2005

The Influence of Physical Movement on the Perception of Musical Performance

Jay Juchniewicz
THE INFLUENCE OF PHYSICAL MOVEMENT ON THE PERCEPTION OF MUSICAL PERFORMANCE

By

Jay Juchniewicz

A Thesis submitted to the College of Music
In partial fulfillment of the Requirements for the degree of Master of Music

Degree Awarded:
Spring Semester, 2005
The members of the Committee approve the thesis of Jay Juchniewicz on March 22, 2005

________________________
Kimberly VanWeelden
Professor Directing Thesis

________________________
Clifford K. Madsen
Committee Member

________________________
Bentley Shellahamer
Committee Member

The Office of Graduate Studies has verified and approved the above named committee members.
ACKNOWLEDGMENTS

As with any major undertaking in life, the end result would not be possible without the help and support of many people. I would like to thank Dr. Kimberly VanWeelden for her constant guidance, availability, and for always pushing me to strive for excellence and not letting me settle for second-best. I would also like to thank Dr. Clifford Madsen and Dr. Bentley Shellahamer for their professionalism and encouragement on this project. Finally, I would like to thank my family and friends whose support for me was always there, and for whom I will always be grateful.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>LIST OF TABLES</th>
<th>vi</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>vii</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Purpose</td>
<td>2</td>
</tr>
<tr>
<td>Research Questions</td>
<td>3</td>
</tr>
<tr>
<td>2. REVIEW OF LITERATURE</td>
<td>4</td>
</tr>
<tr>
<td>Musical Expression</td>
<td>4</td>
</tr>
<tr>
<td>Physical Characteristics</td>
<td>6</td>
</tr>
<tr>
<td>Performance Judgments</td>
<td>8</td>
</tr>
<tr>
<td>Summary</td>
<td>9</td>
</tr>
<tr>
<td>3. METHODOLOGY</td>
<td>11</td>
</tr>
<tr>
<td>Subject Description</td>
<td>11</td>
</tr>
<tr>
<td>Dependent Variable</td>
<td>11</td>
</tr>
<tr>
<td>Independent Variables</td>
<td>11</td>
</tr>
<tr>
<td>Validation of the Movement Types</td>
<td>12</td>
</tr>
<tr>
<td>Videotape Preparation</td>
<td>12</td>
</tr>
<tr>
<td>Procedures</td>
<td>13</td>
</tr>
<tr>
<td>Research Design</td>
<td>14</td>
</tr>
<tr>
<td>Equipment Needed</td>
<td>14</td>
</tr>
<tr>
<td>4. RESULTS</td>
<td>15</td>
</tr>
<tr>
<td>Calculation of the Dependent Variable</td>
<td>15</td>
</tr>
</tbody>
</table>
Order Effect for Tape Presentation ........................................... 22

5. DISCUSSION ........................................................................... 24
Discussion of Results .............................................................. 24
Conclusions ........................................................................... 26
Limitations of the Study .......................................................... 27
Implications for Performance Training ...................................... 27
Suggestions for Future Research ................................................ 28
Summary .................................................................................. 28

Appendices

A. EVALUATION FORM ........................................................... 29
B. PIANIST CONSENT FORM ................................................... 32
C. E-MAIL CORRESPONDENCE ............................................. 34
D. DIRECTIONS FOR THE TEACHERS ...................................... 36
E. SUBJECT CONSENT FORM ................................................ 39

References .............................................................................. 41
Biographical Sketch ............................................................... 44
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mean Total Ratings and Standard Deviations by Movement Type, Year in School, and Gender</td>
<td>16</td>
</tr>
<tr>
<td>2. Three-Way ANOVA for Total Ratings, Year, Gender, and Movement Type</td>
<td>17</td>
</tr>
<tr>
<td>3. Mean Phrasing Ratings and Standard Deviations by Movement Type, Year in School, and Gender</td>
<td>18</td>
</tr>
<tr>
<td>4. Mean Dynamics Ratings and Standard Deviations by Movement Type, Year in School, and Gender</td>
<td>18</td>
</tr>
<tr>
<td>5. Mean Rubato Ratings and Standard Deviations by Movement Type, Year in School, and Gender</td>
<td>19</td>
</tr>
<tr>
<td>6. Mean Overall Ratings and Standard Deviations by Movement Type, Year in School, and Gender</td>
<td>20</td>
</tr>
<tr>
<td>7. Three-Way ANOVA for Phrasing Ratings, Year, Gender, and Movement Type</td>
<td>21</td>
</tr>
<tr>
<td>8. Three-Way ANOVA for Dynamics Ratings, Year, Gender, and Movement Type</td>
<td>21</td>
</tr>
<tr>
<td>9. Three-Way ANOVA for Rubato Ratings, Year, Gender, and Movement Type</td>
<td>21</td>
</tr>
<tr>
<td>10. Three-Way ANOVA for Overall Ratings, Year, Gender, and Movement Type</td>
<td>22</td>
</tr>
<tr>
<td>11. One-Way Analysis of Variance (ANOVA) for Movement Type and Tape Order</td>
<td>22</td>
</tr>
</tbody>
</table>
ABSTRACT

An effective and expressive musical performance is the result of the performer’s presentation of the music to the listener. Research has found listeners often use both musical and non-musical factors to assess these performances. Rating scales which focus on individual musical elements, such as phrasing, dynamics, and rubato, have been found to be a reliable source in evaluating musical performances. Non-musical factors, which include race, gender, age, and physical appearance, have also been found to affect evaluations of performance. However, due to the subjective nature of non-musical factors, it is often difficult to determine if and to what degree these aspects influence performance ratings. Therefore, the purpose of this study was to investigate the influence of physical movement on the listeners’ perception of musical performance. Furthermore, relationships between movement types of head and facial, full body, and no movement, by the musical elements of phrasing, dynamics, rubato, and overall performance were also investigated. Results found the pianist’s physical movements significantly increased participants’ ratings of the performances. Additionally, as the pianist’s physical movements increased so did the participants ratings of phrasing, dynamics, rubato, and overall musical performance. No significant differences were found for the same categories, however, when participants were divided by year in school, gender, and year in school by gender.
CHAPTER I

Introduction

Musical expression is a three-part progression in which the composer, performer, and listener all play a vital role (Levinson, 1987; Lussy, 1892; Nakamura, 1987; Seashore, 1938). The process begins with the first written notes of the composition and ends with the listener’s perception of the performance. The composer’s guidelines and the performer’s interpretation of those intentions work together to bring the desired musical effect to the listener. In order to understand how expression in music is communicated and perceived, it is important to look at the entire process.

The process of musical expression begins with the composer effectively translating his or her ideas into some tangible form of musical notation. This is the most crucial step in the entire compositional process because the limitations inherent in our musical notation system are unable to adequately represent musical expression (Gabrielsson, 1993). While the symbols used to notate music provide a substantial amount of information to the performing musician, they only serve as an outline, which ultimately must be filled in by the performer. Lost in the notation system are ideas of musical expression and nuances, which cannot be properly notated using symbols. Therefore, the composer must describe as accurately as possible what his or her musical intentions are for the performer to interpret.

The composer describes his or her musical ideas and expression through various guidelines or “structural phenomena” (Spencer & Temko, 1988). These phenomena consist of musical elements that contain, but are not limited to, rhythm, meter, tempo, tonality, dynamics, articulation, phrase markings, register, density, and structure. Again, because of limitations these elements by themselves do not create musical expression, but rather provide the only way for the composer to describe to the performer the sound he or she intends. Take, for example, the use of articulation. An articulation is notated in the music to not only describe a certain technique, but also to request a particular type of sound (New Grove Dictionary of Music and Musicians, 2000).

