

Considerations of Lateral and Vertical Conducting Gestures in Evoking Efficient Choral Sound

Melissa L. Grady

The University of Kansas, Kansas, USA

A brief internet search for pictures of choral conductors will return a cornucopia of often very humorous results. Conductor arms are shown contorted into a huge variety of positions, from high to low, close to the body and reaching out, a multitude of hand shapes, and bodies that are relaxed or full of tension. These images lead us to ask a very important question: What does a nonverbal conductor gesture really do to the sound of the choir and the efficiency of singers' output?

Choral conductors have often looked for the most efficient ways to produce their desired choral sound. Textbooks on conducting and research available in the realm reveal a multitude of positions on the most effective means of producing desired choral sound. An effective nonverbal gesture could show what the conductor intended in an instant rather than using seconds or minutes of valuable rehearsal time in a verbal explanation.

The present investigation analyzed trends in conducting textbooks and current conducting gesture research including three studies by the author specifically focused on lateral and vertical conducting gestures. This exploration sought to show the status of current research in terms of nonverbal conductor gestures, analyze the trends in the research, and discuss future directions for research in nonverbal conducting gestures.

Review of the Literature

Conducting Texts

Traditionally, choral conducting techniques and gestures were simply a passing down of what the "master conductors" have done before. Expert testimony and experience were the model for what conductors should do with choirs.

Similarly, choral conducting textbooks (Decker & Kirk, 1995; Demarree & Moses, 1995; Garretson, 1998; Gordan, 1989; Green, 1997) traditionally focused on the basics of conducting patterns. Texts addressed how to use nonverbal conducting gestures to convey the intentions of the conductor (dynamics, phrasing, tempo, and style) to a choir. Very few choral conducting resources addressed nonverbal conductor gestures in relation to the physiological and acoustical efficiency of singers' vocal production.

In Rodney Eichenberger's instructional video entitled *What They See is What You Get* (Eichenberger & Dunn, 1994), Eichenberger stated some of his beliefs about conducting gesture. He suggested that everything the conductor nonverbally shows a choir potentially affects the overall sound of the choir. Eichenberger continued to suggest that specific nonverbal gestures might change the intonation and tone quality of a choir's sound. He stated that during sustained singing, a choir's sound will "sag in pitch" if the conductor shows a lateral conducting gesture. He further contended that the opposite gesture, one that moved vertically, would improve choral sound. In his video Eichenberger said, "as long as you are in an upward movement something good happens to the tone."

In a choral conducting text, Durrant (2003) made similar claims about the vertical conducting gesture. He wrote that an upward gesture was "immensely beneficial when exploring ways of improving intonation and lightening the vocal timbre" (p. 147).

Current Research

With such a span of choral conducting textbooks and instructional videos in circulation currently, it is a curious that so few addressed the effects of conducting gesture on physiological aspects of singing. However, a growing number of empirical studies investigated a variety of aspects of conducting gesture.

Skadsem (1997) looked at four modes of giving instructions regarding dynamic level to singers: verbal instructions, written instructions, changes in conducting gesture, and volume changes in the choir. The researcher found that although singers ($N = 144$) identified conductor gesture as the best way of communicating dynamic levels, the results of the study showed that the verbal directions actually significantly affected singers' responses to scored dynamics.

Cofer (1998) studied seventh-grade wind instrumentalists ($N = 60$) that were divided evenly into a treatment-group and control-group. Treatment-group instrumentalists received short lessons to improve their recognition and response to common conducting gestures. Results indicated that instrumentalists in the treatment-group could relate to and play according to particular nonverbal conducting gestures after they had experienced the short conducting gesture lessons.

Yarbrough (1975) studied the effect of magnitude of conductor behavior (low and high magnitude) on performance, attentiveness, and attitude of students in four mixed choruses. Results showed no significant differences on the choir's performance while observing the different conducting magnitude conditions. More than twenty years later, in a 1998 study, Yarbrough and Madsen found fast pacing, approvals, little teacher talk and more singing were the most successful conductor traits.

Several studies examined conductor expressivity. Although definitions of "expressivity" varied among these studies and, in some cases were missing altogether, a commonality seems to be conducting gestures other than consistent use of traditional conducting patterns are considered "expressive."

Gallops (2005) studied instrumental conductors and their effectiveness in eliciting expressive-interpretive performances from players. Results indicated the conductors rated as most expressive used more non-traditional conducting including changing the size and placement of the pattern. Sidoti (1990) found a significant difference between expressive and non-expressive conducting on high school instrumentalists' ($N = 139$) performances of expression markings in a score. Players performed expression markings more accurately when playing for a conductor using expressive conducting.

