Investigation of the Application of Learning Theory in  
Music Lessons of Higher Education  

Chen-Yan DAI  
Department of Education, Shanghai Normal University Tianhua College, Shanghai, China  
154309482@qq.com  

Keywords: Learning Theories, Behaviorism, Multiple Intelligence, Music Intelligence, Higher Education, One-to-One Piano Lessons. 

Abstract. This paper reviews the learning theory paradigm that I applied in higher education’s music teaching, explains my teaching practices and approach in details, analyses and clarifies the usage extent of the related learning theories (including theories that have been referenced and not been referenced) in my current teaching. In order to achieve a breakthrough on the basis of my teaching, this paper investigates the application of multiple intelligences in teaching with students as a target by means of case study. This case study which extends a number of weeks is very effective. The analysis of the findings suggests that multiple Intelligence tests, to some degree, let students know themselves better, push them to self-reflect and be more aware of their advantages and disadvantages, thus enabling them to achieve further self-improvement. As a piano teacher, I feel that the application of multiple intelligences can make our teaching become more individualized, and finally create a differentiated classroom according to each student’s advantages. This paper argues that learning theory paradigms involving teachers in the research and analysis of contemporary teaching methods are effective ways of fostering and encouraging students in music learning in higher education.  

Background of Higher Education in China  
The entrance examination of Chinese universities has traditionally recognized only a narrow set of performances, creating a neat hierarchy of students primarily in terms of what Gardner calls linguistic and logical/mathematical skills (only two of his eight intelligences). Linguistic and logical/mathematical skills which restrain the development of students are still accepted by Chinese universities. It turned out the quality education since 90s in 20th century which focus on the development of potentiality, innovation and cultivation of practice skills. The Chinese Education Society has greatly promoted the development of MI in Chinese schools by the abroad teaching experiences and achievements. 

Therefore, when we were very young, we were instilled with the notion that only through repeated practice and countless tests experience can we grab the test-oriented learning skills by our teachers’ personal deeds. But now with the development of society, we are witnessing a transition from a test-oriented education to quality-oriented education. More and more parents follow the trend and try to cultivate their children’s talent for music, pushing them to play the piano, violin, guzheng and erhu, etc.  

Test of Art Major in Higher Education  
Nowadays in China, art major has become more and more popular. University entrance exam of each year witnesses a flood of students competing with each other for this major. Art major is a threshold or doorway, by which those academies and universities of arts foster students into art professionals and experts. Students enrolled in Education Department of my school are students with some music potentials who passed the national music-related test with their own musical techniques.
Curriculum in Education Department of My School

Curriculum in my school meets the needs of society, undertaking the task of fostering teachers for elementary education. From the observation of graduate employment rate in 2015, there was a higher employment rate in kindergartens for art students.

Table 1. Credit and Period of Pre-school Education Major Curriculum of 2016.

<table>
<thead>
<tr>
<th>Curriculum Classification</th>
<th>Period</th>
<th>Credit</th>
<th>Percentage of Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required Course of General Education and Public Basic Knowledge</td>
<td>982</td>
<td>49</td>
<td>28%</td>
</tr>
<tr>
<td>Required Course of Subject and Major</td>
<td>896</td>
<td>55</td>
<td>32%</td>
</tr>
<tr>
<td>Limit Optional Course</td>
<td>640</td>
<td>33</td>
<td>19%</td>
</tr>
<tr>
<td>Arbitrary Optional Course</td>
<td>160</td>
<td>10</td>
<td>6%</td>
</tr>
<tr>
<td>Practice Course</td>
<td>26 weeks</td>
<td>26</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2674</strong></td>
<td><strong>173</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Note: Total Periods = Theory Teaching periods + Practice Teaching Periods. Practice course is calculated by weeks and will not be calculated into the total periods. Pre-school curriculum details are as below:

Subject and major required course occupies 896 periods, 55 credits in total, covering 32% of total credits. My teaching subject belongs to subject and major required course, including piano lesson to big classes (basic knowledge teaching), one-to-one tutoring (major-specialized teaching), impromptu piano-playing and sing and lessons of music appreciation. Piano elementary lesson and one-to-one tutoring, as the main courses in pre-school education curriculum, takes three years to be finished. Students who have certificate of National Piano PETS-10 (the highest rank) or certificate of piano public performance will have one-to-one tutoring course, so that they can be employed by music kindergarten or elementary school. Therefore, how can we teach a good music lesson is a worthy question to be considered by teachers?

