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## **The relationship between gesture and sound:**

### **A pilot study of choral conducting behaviour in two related settings**

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#### **Abstract**

A short pilot study was designed to examine whether choral conducting in a rehearsal context, and the gestures (those gestures determined by the teacher–conductor as being effective) used in teaching an undergraduate conducting class are related. This idea that these contexts are related is widely acknowledged and supported within both choral conducting literature, and more general educational literature (Apfelstadt, 1997; Decker & Kirk, 1992; Durrant, 2003; Green, 1981; Roe, 1983; Thomas, 1979; Wis, 2002) but as yet, has not been subject to systematic research. To this end, a pilot observation took place in October 2005 at the Musikhochschule, in Stuttgart, South West Germany. The researcher used digital video to capture the hand gestures that the choral conductor used in a rehearsal, and secondly, in teaching an undergraduate conducting class. The research focused on determining and validating the observed gestures by seeking agreement from a panel of judges on (a) literally what the observed gestures were and (b) an interpretation of what the gestures were trying to convey. The evidence base embraced field notes and observation; video data; structured interviews with the conductor; and independent rating of the observation data. The research

foci were (i) to establish an appropriate research methodology and (ii) to determine whether there was any interrelationship and correlation between the conductor's 'gestures of rehearsal' and the gestures that the students displayed in the conducting classes, namely, the transference of the conductor-teacher's rehearsal gestures.

### **Introduction**

“Indeed, through teaching conducting at both undergraduate and graduate levels, I have come to learn a lot about conducting, music, singing, and human beings, including myself” (Durrant, 2003:166)

Durrant's statement suggests that a reflective-practitioner approach (e.g., Schon, 1987; Norlander-case et. al. 1999; Parsons and Brown, 2001) to choral leadership can be beneficial to the conductor's constant professional and personal development. From this statement, the researcher understands that Durrant believes that his practice as a conductor is somehow influenced beneficially by his teaching of the craft of conducting. Nevertheless, his statement is not necessarily a 'given' that may be applied to all conducting scenarios and, therefore, it has been the initial impetus for a focused evaluation within the context of choral conducting in both chorus rehearsal and choral conducting class by the same person. A pilot study was devised to investigate the behaviours of a participant choral conductor based in Southwest Germany (see below). The conductor holds a position of Professor of Choral Conducting at a Musikhochschule in Germany and also conducts an independent chamber choir, mainly made up of his conducting students.

### **Context**

Choral conducting gestures can be as many and as varied as the conductors themselves and much research has been done on the training and preparation of choral

conducting in universities, colleges and high schools (see Apfelstadt, 1997; Busch 1984; Decker and Kirk, 1988; Durrant, 2003; Ehmann, 1968; Kaplan, 1985; Mathers, 2006; McElheran, 1989; Roe, 1983; Stanton, 1971; Thomas, 1979; Wis, 1999). Notwithstanding this previous research, to the researcher's knowledge there has been no systematic research into the possibilities of a relationship between conducting in the choral rehearsal and the teaching of a conducting class. It is plausible to think that there might indeed be a relationship as Durrant's (2003) quote suggests. However, initially it is thought necessary to examine the nature of conducting gesture itself in order to generate a set of criteria by which a comparison might be made about one possible, observable aspect of such a 'transfer'.

The available literature suggests that descriptions of the purpose of choral conducting gesture are varied. Nevertheless, they all seem to correspond at one point, namely that the conductor's gesture somehow consists of a translation of the intended movement and rhythm of music into a form of visible signs that are intended to shape the musical behaviour of the conducted in a common way (*cf* Busch, 1984; Decker and Kirk, 1988; Ehmann, 1968; Fuchs, 1969; Kaplan, 1985; Roe, 1983; Rudolf, 1995; Stanton, 1971; McElheran, 1989; Thomas, 1979). Some authors have described these gestures as literally 'pictures of sound' (Decker and Kirk, 1988; Wis, 1999). Argyle (1975) defines the form of gesture that a conductor may use as an 'emblem', that is, as a gesture which replaces a verbal instruction. Further, in trying to determine orchestral conducting gestures, Bräm and Bräm (2004) cite the work of Lakoff and Johnson (1980), who claim that most communication with regards to abstract concepts is made possible through the use of either metonymic or metaphoric structures. A metaphoric structure is a gesture based on similarity, whereas a metonymic system is based on contiguity. An example of metaphor might include the use a 'straight hand' gesture indicating an evenness of tone and phrasing in the choral line. Wis (1993) suggests that gesture is a language, implying a direct signification between gesture and its meaning. Bräm and Bräm

(2004) claim that *most* conducting gestures are based on metaphoric/metonymic connections between aspects of the music and the physical experiences which human beings have with objects in their everyday lives, that is gesture which presents imagery. It is through such experiences that aspects of the music can be re-conceptualised into concrete objects and contours to represent and transmit musical ideas. Additionally, Wis (1993) advocates that gesture can be used to portray emotions, she calls this artistic gesture. Wis refers to this as being different from the gestures used specifically as an aid to language, but a type of gesture that depicts or expresses aspects of human experience which are likely to be incapable of being expressed in words.

