The Management of Playing the Piano and Sing Simultaneously for Non-Music Major Adult Learners

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ABSTRACT

Most research on music and musical instrument learning focuses on playing or singing, but rarely a combination of piano playing and singing. Moreover, the experience of adults from non-music majors learning musical instruments requires further study. Consequently, this study targets university students from non-music majors and explores their challenges and solutions when learning to play the piano and sing simultaneously. Qualitative research methods were adopted, including video analysis and individual interviews. The results revealed that the subjects struggled to coordinate rhythm and singing with accurate intonation while singing; similarly, rhythm, chord application, accompaniment design, and prelude/coda planning proved difficult when playing. Three recommendations were made. First, the piano player/singer must maintain strong learning motivation and practice continuously. Second, simultaneously playing the piano and singing requires significant musical/aural literacy. Third, the piano player/singer should possess musical creativity. These results would facilitate subsequent studies examining piano accompaniment/playing and singing among different ages.

INTRODUCTION

To successfully play the piano and sing concurrently, the performer must manage multiple tasks simultaneously; this includes coordinating singing and playing motor skills. This study focuses on the challenges that adults from non-music majors encounter when learning to play the piano and sing simultaneously, and how these problems can be resolved. Therefore, the research objective entails exploring strategies that learners adopt during the learning process, focusing on difficulties adults from non-music majors encounter when learning this skill, as well as the strategies needed to overcome such challenges. To provide a basic understanding of piano playing/singing as a research topic, an overview of existing studies on singing and playing follows.

Rutkowski (2010) notes that singing entails more than simply turning music into sounds with one’s voice, but also the simultaneous interaction of various components, including the memorization of melody, rhythm, and lyrics. Melody memorization affects one’s intonation when singing; if a singer forgets a phrase’s melody while singing, the individual usually skips the phrase silently or reads the lyrics instead. Apart from intonation requirements, the memorization of rhythm affects the relative relationship between melody, rhythm, and lyrics. According to Davidson and Colley (1987), children under seven years of age often experience difficulty differentiating between lyrical and musical rhythms, and in most cases confuse syllables in the lyrics with rhythm; children above this age, however, generally do not exhibit this difficulty.

Some academics have investigated whether it is easier to sing songs containing lyrics, or scat such as ‘la la la’ or ‘lu lu lu’ instead. While Goetze (1985) found that participants performed better using simple sounds, Smale (1987) and Levinowitz et. al. (1998) found no difference in performance between
either approach. However, Rutkowski (2010) noticed that some participants preferred using their singing voices when scatting, while others did so only when singing with lyrics. Given each individual’s different learning circumstances, Rutkowski recommended alternating between lyrical and scatting singing practice.

Regarding research examining playing as a motor skill, Abeles (1973) compiled a rigorous and credible clarinet performance adjudication scale comprising six items: articulation, interpretation, intonation, rhythmic continuity, tempo, and tone. Building on Abeles’ work, Bergee (1988) developed a four-item rating scale for evaluating tuba performance including interpretation/musical effect, tone quality/intonation, technique, and rhythm/tempo. Similarly, Zdzinski and Barnes (2002) published a rating scale for evaluating string orchestra performance comprising five items: interpretation/musical effect, articulation/tone, intonation, rhythm/tempo, and vibrato. Compared to the aforementioned rating scales, Saunders and Holahan’s (1997) is more sophisticated and includes seven criteria: tone, intonation, technique/articulation, melodic accuracy, rhythmic accuracy, tempo, and interpretation.

