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# The Effectiveness of Suzuki Piano Teaching Method in Adult Beginner Piano Class

Xiao Chen, Liu
Department of Music, Faculty of Creative Arts, Universiti Malaya, Malaysia
Email: xiaochen080991@163.com

I Ta, Wang
Department of Music, Faculty of Creative Arts, Universiti Malaya, Malaysia
Email: wangita@um.edu.my

Kwan Yie, Wong
Department of Music, Faculty of Creative Arts, Universiti Malaya, Malaysia
Email: kwanyie@um.edu.my

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**Abstract**

The Suzuki teaching method was originally designed for teaching the piano to young children. It is a method for teaching young beginners to play instruments, and it emphasizes listening, rote learning, and parental involvement. In China, the theoretical discourse strongly advocates for using it in piano classes for adult beginners, but the practicality and feasibility of this have not yet been established. As a piano teacher, it was common to notice the pressure on adult beginner students. Those pressures were often derived from physical incoordination, difficulties in notation, and keeping a steady and accurate rhythm. The authors wanted to find a suitable piano pedagogy for adult piano beginners for these challenges. The Suzuki Piano Method has achieved significant achievements in teaching children piano beginners. However, the effectiveness of this method in adult piano education required much empirical research to obtain data to support it. The current study aims to investigate the effectiveness of the Suzuki piano method in piano classes for adult beginners. Taking a quasi-experimental approach, the study recruited 36 first-year undergraduate students who majored in preschool music education. The participants were divided into treatment (N=18) and control groups (N=18). Then, they participated in an eight-week training program and a post-study performance test. The performances of the participants were recorded on video and evaluated based on a Music Performance Quality Report (MPQR) The results showed that the treatment group achieved significantly higher levels of performance compared to the control group, specifically in musicality, tempo control, note accuracy, and memorization. Therefore, the current study proposes that the

Suzuki method could be used to teach adult beginners, even though it is currently primarily used in early childhood music education. In addition, this study provides experimental research thoughts for further research on the use of the Suzuki piano teaching method in the future.
**Keywords:** Suzuki Method, Adult Beginners, Group Piano Classes, Preschool Music Education, College Non-Music Major

**Introduction**

According to Uszler, Gordon, and Mach (1991), most adults taking beginner piano classes are college students who are not majoring in music. In college non-music major of adults' piano students, in preschool education programs particularly, adults taking beginner piano classes have limited time available for practicing the instrument. This is due to their course load and the various disciplines covered in the curriculum. For instance, the students have to take singing lessons because being proficient in singing can help them in their careers (Apfelstadt, 1989; Richards, 1999; Siebenaler, 2006). When it comes to preschool music education, researchers have suggested that the curriculum should not only teach music skills related to the instrumental but also encourage students to develop a basic understanding of the fundamentals of music, as well as pedagogical theories (Gauthier & McCrary, 1999; Propst, 2003). In recent years, researchers in China have identified various shortcomings in teaching adult beginners through group piano classes in higher education. Zheng and Zhao (2021) proposed a customized approach to group piano lessons, in which students of different abilities are grouped hierarchically for effective training. Meanwhile, Gang (2020) suggested using interactive AI systems as a teaching tool in piano lessons for non-music majors. He argued that this would help students improve through practice and increase their interest in playing. However, the recommendations of these researchers are only theoretical and have not been empirically tested.

In piano classes for adult beginners, teachers often encourage students to practice playing and to try and understand basic music theory (Roberson, 1987; Udtaisuk, 2005). This can involve reading notation (Thompson, 1936) and engaging in finger exercises (Couperin, 1717; Czerny & Bis`hop, 1848; Hanon, 1986). Taylor (1982) argued that high-quality piano playing requires both physical and mental coordination. Many theories and teaching methods have addressed this issue, such as the sensory-motor approach to music learning that was developed by ( Madeleine Carabo-Cone, 1969). Carabo-Cone argued that teachers should use musical games with specific learning objectives to enable beginners to master the fundamentals of music through touch. The Orff-Schulwerk Approach suggests that rhythm is the most important skill when it comes to learning a musical instrument (Shamrock, 1986). Therefore, teachers should encourage beginners to learn music through rhythm. Jaques-Dalcroze (2014), who developed Eurhythmics, has also stated that rhythm is essential for understanding music. Jaques-Dalcroze's model encourages students to gain an understanding of rhythm and tempo by listening to music (Tabuena, 2021). The primary goal of Eurhythmics was to strengthen students' auditory skills to allow them to synthesize music and internalize their understanding (Findlay, 1995). In response to this approach, more recent scholars have also emphasized the importance of aural skills. For example, Gordon (1999) developed the concept of "audiation" to describe students' interior hearing and aural abilities. In Gordon's view, audiation is similar to language learning.