House (1998) examined the effects of expressive and non-expressive (time-beating) conducting in the performances of advanced instrumental musicians ($N = 60$). Results indicated that performances improved while observing expressive conducting and that expressive conducting elicited more favorable performer attitudes toward the conductor than non-expressive conducting.

A series of studies, (Price and Chang, 2001, 2005; Price 2006) examined the relationship between conducting and ensemble performance. The studies examined the associations among conductor, ensemble performance expressivity, and festival ratings. In contrast to other studies, results indicated no significant relationships between assessments of conductor expressivity and perceptions of ensemble expressivity among ensembles performing at state music festivals.

Morrison, Price, Geiger, and Cornacchio (2009) examined conductor use of high-expressivity or low-expressivity conducting techniques and how the techniques effected evaluations of identical ensemble performances. They employed four conducting videos (two with expressive

conducting, two with non-expressive conducting) with the same sound recording. University wind ensemble members ($N = 118$) rated instrumental ensemble expressivity significantly higher for the expressive conducting than the non-expressive conducting. In a similar study, Morrison and Selvey (2011) solicited preferences of middle school and high school music students (choir and band) while watching videos of expressive and non-expressive conductors. Although the performances heard remained consistent, these students preferred the performances that evidenced expressive conducting. Price, Morrison, and Mann (2011) replicated this study with collegiate non-music majors with the same result.

Napoles (2013) examined choral sound produced by a choir while observing both expressive and non-expressive conductors. Napoles used both expressive and non-expressive conducting ($N = 4$ conductors) to test the effects of three presentational modes (audio only, conductor viewed from the front, and conductor viewed from the back) on ratings by students ($N = 131$) at a high school choir camp. In all three modes, students rated the expressive conductors and the audio recordings acquired under expressive conducting conditions significantly more favorably than non-expressive conductors and the audio recordings acquired under non-expressive conducting conditions.

To date, few studies have examined the effects of specific conducting gestures on the vocal behaviors of singers. In a series of studies, Fuelberth (2003a, 2003b, 2004) tested effects of various left-hand choral conducting gestures (fisted, palm up, palm down, stabbing, and sideways phrasing gestures) on the vocal tension or anticipated tension of individual singers. Research involved videos of a conductor using a variety of left-hand conducting gestures and participants either sang while watching the video or responded about their perceived anticipated tension elicited from the gestures. Results indicated more anticipated tension with the left-hand fisted, palm down, and stabbing gestures than with the other left-hand gestural conditions.

Manternach (2009, 2011) tested singer head and shoulder movements in relation to conductor preparatory gesture. A videotaped conductor modeled upward head and shoulder movements with preparatory gestures while singers sang. Results found that singer upper body movements varied significantly according to direction of conductor preparatory gesture.

Three Specific Gesture Studies

The author's research into specific choral conducting gestures started at the source, the conductors (Grady, 2011a). A survey of practicing choral conductors ($N = 30$) with an average of 15.3 years of teaching elicited responses about perceived conducting gesture effects on aspects of choral sound. Conductors responded to four questions, two were yes or no responses and two which participants were allowed to write freely.

The yes or no questions elicited responses from conductors on whether they perceived that a nonverbal conducting gesture could affect choral intonation and choral timbre. The open-ended questions requested descriptions of the nonverbal gestures that the conductor felt would affect choral timbre or intonation.

Results showed the majority of choral conductors surveyed felt a nonverbal gesture could affect the intonation (yes, 97%; no, 3%) and timbre (yes, 90%; no, 10%) of choral sound. Suggestions of specific gestures broke down into six categories: non-traditional gestures, gestural plane, vowel shape, relaxation/tension, support, and facial affect. For both improvement of intonation and timbre, non-traditional gestures had the greatest number of suggestions

(intonation, 39%; timbre, 45%). The smallest number of suggestions for both intonation and timbre improvement was facial affect (intonation, 7%; timbre, 4%). When disaggregating conductor responses by years of teaching, those with the most years of experience tended to suggest non-traditional gestures, gestural plane, and relaxation/tension as the most effective gestures to influence intonation and timbre in choral sound.

