pISSN: 1906 - 6406 The Scholar: Human Sciences
eISSN: 2586 - 9388 The Scholar: Human Sciences
http://www.assumptionjournal.au.edu/index.php/Scholar

Blended Learning in Teaching Piano Major Students in the Music Department of Hunan Vocational College of Art

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Received: September 8, 2022. Revised: October 14, 2022. Accepted: October 25, 2022.

Abstract

Purpose: The purposes of the research were to 1) explore the effectiveness of the blended learning approach of piano on the performance of the major students in the Music department of Hunan Vocational College of Art and 2) to determine the students' perceptions of the blended learning approach through a questionnaire survey. The participants of this study were 59 students majoring in piano, freshmen and sophomores who were studying with a face-to-face method and Violy application at the Music Department of Hunan Vocational College of Art. The quantitative research design of the quasi-experiment and questionnaire were conducted. The paired sample t-test was applied for hypothesis testing while the descriptive analysis—mean and standard deviation were used to report the samples' perceptions towards blended learning. The results revealed statistically significant differences between the scores of piano performance post-test after Violy had been employed and the pretest. The four piano performances measured-accuracy, technique, musicality, and repertoire difficulty had shown the improvement scores of the students once the Violy application was integrated as a teaching method. In addition, the students exposed to the Violy application expressed positive attitudes toward the usage of the Violy application. Therefore, the Violy application is a proven effective learning tool to improve student piano performance.

Keywords: Blended Learning Approach, Piano Performance, Perceptions, Technology Acceptance Model

JEL Classification Code: D83, I21, Z1

1. Introduction

In the era of information technology, network teaching on the Internet has become a hot topic in the field of education, and the rapid development of information technology catalyzes the transformation of traditional teaching mode (West & Graham, 2005). In particular, higher education and teaching in universities have thus had a significant impact (Syakur et al., 2020).

The piano performance course is a practical based skill course at the Conservatory of Music. In traditional piano learning, a lot of individual practice is one of the main ways for students to improve their performance (Johnson, 2016).

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In the face-to-face course of piano performance, most students' performance shows fundamental problems such as the lack of accuracy of pitch and rhythm and the lack of technical practice. In addition, in the face of a face-to-face class, the teacher has limited guidance due to time. Therefore, students are often faced with insufficient teachers' supervision and guidance in practice and learning, which results in not being able to correct any mistakes that may occur during the practice.

In order to solve the raised problem, researchers in the field have proposed integrating technology into piano teaching, which has become the main exploration direction of the education field (Jenkins & Crawford, 2016). Since blended learning has also become the current direction of teaching in colleges and universities, the integration of blended learning in piano teaching is worth exploring. Therefore, to serve the research objectives, the researcher has designed a blended learning course for piano performance with the combination of the Violy learning application and the traditional piano teaching method. The Violy application is an open-source application widely used in China to deliver content to students online.

2. Research Objectives

The research objectives were set as follows.

1. To determine how effective the blended learning approach is in improving the comprehensive performance of the students majoring in piano in the Music Department of Hunan Vocational College of Art

2. To examine the perceptions of piano major students regarding the use of a blended learning approach in learning piano in the Music Department of Hunan Vocational College of Art

3. Literature Review

3.1 Traditional Piano Learning Approach

Traditional music learning is like the way musicians are trained. Most western instrumental teaching is still dominated by the unilateral master teacher (Bjøntegaard, 2015). In general, the traditional teaching model is dominated by teachers, and learners focus on listening and imitation (Jorgensen, 2000). Zhang and Li (2021) believed that the advantage of traditional classroom teaching is that teachers can find and correct students' problems in practice in time so that students can have a clear practice direction. However, they also believed that it is difficult for teachers to effectively supervise students' after-class exercises, resulting in the discontinuity of some students' exercises, which is also a drawback of traditional learning. Bryan (2004) proposed that teacher-student interaction and classroom behavior are not symmetric under the one-to-one learning model. He believes that this teacher-led model is unsuitable for higher education students. On the contrary, he believes that student-led learning will improve student learning and classroom interaction, which will be helpful for future independent music creation.