The Suzuki method also focuses on developing students' auditory skills through rote learning (Americas, 2018; Jones, 1994; Suzuki, 1986). The goal of this is to improve students'

physical coordination and help them overcome the difficulties of learning an instrument (Henke, 2021). In addition, the Suzuki method aims to cultivate a general interest in performance and the aesthetic skills associated with music (Suzuki & Li, 2004). To reduce the psychological stress on beginners and ensure they maintain their interest, beginners should be encouraged to develop their playing through attentive listening (Menghini, 2018). The most important ideas contained in the Suzuki method are: (1) parental involvement influences the learning process (Doris & Zhou, 1987; Hermann, 1999); (2) a step-by-step approach helps to put students at ease during the learning process (Arimitsu, 1982; Suzuki, 1982); (3) playing skills can be reinforced through repetition, particularly in the early stages (Bigler & Lloyd-Watts, 2016; Barber, 1991; Kataoka, 1985; Starr & Starr, 1999); (4) it is important to prioritize auditory training (Mills, 1973); (5) teachers should try to cultivate a positive attitude in their students (Keith, 2009); (6) students should gain experience by playing before learning to read musical notation (Henke, 2021; Eubanks, 2015); (7) group teaching is suitable for beginners' classes (Bigler & Lloyd-Watts, 2016; Lange, 2015; Rosenbalm, 2010; Suzuki, 1992).

The Suzuki method uses the mother tongue-based theory, which places great importance on auditory training and playing technique (Barber, 1991; Kataoka, 1985; Menghini, 2018; Mills, 1973). It has been broadly adopted in English language teaching (ELT) (Ball, 2010; Benson, 2005; Gacheche, 2010) and mother tongue-based multilingual education (MTB-MLE) (Lartec et al., 2014; Mahboob & Cruz, 2013; Tupas, 2015). In music, the auditory training involved in learning to differentiate pitches and timbres can help students to create concrete mental images of the notes, thereby improving their memory and aural skills (Castner, 1981). Baber (1991) advocated focusing on this approach during the early stages of learning an instrument. This approach is called the “sound-before-symbol” approach, and it can improve the sight-reading and memorization skills of beginner students (Hallberg, 2014; Yeom, 2015).

Nowadays, international researchers are proposing the Suzuki teaching method as a way of teaching the piano to adult learners (Peak, 1998; Rivera, 2021; Robinson, 2014). Some scholars have recommended using it with adult beginners (Zhou, 2016). However, there is a lack of empirical evidence for its effectiveness, particularly among adults (Jiang, 2018; Zhao, 2012). Using a quasi-experimental approach, this study provides statistical data to substantiate the effectiveness of the Suzuki method for teaching piano to adults. The research question is as follows: what are the effects of implementing the Suzuki method in beginner classes for adult pianists?

In the remainder of the study, the term “Suzuki method” refers to approaches to teaching piano derived from the Suzuki method. The term “conventional method” refers to the teaching method that prioritizes learning musical notation before playing.

## Methodology

### Participants

A quasi-experimental method was used to examine the learning outcomes of beginners’ piano classes for adults. The research was conducted at the Faculty of Educational Sciences at Tong Hua Normal University in China. Using purposive sampling, 36 participants were selected from 125 freshmen majoring in preschool music education who had no previous experience of learning piano. Table 1 details the participants’ demographics.