Teaching Practice of Behaviorism Theory

The psychological definition of learning is the modification of behavior through practice, training, or experience [1]. Behaviorism is a theory of animal and human learning that only focuses on objectively observable behaviors and disregards mental activities [2]. Behaviorists regard learning as a direct result of experience or practice that leads to a change in behavior. They also believe that behaviors can be modified by consequences such as positive or negative feedback and rewards or punishments [3].

As an educator, I have eight years work experience and know a lot about student levels of piano-playing. Apart from that, I also have many experiences of piano competitions and public performances so that I can combine the piano-playing with practical teaching in a better manner. Also, I love my life, love my students, and I am good at communicating with students, which ensures a promising success of my research.

**My Teaching Practices.** I’m always thinking about what teaching methods can I use to meet the needs of students’ development, help them improve their learning? Usually, teacher teaches students basic playing methods and techniques, have students practice and give them guide and correction. This process is the theory of Behaviorism in six learning theory paradigms. I will listen to students playing a piece of music and have them consolidate and strength their playing by means of praise and encouragement, communicating with students about the deep
meaning of the music and its style in a friendly way. Have students try to imitate the timbre of
teacher’s playing, listen to the “breath” between music pieces with the aim of stimulating students’
hearing, further their understanding of the music. These are what I am doing now.

Behaviorism is a classical teaching method that a teacher teaches students knowledge, and
students accept and digest knowledge. During the teaching process, the teacher corrects students’
problem, let them be aware of their mistakes so as to improve their playing. Through the learning of
these six learning theory paradigms, I believe that this teaching method helps students grasp the
techniques of piano-playing, while neglects students individualized development and their
understanding to music. Thus, the teaching method of behaviorism has its limit to this point.

The nature of piano lesson is to have students advance gradually by repeated practices. Students
memorize the knowledge by practice and practice. Their confidence in music-playing will be
strengthened by encouragement and the improvement of their scores. They will learn to consider
rationally about music of similar styles. My teaching method shares a great similarity to the theory
of Behaviorism among six learning theory paradigms. A student playing good or not is caused by
not only his/her talent, but his/her diligence, dedication and perseverance as music-playing is a kind
of skill. Only by listening to the timbre and breathe of music repeatedly and sparing no effort, can a
student play a music composition completely in an all-round manner?

**Student Performance in the Class and Their Homework Feedback.** Students who take
one-to-one tutoring usually have higher playing levels. Although students are willing to take the
teacher’s suggestions, improve their weakness and correct the wrong tones and rhythms, their
feelings for music differentiates. Some students show little improvement in learning and they never
consider where is the weakness of their playing, while some students are quite high-talented and
very good at expressing themselves. Behaviorism can be followed by Chinese teachers as Chinese
students usually take their teachers as examples to learn and are good at learning from listening
due to the traditional teaching mode in China. Besides, achievements can’t go without long-time
dedication. Rewards come from practices and corrections in music playing.

**Teaching Practice of Multiple Intelligence Theory**

As a teacher, his/her teaching level directly affects the students’ achievements and their interests.
Therefore, I think teachers should devote themselves to the application of learning theory paradigms
in teaching and study how to use them in class teaching. I become very interested in theory of
multiple intelligences during my daily teaching practices.

