



The Piano Wizard™ Project: Developing a Music-Based Lifelong Learning Programme for Older Adults

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Abstract

As the ageing population continues to grow there is an increase in the need for wellness-based music therapy programmes and interventions. Programmatic outcomes such as fostering opportunities for older adults to: 1) learn a new skill, 2) make decisions, 3) structure time through development of musical skills, and 4) socially interact with others should be addressed when developing wellness-based music therapy programmes. This paper shares a music therapist's development of a wellness-based programme that addresses the above programmatic outcomes while enhancing older adults' cognitive, psychosocial, and physical functioning.

Keywords: ageing; wellness programmes; music therapy

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This paper begins with a literature review related to goals and outcomes of music programmes for older adults. The remainder of the paper shares how the Piano Wizard™ Project (a wellness-music therapy programme developed by the author) meets programmatic outcomes for wellness-based music therapy programme while addressing older adults' cognitive, psychosocial, and physical functioning.

Across the world the ageing population is rapidly growing. Many countries have over five million older adults that comprise their population. The growth rate for this population worldwide is expected to continue to grow rapidly through to 2045 (World Health Organization 2012). Some of the contributing factors to the rapid growth are increased life expectancy and an increase in the number of people turning 60 years old each day. As this number increases it is important to provide a variety of services to engage older adults within their community.

Music-based lifelong learning programmes have been a successful way to engage seniors in their community (Alfano 2008; Bugos & High 2009; Coffman & Adamek 1999; Conway & Hodgman 2008; Taylor 2011). Programmes often exist as part of the community through universities, music centres, and senior centres. Active music making experiences occur in small or large group settings such as band, choral, or orchestra ensembles or individually such as private piano lessons. The complexity of music fosters engagements of multiple skills such as attention, memory, and fine and gross motor movement during active music making experiences. Additionally, participation in music lifelong learning programmes fosters positive non-familial peer interactions (Administration on Aging 2010; Bittman et al. 2001; Coffman 2002; Coffman & Adamak 1999; Frego 1995).

Cohen et al. (2006) conducted a multi-site research study that examined older adults' general

health, mental health, and well-being after active participation in a variety of arts-based (music, visual, and literary arts) community programmes. Results revealed improvements in older adults' general health, mental health and well-being after active participation in the arts-based programmes for two years. Similarly Hallman et al. (2011) explored how active music making experiences contributed to older adults' quality of life. The researchers found that older adults engaged in active music making experiences had higher ratings of well-being than older adults that did not participate in active music making experiences. Older adults also reported benefits across their cognitive, psychosocial, and physical domains as a result of participation in the active music making experiences. Finally, Solé, Mercadal-Brotons, Gallego and Riera (2010) explored the effect of participation in three music programmes on older adults' quality of life. The three programmes were a choir, music appreciation course, and a series of preventive music therapy sessions. Results revealed that participation in all music experiences impacted older adults' quality of life. However, participation in the preventive music therapy sessions significantly impacted older adults' quality of life more than participation in choir and the music appreciation course.

As the population of older adults continues to grow it is important for music therapists to develop and offer wellness-based music therapy programmes and interventions to engage older adults in the community. Wellness-based music therapy programmes are successful because one programme can be designed to address many goals related to programmatic outcomes, such as fostering opportunities for older adults to: 1) learn a new skill, 2) make decisions, 3) structure time through development of musical skills, and 4) socially interact with others. A wellness-based music therapy programme can also address older adults' cognitive, psychosocial, and physical domains, as ageing is often associated with declines across these three domains (Clair & Memmott 2008; Belgrave, Darrow, Walworth & Wlodarczyk 2011).

Description of the Piano Wizard™ Project

The Piano Wizard™ Project is a ten-week programme that teaches older adults to read music and play the piano. In January 2011 the author created a research project with African American older adults at an urban senior community centre, to explore the use of music technology, Piano Wizard™ (2005, Allegro Multimedia) in a music therapy-based lifelong learning programme. The positive results of that study (see Belgrave 2012),

the request of the research participants to continue learning to read music and play the piano, and the request of other seniors at the community centre to participate in the programme caused the author to expand the project into a community-university partnership between the senior centre and the author's institution. The author has created a clinical practicum class in which student music therapists attend a weekly lecture related to theories and practices of working with older adults in a wellness-based music therapy setting. The student music therapists apply knowledge from readings and classroom lectures to the weekly sessions with the older adults at the community centre. The project has maintained consistent enrollment with 7-15 new and returning older adults every fall and spring semester.