After the composer finishes the score, the process of musical expression transfers to the performer. The performer’s responsibility is to take the notation provided by the composer and to interpret these guidelines to create an expressive performance. While expressing the music to the listener, the performer must try to remain true to the composer’s intentions, but the
interpretation becomes the performer’s vision or perspective of a work (New Grove Dictionary of Music and Musicians, 2000).

The performer’s perspective is an important step in the process of musical expression. If the composer’s notated music is taken literally and not subjected to the performer’s interpretation, then the entire process of musical expression would never reach the listener. Interpretation, for the performer, becomes an act of translating his or her knowledge and training to musically express the composer’s intentions. Therefore, the art of performing is not an act of reconstruction, but rather an act of conception, allowing the performer’s own musical ideas and thoughts to shape the piece.

The last step in the three-part progression of musical expression is the listener’s perception, but it must not be viewed as a separate entity from the other two parts. The composer, performer, and listener all work in a symbiotic relationship that requires each part in order for the others to exist. For without the listener, there is no one to receive the musical expression. Without the performer, there is no medium for the composer to present his musical ideas to the listener. And without the composer, no musical ideas or expression are created, thereby negating the whole process.

As stated earlier, the composer’s role in the process of musical expression is to accurately notate musical ideas and intentions to the performer. The performer interprets these guidelines and presents them in his or her own voice to the listener. The listener, in turn, receives the musical performance and perceives the expression of the music based on what was presented by the performer. Since the listener has no direct contact with the composer, he or she receives the musical expression solely from the performer. Therefore, the listeners’ perception of the music is affected by the way it is presented to them by the performer (The New Grove Dictionary of Music and Musicians, 2000). The manner in which the performer presents the music to the listener and the influence this presentation may have on the listener’s perception of musical expression is the subject of the present investigation.

**Purpose**

The purpose of this study was to investigate the influence of a pianist’s physical movement on the listeners’ perception of musical performance. Further, relationships between three movement types, none, head and facial, and full body, by the musical elements of phrasing,
dynamics, rubato, and overall performance were explored. The research questions which were examined in this study included:

**Research Questions**

1. Does a pianist’s physical movements influence the listener’s musical evaluations of the performance?
2. Do physical movements influence musical evaluations of the individual elements of phrasing, dynamics, rubato, and overall musical performance?
3. Do undergraduate and graduate listeners evaluate the pianist’s performances differently based upon the physical movements employed?
4. Do male and female listeners evaluate the pianist’s performances differently based upon the physical movements employed?
5. Does an interaction exist between gender and year in school of the listeners when evaluating the pianist’s physical movements?
CHAPTER II
Review of Literature

Musical Expression

An expressive performance is a goal for all performing musicians. The expressiveness of the musician and its effect on the listener has been the subject of an extensive amount of research. Specifically, the performer and the listener have been analyzed to determine what traits contribute to the overall musical experience.

Gabrielsson and Juslin (1996), and in a later study Gabrielsson (1999), examined how emotional expression is attained in music performance. Performers were asked to play the tune What Shall We Do With the Drunken Sailor and to make it sound happy, sad, angry, fearful, solemn, tender, and without expression. Results indicated that certain musicians were able to communicate the desired emotions better than others to the listener. Thus, the following question is raised: What qualities are inherent in certain musicians that allow them to achieve musical expression in their performances?

Perhaps the answer to that question lies in the idiosyncrasies of the performing musician. As stated earlier, our musical notation system serves as an outline, which is filled in by the performer. A recent study supported this notion by investigating musical rhythm (Gabrielsson, 1992). Participants were recorded performing various pieces of music and were digitally analyzed for rhythmic deviations. Results found musicians played with rhythmic deviations rather than a straight mechanical performance. This study suggests the notated musical rhythm might only be a structural reference, unable to account for the emotional aspects of music.

Sloboda (1983) performed a similar experiment in which he investigated the expressive variation of rhythm of pianists. Data illustrated that pianists vary the duration and intensity of notes and rhythms in order to achieve expressiveness. More experienced players increased the use of expressive variation as compared to less experienced players. In a more recent study, Woody (2002) examined the expressiveness of musicians and found similar results. In both investigations, findings concur with the Gabrielsson (1992) study, which suggested that experienced musicians tend to slightly deviate from the notated rhythm in order to play more expressively.
In addition to rhythmic variance, research has examined the use of musical nuances. Johnson (1996) analyzed the use of rubato in expressive performances. Music majors and nonmusic majors listened to four different performances of an excerpt of Mozart’s 2nd Horn Concerto and rated the use of rubato, musicianship, expression, tone quality, and tempo. Results from this study demonstrated there was a direct correlation between the proficiency level of the musician and his or her evaluation of usage of rubato in performance. Conclusions supported the proposal that the use of rubato may be a significant musical element that allows for a musically expressive performance.

Palmer (1989) examined performers’ expressive timing methods and their use in musical performances. Pianists performed a Mozart excerpt on a computer-monitored keyboard. The musicians were asked to perform the piece both musically, with expression, and mechanically, without expression. The results yielded an increase in the use of chord asynchronies, rubato, and overlaps of notes in the musical performances as opposed to the unmusical performances. Further, results found chord asynchronies of the melodic notes preceded all other notes in the chord, the rubato patterns had the greatest change at the beginning and ending of phrases, and the duration of the overlapping notes related to the melody. This indicates the performer’s expressive timing relates to his or her interpretation of the notated structural content.

Research has also investigated the structural content of music and dynamic intentions (Nakamura, 1987). This study found a connection between pianists’ dynamic intentions and the intensity changes in the performance. In addition, the listener was able to clearly perceive the dynamic intentions of the performer. The data suggests that dynamics and intensity of sound may be a factor that allows the performer to communicate his or her intentions to the listener.

The listener’s perception of specific elements in music was investigated by Madsen and Geringer (1990). In this study, music and non-music majors were asked to listen to 10 orchestral excerpts and to notate their attention on the musical elements of rhythm, dynamics, timbre, and melody, and “everything”. Musicians focused, in descending order, on melody, rhythm, dynamics, and timbre, while nonmusicians focused on dynamics, melody, timbre, “everything”, and rhythm, respectively. This study suggests the level of musical training may alter what aspects the listeners focus on.
Physical Characteristics

A person’s physical characteristics separate them from everyone else. Some of the obvious differences in personal characteristics are the gender, race, and attractiveness of the individual. Research has shown that these traits affect the way a person is perceived. The influence of the physical characteristics on the listener’s perception and preference of music has been investigated over the past few decades.

Killian (1990) investigated the issues of race and gender on the effect of modeling on musical preference. Junior high school males and females, made up of African-Americans, Caucasians, and Hispanics, were shown a videotape of performers of various genders and races singing “We are the World.” The students were asked to select the solos they would prefer to sing. Results found students’ preferences stayed within their same gender and race. This suggests that gender and race may affect the listener’s perception of musical preference. These results were validated by McCrary (1993) who also investigated the musical preferences of African-American and white students. McCrary found that the overall preference responses of African-American and white listeners stayed within the same race.

Morrison (1998) studied the effect of musical and musical/visual conditions on the preferences of African-American and white music students. Participants were divided into one of three groups. Group 1 received music only, group 2 received music and a photograph of the performer(s), while group 3 received music and a photograph of a performer who was of a different race than the actual performing musician. Each participant listened to 10 musical excerpts and recorded their responses using a Likert-type scale. Results indicated that white students preferred the white performers across all conditions. African-American students preferred the white performers when given the music alone condition, but preferred the African-American performers when given the music/visual condition. These findings once again suggest that music preferences tend to stay within the same race.

Elliott (1995) also examined gender and race on preferences of musical performance. One white male, one African-American male, one white female, and one African-American female were videotaped performing on the trumpet and flute. The audio was recorded so that it stayed the same for all of the trumpet and flute performances. Data revealed the white performers received higher ratings than the African-American performers regardless of
instrument. It also seemed that gender stereotyping exists with the female trumpet students receiving lower ratings than the female flutists.