Gardner assumed in his theory of multiple intelligence that Intelligence could be broken down
into at least eight different components: linguistic, logical/mathematical, spatial, musical,
bodily/kinesthetic, interpersonal, intrapersonal and naturalist intelligence. All of us possess each of
these intelligences, but no two individuals exhibit exactly the same profile of intellectual strengths
and weaknesses [4]. In terms of assessment, intelligence need to be approached in an
intelligence-fair way, that is, in ways that examine the intelligence directly rather than through the
lens of linguistic or logical intelligence [5]. While traditional intelligence has neglected its multiple
developments and the importance of different individuals. Some researchers claimed that our
intelligence or ability to understand the world around us is complex. Some people are better at
understanding some things than others. For some of us it is relatively easy to understand how a
flower grows but it is immensely difficult for us to understand and use a musical instrument. For
others music might be easy but playing football is difficult. Instead of having intelligence it is
claimed that we have several different intelligences.

**Value of Multiple Intelligences in Teaching.** Theory of Multiple intelligences is the best
representation of quality education. It help students to develop their hobbies and characteristics to
the full. Few lessons will contain parts that correspond to all types of intelligence, but a key
recommendation of multiple-intelligence theory for the classroom is that teachers seek to include a
variety of presentation modes in each lesson to expand the number of students who are likely to
succeed [6]. In recent thirty years, multiple intelligence theory has attracted some focus in China.
Study found that multiple intelligences showed the richness of learning in curriculum, which is
beneficial to the all-round development of students. For instance, the art class and the music class can cultivate the language intelligence, enrich the music intelligence and expand the space intelligence. It also develops the self-awareness intelligence, exercise the body-sense intelligence, enhance the mathematical logic intelligence and promote interpersonal intelligence.

My Teaching Method. There are two reasons that multiple intelligence theory has not been utilized in the teaching of piano-playing so far: first, teaching of piano-playing tends to neglect student differences and set a same target for all students. Teachers usually have high expectation for their students and deem that all the students who have taken the one-to-one tutoring should reach to a certain high level. Second, educators haven’t lay enough emphasis on multiple intelligence theory. There wasn’t much thorough understanding of the theory and no interrelation between theory and practice. Following is my case study in order to illustrate the multiple intelligence theory’s effect and impact on teaching.

Case Study

There are three reasons that I chose three of my students as the target of my case study. First, we know each other well both in life and learning. We understand and believe in each other, and they are very willingly and cooperative to my study. Second, compared to big class piano lessons, student learning progress can be better reflected by the one-to-one tutoring. Third, through this study I can communicate with my students more systematically so that they will have a better understanding of the development of their musical intelligence and other intelligences. To some extent, the one-to-one tutoring is more worthy of studying than other big class piano lessons. Therefore, I think the one-to-one tutoring can reflect the diversity of teaching contents in class. Meanwhile, student musical potentiality and other intelligences can be explored and developed by means of multiple intelligences test.

Context of the Study. The research project discusses how to apply multiple intelligences in teaching practice, and analyzes the characteristics of student’s multiple intelligences and the teaching which is fulfilled by theory and practice. Included in the research methodology is a specially-devised, web-based multiple intelligences test comprising 40 questions. It is the basic material for study. I can make arrangements and schedules based on this test. Besides, I will talk to each student face-to-face in order to better understand the student.

Methodology. In this paper, data are from the Phase 1. Multiple Intelligence tests to three students (completed in the first week) and the face-to-face communication with the students belongs to Phase 2 (completed in the second week). The contents of the Multiple Intelligences Test come from the related test issued by Birmingham City Council. You can learn about how your own mind thinks and works from the test. The communication contents with students in the second the week mainly embraced students learning of piano-playing and their life. After that in the third week, I analyzed the test results and created a differentiated teaching method for each student based on my talk with these students, including choosing suitable pieces of music and making learning plans for the students. The fourth week was the summarizing period that I analyzed and considered the study outcome with the students together.

