

Thomas Caplin, lecture at University of Pretoria, April 2006 and Febr. 2007

Subliminal interaction – the secret behind musical leadership?

- how the conductor's musical mind manifests itself in the body language and the singers in the choir

Introduction

After many years of teaching choral conducting and validating my own experiences as conductor, I am trying to find the explanation to what is going on in the communication between the conductor and his instrument and why. In my search for sufficient explanations, I have looked into international literature in the field of choral conducting, as well as on my own training in choral conducting. But traditional views on choral conducting haven't given me the explanations I look for. Looking into the direction of *psychology* however, I begin to see the contours of satisfactory explanations. Since I don't have a degree in psychology, I have found it a fruitful exercise to connect my own empiricism from conducting and teaching with theories and findings from research and studies in psychology, and in particular those dealing with *subliminal perception/communication* and *neurological studies*

Subliminal communication and perception – ancient and future controversy?

Subliminal perception means a perception below the threshold of sensation or consciousness, too weak to be recognised or measured. To accurately define or measure where this threshold lies is in essence the very challenge for researchers, which therefore explains the difficulty in how to scientifically justify the existence of *subliminal interaction*. Nevertheless, it is a field particularly interesting and controversial as it suggests that a person's emotions, thoughts and actions are influenced by external stimuli that can be perceived without being aware of it.

When looking for studies in the field of subliminal communication, one stumbles all the time over the name of the English psychologist *Anthony Marcel*. It seems that many of the studies that have been carried out in the past three decades have been particularly inspired by the studies performed by *Anthony Marcel*. In 1983 he presented sensational findings from his studies (Marcel, A. J. [1983]. *Conscious And Unconscious Perception: Experiments on Visual Masking And Word Recognition*). He meant that he had proved that human beings can perceive the meaning of words that are shown to them so fast that they themselves couldn't tell what they had seen. Not

even could they confirm that they had actually *seen* a word. Based on his and other scientists' findings, it could seem when stimuli like faces and pictures presented in an environment where it can be difficult to separate one stimulus from another, the percipient still has the possibility to discriminate stimuli and react differently to them. This could be applied to the situation where the conductor creates a *gestural environment*, where gestures can appear rather identical to the conscious eye, but between which the singer's sub consciousness can discriminate, sort and give different responses.

Historical examples

For some reasons - maybe obvious reasons - it could seem that some research studies over the past 30 years have effectively tried to challenge the validity of *subliminal interaction*. This has mainly happened by challenging several of the more *popular scientific* results that have constituted the foundation for an increased interest in this field. One example of these experiments worth mentioning in the field of *subliminal advertising*, is *Vicary's* experiments from 1957 in the cinemas. By repeatedly inserting very brief advertisements for popcorn and Coca-Cola™ in the movie (equivalent to , 0.003 sec., invisible to the conscious eye), it was claimed that this significantly increased the sale of these products. The results of this particular experiment were challenged in 1962 and this turned out to be very fruitful, as the experiment proved to be without any scientific substance, the results were fabricated and therefore must be scientifically disqualified. These challenges against earlier popular scientific results have on the one hand been necessary in order to clean up obscurity in the research field. On the other hand they may have contributed to an unfortunate labelling of the field as a somewhat questionable field of research. I will elaborate this further out in the article ("research versus empiricism").

There are other several more or less well known examples where one has tried to manipulate people's perceptions using words:

When the BBC in their early years in the 1920's begun with national broadcast, this encountered great scepticism and anxiety amongst the listeners – "this is the voice of the devil", it was said. In order to try to change this attitude, the BBC put in different texts in the jingles that were read backwards and sounded totally innocent. When you today play these jingles backwards again, one clearly hears: "this is not a noose, no

really it is not”. The BBC thought that you could pick up the message subconsciously even if it was read out backwards.

But we can go even further back in history - long before the BBC was even thought of. It's not so farfetched so assume that subliminal communication constituted an important instrument in the need of the ancient Greeks to create a new science – *rhetoric* – all in pace with the establishment of democracy, larger populations, higher intellectual popular educational level and an ever increasing need to organise and rule (monitor) the people. The concept was through speech to be able to influence/manipulate the people and their minds in a desired direction. This was done by careful selection of form and structure, intonation and sound, choice of words, dynamics, tempo, pulse and rhythm.