Further reference to the nature of gesture is made by Poggi (1988; 2001) through the examination of Italian gesture. She suggests that each gesture has a precise meaning which is coded in the recipients' minds, and that this meaning is precisely stated. In terms of choral conducting, these conceptualisations imply that the conductor's gesture is coded (and/or decoded) in the singers' minds. Throughout her research, Poggi (op.cit.) has claimed to have shown that any communicative signal (for our purposes, gesture) is - by its definition - meaningful and, therefore, that its meaning can be paraphrased in verbal language. Moreover, in literature on conducting pedagogy, this idea that every gesture should have meaning appears to be fully endorsed by choral educators (Busch 1984; Decker and Kirk, Durrant, 2003; 1988; Ehmann, 1968; Kaplan, 1985; McElheran, 1989; Roe, 1983; Stanton, 1971; Thomas, 1979; Wis, 1999). Nevertheless, Poggi also specifies that nonverbal gestures belong to the realm of polysemy (that is they are context-dependent), vagueness and homonymy. Moreover, these must be a typical feature when determining a lexicon of such forms of communication. Poggi's work implies that gestures are used to communicate, but that on their own (without language for example), there will always be some ambiguity in the

intended meaning. Such ambiguity will likely be compounded by the previous experience that the recipient of the gesture brings to the encounter with the conductor.

In a later study, Wis (1996) suggests that, because choral conductors teach in abstract medium and also work with an abstract instrument, more often than not, they depend on a metaphorical language to develop the choir participants' vocal skills and greater musical understandings. Physical gesture is seen as acting as a metaphorical link between the physical and the abstract worlds. Paralleling the work of Lakoff and Johnson (1980), Poggi (1988) also concludes that, for gestures within the realm of nonverbal communication to become accessible, they must be based on a semantic core that is built on metaphoric/metonymic association. In essence, she classifies the gestures of conducting as 'descriptives which are used as directives'. She elaborates further and says that gestures may have more than one meaning, a literal meaning and an indirect meaning, and further, that both may coexist happily. However, whilst they may coexist, Poggi (op.cit.) conceptualises that sometimes the literal meaning may fade, obscured by the indirect meaning and that this may give rise to a diachronic change by which the original literal meaning is no longer valid and is replaced by the indirect meaning which is then communicated. An example of this change is a raised finger indicating an intonation problem to one section of the choir, the meaning of this could be replaced by an indirect meaning associated with the need for indication of entry of another section of the choir. An additional reason for accepting the possibility of diachronic change is that this could account for some cases experienced by the researcher, of synonymy among apparently very different (even apparently opposite) gestures. In summary, it is on the basis of these observations, as Poggi suggests, that it is plausible and possible to construct a lexicon of gestures for a given conductor.

Furthermore, there seems to be no clear-cut distinction between gestures described as 'time beating' and gesture relating to the expressive nuances and movement of the music.

When Max Rudolf, the German conductor and pedagogue was asked to summarise conducting, he is reported to have replied thoughtfully, 'it is the relationship between gesture and response' (Marrin, 1992). This would indicate Rudolf's interest in the more formal elements of conducting gesture, that of 'time beating', and imply that the relationship between gesture and response is relatively simple. Kaplan (1985:2) also emphasizes this 'formalist' approach by suggesting that internationally accepted conducting patterns are designed to enable the conductor to communicate intentions as to when any given note should be sung or played in relation to the beat. Other researchers (e.g., Fuch, 1969:57) have highlighted that an occasional disregard of the technical aspect of conducting and an immersion in the expressivity of the music can produce similar results. Notwithstanding, many other researchers advocate that the conductor's gesture *should* inspire the musicians with proper expression and, in order to do this, that the expressivity of the music should be found in the gestures themselves (Busch 1984; Decker and Kirk, 1988; Durrant, 2003; Ehmann, 1968; Fuch, 1969; Kaplan, 1985; McElheran, 1989; Roe, 1983; Stanton, 1971; Thomas, 1979).

Limited research has been done on defining gesture (reviewed by Durrant, 2003; see also Garnett, 2005; Wis 1999), perhaps because of its complexity and tendency to ambiguity and difficulty in being translated into words. In attempts to qualify the definition, teachers of conducting have produced digital video of 'gestures that work' (Eichenberger, 1994; McClung, 2005). Bräm & Bräm (2004) attempt to code conducting gesture into 'families', but mainly through metaphoric association. They developed six metaphoric categorizations, based on a realization of shape and recognition of 'objects' within the conducting pattern. Whilst the researchers cited above offer valuable insight into describing and defining nonverbal communication in the form of hand gestures, none offer a context-friendly perspective for the choral conductor, a context that (besides the traditional role of the

conductor) should also foster a care for the voice and a care for the more human aspect of music performance.

Although Durrant (2003:147) in his book *Choral Conducting, Philosophy and Practice*, looks at choral conducting on a macro-scale and within a phenomenological/philosophical context obviating the atomistic and micro aspects, he does suggest a framework in which choral gestures could be coded into families. He proposes five ‘families’ within which individual choral conducting gestures could be allocated; these being:

- *connotative gestures*, those which suggest the expressive character and nuance of the music;
- *literal gestures*, these are gestures which give an indication of the pulse and sense of where the performers are in the music;
- *helpful gestures*, these are gestures which are helpful in some musical, technical or vocal way;
- *inappropriate gestures* are those gestures which contradict either a musical, technical or vocal related expectation;
- *gestures shared with the singers themselves*; these are gestures which enable the singers better to understand a musical, technical or vocal issue, and they are often done by the whole choir.