Duke (2009) and Li (2009) believe that in addition to relaxed posture and accurate intonation, tempo/rhythm, tone, and dynamics are also important aspects of playing a musical instrument. For tempo and rhythm, the following requirements should be considered:

- Maintenance of a steady and accurate tempo/rhythm when performing continuous chords or phrases
- Maintenance of a steady tempo/rhythm during other parts of a performance
- Maintenance of a steady tempo/rhythm when taking turns performing
- Maintenance of a steady tempo/rhythm throughout a song; recognising the need to make appropriate adjustments according to a song’s requirements
- Production of a harmonic and pleasant tone while appropriately interpreting music with different tones
- Dynamics and the adjustment of a performance’s loudness to accommodate the musical score or conductor’s instructions
- Integration with the accompaniment and the effective expression of emotions through variations in loudness

Acquiring motor skills is unique in that continuous practice is required before accuracy and proficiency can be achieved. Rosenthal et al. (1988) conducted empirical research to identify practice methods capable of aiding learners in achieving playing accuracy. The researchers placed sixty participants in five random scenarios; in each they were allotted three minutes for practice before the accuracy of their playing was evaluated. The first scenario involved listening, where participants listened to a piece of music; singing was involved in the second scenario, in which participants sang a piece of music. In the third scenario musical analysis occurred, whereby the participants analysed a piece of music by silently reading and dictating it. Participants were not permitted to play their instruments in any of these three scenarios, however those in the fourth scenario were asked to practice a piece of music in any way they desired, which included the possible use an instrument. The fifth scenario was for control purposes; participants in this context were assigned a different piece of music than their peers.

The results revealed significant variations in the accuracy of rhythm, phrasing/dynamics, and tempo among participants in the five scenarios, although there were no significant differences between them in terms of note accuracy or articulation. Participants in the listening and free practice scenarios exhibited the highest accuracy, while their counterparts in the control and singing scenarios demonstrated comparatively poorer performance. Regarding the music analysis scenario, its participants performed relatively well in the tempo aspect alone. From these results, Rosenthal et al. concluded that observation is an effective strategy for teaching students to play musical instruments, which provides them with an adequate learning model.
A superb piano performance entails accurate timing, breathing between phrases, and movement. As Wu (2013b) notes, piano playing requires the integrated movement of one’s shoulders, elbows, wrists, wrist joints, hand joints, and fingers. Furthermore, Wu (2013a) proposed several suggestions for overcoming challenges associated with playing the piano:

1. Recognising that piano playing is an exercise involving the entire body
2. Identifying proper and effective practice methods
3. Recognising that playing the piano well requires a passion and interest
4. Developing listening skills and inspiration
5. Practicing continuously
6. Creating and designing a personalized daily practice program
7. Cultivating a slow mode of practice
8. Practicing even when away from the piano
9. Attempting to overcome stage fright
10. The continuous accumulation of stage experience

Seddon and Biasutti (2010) studied the piano learning strategies of three adult beginners with an average age of 21 by observing their approach to the process of learning to play a 12 bar improvised blues piece. The process was divided into six chronological steps:

1. Memorising the musical score and playing a 12 bar chord with the left hand only
2. Playing a 12 bar chord with the left hand only and extending it to 48 bars with bass and drum the accompaniment
3. Memorising the musical score and playing in the A key with the right hand only
4. Imitating the sample with bass and drum accompaniment
5. Improvised playing using the right hand only with bass and drum accompaniment
6. Playing the 12 bar chord using both hands and extending it to 48 bars with bass and drum accompaniment

Prior literature has focused on either playing musical instruments or singing, rarely both simultaneously. Furthermore, the participants in such studies have mainly comprised students majoring in music, few adults majoring in other subjects. This research targets university students majoring in subjects unrelated to music, and explores the challenges they encounter and solutions they devise when learning to play the piano and sing simultaneously.

**RESEARCH DESIGN**

This research utilised qualitative methods, including video analysis and individual interviews, to identify challenges and solutions related to learning to play the piano and sing simultaneously. The research tools, participants, processes, and data analysis methods are discussed below.

