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Conducting a choir during the COVID-19 lockdown period.

"A choir is a social organism that needs human contact." Conducting a choir during the COVID-19 lockdown period

Michele Biasutti (iD)
University of Padova, Italy

Roberta Antonini Philippe
Université de Lausanne, Switzerland

Andrea Schiavio
University of York, UK

Abstract

The COVID-19 pandemic caused major changes to many areas at the very heart of our lives, triggering interventions that affected people's everyday activities, both socially and individually. The use of e-learning and online platforms to support music education and performance created a drastic shift in how music was taught, made, and enjoyed. This qualitative study provides personal insights into the practices that choir conductors developed when in-person music-making became impossible due to health risks. Thirty-four Italian choir conductors answered 11 open questions about their musical activities and associated personal experiences during the main lockdown periods in 2020 and 2021. Our findings highlighted four overarching themes—adapted strategies, the perception of technology for choral music performances, needs for achieving mental health, and remote music-making—that are contextualized and discussed.

Keywords

online learning, COVID-19, choir conducting, remote music settings, music e-learning

The recent COVID-19 pandemic transformed many aspects of our working, social, and political lives (Zhukov et al., 2023). The use of technologies has contributed to improving situations in which people risked being isolated, losing their jobs, or not being able to complete their studies, thus fostering new ways of communicating, working, or studying (Antonini Philippe et al., 2020). This included the fields of music education and performance, where the use of

Corresponding author:
Michele Biasutti, Department of Philosophy, Sociology, Education and Applied Psychology, University of Padova, Via Beato Pellegrino, 28, 35139 Padova, Italy.
Email: michele.biasutti@unipd.it

e-learning and online platforms has produced new and fascinating forms of music-making and musical engagement aimed at improving well-being and mood regulation (Martínez-Castilla et al., 2021; Pozo et al., 2022; Rucsanda et al., 2021). Among the various forms of musical expressions and performances, singing has a particular value because it can induce a feeling of belonging that fosters relationships between participants (Daykin et al., 2020). This has been investigated in a range of studies exploring how collaborative forms of music-making based on singing may have a positive impact on the participants' sociality (Grebosz-Haring et al., 2022; Morgan-Ellis, 2022).

Several studies have examined musical activities mediated by technology, exploring its advantages and disadvantages from social, artistic, and educational standpoints (MacRitchie et al., 2023; Van Kerrebroeck & Maes, 2021). On one hand, many of the forms of music-making that have emerged from this period could be seen as being creative because they foster the development of new functional possibilities for making and learning music, both interactively and innovatively (Schiavio et al., 2021). On the other hand, many music educators and performers were asked to rapidly reorganize their musical activities (teaching, rehearsing, performing) while often having to deal with concurrent stress, anxiety, and disappointing outcomes (see Spiro et al., 2021). Many music teachers suddenly needed to learn how to manage new technologies and how to use specific platforms dedicated to music (Vaizman, 2022). Online lessons via video do not necessarily replicate face-to-face classes, but they often include novel educational strategies (Hollander-Shabtai & Tzofi, 2022; Schiavio & Nijs, 2022). A number of contributions have highlighted the impact of technology use on music students and teachers (Hash, 2021; Martínez-Hernández, 2022). The widespread use of technology has had strong repercussions on certain aspects of students' feelings about music (Habe et al., 2021).

Other research has focused on online singing and vocal training, considering aspects such as the opportunities provided by digital technologies for vocal training (Shi, 2023) and the use of online vocal training programs for developing creative thinking and vocal prowess (Chang, 2023). Regarding the development of digital music education, introducing mobile applications to support vocal training also provides new opportunities. There can be synergies between technological solutions and modern pedagogical styles for developing vocal mastery, and technology could be a very effective tool for providing students with constructive feedback and personalized learning (Shi, 2023). One online vocal training program measured its effects on the divergent thinking skills of 392 fourth-year students. Its findings demonstrated that introducing additional programs into the curriculum could help students develop creativity in vocal instruction (Chang, 2023). However, online group activities could limit the positive psychobiological effects of singing (Grebosz-Haring et al., 2022).