In summary, the available literature indicates that physical gestures (both intentional and unintentional) appear to be central to the communication of intended vocal behaviour between the choral conductor and the chorus, both within the rehearsal and (particularly) in performance. Furthermore, there is also a suggestion within the literature that there is (or should be) a positive, reflective, praxial relationship between the practice and teaching of conducting.



The juxtaposition of these two sets of findings provided the context for an initial field-based pilot study by the researcher. This was designed to examine the relationship between an established choral conductor's behaviour within two professional contexts: firstly, as a conductor of a chorus rehearsal, and secondly as the teacher of choral conducting with the same choral group. An examination of this relationship gave rise to three related research questions:

1. What is the conductor's gesture behaviour in the rehearsal?
2. What is the conductor's gesture behaviour in the choral conducting class? and
3. What is the relationship, if any, in terms of conducting gestures between these two related contexts?

Subsidiary questions arose; these related to (4) an evaluation of the pilot fieldwork methodological approach; for example, did the chosen method provide useful, valid and reliable data for answering the three previous questions; and also, (5) how might the emergent data be used to generate appropriate insights on the experiences of those being conducted?

Although the primary aim of this pilot study was to determine the nature of the relationship, if any, between a choral conductor's behaviour in two related contexts, the researcher is also aware that, in a macroscopic sense, a greater understanding of the conductor's gestures and their interpretive meanings could, if applied, contribute to a strengthening of choral pedagogy concerning the communication between conductors and their ensembles (a need identified by Parncut and McPherson, 2002).

### Methodology

A case study approach was adopted (Silvermann, 2005: 113) in order to explore a choral conductor's hand gestures within two distinctive, but related contexts: the rehearsal and the choral conducting class. As there were few opportunities to study this relationship in the UK because of the relative lack of choral pedagogy provision in higher education, the case study was undertaken in South West Germany where the researcher has personal contacts.

The participant was a regular conductor of a *Kammerchor* (chamber choir) and also held the position of Professor of Choral Conducting at a *Musikhochschule*, teaching the equivalent of undergraduate classes in choral conducting. This provided an ideal context to explore the possible relationship in his behaviour in both a choral rehearsal and also a conducting class with the same conductor. For the purpose of this study and to preserve anonymity, the choral conductor referred to above will now be referred to as 'Professor Smith'. Professor Smith was observed on two separate occasions in the same rehearsal facility and conditions in the *Musikhochschule*. Conducting behaviours were captured using digital video camera [JVC Digital Video Camera GR-DVL 157E] onto a SONY 8 MP high quality 90 PAL cassette. The equipment provided good quality visual and audio images for subsequent analysis. He was observed conducting a one and a half hour rehearsal of the *Württembergischer Kammerchor* (Württemberg Chamber choir) and a lesson of one and a half hours with the equivalent of an undergraduate conducting class (n=25) for students training to be either music teachers or church musicians. Both sessions were recorded in the *Musikhochschule*. In both of the digital video observations, the camera was set on a tripod stand at the left hand side of the conductor's main conducting position (marked by tape on the floor) and was set up at a measured distance of 2.5 metres, so as to not disrupt the rehearsal or the conducting class.

Following the observation, Professor Smith also agreed to a semi-structured interview (Robson, 1993; Silverman, 2005) with the researcher. Questions to Professor Smith were based on the researcher's observation of the rehearsal and conducting class. Field notes were also taken at the time by the researcher during the observed sessions and interview which would be used in later triangulation with the observational results.

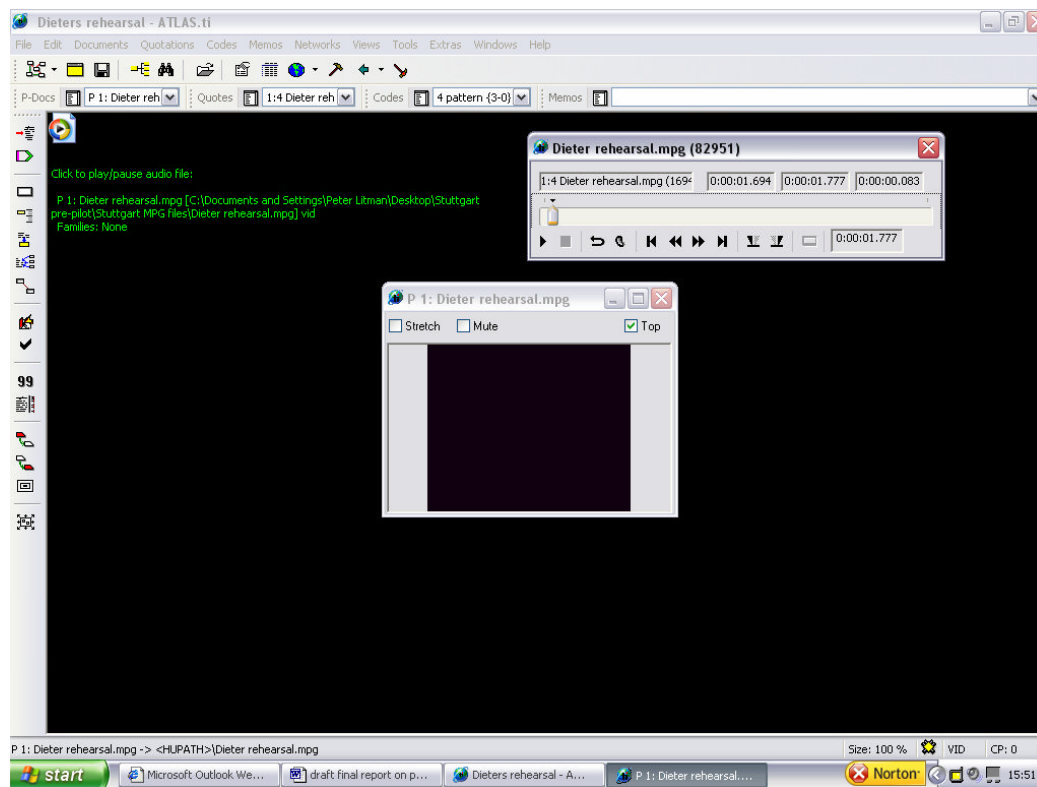
In order to address ethical requirements raised in an observational study, Professor Smith and all participants of the observation signed a letter from the researcher, this outlined the nature and purposes of the observational research; the letter was based on the British Educational Research Association's 'Revised Ethical Guidelines for Educational Research' (BERA, 2004). The participants were also made aware that at any point in the observation they could choose to withdraw without consequences.