Table 1
*Participants' Demographics*

| Characteristic | Number | Percent (%) |
|---|---|---|
| **Age** | | |
| 18 | 2 | 5.4 |
| 19 | 18 | 48.6 |
| 20 | 14 | 37.8 |
| 21 | 2 | 8.1 |
| **Gender** | | |
| Female | 34 | 95.0 |
| Male | 2 | 5 |
| **Prior Experience Learning Piano** | | |
| Yes | 0 | 0.0 |
| No | 36 | 100.0 |

According to the statistical data contained in Table 1, all the participants were over 18, meaning that they were all legal adults in China. 95% of the participants were women, and 5% were men. None of the participants had any previous experience of learning piano. All the students met the conditions for participating in this study.

**Instrument**

**Music Performance Quality Report**

The Music Performance Quality Report (MPQR) was pilot tested to assess its reliability. It was developed as a tool for evaluating the performance test conducted at the end of the study. It was based on previous tools that have been used to measure musical performance (Ma, 2005; Thompson & Williamon, 2003). The author modified the evaluation criteria to focus on five aspects of musical performance: musicality, fluency, note accuracy, tempo control, and memorization. These criteria were selected due to their importance for beginners learning piano. The scores were assessed using a Likert scale with seven levels: "very dissatisfied", "dissatisfied", "somewhat dissatisfied", "uncertain", "somewhat satisfied", "satisfied", and "very satisfied". The reliability coefficient of the MPQR scale was evaluated using Cronbach's α (Tavakol & Dennick, 2011). The Cronbach's α coefficient of the five performance criteria was 0.841, suggesting that the criteria have a high level of internal consistency. The consistency of the criteria is related to the content that is measured; the larger the Cronbach's α coefficient, the stronger the internal consistency. Previous studies have suggested that as long as Cronbach's α is more than 0.7, the internal consistency is sufficient. Since the MPQR showed strong internal consistency, the author used the MPQR to measure performance in the test at the end of the study.

**Research Design**

Since the participants in this study were adult learners with no prior experience of playing piano, it was not possible to collect pre-test data (Shadish & Luellen, 2005). Therefore, the current study is quasi-experimental, using only post-test data (Kenny, 1975). Before the study, the 36 participants were randomly assigned into two groups. The 18 participants in the control group were taught using the conventional method. The 18 participants in the treatment group were taught using the Suzuki method. The study lasted for a total of eight weeks, and each group received two 90-minute lessons each week. At the end of the eighth week, the two groups of participants were mixed for a piano performance test. To evaluate

the performance objectively, the researcher invited two associate professors specializing in piano performance and one lecturer from the Music Faculty at Tong Hua Normal University to act as expert evaluators and assess the participants' performances. These three experts provided a blind review of the performances, using the five evaluation criteria. The procedure is shown in the flow chart in Figure 1.