The results of this modest choral conductor survey showed conductors do believe what they show the choir in terms of nonverbal gestures will affect the choral sound. Most of these gesture suggestions were based on tradition and conductor experience. More research is needed to support or disprove these suggested gestures effects on choral sound. The following is my research into two of these specific nonverbal gestures.

No study to date had examined the effect of specific non-verbal conductor gestures on conglomerate, group choral sound. The following two investigations by the author stemmed from the results of the choral conductor survey and two contentions advocated by Rodney Eichenberger in his instructional video, *What They See is What You Get* (Eichenberger & Dunn, 1994). Eichenberger asserted that a choir will “sag in pitch” on sustained sounds if the conductor employs a lateral gesture. He further stated that “as long as you are in an upward movement something good happens to the tone,” and it will be more energized and in tune. The following investigations compare the potential effects of specific lateral and vertical conductor gesture conditions in the choral singing context.

The purpose of the pilot investigation (Grady, 2011b) was to determine whether three contrasting conducting gestures affected perceptual (pitch analysis, expert listener panel, singer participant survey) and acoustical measures (Long Term Average Spectra) of the conglomerate sound of a choir soprano section. Singers ($N = 10$) were a convenience sample of music students at a Midwestern university. Participating singers jointly performed six measures of a movement from Faure’s *Requiem*.

Singers participated in two group rehearsals of the musical excerpt prior to the recording session. During the recording session, singers sang while watching a videotaped conductor. The videotaped conductor ensured consistency in tempo, size and placement of gesture, and non-gestural behaviors. The videoed conductor displayed (a) a traditional conducting pattern, (b) a uniformly vertical conducting gesture, and (c) a uniformly lateral conducting gesture.

Among primary results of the pilot study, LTAS acoustical data showed significant mean signal amplitude differences in the vertical conducting condition compared to the other conditions, particularly in the 2 – 4 kHz frequency region. The vertical gesture increased mean signal amplitude and the lateral gesture decreased mean signal amplitude.

Perceptual results included pitch analysis, singer survey, and listener survey. Max/MSP pitch analyses indicated that the vertical gesture excerpt was most in tune with itself and traditional gesture was least in tune with itself. Expert listeners ($N = 10$) listened to six pairs of contrasting performances and preferred recordings of both lateral and vertical gesture to traditional gesture. Singer participants noticed differences between the three conducting conditions. Singer surveys recorded the most positive comments for the vertical conducting gesture and the most negative comments for the lateral gesture.

Limitations of the pilot study included uniformly lateral or vertical gestures, the sung musical excerpt was only 18 seconds long, and a convenience soprano section. The second study improved upon these limitations.

The second study (Grady, 2013) was an exploratory investigation to determine whether three contrasting conducting gestures affected acoustical and perceptual measures of conglomerate

choir sound. Participating choristers ($N = 29$) were members of an established collegiate choir. Singers jointly performed "All Through the Night" in unison for the recording session after three ten-minute rehearsals. During the recording session, singers sang while watching a videotaped conductor who displayed three alternating right-hand gestures: (a) a traditional conducting pattern, (b) a vertical-only gesture with traditional pattern, and (c) a lateral-only gesture with traditional pattern.

Long Term Average Spectra (LTAS) data showed significant mean signal amplitude differences between the three conducting conditions in both the 0 - 10 kHz spectrum and the 2.9 - 3.9 kHz region. The vertical conducting condition decreased mean signal amplitude while the traditional pattern recording increased mean signal amplitude. According to Ford (2003) listeners may prefer choral sound with reduced resonance energy in higher frequency partials.

Pitch analyses indicated the sound while the chorus observed the vertical-only gesture was most in tune and the performance while observing the lateral-only gesture was least in tune. Mean pitch deviations were (a) 4.29 cents in the vertical conducting condition, (b) 6.59 cents in the traditional pattern condition, and (c) 14.07 cents in the lateral conducting condition.

In response to six counter-balanced pairs of recorded choir performances, expert listener panel ($N = 8$) ratings consistently reflected majority preferences (88%, 75%) for the vertical-only condition when contrasted with the lateral-only condition, and for the vertical-only tradition (75%, 75%) contrasted with the traditional pattern. Most singers perceived differences in their own vocal sound (83%) and differences in the sound of the choir (76%) while singing under the three gestural conditions. Singers offered more positive comments about the vertical conducting gesture than the other gestures observed.