Given that technological resources played such a vital role in music-making during the lockdowns, part of the success or failure of online music-making that emerged could have been linked to the technologies' strengths and weaknesses (Merrick & Joseph, 2023). Their strengths included the affordability of many of the devices used and the ability to develop online communities where best practices in music education and performance could be shared and discussed (Biasutti et al., 2019). Major weaknesses could be associated with the time required to master technologies, which often involved selecting the right software and tools without any institutional support. Other potential technology-related issues included signal transmission and audio quality (Vaizman, 2022).[1] Problems were not limited to technical issues and software functionalities, but also involved areas such as curriculum planning, curriculum design, and assessment (Johnson, 2022).

The COVID-19 lockdown led to an emphasis on remote music-making, prompting a reassessment of individual preferences and instructional techniques in both performance and

education (Biasutti et al., 2023). Of particular interest is the scarcity of institutional backing for such changes, which resulted in many music educators and performers receiving insufficient aid in devising courses and activities that aligned with their professional development needs (Biasutti et al., 2019). As the pandemic-related restrictions seem to have eased and many countries have declared an end to their emergency measures, it is important to reflect on which long-term changes might have been brought about by the innovations introduced during this period. Several research projects have highlighted changes in pedagogical practices as the result of online music education (Merrick & Joseph, 2023). E-learning methods must be based on learner-centered approaches and framed within cooperative, collaborative learning contexts. Peer review and assessment are thus potential techniques for enhancing students' skills and fostering online collaboration (Gaunt & Westerlund, 2016). During virtual learning activities, music educators demonstrated resilience, coping methods, attentiveness to students' needs, a variety of creative approaches, problem-solving abilities, and introspective analytical skills (Biasutti et al., 2022).

This research focuses on choir conductors as an example of professional musicians who encountered difficulties switching from face-to-face to distance learning and rehearsing. This focus provided a valuable window through which to view the role of technologies designed specifically to help learning and performing: "as online vocal programs move towards integration into learning systems, it is relevant to prove a significance of the shift in pedagogical paradigms and demonstrate the effectiveness of online learning strategies" (Chang, 2023, p. 2). We aim to provide an overview of the challenges that these drastic changes caused for choir conductors, considering key aspects related to teaching, performing, managing activities, and assisting students psychologically. We were particularly interested in the social and emotional aspects of managing and conducting a choir. Choirs represent an ideal context within which collective musical and social dynamics can flourish and develop, and a wide variety of studies have examined them from a similar angle (Louhivuori et al., 2005). Several studies have suggested that group singing and music-making are beneficial to mental health and well-being (Clift & Hancox, 2001; Habe et al., 2021; Paolantonio et al., 2022).

Our study used a qualitative methodology whereby we administered an open-ended questionnaire to 34 choir conductors. Although we mainly considered issues related to the use of technology for remote music-making, certain specific educational issues were also discussed, particularly professional development, individual choices, social dynamics, and institutional support for the participants' careers. The following, deliberately general, research questions were considered: (1) Which practices did choir conductors adopt to develop forms of music-making during the pandemic? (2) What were conductors' views about sociality, mental health, and music-making with regard to carrying out musical activities remotely?

Methods

Participants

Thirty-four choir conductors participated in this study. Inclusion criteria were: (1) having more than 3 years of experience of conducting a professional or amateur choir ($M = 21.2$ years; $SD = 10.1$) and (2) having studied music at a conservatory or an equivalent level. The sample of participants included five women and 29 men (age: $M = 49.4$ years old, $SD = 9.5$). The large gender imbalance reflects the general prevalence of males conducting choirs in Italy.

