

“Communication or Interaction? Applied environmental knowledge in ensemble performance” delivered at the CMPCP Performance Studies Network International Conference, University of Cambridge, 14–17 July 2011.

### *Abstract*

Research on ensemble interaction has extensively focused on the paradigm of communication, drawing upon both its process of encoding, transmitting, and decoding information and its associated linguistic terms (‘non-verbal communication’ (King and Ginsborg 2011), ‘communicative gestures’ (Dahl et al. 2010), ‘modes of communication’ (Seddon and Biasutti 2009), ‘visual communication’ (Kokotsaki 2007), etc.). However, this approach has not yet been extensively critiqued from the perspective of a performing ensemble musician. Coming from this standpoint, in this paper I interrogate the notion of communication within musical ensembles, proposing an alternative conceptual model based upon interaction. Through the use of reflective practice and informed observation within the framework of action research, I propose that ensemble interaction relies upon ‘ecological’ knowledge (as described by Godøy 2010) applied within the process of co-performer attunement (see Sawyer 2005).

### *Introduction*

Research on interaction within musical ensembles has extensively focused on the paradigm of communication, drawing upon both its process of encoding, transmitting, and decoding information and its associated linguistic terms. With continued references to ‘non-verbal communication’ (King and Ginsborg 2011), ‘communicative gestures’ (Dahl et al. 2010), ‘modes of communication’ (Seddon and Biasutti 2009), and ‘visual communication’ (Kokotsaki 2007), among others, this body of research perpetuates the tacit assumption that musical performers operate in a manner similar to those involved in conversation. This communicative process is analogous to that of a telephone or postal service (see Garnett 2010), where information is packaged into a medium, transmitted to an audience, and unpackaged from that medium by the audience. In other words, information is ‘pushed’ from one person to another. This assumes intentional action on behalf of the sender. However, use of this paradigm encourages a framework of understanding that is rooted not in musical performance but in social interaction. This paper interrogates the notion of communication within musical ensembles, critiquing this conceptual approach from the perspective of an active chamber musician.

In order to identify a more appropriate paradigm for understanding ensemble interaction, this paper will rely on informed observation. This method of observation affords cognitive access to my own experience as an ensemble performer and that of other practising musicians, providing insights that may not be readily available to traditional empirical researchers. 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 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. This division of knowledge is not recent, as even in the 1940s philosopher Gilbert Ryle was distinguishing between knowing *that* and knowing *how*—or, alternatively, as theoretical and practical knowledge (see Ryle 1949). However, 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 utilise a combination of approaches within my research, drawing on both informed observation and critical, real-world practice. Action research proves to be a viable starting point for such a methodology, as, to quote Brydon-Miller et al., it extends “beyond the notion that theory can inform practice, to a recognition that theory can and should be generated through practice” (Brydon-Miller et al. 2003: 15).

In critiquing the appropriateness of a communicative paradigm for ensemble performance, I will first apply this paradigm to a concrete ensemble situation. Subsequently, the elements of ensemble musicians’ experiences which are most pertinent to how they interact with their fellow performers will be isolated. From there, it will be possible to propose a new model of ensemble interaction that is more directly rooted in the process of musicking, rather than the social transfer of information. After establishing this model from a theoretical standpoint, it will then be reapplied to the original rehearsal situation in order to assess its practical viability.

#### *Case study: The Boult Quartet*

In order to critique the paradigm of communication as a grounding for ensemble interaction, it is useful to begin by considering its direct application to a real-world situation. Observation of a professional-level ensemble in action will provide a context against which this paradigm may be tested. Consider the following two videos, the first and second rehearsal play-throughs of a short excerpt from the second movement of Samuel Barber’s *String Quartet No. 1, Op. 11 (1939)*. Performing are the Boult Quartet, resident postgraduate string quartet at Birmingham

Conservatoire. These musicians are among the highest caliber students at the Conservatoire, already playing at a professional level. The excerpt contains a single, small musical idea that is that is picked up by three of the four instruments over two bars. Subsequently, the peak of the cello melody in the fourth measure is emphasised and expanded upon by the second and first violins:

[Video Extract 1 is played here]

In this first rehearsal, 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 larger motions used by the two violinists on their ascending octaves. In this play-through, 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 play in a different manner, as occurs the second time this excerpt is rehearsed:

[Video Extract 2 is played here]

The cellist begins this rehearsal play-through in a similar manner to the previous, 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 rising two-note 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 executes 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.