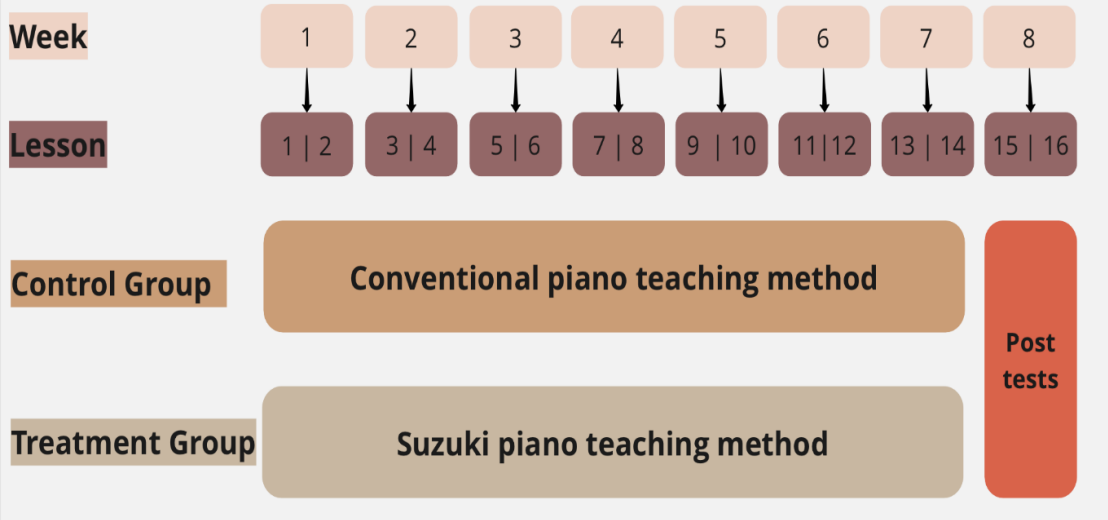


**Figure 1. The Procedure of the Quasi-Experimental Study**

**Intervention Procedure**

Both groups learned the same pieces of music taken from the *S*uzuki piano school (Suzuki, 1992). The pieces taught were "Twinkle, Twinkle, Little Star Variations" and "Cuckoo". Before proceeding with the quasi-experimental research, the author analyzed the textbooks and selected materials that could reasonably be taught. "Twinkle, Twinkle, Little Star Variations" was chosen for the simplicity of its melody, which can be played on one hand, making it an ideal choice for beginners learning the piano (Hallberg, 2014; Yeom, 2015). The piece was designed to teach different musical elements through melodic and rhythmic variations. "Cuckoo" is a two-handed piece in triple meter that requires learners to coordinate their hands (Starr & Starr, 1999) and more complex pulse control. With increasing varieties in articulation, this piece was chosen to test the fluency and musicality of the participants. The teaching procedures are shown in Table 2.

Table 2
*The Teaching Procedures of The Two Groups*

| Group | Class | After Class |
|---|---|---|
| Control Group | 1. Learn the musical notation before playing the instrument<br>2. Work on the fingering<br>3. Maintain the correct posture | 1. Review musical theories<br>2. Practice the piece every day |
| Treatment Group | 1. Play by rote and sing using phrases<br>2. Listen to a demonstration of the piece and try to memorize the tracks<br>3. Gain extensive expertise in imitating musical sounds and a basic capacity for appreciating music | 1. Listen to the demonstration tracks instead of repeated physical practice, which is to ensure the memorization of musical content. not much required, but listen to a demonstration of the piece repeatedly until it is possible to memorize the melody. |

**Data Collection and Analysis**

To ensure that the experiment was objective, the participants were not told which group they were in or the purpose of the research. To ensure consistency in the teaching, both groups were taught by the same instructor.

The data were collected and analyzed after the performance test. Participants played the two pieces from memory. The three experts evaluated the participants' performances using the MPQR. The final results for each participant were based on the average of the three scores given by the three experts. The mean values for the data were used for subsequent analyses of inferential statistics (Nachar, 2008). Owing to the small sample size, the Mann-Whitney U-test was applied. In addition, a nonparametric test was conducted on the two independent samples. The following hypotheses were proposed:

$H_0$: There is no significant difference between the Suzuki method and the conventional method.

$H_1$: There are significant differences between the Suzuki method and the conventional method.

The specific steps in the process were as follows. First, two sets of sample data were used. The control group samples (X) were assumed to be $X_1$, $X_2$..., $X_{18}$; the treatment group samples (Y) were assumed to be $Y_1$, $Y_2$..., $Y_{18}$. They were mixed and sorted in ascending order to obtain the respective rank of each data point. Second, the ranks of $X_1$, $X_2$..., $X_{18}$ and $Y_1$, $Y_2$..., $Y_{18}$ were averaged to obtain two average ranks. If the data results displayed a difference between the average of the two groups, the value of each group of samples in the two groups was generally small. In contrast, the value of the other group of samples was generally large. After averaging and observing the rank, it was possible to infer how much each group had

achieved: the higher the rank, the better the performance result, and vice versa (McKnight & Najab, 2010; Nachar, 2008). It was also possible to judge whether there was a statistically significant difference between the two groups by assessing the approximate probability via a p-value (Asymp. Sig. (2–tailed)) obtained from the test results. The p-value was less than 0.05, so there was a significant difference; therefore, the null hypothesis was rejected (Schunacher & McMillan, 2001).

**Results**

The Mann-Whitney U-test showed the higher the average rank of the two groups, the higher their score in the performance criterion.