All the choirs conducted by our participants are non-governmental associations financed by administrators at the local level (e.g., town council, church). The choirs varied: they had around

20 members and consisted of boys and girls; adult women; adult men; or were mixed, with both women and men. Choirs were based in different locations covering the Italian territory: 14 were in the northern regions of Italy, 8 in the center, 7 in the south, and 5 in the islands. Only nine participants reported having any pre-COVID experience of using technology during choir rehearsals (i.e., having choristers sing remotely rather than being physically present). Participants provided written informed consent and participated in the study voluntarily since they received no financial reward. Participants' identities were hidden to ensure their anonymity, and they were assigned pseudonyms during data analyses (P1–34).

Data collection

The first author recruited participants via the Associazione Nazionale dei Direttori di Coro Italiani (ANDCI: the National Association of Italian Choir Conductors). The ANDCI asked its 128 members to participate in the research, and 34 answered positively. Participants received an 11-item questionnaire and a background data form (see Appendix 1) via email. They were asked to complete both documents on their computer, with no word limit, and return them via email within 2 weeks. Previous studies based on written responses have used this approach successfully (Schiavio et al., 2019, 2021, 2022). This method of data collection is particularly suitable for eliciting reflective and thoughtful insights, as participants can adjust their answers multiple times and reformulate specific information if necessary. All the participants' answers were written and analyzed in Italian (the mother tongue of all the participants and researchers) with the aim of capturing all the subtlest nuances of meaning in the responses.

Data analysis

Data were examined using constant comparative analysis within the framework of a grounded-theory approach. This methodology combines inductive, deductive, and abductive thinking, allowing researchers to explore a given phenomenon systematically without having had to approach it from a pre-determined standpoint. Rather, this technique involves an iterative process in which the analyst's interpretation and sensitivity directly shape the way that meaning is generated from the data. The analytical process began with all the authors making a series of in-depth readings of the raw data to familiarize themselves with the participants' personal accounts. The third author documented the unfolding of his analysis, thinking, and intuition via continual note-taking, as he immersed himself in the richness of the material. These notes constituted a preliminary framework within which to compare the range of ideas and concepts in the data in a structured way (i.e., looking for contradictions between, expansions of, or support for ideas), and gave rise to an initial coding system.

   The authors discussed this coding system, eventually generating nine codes through a process of mutual iteration. All the authors developed these codes systematically through a process that started from the individual readings, continued through exposition of the notes and the preliminary analysis scheme developed by the third author, and ended with an exchange of insights provided by the entire research team. Coding helped us capture identifiable units of meaning (i.e., ideas or concepts), found repeatedly in excerpts from the data from different participants. The code-generation process continued until theoretical saturation was achieved, that is, when the analysis stopped producing new codes. In this concluding stage of the analysis, numerous variables were considered, encompassing the effectiveness of the codes in gathering adequate insights from the entire data set. Nine codes were produced, each one discussed
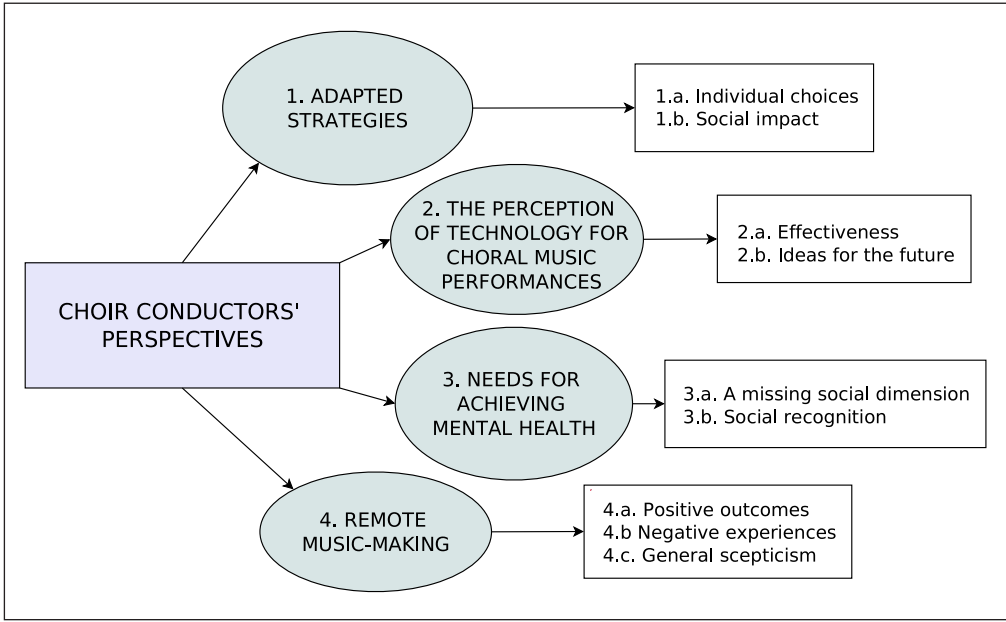
Figure 1. The data analysis coding scheme.