### *Analysis via communicative paradigm*

A strict prima facie assumption of a communicative paradigm in this situation prompts the following analysis. In the first play-through, the cellist has a distinct musical concept—a swell at the peak of his melody—which he wishes to communicate to the rest of the quartet. He encodes this concept into both aural and visual media and, through the process of playing his instrument, is able to broadcast this concept to his co-performers. Subsequently, the other members of the quartet are then able to receive this sensory information, decode it, and apply the concept to their own performances. In this context, the paradigm does not present any immediate problems, and may be

tentatively held as valid. However, similar analysis of the second play-through results in a different conclusion.

The second play-through highlights one aspect of human activity not explicitly found in the first: unintentionality. The cellist did not intend to underestimate the amount of bow available for him to use at the peak of his melody. Nevertheless, the fact that he did so provided aural and visual sensory information to the rest of the quartet who, upon receiving this, adjusted their performances accordingly. Re-examining the paradigm of communication, the stages of transmission and decoding remain intact and function as they have previously. The encoding stage, however, was either incorrectly executed or generated incorrect data. A more fruitful avenue of inquiry is to consider how the other musicians were able to infer information from the cellist's actions, even if they were unintentional.

### *Re-examining the performers' experience*

Considering the second two stages of the communicative paradigm—transmission and decoding—as intact in this situation, we can tentatively identify them as being constant within the performers' experience. Regardless of whether the information is intentionally encoded by their fellow musician or is accidental, the performers still receive and decode it. Rolf Godøy describes this received information as multimodal, in that “we perceive music with the help of both visual/kinematic images and effort/dynamics sensations, in addition to the “pure” sound” (Godøy 2010: 106; c.f. Godøy 2003). In order to illuminate the processes inherent in performing with other people, two primary questions have to be attended to: firstly, what is the content of the multimodal information received by performers? Secondly, to what extent does this multimodal information consequentially inform musicians' performances? These two questions, once addressed, provide the basis upon which a modified paradigm of ensemble interaction may be constructed.

In order to identify the content being received by performers from their fellow musicians, it is important to consider the overarching priority of the ensemble: the musical performance itself. From within a chamber ensemble, several variables need to be agreed upon in order to create what Elaine King has coined “the *illusion* of perfect ensemble” (Goodman 2002: 155). Among other factors, tempo, dynamics, phrasing, and interpretation need to be consistent across the entire ensemble. Coordination of these variables amongst performers requires not only verbal interaction, but also the exchange of information through the act of performance itself—categories identified by Seddon and Biasutti as verbal and non-verbal modes of communication (Seddon and Biasutti 2009: 404). Both the sensory output of a performance and the act of performing itself, therefore, must contain some aspect of these musical variables.

How are musicians able to infer information regarding these musical variables from each other's performances? One possibility derives from the idea that musicians share among themselves the embodied experience of playing instruments. In his article on gestural affordances on musical sound, Rolf Godøy refers to this phenomenon as ecological knowledge, acquired "through massive experience of sound-sources in general and musical performances in particular" (Godøy 2010: 106). He describes this form of knowledge not from the perspective of a performer but from the point of view of listeners in general: "in listening, we see a whole range of relationships between sound and assumed sound-producing gestures, ranging from the immediate and synchronous (and probably hard-wired) coupling of sound-event to action-event, to the more interpretative and holistic coupling of sound-event to action-event, and even to the projection of non-existent action-events into sound-events" (*Ibid.*:107).

Godøy's terminology, however, needs some clarification. The term 'ecological' implies that such background is innate in the human condition, and subsequently may not be the most suitable descriptor of this kind of knowledge. More appropriate would be to consider instead the innate *potential* of every living organism to 'read' its environment and adjust behaviour accordingly. As an alternative term, I propose the use of 'environmental': such knowledge is developed out of one's experience within contextual conditions. In comparison to the communicative paradigm detailed earlier, this 'reading' of the environment does not entail any intention to communicate on the part of any external agent. Whilst intention may affect interpretation (the difference, for example, between an accidental push and a malicious shove), intention does not change the existence of an action. The environmental knowledge acquired by musicians is developed through their experience within ensembles themselves, allowing them to 'read' into their contextual environment and adjust their subsequent behaviour.