Piano Wizard™ technology

Piano lessons are taught using the Piano Wizard™ methodology, a technology-based instructional method that utilises sensory learning. Don and Delayna Beattie, created Piano Wizard™ in conjunction with Allegro Multimedia. Piano Wizard™ instruction is provided to older adult participants through a desktop computer and midi keyboard. The Piano Wizard™ program displays a moving image of sheet music on the computer screen. Notes appear on the screen and scroll across the screen from right to left on a staff. When the music note reaches a specific point on the left side of the screen, the participant plays the corresponding note on the keyboard. A background accompaniment track that provides additional harmony and instrumentation to the song is played at all times. Piano Wizard™ contains four levels. Level I and II of Piano Wizard™ use a variety of shapes guided towards a coloured keyboard at the top of the screen instead of music notes on a staff to simulate pre-music reading; and therefore is not used in the project. Level III and IV are utilised in the project as both levels use music notes. Level III uses coloured notes on the computer screen that correspond to coloured strips that are placed on the midi keyboard (Figure 1). Level IV contains the music notes without colour (Figure 2).

The Piano Wizard™ programme is comprised of the software and five method books (Book 1 – Book 5). Each method book contains ten songs, teaching notes, and sheet music that correspond to the music displayed on the computer. The software also has five additional series of digital method books (Book 6 – Book 10). At this time print method books do not exist for Book 6 – Book 10. The program also has two display modes, 1) easy mode and 2) premier mode. Easy mode consists of the ten method books, whereas premier

mode contains the ten method books as well as other popular, classical, holiday, and folk music.

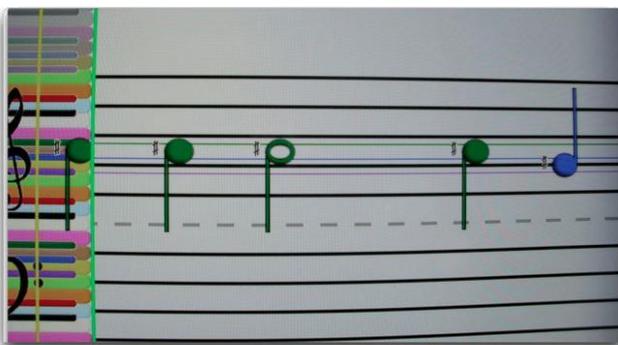


Figure 1: Level III in the Piano Wizard™ programme

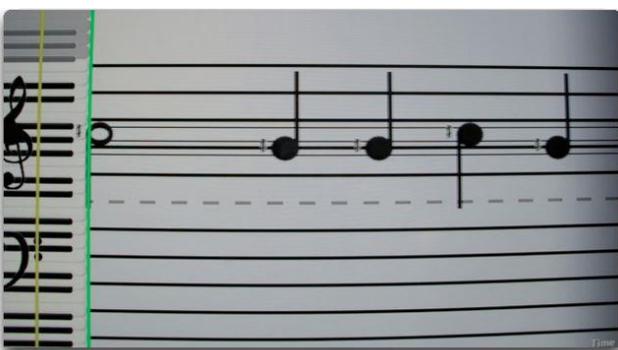


Figure 2: Level IV in the Piano Wizard™ programme

Each method book contains ten songs that utilise the right hand and left hand to play a variety of familiar and unfamiliar songs. Throughout each method book, the songs progress in difficulty with an increase in measure numbers, the number of notes, note values, and rhythms. Book 1 contains songs played with the black keys. In Book 1 the note names are not introduced, just their location on the keyboard and the corresponding note on the staff both for the sheet music and computer. Book 2 contains songs played with the white keys and focuses on learning the note names. Students are also introduced to the concept of sharps and scales with C major and G major. Book 3 contains simplified versions of hymns and classical music such as *Fur Elise* in which the melody of the song is divided over both hands (collaboration of hands for the melodies). This book also continues with scales and introduces the concept of flats with F major. The developers of the programme believed that it was important to connect the music concepts learned with familiar songs to assist the student in connecting new material with familiar material. Book 4 contains music that utilises both hands playing in contrasting motion. The left hand also begins to play chords to accompany the right hand melody. The book continues to offer new scales and key signatures such as D major and A major.

Book 5 contains advanced time signatures (7/8), minor keys (a minor and d minor), and a continuation of alternating movements between hands, chords, and various rhythms with notes and rests.