In a series of studies, performer attractiveness was analyzed for its effect on the listener. In the first, Wapnick, Darrow, Kovacs, and Dalrymple (1997) observed the effect of physical attractiveness on vocalists’ performance ratings. Eight males and six females were videotaped. The singers were rated on their physical attractiveness, audio-visual performances, and audio-alone recordings taken from the videotaped performances. Results found the singers were given higher ratings with the audio-visual performances compared to the audio-alone performances. In addition, the more attractive performers received higher ratings than the less attractive performers in the audiovisual performances. Another interesting finding discovered the more attractive females received higher ratings than the less attractive performers in the audio-alone performances.

In the second study, Wapnick, Mazza, and Darrow (1998) examined the effects of physical attractiveness, stage behavior, and dress on violinists’ performance ratings. The results of this study concurred with the previous study, which found the more attractive violinists were given higher ratings than the less attractive violinists in both the audio-visual and the audio-alone performance settings. This suggests the more attractive performers may receive more encouragement and opportunities than the less attractive performers, which may lead to enhanced performances.

Wapnick, Mazza, and Darrow (2000) conducted a third study to determine the effects of performer attractiveness on children’s piano performance ratings. Findings for this study revealed again that the more attractive pianists were rated higher than the less attractive pianists in both the audiovisual and audio-alone conditions. In addition, the researchers concluded that in two of the three studies, female judges gave higher ratings than male judges. This may suggest that generally, women are more lenient than men, especially when dealing with performers at a young age.

In a recent investigation, Ryan and Costa-Giomi (2004) also studied physical attractiveness and its relation to piano performance ratings. A total of 75 children, musicians and non-musicians were asked to rate audio and visual piano performances as well as the attractiveness of the performer. Results found audiovisual recordings were rated more reliably than the audio recordings with respect to performance scores. Interestingly, more attractive
females received higher marks than less attractive females, while less attractive males received higher marks than more attractive males. Further, the highest performance ratings were given to the unattractive males, and the unattractive females received the lowest overall ratings. While the data from this study contradicts findings from earlier investigations, it appears that for the most part evaluators favor the more attractive musicians when evaluating performances.

**Performance Judgment**

The assessment of musical performance is a very subjective practice. Adjudicators have devised various methods of analyzing performances to aid in this process. These assessment procedures have been researched over the years to pinpoint the effectiveness of each. However, inter-judge reliability and evaluator experience have been major concerns in the music adjudication process.

Rating scales have been used to help judges isolate specific musical elements when evaluating performances. Saunders and Holahan (1997) investigated the consistency of criteria-specific rating scales on individual music performance. A total of 926 high school instrumentalists were evaluated by 36 adjudicators. A 5-point criteria-specific rating scale was used to evaluate the students’ performances. The data indicated that criteria-specific rating scales are a reliable source of evaluating musical performance, and that the use of these scales allow adjudicators to isolate specific events in the performance.

Fiske (1975) examined whether brass or non-brass specialists rated trumpet performances differently. Subjects listened to 32 performances of an excerpt taken from *The Hollow Men* by Vincent Persichetti. The performances were recorded and randomly selected twice, so that a total of 64 performances were heard. The subjects gave a grade for categories of intonation, rhythm, technique, interpretation, and overall. Data indicated no significant differences in the scores of the two groups. The research also suggests that instead of rating every category, the judge should give one overall grade.

A similar conclusion was gathered in a study involving band and orchestra evaluations. Burnsed, Hinkle, and King (1983) studied the performance evaluation forms of 110 ensembles. Each ensemble was given a rating for tone, intonation, technique, balance, interpretation, musical effect, other factors, and final rating. The results showed that reliability existed between the judge’s performance evaluations. Further, results suggest that judges may have ranked the
ensembles by the overall effect of the performance. This concurs with earlier research that indicated the overall effect rating is the most reliable form of evaluation (Fiske, 1975).

Faculty, peer, and self-evaluations were studied for reliability in assessment of performances (Bergee, 1997). Participants from three different locations rated the performances of undergraduate musicians. Results found faculty and peer evaluations were mostly reliable. This led to a follow up study in which faculty evaluation consistency was further investigated (Bergee, 2003). In this study, separate rating scales were created and measured for brass, percussion, woodwinds, voice, piano, and strings. Selected faculty members rated the performances with respect to their own musical group. Findings indicated that there was consistency from the judges across the board. Further, results revealed that as the adjudication groups increased in size, the data became more reliable.

Research into performance judgment has also considered the effect of experience on an adjudicator. Winter (1993) looked at the effects of experience and training of the evaluator on the evaluations of musical performance. With the use of a music performance assessment form, 33 musicians and music educators watched and rated three piano performances. The evaluators were split into four categories: untrained and inexperienced, trained and inexperienced, untrained and experienced, and trained and experienced. Results found that while experience and training influenced the judges’ assessment of the performances, training was more influential than experience. These findings indicate the amount of training an adjudicator receives before the evaluation of a performance may be more essential than the amount of judging experience.

Summary

Expressive musical performance has been the subject of an extensive amount of research. Researchers have investigated specific idiosyncrasies certain musicians may possess that allows for expressive playing. It seems that all expressive musicians deviate slightly from the written notation of the composer. This seems to occur because of the inability to properly notate the emotional aspects of music. Evidence also suggests that advanced musicians use subtle nuances such as rubato, dynamics, and phrasing to allow for a more expressive performance.

Physical characteristics play a large role in the perception of musical performance. Stereotypes such as gender and race have been shown to have an effect on the judgment of the individual. Stereotyping appears to be prevalent with respect to instruments among males and
females. Racial biases also are apparent as musical preferences tend to stay within the same race. Physical attractiveness has been found to influence the assessment of performances by demonstrating that individuals who are more attractive have improved chances of being rated more favorably than less attractive musicians not only in live performances, but in audio recordings as well.

In music adjudication, research has found the assessment of judges is generally reliable. The use of criteria-rating scales and category ratings are useful in providing feedback to the individual musicians. However, it seems the most effective method of assessment is the use of a global, or overall rating. The use of training sessions for adjudicators has also been found to improve the effectiveness of judging.
CHAPTER III
Methodology

Subject Description

Participants ($N = 112$) for this study were undergraduate and graduate music majors taken from six universities around the country. There was no stipulation as to major instrument of the participants; however, an equal representation of undergraduates and graduates of both genders was actively sought.

Dependent Variable

The Evaluation Form included a demographic section asking participants to indicate their year in school and gender, followed by four questions pertaining to the musical performance of the pianist. The four questions asked the participants to rate the pianist’s performance within the following areas: 1) phrasing, 2) dynamics, 3) rubato, and 4) overall musical performance. These four questions were asked for three different performances, creating a total of 12 questions. All questions on the Evaluation Form used a five point Likert-type scale (1 = poor and 5 = excellent) to rate the performances. Participants were asked to complete this form while viewing the pianist’s physical movement variations on the videotape. A copy of the Evaluation Form is located in Appendix A.

Independent Variables

Pianist

A professional pianist was chosen by the researcher for the study. Since the pianist was viewed from the waist up, he performed wearing a shirt and tie creating the appearance of professional dress.

Movement Types

The pianist was videotaped performing a musical excerpt with three types of physical movement: 1) no movement, 2) head and facial movement, and 3) full body movement. “No Movement” was defined for this experiment as movements restricted to only those required to technically perform the piece. No extraneous movements were allowed. “Head and Facial Movement” was defined as movements restricted to head motions, facial expressions, and those
required to technically perform the piece. “Full Body Movement” was defined as having no movement restrictions.

