

## **Embodied knowledge in ensemble performance: the case of informed observation**

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### **Abstract**

This paper examines small ensemble interaction from the perspective of reflective practice. Current research on ensembles has increasingly focused on determining communicative properties of performers' physical gestures. Interpretative coordination, although mentioned by Goodman (2002) and Williamon and Davidson (2002), has not been extensively explored. I argue that interpretative ensemble collaboration involves a connection between internal mental constructions of music and the way performers interact with their instruments. McNeill's research on speech (2000, 2005) illustrates the influence of verbal content on physical gestures. In my work, I argue that gestures during musical performance could be not only similarly influenced by content within the score being played, but also could be *required* in order to play the music effectively.

Keywords: Performance, ensemble interaction, reflective practice.

### **Introduction**

To perform music with others is to engage in a unique and distinctly human form of interaction. The relationships engendered between those involved are intimate: not necessarily emotional, but of a depth surpassing many social ties. These relationships, built over the course of rehearsals and performances, draw heavily on non-verbal communication—which has commonly been the *modus operandi* of practising musicians (Blum 1987, Williamon and Davidson 2002, Tovstiga et al. 2004, Blank and Davidson 2007, and Seddon and Biasutti 2009). My research examines the ways musicians operate within ensembles: how they interact with their co-performers and instruments, the decisions they make, and, ultimately, the musical performances that they create.

Current research on ensemble interaction has been increasingly focused on determining communicative properties of performers' physical gestures. A large amount of the related literature, however, has addressed the effect of gesture

and body language on coordination of timing, rather than coordination of interpretation (Ford and Davidson 2003, Davidson and King 2004, Manduell and Wing 2007). Whilst the topic of interpretative coordination has been briefly mentioned by Goodman (2002) and Williamon and Davidson (2002), it has not been extensively explored. In my work, I argue that interpretative ensemble collaboration involves a connection between internal mental constructions of music and the way performers interact with their instruments. In examination of these aspects of ensemble interaction, three primary questions need to be addressed:

1. How do musicians interact and share information with each other?
2. How does the music being performed affect the way musicians physically play it?
3. How does the physical relationship between the performer and their instrument relate to communicative and interactive processes of ensemble performance?

This paper serves as a glimpse of the methods I utilise within my thesis, highlighting the issues and questions which may arise.

### **Background and methodology**

I have demonstrated in previous papers the benefits of approaching performance studies from the perspective of action research. Critical reassessment of the methodologies currently used when studying performance, from the perspective of action research, is necessary due to the fundamental difference between knowledge generated by researchers and by performers, categorised by Heron (1999) respectively as Mode 1 and Mode 2 knowledge. Whilst these categories are accepted in other sociological fields, specifically occupational psychology, their relevance to the study of musical performance has yet to be explored in depth. Pluralistic methodologies, such as that suggested by Leman (2010) in relation to gestural studies in performance, might allow for integration of these two modes of knowledge. In this vein, I propose a combination of approaches, drawing on both informed observation and critical, real-world practice. Action research could prove to be a viable starting point for such a methodology, as, to quote Brydon-Miller et al.

(2003:15), it extends “beyond the notion that theory can inform practice, to a recognition that theory can and should be generated through practice”.

My thesis embeds observational and interview-based qualitative research within the framework of action research. This framework consists of a spiral of activity alternating between practice and reflection, with a direct motivating influence from one side to the other. The action side of the spiral consists of my own musical practice, rehearsal and performance. The reflection side of the spiral consequently consists of self-analysis, observation, interviews with other performers, and literature reviews. Due to my dual positions as an active ensemble performer and researcher I am able to serve as a reflective practitioner, critically examining both the internal and external processes involved when I play music (c.f. Schön 1983).

Video observations afford a wealth of material for research on musical interaction. Under consideration today are short excerpts taken from a rehearsal of Samuel Barber’s *String Quartet No. 1, Op. 11 (1939)* by the Boult Quartet, resident postgraduate string quartet at Birmingham Conservatoire. Through these videos, I will not only demonstrate the process of influenced observation as it is utilised in my pluralistic methodology, but also highlight the questions and underlying issues that arise from such raw material.

## Rehearsal Analysis

The musical score for Samuel Barber's *String Quartet No. 1, Op. 11, Movement II, mm 35-40* is presented. The score is for Violin I, Violin II, Viola, and Violoncello. The key signature is three flats (B-flat, E-flat, A-flat) and the time signature is 4/4. The score shows a crescendo from *p* to *mf* with increasing intensity. The Violin I part has a *mf esp.* marking at mm 39-40. The Violin II and Viola parts have *pp* markings at mm 35-36 and *mf* markings at mm 37-38. The Violoncello part has *p*, *cresc.*, *mf*, and *cresc.* markings.