In summary, the data collection and evidence base embraced notes collected by the researcher during the choir rehearsal and conducting class, a semi-structured interview with the conductor and the digital video data. Subsequently, an analysis was undertaken of the video data to identify and code the range of hand gestures employed by the conductor in the two sessions. Video sampling was also undertaken in order to allow a panel of independent judges to undertake their own coding to provide a measure of validity and reliability to the extracted analyses.

Initially, the compositional analysis of the gestures was done solely by the researcher, acting in both 'observer-as-participant' capacity (Gold, 1958), and 'connoisseur' approach (Eisner, 1985). Gold (1958) defines this type of observer as: '...someone who takes no part in the activity, but whose status as researcher is known to the participants' (p.198).

Specifically, the digital video footage of the rehearsal context were re-watched and interval coded by the researcher, at one minute intervals, using a grid, a click device and a

special, commercially available qualitative analysis tool *ATLAS.ti*. (ATLAS.ti. Scientific Software Development GmbH, 2006).



*Fig. 1. ATLAS.ti. main screen showing digital video viewing screen and control of visual and audio.*

*ATLAS.ti* (ATLAS.ti. Scientific Software Development GmbH, 2006) was used to view the image recorded by the researcher, and from the above screen dump it can be seen how the user can control the digital video and sound footage for purposes of analysis. The digital and audio footage was coded at one minute intervals by the researcher using a small click device and a simple grid tick sheet. This stage of the analysis was designed to simply confirm the number of occurrences of each gesture by the conductor in the digitally videoed material. Once this initial examination had been completed, the researcher selected gestures where the rate of occurrence exceeded ten, and this data was then placed before an independent panel of four judges. The judges were asked, through their own structured observation (Robson, 1993: 206) to note on a seven point rating scale their confidence in the

researcher's initial analysis, namely, the description of the gesture used. Figure 2 shows part of the structured observation rating sheet for the judges.

*Fig. 2. Example of Structured Observation, Seven Point Scale Rating Sheet for Judges*

<b>Confidence Rating Test on Stuttgart Pilot Study</b>								
Thank you for agreeing to take part in this confidence rating test, please feel free to withdraw at any point should you wish to.								
Please confidence rate 1 – 7 <b>only</b> the ticked examples [each judge was provided with a subset of the original long list].								
Please view the selected video footage of a choral conductor at rehearsal, and then note the researcher's description of the communication in the left hand column of the table. Select a rating of 1-7 upon how confident you are the researcher's description is appropriate; please do this by circling your choice. Where items that have a large number of video footage, please feel that you do not have to view each individual example; a selection of the video footage examples should provide you with a confidence decision.								
Communication Description	Number of Occurrences	Confidence Rating						
		Disagree				Agree		
4 pattern	3	1	2	3	4	5	6	7
above head conducting	5	1	2	3	4	5	6	7
across body conducting	8	1	2	3	4	5	6	7
aura	3	1	2	3	4	5	6	7
body motion circling	1	1	2	3	4	5	6	7
body rotate	1	1	2	3	4	5	6	7
body with phrase	22	1	2	3	4	5	6	7
bouncing hand	1	1	2	3	4	5	6	7
brush stroke	8	1	2	3	4	5	6	7
caressing	5	1	2	3	4	5	6	7
circle gesture	49	1	2	3	4	5	6	7
circles	1	1	2	3	4	5	6	7
clap and release	6	1	2	3	4	5	6	7
clapped hand	1	1	2	3	4	5	6	7

For both rehearsal and conducting classes, video evidence was subjected to the same treatment, namely: only the gestures exceeding ten in occurrence and only gestures of the hands (manual gestures). This data was then rated by a panel of four judges to see if there

could be confidence in the researcher's initial coding. This gave two further sets of data (the rehearsal and the conducting class) which could then be compared and contrasted. Once this confidence rating exercise had been achieved, the judges rating of the data was then considered in terms of its reliability and the relationship of the data to inter-observer reliability. To establish this, the researcher employed a nonparametric test: Kendall's W of rank correlation coefficient (Siegel, 1956; Robson 1993) was used; this was done by using the statistical software, SPSS (2006, Illinois).