thoroughly by the research team to ensure the coherence of the quotations that contributed to them. For example, several discussions and Zoom meetings between authors were planned in order to determine which quotations were the most appropriate for publishing in the material and whether some of them would work better if assigned to one code rather than another. Once an agreement was reached as to the assignment of quotations and defining codes, the nine codes were grouped into four broader categories (overarching themes), each describing the theoretical dimensions common to two or more codes. Only at the final stage were all the quotations translated into English and organized for publication. The coding scheme is shown in Figure 1.

Findings

Research findings are reported by presenting a series of quotations that represent the descriptions for each code. These are contextualized and commented upon to highlight the most significant ideas. Codes are grouped into overarching themes according to the coding scheme shown in Figure 1.

Adapted strategies

One way of categorizing the variety of music-related activities undertaken by choir conductors during the lockdown period is to refer to two general dimensions (codes). The first examines conductors' adapted individual choices as they organized and carried out novel activities on a personal basis (e.g., learning new material or familiarizing themselves with technology). The second dimension concerns the social impact that those choices entailed for the whole group and its internal dynamics, transforming the way the conductor engaged with the choir.

Individual choices. Many conductors initially had a lot of trouble switching to remote music-making. As one stated, "I had to deal with a completely unknown reality. I had never done any choral activities online" (P15). This surprising new aspect in their work led to many participants being distrustful of the new pedagogical possibilities looming on their horizon. Some conductors preferred to suspend all their didactic activities and dedicate themselves to something else. "The only activities for which I would give my time and commitment were setting up or participating in webinars to study and analyse scores . . . starting from recordings on the internet or provided by the interested parties [choristers]" (P8).

However, other conductors used the lockdown period to provide choristers with new material and work with them individually: "I send the vocal parts to the different sections and ask the choristers to record them in turn, to correct any imperfections" (P12).

> I analyse and present the piece being studied, talking about the author who wrote the lyrics, contextualizing it historically and seeing how the composer put the text to music. I send out audio files of the song—even the detached [individual] parts—with MIDI files that I prepare. I personally make vocal examples, both in fragments and for the whole song. (P18)

This kind of remote work led some of our participants to explore the music-related possibilities that technology provided, to an even greater extent, and to work with individual choir members as well as with the entire choir: "I have changed my pedagogical approach [by implementing] shorter lessons . . . and often one-to-one, to put people at ease" (P11); "I started to have my choirs study some pieces by providing recordings of the [individual] parts; then I started holding weekly meetings on videoconferencing platforms" (P29).

Importantly, this change in pedagogical practice may be attributed partly to the choristers themselves and their level of confidence in using technology:

> I had never hypothesized that multimedia platforms (Zoom, Hangout, Meet, Skype, etc.) might somehow become the new way to keep activities going. I must admit that the new generation's young age and confidence handling the available technologies have favoured the possibilities—albeit limited—of using this approach. (P20)

As we will see in the next code, with this kind of confidence in technology, driven by the choir, conductors discovered new possibilities for rehearsals and concerts, which in turn generated important consequences for the internal dynamics and external social commitments of the whole group.

