# Journal of Performing Arts Leadership in Higher Education

## Volume XIII Fall 2022

Laurence Kaptain, co-editor Mark Reimer, co-editor

ISSN 2151-2744 (online) ISSN 2157-6874 (print)

# Christopher Newport University Newport News, Va.

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- 1. To promote scholarship applicable to performing arts leadership
- 2. To provide juried research in the field of performing arts leadership
- 3. To disseminate information, ideas and experiences in performing arts leadership

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# C4-ORIENTED REHEARSING STAGES AND THE DEMOLITION OF THE MAESTRO TRADITION

In the context of a large musical ensemble, agency is closely related to intellectual dimensions of diversity, equity, and inclusion, yet achieving a true DEI practice within the rehearsal environment has emerged as a major challenge confronting educators. It has proven significantly easier to develop diversified curricula, and even to expand music education to involve both the music and the people of historically excluded or marginalized groups, than to alter the traditional practice of directing and rehearsing an ensemble towards a model more welcoming of participant voice. Past and current models attempting to move towards this goal have demonstrated significant deficiencies in effectiveness, efficiency of time, quality of artistic outcomes, or all three simultaneously.

The barriers may be considerable, but they are not insurmountable. Key research in music perception and cognition, as well as new insights into how musical consensus can be functionally achieved in collaborative settings have informed a new approach to the practice of large ensembles. C4-Oriented Rehearsing is an inductively determined progression through which musicians can effectively, efficiently, and artistically rehearse and present performances in the absence of a single interpretative authority figure. It allows for the meaningful elevation and integration of diverse participant artistic thought by focusing on the negotiation and resolution of interpretive or technical challenges solely through musical means. It is fully scalable, practice-validated in settings from 2 to 130 musicians. Properly implemented, C4-Oriented Rehearsing has proven to provide performers with the in-depth understanding they require in order to execute even the most sophisticated works without a conventional conductor but at the highest artistic standards, and reframes the act of musicmaking from one of obedience to a baton to that of shared responsibility and collective ownership of the performance.

#### Historical context

The problem of large ensemble leadership is a significant and long-standing one. As orchestras expanded in the early to mid-1800s from small groups of perhaps 20 players to large ensembles of 60-100 plus musicians closely resembling the orchestras of today, authority for coordinating performances became centralized in a specialist whose sole function was to provide visual timing information: the conductor. The innovation lay not within the centralization of power or the specialization of function, as many examples of both exist throughout the long history of ensemble music-making, but with the fact that the specialist now provided this information silently through physical gesture, not through audible

cues from objects being struck or an instrument being played.

In the earliest days of the emerging discipline, conductors were frequently also the composers of the music being performed, so they naturally assumed leadership of the preparation process. Over the course of the 19<sup>th</sup> century these circumstances may have led to a conflation of the individual on the podium with the ultimate interpretive authority, an evolution whose end product was neatly described by David Ewen in the title of his study of some significant 20<sup>th</sup> Century orchestra directors: "Dictators of the Baton." The unilateral model of leadership left no room for diversity or inclusivity of thought from the ensemble at large, and consequently was patently, even deliberately inequitable, leading to multiple instances of criminally abusive behaviour even within the last decade.<sup>2</sup>

There have been numerous attempts to democratize the orchestral environment, from the early Soviet orchestra Persimfans³ whose musicians faced inwards, to the contemporary string ensemble 'A Far Cry', the latest of the so-called conductorless ensembles in the mold of the Orpheus Ensemble of New York. True to the letter of their pledge, musical coordination in the modern groups is achieved not with a conductor on a podium but through a physically demonstrative designated instrumentalist, most often trading a baton for a bow. As for the spirit of the pledge, this practice is simply one of conductor substitution, in which the centralized timing information is displaced barely two feet from a podium to a musician within the ensemble. Multiple research studies have failed to recognize the label of being conductorless as primarily rhetorical in their analyses of these groups, compromising the conclusions. <sup>4,5,6</sup> Nor does the displacement constitute any kind of advancement, as some of those same studies suggested: if anything, it represents a reversion to historical practice.