It is tempting to assume that subliminal communication constitutes the communicative foundation for all art forms – a communication with or without words, where pictures, form, colours, size, tempo, rhythm, pulse, sound, dynamics and intonation are the very instruments being utilised in order to affect the percipient. So we can establish an understanding that *subliminal communication and perception* is basically neither a new nor a revolutionary phenomenon. It just seems that we haven't made the connection between the *historic empiricism* and *findings from recent psychological and neurological research* with *what we as conductors and singers experience and understand* basically on a sub conscious level.

Research versus empiricism

The greatest challenge for future scientists lies without any doubt in to what extent one can achieve satisfactory and measureable effects of subliminal interaction. In this perspective – awaiting scientifically approved findings – the uncertainty of to what extent SI really has an efficient "unconscious" influence will remain a question of definition, whereas it for the experienced conductor still remains an undisputable empiric fact that SC really has an impact on the singer's and musician's mind.

But why this polarization the conductor's empiricism and research? With regards to the questionable measurability, one has to take into account aspects like:

- *socio-psychological influence* (e.g. how the other singers interact socially and musically with one another)
- *associative conditioning* (e.g. certain gestures are preconditioned to a certain vocal/musical process)

Understandably, these factors are not easily assessed, and one therefore faces the reality that since phenomena not being subject to measurability never can be accepted as scientific facts, one will today unfortunately experience a gap between the conviction the conductor lives by, and what science has a hard time to acknowledge as a valid communicative phenomenon.

The British psychologist and researcher N. F. Dixon has in his research carried out and presented more than 500 experiments and has in his book concluded that subliminal perception undoubtedly exists (*Subliminal Perception: The Nature of a Controversy*. New York: McGraw Hill. (1971). He says:

"It would seem that reports of percepts may be influenced by stimulation which the percipient is not aware. Certainly, it can be claimed that the having of a conscious percept does not exclude the possibility of subliminal effects."

A guarded way of saying that a conscious perception does not rule out the possibility of subliminal effects and thus we can be influenced by subliminal stimulants without being aware of it.

When you look at the apparent lack of connection between the possibility of subliminal communication/perception and the field of choral conducting, it could seem that even today – some thirty years after Dixon's reflections - many prefer to support the dwelling scepticism towards the very existence of SC/SP. But maybe this is due to sheer ignorance and that this connection just needs to be made? According to Dixon, who obviously experienced scepticism close hand, people automatically fear the unknown. To acknowledge sub consciousness is to acknowledge the fact that there are regions in our brain inaccessible to us, but which others can control without our knowledge. And that may seem quite intimidating...

Conducting - subliminal communication - mind control

In the world of music, there are good examples of forms of communication where you can sense an influence of subliminal communication:

- *The symbolic language* composers in the renaissance and baroque periods frequently made use of in their scores, intimately connected to rhetoric
- *Hand signs*, e.g. John Curwen's tonic sol-fa method, where the positioning of the hand communicates which note to be sung, together with an intention of controlling intonation and function
- *The subliminal communication of the score:*
 - the connection between the length of bars and influence on experience of time and tempo (e.g. long bars => long distance between notes => longer time between notes => sensation of something slow/slower)
 - an untidy and messy picture of the score that creates antipathy even before you have heard the piece
 - general layout of the score that is either sympathetically or antipathetically 'surveyable'
 - the use of different colours on the sheets

According to the Norwegian musicologist Prof. *Rolf Inge Godøy*, it is the movement/gesture and not the music in itself that enables one to remember the music. Godøy's research (amongst others) suggests that a gesture/movement – and in this context in connection with music – creates an imprint in the brain and thus conditions a reaction that will be remembered and triggers the same reaction next time one sees the same movement/gesture.

The conductor, with extended use of the whole body and verbal language striving to communicate one's musical mind, unceasingly uses *subliminal communication*.

With gestures, one has the possibility to create allegorical symbols in order to promote instinctive or conditioned reaction patterns. And it is the recognition of this that ought to produce an unconditional urge not to misuse the ability, but instead to take control over it so that it more efficiently can assist in the musical work.