Piano Wizard™ sessions

The sessions consist of an assessment session, followed by 9 weeks of lessons. The older adult participant is assessed for their current cognitive and physical functioning, psychosocial well-being, music preference, music ability, and personal goals related to playing the piano and reading music. Goals and objectives related to cognitive, psychosocial, and physical domains are created and shared with the older adult participant. Additionally, the older adults' personal goals related to playing the piano and reading music are shaped into goals that will be met within ten weeks based on their current music ability, cognitive functioning (visual-spatial skills, encoding and retrieval of newly learned material), and physical functioning (fine motor skills and bimanual coordination). After the 10 weekly sessions are completed, the older adults and student music therapists participate in a music-sharing concert at the senior centre with friends and family. As stated earlier the Piano Wizard™ Project is structured to meet four programmatic outcomes related to music therapy wellness programmes. The project is also structured to promote maintenance of older adults' cognitive functioning, physical functioning, and psychosocial well-being.

Programmatic outcome 1: Opportunity to learn a new skill

Two types of older adults join the Piano Wizard™ Project, beginners and returners. Beginners are older adults who have never played piano before, and returners are either returning to the piano after years of not playing or continuing from a previous semester of the Piano Wizard™ Project. Regardless of beginner or returner classification there is always the opportunity to learn something new pertaining to music reading and playing the piano, since music learning is progressive and continual.

Music therapy goal: Maintain and develop cognitive skills

Cognitive skills such as divided and sustained attention, encoding and retrieval of new information, and visual-spatial skills are all involved in the task of learning to play the piano and read music. Older adult participants use sustained attention skills when they play through an

entire piece on the piano, and divided attention skills when they read both clefs on sheet music and play both hands together. The piano sessions are progressive across the ten weeks, requiring older adult learners to encode and retrieve new information related to music concepts such as note values, time signatures, key signatures, hand positions, and note names related to the treble and bass clefs. Older adults utilise their visual-spatial skills to read sheet music and play the corresponding notes on the piano.

The Piano Wizard™ technology supports cognitive skills such as attention and the memory process of encoding and retrieving new information. The continual scroll of the music notes from right to left across the computer screen and background accompaniment track assists with engagement and focus of attention for older adult participants. It is common for new participants to stop and start whenever they make a mistake or are unsure of what to do next. However, as the older adults become familiar with the Piano Wizard™ programme and continue playing without stopping for errors, they demonstrate sustained attention and continual playing for the entire song.

The premier mode of Piano Wizard™ contains a challenge setting entitled 'loop', which allows the music therapist to select a portion of the song (hands separate or together) to repeat. This assists the older adult participants with encoding of a new phrase that may provide difficulty; perhaps it is a measure with difficult rhythms or finger patterns. The loop allows for repetitive practice with the accompaniment track. There is also a challenge setting entitled 'visibility', which engages cognitive skills such as retrieval of information and memorisation. Circular shapes randomly cover the music notes that scroll across the screen from right to left (Figure 3).

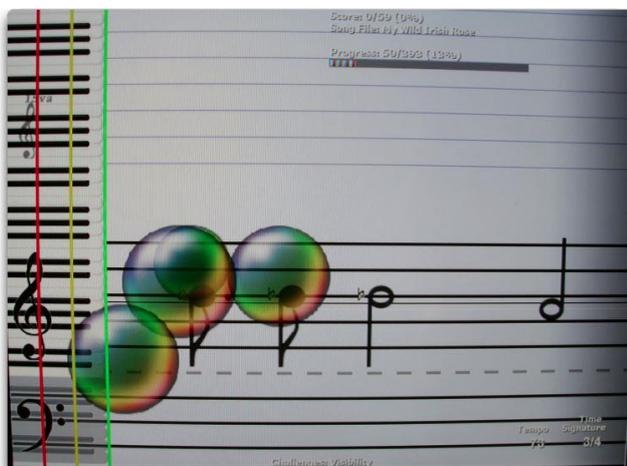


Figure 3: Challenge: Visibility in Piano Wizard™ programme

Programmatic outcome 2: Opportunity to make decisions

The Piano Wizard™ software has options for music display and tempo adjustment; these options allow the older adults to make decisions in regards to their learning. The Piano Wizard™ software has several options for displaying music notes on the screen. Participants select whether they prefer to use Level 3, which uses coloured notes that correspond to a colour sticker on the midi keyboard or Level 4, which uses black notes similar to printed sheet music. Participants also select whether they want additional display assistance with the note name or finger number associated with the notes. When either of these options is selected, the note name or finger number is displayed in the middle of the note. The sheet music for each song has a tempo marking that corresponds with the background. However, the tempo is adjustable before and during each song to match the participant's ability and comfort level.