The multi-methodological approach which can be classed as variants of observational method, this approach also reflected a secondary focus on determining and validating the observed gestures in terms of an interpretation of what the gestures were trying to convey. To determine an interpretation of these gestures, the gestures which were used repeatedly by the conductor were then interpreted and coded into 'families' by the researcher, using Durrant's suggested categorisations framework (Durrant, 2003: 147). Exactly the same methodology used above was then applied to this secondary set of data: the digital video footage was observed using structured observation by four independent judges who rated the researcher's coding of conducting gesture into 'families' or categorizations. Kendall's W test (Siegel, 1956; Robson, 1993) was again used to establish the inter-observer reliability.

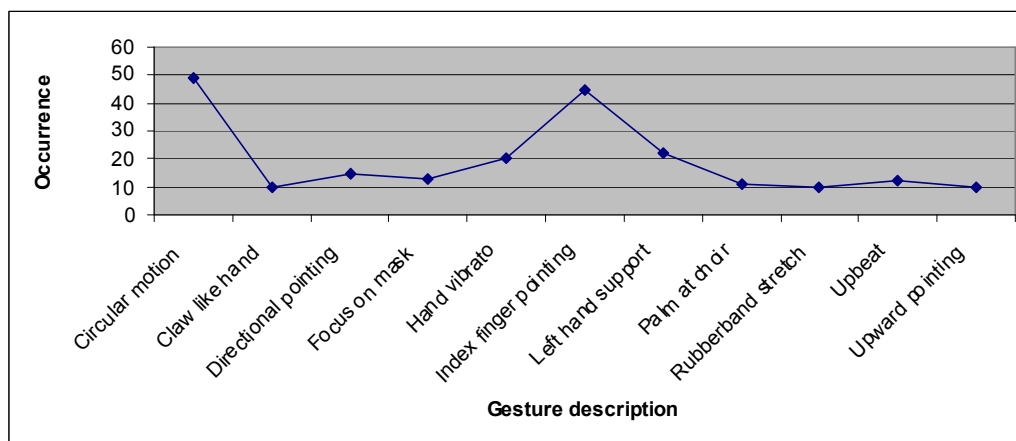
It should be noted that it was not possible in the time available to seek a separate commentary from those conducted, although it is recognised that this would be another fruitful aspect of the analysis in any subsequent fieldwork as this research project progresses.

### **Discussion of Results**

Initially, *ATLAS. ti*. (ATLAS. ti. Scientific Software Development GmbH, 2006) coding indicated that, throughout the one and a half hour rehearsal context, the conductor

used 582 different forms of gesture. Looking at the conductor's behaviour with the singers, the researcher reorganised this data into hand gestures at which the rate of occurrence exceeded ten. The data collected from both the choral rehearsal and conducting class showed a wide and comparable range of conducting gesture used. Figure 3 illustrates the categorisation of gestures in the choral rehearsal context that were common in terms of categorisation that emerged from the conducting class.

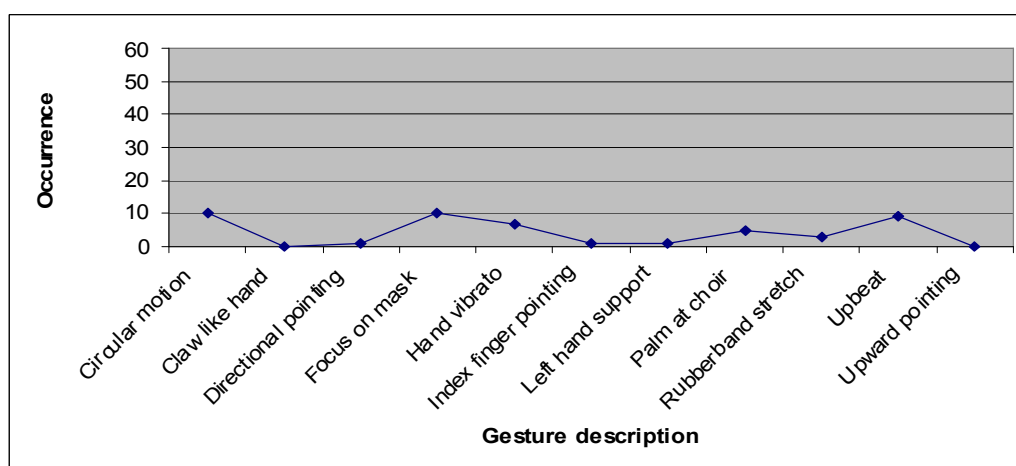
*Fig. 3. Conducting gestures and rate of occurrence (common categories) in the choral rehearsal context.*



This data was then confidence rated by a panel of four independent judges, the inter-observer reliability of the ratings totalled 0.489% in Kendall's W test. This showed a reasonable confidence rating in the researcher's gesture description labels. However there was one judge who appeared to disagree on some items, and when the test was repeated without that rating, Kendall's W Test showed the inter-observer reliability as 0.518%, a relatively more favourable percentage. In both cases 'Circular motion' and 'Index finger pointing' were the most common gestures in the choral rehearsal context.

The same protocol was adhered to in examining the gesture used by the conductor whilst teaching a conducting class. This time the number of gestures used were much lower (see figure 4).

*Fig. 4. Conducting gestures and rate of occurrence (common categories) in the choral conducting class context.*



This data was then placed before a different panel of 4 judges who again were asked to rate the researcher's gesture descriptions.