Most recently, the Venezuelan National Network of Youth Orchestras, more popularly known as *el Sistema*, presented a vision of music-making that seemed to oppose the consolidation of power on the podium entirely. Ostensibly oriented towards social growth as much as artistic impact, *el Sistema* and its acolytes presented the orchestra as a democratic forum perfect for building both consensus and community.<sup>7</sup> So radical was the described paradigm shift in the historic practice of the ensemble that some of the more skeptical investigators

<sup>&</sup>lt;sup>1</sup> David Even, Dictators of the Baton. (Chicago: Alliance Book Corporation, 1943).

 $<sup>^2</sup>$ https://www.nytimes.com/2018/03/13/arts/music/james-levine-metropolitan-opera-yannick-nezet-seguin.html, retrieved Dec 31, 2023.

<sup>&</sup>lt;sup>3</sup> Pauline Fairclough, Classics for the Masses: Shaping Soviet Musical Identity under Lenin and Stalin. (New Haven: Yale University Press, 2016). https://doi.org/10.12987/9780300219432

<sup>&</sup>lt;sup>4</sup> Dmitry M. Khodyakov, "The complexity of trust-control relationships in creative organizations: Insights from a qualitative analysis of a conductorless orchestra," Social Forces 86, no. 1 (2007): 1-22.

<sup>&</sup>lt;sup>5</sup> Gaelle Beau, "Beyond the leader-centric approach: Leadership phenomena and aesthetics in a conductorless orchestra," Society and Business Review (2016).

<sup>&</sup>lt;sup>6</sup> Donald Vredenburgh and Irene Yunxia He, "Leadership Lessons from a Conductorless Orchestra," Business Horizons 46, no. 5 (2003): 19–24.

<sup>&</sup>lt;sup>7</sup> https://blog.ted.com/\_weve\_transcrib/. Retrieved Dec 28, 2022.

drew analogies to the Emperor's New Clothes in their philosophical disbelief.8

Far from the Emperor having no clothes, it turned out that the fine clothes had no enlightened monarch beneath them, only another absolute dictator. Underneath the polished rhetorical raiment of the supremely quotable founder, Dr. José Antonio Abreu, was not the innovative, radical new practice promised, but a model of repetition and conductor authoritarianism so regressive that like its early 20th Century incarnations in the more northern Americas, it often crossed the line to the repressive or abusive. El Sistema's pledge of "social action through music" (acción social por la musica) was exposed as solely rhetorical, not praxial; the musicians were discovered as coming predominantly from the middle class; and even Abreu's academic honorific was revealed as self-awarded. In summary, the limited inroads achieved into addressing the problem of the democratization of the large ensemble appear to have been largely oratorical or optical, rather than functional.

#### Current educational and pedagogical context

Authoritarian modes of leadership in education are not limited to large ensembles in music. The phenomenon is so prevalent it may be the default mode of instruction across most disciplines, simply under more euphemistic names. Paolo Freire described it as the "banking" model of instruction, his choice of words a reference to the unidirectional nature of the transaction between instructor and student. 12 The expectation within this model is that the teacher speaks with perfect clarity, the pupil listens attentively, retains faultlessly, and then reproduces the information on demand. The model has achieved enduring popularity thanks to its purported efficiency of time, despite its self-evident flaws and antithetical nature to the human processes involved in education: in short, it speaks to an ideal of teaching, rather than learning. To extend Freire's banking analogy, the undisputed weakness of the method is that the cognitive barriers to the reception and absorption of data, i.e.: the transaction fees are so high, instructional "deposits" of information are significantly diminished by the time the student attempts a withdrawal. As an alternative, Freire postulated a "dialectic" approach, a debate-based model rooted in Hegelian thought in which thesis is posed against antithesis, until synthesis of new ideas emerges. In this

<sup>8</sup> https://geoffbakermusic.wordpress.com/el-sistema-older-posts/researching-el-sistema/ Retrieved Dec 26, 2022.

<sup>&</sup>lt;sup>9</sup> Geoffrey Baker, El Sistema : Orchestrating Venezuela's Youth (New York: Oxford University Press 2015).

<sup>10</sup> Ibid.