Social impact. Various challenges were noted in relation to the collective dimension that lies at the core of choral activities. In certain instances, these challenges culminated in the complete suspension of rehearsals and concerts: "We have stopped our activities. In my choir, not all the people are computer literate, but the main reason is that we don't think making music like that is useful" (P24); "[Technology-enhanced rehearsals are simply] not possible for my group due to the heterogeneity of the choristers' technological skills" (P3); "I preferred not to apply this [virtual] method with my choir, considering that, at the moment, the group's skills were inadequate to obtain a positive result" (P10).

It is noteworthy that choir members' roles are fundamental when they contribute to orienting the conductor's choices in a particular direction. The conductor could, therefore, be seen as being dependent on the choir's technological skills. This relates to the importance of group cohesion:

> We have increased the use of social networks, especially WhatsApp, for the group's cohesion. In the middle of the lockdown, on our chat, I tried to encourage more interaction between the choristers, even if it was just to exchange a greeting or recount something about their day. I was also able to organise more-or-less regular video calls, involving two or three different people from time to time, so as to listen to their needs and express the hope of resuming normal activities as soon as possible. This continuous contact has helped to maintain group cohesion and has also allowed me to get some feedback on the process of studying the proposed material. (P10)

Although non-traditional choral settings might be frowned upon when it comes to performances, the role of technology in enhancing choir members' sense of belonging was much appreciated. A range of new social and pedagogical experiences was stimulated by activities such as creating new videos or assembling and combining solo audio tracks:

> I am showing all the choirs a[n educational] programme entitled *Acrobazie Vocali* (Vocal Acrobatics), which consists in showing them various "exceptional" vocal performances through the use of short videos . . . all of which involve a commentary including amusing anecdotes concerning the song's singers or composers. (P22)

> With my choir, I ran both individual online rehearsals with some choristers as well as a project for the creation . . . of a short video, soon to be published. I shared scores with the choir and, above all, recordings of myself singing [the lines of] every single section (and also with all four voice parts merged) of pieces that are already in our repertoire and of pieces still to be learned. (P23)

There were, therefore, cases in which technology favored the development of new ways of dealing with the difficulties of making music together due to the lockdown. When this happened, the roles of interaction and mutual support between choir members were essential:

> Thanks to the skills of a member of our group, we made a remote recording (accompanied by video) of two pieces by Palestrina (*Alma Redemptoris Mater* and *Regina Caeli*) with real voice parts . . . The videos will be posted on YouTube and if the outcome is positive, we plan to record a third song in June. (P14)

Using technology provided a way to keep the choir's activities suitably professional, foster cohesion, and ensure the involvement of the members of the group. The next section examines participants' perspectives on using technology for choral music in detail.

The perception of technology for choral music performances

Participants' quotations referring explicitly to the ways in which technology was perceived in the context of choral music-making were assigned to one of two codes: those looking at the effectiveness of the technological resources available and those looking at ideas for the future.

Effectiveness. The professional activities overarching theme provided insights into the variety of activities the choirs carried out and their motivations. Technology played a key role in both the individual and social contexts. In most cases, the technology enabled basic forms of "rehearsals in which it was possible to review known parts or learn new ones but always with the choristers' microphones on mute" (P34).

While this might be just enough to keep communication alive or to engage in one-to-one musical activities, things could be more complicated when it came to involving the whole

group. "The lockdown experience has shown that technology certainly helps in times of difficulty . . . but does not replace the quality of singing live" (P15).