Using Kendall's W test, the inter-observer reliability for these confidence ratings resulted in 0.553%, again relatively favourable for the gesture descriptions.

Figure 5 provides a comparison of the occurrences of gesture in both the choral rehearsal context and the choral conducting class.



Fig.5. Comparison line graphs showing the rate of occurrence for key conducting gestures used by the same conductor in two contexts: the choral rehearsal and the choral conducting class.

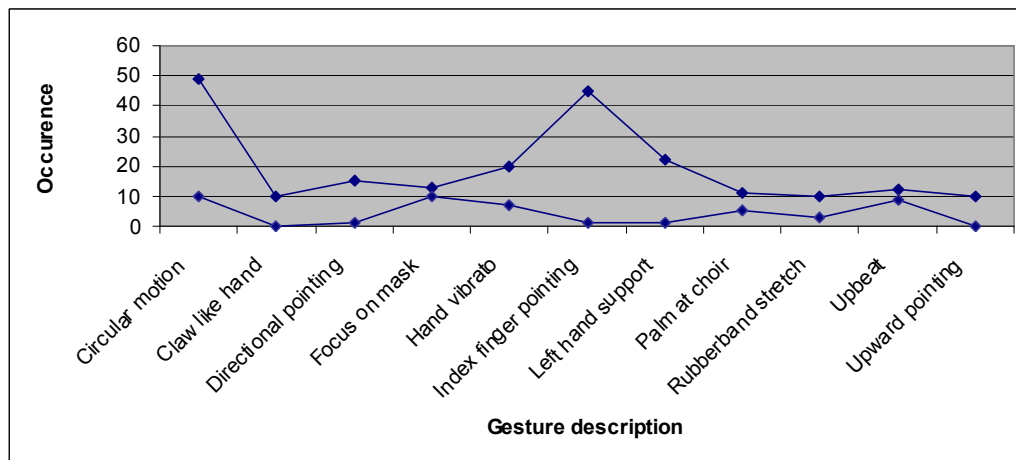


Figure 5 shows that the two sets of gestures are significantly different from each other. To confirm this significant difference, the researcher used Chi-square analysis (Robson, 1993: 334; Ball 1996-2003, Georgetown University USA). The calculation reported that the Chi-square [ $\chi^2(1, N=16) = 39.16, p < .05$ ] and that the distribution of the two sets of data is significant. In other words, the conductor appeared to have different priorities in his use of gestures for each of the two contexts, the rehearsal and the class.

In terms of the relative dominance of particular gestures, the rehearsal is characterised by 'Circular motion' and 'Index finger pointing'. In contrast, the conductor had relatively few gestures (in terms of overall occurrence) in the conducting class, although four of those exhibited were slightly more prominent: 'Circular motion', 'Focus on mask', 'Hand vibrato' and 'Upbeat'. The fact that 'Upbeat' scores highly in the conducting class, is not surprising as this gesture has a pre-defined and widely accepted purpose and conducting pedagogues advise that it needs to be taught to beginning conductors (McElheran, 1989; Rudolf, 1995).

The combined data shows a large discrepancy between the occurrence of gesture in the conducted rehearsal and the conducting class. The researcher surmises that this may be the case because the conducting class focused on a small number of gestures, whereas the conductor's gestures in the conducted rehearsal may have been guided or at least influenced by the vocal output of the singers; namely there is likely to have been a difference in conductor focus between a rehearsal context and conducting class.

Recoding the gestures into Durrant's (2003) five suggested categorisations framework was undertaken by the researcher and then again confidence rated by a panel of four independent judges using the data collected from the rehearsal context. The gestures were recoded into an adapted version of Durrant's (2003) categorisations (see context above) and plotted see figures 6, 7a and 7b.

*Fig 6. Family coded gestures:<sup>1</sup>*

<b>Drawn from Durrant's (2003) Categorisation of conducting gestures</b>	<b>Gestures found in the digital video footage</b>
Connotative gesture:	Claw like hand Rubber band stretch Hand vibrato
Literal gestures:	Circle gesture Index finger pointing Upbeat
Helpful gestures:	Directional pointing Focus on mask Left hand support
Other (gestures not recognised to be in any of the above):	Palm at choir

<sup>1</sup> Durrant's (2003) framework includes 'inappropriate gestures' and 'gestures shared with the singers themselves'. However, neither of these were evident in this pilot study.

Figure 7 a. The rate of occurrence of gesture observed by the judges when confidence rating the researchers

coding into an adapted version of Durrant's (2003) framework (drawing on Figure 6):