3.2 Comprehensive Piano Performance

Piano performance is a complex and comprehensive activity that combines logical thinking and image thinking, mental and physical strength, skills, and artistry (Zhang, 2009). Piano performance is a bridge between music creation and appreciation. It shows the aesthetic value of musical works to the audience, turns notes into emotional music through playing, and gives music works a new life (Yan, 2021). There is a particular relationship between the piano performance of the piano major and the technique and musicality of the piano major (Kalkanoglu, 2020).

3.3 Accuracy

Palmer and Dalla (2004) pointed out that accuracy in piano performance refers to the stability of rhythm, high and low speed, and the integrity of the whole work in piano performance. Technique behavior is the basis of piano training, and work difficulty is a criterion for piano performance. According to the research of Henry (2011), not playing wrong notes in performance is one of the comprehensive technical indicators of piano performance. Systematic and rigorous music reading is the basis of piano performance, and the accuracy of reading music directly determines the level of performance.

3.4 Technique

Hunter (1973) indicated that technique in piano performance mainly refers to the ability to deal with scales and arpeggios. Neuhaus (1973), a famous piano educator and performer, proposed that the basis of piano performance is playing technique. He believes that techniques are the means to shape and embody the artistic image of musical works, which can solve any artistic problems in musical works and better complete performance movements by controlling muscles.

3.5 Musicality

The musicality in music performance is abstract and needs to be realized through the comparison, symbol, and imitation between the sound and the performance object.

Kalkanoglu (2020) showed that musicality in performance is based on sound technique. Its essence is the contrast of strength and weakness in the repertoire, the partial expression of musical speed, and the expression of phrase length in controlled music.

3.6 Repertoire difficulty

In addition to the accuracy, technique, musicality, and other factors, the piano repertoire's difficulty in performance is also an essential basis for evaluating the comprehensive performance of the piano. Each piano repertoire has different technique difficulties, each of which is a challenge for the performer and a demonstration of skill. Ramoneda et al. (2022) pointed out that the difficulty of repertoire is formulated according to the industry's professional standards.

3.7 Blended Learning

Blended learning is not new and has long existed in traditional teaching. The original meaning refers to conventional classroom teaching, in addition to books, meetings, and other forms of classroom application as the basis, but also combined with various other learning methods. According to the study of Picciano (2009), the most widely explained blended learning is the combination of traditional face-to-face learning and technology. Besides, Osguthorpe and Graham (2003) mentioned that as long as teachers use the Internet in the classroom, it can be considered blended learning. However, Adileh (2012) believed that if the online activity is between 45% and 80%, the course will be a blended course. More than 80% of online learning courses should be defined as entirely online learning.

3.8 Violy

The piano application is a technology-enhanced music education system (Percival et al., 2007). Violy is a piano practice application used in this blended learning study. It is a musical instrument application that includes error evaluation, practice following, resource presentations, and practice supervision. Through the evaluation function, it can score and show the details of students' mistakes in practice. It can also detect the intonation in real-time with the sound of the piano playing in the application. When students need to find music demonstrations for practice, there is a video search for performance demonstrations in the program resource library. The application platform also provides teachers access to their team's students' practice and scores at any time. He listened and followed the practice like a sparring teacher. After the practice, the evaluation results are given, including the evaluation of rhythm, intonation, and other aspects. The application platform also provides teachers access to their team's students' practice and scores at any time. It is like a sparring teacher listening, following the practice, when the practice is over to give evaluation results, mainly including rhythm, intonation, and other aspects of evaluation (Shenzhen Mango Future Education Technology [SZMFET], 2017).

4. Theoretical Framework

Two theories support this study: Piaget (1973) constructivist learning theory and Davis (1989) technology acceptance model developed to measure user acceptance behavior.

4.1 Constructivist Learning Theory

Constructivism originated from Piaget (1973) preliminary theory on children's cognitive development. He argues that learning in a constructivist framework is not a product of passive transmission as a process of active construction, in which learners construct their knowledge based on previous knowledge and experience. Constructivist learning theory believes that learning results from learners' meaning construction based on their own experience with the help of teachers and other learners in certain situations (Bednar et al., 1992). Hadjerrouit (2008) argued that the blended learning environment has the characteristics of adapting, supporting, and promoting the application of constructivism. According to Ahmad and Schreurs (2012), blended learning mainly focuses on creating knowledge by teachers rather than students. To overcome this problem, constructivist learning theory can be applied in a blended learning environment to increase student interactivity and focus on students building new knowledge based on previous experience.

