affect), physical health, social class and wealth, relationships and attachment, and goal pursuit. That is, we cannot isolate older adults’ life histories – their social class, their personality, their physical health, their previous connections with music – from our measurement of the role that music plays in their wellbeing.

In general, learning has been shown to be valuable to adults in the following ways: (1) helping with the processes of routine living, (2) adjusting to changed circumstances, (3) providing valuable knowledge or skills for particular purposes, (4) contributing to changing self-identity, and (5) achieving agency (Biesta, 2008b). In what ways, though, might learning music relate to wellbeing? Koga & Timms (2001) describe an eighty year old man who restarted playing the violin after a gap of 50 years. He reached the level of a good amateur, and presented his first concert – a performance of his beloved music – on his eighty-eighth birthday. As part of the Music Making and Wellness Project, this is just one such example: “stories such as this are told in private studios, community music schools, music therapy clinics and senior centers throughout the world” (ibid., p. 19). Anecdotally – and increasingly scientifically – there is plenty of evidence that music plays an important role in psychological and physiological health amongst healthy older adults. We have already seen above (see section 2.2.1) that music is linked with cognitive ability, and Koga & Timms (2001) reported decreased anxiety, depression and loneliness in those that participated in their music lessons. Hays (2005a; 2005b) also highlights the importance of music – both recorded and practical – to the lives of older adults living in the community. Taking a qualitative approach based on life history interviews, he conceptualizes wellbeing through participants’ subjective experiences of music in their lives. Specifically, he links music to wellbeing through the following concepts:

- Identity and understanding of self. In particular, music is used as a means of expressing inner self, regardless of whether or not participants have had previous musical training;
- Connecting to self and to others. Musical networks make people feel accepted, valued, needed, and belonging;
- Subjective experience of good health. Participants report that they use music to distract them from medical conditions, to uplift and energize them, and to keep the mind active;
- Aligning patterns of emotion and changing mental states;
- Maintenance of physical and cognitive activities, leading to interest and motivation in life;
- Connection with spirituality (Hays, 2005a).

In this context, wellbeing is treated as a subjective concept, one which is based on perceived health and lived experience of life. Hays’ work demonstrates that, when conceptualized in this way, music can be said to play a central role in the regulation of wellbeing amongst older adults. This theme is continued in the work of Laukka (2007). Although his questionnaire-based study in Sweden showed ‘health status’ and ‘personality’ to be the most important predictors of wellbeing amongst older adults, listening to music also emerged as a factor. In particular, when music was listened to for ‘mood regulation’ or in order to enhance ‘agency and identity’, it was most strongly linked to positive affect, suggesting that positive subjective wellbeing includes the ability to make
choices, and to self-regulate emotions and moods. Indeed, Taylor & Hallam (2008) demonstrate the importance of choice for older adults learning the piano, arguing that adults use their musical learning to construct a meaningful identity. Furthermore, Cohen et al. (2006) conclude that sense of control, as well as social engagement, is enhanced through participation in arts programs.

There is much in the music psychology literature regarding the inextricable links between music and emotion (Juslin & Sloboda, 2001). While it is beyond the scope of this paper to unpack the complexity of this topic, Edmonds (2009) provides a useful summary of the links between music, emotion, and wellbeing:

“The neurological studies of music on the brain seem to indicate that we are hardwired to interpret and react emotionally to a piece of music. Indeed, this process starts very early on. One study found that babies as young as five months old reacted to happy songs, while by nine months they recognized and were affected by sad songs. Physiological states brought on by music only intensify as we grow. Happy music, often featuring a fast tempo and written in a major key, can cause a person to breathe faster, a physical sign of happiness. Similarly, sad music, which tends to be in the minor keys and very slow, causes a slowing of the pulse and a rise in blood pressure. This may indicate that only happy music is beneficial to wellbeing, but those that know the value of a good cry or a cathartic release may find that sad or angry music can bring about happiness indirectly. Knowing that music has this impact on the body may eventually influence treatment and care for a wealth of patients. For example, music has been found to boost the immune systems of patients after surgeries, lower stress in pregnant women and decrease the blood pressure and heart rate in cardiac patients, thus reducing complications from cardiac surgery. Researchers at Cal State University found that hospitalized children were happier during music therapy, in which they could experiment with maracas and bells while a leader played the guitar, than during play therapy, when their options were toys and puzzles. Music therapy has also proven to be more effective than other types of therapies in patients suffering from depression, and has been shown to lower levels of anxiety and loneliness in the elderly. You do not have to be sick, though, to benefit from the reduced stress and increased happiness that music can bring. Live music may be the most potent happiness trigger because it provides a way to forge social bonds. When you get in a room with people who like the same thing you do, you might create more friendships, a proven factor in the search for happiness” (Edmonds, 2009 online).

People who start playing the piano in older adulthood might be poor, have a chronic illness, hate the nursery home they live in, have low self-esteem, feel left alone by their family and friends and so forth, but experience the happiest moments in life when they are able to play their first song. Sense of control and sense of meaning are important. Evidence for this was also found in the Music Making and Wellness Project (Koga & Tims, 2001) and the studies of Cohen (2006, 2006, 2009).

There are indications that the brain learns, with existing parts taking over the functions of destroyed or damaged parts, and the brain starting to process positive experiences (Sacks, 2007). In older adults the phenomenon of ‘selective optimization with compensation’ (SOC) sustains high levels of subjective wellbeing (SWB). George (2006) writes:

“Based on extensive longitudinal observations in the Berlin Ageing Study, Paul and Margaret Baltes (see also Baltes and Carstensen, 2003, Gembris, 2008) observed that the process of selective optimization with compensation was used by older adults who were able to sustain high levels of SWB despite the onset of frailty, chronic disease, and social losses (e.g. widowhood). As losses were experienced, these older adults’ mental inventory of their investments prioritised them, discarded low priority investments, and chose to
optimise their highest priority investments. When components of a high priority investment were no longer available, they created ways of compensating for the loss. Strong evidence suggests that the sequential strategy preserves SWB with a variety of other known predictors statistically controlled” (p.329).

SWB, then, is a container concept. It is a synonym to quality of life (and happiness). And it has a combined ‘collective’ and ‘individual’ connotation. In her review chapter, George (2006) reviews the broad landscape of research of quality of life among older adults. On the subjective level, life satisfaction, SWB and morale are interchangeable. Living alone is negative to SWB, though more and more people chose this. In the latter case it might be a part of ‘meaning of life’ which is positive for SWB, especially when meaning of life is based on ideas about the authentic or ‘real’ self as Schiegel et al. (2009) affirmed in different experiments. Older women typically have less SWB compared to older males and Social Economic Status (SES) correlates with SBW (George, 2006). Rich northern countries know more SWB than poorer countries, though those rich countries have large differences depending on the social services of the state (i.e. the social services in the USA are poor compared to the social services in the UK, which in turn are poor compared to those in the Netherlands). So SES (which also has other components such as education, profession etc) as an important indicator of wellbeing differs basically for inhabitants of those ‘rich’ developed countries. However, religion (connected to meaning of life and identity), social relations, social support, meaning of life, self-identity, self-concept, agency, culture and (mental) health also have a positive effect on SWB (ibid.). Volunteering, and in general all types of activities – social, physical and solitary – predict higher levels of SWB in later life, as do social relationships and social support provided by family and friends. Older adults who enjoy higher levels of socioeconomic resources and better health sustain higher quality social relationships, which, in turn, foster high levels of SWB (ibid.). Wilhelmson et al. (2005) investigated what older people consider to be important for their quality of life, exploring the influence of gender, education and health status on individual perceptions. They concluded that social relations, functional ability (including cognitive skills), and activities influence the quality of life of elderly people as much as health status. It is all of the above that need to be included in a complex reading of ‘wellbeing’.