Gender and Year in School

Participants for this study included both male and female undergraduate and graduate students. An equal representation of undergraduate and graduate males and females was sought.

<table>
<thead>
<tr>
<th></th>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>30</td>
<td>25</td>
<td>55</td>
</tr>
<tr>
<td>Females</td>
<td>30</td>
<td>27</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>52</td>
<td>112</td>
</tr>
</tbody>
</table>

Validation of the Movement Types

The three movement types were validated by the researcher and a reliability observer. The pianist was asked to perform using the three types of physical movement along with the recording multiple times, so that the best example of each type of movement could be videotaped. The researcher and a reliability observer chose one video clip of each type of physical movement and achieved one hundred percent reliability.

Videotape Preparation

The pianist was videotaped performing along with a recorded musical excerpt. The excerpt, chosen by the researcher for this study, was from Frederic Chopin’s *Etude in E Major, Opus 10 No. 3* (measures 1-9) recorded by Vladimir Ashkenazy and lasted approximately 35 seconds. The audio excerpt was played using a portable stereo system. The pianist was asked to perform using the three types of physical movement along with the recording multiple times, so that the best example of each type of movement could be videotaped. A master videotape was then produced from the chosen excerpts. The pianist signed a consent form indicating his compliance to participate in the study and on the stimulus tapes. A copy of the pianist consent form is found in Appendix B.

The performance excerpts were recorded using a Sony DCR-HC30 Mini DV Camcorder on Sony DV Tape. These excerpts were digitally placed onto a computer so the visual images
could be combined with a professional recording. Pinnacle Studio 9 Video Editing Software was used to create the entire video program. The digital video was then converted back to analog tapes using a VCR to create the master stimulus videotapes.

Audio excerpts demonstrating varying degrees of pianists’ phrasing, dynamics, and use of rubato were presented at the beginning of the videotape to illustrate how to fill out the Evaluation Form. These examples allowed participants to listen to audio samples of individual piano performances while viewing a possible appropriate rating for each before beginning the study. Immediately following the examples, directive screens were shown asking the subjects to take out their Evaluation Form, fill out the demographic area, fill out only one set of questions for each performance, and match the performance on the Evaluation Form to the performance shown on the videotape. After the directions, a screen which read “Performance #1” was shown directly before viewing the first performance excerpt. For the following two performances, directive screens asking the participants to correspond their evaluation form with the correct performance were shown. Between the three performance excerpts a piece of Renaissance instrumental music was played. Since the audio for each performance was the same, this music was chosen to allow time for the listener to notate their responses, notify the listener that a new performance would begin shortly, and to possibly create a new listening slate.

A total of three stimulus videotapes were made. Each videotape contained all three performances but differed in presentation order. This presentation order was randomly selected a priori. The example items were presented in the same order at the beginning of the stimulus videotapes. The intent of using three different stimulus tapes was to help control for possible order effects. An attempt was made to equally divide the participants so the same number watched each videotape with respect to year in school and gender. The duration of the videotape was approximately six minutes in length.

Procedures

An email letter was sent to college instructors at twelve institutions to see if they would be willing to participate in this study. A copy of the letter is located in Appendix C. Six instructors agreed to participate in the study. The master videotape(s), subject consent forms, evaluation forms, and directions for the instructors were sent to the participating universities. In the instructor’s packet of materials were the procedures for running the study, which included
how to set up the class for participation and how to correctly fill out the Evaluation Form. A copy of the directions for teachers is located in Appendix D.

Teachers were asked to secure a color television and VCR immediately prior to running the study. Before viewing the videotape, each participant was asked to read the consent form. Completion of the questionnaire was considered consent to participate in the study. A copy of the subject consent form is located in Appendix E. A short introduction was read to the participants immediately prior to viewing the videotape. The introduction contained a reason why the pianist was performing the same musical excerpt, the length of each performance clip, and directions of how to correctly complete the Evaluation Form.

**Research Design**

A Three-Way between-subjects analysis of variance (ANOVA) was conducted to analyze the questions from the Evaluation Form. Four questions were asked for each of the three separate performances creating a total of 12 questions. In addition, One-Way repeated measures analysis of variance (ANOVA) tests were used to determine any differences in order of movement type.

**Equipment Needed**

1. Color Television set
2. VCR
3. Stimulus Master Videotape
4. Directions for the Teacher Form
5. Subject Consent Forms
6. Evaluation Forms
7. Return postage and self-addressed stamped envelopes
CHAPTER IV

Results

The purpose of this study was to examine the influence of a pianist’s physical movements on listeners’ evaluations of musical performance. Relationships between movement types of none, head and facial, and full body, by the musical elements of phrasing, dynamics, rubato, and overall performance were also investigated. The research questions that were explored in this study included:

1. Does a pianist’s physical movements influence the listener’s musical evaluations of the performance?
2. Do physical movements influence musical evaluations of the individual elements of phrasing, dynamics, rubato, and overall musical performance?
3. Do undergraduate and graduate listeners evaluate the pianist’s performances differently based upon the physical movements employed?
4. Do male and female listeners evaluate the pianist’s performances differently based upon the physical movements employed?
5. Does an interaction exist between gender and year in school of the listeners when evaluating the pianist’s physical movements?

Calculation of the Dependent Variable

One hundred twelve subjects from six universities participated in the study. Each participant completed an evaluation form which was comprised of 12 questions. Of these 12 questions, four questions were for Performance #1, four questions were for Performance #2, and four questions were for Performance #3. However, each set of four questions was identical for each performance. The first question for each performance asked the participant to rate the pianist’s phrasing. The second question for each performance asked for a rating of dynamics. The third question for each performance asked for a rating of rubato. The fourth question asked the participant to rate the overall musical performance. The rating scores for phrasing, dynamics, rubato, and overall were summed together to create a total rating score by movement type for each participant. These rating scores were divided by participants in groupings of all participants, undergraduates, graduates, males, females, undergraduate males, undergraduate
females, graduate males, and graduate females. A mean was obtained for each of the movement types creating a total performance rating within the range of 4 and 20 points for each of the participant groupings. These total means and standard deviations are listed in Table 1.

Table 1

Mean Total Ratings and Standard Deviations by Movement Type, Year in School, and Gender

<table>
<thead>
<tr>
<th>Movement Type</th>
<th>All</th>
<th>Undergraduates</th>
<th>Graduates</th>
<th>Males</th>
<th>Females</th>
<th>Undergraduate Males</th>
<th>Undergraduate Females</th>
<th>Graduate Males</th>
<th>Graduate Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Head Movement</td>
<td>12.55</td>
<td>2.940</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12.17</td>
<td>2.880</td>
<td></td>
</tr>
<tr>
<td>Body Movement</td>
<td>15.19</td>
<td>2.549</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15.26</td>
<td>3.820</td>
<td></td>
</tr>
</tbody>
</table>

In examining the mean total performance ratings, several trends were noticeable. Participants, regardless of year in school or gender, rated the pianist’s performance higher with the increase of physical movement. To test whether these increases were significant, a Three-Way analysis of variance (ANOVA) was calculated comparing total performance ratings with year, gender, and movement type. Results are listed in Table 2.
Table 2  
*Three-Way ANOVA for Total Ratings, Year, Gender, and Movement Type*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>639.252</td>
<td>2</td>
<td>319.626</td>
<td>35.67</td>
<td>.000</td>
</tr>
<tr>
<td>Year</td>
<td>27.610</td>
<td>2</td>
<td>13.805</td>
<td>1.541</td>
<td>.217</td>
</tr>
<tr>
<td>Gender</td>
<td>4.451</td>
<td>2</td>
<td>2.226</td>
<td>.248</td>
<td>.780</td>
</tr>
<tr>
<td>Year &amp; Gender</td>
<td>3.799</td>
<td>2</td>
<td>1.899</td>
<td>.212</td>
<td>.809</td>
</tr>
</tbody>
</table>

Significant differences were found for movement type when all participants were combined. No significant differences were found for movement type when participants were divided by year in school, gender, or year in school by gender.