4.2 Technology Acceptance Model

This theory is mainly used as an essential framework to measure users' behavioral intention to use specific technologies (Venkatesh & Davis, 2000). Masrom (2007) explained that the perceived usefulness in TAM refers to the user's subjective perception of whether the use of technology can improve their work performance, while the perceived ease of use refers to the users' subjective

awareness of the efforts to be made by using the technology. Davis (1989) believed that when customers feel that technology can improve their performance, they will recognize that it is valuable and easy to use. Their willingness to use such technology will increase accordingly.

5. Conceptual Framework

The purpose of this study was to 1) determine the impact of the blended learning method supported by the Violy learning application on the performance of comprehensive ability of the piano performance of students majoring in piano in the Music Department of Hunan Vocational College of Art and 2) to examine the perceptions of the students participating in the study on the blended learning approach used. Based on the literature review, the conceptual framework of the research is presented in figure 1.

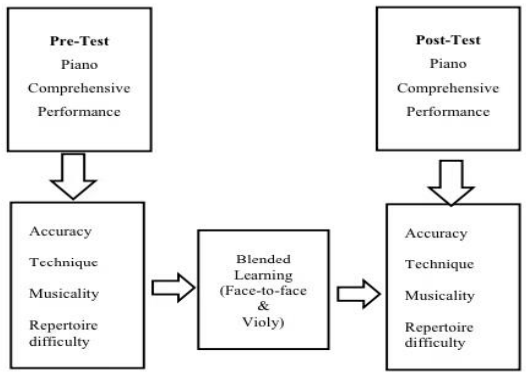

Figure 1: Conceptual Framework of the Study

From the conceptual framework, the research hypotheses were developed as follows.

Ha1: There is a difference in the accuracy of piano playing before and after students learn piano using the Blended learning approach.

Ha2: There is a difference in the technique of piano playing before and after students learn piano using a blended learning approach.

Ha3: There is a difference in the musicality of piano playing before and after students learn piano using a blended learning approach.

Ha4: There is a difference in the repertoire difficulty of piano playing before and after students learn piano using a blended learning approach.

6. Research Methodology

6.1 Research Design

This research is a quantitative research that combines the quasi-experimental research design and the survey research design. The quasi-experimental research design explored the effectiveness of the Violy application when applied to piano teaching classes. In contrast, the survey research is utilized to examine the perceptions of piano major students regarding the Viloly application use of learning piano.

6.2 Population and Sample

The population of this study was 70 piano major students in the Music Department of Hunan Vocational College of Art. As junior students were in the internship stage, they could not effectively participate in the experiment; therefore, 32 freshmen and 27 sophomore students were purposively selected to participate.

6.3 Research Instrument

The research instruments have two main parts: the piano performance test covers four aspects of piano performance-accuracy, technique, musicality, and repertoire difficulty to explore students' piano performances after the Violy application has been utilized. The blended learning approach developed by the researcher for the Piano Performance course has been conducted over eight weeks with a total of 24 hours of learning activities. This includes 8 hours of face-to-face study (in class) and 16 hours of self-directed study (Violy). The pretest and post-test were distributed to the samples before and after using the Violy application. The pretest and post-test assessed the student's piano performance accuracy, technique, musicality, and repertoire difficulty. According to the students' performance of intonation, rhythm accuracy, finger running, music understanding, and actual ability, each variable was given 25 points out of 100.

The other part of the research instrument is the questionnaire to examine students' attitudes toward using Violy. The 5-point Likert scale ranges from 5 = Strongly Agree to 1 = Strongly Disagree. The questionnaire items were adopted from Sumak et al. (2011) research. The questionnaire has two parts. The first part is the

demographic information of the participants, including gender, age, grade, personal piano learning time, and piano playing level. The second part collected students' perceptions from four aspects: Perceived Usefulness, Perceived Ease Of Use, Attitude towards using Violy, and Behavioral Intention.