“Words may show a man's wit, but actions his meaning” (B. Franklin)

Based on my own experience from working with choirs and orchestras and studying other conductors, there is no doubt in my mind that subliminal communication has a significant impact on important issues for the ensemble like intonation and sound. Research in the field of communication shows that in a communication between two bodies, only between 5 to 10 % of the message is communicated by its contents (verbally - *what* is being said), 30 to 40 % by *how* it's expressed (also verbally – sound/intonation/tempo) and the rest of the message - **50 - 60 %!** - is communicated through body language, facial expression. There is therefore reason to believe that the conductor's signals through gestures can override information/guidance given verbally. This constitutes a very important framework within the communication process between the conductor and his instrument. With one unfortunate gesture one can ruin a positive verbal instruction repeated over a long time in a split second. The developed conductor knows this – more or less on a conscious level – and implements this knowledge in his gestures. And that's what makes him developed.

All my observations and studies of e.g. intonation related problems that the conductor faces when *conducting* the choir, point in the direction that most of them derive from himself. How you position your hands will e.g. give signals to the singer to intonate a major third “high” or “low”. Turning your hand with your palm upwards will be a good subliminal communication if you want a minor third to be intonated high, whilst the palm downward will function to stimulate a lower intonation. But, if the major third changes in function to a leading note - which it often does - your hand should change and thus subliminally inform the choir to sharpen it. Likewise, the positioning of your hands and arms continuously informs the choir of how they should create the sound. Arms working to high will give a subliminal signal of a high clavicular breathing, which in its turn produces a shallow sound, not being anchored in the body.

Arms working too much to the side will produce an image of horizontality, which is a good *musical* signal for thinking in long horizontal lines, but an unfortunate signal with regard to the sound which suddenly can be flat.

Highly trained and experienced singers will not be as influenced as amateur singers by these signals – the conditioning/training they received through studies and experience will have a strong impact on the degree of influence.

This “conflict” between two simultaneously used languages - the beating patterns the conductor learned in his training and the singer's understanding of body language - can easily be demonstrated by asking your singers to illustrate with both arms the word “flat”, a word I believe most choral conductor choose not to associate with a good choral sound. A high percentage of them - if not all – will now move their arms in a way that is amazingly similar to e.g. the third beat in a four-beat pattern.

The conductor thinks and means a three, but the singers read out *flat*. If we consider the situation where the conductor over a long period has tried to condition the singers towards a round, collected and vertically anchored sound, he will simultaneously in every bar give the opposite signal of a flat and horizontally anchored sound - double communication.

Mirror neurons

According to Dixon - from the time when he was the most active - there was no physiological basis for the possibility of *subliminal perception*, and that the research until then hadn't been thorough enough to prove its existence. But some twenty years after the work of important researchers like Dixon and their fight to prove the probability and existence of unconscious perceptual experiences, some Italian researchers discovered what was later known as "mirror neurons" (Gallese and Rizzolatti + others). These mirror neurons seem to serve us in helping out to predict, simulate and de facto experience another human being's behaviour and state of mind. Researchers from the University of California also claim that the human mirror neuron system is now thought to be involved not only in the execution and observation of movement, but also in higher cognitive processes:

- The understanding and relating to language and music
- The ability to imitate and learn from other's actions
- The decoding of their intentions
- The *empathizing* with their state of mind - "seeing is doing".

And since empathy may be the most significant instrument in the processes of teaching and learning music, this discovery is highly interesting. In view of this, it seems adequate to utilise the term *the empathic conductor*.

The empathic conductor – empathic conducting

In order to successfully direct a choir or an orchestra, you have to be able to combine at least two fundamental truths based on empathy:

- The ability to fully understand the score from all kinds of angles, and based on that understanding building your own musical mind and vision.
- The ability to fully understand how the singer experiences the different embedded challenges in the score from his position - vocally, musically, technically and aurally, and with your gestures and general body language act upon that understanding in order to stimulate a coherent interaction from the singer.

Traditionally, scientists have advocated that a man's actions/movements/gestures were initiated by signals from the conscious parts of the brain. The discovery of mirror neurons has proved this theory to be only partly correct. The sub conscious parts evidently play a much bigger role in the interaction with these newly discovered mirror neurons and physical movements/gestures. Learning abilities, empathy and language development are also in these new discoveries highly connected to mirror neurons. They have the ability to decode someone else's movement/gestures, so that we simultaneously can learn to do them ourselves and register the thoughts and will behind these gestures. The conductor's gesture will – according to research reports – need about 0.5 second to reach the full *conscious* understanding of the movement and the purpose behind it (Illustrated Science, [Sweden]). In the gestural communication process between the conductor and the singers, this normally takes too long time. But when the mirror neurons are activated, they process the gesture in merely *50 milliseconds* in the sub consciousness.