 $<sup>^{\</sup>rm 11}$  https://slippedisc.com/2017/12/exclusive-el-sistema-founder-had-a-phantom-phd/ Retrieved Dec 27, 2022.

<sup>&</sup>lt;sup>12</sup> Paolo Freire, Pedagogy of the Oppressed (New York: Continuum, 2000).

model it is the very process of investigation that confers understanding upon the investigators, and with understanding comes enhanced retention.

A key distinction between Freire's proposal and the Socratic method is that the relationship within Freire's debating dyad is peer-based, rather than the Socratic, in which instance the instructor leads the students towards a desired outcome by probing and challenging the students' reasoning, encouraging its evolution. But any kind of existing dialectic model, in current applications to the orchestra, has proven problematic. In the book "Leadership Ensemble", the authors report that the Orpheus Ensemble requires three times as much rehearsal time to prepare a performance in comparison to a conventional conductor-led orchestra. 13 This marked inefficiency is compounded by the authors' perceptive acknowledgement that the label "conductorless' is merely a distinction of optics rather than operations: performances are still coordinated visually by a single instrumentalist, one thus imbued with a significant degree of artistic control. What authority is not centralized within the leading instrumentalist is devolved to a rotating subgroup of musicians who discuss interpretation, yielding what is literally art by committee, with results described by one New York Times critic as uneven, and some of its own members as "diluted." 14,15 The failure of the orchestral industry to identify or develop more genuinely equitable leadership models without compromising artistic quality has led at least one researcher in this area of study to propose the abandonment the orchestra as a medium entirely for any kind of effort towards intellectual democratization or diversification.<sup>16</sup>

The Orpheus Ensemble is not bestowed with limitless resources. The three-fold increase in rehearsal time their model demands is subsidized directly by the musicians, with their motivation to work without a conventional conductor being best quantified by their willingness to work for less pay. Similarly, a study of data collected during the 1990s noted that orchestra musicians enjoyed less workplace satisfaction than prison guards (but more than professional hockey players, a scenario which suggests little correlation between compensation and satisfaction), whereas the workers enjoying the highest level of professional satisfaction were found in string quartets.<sup>17</sup> The primary pragmatic difference between an orchestral and a chamber musician is the relative degree of

<sup>&</sup>lt;sup>13</sup> Harvey Seifter and Peter Economy, Leadership Ensemble: Lessons in Collaborative Management from the World's Only Conductorless Orchestra. 1st ed. (New York: Times Books, 2001).

<sup>&</sup>lt;sup>14</sup> https://www.nytimes.com/2002/10/06/arts/music-the-orpheus-mystique-and-myths.html. Retrieved Jan 3, 2023.

 $<sup>^{15}</sup>$  Khodyakov, "The complexity of trust-control relationships in creative organizations: Insights from a qualitative analysis of a conductorless orchestra."

<sup>&</sup>lt;sup>16</sup> Geoffrey Baker, Social Action through Music: The Search for Coexistence and Citizenship in Medellín's Music Schools (Cambridge UK: Open Book, 2021).

<sup>&</sup>lt;sup>17</sup> Jutta Allmendinger, J. Richard Hackman, and Erin V. Lehman, "Life and Work in Symphony Orchestras," The Musical Quarterly 80, no. 2 (1996): 194–219. http://www.jstor.org/stable/742362.

individual empowerment in the working environment, and that relationship between musical agency and satisfaction is borne out similarly in other research.<sup>18</sup>

The extant literature confirms the importance of inclusion, primarily for reasons of musician satisfaction, rather than the moral and ethical elements that have recently emerged, but offers very little understanding or practical direction as how to achieve it.19 The Orpheus model and its attempt to integrate a dialectic approach still exhibits significant practical limitations in terms of promoting inclusivity, but whatever minor benefits the model offers are entirely negated by the impracticality of the attendant three-fold increase in rehearsal time to allow for discussion. Most investigators of conductorless ensembles seem to accept as axiomatic that a dialectic process within large ensembles is verbal, whether it occurs between a subset of musicians, or between a centralized authority figure as one half of the dyad, and the individual musicians forming the other. This may be the critical false assumption or misattribution, rooted in history and tradition, that has prevented the evolution or exploration of a more progressive leadership model. The concept of dialectics in the orchestra takes a fundamental shift when it is considered as a process that emerges between the musicians themselves, and moreover, one that happens non-verbally but exclusively through the musical medium.