The structure of the Piano Wizard™ Project allows the older adults to make decisions as it relates to setting their musical goals. Some older adults want to learn a specific song or genre, while other participants want to focus on learning scales, chords, music theory, or improving finger dexterity. The use of participant preferred music in music therapy settings is important when working with individuals, and is necessary in this setting. Participants' level of familiarity affects their enjoyment with each song. Older adult participants respond well to songs they knew, whereas for many participants it is harder to maintain motivation to play songs that they do not know. For example, participants that use Book 3 recognise all the songs they work on, because Book 3 is comprised completely of hymns and classical music. Therefore they are able to put new musical concepts into practice rather quickly. However, advanced players that use Book 5 do not recognise many of the songs in Book 5 and find it more difficult to put new musical concepts into practice due to unfamiliarity.

The Piano Wizard™ software allows for the addition of music since any midi file can be inserted into the programme. This allows the therapist to add music related to the older adults' musical goals and preference. As a homework assignment for the clinical class, the student music therapists are required to adapt the older adults' preferred song to their current playing level. Students utilise Sibelius or Finale music notation software to create a midi file to upload into the premier mode of Piano Wizard™ and sheet music for the older adults to rehearse with at home.

Programmatic outcome 3: Structure time through development of musical skills

Older adults have shared that participating in the Piano Wizard™ Project helps them structure their time due to practice required outside of the weekly sessions. During the ten-week sessions, older adults are sent home with practice logs to record their practice habits that include the specific concepts and songs, as well as the amount of time spent practising at home. Sending older adults home with the practice logs assists in structuring and fostering their practice opportunities. It also provides opportunities for communication about their at-home practice and provides the music therapist and student music therapists with a realistic picture of time spent practising outside of the sessions, which then relates to the participants' progress through the programme. Upon completion of the ten-week sessions the older adults are sent home with a practice packet that contains materials to continue the music learning during breaks between the semesters. Older adults who return to the Piano Wizard™ Project are often excited to share their continued engagement with piano playing through maintained skills or progress with new material. Engagement is sometimes represented by purchases of materials such as new piano music or a keyboard for their at-home practice.

Programmatic outcome 4: Socially interact with others

The Piano Wizard™ Project concludes with a concert and share time at the senior centre. During this time the student music therapists introduce their older adult participants. The introductions are sometimes a verbal summary of the work completed in the ten-week sessions, and others are musical. One student music therapist rewrote the lyrics to the song *Jamaican Farewell* to include information about the older adult participant gathered during the assessment session. The older adult participants also play the adapted song that was created by the student music therapist. The student music therapist accompanies the older adult on the keyboard or another accompaniment instrument. One student and older adult participant played a duet in which the student music therapist provided an accompaniment on the ukulele. Another student music therapist and an advanced older adult participant rewrote the lyrics to a song and sang in harmony while the older adult played the music selection on the piano. The concert and share time allows older adult participants to interact with their peers and provides an additional focus point and a goal to work towards throughout the semester.

As the Piano Wizard™ Project has grown sessions have included dyads where two older adults are learning together in one session. Older adults are placed in dyads according to their experience level; two beginners are placed together or two intermediate players are placed together. This brings another type of social interaction during the sessions as opposed to only at the end of the ten weeks. Participants often encourage their peer in the session. Additionally, they learn the music concepts and demonstrate skills by playing together throughout the sessions.

Music therapy goal: Psychosocial well-being

Participating in the Piano Wizard™ Project requires older adults to attend weekly music therapy sessions and practice at home during the week. Both of these weekly activities provide the participants with new leisure skills and meaningful activities, which contribute to the older adults' psychosocial well-being. Learning something new and tracking one's progress can contribute to enhanced well-being for older adults leading to increased or improved feelings of usefulness, accomplishment, satisfaction, and success. At the concert and share time older adults are able to demonstrate their progress and feelings of accomplishment and success. One older adult participant shared her excitement about playing the piano for her family and friends out-of-state over the phone. Another participant shared that he could play songs with other musical family members.

The Piano Wizard™ software also allows participants to monitor their progress due to the accuracy feedback provided throughout the song. Participants receive continuous visual and auditory feedback while playing songs through Piano Wizard™. Visual feedback is provided through the display of an eagle's wings spreading when the correct note is played in the song. When the correct key on the keyboard is played the music note sounds, thus providing auditory feedback to the older adult. Due to the visual and auditory feedback immediately given within the programme, many participants are able to identify when they make a mistake. Additionally, participants receive an accuracy score at the end of each repetition of a song ranging from 0%-100%. This score allows the older adults to compare their performance across repetitions. Older adults are often eager to repeat the condition (hands separate or hands together) to reach an accuracy score of 100%. An increase in the older adults' accuracy scores contributes to their feelings of success, which they often demonstrate verbally and nonverbally.