**Research Tools**

**Song selection principles**

Song selection was based on common songs taught in Taiwan kindergartens and recommendations concerning lyrics, range, interval, rhythm, and accompaniment taken from the 1987 edition of The Guidelines for Kindergarten Curricula, which includes teaching manuals for singing. Three songs were selected: ‘Chun Shen Lai Le’ (The arrival of the Spring God), which was adapted from the German folk song ‘Alle Vögel sind chon da’ (All the Birds are Already Here); ‘Brahms’ Lullaby Op.49 No.4’ by Johannes Brahms; and ‘Home, Sweet Home’ by Henry Rowley Bishop. To accommodate keyboard instruments, the musical scores were presented in a song
sheet form featuring a single melody treble clef notation with lyrics, not a grand staff (Figure 1). Although the players were permitted to play and sing while reading the scores, they were required to design two-handed playing styles based on the music’s harmony. To provide ample practice time, participants were given the songs three months prior to their evaluation. Two songs were selected from the three for evaluation, and a Yamaha piano was used to play them. Each song’s key, rhythm, starting manner, number of bars, chord progression, language, and composer is provided in Table 1.

![Sheet Music](image)

**Figure 1: Score in One Treble Clef Used for This Study. A Phrase from ‘Chun Shen Lai Le’**

<table>
<thead>
<tr>
<th>Song Title</th>
<th>Key</th>
<th>Time</th>
<th>Starting manner</th>
<th>No. of bars</th>
<th>Scale of harmony</th>
<th>Language</th>
<th>Composer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chun Shen Lai Le</td>
<td>C Major</td>
<td>4/4</td>
<td>Strong</td>
<td>12</td>
<td>I, IV, V</td>
<td>Chinese</td>
<td>German folk song</td>
</tr>
<tr>
<td>Brahms’ Lullaby</td>
<td>C Major</td>
<td>3/4</td>
<td>Weak</td>
<td>16</td>
<td>I, IV, V</td>
<td>Chinese</td>
<td>Johannes Brahms</td>
</tr>
<tr>
<td>Home, Sweet Home</td>
<td>C Major</td>
<td>4/4</td>
<td>Weak</td>
<td>24</td>
<td>I, IV, V</td>
<td>Chinese</td>
<td>Henry Rowley Bishop</td>
</tr>
</tbody>
</table>

**Table 1: Basic Information of the Songs in This Study**

Source: Independent Compilation by Researchers

**Interview framework**

Upon completing the examinations participants were invited to share their thoughts and experiences concerning their preparation for the activity. A semi-structured interview framework was implemented to guide participants during the interview. Participants were asked to identify the challenges they encountered during the piano learning process and how those challenges were overcome.

**Video of the participants’ performances**

On the day of the examinations, researchers obtained consent from the participants to perform on-site recording of video data. Based on their performance in the aforementioned areas, this research seeks to identify the strengths and weaknesses of adults learning to play the piano and sing simultaneously. The results were subsequently compiled and analysed to understand the challenges faced by this demographic and to formulate resolution strategies.

**Research Participants**

**Selection criteria and participant distribution**

Playing and singing simultaneously is a practical skill for kindergarten teachers to possess. Therefore, prospective educators of young children completing their professional development training can benefit from learning this skill. Accordingly, the researchers utilized their connections to recruit individuals studying early childhood education in tertiary educational institutions as subjects. The selected subjects included first to fourth year Taiwanese university students from various locations, who were studying a related teacher education course and possessed early childhood education qualifications.
All of the participants have never had experiences of combining playing the piano and singing together at the same time. Table 2 provides an overview of the subjects’ profiles.

<table>
<thead>
<tr>
<th>Table 2: Participant Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>No. of Participants</td>
</tr>
<tr>
<td>Region in Taiwan</td>
</tr>
<tr>
<td>Grade (Four-Year College)</td>
</tr>
</tbody>
</table>

**Protection of participants’ rights**

Invitations to the interview included information concerning the study’s objectives, data collection methods, and data usage—in addition to other notes. Participants were informed and granted full consent upon signing their release forms. A safe environment was provided for the piano playing/singing performances and interviews. Moreover, subjects were notified of their right to end the video/audio recording session or revoke their consent to participate at any time. Upon completing the interviews, information unrelated to the research topic would not be used without the participants’ explicit consent. Furthermore, raw data would remain confidential and the research results would be used exclusively for academic purposes.