> Common applications dedicated to e-learning are fine for a chat . . . but are completely unsuitable [for choral music-making]. Different connection speeds also definitely affect [this], but even with a perfect connection, I am convinced that the sounds and small nuances of live singing cannot be reproduced at all. In our field, the rendering of sound is fundamental, and I wonder if we will ever be able to reach an adequate level. (P10)

> Internet connection speed and sound quality made things very complicated, with many disadvantages when compared to a choir's usual activities. According to some conductors, these difficulties were not easily solvable: I do not think that, at the moment, technologies exist to cancel or almost cancel the problem of latency, which remains the most difficult obstacle to deal with. (P20)

Another participant made a similar point: "I never thought that [interactive choral activities] could be [implemented], at least given the current state of internet connections" (P25). The critical assessment of current technological resources for facilitating live choral activities that emerged from these quotations, it was often accompanied by comments and ideas that offered positive, constructive criticism as reported in the next code.

Ideas for the future. Our participants reported on the ways in which they variously benefited from the technological resources available to them when it came to maintaining social communication channels between the choir's members and reframing certain pedagogical practices. However, they also described many difficulties related to performance and joint music-making more generally. One way forward technically could be focusing on the latency issue. Overcoming this would "give individual choristers the opportunity to sing at the same time, listening to each other and following the conductor's gestures in real time" (P5). Another participant reported, "The ideal [thing] would be to have platforms that can eliminate latency for simultaneous rehearsals involving several choristers" (P23).

One participant recognized the importance of "application intuitiveness, [in addition to] the speed and functionality of internet connections [and] signal coverage" (P34). Making it easier to use technological resources could be a game changer, considering that one of the main problems reported was the lack of the choristers' and conductors' technological skills. One good solution, as one participant proposed, might involve looking outside the choral community to engage with "the same [technological resources] used by the composers of electronic music, sound technicians in charge of sound and image editing, or professionals in the advertising or cinema sectors" (P32).

Having such technology, however, and being able to exploit its full potential, might necessitate conductors and choristers having additional support from dedicated institutions. The next overarching theme sheds light on this dimension.

Needs for achieving mental health

This overarching theme includes excerpts discussing sociality and mental health from two related perspectives. In the first, conductors explicitly referred to the need for psychological help, which a number of them described as being an important factor in coping better with the pandemic and the difficulties that it brought forth on a personal level. The second perspective looked more directly at how national or regional organizations might support choirs through a

range of initiatives, thus revealing the need for social recognition that choir activities arguably deserve.

A missing social dimension. Mental health is a fundamentally important aspect of life, one whose various facets should be discussed in more depth, especially in the context of this study. Some of our participants included this dimension in their responses, speaking openly about the kind of support they needed. As one put it:

> I think it would be appropriate to provide support to overcome the sense of frustration and blockage that can be generated both in conductors and in choristers who find themselves unable to carry out their activities—at least in traditional ways. (P14)

Many conductors experienced a lockdown situation that was "rather frustrating in that, in addition to technological problems, the psychological ones of the lack of human contact were added" (P1). The social side of choirs was at the core of another conductor's statement:

> The "non-presence" makes everything rather tiring for many reasons, and sometimes you do not understand whether what you say is really understood. It comforts me when some parents understand the intricacies of running the choir remotely, and I am happy when kids[2] thank me at the end of rehearsal and then send emoticons to each other in the chat. Their need to communicate goes beyond the rehearsal. I would say that sharing experiences could be [a kind of psychological] support. (P22)

The lack of human contact and the range of feelings to which this gave rise were key themes for our conductors. They mentioned that the best personal support for the conductor came from the opportunity "to see and work with their singers" (P8), describing how the "human aspect and the moment of live performance" (P16) were the two most greatly missed components of their work. Some participants felt the need to share insights that went beyond the lockdown period or the role of technology, linking the social needs that characterized their activity with more general comments about how conductors could help each other:

> The conductor must be psychologically strong, intuitive, skilled, and must know how to interpret the [choral] reality they are facing, combining their expectations with those of their choristers. It is, therefore, necessary for conductors to help one another learn about the right approach to have in the face of the great heterogeneity of choirs present in the area, both in terms of music and social composition. (P13)

This was echoed by other participants who felt that personal support might go further than merely developing approaches to face and cope with the loss of personal contact. Receiving support might consist of recognizing the social value of the artistic work being carried out despite the pandemic. As one participant commented, "support [means], more than anything else, knowing that our work is appreciated and can be useful to the community's cultural and social growth" (P25). Several excerpts in the next overarching theme report on and contextualize the way authorities as well as local and regional institutions from the government can contribute to addressing this issue. We refer to institutions in terms of policy regulations playing out at local and regional level.