Without this subliminal interaction between the conductor and his singers, one could only make it happen/function with slow enough music.

This is the physical and neurological research hard fact response to the more theoretical work of researchers in the field of human conduct that dominated in the past century.

Conducting – a sub conscious or conscious state of mind?

It would seem that the sub conscious processes (from the conductor's mind and body to the singer's mirror neurons) could override a more reflective process on a conscious level, simply because it's faster. Furthermore, it seems that the more time the singer has to decode a gesture, the more apparent a possible conflict becomes between what the gesture apparently shows on a sub conscious level and what it conveys after having been registered, analysed and interpreted by the consciousness. Our consciousness is - as we already have established - much slower than the sub consciousness, which means that when the singer has become aware of the gesture, the sub consciousness has already processed it and created a re-action in him, regardless of what he will think of the gesture afterwards on a conscious level.

Seeing is doing – and learning – by mind reading

This new understanding of the importance of being able to *see* the gesture, gives birth to a variety of the old saying: "Learning by doing". It seems that in the process of learning by doing, the learning-*and*-doing has already been done mentally by the mirror neurons before one is actually re-doing them physically. Seeing someone doing something with his mouth or hands is synonymous with doing it ourselves (Å. Harvard 2004). This strengthens *imitational learning* as a highly effective way of learning in comparison with theoretical learning.

Brain scientists state the extremely intimate relation between our ability to communicate linguistically and the mirror neurons. The meaning of the conductor's gestures, facial expression and advanced lip movements therefore make immediate sense to the singer, without the involvement of conscious interpretation – we can see the spoken and unspoken word. This means that the singer has the ability to *read the conductor's mind*, has access to parts of the conductor's brain and inner mental life that the conductor maybe himself is unaware of.

Utilising gestures - the musical mind

In which way could this understanding of imitational impact affect the way the conductor works with his choir? As my own studies over the past five years have clearly shown, by implementing gestures and movements in warming-up exercises or in the rehearsing of specific passages in the music, I have been able to condition my singers to a far higher degree of both vocal and musical awareness. By not only seeing, but also copying my gestures (that are based on my own empathic understanding of musical and vocal challenges), the singers will be able to translate/convert what the sub consciousness sees in my gestures into their own conscious mind and thereby *mirroring my original intentions – my musical mind*.

But this communication progress can also be reversed - from the singer to the conductor in using gestures. In the same way that your body instinctively and immediately moves when dancing, your arms and hands will move spontaneously in accordance with *how you relate to pulse and music* - vertically and/or horizontally. The body always mirrors the mind and how you relate to factors like pulse and musical flow. The body gives you away - always! So by observing what instinctive and spontaneous gestures the singers do themselves when asked to illustrate a musical or vocal passage without any given instructions, you as the conductor will be able to read their mind! Making the singers utilise gestures in the choral rehearsal is one of the most effective instruments in the process of connecting the singers' musical mind with the conductor's. And the effect has proved to be on a long-term basis.

You just can't *escape your musical mind* - whether you are a singer or a conductor.

The scientifically approved connection between mirror neurons and imitational learning is still a hypothesis, since it hasn't been possible to scientifically test on humans - the only species consequently making use of imitation as a learning method (Å. Harvard 2004). In spite of this, the significance of the discovery of mirror neurons cannot be underestimated and constitutes maybe the strongest support for the existence of *subliminal interaction*.

The conductor - a mind controller?

Two important questions have to be discussed:

- *What is the very essence of conducting, what is it really all about?*
- *For whom are we waving our arms in a preconditioned pattern in front of the choir?*

In order to answer the first question – *about the very essence of conducting* - one cannot avoid challenging the conventional choral conducting training programme. We learn how to beat certain patterns and the more complex patterns - the better, it could seem (what an unfortunate choice of word – “beat” – no one likes to be beaten, and that includes music!). But do we focus on how we as conductors think about the music, how we relate to it – contents, vertically and horizontally? Do we focus on how a thorough analysis and understanding of all the details in the score constitute the very building stones for our own personal vision and visualisation of the music on our inner screen?

To me there is no doubt that the clearer I see the music on my own personal inner screen, the clearer I can show it to others. If I have this vision and see the music clearly, then my gestures and body language will automatically reflect and recreate my mind and recreate that state of mind in my ensemble.