**Research Process**

To obtain realistic and comprehensive results, and to expand our understanding of the research topic’s various aspects, data was collected from multiple sources. Three months prior to the interview participants were given three songs to practice, two of which were eventually selected for on-site performance. Video analysis and qualitative individual interviews were subsequently conducted. With prior consent, recording devices were installed above the subjects in a manner that minimised the cameras’ visibility, and consequently their effect on the participants’ performances.

Each individual’s performance was recorded in sequence. Video recording was selected for this task since it is among the most suitable tools for documenting human interactions, including language and tool use, gestures, postures, and spatial positions. Additionally, as Wu, Song, and Jian (2010) note, the ability to repeatedly view a video can effectively minimize the chance of confirmation bias appearing in researchers’ personal observations and opinions. Therefore, the researchers and analysts viewed 30 separate video recordings in their examination of the performances. The research participants were subsequently invited to discuss their learning experience during the qualitative, semi-structured interviews that followed. Data were further compiled and analysed to investigate the research topic from multiple perspectives. The research process is shown in Figure 2.
Data Analysis

This research adopted a qualitative research method utilising the triangulation of multiple data sources to establish the research results’ reliability. The data sources included recordings of performances and transcriptions of individual interviews, which were analysed inductively. Radocy (1986) points out that due to subtle changes in irreversibility, spontaneity, and frequency in musical characteristics, machine analysis is impossible since the assessor must possess professional competencies and sensitivities to adequately evaluate performance quality. Performances were recorded on video to allow analysts to perform summative assessments of the learning process. To interpret the performances, assessment focused on intonation, tone, preludes/codas, rhythm, chords, and accompaniment. The analysts included two university music professors with professional training in music education and experience as keyboard instructors, who were thus familiar with the learning context of piano students. Each video and transcript was coded and categorized according to their source. For example, ‘S01 Piano Playing’ refers to a video recording featuring the first research participant, while ‘S02 Interview’ refers to an interview transcript featuring the second research participant.

Following the collection of all data and its categorization, data were reviewed repeatedly to extract important details, which were subsequently used during inductive analysis to obtain relevant characteristics. Based on these findings, further adjustments were made to the categorization, followed by additional rounds of review and inductive analysis until various data types reflected a tangible concept, thereby ensuring a relatively in-depth knowledge and understanding of the participants’ simultaneous piano playing and singing abilities.

RESULTS AND ANALYSES

Findings Regarding Performance Behaviours from the Video Observation

Most participants played with I, IV, or V in a broken-chord pattern. Few of them could make the harmony relatively richer. Analyses of the performance videos revealed that, in terms of range position, the majority limited themselves to two octaves on both sides of the Middle C, while a minority attempted to use the entire keyboard. In terms of technique, most participants played in a steady pulse pattern, few of them utilised different techniques, such as adding a grace note, transitioning with a glissando, and using arpeggio; nevertheless, the priority was still for the accompaniment to harmoniously complement the singing. Regarding the use of hands, participants primarily used two accompaniment patterns: 1) playing the melody with the right hand and the accompaniment in an arpeggio or concerto pattern with the left, or 2) playing the accompaniment primarily with both hands and the melody phrases only occasionally.

Based on observation of the performance videos, the participants’ prelude and coda planning can be categorized into three types. The first type involved playing the first chord at the beginning and one bar to give the performer a hint concerning the correct tempo and meter, after which he or she sang immediately; the coda in this scenario ended with a whole note after the chords had been stretched an additional bar. Take ‘Chun Chen Lai Le’ as an example, which features a 4/4 time signature. The participants played four C chords with quarter notes and then sang ‘Chun shen lai le zen zhi dao’. Following the last note with C chord was extended an additional bar, ending the song with a whole note (Figure 3). The second approach entailed using the final line of music as both the song’s prelude and coda (Figure 4). Finally, the third approach involved an arrangement created by participants themselves with advanced knowledge of
chords and accompaniments, who composed four to eight bars of music to function as both the song’s prelude and coda according to its key and melody (Figure 5).