The internal consistency reliability was calculated to ensure the reliability of the questionnaires. The pilot study was conducted with 30 students with similar characteristics to the study samples. The Cronbach Alpha Coefficient of Perceived Usefulness was 0.781, Perceived Ease Of Use was 0.701, Attitude towards using Violy was 0.701, and Behavioral Intention was 0.774. Since all the Cronbach's alpha values were higher than 0.7, it was confirmed that the questionnaire items were reliable and could be used for data collection, according to Sekaran (2003).

Construct validity was used to validate the validity of the questionnaire items. Five experts conducted the Item Objective Congruence (IOC) in musicology from Hunan Vocational College of Art, Hunan First Normal University, Hunan University of Arts and Science, and Hunan Agricultural University to validate the items. IOC is calculated by scoring three types of answers: consistent = 1, uncertain = 0, and inconsistent = -1. The result of IOC is 0.89. According to Rovinelli and Hambleton (1977), an IOC value of 0.5 or above is acceptable.

7. Research Findings

7.1 Research Objective One

In order to answer the first research objective, the students who participated in the experiment were pretested and post-tested on the accuracy, technique, musicality, and repertoire difficulty of their piano performance. Five experts evaluated the comprehensive piano performance of the students according to the evaluation operationalization criteria shown in Table 1.

Table 1: Evaluation Criteria of Piano Performance

Variable	Definition	Operationalization	Sources	Measurement
Accuracy	The stability of the tempo, the high and low speed, and the integrity of the whole work in piano performance (Palmer & Dalla, 2004)	Piano performance test. The students were asked to choose a song to play live. The teacher graded them immediately according to their performances and the evaluation criteria.	Existing Measurements used to measure the accuracy of Piano Performance at Hunan Vocational University of Art	Score (0-25) 21-25= Excellent 16-20= Good 11-15= Average 6-10= Pass 0--5 =Fail
Technique	The ability to deal with scales and arpeggios includes playing method, finger running, power application, body coordination, and relaxation (Hunter, 1973).	Piano performance test. The students were asked to choose a song to play live. The teacher graded them immediately according to their performances and the evaluation criteria.	Existing Measurements used to measure the technique for Piano Performance at Hunan Vocational University of Art	Score (0-25) 21-25= Excellent 16-20= Good 11-15= Average 6-10= Pass 0--5=Fail
Musicality	The emotional expression in music (Zhang, 2021)	Piano performance test. The students were asked to choose a song to play live. The teacher graded them immediately according to their performances and the evaluation criteria.	Existing Measurements used to measure the musicality for Piano Performance at Hunan Vocational University of Art	Score (0-25) 21-25= Excellent 16-20= Good 11-15= Average 6-10= Pass 0-5=Fail
Repertoire Difficulty	The degree to which a song is performed according to professional standards of the profession (Ramoneda et al., 2022)	Piano performance test. The students were asked to choose a song to play live. The teacher graded them immediately according to their performances and the evaluation criteria.	Existing Measurements used to measure the repertoire difficulty for Piano Performance at Hunan Vocational University of Art	Score (0-25) 21-25= Excellent 16-20= Good 11-15= Average 6-10= Pass 0-5=Fail

The scoring criteria used was the piano performance assessment standard of Hunan Vocational College of Art, where the researcher teaches and conducts research. According to this standard, students' comprehensive performance is evaluated in terms of accuracy, technique, musicality, and repertoire difficulty. Each variable was given 25 points out of 100, and examiners were asked to provide the most accurate individual and total score based on each student's performance. According to the pretest and the post-test assessment, the findings of this study are shown in tables 2-3.

Table 2 shows the results of the pair sample t-test of the Average Pretest Scores and Post-test Scores of comprehensive performance in piano.

There was a statistically significant difference between the pretest and post-test scores of the Comprehensive Performance of the student before and after the Violy was used to teach piano, t (58) = -12.167, p =. 000.