In order to examine the influence of the three movement types on the individual elements, comparisons were made between individual questions of the three performances. The first question of each performance asked the participants to rate the pianist’s phrasing. The second question of each performance asked the participants to rate the pianist’s dynamics. The third question of each performance asked the participants to rate the pianist’s rubato. The fourth question of each performance asked the participants to rate the overall musical performance. Mean ratings and standard deviations were then calculated for the independent elements of phrasing, dynamics, rubato, and overall performance ratings. These rating scores were divided by participants in groupings of all participants, undergraduates, graduates, males, females, undergraduate males, undergraduate females, graduate males, and graduate females. A mean was obtained for each of the movement types creating a phrasing, dynamics, rubato, and overall rating within the range of 4 and 20 points. These total means and standard deviations are listed for each individual element. The mean phrasing ratings are listed in Table 3. The mean dynamics ratings are listed in Table 4. The mean rubato ratings are listed in Table 5. The mean overall ratings are listed in Table 6.
### Table 3

*Mean Phrasing Ratings and Standard Deviations by Movement Type, Year in School, and Gender*

<table>
<thead>
<tr>
<th></th>
<th>No Movement</th>
<th></th>
<th>Head Movement</th>
<th></th>
<th>Body Movement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>All</td>
<td>3.02</td>
<td>1.022</td>
<td>3.24</td>
<td>0.786</td>
<td>3.86</td>
<td>0.708</td>
</tr>
<tr>
<td>Undergraduates</td>
<td>3.03</td>
<td>0.991</td>
<td>3.28</td>
<td>0.783</td>
<td>3.75</td>
<td>0.680</td>
</tr>
<tr>
<td>Graduates</td>
<td>3.00</td>
<td>1.066</td>
<td>3.19</td>
<td>0.793</td>
<td>3.98</td>
<td>0.727</td>
</tr>
<tr>
<td>Males</td>
<td>2.95</td>
<td>0.989</td>
<td>3.15</td>
<td>0.848</td>
<td>3.84</td>
<td>0.714</td>
</tr>
<tr>
<td>Females</td>
<td>3.09</td>
<td>1.057</td>
<td>3.33</td>
<td>0.715</td>
<td>3.88</td>
<td>0.709</td>
</tr>
<tr>
<td>Undergraduate Males</td>
<td>2.90</td>
<td>0.960</td>
<td>3.17</td>
<td>0.747</td>
<td>3.63</td>
<td>0.669</td>
</tr>
<tr>
<td>Undergraduate Females</td>
<td>3.17</td>
<td>1.020</td>
<td>3.40</td>
<td>0.814</td>
<td>3.87</td>
<td>0.681</td>
</tr>
<tr>
<td>Graduate Males</td>
<td>3.00</td>
<td>1.041</td>
<td>3.12</td>
<td>0.971</td>
<td>4.08</td>
<td>0.702</td>
</tr>
<tr>
<td>Graduate Females</td>
<td>3.00</td>
<td>1.109</td>
<td>3.26</td>
<td>0.594</td>
<td>3.89</td>
<td>0.751</td>
</tr>
</tbody>
</table>

### Table 4

*Mean Dynamics Ratings and Standard Deviations by Movement Type, Year in School, and Gender*

<table>
<thead>
<tr>
<th></th>
<th>No Movement</th>
<th></th>
<th>Head Movement</th>
<th></th>
<th>Body Movement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>All</td>
<td>2.96</td>
<td>1.126</td>
<td>3.09</td>
<td>0.926</td>
<td>3.62</td>
<td>0.850</td>
</tr>
<tr>
<td>Undergraduates</td>
<td>3.12</td>
<td>1.043</td>
<td>3.27</td>
<td>0.989</td>
<td>3.68</td>
<td>0.892</td>
</tr>
<tr>
<td>Graduates</td>
<td>2.77</td>
<td>1.198</td>
<td>2.88</td>
<td>0.808</td>
<td>3.56</td>
<td>0.802</td>
</tr>
<tr>
<td>Males</td>
<td>2.91</td>
<td>1.093</td>
<td>3.13</td>
<td>0.883</td>
<td>3.69</td>
<td>0.836</td>
</tr>
<tr>
<td>Females</td>
<td>3.00</td>
<td>1.165</td>
<td>3.05</td>
<td>0.971</td>
<td>3.56</td>
<td>0.866</td>
</tr>
</tbody>
</table>
### Table 4 – Continued

<table>
<thead>
<tr>
<th>Movement Type</th>
<th>No Movement</th>
<th>Head Movement</th>
<th>Body Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate Males</td>
<td>2.97, 1.033</td>
<td>3.23, 0.935</td>
<td>3.80, 0.925</td>
</tr>
<tr>
<td>Undergraduate Females</td>
<td>3.27, 1.048</td>
<td>3.30, 1.055</td>
<td>3.57, 0.858</td>
</tr>
<tr>
<td>Graduate Males</td>
<td>2.84, 1.179</td>
<td>3.00, 0.816</td>
<td>3.56, 0.712</td>
</tr>
<tr>
<td>Graduate Females</td>
<td>2.70, 1.235</td>
<td>3.05, 0.971</td>
<td>3.56, 0.892</td>
</tr>
</tbody>
</table>

### Table 5

*Mean Rubato Ratings and Standard Deviations by Movement Type, Year in School, and Gender*

<table>
<thead>
<tr>
<th>Movement Type</th>
<th>No Movement</th>
<th>Head Movement</th>
<th>Body Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>3.05, 1.114</td>
<td>3.10, 0.859</td>
<td>3.90, 0.805</td>
</tr>
<tr>
<td>Undergraduates</td>
<td>3.15, 0.971</td>
<td>3.15, 0.840</td>
<td>3.80, 0.840</td>
</tr>
<tr>
<td>Graduates</td>
<td>2.94, 1.259</td>
<td>3.04, 0.885</td>
<td>4.02, 0.754</td>
</tr>
<tr>
<td>Males</td>
<td>3.02, 1.114</td>
<td>3.05, 0.911</td>
<td>3.91, 0.800</td>
</tr>
<tr>
<td>Females</td>
<td>3.09, 1.123</td>
<td>3.14, 0.811</td>
<td>3.89, 0.817</td>
</tr>
<tr>
<td>Undergraduate Males</td>
<td>3.10, 0.960</td>
<td>3.17, 0.791</td>
<td>3.83, 0.791</td>
</tr>
<tr>
<td>Undergraduate Females</td>
<td>3.20, 0.997</td>
<td>3.13, 0.900</td>
<td>3.77, 0.898</td>
</tr>
<tr>
<td>Graduate Males</td>
<td>2.92, 1.288</td>
<td>2.92, 1.038</td>
<td>4.00, 0.816</td>
</tr>
<tr>
<td>Graduate Females</td>
<td>2.96, 1.255</td>
<td>3.15, 0.718</td>
<td>4.04, 0.706</td>
</tr>
</tbody>
</table>
### Table 6