This notion is neither bold nor original given how consistently it is confirmed in the research into synchrony, the cognitive and perceptual process of how humans synchronize activities, sound generating or otherwise. Studies investigating how musicians coordinate in performance have established that the eye is not just slow and subjective, but also highly fallible in comparison to the ear. <sup>20,21,22</sup> The primary impetus for synchronized ensemble playing is not the conductor but the sound being collectively generated. <sup>23,24,25</sup> Once this critical

<sup>&</sup>lt;sup>18</sup> Aaron Williamon (ed.), Musical Excellence: Strategies and Techniques to Enhance Performance (Oxford, 2004; online edn, Oxford Academic, 22 Mar. 2012), https://doi.org/10.1093/acprof:o so/9780198525356.001.0001, retrieved 20 Dec. 2022.

<sup>&</sup>lt;sup>19</sup> See Williamon, Allmendinger and Seifter/Economy

<sup>&</sup>lt;sup>20</sup> Bruno Hermann Repp, "Musical synchronization," Music, motor control, and the brain (2006): 55-76.

<sup>&</sup>lt;sup>21</sup> Geoff Luck and Petri Toiviainen, "Ensemble musicians' synchronization with conductors' gestures: An automated feature-extraction analysis.," Music Perception 24, no. 2 (2006): 189-200.

<sup>&</sup>lt;sup>22</sup> Vatakis Argiro and Charles Spence, "Audiovisual synchrony perception for music, speech, and object actions," Brain Research, Volume 1111, Issue 1 (2006): 134-142.

<sup>&</sup>lt;sup>23</sup> Bruno Repp and A. Penel, "Rhythmic movement is attracted more strongly to auditory than to visual rhythms," Psychological Research 68, 252–270: (2004). https://doi.org/10.1007/s00426-003-0143-8

<sup>&</sup>lt;sup>24</sup> W. Goebl and C. Palmer,). "Synchronization of timing and motion among performing musicians," Music Perception 26, 2009: 427–438. doi: 10.1525/mp.2009.26.5.427.

<sup>&</sup>lt;sup>25</sup> P.E.Keller and M. Appel, "Individual differences, auditory imagery, and the coordination of body movements and sounds in musical ensembles," Music Perception 28, 2009: 27–46. doi: 10.1525/mp.2010.28.1.27.

distinction is understood, a framework for a non-verbal dialectic process can be developed inductively, simply through observations of patterns and outcomes within the rehearsal environment. A framework is essential for transferability or teachability of concept. Just as there is no Socratic reference "handbook" for teachers with pre-formed artful questions that address all possible permutations of thought that might emerge in any discussion, there is no specific "toolkit" for orchestra leadership that can encompass all the possible scenarios, so context specific is the craft.

The framework here proposed to guide and inform large ensemble facilitation is called C4 Oriented Rehearsing, with each "C" referring to one of four discernable stages of problem solving.

#### The C4 Stages

#### C1. Comprehension

For any musical problem to be solved, be it a problem of starting together, of intonation, of style, attack, release, or dynamic, the nature of the problem must first be fully understood. The understanding can be explicit or implicit, but comprehension must be present and shared before the task of solving it can begin.

#### C2. Coordination

This phase can best be described as one of experimentation, of trial and error as musicians work out *through their playing* potential solutions to the problem that was revealed in the first stage, and identify the most effective means to the desired end.

#### C3. Consolidation

Consolidation is a stage of reinforcement, of growing comfortable and secure in the solution(s) that emerged in Stage 2.

#### C4. Creation

As the name suggests, this stage marks the moment when technical considerations are resolved to the extent that they can be sublimated in the full service of art. The problems are understood, solutions developed and reinforced, with the musicians now able to turn their attention, consciously or subconsciously, to considerations of sound quality and style. Creation, in this context, is a liberated space in which musicians become so connected that moments of great spontaneity, moments of natural and organic music making, or extraordinary acts of collective intuition and interaction can occur.

