

Communicating emotion in piano performance

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Music expression involves tacit knowledge, an elusive and frequently lacking aspect of music education. This paper considers activities related to learning new repertoire. In a supervised performance lab at the Federal University of Rio Grande do Sul, students gather weekly to play and discuss the results of their practice activities and performances. Building on two previous studies (conducted in 2007 and 2008) wherein students were introduced to Russell's "circumplex model" in order to establish a common vocabulary, they were encouraged to label both intended and perceived emotions. In the present study, we present data on the preparation of a lesser-known piece by Schumann without guidance from their piano teachers. After nine weeks, participants were encouraged to discuss their level of achievement by listening to the results of three recording sessions. Parameters such as contour, articulation, tempo, timing, dynamics, movement/gesture, and global coherence were evaluated in order to assess their performances. Two independent referees also graded the third recording session, and these results were quantitatively and qualitatively compared with those of the students. The results suggest a lack of correlation among the parameters. After two more weeks of practice, there was no significant increase in the level of ability and there was also a low degree of correlation between intended and perceived emotions among participants.

Keywords: expression; piano performance; communication; circumplex model

A relevant issue to the study of music performance and perception concerns the ability of players to express emotional intentions and the ability of listeners to recognize them. This subject has already been investigated from several different points of view. For instance, Timmers (2007) investigated the relationship between vocal expression, musical structure, and emotion in re-

corded performances by famous singers of three Schubert songs. Timmers observed that variations in tempo, dynamics, and pitch were systematically related to music structure, emotional activity, and valence. Several experiments have dealt with the encoding and perception of emotional intentions in music performance with different musical instruments (e.g. Gabrielsson and Juslin 1996, Juslin 2003, Juslin and Person 2002). From a strategic point of view, Hultberg (2008) recently observed in two case studies that the process of music interpretation is characterized by complex strategies, based on individual familiarity with the conventions of musical expression.

From the music education point of view, Juslin and Persson (2002) claimed that instrument teachers lack a guiding theory of expression in performance. Karlsson and Juslin (2008) have recently investigated instrumental teaching with a focus on expression and emotion, suggesting that the focus of teaching was mainly on technique and on the written score. Although there were differences among teachers, common features pointed to lack of clear goals, specific tasks, and systematic teaching patterns.

As part of the present study, the piano laboratory at the Federal University of Rio Grande do Sul (UFRGS) promotes discussions of multifaceted aspects of performance. We provide an environment in which students are free to explore their attitudes and beliefs about music expression, to reflect upon their own performances, and to gauge the achievement of their peers. In a previous study, we investigated the emotion that undergraduate and graduate students intended to communicate through the piano and the emotions perceived by the musically educated audience (Gerling and Santos 2007). Unknown to the participants, the chosen piece was based on a ratio of shorter and longer note values devoid of time or dynamic signatures. In order to follow up on our exploratory research, another study considered the case in which Russell's circumplex model (1980) was employed as a guide for describing intended and perceived emotions in the performance of a well known Baroque work (Gerling *et al.* 2008). In the present study, we discuss the preparation by undergraduate and graduate students of a lesser-known Schumann piece without guidance by their music teachers.

METHOD

Participants

A semester-long course with one two-hour weekly meetings and a laboratory was set up for undergraduate and graduate piano students at UFRGS. For this activity, four males and two females participated as performers and listeners.

Materials

Students received a romantic score (Schumann's *Anhang* discarded from Op.12) without the composer's name. All but one recognized the author and was asked not to divulge the information.

Procedure

The student's preparation of the music was monitored in three phases. The first phase comprised nine weeks of practice without guidance. The performances and interviews were recorded in weeks 2, 5, and 9 of the student's work. Complementarily, the students at the laboratory (1) watched videos of professional pianists playing Brahms, Liszt, Schumann, and Chopin works (week 3), (2) discussed the relationship between bodily expression and performance (e.g. Maria João Pires's masterclass) (week 6), (3) received tips from a professional pianist concerning practical ways to achieve sound effects as indicated on the score (week 7), and (4) discussed the structural characteristics of the score among themselves (week 8).

In the second phase, a sample from the third recording session was evaluated by two referees who focused on contour, articulation, tempo, timing, dynamics, movements/gesture, and global coherence. A "stimulated recall" interview was conducted after each student watched and graded his or her individual recorded sample. Before entering the third phase, the German terms present in the score (*feurigst* and *rascher*) were again discussed with the student without reference to actual playing.

During phase three, students practiced for a further two weeks, at the end of which there was another recording session. Students were then requested to reveal the emotion they had intended in their performance, making use of terms defined in Russell's circumplex model.

RESULTS

Grades were assigned by two independent piano teachers, who acted as referees (R1 and R2), and by each student after analyzing the third recorded performance on video in terms of phrase contour, articulation, tempo, timing, dynamics, movements/gestures, and global coherence on a scale from 1-10, with 10=highest.