Table 2: Paired Sample t-test of the Average Pretest Scores and Post-test Scores of comprehensive performance in piano

	Paired Differences			t	df	Sig. (2-tailed)
	Mean	Standard Deviation	Std. Error Mean			
Pair 1-1 comprehensive performance	-7.807	4.929	.642	-12.167	58	.000

Table 3 shows the results

of the pair sample t-test of the Average Pretest Scores and Post-test Scores of accuracy, technique, musicality, and repertoire Difficulty in piano performance

Table 3: Paired Sample t-test of the Average Pretest Scores and Post-test Scores of four variables in piano performance

	Paired Differences			t	df	Sig. (2-tailed)
	Mean	Standard Deviation	Std. Error Mean			
Pair 1-2 Accuracy	-3.003	1.882	.245	-12.167	58	.000
Pair 1-3 Technique	-1.498	1.242	.161	-9.262	58	.000
Pair 1-4 Musicality	-1.658	1.419	.185	-8.972	58	.000
Pair 1-5 Repertoire Difficulty	-1.647	1.314	.171	-9.624	58	.000

The first column in the table shows that there was a statistically significant difference between the pretest score and post-test score of the accuracy in piano performance of the student before and after the Violy was used to teach piano, t (58) = -12.259, p =. 000.

The second column in the table shows a significant difference between pretest and post-test scores of the technique in piano performance of the student before and after the Violy was used to teach piano, t (58) = -9.262, p =. 000.

The third column in the table shows a significant difference between pretest and post-test scores of the musicality in piano performance of the student before and after the Violy was used to teach piano, t (58) = -8.972, p =. 000.

The fourth column in the table shows that there was a statistically significant difference between the pretest score and post-test score of the repertoire difficulty in piano performance of the student before and after the Violy was used to teach piano, t (58) = -9.624, p =. 000.

7.2 Research Objective Two

Table 4-7 shows students' perceptions of using Violy, measured by Perceived Usefulness, Perceived Ease of Use, Attitude Towards using Violy, and Behavioral Intention.

Table 4 presented the students' perceptions of the Perceived Usefulness of the Violy application used in blended learning. Among 59 participants from the Music Department of Hunan Vocational College of Art, it indicates that the average score of the participants on perceived usefulness is 4.29, which is in substantial agreement. It is implied that participants think that Violy is helpful for piano learning.

Table 4: Descriptive Statistics of Perceived Usefulness

	Item Statement	Mean	Standard Deviation	Interpretation
1	I would find Violy useful for learning.	4.36	.55	Strongly Agree
2	Using Violy enables me to accomplish tasks more quickly.	4.39	.58	Strongly Agree
3	Using Violy for learning increases my productivity.	4.37	.55	Strongly Agree
4	Through Violy, the comprehensive performance ability of the piano has been improved.	4.08	.53	Agree
5	Through Violy, the accuracy of piano performance has been improved.	4.39	.58	Strongly Agree
6	Through Violy, piano technique has been improved.	4.20	.58	Agree
7	Through the Violy, the piano performance musicality has been improved.	4.22	.52	Strongly Agree
8	If I use Violy, I will increase my chances of gaining knowledge.	4.32	.57	Strongly Agree
Average		**4.29**	**.35**	**Strongly Agree**

Table 5 presents the students' perceptions of Perceived ease of use Violy application used in blended learning. Among 59 participants from the Music Department of Hunan Vocational College of Art, it indicates that the average score of the participants on perceived ease of use is 4.55, which is in strong agreement. It is implied that participants think that Violy is easy for piano learning.

Table 5: Descriptive Statistics of Perceived Ease of Use

	Item Statement	Mean	Standard Deviation	Interpretation
1	My interaction with Violy would be clear and understandable.	4.59	.49	Strongly Agree
2	It would be easy for me to become skillful at using Violy.	4.53	.56	Strongly Agree
3	I would find Violy easy to use.	4.53	.56	Strongly Agree
4	Learning to operate Violy is easy for me.	4.59	.49	Strongly Agree
Average		**4.55**	**.36**	**Strongly Agree**

Table 6 presents the students' attitudes toward using the Violy application in blended learning. Among 59 participants from the Music Department of Hunan Vocational College of Art, it indicates that the average score of the participants' attitude towards using is 4.44, which is in strong agreement. It is implied that the participants' attitude towards piano learning using Violy is positive.