In addition to the action research proposal (see Boog, in preparation) being developed alongside this review, it is desirable to have the use of a shorter, easily applicable, measure of wellbeing. In the UK, some of the most recent developments in measuring wellbeing have taken place by researchers at the University of Warwick, in collaboration with NHS Scotland. The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) is a 14 item scale of mental wellbeing covering subjective wellbeing and psychological functioning (Stewart-Brown & Janmohamed, 2008). The scale is based on an understanding of wellbeing as comprised of both hedonic and eudaimonic perspectives, and has been shown to have good content validity and face validity within samples of UK adults (Tennant et al., 2007). Importantly, although the measure has yet to be tested for sensitivity to change, no ceiling effects are shown. A shorter, 7 item, version of the scale is currently in use in a Royal College of Music London (RCM)-led intervention study with 450 children in the UK, and has been used successfully in other RCM research exploring the health of conservatoire students. The scale (see appendix) may prove to be a useful (and efficient) tool in capturing summary data ‘pre’ and ‘post’ instrumental lessons for older adults, to complement qualitative methods running alongside. Indeed, though, Ryan & Deci (2001) remind us that predetermined scales such as the WEMWBS betray assumptions as to the meaning of wellbeing which other tools may avoid; a mixed-methods approach may well be preferable, also incorporating a simple measure of crystallized intelligence.
4. Towards a conceptual framework for healthy ageing through music and the arts

In this section we propose a conceptual scheme for our inquiry into the relationship between engaging in music learning in older adulthood and (1) cognitive scope and (2) wellbeing. Thus far, we have summarized literature considering the characteristics of learning in older age, knowledge derived from neuroscience and music, and thinking on (subjective) wellbeing and music. All of this knowledge is related to the focus of our research on older adults who (re)start playing a musical instrument; we dealt also with the scarce resources that explicitly deal with this focus.

Listening to or making music is not something that happens to human beings, or something that is just generated by their brain processes; such an epistemological stance is called the naturalistic fallacy (Hartogh, 2005; Habermas, 2008). Our brain learns all the time, we cannot NOT learn. However, neither the necessity nor the content of musical learning can be deduced from brain activities, says Hartogh (2005). As we wrote earlier, there is more and more evidence of the positive effects of musical activities on the cognitive capacities of older adults, with or without any form of dementia. Music activities, though, are meaningful social actions of human beings, and – like language or pictorial arts - are transactions and expressions in human societies and expressions of (the structures of human life) in these societies. Every social action (transaction) exists in a host of cooperating senses, feelings, emotions, moves, and gestures of an individual, and is as a whole processed by the brain of that person, while the brain ‘learns’ of it at the same time; for the brain, learning is also lifelong learning. Here, we summarise the interconnectivity of our main concepts.

**Expansive learning** (Köster, 2008) is learning connected to ‘enlarging’ the (everyday) action repertoire and thus empowering, and includes formal, non-formal and informal learning. Central to this concept is that older adults have motivation for learning when they expect it to have a positive effect. Expansive learning is based on a view on human beings as authentic agents. Creative ageing is especially ‘self-determined’ ageing.

The concept of **transformative learning** (Kegan, 2000) may be useful in the case of both music students who develop their practice by teaching older adults, and the older adults themselves. Transformative learning is delimited from expansive learning through its focus on ‘worldview’ as opposed to ‘everyday’ action repertoire.

**Subjective wellbeing** of older adults – and of all human beings – is a human state of being in the world in the Aristotelian sense of ‘a good life’. It is interchangeable with ‘quality of life’ and ‘happiness’. The literature suggests that musical activities, active or passive, have positive effects on wellbeing.