Once the C4 stages are understood, the required shift in leadership paradigm becomes clearer. Authoritarianism simply does not function within the C4 process, either on the part of the person guiding it, or from within the musicians: members of the Orpheus Ensemble have remarked on the impossibility of one musician imposing their artistic will on others while

playing.<sup>26</sup> Consensus-building and negotiation are (ironically) non-negotiable qualities while actively making music. By the same token, the individual leading the process externally, and therefore not participating actively in the negotiation through sound, is unable to influence unilaterally the artistic outcome either. Consistent with findings from other studies, in the absence of a designated leader, the very concept of leadership within the group becomes significantly more fluid, bestowed purely as a function of musical context, not by title.<sup>27,28</sup> The facilitated rehearsal environment must then be considered as one in which multiple integrative processes are occurring simultaneously, with multiple musical leadership roles occurring. This leadership isn't static, perpetually invested in one or two individuals, but distributed dynamically based solely on the needs established within the music itself.

C4ORS is not a set of rehearsal tools to be implemented, but a sequential set of *objectives to be achieved*. The nature of the objectives is such that they cannot be communicated by fiat, but must be accomplished dialectically. With this in mind, the primary function of the individual "leading" the rehearsal (the facilitator), can be described as creating the correct conditions for each objective to be met. Three chief tasks emerge:

- focusing listening. In other words, to initiate the C1 stage, that of Comprehension, effectively by prioritizing and clarifying problems within the music
- 2. maintaining a balance between optimization of each of the stages and efficient use of time
- 3. providing impartial, factual feedback or observations on the technical and artistic outcomes of all stages

Function 1. comprises the greatest part of the facilitator's remit, and can manifest in many ways. An experienced facilitator will deploy different approaches of varying degrees of intervention, depending on context and the relative degree of skill of the musicians to support collective problem solving in ensemble playing.

 $<sup>^{26}</sup>$  Khodyakov, "The complexity of trust-control relationships in creative organizations: Insights from a qualitative analysis of a conductorless orchestra."

<sup>&</sup>lt;sup>27</sup> Donald Glowinski, Leonardo Badino, A. Ausilio, Antonio Camurri, and Luciano Fadiga, "Analysis of leadership in a string quartet, Third International Workshop on Social Behaviour in Music at ACM ICMI 2012, pp. 763-774.

<sup>&</sup>lt;sup>28</sup> Renee Timmers, Satoshi Endo, Adrian Bradbury, and Alan M. Wing, "Synchronization and leadership in string quartet performance: a case study of auditory and visual cues," Frontiers in Psychology 5 (2014): 645.

These can include:

- a. Requesting repetition of a passage. Musicians experienced in the C4 protocol will frequently deduce that the request itself indicates a problem and will pay closer attention to the delivery of the passage, in some cases recognizing deficiencies and negotiating corrections instinctively during the first repetition.
- b. Identifying the problem verbally. This act directly focuses the attention of the musician on the specific issue to be resolved, and is required more frequently with less experienced groups. If multiple issues need to be addressed, the facilitator may need to prioritize them according to their importance in promoting comprehension. Accuracy of rhythm is almost always the first step, as most other issues are impossible to solve without temporal coordination. In terms of how the issue is addressed, experience has demonstrated it is sufficient to request that the musicians simply agree on the identified performative element, without providing further direction.
- c. Isolating smaller groups in larger ensembles and sequencing the addition of other groups. This step can be applied to different instrumental sections in an orchestra, like isolation of the first violin section, or it can involve collating single musicians from multiple sections, like the string principals. The latter method is extremely effective in helping musicians hear and understand complex interrelation of parts. Temporary reduction of personnel to chamber configurations can also produce clarity of balance or insight into stylistic consideration.
- d. Introducing artificial alterations temporarily into the musical environment. This is a form of "scaffolding", distinguished by any request that musicians play differently from the printed music. Examples could be requesting a slower tempo to aid precision of rhythm or consistency of note length, playing more quietly to assist in finding balance, or changing articulations and increasing dynamic of a part or parts to expose key rhythmic elements. Reversion to the original printed music should eventually follow.