Measures. (a) Multiple intelligence test [7]. There are 40 questions related with issues of daily lives in the multiple intelligences test, representing the eight intelligence characteristics in multiple intelligence theory. There are six choices for each question, they are: this is not like me at all, I am very rarely like this, this is sometimes like me, I am like this more often than not, I am always like this, which show student preferences obviously. The order of the question will change randomly when each student do the test, some of the questions appears repeatedly in the same test. After students completing the test, the system will generate the test result automatically. (b) Face-to-face communication with students. This part focuses on a range of issues related to student personal way of life. I concentrate on two important items and their related questions. Each item links directly to the outcome of the multiple intelligences test. Details are as follows:

( i ) Questions about personality, learning and life.
Do you prefer sciences subjects or liberal arts? What are your hobbies? How many friends that you get along frequently? Do they have any influence in your character? What do you think of yourself? Introverted or extroverted. Which countries do you like? Describe them. Are you a perfectionist or a person caring about the process and details?

(1) Questions about daily piano-playing.
How many hours do you spend on practicing playing the piano each day? What do you think is your advantage and disadvantage? And do they have any impact on your piano-playing? How many scores will you give yourself about your current piano-playing level? Are you eager to take the weekly piano lesson? Which point in your piano practicing do you think that needs to be improved? Which point in your piano practicing do you think is good and should be maintained?

**Description of Participants.** Participants of my case study are three students of my one-to-one tutoring course. Students' real names will not be showed in this paper in order to protect their privacy. Here they are referred to as Lily, Alice and Jessie. Lily is a diligent sophomore with good playing skills and high performance levels. Alice is an outgoing and sociable junior student with a passion for piano performance, but she is not careful enough. Jessie, also a junior student, is conservative and dedicating and with her own thoughts in learning. In order to realize a systematic study, I compared analyzed students test results with the test result of most Chinese.

**Results.** This is an interactive worksheet which produces a Multiple Intelligences wheel based upon Gardner's eight multiple intelligences. Please see details as below:

<table>
<thead>
<tr>
<th>Multiple Intelligence</th>
<th>Score</th>
<th>Student Average Score</th>
<th>Chinese Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lily</td>
<td>Alice</td>
<td>Jessie</td>
</tr>
<tr>
<td>Linguistic Intelligence</td>
<td>17</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>Logical Intelligence</td>
<td>10</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Interpersonal Intelligence</td>
<td>11</td>
<td>16</td>
<td>8</td>
</tr>
<tr>
<td>Intrapersonal Intelligence</td>
<td>19</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Musical Intelligence</td>
<td>20</td>
<td>16</td>
<td>17</td>
</tr>
<tr>
<td>Visual Intelligence</td>
<td>9</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Naturalistic Intelligence</td>
<td>14</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Kinesthetic Intelligence</td>
<td>13</td>
<td>17</td>
<td>15</td>
</tr>
</tbody>
</table>

Note: The highest score of each intelligence item is 25.

From the table as above it is discovered that the average test score of musical intelligence is higher than that of most Chinese. However, their score of intelligences of other aspects are not so desirable and need to be improved.

The table shows that Lily is strong in Linguistic Intelligence and Intrapersonal Intelligence. She is clearly aware of her weakness in learning and will keep practicing after class. While her weakness in Logical intelligence shows that she is a sentimental person who is not good at thinking independently, and is more willingly to accept suggestions and ideas from her teachers. Although with good skills and capacity, her piano playing lacks her personal style and innovative ideas.

Alice is good in Interpersonal Intelligence which is exemplified by her outgoing and sociable personality. Her strength in Kinesthetic Intelligence enables her to quick mastering of a new piece of music, but her weakness in Intrapersonal Intelligence leads to her carelessness about the piano-playing and the lack of deep thoughts of the music.