**Cognitive scope/skills** in older adults is directly connected to (expansive) learning and through learning positively connected to (subjective) well-being and healthy aging. Musical activities in older adulthood appear to enhance cognitive skills, or – at least – prevent their decrease. Both (subjective) well-being and cognition grow by learning, by expanding the action repertoire.
When we take all threads together, listening and practising music and singing contributes to healthy ageing as ‘creative’ ageing. However, there is little scientific knowledge about the instrumental learning of older adults. As indicated by the literature⁴, the cited positive effects on cognition and wellbeing depend on the quality (i.e. success) of the music activity, most notably through the pleasure that older adults find in it. This success depends on the learning situation, the didactics, and the communication of teacher and learner. This is coined musical geragogy by Hartogh (2008; Hartogh & Wickel, 2008) and Gembris (2008).

Musical geragogy combines old age and older adults, (subjective) wellbeing, cognition, and expansive and transformative learning; all of the semantic ‘rich’ concepts – or themes – that we use. Music (instrument) geragogy guides older adults who learn to play a musical instrument, such that they enlarge their cognitive skills, or, at least are prevented a decrease in cognitive ability, and such that their (subjective)wellbeing increases, or at least does not decrease.

Hartog and Wickel (2008) developed a music geragogical approach, which is a fully fledged didactics for music education of older adults. This approach is based on eight ‘principles and attitudes’, which together cover all the concepts, ideas and notions in the literature that we have dealt with: that ‘tie them together’.

These principles are:

1. A holistic view of human beings. Older adults are recognized as whole persons, who are the only experts of their own world, and are able to learn, as they did their whole life (do not infantilize or institutionalize them or see them as people with deficits who need care);

2. Tailor made demands concerning the level of playing and singing. Especially the physical possibilities of older adults need attention;

3. A biographical orientation. Knowledge of the older adult learners’ social and personal biography is required;

4. Competencies- based. Take the competencies of older adults, given the deficits of old age, into account;

5. A dialogical orientation. The person who practices music is partner in dialogue. This is more important than the musical assignments;

6. A validating orientation; communication with older adult learners must depart from the own world (their reality) and the possibilities and characteristics in it;

7. An intergenerational orientation. Older adults love to practice music together with other generations, younger adults, youngsters, children;

8. A culture sensitive orientation. In our society live people from different cultures. The group older adults in our societies is becoming more and more multicultural.

We add a ninth point:

9. An orientation on the social relations–side of practicing music. Older adults often also (re)start practicing music to build up social relationships.

To tie this with our thinking, we present a summarizing conceptual framework based on the literature introduced and discussed in this review (see Figure 3). The framework is designed to guide practice, as we move to expand the knowledge base on instrumental learning in older adulthood through practical and empirical study. The concepts expressed above are central to this conceptualization, which is brought together by the action of both music students and older adults; it is through the practice that this model will yield that we hope to make a unique contribution to the field.

Figure 3: Conceptualizing music instrumental geragogy
5. References


Boog, B. (in preparation). ‘Creative aging by learning a musical instrument or singing: towards musical geragogy’.


## 6. Appendix: Measuring wellbeing

### Warwick Edinburgh Mental Well-Being Scale (WEMWBS)

Below are some statements about feelings and thoughts. Please tick the box that best describes your experience of each over the last 2 weeks.

<table>
<thead>
<tr>
<th>Statement</th>
<th>None of the time</th>
<th>Rarely of the time</th>
<th>Some of the time</th>
<th>Often</th>
<th>All of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>I’ve been feeling optimistic about the future*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling useful*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling relaxed*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling interested in other people</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve had energy to spare</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been dealing with problems well*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been thinking clearly*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling good about myself</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling close to other people*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling confident</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been able to make up my own mind about things*</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling loved</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been interested in new things</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>I’ve been feeling cheerful</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

*Items included in the Short Warwick-Edinburgh Mental Well-being Scale

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*Warwick Edinburgh Mental Well-Being Scale (WEMWBS)© NHS Health Scotland, University of Warwick and University of Edinburgh, 2006, all rights reserved*