Table 3
*Mann-Whitney Test-Ranks (MPQR)*

| Performance Criterion | Group | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Musicality | Control group | 18 | 10.00 | 180.0 |
| | Treatment group | 18 | 27.00 | 486.0 |
| Tempo control | Control group | 18 | 10.50 | 189.0 |
| | Treatment group | 18 | 26.50 | 477.0 |
| Note accuracy | Control group | 18 | 13.83 | 249.0 |
| | Treatment group | 18 | 23.17 | 417.0 |
| Fluency | Control group | 18 | 15.19 | 273.5 |
| | Treatment group | 18 | 21.81 | 392.5 |
| Memorization | Control group | 18 | 13.36 | 240.5 |
| | Treatment group | 18 | 23.64 | 425.5 |

Table 3 shows the results from the Mann-Whitney U test. In terms of musicality, the average rank of the control group was 10, and the average rank of the treatment group was 27; there is a large gap between them. In terms of tempo control, the average rank of the control group was 10.5, and the average rank of the treatment group was 26.5. In terms of note accuracy, the average rank of the control group was 13.83, and the average rank of the treatment group was 23.17. In terms of fluency, the average rank of the control group was 15.19, and the average rank of the treatment group was 21.81. In terms of memorization, the average rank of the control group was 13.36, and the average rank of the treatment group was 23.64.

The average rank of the treatment group is greater than that of the control group. There is a statistically significant difference between the results.

Table 4
*Test Statistics (MPQR)*

| | Musicality | Tempo Control | Note Accuracy | Fluency | Memorization |
|---|---|---|---|---|---|
| Mann-Whitney U | 9.000 | 18.000 | 78.000 | 102.500 | 69.500 |
| Wilcoxon W | 180.000 | 189.000 | 249.000 | 273.000 | 240.500 |
| Z | -4.855 | -4.581 | -2.727 | -1.900 | -.217 |
| **Asymp.Sig(2-tailed)** | **0.000** | **0.000** | **0.006** | **0.057** | **0.001** |

The results of the Mann-Whitney U test are shown in Table 3. The p-values of the five scores for the MPQR demonstrates the following: there is a statistically significant difference in musicality ($p = 0.00 < 0.05$), so the original hypothesis ($H_0$) is rejected; there is a statistically significant difference in tempo control ($p = 0.00 < 0.05$) and note accuracy ($P = 0.006 < 0.05$), so the original hypothesis is rejected; there is no statistically significant difference in fluency ($P = 0.057 > 0.05$), so the original hypothesis is maintained. There is a statistically significant difference in memorization ($P = 0.001 < 0.05$), so the original hypothesis is rejected. Of the five elements in the MPQR, fluency is the only one for which there is not a statistically significant difference between the two teaching methods.

**Conclusion and Discussion**

According to Williams (2000), the most obvious distinction between the Suzuki method and the conventional method is the auditory learning process. Prior research has noted the effect of auditory training on physical coordination, arguing that it can improve the quality of teaching and make it less stressful for adults who are taking beginner piano classes (Kataoka, 1985; Udtaisuk, 2005). Based on previous findings, the Suzuki method, which focuses on auditory training, has been used to teach children taking beginner piano classes. However, researchers have not agreed on whether the Suzuki method should be used to teach adults (Jiang, 2018; Menghini, 2018; Talent Education Research Institute, 2018; Williams, 2000).

The conventional teaching method teaches multiple skills related to performance and music theory. This can make the learning process less efficient (Henke, 2021). In contrast, the Suzuki method focuses on one element at a time, and learning develops from auditory understanding. This allows students to develop their physical coordination before focusing on theory. In this study, participants in the treatment group exhibited significant improvements in musicality, note accuracy, memorization, and tempo control. They did not show a significant improvement in fluency. This was probably because the beginner's piece was fairly simple. From this, we inferred that participant were able to achieve fluency by practicing repeatedly. Future studies should examine intermediate and advanced pieces to determine the effect of teaching methods on fluency. For the moment, it is not clear whether the Suzuki method remains viable for learners who are not beginners (Eubanks, 2015).