Discussion and Call for Future Research

Although there are many choral conducting texts available, most discuss choral conducting gestures in terms of expert testimony and experience. Conducting patterns, cues, and cut-off gestures are explained in detail, but rarely discussed are the most effective means of producing an efficient choral sound. Claims are made in these texts about what works and what does not, but more research is needed to prove or disprove the expert testimony.

Research in conducting gesture is a relatively new realm. Studies into conducting recently have trended into categories: gesture efficiency in delivering information (Cofer, 1998; Skadsem, 1997), conductor magnitude (Madsen, 1998; Yarbrough, 1975), expressive conducting (Gallops, 2005; House, 1998; Morrison, Price, Geiger, & Cornacchio, 2009; Morrison & Selvey, 2011; Napoles, 2013; Price & Chang, 2001, 2005; Price 2006; Price, Morrison, & Mann, 2011; Sidoti, 1990) and a very few studies in relation to specific gestures and how those gestures effect singer sound and tension (Fuelberth, 2003a, 2003b, 2004; Manternach, 2009, 2011). Studies by the author (Grady, 2011a, 2011b, 2013) sought to elicit the opinions of acting choral conductors, to test very specific choral conducting gestures (lateral and vertical), and examine those gestures in naturalistic and conglomerate choral situations.

The primary findings of these specific gesture investigations are that the conducting gestures tested (traditional pattern, vertical gesture, lateral gesture) appear to affect choral singing tone quality and intonation in nuanced ways. There are small yet significant acoustical differences between gestures as shown by LTAS data that yield differences in the choir's timbre. Intonation varied between gesture recordings as shown through pitch analysis and expert listener ratings indicated heard differences between the pairings of gesture recordings. Most singer participants

perceived differences in their own vocal sound and differences in the sound of the choir while singing under the different gesture conditions. Such findings are confined to the procedures and participants of these two studies and more research is needed to confirm or deny these claims.

What seems to be of import is that nonverbal gesture alone appeared to affect choral sound. A desired function of these two studies and others is to explore under-investigated areas in the genre and find considerations for future research. This discussion poses areas for future consideration.

In current research trends, expressive conducting is a major topic. Yet, besides Napoles (2013), those studies focused primarily on how expressive and non-expressive gestures related to individual performance or viewers opinions of the conductor or the ensemble. Future research should examine expressive and non-expressive gestures on conglomerate sound. It is not often that a conductor directs an individual, so realistically, differences in group sound should be tested.

The author's two studies (Grady 2011b, 2013) compared in a non-laboratory setting traditional pattern (in some studies referred to as non-expressive) and two non-time-beating gestures (lateral and vertical). To call a strictly lateral or vertical gesture expressive conducting is quite a stretch, but the gestures are a step away from time-beating. Subsequent research into specific "expressive" gestures and those gestures effects on efficient vocal production is needed.

Lateral and vertical gestures in these two studies were used in repetition and choral directors would rarely use such gestures uniformly in repetition while conducting singers. Conductors would more likely utilize expressive gestures, or simply gestures that are not the traditional pattern for specific moments or phrases (for example sustained sounds, vowel shapes, or large intervals) in the score. Future studies into the effects of specific gestures at particular points while conducting should be considered. An extension to this idea would be to introduce specific gestures to performance-ready literature to assess effects, if any, in overall vocal output if previous gestures are habituated to the singers.

Claims by Eichenberger about specific lateral and vertical gestures were tested in the author's two studies. Future examinations could test other conductor gesture suggestions from the literature to evaluate the validity of expert testimonials and experience.

Recently, more and more researchers are focusing on a variety of nonverbal conducting conditions. Nonverbal gestures are a time efficient means of presenting the conductor's desires for the sound of the choir. Currently there are two realms to conductor gestures research, (a) studies focused on gesture apart from the sound it elicits and (b) investigations focused on the connection between the nonverbal gesture and the sound of the group. Through the three studies presented here by the author (Grady 2011a, 2011b, 2013), I have presented research in specific choral conductor gestures and the possible effects of those gestures on conglomerate choral sound. With these exploratory investigations, I hope to open a dialogue and interest in further research into specific nonverbal conductor gesture effects on evoking efficient choral sound.

References

- Cofer, R. S. (1998). Effects of conducting-gesture instruction on seventh-grade band students' performance response to conducting emblems. *Journal of Research in Music Education*, 46, 360-373.
- Decker, H. A., & Kirk, C. J. (1995). *Choral conducting: Focus on communication*. Englewood Cliffs, NJ: Prentice Hall.
- Durrant, C. (2003). *Choral conducting: Philosophy and practice*. New York, NY: Routledge.