And Jessie, who is strong in Visual/Spatial Intelligence, is good at observation. She will search for related information of the music, such as the literature and cultural background by herself so as to consolidate her understanding of the music. But she is too conservative and is not easy to accept others' opinions.
All these three students’ Logical Intelligence scores are lower than the average score of most Chinese, which is especially true in Lily, a sentimental student. Thus, I think it is very necessary to foster the development of student’s Logical Intelligence in teaching.

**Discussion of Findings.** (a) *Influence of student.* These three students were very interested in the test and felt that the test results were mostly true. They knew themselves better than before after the test. For example: Jessie feels lost about which career she should follow after graduation, music performance or music teaching. Through this test she realized that she is both good at music and painting, so she thought that she might be fit herself better in art teaching career. In the meantime, she also admitted that she is poor in interpersonal communication and decided to learn to communicate with others. The study shows that multiple intelligence theory has been more and more focused by students. As they want to know themselves better and gain teachers’ encouragement and supporting so as to obtain some improvement and achievement in their piano-playing. (b) *Influence of teacher.* I learned a lot from Multiple Intelligence test because its teaching theory reminds me of considering questions from various aspects and cultivating student own potentiality with different teaching methods. The research shows that teacher as I am, I should adapt some funny and efficient teaching methods to guide the students improve their intelligence development. (c) *Interaction effects between teacher and students.* When I told students their test results and analyzed the test results with them, I found students were very excited and showed great interest. I feel that I and my students have become closer to each other and they are now more willingly to tell me about their thoughts and feelings. With the close relationship my students, I can me carry out the teaching methods more smoothly in my future teaching practices.

As the third week of the study, I was thinking of how to help my students transcend their abilities and go beyond themselves to make greater achievements. My teaching practices are as follows: During my class with Lily, I raised some questions for her to think about, encouraged her to analyze the music, consider its structures from the angle of the times and the background when it was composed, in order to help strengthen her logical Intelligence. During my class with Alice, I found her biggest problem was that she was lazy to use her mind. Despite the fact that she was good at communicating with teachers, she didn't make efforts in practicing piano-playing after class and moreover, she didn't have a clear goal or faith for her life. Therefore, it’s important for her to learn self-reflection as only with self-reflection can she dig out her strength in piano-playing. As to Jessie, I expressed my appreciation of her merits and advantages and encouraged her to become more confident. I talked to her about different kinds of music and various playing styles of pianists with the aim of improving her interpersonal skills through our communication. In the meantime, I asked Lily and Alice to involve in so that three of them could learn from each other.

**Implications of the Findings for Education.** The application of multiple intelligence theory in piano courses enabled the previous behaviorism teaching method to change more individualized, representing the core idea of quality education that teaching should be accommodated to the different needs of students. This study shows that MI theory has a great value and guidance to our higher education and teaching field. Gardner’s MI theory thought that everyone has different intelligence level. So the MI teaching view focused on the students and their differences, and adapted multiple teaching contents and mutual activities between teachers and students. We are pleased to see MI theory has become the new angle of the carry-out of worldwide educational innovation and our quality education.

**Conclusion**

It is found in this paper that MI-based curriculum makes teachers know more about their students and helps students know themselves better. The true adoption of MI theory in teaching also makes individualized education possible. Multiple intelligences test effectively reflects students’ strengths and weaknesses help students dig out their potentiality. I think I will continue using multiple intelligences test to evaluate students, by which students can know themselves better while utilizing their advantages to make up the disadvantages. Meanwhile, I can also use the teaching theory of
multiple intelligences to help and guide my students.

All in all, combining behaviorism theory and multiple intelligence theory together in my one-to-one tutoring class enabled me to make better schedules and plans for my teaching contents, helped me analyze and evaluate each student’s piano-playing capability and his/her performance in the class and chose suitable pieces of music for each student to practice. I believed that with the combination of theories of “repeated practices” in behaviorism and “taking people as the foremost” in Humanism and its application in teaching practices, students will be more self-confident and achieve a remarkable improvement in their piano-playing.

References