Musical Example 1: Barber, Samuel. *String Quartet No. 1, Op. 11: Movement II, mm 35-40*

The two videos that will be explored today are of the first and second rehearsal play-throughs of measures 35 to 40 in the second movement (see Musical Example 1). The excerpt contains a single, small musical idea that is picked up by three of the four instruments over two bars. The peak of the cello melody in the fourth measure is subsequently emphasised and expanded upon by the second and first violins. Let us observe the first playing of this excerpt in rehearsal:

[Video Extract 1 is played here]

The cellist plays his melody subtly, without much of a *crescendo* until the third bar of the excerpt. Here he dramatically increases both intensity and volume. Accordingly, his smooth and even bowings in the first three measures give way to larger bow-strokes at the peak of his melody. The second violinist and violist play their supporting material at an equal volume, with the violinist's moving line at the end of the third measure gradually emerging. His subsequent rising octave continues the cellist's line, until the first violinist propels the melody even higher. The violist's performance remains unassuming both aurally and visually, in contrast to the violinists' larger motions on the ascending octaves.

This excerpt is useful in examining the way that performers operate within an ensemble environment—not only in regards to their own musical material, but also in relationship to their co-performers. From this example, three preliminary observations can be made:

1. The *crescendo* throughout this excerpt results in a marked increase in movement by the cello and violins, particularly on their ascending motif.
2. There is a clearly delineated hierarchy in place regarding musical roles (melody/accompaniment).
3. There is no explicit visual communication occurring between quartet members, even though this is the first time they have played through this movement.

These impressions, while not the only ones to possibly emerge from this excerpt, spring from the observation of changes in both physical and musical behaviour of the performers. An understanding of these changes allows for the development of some theoretical underpinnings of ensemble behaviour.

The first of these observations, regarding the increase of movement occurring in the cello and violins, compels us to investigate what variables have changed for these musicians that could give rise to different physical motions. Considering the preeminence of written notation for classical performers, analysis of the score might provide a fruitful avenue of initial inquiry. Throughout this excerpt, the cello and second violin parts conduct an orchestrated *crescendo*, augmented by the first violinist's entry at a *mezzo forte* dynamic. Notably, the dynamics increase at the upward motif initiated at the climax of the cellist's melody. Would it be inappropriate to consider a causal relationship between the change in musical content and the observed change in the performers' physical motions?

To validate this proposition, I can turn to my own experience playing the bass trombone. As an acoustic instrument, my trombone requires physical manipulation to produce sound. This relationship is dynamic in that changes in the way I physically approach the instrument will directly affect the sound produced. The aural output of my trombone is directly influenced by the manner in which I play it. A comparison can be made with what happens when I throw a ball. In order for me to throw a ball thirty feet, I need to use various parts of my body in a specific manner. However, if I were to only throw a ball ten feet, I would have to alter my bodily actions. Similarly, if I wanted to play a *fortissimo* passage on my trombone, I would have to use the instrument in a specific manner—one that would be unique to playing at that dynamic range.

Recognition of a dynamic relationship between musician and instrument provides one possible explanation for why the violinists' and cellist's motions increase toward the end of this video excerpt. Execution of louder volume requires that performers' bows move at a faster rate across the strings of their instruments, necessitating faster bodily movement. While this brief explanation only considers the effect of physical motion on volume, the possibility exists that more qualitative aspects of performance, such as articulation or expressive modification of timing, are similarly related to physical input. This question and its subsequent implications for ensemble interaction is examined in depth within my thesis.

The second observation from this video example is that there is a clearly delineated hierarchy in place regarding musical roles. The cellist performs the melody line prominently, playing with both increased volume and a slightly more soloistic style than the other members of the quartet. This tacit acknowledgement of melody and accompaniment could stem from any number of possible sources, not the least of which could be the score itself. As has been noted earlier, the composer's instructions tend to be a privileged source of information in classical repertoire. In this excerpt, the accompanying lines are held at *pianissimo*, while the melody gradually rises from *piano* to *mezzo forte*. The quartet's realisation of the instrumentation is written into the score, dutifully followed in their performance.

This interpretation of events, however, presumes that dynamic indications are absolute. In contrast to pitch and tempi, which are quantifiable to reasonable extents, dynamics are subjective. Their relative nature is dependent upon, among other things, musical context, preceding volume levels, performance space, instrument, genre, and intended audience. Given these contextual variations, how are the musicians able to ensure that their internal concepts of dynamics used within a certain piece are shared with their co-performers?