**Mean Overall Ratings and Standard Deviations by Movement Type, Year in School, and Gender**

<table>
<thead>
<tr>
<th></th>
<th>No Movement</th>
<th></th>
<th>Head Movement</th>
<th></th>
<th>Body Movement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$S$</td>
</tr>
<tr>
<td>All</td>
<td>3.07</td>
<td>0.956</td>
<td>3.13</td>
<td>0.818</td>
<td>3.80</td>
<td>0.655</td>
</tr>
<tr>
<td>Undergraduates</td>
<td>3.18</td>
<td>0.930</td>
<td>3.18</td>
<td>0.833</td>
<td>3.75</td>
<td>0.628</td>
</tr>
<tr>
<td>Graduates</td>
<td>2.94</td>
<td>0.978</td>
<td>3.06</td>
<td>0.802</td>
<td>3.87</td>
<td>0.687</td>
</tr>
<tr>
<td>Males</td>
<td>3.05</td>
<td>0.931</td>
<td>3.13</td>
<td>0.840</td>
<td>3.85</td>
<td>0.678</td>
</tr>
<tr>
<td>Females</td>
<td>3.09</td>
<td>0.987</td>
<td>3.12</td>
<td>0.803</td>
<td>3.75</td>
<td>0.635</td>
</tr>
<tr>
<td>Undergraduate Males</td>
<td>3.07</td>
<td>0.907</td>
<td>3.17</td>
<td>0.791</td>
<td>3.73</td>
<td>0.640</td>
</tr>
<tr>
<td>Undergraduate Females</td>
<td>3.30</td>
<td>0.952</td>
<td>3.20</td>
<td>0.887</td>
<td>3.77</td>
<td>0.626</td>
</tr>
<tr>
<td>Graduate Males</td>
<td>3.04</td>
<td>0.978</td>
<td>3.08</td>
<td>0.909</td>
<td>4.00</td>
<td>0.707</td>
</tr>
<tr>
<td>Graduate Females</td>
<td>2.85</td>
<td>0.989</td>
<td>3.04</td>
<td>0.706</td>
<td>3.74</td>
<td>0.656</td>
</tr>
</tbody>
</table>

The mean performance ratings of phrasing, dynamics, rubato, and overall performance also indicate differences between the three types of physical movement. Again, participants, regardless of year in school or gender, rated the pianist’s performance higher with the increase of physical movement. The only exception to this was a slight decrease in undergraduate females from no movement to head movement in ratings of rubato and overall, as well as the same mean ratings in undergraduates for no movement and head movement in ratings of rubato and overall. To test whether these increases were significant, a Three-Way analysis of variance (ANOVA) was calculated for the individual element ratings. The results for phrasing are listed in Table 7. The results for dynamics are listed in Table 8. The results for rubato are listed in Table 9. The results for the overall performance are listed in Table 10.
Table 7  
3-Way ANOVA for Phrasing Ratings, Year, Gender, and Movement Type

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>43.408</td>
<td>2</td>
<td>21.704</td>
<td>31.539</td>
<td>.000</td>
</tr>
<tr>
<td>Year</td>
<td>1.698</td>
<td>2</td>
<td>.849</td>
<td>1.234</td>
<td>.293</td>
</tr>
<tr>
<td>Gender</td>
<td>.396</td>
<td>2</td>
<td>.198</td>
<td>.288</td>
<td>.750</td>
</tr>
<tr>
<td>Year &amp; Gender</td>
<td>.380</td>
<td>2</td>
<td>.190</td>
<td>.276</td>
<td>.759</td>
</tr>
</tbody>
</table>

Table 8  
3-Way ANOVA for Dynamics Ratings, Year, Gender, and Movement Type

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>28.570</td>
<td>2</td>
<td>14.285</td>
<td>16.042</td>
<td>.000</td>
</tr>
<tr>
<td>Year</td>
<td>1.046</td>
<td>2</td>
<td>.523</td>
<td>.588</td>
<td>.557</td>
</tr>
<tr>
<td>Gender</td>
<td>.626</td>
<td>2</td>
<td>.313</td>
<td>.352</td>
<td>.704</td>
</tr>
<tr>
<td>Year &amp; Gender</td>
<td>1.699</td>
<td>2</td>
<td>.849</td>
<td>.954</td>
<td>.387</td>
</tr>
</tbody>
</table>

Table 9  
3-Way ANOVA for Rubato Ratings, Year, Gender, and Movement Type

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>52.540</td>
<td>2</td>
<td>26.270</td>
<td>34.260</td>
<td>.000</td>
</tr>
<tr>
<td>Year</td>
<td>2.809</td>
<td>2</td>
<td>1.405</td>
<td>1.832</td>
<td>.163</td>
</tr>
<tr>
<td>Gender</td>
<td>.192</td>
<td>2</td>
<td>.096</td>
<td>.125</td>
<td>.882</td>
</tr>
<tr>
<td>Year &amp; Gender</td>
<td>.353</td>
<td>2</td>
<td>.177</td>
<td>.230</td>
<td>.795</td>
</tr>
</tbody>
</table>
Table 10
3-Way ANOVA for Overall Ratings, Year, Gender, and Movement Type

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>38.379</td>
<td>2</td>
<td>19.189</td>
<td>32.689</td>
<td>.000</td>
</tr>
<tr>
<td>Year</td>
<td>1.863</td>
<td>2</td>
<td>.932</td>
<td>1.587</td>
<td>.207</td>
</tr>
<tr>
<td>Gender</td>
<td>.286</td>
<td>2</td>
<td>.143</td>
<td>.244</td>
<td>.784</td>
</tr>
<tr>
<td>Year &amp; Gender</td>
<td>.423</td>
<td>2</td>
<td>.212</td>
<td>.361</td>
<td>.698</td>
</tr>
</tbody>
</table>

Significant differences were found for phrasing, dynamics, rubato, and overall ratings when all participants were combined. No significant differences were found for phrasing, dynamics, rubato, and overall ratings when participants were divided by year in school, gender, or year in school by gender.

**Order Effect for Tape Presentation**

An attempt was made to help control for order effect by dividing the participants by year in school and gender so roughly the same number watched each videotape. All three videotapes contained the same three movement types; however, each videotape differed in presentation order. Three one-way repeated measures analyses of variance (ANOVA) were conducted to determine whether any differences in the presentation order of movement type existed. Results are listed in Table 11.

Table 11
One-Way Analysis of Variance (ANOVA) for Movement Type and Tape Order

<table>
<thead>
<tr>
<th></th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>Between Groups</td>
<td>26.252</td>
<td>2</td>
<td>13.126</td>
<td>.911</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>1569.668</td>
<td>109</td>
<td>14.401</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1595.920</td>
<td>111</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SS</td>
<td>df</td>
<td>MS</td>
<td>F</td>
<td>p</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------</td>
<td>----</td>
<td>-------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>Head/Facial Between Groups</td>
<td>254.394</td>
<td>2</td>
<td>127.197</td>
<td>19.658</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>705.284</td>
<td>109</td>
<td>6.470</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>959.679</td>
<td>111</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Body Between Groups</td>
<td>106.799</td>
<td>2</td>
<td>53.399</td>
<td>9.476</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>614.264</td>
<td>109</td>
<td>5.635</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>721.063</td>
<td>111</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Due to significant differences between presentation order and “head and facial” and “full body” movements, pairwise comparisons with Bonferroni corrections for multiple comparisons were then conducted to determine where these differences occurred. Results indicated that there was a significant difference between the order for both head and facial movements as well as the full body movements. Statistically significant differences occurred for the head and facial movements between tape orders 1 and 2 ($p < .001$) and tape orders 1 and 3 ($p < .001$). Statistically significant differences occurred for the body movements between tape orders 1 and 3 ($p < .001$) and tape orders 2 and 3 ($p < .01$).
CHAPTER V
Discussion

The evaluation of musical performance is a very complex and subjective practice. Non-musical factors appear to play a large role in the listener’s assessment of the performance. The purpose of this research was to determine whether physical movement influenced listeners’ perception of musical performance. Further, relationships between three movement types: none, head and facial, and full body, by the musical elements of phrasing, dynamics, rubato, and overall performance were explored. This study tried to answer the following questions:

1. Does a pianist’s physical movements influence the listener’s musical evaluations of the performance?
2. Do physical movements influence the musical evaluations of the individual elements of phrasing, dynamics, rubato, and overall musical performance?
3. Do undergraduate and graduate listeners evaluate the pianist’s performances differently based upon the physical movements employed?
4. Do male and female listeners evaluate the pianist’s performances differently based upon the physical movements employed?
5. Does an interaction exist between gender and year in school of the listeners when evaluating the pianist’s physical movements?