Unlike the C4 stages which, despite some overlap, can only be achieved in sequence, these potential approaches are not necessarily successive: a facilitator can deploy them independently or in any combination depending on the challenges being addressed. It bears repeating that the objective of each of these actions on the part of the facilitator is not to offer solutions, but to clarify the problem(s) through listening, whether through environmental or musical

modification. The solutions are generated by the musicians. The involvement of a facilitator throughout these stages, particularly one who is giving instructions to guide the process, can produce the false impression that absolute control is once again vested in a single individual. This is the simple conflation of authoritarianism with authority. The facilitator has, by necessity, the authority to structure the environment to promote listening, but has limited involvement in the final artistic outcome. There are three crucial distinctions between a C4 facilitator and a conventional conductor:

	C4 Facilitator	Conductor
focuses on	Process	Product
emphasizes	Sound	Sight
relies on	Consensus	Command

None of this should be presumed to suggest that a C4 facilitator can be any less prepared for a rehearsal than a conventional conductor. If anything, being effective in a process-guiding role takes as much prior study of musical materials and thought dedicated towards rehearsal as does conducting. The C4 facilitator just approaches the score through the means listed above.

In practice, there appears to be no problem that a C4 oriented process cannot resolve, even the first and most significant challenge of all that has, in itself, justified the existence of the conductor in the past: that of initiating the performance. In this example, the C4 stages might be achieved through the following actions:

### 1. Comprehension:

- clarification of which musicians are performing at the start. (technique b. above)
- determination of which musicians exercise control of the tempo.
   (b. and c.) Tempo is not defined by the onset of the first pitch, but by the interval between the first pitch and the next discernible metered entry. Typically, the musicians with the shortest metered interval or intervals are those with the practical capacity to influence the tempo.

 the group or groups identified in the second bullet point are informed of practical consequences of their choices of tempo, how too slow a tempo may make bowing or breath control problematic, or too fast a tempo may make rapid passages unplayable.

#### 2. Coordination:

- The musicians controlling the tempo attempt to initiate the work and set a tempo solely through the pursuit of agreement in their playing. (c. and a.) This is typically achieved in two to three attempts. Experience has shown that visual coordination is not required: accurate initial pitch onset can be achieved simply through attention to a loosely coordinated yet untimed natural inhalation.
- If necessary, an artificial modification may be introduced, (d.) such as playing with more aggressive articulations, to temporarily provide more data to inform the coordination process.

#### 3. Consolidation:

• The tempo "solution" is repeated (a.) perhaps initially only with the groups setting the tempo, but ultimately with the full ensemble (c.) for the purposes of reinforcing it, and building a level of comfort and security. Any temporary modifications previously introduced are phased out. (d.)

#### 4. Creation

• With the conditions for setting the tempo fully understood, the musicians now know how to coordinate the start of the work, whom to listen to, and what additional factors limit their effective choices. Each time the piece is initiated, the tempo will be renegotiated, but as a group decision, and not one imposed by a single figure. Full comprehension of the problem allows for near-instantaneous negotiation, and full ownership of the process allows the group to adjust immediately for external factors like fatigue or changes in acoustics between rehearsal and performance venues.

A considerable defect in the Orpheus model identified previously is the time investment required. Superficially, the nature of the C4 process appears to require a similar commitment, but counterintuitively, the outcome is often

an increase in efficiency. Following the downbeat of a conductor is a learned behaviour and subjective, demanding additional musician mental resources.<sup>29</sup> Less-experienced musicians frequently struggle to find consensus with the visual gesture, and true precision can be challenging for them to achieve even on multiple attempts. But when problems in an ensemble are addressed through the C4 process, the musicians are given the tools and the context in which to address and resolve the issue independently from that point forward, and in a manner sensitive or responsive to environmental issues.