Table 6: Descriptive Statistics of Attitude Towards using Violy

	Item Statement	Mean	Standard Deviation	Interpretation
1	Using Violy is a good idea.	4.47	.56	Strongly Agree
2	Violy makes learning more interesting.	4.36	.55	Strongly Agree
3	Learning piano with Violy is fun.	4.39	.58	Strongly Agree
4	I like working with Violy.	4.58	.56	Strongly Agree
Average		**4.44**	**.41**	**Strongly Agree**

Table 7 presents the students' perceptions of the behavioral intention of the Violy application used in blended learning. Among 59 participants from the Music Department of Hunan Vocational College of Art, it indicates that the average score of the participants' behavioral intention is 4.36, which is in strong agreement. It is implied that participants' behavioral intention of piano learning using Violy is strong.

Table 7: Descriptive Statistics of Behavioral Intention

	Item Statement	Mean	Standard Deviation	Interpretation
1	I intend to use Violy the next semester.	4.34	.57	Strongly Agree
2	I predict I will use Violy the next semester.	4.34	.51	Strongly Agree
3	I plan to use Violy the next semester.	4.42	.59	Strongly Agree
Average		**4.36**	**.46**	**Strongly Agree**

8. Conclusion

In order to answer the first objective of this study, the researcher conducted a quasi-experimental study in which piano performance tests were conducted on students majoring in piano in the Music Department of Hunan Vocational College of Arts. After eight weeks of blended learning, students' post-test scores on the accuracy, technique, musicality, and repertoire difficulty of piano performance increased. In addition, when comparing the pre-test and the post-test score, the data represent the accuracy t = -12.259, p= .000, technique t = -9.262, p= .000, musicality t = -8.972, p= .000, repertoire difficulty t= -9.624. p=. 000. There were statistically significant differences in piano performances measured by the four mentioned aspects.

Based on the quasi-experimental results, it is found that blended learning combined with Violy can improve the comprehensive performance of piano major students in terms of accuracy, technique, musicality, and repertoire difficulty of piano performance compared with traditional teaching. These findings are consistent with the research conducted by Tan and Brahmakasikara (2021), who combined traditional learning with Superstar Learning in the new Chinese music appreciation course. The pretest and post-test results showed that the blended learning model is more effective than the traditional teaching method in improving the performance of the Chinese music appreciation course. Tan and Brahmakasikara (2021) also show that the blended learning curriculum designed with modern information technology tools is an effective learning method.

Another research objective is to examine the perceptions of the blended learning approach in piano learning among piano majors. According to the questionnaire survey results, the average value of the 59 participating students' perceived usefulness of the technology used in blended learning was 4.29. While the average value of the perceived ease of use after Violy was 4.56, and the overall mean value of the students' attitude towards using Violy in blended piano learning was 4.44. Therefore, the score of 4.36 reflects the strong behavioral intention of students to use blended learning. This result is consistent with Alaidarous and Madini's (2016) research results. The study by Alaidarous and Madini (2016) took 109 female students of the Saudi Technical and Vocational Training Company Institute (TVTC). They were studying the first-stage English course as the research sample. It investigated their perceptions about learning English through a blended learning environment called Doroob learning management system. The results indicate that students positively perceive learning English in a blended environment.

The results of this study confirm that in a blended learning environment, students of the main piano major have highly positive perceptions of using the Violy application in learning piano performance courses. This positive perception is attributed to several factors, such as the usefulness of blended learning, the ease of use of the application, the interesting content, and the appropriateness of the learning activities. It can be said that students' positive perceptions have particular implications for researchers to design blended learning courses later.

This study provides empirical knowledge about the effectiveness of the blended learning approach in piano performance learning. Blended courses are an effective method to overcome time constraints and teacher shortages. This will encourage teachers in higher vocational arts colleges to consider this learning approach in future instructional design. In future research, it is suggested that researchers should integrate the curriculum content, implementation plan, and evaluation criteria more closely when considering the integration of technology into piano courses and continue to consolidate and improve the learning content of blended learning methods in the future teaching of piano performance courses. In addition, it is suggested that in the future, to expand the research scope and sample size further, the different schools' different music professional students' participation in blended learning achievement was analyzed in order to explore further organizational development intervention's effect on comprehensive performance ability, enhance the applicability of the study, meet the requirements of different professional learners.

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