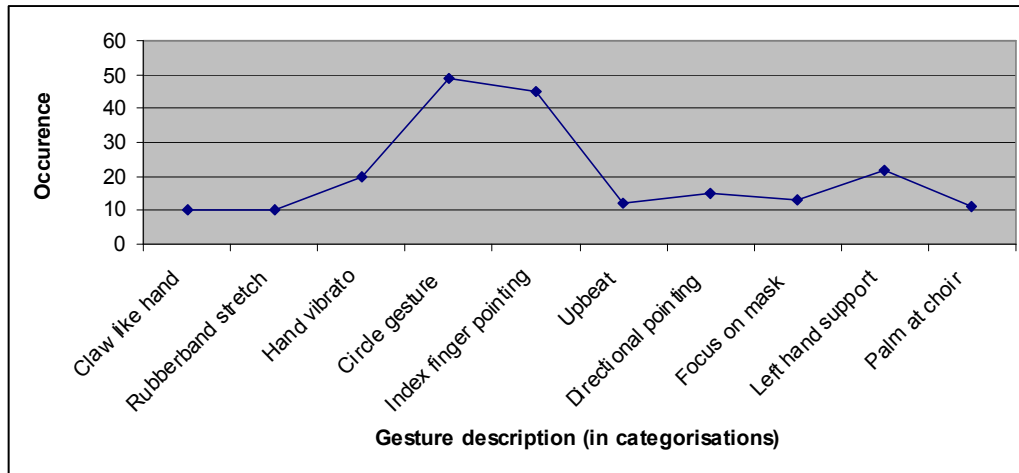
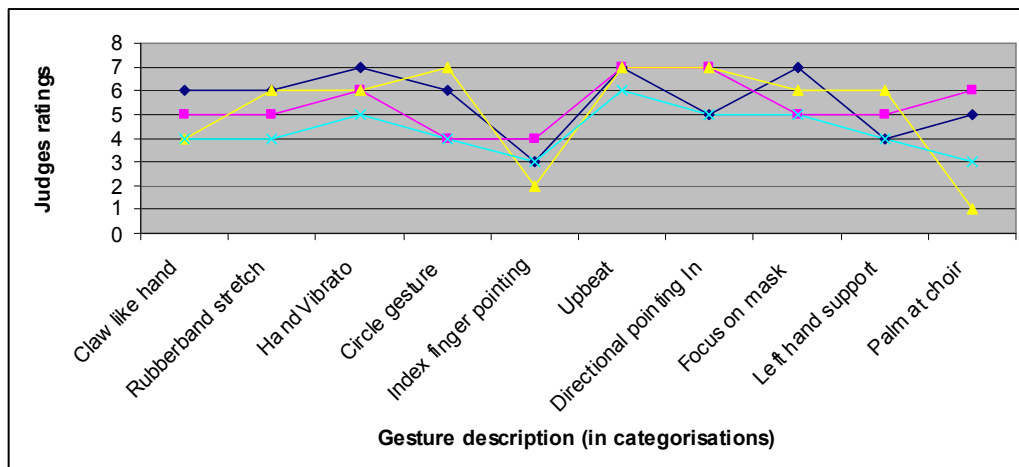


Fig. 7 b. The four judges confidence ratings on the researcher's allocation of gesture into Durrant's (2003) categorisations:



To establish the inter-observer reliability of the judges rating on the coding of conducting gesture into categorisations, Kendall's *W* test was again used via SPSS. The reliability rating resulted in 0.615%, a favourable percentage.

### **Triangulation with Interview Data, Observation Data and Literature**

The data from the categorisation of the digitally videoed gestures was then triangulated with observation notes and findings from the semi-structured interview with the conductor.

Drawing on all the available data, the gesture which occurred most in the rehearsal context was what the researcher described as a 'Circular motion' (this gesture occurred forty nine times in the rehearsal context). This gesture is cited and described by Bräm & Bräm (1998) as being a gesture devoted to a form of 'offering'. The circular gesture, they say, has a psychological function which encourages the musicians to 'carry on'. Consequently, in the semi-structured interview with the conductor, this idea was presented to him; whilst he initially agreed that, it was possible that the gesture could be used for that purpose, he indicated that it was his intention to use the gesture as a means of conveying either movement or the continuation of a phrase in the music. Furthermore, when the same gesture was examined within Durrant's (2003) categorisations framework, the rated observation showed that this gesture was considered to be a 'Literal gesture', a gesture which gives the singers an indication of pulse and/or a sense of the direction of the music. The researcher proposes that the data shows the conductor's intention for the circular motion to convey movement (the purpose of the gesture). Furthermore, that the judges observed this sense of movement, and therefore it was quite possibly observed as the focus by the singers themselves.

The gesture described as 'Index finger pointing' was also coded initially into the 'Literal gestures' categorisation, but received low confidence rating from the judges (see figure 7b). During the panel of judges structured observations, there was some discussion as to the difference between this gesture and the gesture described by the present researcher as 'Directional pointing, intonation' which occurred in the same digital video footage. In examining the gesture of 'Directional pointing' with reference to intonation, the judges rated the researcher's coding of this gesture as a 'helpful gesture' (that is gestures which are helpful in some musical, technical or vocal way [Durrant op.cit.]). Bräm & Bräm (1998: 135) also identified this gesture and associated it with 'showing a path or form in the music' and that the path or form of the music is indicated by the index finger in order to stress the sound line. However, there is a growing concern among choral conducting teachers with regard to the use of the upward pointing index finger as a correction tool for intonation problems in the choir; generally, authors have discouraged this gesture (Bertalot, 2002; Durrant, 2003) because it can become associated with changes in bodily posture that increase physical tension and reduce vocal efficiency. Not surprisingly, the judges also rated the gesture 'Upbeat' highly as a 'Literal gesture'.

Throughout the digital video footage, the conductor filmed used a gesture which the researcher described as 'Palm at choir'. This gesture can be described and illustrated as a stop signal, and occurred in the rehearsal eleven times. However, one of the judges' rated agreement with this gesture was low. The judge suggested that the gesture should have been placed in the earlier 'Connotative gestures' section. When questioned by the researcher, in informal discussion, the judge indicated that the digital video footage also recorded some audible expression in the vocal output of the singers whenever this gesture was used, a factor not originally conceptualised in this paper, though an important observation. Finally, the conductor was shown excerpts of the video footage and asked to comment, he described his

conducting as unambiguous explaining that each of his gestures had a purpose and the singers were aware of that purpose.