**Figure 3: Type 1 of Prelude and Coda Planning**

**Figure 4: Type 2 of Prelude and Coda Planning**

**Figure 5: Type 3 of Prelude and Coda Planning**

**Self-Motivation to Achieve Personal Fulfilment**

The participants were driven by their voluntary desire to learn, and progressed towards their ideal goals to achieve self-realization.
In the teacher’s piano demonstration, the accompaniment and melody were in perfect harmony. Only a few notes were used to play the entire song fluently. I’m working towards this. I know I have a long way [to go] before reaching this level, but this goal will serve as my motivation. (Interview, S2)

I imagine myself as a kindergarten teacher in the future, playing the piano and singing [along] with the kids. It’ll be great fun. I’m going to learn this. (Interview, S11)

I think playing one’s own accompaniment is amazing. Through practice, I hope to be able to do this as well. (Interview, S30)

**Resolving Problems Proactively**

As non-music majors, the participants faced many challenges in learning to play the piano and sing simultaneously, whether it be from a standpoint of music theory or skill. One way of meeting these challenges involved proactively seeking solutions with a positive attitude.

I practiced playing with my left and right hand separately. When I play with both [hands] my fingers become rigid and shaky. I tried not to let my frustration get in the way. I encouraged myself to keep trying. (Interview, S24)

I started to practice in the piano room when it opened and consulted my teachers and classmates when in doubt. I even drew a keyboard chart and stuck it on the table so that I could practice every day. The coordination of my hands improved as I practiced more. (Interview, S16)

**Sense of Achievement from the Learning Process**

The music produced when the participants performed provided immediate feedback, allowing subjects to self-evaluate themselves and gain a sense of achievement.

I began to get used to playing and singing simultaneously, and I found it enjoyable. (Interview, S7)

I was surprised to be able to memorize the entire song and play it with both hands. I was thrilled. (Interview, S21)

With the teacher’s demonstration and my after-class practice, I was able to play more songs smoothly. I felt so proud when I was able to play an entire song. (Interview, S18)

**Memorization and Practice of Songs**

Participants indicated that observing the teachers’ demonstration videos helped them to become familiar with the songs, while also reducing their likelihood of error and increasing proficiency. Since playing and singing are simultaneous actions, lack of proficiency in one will produce mistakes in the other. Providing learners with a demonstration video and the subsequent results corresponds with the research conducted by Rosenthal et al. (1988).

In order to play and sing smoothly, the melody must be memorized. I watched the teacher’s demo online and tried to memorize the lyrics so that I didn’t need to read the scores and lyrics concurrently. It’s easy to mess up both, otherwise. (Interview, S15)

I copied the musical scores and carried them everywhere. Currently, I’m unable to sing while playing; maybe memorizing the score better can help. (Interview, S6)

**Long-Term piano Practice to Improve Voice-Hand Coordination**

The participants’ personal experiences illustrate that learning to play the piano and sing simultaneously requires long-term, continuous practice before voice-hand coordination can be achieved.
This involves beginning with simple, single-handed practices and then progressing to coordinated two-handed playing with steadily increasing difficulty.

I made effective use of the hour-long practice each week. Only practice makes perfect. (Interview, S6)

I often got stuck with piano playing while halfway through the lyrics. To overcome this problem, I practiced as much as possible during the studio’s operating hours, and repeated the songs until I thought my performance was acceptable. (Interview, S16)

I familiarized myself with single-handed playing before combining both hands and adding vocals. This was how I gradually performed better on the tests. (Interview, S2)

**Understanding Music Theory and Harmonies**

Participants indicated that knowledge of music theory helped them to determine keys based on melodies, which aided them in selecting the right accompaniment chords to create rich and beautiful music.