There were several limitations to this quasi-experimental research study. First, the students were asked to listen to the demonstrations every day; however, the frequency and length of time they spent listening were not monitored. Therefore, these variables were not considered. Second, owing to the small sample size and the lack of external validity, the results cannot be generalized (Gribbons & Herman, 1997; Hill, 1998; Schunacher & McMillan, 2001). Third, this study only used the Suzuki method and only selected two tracks from *Suzuki Piano*

*School Volume 1*. Hence, future studies should look at later volumes to assess the full benefits of the Suzuki method.

Despite these limitations, the findings in this study have shown that the Suzuki method can be used to teach adult beginners to play the piano. The results showed that participants experienced positive effects in terms of their learning outcomes.

**References**

Americas, S. A. O. T. (2018). About the Suzuki Method:What instruments are taught through the Suzuki approach? Retrieved from https://suzukiassociation.org/about/suzuki-method/

Apfelstadt, H. (1989). Do we have to sing? Factors affecting elementary education majors' attitudes toward singing. Update: Applications of research in music education, 8(1), 24-27.

Arimitsu, T. (1982). *The Suzuki Method Of Instruction Applied To Art Education For Young Chindren In America.* (Ph.D.). Texas Tech University, Ann Arbor. Retrieved from http://ezproxy.um.edu.my:2048/login?url=https://search.proquest.com/docview/303244991?accountid=28930 ProQuest Dissertations & Theses Global database. (0550189)

Ball, J. (2010). *Enhancing learning of children from diverse language backgrounds: Mother tongue-based bilingual or multilingual education in early childhood and early primary school years*: Early Childhood Development Intercultural Partnerships, University of ….

Barber, B. (1991). A comparison of traditional and Suzuki teaching. *American String Teacher, 41*(4), 75-80.

Benson, C. (2005). The importance of mother tongue-based schooling for educational quality. *commissioned study for EFA Global Monitoring Report, 24*.

Bigler, C., & Lloyd-Watts, V. (2016). *Studying Suzuki® Piano: More Than Music: A Handbook for Teachers, Parents, and Students*. [N.p.]: Alfred Music.

Carabo-Cone, M. (1969). A Sensory-Motor Approach to Music Learning. Book I-Primary Concepts.

Castner, H. W. (1981). Might there be a Suzuki method in cartographic education? *Cartographica: The International Journal for Geographic Information and Geovisualization, 18*(1), 59-67.

Couperin, F. (1717). *L'art de toucher le clavecin*: Amigon.

Doris, K., & Zhou, H. J. (1987). *Suzuki Piano Pedagogy* (Zhou He-Jun, Trans.): Anhui Literature and Art Publishing House.

Eubanks, K. (2015). *Essays in the theory and practice of the Suzuki Method.* (D.M.A.). City University of New York, Ann Arbor. Retrieved from http://ezproxy.um.edu.my:2048/login?url=https://search.proquest.com/docview/1727740186?accountid=28930 ProQuest Dissertations & Theses Global database. (3729014)

Findlay, E. (1995). *Rhythm and movement: Applications of Dalcroze eurhythmics*: Alfred Music.

Gacheche, K. (2010). Challenges in implementing a mother tongue-based language in-education policy: Policy and practice in Kenya.

Gang, L. (2020). Innovative Research on the Teaching Mode of Piano Group Lessons in Higher Vocational Preschool Education Based on AI. Paper presented at the Journal of Physics: Conference Series.

Gauthier, D., & McCrary, J. (1999). Music courses for elementary education majors: An investigation of course content and purpose. Journal of Research in Music Education, 47(2), 124-134.

Gordon, E. E. (1999). All about audiation and music aptitudes: Edwin E. Gordon discusses using audiation and music aptitudes as teaching tools to allow students to reach their full music potential. *Music Educators Journal, 86*(2), 41-44.

Gribbons, B., & Herman, J. (1997). True and quasi-experimental designs. In: ERIC Clearinghouse on Assessment and Evaluation Washington, DC.