Capturing, explaining and determining conducting gesture is a multifarious task. Any form of interpretation of that gesture is a task of further complexity. Nevertheless, this pilot study suggests that the manual gestures of a conductor can be observed, coded, and recoded into categorisations for later analysis, critical analysis and explanation.

### **Evaluation, Validity and Reliability of Approach**

In determining the validity of the method of inquiry, the foci of the pilot (determined in the summary of the context) need to be assessed. The case study/multi-observation and rating method used in the study provided the researcher with an opportunity to observe and record choral conducting gesture with a reliable and scientifically valid approach. It allowed for the observation of choral conducting gesture within the two related contexts of conducting (a rehearsal scenario and the teaching of conducting in the conducting class). The multi-method observation and analysis allowed the researcher to examine any relationship between these two aforementioned contexts. The methodology also allowed the researcher to answer the questions presented at the beginning of this paper (see summary in context).

The inclusion of nonparametric tests, such as the reliability test on the judge's opinions (Kendall's *W* test) along with the Chi-square analysis will also contribute to the strength of the validity and reliability of this kind of inquiry.

The study purposefully examined the same conductor in two related contexts, and by doing so the researcher was able to triangulate the data gathered in the analysis. Besides the raw observation and rating data, other forms of data were collected; these included interviewing of conductor; and the researcher's observation notes at the actual time of the

rehearsal. Using this secondary data and triangulation with the observational and rating data, comparisons could be made to assess the consistency or change in the conductor's methodology and gesture in the two related contexts. (As mentioned above, it was not possible in the time available to seek commentary from those conducted, although it is recognised that this would be another fruitful aspect of the analysis.)

It should be noted that this pilot study only dealt with the hand gestures or manual gestures (Bräm & Bräm, 2004) of the conductor, and therefore its design, methodology and apparatus reflected this. Conversely, whilst doing this, the researcher also acknowledges that it is clear that facial expressions; eye gaze and contact; and body trunk movements are also vehicles for a conductor's communication to the choir (Busch 1984; Decker and Kirk, 1988; Durrant, 2003; Ehmann, 1968; Kaplan, 1985; McElheran, 1989; Roe, 1983; Stanton, 1971; Thomas, 1979; Wis, 1999). Investigating these other attributes would strengthen the research already presented here. However, such a study would require a more complex method of inquiry beyond the scope of this current paper, although by perhaps incorporating the observational model presented here as part of a composite tool of investigation, such a study could be initiated.

### **Conclusions and implications for further research**

When considering the relationship between gestures which characterise the participant's choral conducting in the rehearsal and those used by his teaching of choral conducting, the current research evidence suggests that there was little commonality between the two. Furthermore, the results suggest that some gestures were context dependent, being used in one context but not another. Overall, the researcher's interpretation and categorisation of the patterns and types of gestures were supported in the sampled evaluation by the



different sets of judges. The tendency towards consensus was acceptable statistically, but not exclusively, providing (i) cautionary support for the findings and (ii) a reminder of the ambiguity that is inherent in the interpretation of others' non-verbal behaviours.

The triangulation of data collected with previous literature does suggest that conducting gesture can be coded and rated, if not unanimously. In this case study, as in the study by Bräm and Bräm (1998) the diversity of conducting gestures can be seen to be composed of a relatively small set of variables or components. These can be clustered for the purposes of analysis. The extent to which such gestures are usually associated (by the singers) with specific meanings and directions remains open to question and further exploration. The nature of the choral activity suggests that individuality in interpretation and related singing behaviour is likely to be modified by group membership and group dynamics, irrespective of anything that the conductor does. Further study is needed in which the categorisation of gestures is examined to explore the degree of match with acoustic output from the singers. Such an investigation could take an experimental approach, initially measuring and recording the degrees of vocal output of a section of a choir against a variety of choral conducting manual gestures, some of which have been outlined in this study. This would serve a dual purpose: (a) to determine that conducting intentions can be transferred to the singers through the hands either effectively or ineffectively; and (b) to determine whether choral conducting is more than just manual gestures.

The data also confirms that the vehicle for the conveyance of intended performance meanings is usually by metaphoric association aided by 'emblems' (Argyle, 1975). The pilot also suggests that although the meaning of these gestures, as Poggi (1988) describes, has to be decoded by the choral singers (a process yet to be investigated); to a degree, the adoption of the pilot methodology suggests that it is not only interpretable to those persons who know

the second target domain of these gestural metaphors, namely those who participate in choral music, but also by an observer.

This pilot study can be used to critique Durrant's (2003) quote at the opening of this study, to indicate that there appears to be no strong relationship in at least one aspect of conductor behaviour -hand gesture- between the teaching and practice of conducting.

However, the data collected does imply an, as yet indefinable, relationship between gesture and sound which was experienced by researcher, judges, and singers alike. Further research would generate appropriate insights into the experiences of the singers and the experiences of those being conducted.

Nevertheless, for now it is hoped that this short pilot study provides some critical and evaluative insights that will contribute to a larger framework for further investigation of choral conducting gesture within the field of choral education.

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