Social recognition. While the overarching theme of sociality and mental health was first approached from a personal, psychological level—mainly related to the decline in a robust social life due to the pandemic—another important dimension emerged in the overarching

theme of social recognition. To begin with, conductors may find themselves in a more solitary state than singers:

> The choristers need the support of the conductors and the people who hold positions within the association of which the choir is a part: we are mainly talking about human support. Conductors, unfortunately, have to find strength within themselves, but some practical support from the authorities would not be so bad. (P29)

So, just how can institutions help in this regard? When looking at things through the lens of the pandemic, another conductor noted that institutions could "recognise the social utility of the activity [that choirs] carry out and actively undertake a search for strategies that allow a safe recovery in a short time" (P3); another participant also made this point:

> The most important thing is the sensitivity that an institution might have towards "creating choirs" and, therefore, recognising this activity as an element of personal, social, as well as artistic growth. This [could be followed by a series of] investments in suitable resources—such as high-fidelity systems— combined with new spaces and opportunities [for rehearsals and performances]. (P15)

These indications of support needed were expanded upon by acknowledging that an institution needs "listening, trust, infrastructure, services, economic support, spaces for analysing contexts, and a coordinated plan of actions for the benefit of social and pedagogical aspects" (P8). Acting upon such items is not only desirable to provide the support choir conductors deserve but could be considered a necessity when considering how,

> up to now, choir conductors have been left alone . . . An association was needed, and it was created. An association that promotes events, takes care of the culture of our conductors and our choirs, in the widest possible way." (P11)

Social recognition of choral activities would be particularly useful after the difficulties related to the pandemic. The conductors' statements reported choirs' more general needs, which would benefit from interventions by both regional and national institutions. This facilitated exchanges of ideas between conductors, who could reflect more collegially about different aspects of their professional activity, including the dimension of remote music-making, which is now more important than ever. The next overarching theme focuses on remote music-making, providing preliminary insights into the current situation.

Remote music-making

Remote music-making could be considered a product of the modifications imposed on choir conductors' activities by the move online. The quotations for the codes linked to this dimension provided an in-depth look at the different ways that remote music-making takes place. This may help us gain insight into the pros and cons of online settings, examining the more general assumptions and considerations about how remote music-making can be effectively associated with choir activities specifically.

Positive outcomes. Given the ideas that emerged in the other codes, one of the most important themes was that of being together. "Undoubtedly, the opportunity to be together again [was the most positive aspect of doing choirs virtually], the feeling of being a group even with today's hardships" (P2).

Exploiting technology and working with virtual settings means that "projects or ideas can be shared more liberally with the public" (P6). This involved several advantages, which one participant summarized as "having learned 'virtuality,' having discovered alternative systems with which to transmit knowledge, having had the opportunity to stop and reflect on what to do, having dealt with other conductors, having become aware of the limitations of individual singers" (P34). There was also the theme of the drive to learn something new about technology, with the next two quotations being particularly insightful: "The stimulus of finding alternative ways to continue the activity in another way and of getting to know the technological tools that may already exist, but which one did not need to use." (P14)

> [One of the most positive outcomes has been] learning the computer techniques useful for streamlining some aspects of the work of "editing" pieces, such as, for example, providing the choristers with [digital] music files from which to learn, outside of the institutional rehearsals, melodies, and lyrics. (P7)

Moreover, participants valued the opportunity to spend more time than usual thinking and studying:

> I have had the opportunity to relax, to reflect on what I really want from the choir and, through the choir, for myself. I have listened to singers on the phone and chatted with them about their daily life. So, I hope that, in some cases like mine, the lockdown can ignite the desire to go back to singing in a simpler way, in the sense of being more eager to be together, but also of seeking beauty together, because obviously, what is given to us is not always discounted and at your fingertips. (P13)