Hallberg, K. A. (2014). *Does music instruction using the Suzuki method improve working memory and visual-spatial processing in children?* (Ph.D.). Northern Arizona University, Ann Arbor. Retrieved from http://ezproxy.um.edu.my:2048/login?url=https://search.proquest.com/docview/1545674512?accountid=28930 ProQuest Dissertations & Theses Global database. (3621095)

Hanon, C. (1986). Hanon: The Virtuoso Pianist in Sixty Exercises for the Piano for the Acquirement of Agility, Independence, Strength, and Perfect Evenness: Complete. In: T. Baker, Trans.)(Polonius Sheet Music). G. Schirmer, Inc.

Henke, K. (2021). Situating Suzuki music pedagogy's values in the literature. *Holistic Education Review, 1*(2).

Hermann, E. (1971). The Suzuki Philosophy–-Fallacies and Facts. American String Teacher, 21(2), 41-44.

Hermann, E. (1999). *Shinichi Suzuki: The Man and His Philosophy (Revised)*: Alfred Music.

Hill, R. (1998). What sample size is “enough” in internet survey research. *Interpersonal Computing and Technology: An electronic journal for the 21st century, 6*(3-4), 1-12.

Jaques-Dalcroze, E. (2014). *Rhythm, music and education*: Read Books Ltd.

Jiang, N. (2018). A comparative study on the practical effects of Orff and Suzuki teaching methods in preschool music Education. *Tomorrow fashion*(08), 191.

Jones, D. (1994). Book Review: A Family Affair: Experiences with Suzuki Piano. *International Journal of Music Education (IJME), 24*(1), 87-88. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=eoah&AN=22389582&site=ehost-live

Kataoka, H. (1985). *Thoughts on the Suzuki piano school*: Alfred Music.

Keith, L. H. (2009). *A pedagogical and educational examination of “The First Month at the Piano” by Mana-Zucca.* (D.M.A.). University of Miami, Ann Arbor. Retrieved from http://ezproxy.um.edu.my:2048/login?url=https://search.proquest.com/docview/304928645?accountid=28930 ProQuest Dissertations & Theses Global database. (3392662)

Kenny, D. A. (1975). A quasi-experimental approach to assessing treatment effects in the nonequivalent control group design. *Psychological Bulletin, 82*(3), 345.

Lange, G. (2015). Suzuki piano: A student-centered approach. *Clavier Companion, 7*(6), 38-41.

Ma, W. J. W. B. (2005). Improving Music Performance Assessment Faculty of Education, Griffith University].

Mahboob, A., & Cruz, P. (2013). English and mother-tongue-based multilingual education: Language attitudes in the Philippines. *Asian Journal of English Language Studies, 1*, 2-19.

McKnight, P. E., & Najab, J. (2010). Mann-Whitney U Test. *The Corsini encyclopedia of psychology*, 1-1.

Menghini, B. V. (2018). *Character First, Ability Second: Character Development through Suzuki-Inspired Pedagogy.* (D.M.A.). The University of Wisconsin - Madison, Ann Arbor. Retrieved from http://ezproxy.um.edu.my:2048/login?url=https://search.proquest.com/docview/2057945894?accountid=28930 ProQuest Dissertations & Theses Global database. (10901807)

Mills, E. (1973). *The Suzuki concept: An introduction to a successful method for early music education*: Diablo Pr.

Nachar, N. (2008). The Mann-Whitney U: A test for assessing whether two independent samples come from the same distribution. *Tutorials in quantitative Methods for Psychology, 4*(1), 13-20.

Propst, T. G. (2003). The relationship between the undergraduate music methods class curriculum and the use of music in the classrooms of in-service elementary teachers. Journal of Research in Music Education, 51(4), 316-329.

Richards, C. (1999). Early childhood preservice teachers' confidence in singing. Journal of Music Teacher Education, 9(1), 6-17.

Rivera, M. (2021). *Using a behaior analytic approach to taech piano skills to adults.* California State University, Stanislaus,

Roberson, S. H. (1987). The whole truth about piano study. *The American Music Teacher, 35*(36), 28.