Music therapy goal: Physical functioning

The process of playing the piano utilises fine motor skills such as finger dexterity and muscle strength to depress individual keys on the piano and bi-manual movement such as playing the piano with both hands. As participants progress through the project more attention is given to increasing finger strength and dexterity. The Piano Wizard™ software includes etudes for each method book that can be used for finger dexterity exercises. For example an etude for method Book 1 includes only the black notes, as that is what is presented in Book 1, while an etude for Book 2 will include the white notes, as that is what is presented in Book 2. Songs are also played in the challenge mode entitled 'legato' located in the premier mode section of Piano Wizard™, which assists participants with their finger strength. Legato play uses a shape to represent the note value, which encourages an individual to hold a note for the entire note value. This is represented on screen through a shape that moves across the screen similarly to the notes (see Figure 4).

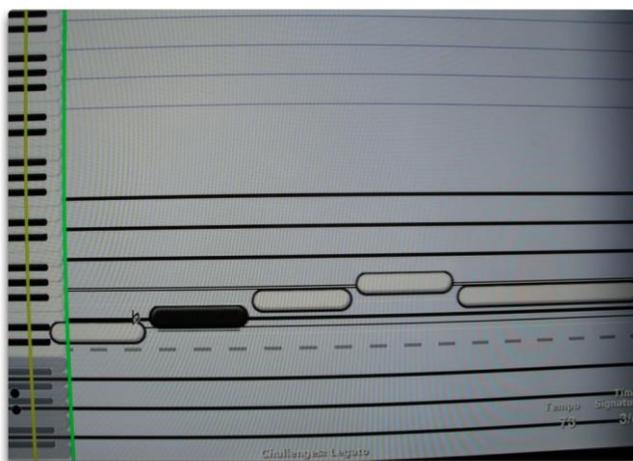


Figure 4: Challenge: Legato in Piano Wizard™ programme

Conclusions and suggestions for future research

The Piano Wizard™ Project has been a successful music-based lifelong learning programme as evidenced by the growth of the programme from 2011-2013. The structure of the Piano Wizard™ technology and the focus on music therapy goals related to cognitive, psychosocial, and physical functioning, have contributed to older adults' success and progress in learning to read music and play the piano. One of the unique aspects about Piano Wizard™ is the developmental nature across the ten method books within the series. For example in Book 1 the students learn note rhythms, corresponding finger placement and keyboard keys for the black notes and sheet music, but do not focus on the note names. This structure allows for

older adults to have immediate success with reading music notation while playing the piano. The series also starts with the black keys which allow the music therapist and student music therapist to adapt hymns and spirituals, a preferred genre for many of the participants in the project, built upon a pentatonic scale for the beginning older adult participants' level. Additionally, the Piano Wizard™ technology is adaptable in the session and can be used in a variety of ways to enhance older adults learning experience and music therapy goals. Creating cognitive, psychosocial, and physical goals functioning and informing the older adult participants of the goals and their progress towards the goals throughout the project empowers the older adult learner and makes them an active participant in the music therapy programme. The steady growth of the project demonstrates the quest that older adults have for lifelong learning programmes in music.

To date only two studies have been conducted with Piano Wizard™ and older adults (Belgrave 2012; Mitak 2012). Both studies found that Piano Wizard™ was an appropriate teaching methodology for older adults based on the rate of music learning and the older adults' perceived benefits from using the technology. Future studies could explore how using Piano Wizard™ affects older adults' cognitive skills. It is common practice to explore the older adult participants' experiences before, during, and after a wellness-based music therapy programme. However, it would be interesting to explore the experiences through the lens of staff and family members to determine how others view older adults' experiences in wellness programmes.

Another interesting area of research to explore is older adults' original motivation factors for joining the programme and the contributing factors for continued motivation. Findings could be compared and contrasted for similarities and differences, and used to influence future practice and organisation of wellness-based music therapy programmes. This information could also be used to recruit older adult participants for music therapy programmes. Another area of exploration pertains to the student music therapists.

This project contains a student component by training students to work in wellness-based music therapy programmes. Therefore, it would be interesting to explore students' perceptions of their experiences and their willingness to work in and create wellness-based music therapy programmes. Continual research and creativity in wellness-based music therapy programmes and interventions will be needed as the ageing population continues to grow.

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