The accuracy for the mean grade and standard deviation (SD) attributed by the two referees, as well as those given by the student himself or herself, was calculated for each parameter. Results (see Figure 1) express the degree attributed by the student himself/herself with the corresponding SD. The

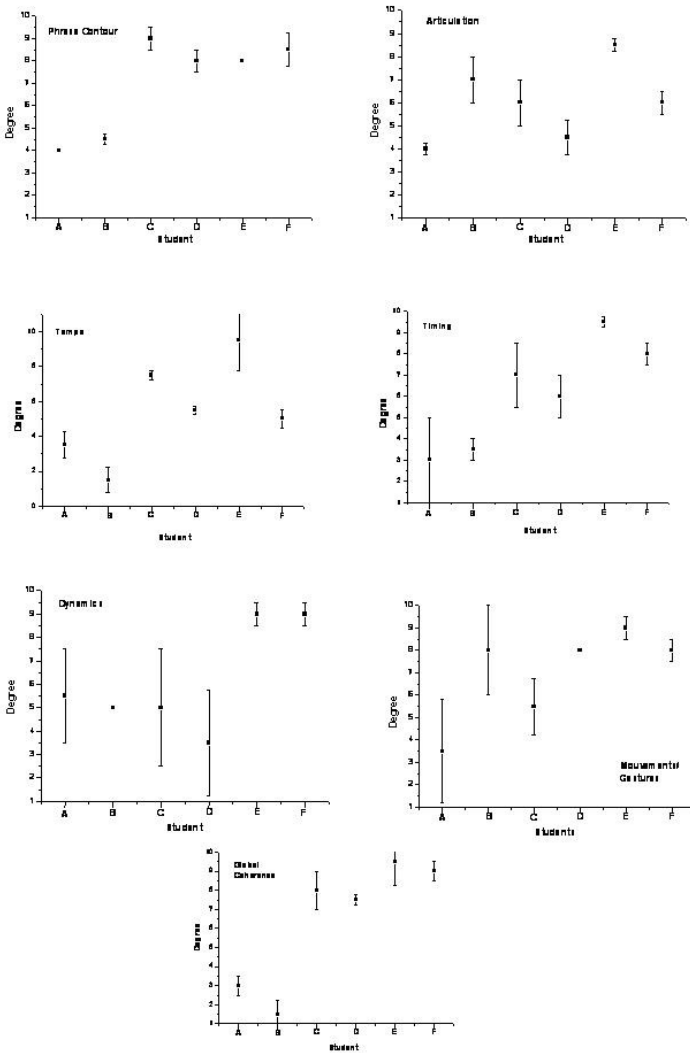


Figure 1. Mean score assigned in each category by each student and respective SD in comparison to the mean grades assigned by the two referees. Students A, B, and C are freshmen, D and E are juniors, and F is a graduate student From top left, the graphs indicate phrase contour, articulation, tempo, timing, dynamics, movements/gestures, and global coherence.

students were then requested to express their intended emotion in a recorded performance. All participants including the performer evaluated audio and audio/video samples using the terms from Russell's circumplex model. The results contradict previous observations both in the case of Bach's *Prelude* (Gerling *et al.* 2008) and in similar discussions, such as that in Vines *et al.* (2006). In this study, the limits imposed by the aural channel improved the correlation between intended and perceived emotion.

DISCUSSION

Juslin and Madison (1999) used a combination of analysis and synthesis afforded by the ability to "resynthesize" human performance by means of computer technology. This approach was employed in the investigation of the relative importance of timing patterns in the communication of emotions through musical performance. The authors gradually removed different expressive cues (tempo, dynamics, timing, articulation) from piano performance played with various intended expressions (anger, sadness, happiness, fear) to see how such manipulations would affect a listener's ability to decode the intended emotional expression. The results indicated that (1) removing the timing pattern yielded a decrease in the listener's decoding accuracy, (2) timing patterns alone were capable of communicating at least some emotions with high accuracy, and (3) timing patterns were less effective in communicating emotions than were tempo and dynamics.

According to these authors, listeners can use timing patterns to decode the emotional expression of a performance. In our present study, the low degree of correlation between intended and perceived emotion may be associated with a high SD in scores of timing, dynamics, and movement/gesture. The results suggest that in their practice our participants neglected some if not many of the most fundamental means for achieving global coherence in terms of the demands of the score and its expression in their musical performances.

Our results suggest that the students have to be made aware of the importance of choosing a tempo (speed, pacing) in the planning and enunciation of all other parameters evaluated in this study in order to convey their intended expressive qualities in their performances. Furthermore, timing and movement/gesture seem to develop along and to increase with expertise and maturity (see Figure 1). For this particular study group, contour was shown to be well assimilated and less dependent on students' level of expertise. We conclude that expertise in the establishment and manipulations of tempo has been an aspect largely overlooked in a musician's instruction, and this will be

the focus of our future research. It seems that the appropriate preparation of a score depends fundamentally on the articulation of all parameters. It is our hypothesis that the deliberate choice of tempo sets a precedent in which other parameters such as contour, articulation, timing, and dynamics will be proportioned, thus fostering global coherence and the expression of the intended expressive qualities during performance.

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