Now [that] I know some music theory, I can identify major and minor [notes] by looking at the musical score. I know some simple chords, too. (Interview, S30)

I told myself to ask when I had questions. I now have some knowledge of music theory and know how to play. (Interview, S4)

**CONCLUSIONS AND RECOMMENDATIONS**

The findings of this research show that in terms of piano playing and singing, most participants were able to control their volume and tone to produce proper and pleasing sounds. Regarding challenges directly related to singing, coordination between singing and playing and maintaining proper intonation were critical. Common problems related to intonation included singing at low octaves, discrepancies between singing and playing keys, and the repeated correction of intonation, resulting in inconsistency.

In relation to playing, significant issues involved rhythm control, chord application, accompaniment design, and prelude/coda planning. Overall, participants performed well in rhythmic accuracy. However, subjects were prone to inaccuracy at critical points during the beginning of songs with weak-started introductions. As for chords, most participants played within the basic primary triads of I, IV and V or in an arpeggio or concerto pattern at fixed positions. The accompaniment position generally ranged between the two octaves on both sides of the Middle C, with the right hand playing the melody and the left playing chords. For prelude and coda planning, most participants used the piece’s last phrase for both; consequently, there were few independent creations of either. In general, players failed to interpret the music personally or expressively, resulting in relatively inadequate musical performances.

Resolutions to the challenges faced by participants during the process of learning to play the piano and sing simultaneously can be studied from psychological, skill-related, and cognitive perspectives. From a psychological perspective, participants with learning motivation established learning goals and expectations for their performances, and were therefore able to proactively resolve these problems to eventually materialize their sense of accomplishment upon learning to play the piano and sing simultaneously. From a skill-related perspective, memorization of the musical scores helped learners to minimize mistakes during their performances; long-term voice-hand coordination training was also essential to mastering this skill. Finally, from a cognitive perspective an understanding of musical theory and chords, along with the flexible application of said theories, allows performers to experience the harmonic integration of melodies and chords and their associated beauty.
Three conclusions can be extracted from the findings of this research. First, learners show their motivation and persistence. Playing the piano and singing concurrently requires multitasking. Consequently, performers must coordinate finger movements and vocal activities. This is a challenging feat requiring strong learning motivation and repeated practice.

Second, the ability of musical/aural literacy is important. Performers should create accompaniments according to music theory and chord knowledge when only the single-melody grand staff is available. This is a challenge for players who are accustomed to reading piano scores and notation, therefore, a high level of musical/aural literacy is required to resolve this issue. Musical/aural literacy refers to the ability to understand music solely by reading the score or listening to it. For instance, when reading or listening to a phrase one can identify the piece’s motivation, the characteristics of its keys, qualities, functions, and harmonic concepts. Burrack (2002) maintains that when given an unfamiliar piece of music, a musically/aurally literate individual can interpret the score’s notation and play it; he or she can also highlight difficult or special phrases solely by listening to it or reading the score. Moreover, a musically/aurally literate person can imitate a rhythm or melody by listening to it. In addition to the aforementioned characteristics, Duke (2009) asserts that musical/aural literacy entails: 1) filling one’s musical portfolio with various categorizations; 2) being able to perform one’s favourite songs from memory and identify instrumental or vocal parts based on pictures, instruments, or sounds; and 3) the ability to communicate with others and express one’s thoughts using correct musical terminology when practicing or listening to music.

Third, performers present their music creativity while playing the piano. The memorization of music theory does not help a performer learn. Instead, an individual must understand said theories and apply them when playing. The evidences of creativity include the ability to create and improvise while performing; this includes noting or playing an original accompaniment, the creation of contrasting or repeated phrases, and music with melodies, rhythm/harmony, continuity, and clear structure.

This research provided an understanding of the phenomena and challenges encountered, and the resolutions employed when a group of non-music majors learned to play the piano and sing nursery songs simultaneously. However, an in-depth study of the participants’ learning strategies from a psychological, skill-related, and cognitive perspective has not been conducted. Future research may examine, for example, whether learning motivation affects learning outcomes, the relationship between learning strategies and personalities, and whether musical ability or achievement motivation affects students’ decision to continue learning. The results of this research can serve as a future reference for studies on adult accompaniment and simultaneous piano playing and singing.

**REFERENCES**