In addition to their background as listeners and ensemble participants, musicians are able to draw upon a wealth of experience through their own individual practice. In previous writings I have detailed the dynamic, causal relationship between the ways in which musicians operate their instruments and the resulting musical performances (see McCaleb 2011). Acoustic instruments necessarily require physical manipulation to produce sound. As a bass trombonist, I have learned that 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 physical 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—with gestures that may look different to an

observer. Tacit understanding of this relationship necessarily informs musicians' environmental knowledge.

### *Applied environmental knowledge*

The causal relationship that Godøy describes between action-events and sound-events can be found in the application of environmental knowledge to musical performance. As a bass trombonist, I am able to make inferences about other trombonists' performances based upon the environmental knowledge that I have developed through both my own practice and my experience within ensembles. To varying degrees, my embodied understanding of how instruments need to be physically operated affects the amount of musical information I can infer from others' performances. Whilst I may be able to extrapolate a large amount of information regarding musical variables from a brass player's performance, I might have a more difficult time doing so when observing string players, although this can develop with experience. The more exposure I have with instruments unlike my own, the more I am able to learn of the ways in which they are operated.

Returning to the question posed earlier, to what extent does the multimodal information transmitted by musicians consequentially inform fellow musicians' performances? Moving beyond the mere recognition of the role of environmental knowledge in performance, the application of such knowledge will inform the choices made within an ensemble context. Hypothetically, if a performer were able to couple sound-event to action-event and vice versa, they would be able to make logical inferences about the sound-events produced based on the action-events witnessed. From the co-performers' perspectives, the action-events witnessed would be primarily the actions needed to operate the instrument itself, producing the desired or intended sound.

Environmental knowledge, applied in the act of performance, would be able to inform musicians' choices and decisions while performing. This allows for the process Keith Sawyer calls attunement: the ability for co-performers to "monitor the other performers' actions at the same time that they continue their own performance", allowing them to be able to respond "by altering their own unfolding, ongoing activity" (Sawyer 2005: 51). In other words, ensemble musicians' applied environmental knowledge will allow them to make inferences about forthcoming sound-events based upon the perceived sound-producing gestures of their co-performers.

Subsequently, the resulting paradigm would be based upon reaction (or inter-reaction) more than it would communication. Rather than performers 'pushing' information to one another, they would be 'pulling' it, drawing upon the mere act of performance itself. This is not to say that explicit communication would never occur in such a framework, but that the process of inference

and empathetic adaptation would underly any other socially-based interaction. Likewise, more nuanced aspects of performances would depend on interaction and mutual receptiveness.

### *Re-application and conclusion*

Re-examining the video excerpts of the Boult Quartet in light of this new paradigm based on applied environmental knowledge, the following analysis may be proposed. As remarked earlier, the cellist did not intend to underestimate the amount of bow available to him. However, his doing so created a discrete situation to which the second violinist was able to react. Whilst the alteration of the cellist's performed interpretation was not intended, it *was* indicated to the second violinist through various sensory channels. The violinist, upon reception of this multimodal information, was able to infer the resulting musical output of the cellist—a softer, less dramatic phrasing. Through the process of attunement, he was then able to adapt his own musical plan to incorporate these new variables inferred from the cellist's performance, subsequently adjusting his own playing approach. In other words, this video provides an example of how ensemble interaction may not necessitate consciously intentional communication, but rather a continuous process of empathetic adjustment to simultaneously-occurring performances. Even though this video was of a rehearsal, such accidents also happen in live performance. Musicians need to be able to respond musically both to their own 'errors' and those of their colleagues in the ensemble. This does not necessarily result in an unfavourable situation, as such spontaneity is a highly-valued aspect of live performance.

Critical appraisal of the paradigm of communication in relation to ensemble performance thus reveals that it may not lead to the most appropriate framework of understanding. Whilst the stages of encoding, transmission, and decoding may take place within ensemble interaction, their application is based upon a social, rather than musical, context. Subsequently, the encoding stage in particular may or may not exist. In this paper, I have proposed an alternate paradigm with which to approach ensemble interaction, based upon the acquisition and application of environmental knowledge. Rather than considering musicians to be actively transmitting musical information to their co-performers, they are instead able to receive information from and empathetically adjust to the simultaneous performances happening alongside them. Consideration of such a paradigm would re-contextualise the ways in which ensemble interaction is conceptualised, and may also provide new ways of understanding the processes inherent in social musicking.

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