And maybe that is what conducting really is about – controlling and the minds of the choristers towards my own musical thought and spirit? I think so, and all my experience proves it. We are all aware of the fact that if you take two conductors working with the same choir and same piece of music, they will most certainly generate two different kinds of sound, intonation and musicianship. I think this also proves what I have postulated before - that *you never can escape your musical mind* – it will manifest itself in your gestures whether you like it or not.

In order to answer my second question - *for whom are we waving our arms in a preconditioned pattern in front of the choir?* – we will have to establish some facts:

The vast majority of students undertaking choral conducting will find themselves working with amateur choirs and amateur singers. Most of these singers will not be able to consciously and rationally relate to these pre-programmed beating patterns. They will see these gestures and movements as nothing *but* expressive gestures and they will try to read out the contents of the gestures mainly with the aid of their sub conscious and instinctive understanding of body language. To some extent they will also relate to the gestures based on associative conditioning.

As mentioned before, there may be different levels to which a singer responds to the conductor’s subliminal communication. Reasons to this could be:

- *How well trained the singer is (knowledge conditioned).* The more trained and experienced singer - relying on his knowledge - the more the singer will act on what he/she has learnt in his own personal training, more or less consciously disregarding the conductor's gestures. He will relate to gestures in a conscious and rational way and the singers' own personal training constitutes his main support in the musical process.
- *Authority and respect.* The greater respect a singer has for the conductor's authority, the more willing he/she will be to set aside his own personal training/knowledge, and allow himself/herself to be momentarily conditioned by the conductor's gestural guidance. This also applies for highly trained singers. A traditional not so well trained amateur singer will constantly and always look for guidance and security, and the conductor naturally represents this authority.
- *Associative conditioning,* certain gestures are preconditioned to a certain vocal/musical process, where the singer's training level or respect for authority has less impact.

As we can see, there are a number of factors involved that may influence the degree to which you let yourself become influenced by subliminal communication. A more trained singer will possibly *register* the same amount/degree of subliminal communication but will maybe not let him be influenced to the same degree.

This was also something that captured Dixon's interest in 1971: "The discussion is whether a visual stimulus, invisible to the conscious eye, still can affect an established and otherwise stable percept". It is fully possible that future research and findings will reduce the need to discriminate between trained and amateur singers – that the impact of such communication/perception is more or less equally strong, regardless of training.

I remember a concert with a very good choir consisting of highly educated singers. After the concert I asked some of the singers: "How can it be that you sing so well in this choir, when it seems to me that the conductor isn't helping you at all with the gestures, but rather the opposite, giving you what to me seems like incomprehensible vocal signals?" And they replied: "Ah well, you see – we don't look at the conductor, we see her, but we don't look at her – we just can't. But the conductor is the most wonderful musical tutor in the rehearsals. That's where we learn how she wants things to be".

This is to me an example of where a trained singer obviously has the choice to discriminate an otherwise strong subliminal communication.

Conclusion

Maybe it's time to invoke the courage to reflect over what choral conducting really is about, place it under the magnifying glass and hopefully revise the whole concept of choral conducting. Conductors are expected to work with people, guiding them in working with music towards personal growth and inter-human understanding based on a large portion of empathy. That is one huge responsibility!

One cannot do this without the presence of mind interacting experiences – *subliminal interaction*. The singer's mind reading and the conductor's mind control have always been there, and will always be there - it comes with the territory. It's a fundamental and inescapable psychological principle upon which all inter-human communication is built. It's there, we can't see it, it opposes measuring, but we can feel it and we interact with one another based on it every day - it's subliminal, we communicate and we perceive.

"Since, by definition, we can never experience subliminal perception, it is easy to draw the unjustified conclusion that it never occurs. Then again, since visual and auditory impressions dominate the stream of consciousness, it is easy to draw the equally unjustified conclusion that perceptual experience is a necessary consequence of activity in the major sensory system" (Dixon).

One has to understand that one can't escape subliminal experience; one has to embrace it and take control over it in order to initiate positive growth processes, both human and musical.

Conducting in its widest sense is a matter of guiding people positively and sensibly - how to make people think, feel and how to express their musical mind and inner life.

Thomas Caplin
Associate Professor
Hedmark University College, Hamar, Norway 20.3.06

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