Robinson, A. L. (2014). *The effects of conditional discrimination training on the emergence of music skills.*

Rosenbalm, K. L. (2010). *Sample Lessons Plans to Effectively Incorporate Group Lessons Into the Private Studio of Young Beginning Suzuki Piano Students.* (text). Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=ddu&AN=0EA358032C20D11B&site=ehost-live Available from EBSCOhost ddu database.

Russell, B. E. (2010). The Empirical Testing of Musical Performance Assessment Paradigm University of Miami.

Schunacher, J., & McMillan, J. (2001). Research in education: A conceptual introduction 5th ed. In: New York, Longman.

Shadish, W. R., & Luellen, J. K. (2005). Quasi-experimental designs. *Encyclopedia of statistics in behavioral science*.

Shamrock, M. (1986). Orff schulwerk: An integrated foundation. *Music Educators Journal, 72*(6), 51-55.

Siebenaler, D. (2006). Training teachers with little or no music background: Too little, too late? Applications of research in music education, 24(2), 14-22.

Starr, W., & Starr, C. (1999). *To learn with love: A companion for Suzuki parents*: Alfred Music.

Suzuki, S. (1982). Where Love is Deep: The Writings of Shinichi Suzuki, trans. *Kyoko Selden (St. Louis, MO: Talent Education Journal, 1982)*.

Suzuki, S. (1986). *Ability development from age zero*. BeiJing: Popular Science Press.

Suzuki, S. (1992). *Suzuki piano school* (Vol. 1): Alfred Music Publishing.

Suzuki, S., & Bu, D. W. (2004). *Early childhood music education :theory and practice* (B. Da-Wei, Trans.). Beijing: People's Music Publishing House.

Suzuki, S., & Li, Z. P. (2004). *Nurtured by Love:The best way in Talalent education* (L. Zhao-Ping, Trans.). BeiJing: Publishing House of Electronic Industry.

Tabuena, A. C. (2021). Carabo-Cone, Dalcroze, Kodály, and Orff Schulwerk methods: An explanatory synthesis of teaching strategies in music education. *International Journal of Asian Education, 2*(1), 9-16.

Talent Education Research Institute. (2018). ”Talent Education” Expands Throughout the World. Retrieved from http://www.suzukimethod.or.jp/english/E_mthd121.html

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International journal of medical education, 2*, 53.

Thompson, J. (1936). *Teaching Little Fingers to Play: A Book for the Earliest Beginner Combining Rote and Note Approach for Individual Or Group Instruction; a Preparatory Book for John Thompson's First Grade Book*: Willis Music Company.

Thompson, S., & Williamon, A. (2003). Evaluating evaluation: Musical performance assessment as a research tool. Music Perception, 21(1), 21-41.

Tupas, R. (2015). Inequalities of multilingualism: Challenges to mother tongue-based multilingual education. *Language and Education, 29*(2), 112-124.

Udtaisuk, D. B. (2005). *A theoretical model of piano sightplaying components*: University of Missouri-Columbia.

Uszler, M., Gordon, S., & Mach, E. (1991). *The well-tempered keyboard teacher*: MacMillan Publishing Company.

Williams, M. K. (2000). *An alternative class piano approach based on selected Suzuki principles.* Texas Tech University.

Yeom, H. (2015). *Melody, Rhythm, and Note Reading in the Suzuki Piano School.* (M.M.). Western Illinois University, Ann Arbor. Retrieved from http://ezproxy.um.edu.my:2048/login?url=https://search.proquest.com/docview/1682047712?accountid=28930 ProQuest Dissertations & Theses Global database. (1588168)

Zhang, H. (2021). A comparative study on the internship handbooks and their guiding effects for pre-school undergraduates in China and Australia. *Frontiers in Educational Research, 4*(8).

Zhao, X. (2012). Analysis of the differences between the education of piano enlightenment between young children and adults. *Literature (Theoretical Edition)*(07), 274-275.

Zheng, Q., & Zhao, Y. (2021). *Research on Vocal Music Teaching Mode of Preschool Education Major Based on Information Teaching Method.* Paper presented at the 2021 2nd International Conference on Computers, Information Processing and Advanced Education.

Zhou, T. (2016). The teaching mode of piano group class under the vision of Suzuki teaching method. *Art Research*(02), 126-127.