- Eichenberger, R. B. (Producer), & Dunn, M. (Director). (1994). *What they see is what you get* [DVD]. Chapel Hill, NC: Hinshaw Music, Inc.
- Ford, J. K. (2003). Preference for strong or weak singer's formant resonance in choral tone quality. *International Journal of Research in Choral Singing*, 1(1), 29-47.
- Fuelberth, R. J. V. (2003a). The effect of conducting gesture on singers' perceptions of inappropriate vocal tension. *International Journal of Research in Choral Singing*, 1, 13-21.
- Fuelberth, R. J. V. (2003b). The effect of left hand conducting gesture on inappropriate vocal tension in individual singers. *Bulletin of the Council for Research in Music Education*, 157, 62-70.
- Fuelberth, R. J. V. (2004). The effect of various left hand on conducting gestures on perceptions of anticipated vocal tension in singers. *International Journal of Research in Choral Singing*, 2, 27-38.
- Gallops, R. W. (2005). *The effect of conducting gesture on expressive-interpretive performance of college music majors*. (PhD Dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 3188406).
- Garretson, R. L. (1998). *Conducting choral music* (8th ed.). Upper Saddle River, NJ: Prentice Hall.
- Grady, M. L. (2011a). *Nonverbal conducting gesture affects on intonation and timbre: A survey of choral conductors*. Unpublished Manuscript, University of Kansas.
- Grady, M. L. (2011b). *Effects of traditional, lateral and vertical conducting gestures on perceptual and acoustic measures of soprano section choral sound: A pilot study*. Unpublished Manuscript, University of Kansas.
- Grady, M. L. (2013). Effects of traditional pattern, lateral-only, and vertical-only conducting gestures on acoustic and perceptual measures of choir sound: An exploratory study. *International Journal of Research in Choral Singing* (in press).
- Green, E. A. H. (1981). *The modern conductor* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- House, R. E. (1998). *Effects of expressive and nonexpressive conducting on the performance of advanced instrumentalists*. (DMA Dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 9911083).
- Manternach, J. M. (2009). *The effect of conductor head and shoulder movement and preparatory gesture direction on upper body movement of individual singers*. (Masters Thesis). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 3524112).
- Manternach, J. M. (2011). The effect of varied conductor preparatory gestures on singer upper body movement. *Journal of Music Teacher Education*, 1-15.
- Morrison, S. J., Price, H. E., Geiger, C. G., & Cornacchio, R. A. (2009). The effect of conductor expressivity on ensemble performance evaluation. *Journal of Research in Music Education*, 57(37-49).
- Morrison, S. J., & Selvey, J. D. (2011, February). *The effect of conductor expressivity on choral ensemble evaluation*. Paper presented at the International Research in Music Behavior Symposium, Barcelona, Spain.
- Napoles, J. (2013). The influences of presentation modes and conducting gestures on the perceptions of expressive choral performance of high school musicians attending a summer choral camp. *International Journal of Music Education*, 31, 321-330.
- Price, H. E. (2006). Relationships among conducting quality, ensemble performance quality, and state festival ratings. *Journal of Research in Music Education*, 54, 203-214.

- Price, H. E., & Chang, E. C. (2001). Conductor expressivity and ensemble performance: An exploratory investigation. *Contributions to Music Education, 28*(2), 9-20.
- Price, H. E., & Chang, E. C. (2005). Conductor and ensemble performance expressivity and state festival ratings. *Journal of Research in Music Education, 53*, 66-77.
- Price, H. E., Morrison, S. J., & Mann, A. (2011, February). *Effect of conductor expressivity on ensemble evaluations by nonmusic majors*. Paper presented at the International Research in Music Behavior Symposium, Barcelona, Spain.
- Sidoti, V. J. (1990). *The effects of expressive and nonexpressive conducting on the performance accuracy of selected expression markings by individual high school instrumentalists* (PhD Dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 9105212).
- Skadsem, J. A. (1997). Effect of conductor verbalization, dynamic markings, conductor gesture, and choir dynamic level on singers' dynamic responses. *Journal of Research in Music Education, 45*, 509-520.
- Yarbrough, C. (1975). Effect of magnitude of conductor behavior on students in selected mixed choruses. *Journal of Research in Music Education, 23*, 134-146.
- Yarbrough, C., & Madsen, K. (1998). The evaluation of teaching in choral rehearsals. *Journal of Research in Music Education, 46*, 469-481.