Discussion of Results

Research Questions 1, 2, 3, 4, & 5

The pianist’s physical movements significantly influenced the performance ratings given by the listeners. The “full body movement” condition received the highest total, as well as the highest score for each of the individual elements of phrasing, dynamics, rubato, and overall musical performance. The “head and facial movement” condition received the next highest total and scores for phrasing, dynamics, rubato, and overall musical performance. The “no movement” condition received the lowest ratings for all of the performance categories. These results are interesting because the audio portion of the performance examples remained the same throughout all three different physical movement conditions. Because the physical movements were the only variable that changed between performances, evidence from this study seems to
indicate that the visual aspects of the performances may have had an impact on the listeners’ evaluations. This lends support to earlier research which has found visual aspects are some of the non-musical traits of a performer that affect their evaluations (Costa-Giomi & Ryan, 2004; Wapnick, Mazza, & Darrow, 1998; Wapnick, Mazza, & Darrow, 2000; Wapnick, Darrow, Kovacs, & Dalrymple, 1997).

In examining the assessment of phrasing, dynamics, and rubato, it is interesting to note these individual elements of music were affected by the presence of physical movement. Earlier research has found that the use of these elements may enhance musical performances (Johnson, 1996; Palmer, 1989; Nakamura, 1987). While these elements may aid in the performance of the musician, they also are influenced in performance evaluation by visual aspects. Saunders and Holahan (1997) concluded that criteria-specific rating scales allowed adjudicators to pinpoint specific musical elements and events in performance assessment. Results from the present study suggest that music evaluators should take notice that all rating scales, including those designed to evaluate the overall musical performance as well as to rate specific musical elements, are influenced by the visual aspects of the performer.

Year in school, gender, and year in school by gender, however, did not significantly influence the ratings of the performances. These findings are in direct contrast with earlier research. Winter (1993) found evaluator experience and training affected the assessment of musical performance. Results in this study, however, found graduate and undergraduate participants were influenced in their ratings by the pianist’s physical movements. It is also encouraging to note the visual aspects of the pianist were viewed equally amongst males and females, thus creating no bias with respect to gender.

Tape Presentation Order Effect

Three different stimulus videotapes were used in this study to help control for order effect. Since three physical movement conditions were used, a total of six order combinations were possible. Three of these combinations were randomly selected and used for the three videotapes. There was a significant difference between total “head and facial movement” ratings of tape order #1 and #2 as well as tape order #1 and #3. In addition, there was a significant difference between total “full body movement” ratings of tape order #1 and #3 as well as tape
order #2 and #3. The presence of this significant order effect may have confounded the findings between the physical movement conditions.

Conclusions

The results in this study found a relationship between the physical movement of the performer and the performance ratings of the listener. While previous literature has described the process of musical expression as a three-part progression which originates with the composer and is presented to the listener via the performer, perhaps the overall musical presentation the listener receives is comprised of more than just the music. If the art of performing is viewed as an act of conception by the performer, then the visual aspects of the performer(s) may be another substantial component of the overall musical presentation.

Research has found the individual elements of phrasing, dynamics, and rubato enhance the expressiveness of a musical performance (Johnson, 1996; Palmer, 1989; Nakamura, 1987). Research has also found the use of these elements appear to set apart the expressive performances of expert musicians from novice musicians (Gabrielsson, 1999; Gabrielsson & Juslin, 1996; Johnson, 1996; Palmer, 1989; Gabrielsson, 1992; Gabrielsson, 1982). While no previous research has examined the relationship between the visual aspects of a performer and the individual elements which create a musically expressive performance, the results of this study found the addition of physical movement only amplified the listeners’ perception of these elements. Thus, as the performer’s movements increased so did the subsequent ratings for those elements found to be a part of a musically expressive performance. A possible explanation for this could be that listeners may have musical and non-musical expectations of a performing musician and their overall musical presentation. Perhaps listeners have preconceived notions about what they expect to not only hear but also see from a performer. Do these expectations extend to musicians of varying skill levels? Are there differences in the listeners’ view of physical movement of expert musicians versus novice musicians? The answer to this might be that novice musicians are not mature enough in their musical development to integrate physical movement into the performance, a process which seems to be inherent in expert musicians.

While results from this study indicated the physical movements of a performer influenced the listeners’ perception of the music, the degree to which the movements impact the actual musical performance should be examined. Since only three expressive elements, phrasing,
dynamics, and rubato, in addition to the overall performance, were explored in this study, investigations into other expressive elements is needed. Further, research on the influence of various types of physical movement on the listeners’ musical evaluations should also be conducted. Therefore, future research into music performance is warranted, specifically the extent to which non-musical factors influence the listeners’ perception.

Limitations of the Study

Several limitations became apparent during the course of this study. First, the presence of an order effect may have altered the results of the physical movement stimuli. This study used three of the possible six combinations of physical movement presentation order. The use of all six videotapes to obtain an equal representation of undergraduate males, undergraduate females, graduate males, and graduate females may help to counterbalance the order effect.

Another limitation of the study may have been the number of participants used. One hundred twelve participants from the Southeast, Northeast, Eastern, Midwest, and Southwest regions of the country were used. Perhaps obtaining participants from the Northwest region as well as a larger overall population would give a more accurate representation and diversity of musicians and would strengthen the results found in this study.

A final limitation may have been the type of participants used in the study. While an equal number of undergraduate males, undergraduate females, graduate males, and graduate females were sought, there was no stipulation as to the major instrument of the participants. This study evolved around the assessment of a pianist’s physical movements in relation to the perceived musical performance. Obtaining participants whose major instrument is piano might have had an effect on the ratings. Pianists would be more familiar with the performing medium used in this experiment and may have recognized that the same musical excerpt was used for all three movement types. If this were the case, then the results might have materialized differently.

Implications for Performance Training

This research found that a pianist’s physical movements affected the perception of the musical performance. In light of these findings and earlier research, results seem to indicate a performer’s stage presentation, such as dress and behavior, affects the evaluation of musical performances (Wapnick, Mazza, & Darrow, 1998; Wapnick, Mazza, & Darrow, 2000; Wapnick,
Darrow, Kovacs, & Dalrymple, 1997). Musicians should be aware that their entire presentation, both musical and non-musical, is being assessed. For the field of music education, teachers and music educators should understand the importance of emphasizing proper performance tactics to their students.

**Suggestions for Future Research**

Continuing in this line of study, researchers could expand this topic to a variety of interesting subjects in the field of music. One suggestion would be to expand the population of the participants to include more than just college music majors. The inclusion of middle school students, high school students, college professors, and professional musicians in the study would allow for exploration into the musical perception of musicians at all different stages and proficiency levels. This might provide useful insight into how visual stimuli affects the perceived listening of a variety of musicians.

Another approach for this study would be to investigate the use of physical movement conditions on other performing musicians. It would be interesting to see if physical movement influenced the listening of flutists, violinists, vocalists, or any other performer. Perhaps there are specific idiosyncrasies that are inherent with pianists that would not appear with other musicians. Research into other performing mediums might provide answers to this and other questions with regard to physical movement conditions.

**Summary**

Research has only recently started to examine outside factors that affect musical performance. This study attempted to determine whether physical movement is a condition which alters the listeners’ perception of musical performance. Further, the influence of physical movement on specific musical elements was explored. While it appears that the presence of physical movement does, in fact, influence the listener’s assessment of musical performance, many questions remain as to the depth of this effect. Further research is needed to identify specific traits that affect the evaluation of musical performance.
APPENDIX A

EVALUATION FORM
Year in School
Undergraduate ___
Graduate ___

Gender
Male ___
Female ___

INSTRUCTIONS: Circle the number that corresponds with your rating.