An example of efficiencies achieved through C4 might be the adjustment of intonation for a single wind player. A directive approach would involve gestural indication upwards or downwards from the conductor until the proper intonation was achieved. This method is only feasible in a rehearsal environment, not in performance, meaning the instrumentalist is bereft of that guidance when it is most important. More problematically, since intonation is never consistent for a group from rehearsal to rehearsal to performance, the directive method would need to be repeated every time the passage was rehearsed, consuming time. The comprehension-based approach would take a little longer at the outset, but properly managed, would resolve the problem in perpetuity. The facilitator would isolate the key contextual pitches (technique c. above) in the ensemble the instrumentalist needs to hear in order to adjust the intonation correctly and independently. In so doing, the facilitator would simultaneously identify for the remainder of the ensemble which voices were the most essential in the texture and therefore help the ensemble rebalance appropriately. The issue of balance and intonation is no longer a subjectively determined abstraction from the podium, but is now an objectively established practical necessity, for which all members of the ensemble must take some responsibility. The group dynamic has changed from "that instrumentalist isn't playing in tune" to "if I don't do my job effectively and sensitively, that instrumentalist can't play in tune." The problem has been solved permanently in all performing conditions through collective ownership of the solution.

#### Effectiveness and Outcomes

If the C4ORS process is properly managed and implemented, its ultimate manifestation is not just an ensemble that can play effectively without a conductor, but one that can play sophisticated full-length works without any visual contact between the musicians. This has been demonstrated in live performance by university groups trained in this methodology at the Music

<sup>&</sup>lt;sup>29</sup> Ono Kentaro, Akinori Nakamura, and Burkhard Maess, "Keeping an eye on the conductor: neural correlates of visuo-motor synchronization and musical experience," *Frontiers of Human Neuroscience*, 02 April 2015. https://doi.org/10.3389/fnhum.2015.00154

Education Revolution Conference (London 2015), the International Society for Music Perception and Cognition Conference (San Francisco, 2016), the International Society of Music Education Conference (Glasgow 2016), and the World Alliance for Arts Education Conference (Auckland, 2017). At all these events, technically and musically challenging late-Romantic quartets or quintets of mixed instruments (winds, strings, and piano) were performed from start to finish by musicians denied any visual contact with each other, seated in a back-to-back configuration. Invitations for the opportunity in Glasgow were issued after a highly competitive peer-review process, speaking to the quality of the performance achieved.

Further validation of artistic outcomes was derived from a research study in which audio samples of the ensembles playing in both inward and out-ward facing configurations were rated by reviewers uninformed of the performance mode.<sup>30</sup> In all cases, the samples performed with members facing outward, unable to see each other, were either deemed either equal in quality to the ensemble with internal visual contact, or significantly *better*. (*p* ranges from 0.019 to <0.0001).

Qualitative considerations aside, the primary question must be whether the C4ORS process meets its original remit to offer an intellectually inclusive, equitable approach to music making. This investigation was initiated in 2016 at a state county honors orchestra event in which over 130 string players were convened for rehearsals and a performance. Over 8 hours of rehearsal the musicians were prepared exclusively using the tenets of the C4 approach, culminating in a performance presented in full without a conductor. The flat platform in the venue, in combination with the very high number of participants, made sightlines across the ensemble extremely difficult and rendered conductor substitution, designated or otherwise, impractical, if not impossible. The event therefore also allowed real-world testing of the process with an extremely large group encompassing a wide range of musical skills.

Following the performance, participants with prior history in the honors orchestra (n=63) to compare were asked questions by the organizers about their experience. A full 97% characterized the experience with the clinician as either different (37%) or extremely different (60%), confirming the originality of the approach. 82% of respondents reported paying more or significantly more attention to the proceedings than they normally do, with the two groups evenly split at 41%. When asked about how important they felt to the success of the performance, 70% stated they felt either pretty important (44%) or very important (26%). These numbers were similar to their sentiments about their performances with their own school orchestras (49% and 29%) – but it must be noted that the honors orchestra event combined the ensembles of 5 different schools, so preserving the participants' sense of contribution in a context of

<sup>&</sup>lt;sup>30</sup> Govias - currently in preparation for publication.

five times as many musicians represents a significant finding. Finally, 89% of musicians reported that they enjoyed the experience more (41%) or much more (48%) than usual.