One possibility is that the quartet analysed the orchestration of the score—an activity not uncommon in rehearsal preparation. This explanation, however, places more emphasis on anticipatory technical analysis, i.e. Mode 1 knowledge, than on procedural, or Mode 2 knowledge. In this case, procedural knowledge is less “knowing *how* to do something” and more “knowing *through* doing something”. Occupational psychologist Donald Schön refers to this specific form of knowledge as *knowing-in-action*, commenting that “in much of the spontaneous behavior of skillful practice we reveal a kind of knowing which does not stem from a prior intellectual operation” (Schön 1983:51). If this is the case, the process of playing within the ensemble and experiencing the musical content within this context allows the quartet members to make informed decisions on their respective performances.

Considering musical performance as a form of skilful practice, complete with its own form of knowing-in-action, suggests that musicians' decisions are informed not only by ‘extra-musical’ influences such as score-based analysis, but also

experience in the act of performance itself. This experience may include highly individual aspects of performance, such as knowledge of how a certain instrument responds in a specific register, or broader areas, including conventions of orchestration such as melody, countermelody, and accompaniment. Recalling my initial impression that the Boult Quartet maintained a clear hierarchy of musical importance during this example, such an approach may support the proposition that musical performance itself has acquired forms of knowledge which, while not necessarily consciously communicated among co-performers, is shared through common experience. This proposition raises several issues, particularly in regard to identifying the component aspects of musical knowing-in-performance—areas which will be explored further within my thesis.

My final observation as noted earlier deals with the way the quartet members interact with each other while performing. Whilst there is some synchronisation of motion occurring between the second violin and viola, there are no explicit cues or communicative gestures (c.f. Jensenius et al. 2010). Even so, there are no noticeable ensemble problems within this excerpt, either in terms of synchronicity or interpretative cohesion. How is this cohesion maintained, especially considering that this is the first time that the quartet has played this excerpt?

The lack of visual evidence of communication between ensemble members does not necessarily negate the possibility that such communication exists. Previous research has shown that ensembles are not only cognisant of the visual aspect of musical performance (Blum 1987), but will often aspire to conceal their inner workings from audiences (Sawyer 2005). Given this, cursory observation of performance might not necessarily highlight anything but the most significant communicative acts or gestures between co-performers. Looking beyond the scope of strictly communicative actions, in what ways are the performers interacting and sharing information? Rather than framing our exploration in terms of communication—the direct transfer of information through signalling—it proves more fruitful to examine the potential effect of co-performers' actions on each other.

The first time the quartet plays through this excerpt, the cellist clearly emphasises the growth of his line from *piano* to *mezzo forte*. Both the second and the first violinist similarly 'lean into' their rising crotchet lines. Let us see what happens within the ensemble should the cellist provide different musical and visual output, as occurs the second time this excerpt is rehearsed:

[Video Extract 2 is played here]

The cellist begins this performance in a similar manner to the previous play-through, but he is caught in the middle of an awkward bowing at the end of the third measure. This prevents him from executing the indicated *crescendo* to the extent that he did in the previous performance, resulting in a markedly softer rendition of the two-note rising motif. The second violinist distinctly watches the cellist in the third and fourth measures, witnessing the smaller (if accidental) gestures used. Accordingly, the second violinist adjusts the way that he plays his ascending octave line, playing the figure softer and more unassuming than in the previous take. The first violinist, however, does not make as much of a change.

This example displays an instance where a musician's actions have a direct causal effect on their co-performers' subsequent performance. Keith Sawyer describes this phenomenon as attunement: co-performers "monitor the other performers' actions at the same time that they continue their own performance" and are able to respond "by altering their own unfolding, ongoing activity" (Sawyer 2005:51).

The existence of attunement calls into question the use of a communicative paradigm for understanding ensemble interaction. Most likely, the cellist did not intend to underestimate the amount of bow available for him to use at the peak of his melody. However, the fact that he did so created a situation to which the second violinist was able to react. While the alteration of the cellist's performed interpretation was neither communicated nor intended, it was indicated to the second violinist through aural and visual channels. In other words, this video shows how ensemble interaction does not necessitate consciously intentional communication; rather, a continuous empathetic adjustment to the simultaneously-occurring performances.

## Conclusions

This paper illuminates some of the issues surrounding ensemble interaction in musical performance. The observations generated, even from brief videos, provide grounding for establishing working proposals for the dynamic relationship between musician and instrument and its subsequent effect on corporeal motion, musical performance as a form of knowledge-in-action, and the potential dichotomy between interaction and communication. These impressions provide a glimpse of the potential that reflective practitioners have for drawing on their own experience in the observation of musicians in rehearsal, using such informed observation as a path towards theoretical understanding of human interactions in music-making.

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#### **Author’s biography**

Originally from Alaska, Murphy McCaleb is a bass trombonist and second-year doctoral candidate at Birmingham Conservatoire (UK). His research deals with music and cognition, primarily in the way the mind and body interact in performance. Previously, he has focused on trombone performance, receiving degrees from the University of Alaska and the University of Michigan.