EXAMPLE: How would you rate the football game? Poor 1 Average 2 Excellent 5

PERFORMANCE #1

1. How would you rate the phrasing? Poor 1 Average 2 Excellent 5
2. How would you rate the use of dynamics? Poor 1 Average 2 Excellent 5
3. How would you rate the use of rubato? Poor 1 Average 2 Excellent 5
4. How would you rate the overall musical performance? Poor 1 Average 2 Excellent 5

PERFORMANCE #2

1. How would you rate the phrasing? Poor 1 Average 2 Excellent 5
2. How would you rate the use of dynamics? Poor 1 Average 2 Excellent 5
3. How would you rate the use of rubato? Poor 1 Average 2 Excellent 5
4. How would you rate the overall musical performance? Poor 1 Average 2 Excellent 5

PLEASE TURN OVER
## PERFORMANCE #3

1. How would you rate the phrasing?  
   - Poor (1)  
   - Average (2)  
   - Excellent (5)
2. How would you rate the use of dynamics?  
   - Poor (1)  
   - Average (2)  
   - Excellent (5)
3. How would you rate the use of rubato?  
   - Poor (1)  
   - Average (2)  
   - Excellent (5)
4. How would you rate the overall musical performance?  
   - Poor (1)  
   - Average (2)  
   - Excellent (5)
APPENDIX B

PIANIST CONSENT FORM
PIANIST CONSENT FORM

Influence of Physical Movement on Perceptions of Musical Expression

By signing this form I am voluntarily agreeing to participate as a pianist and consent to being videotaped for 30 minutes for the master videotape. The study is investigating how physical movement affects how others perceive musical expression. As the pianist, my facial expression, body movement, and musicality will be rated by questionnaire by the participants who will view the videotape. The master videotape will be viewed by approximately 250 college or university music majors across the county. I understand that I may withdraw from the study before the videotapes are sent to the participating universities. If I withdraw before the videotape has been sent to participating universities, I understand I will be removed completely from the master videotape.

__________________________________  ___________________
Pianist’s Name (Print)     Date

__________________________________
Pianist’s Name (Signature)

__________________________________  ___________________
Investigator’s Name (Signature)   Date

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.

If you have any questions concerning this research study, please call me at (555) 555-5555 or email me at myname@stateuniversity.com, or you may contact Dr. Kimberly VanWeelden by phone at (555) 555-5555.
APPENDIX C

E-MAIL CORRESPONDENCE
Dear Dr. XXX,

I am currently working on my masters thesis, under the direction of Dr. Kimberly VanWeelden, and would like to ask for your cooperation and assistance in the selection of subjects for my study. The study will focus on the influence of performer body movement on perceptions of musical expression evaluations.

Schools participating in the study will receive a six minute videotape, evaluation forms, and procedural instructions for the cooperating teacher. Subjects will be asked to view the videotape while filling out evaluation forms. Teachers will be asked to read the procedural instructions before the subjects view the videotape, secure and operate a TV and VCR, and mail the evaluation forms back in a pre-paid envelope which I will provide. The entire presentation should take your students no longer than 10 minutes.

In order to ensure the study is conducted correctly, I am asking that the subjects meet the following criteria:
1. The subjects are music majors (education, performance, theory, composition etc.)
2. The subjects are undergraduate or graduate students
3. The subjects are males or females

Additionally, I would need all materials completed and returned to me by Monday, February 7th, 2005.

If you agree to participate, please email the following information to me at
myname@stateuniversity.com.
1. Your Name
2. School's Mailing Address
3. Number of Evaluation Forms Needed

If you are unable to participate, please email me to prevent follow-up emails at
myname@stateuniversity.com. Thank you for your consideration in this matter.

Sincerely,

Jay Juchniewicz
Music Department
University
APPENDIX D

DIRECTIONS FOR THE TEACHERS
Directions for the Teachers

Thank you for agreeing to participate in this study. To ensure that everything runs smoothly and consistently at all the sites, I am including step by step instructions. Please follow these instructions as closely as possible. Thank you.

Before the Study

1. Secure a color TV and VCR large enough for your class to view the videotape.

2. Reserve roughly 10 minutes of class/rehearsal time to administer the study. (The videotape portion is 6 ½ minutes)

Procedures for Running the Study

1. Have students clear off their desks.

2. Students must have a pen or pencil to fill out the forms.

3. Pass out the Subject Consent Form.

4. Ask students to read the Subject Consent Form Letter.

   * If they **agree** to participate in the study, they will continue with the study by watching the videotape and completing the evaluation forms (this is their consent).

   * If they **do not agree** to participate in the study, they should sit quietly while others are participating (do not give them an evaluation form).

   * **All students may keep the Consent Form Letter.**

5. Pass out the Evaluation Forms.

6. Ask students to quickly scan the questions so they get an idea of the types of questions being asked.

(OVER)
7. Read aloud the following statement to the students:

“In the videotape you are about to see a pianist performing the Etude No. 3 in E Major by Frederic Chopin. The pianist shown has entered a piano competition and is required to send in a videotape. He has asked for help in determining which of the three performances is the most musical. You will see and hear roughly 35 seconds of each take of the performance. Please fill out the questions asked for EACH performance while you watch the videotape. Notice that the evaluation form is two-sided. Performances 1 and 2 are on the front and Performance 3 is on the back. Please make sure the performance number on the evaluation form corresponds to the performance number on the videotape. Are there any questions? Please do not talk during the presentation of the videotape. From this time on, all directions for completing the study will be shown on the videotape.”

8. Show the videotape.

9. At the end of the videotape, collect the Evaluation Forms.

After the Study

1. Send the Evaluation Forms and Videotape back to me using the same box with the prepaid return mailing address by February 7th.

If you have any questions or comments concerning the study, please do not hesitate to contact me at (555)555-5555 or myname@stateuniversity.com

Thank you for participating.

Jay Juchniewicz
APPENDIX E

SUBJECT CONSENT FORM
Letter of Consent for Adults

Dear Students,

I am a graduate student in the School of Music at Florida State University. I am conducting a research study to evaluate a pianist’s performances.

I am requesting your participation, which will involve:

1. Completing a demographic section on the evaluation form which will ask for your year in school and gender.

2. Watching a videotape of three piano performances which will last approximately six minutes.

3. Completing an evaluation form which will ask you to rate the phrasing, use of dynamics, rubato, and overall musical performance for each of the three performances.

Your participation in this study is voluntary. If you choose not to participate or withdraw from the study at any time, there will be no penalty and it will not affect your grade. Information obtained during the course of the study will remain confidential to the extent allowed by law. Please note that you must be at least 18 years of age to participate in this study.

If you have any questions concerning this research study, please call me at (555) 555-5555 or email me at myname@stateuniveristy.com, or you may contact Dr. Kimberly VanWeelden by phone at (555) 555-5555.

Return of the completed questionnaire will be considered your consent to participate. Thank you,

Sincerely,

Jay Juchniewicz

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.
REFERENCES


BIOGRAPHICAL SKETCH

Name: Jay Allen Juchniewicz

Birthplace: Grand Rapids, Michigan

Higher Education: Florida State University
Tallahassee, FL
Major: Music Education
Degree: M.M.E. (2005)

Florida State University
Tallahassee, FL
Major: Music Education
Degree: B.M.E. (2001)

High School: Rutherford High School
Panama City, FL
Graduated, 1996

Professional Experience: Jinks Middle School
Panama City, FL
2001 – 2003
Band, Orchestra, Piano, General Music

Bay High School
Panama City, FL
2001 – 2003
Band