In the context of the questionnaire, inclusivity may be triangulated between enjoyment, in consideration of studies associating satisfaction with musical agency; sense of personal importance to the performance; and their level of intellectual engagement, here described as "paying attention." In all these metrics significant scores were achieved, suggested the C4 approach represents an important step towards a functional model of inclusivity. C4ORS does not inform a musical leadership model, but an environmental management model, as it must if it is to address effectively the large ensemble's history of authoritarianism and exclusion.

#### Reception and reaction

In its many public examples of implementation and execution, the C4 process has prompted a wide range of reactions and responses, not just from participants but from external observers. Participant reaction has been uniformly positive: both the qualitative and quantitative feedback received from the 2016 county honors orchestra was overwhelming favorable, as already noted, with similar results in other implementations.

Observer reaction has been mixed. When the C4 process was deployed with a middle school state honors orchestra in 2021, a member of the organizing committee decried it as a scandal, even though the 60-piece ensemble performed in the very least to the same standard without a conductor as its twin orchestra, which performed with a conductor immediately after. This reaction has been common. There exists a faction of music educators who believe that pedagogical impact and effectiveness for an ensemble can only come through conventional conducting on a podium. This is unsurprising in the context of the literature on leadership. Numerous researchers investigating leadership, particularly in the orchestral environment, have also noted its essential corollary of followership, the impetus to obey unquestioningly any directive given by an individual ostensibly in a position of power. 31,32,33

Given the default leadership mode of most large ensembles, the culture and behavior of followership is deeply ingrained in ensemble musicians from an early age, with the result that deviation from its strictures is viewed as unprofessional

<sup>&</sup>lt;sup>31</sup> Yaakov Atik, "The conductor and the orchestra: Interactive aspects of the leadership process," Leadership & Organization Development Journal (1994).

<sup>&</sup>lt;sup>32</sup> Sabine Boerner, Diana Krause, and Diether Gebert, "Leadership and co-operation in orchestras.," Human Resource Development International 7, no. 4 (2004): 465-479.

<sup>&</sup>lt;sup>33</sup> Donald Vredenburgh, Irene Yunxia He. "Leadership lessons from a conductorless orchestra," Business Horizons, Volume 46, Issue 5 (2003):19-24.

or ineffective, regardless of artistic outcomes. It is reasonable to expect most music educators to carry over these beliefs, no matter how contradictory they are to known best practices in education. One researcher even noted that autocratic podium direction is not just expected, but respected and appreciated by some professional musicians who have been trained to believe their function is solely to execute the intention of a conductor.<sup>34</sup> But any suggestion that the students have received less of any experience is false: the pedagogy, the personality, and as importantly, the values of a C4 facilitator are on full display from the outset throughout the rehearsal process. The primary change is that both authority and ownership of the performance are now vested in the musicians, not the conductor.

Other reactions seek to rationalize a C4-based performance as unique to the circumstance, functional for the demonstrating students but impractical for most others. In reality, there appears to be no skill floor for this process. C4 has been effectively deployed from beginning, notation-illiterate string students in the Venezuelan Andes through to experienced university-level groups in the United States. C4 often proves more immediately effective with less experienced students because it relieves the participants of the responsibility of looking to a podium, grappling as they are with their instruments and the music notation in front of them. Demanding obeisance to a baton fights their instinct to listen, whereas C4 actively leverages it. Which approach then yields better outcomes is not surprising.

Some negative or dismissive responses from music educators and conductors may reflect the psychological need for their own literal self-centrality in their work. Other negative reactions can be attributed to the entirely false, equally fear-driven assumption that C4 represents an all-or-nothing approach. The function of C-Oriented Rehearsing isn't to replace a conductor, or to render one obsolete, but to complement existing best practices and to offer educators additional tools to improve inclusivity practices in the rehearsal room, without compromising artistic outcomes or occupying excessive rehearsal time. However, in music, tradition runs deep and there is distrust of any method that may appear divergent. But with the emergence of DEI values as an impetus for change, relinquishment of some of the power of the podium is no longer merely an act of altruism, but a moral and ethical imperative for all educators.

<sup>&</sup>lt;sup>34</sup> Atik, "The conductor and the orchestra: Interactive aspects of the leadership process" (1994).

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