A final positive aspect was getting to know the singers better:

> The positive aspect that I see is that the choristers—notoriously unaccustomed to singing alone—had to make an effort to do just that. You could discover voices that do not emerge in the chorus; errors to be corrected at the level of syllables. (P11)

> [What I valued the most during the lockdown was] getting to know my choristers better: their voices, their degree of autonomy, understanding what the shortcomings of the group and individuals are, being able to work on theoretical aspects that are put aside due to a lack of time in moments surrounding concert activities. (P17)

Such a range of rich positive outcomes might inspire ideas for future work with the choir, complementing existing pedagogical settings in various ways.

> The opportunity to take care of a single chorister [emerged during the lockdown]. Evaluating their weaknesses but also their progress is certainly something very useful. Although this worked [with individual singers], it might become excessively demanding with the entire choir (I am thinking about my choir, which has 35 people). I'd consider it useful—when the emergency is over—to combine the usual rehearsals with remote rehearsals with single choristers, so as not to take time away from rehearsals, to use this teaching method and to help those choristers who have problems with shyness. (P23)

Negative experiences. Just as we might have predicted the principal positive dimension, we might have expected the main negative dimension of remotely making choral music together to be the

lack of physical contact; "the absence of physical contact with the chorister" (P2) was mentioned in many statements. However, this topic was not the only one:

> First of all, the economic aspect [was highly problematic]. Then, the increase in work, with results that were absolutely not proportional to the immense effort endured. Finally, the anxiety of thinking that one's choir might "melt away" [i.e., stop working] or never be what it once was. (P9)

One participant listed the eight most negative aspects of the lockdown period:

1. The impossibility of carrying out assessments in the usual way;
2. The lower strength and effectiveness of communication caused by a remote connection;
3. Choristers' shorter attention spans;
4. A greater chance of losing enthusiasm;
5. The enormous efforts asked of the conductor;
6. The much longer times needed for the realization of songs;
7. The greater difficulty in grasping aspects related to individual choristers' vocality and expressiveness;
8. The lack of a fully-fledged social dimension. (P20)

The issue of assessment was likely only mentioned in this conductor's list because some tended to distinguish between choral activities done with students or performers, though evaluating singers as had been done before the pandemic remained an important aspect that needed improvement. "Not being able to actually meet the choristers risks causing some [conductors] to lose enthusiasm and . . . to mature from a choral point of view" (P30).

As mentioned in both of these quotations, enthusiasm was yet another fundamental aspect here, given that many of our participants had other sources of income besides being conductors. As such, their passion could be seen as the main driver behind their musical activity. Remote music-making featured both positive and negative connotations, and the next code included statements describing the potential future of this activity.

General skepticism. Some participants highlighted aspects of their experience to which they attributed a particularly positive meaning. Some preferred to report statements that underline the great difficulties that often accompany situations of strong change, which can then shape future endeavors. One sentiment shared by our participants is captured by the next quotation: "I am quite sceptical (beyond the necessity of the moment) that the sound, the balance of the voices, the sociable aspects of the choir can be reproduced online in an acceptable way" (P3).

As other participants said, this enforced distance between physical presence and the virtual dimension appeared irreconcilable.

> I am not against the creation of "virtual choirs"; however, I disagree about treating the virtual choir as if it were . . . real; that is, having the choir perform the same things they perform live. The motets of Monteverdi, Bruckner or Bettinelli were not conceived for a virtual choir, which has an artificial sound and produces a non-simultaneous performance . . . And the conductor's gestures are clearly impaired, as they are not connected to the choristers' phonatory/executive/interpretative actions. (P32)

"I believe that 'digital choral music' is unfeasible. It can be fun but not the norm. Many of my choristers do not know [how to read] music and I can only teach it with my voice by singing the

parts" (P24). Such a pessimistic view of music performance technology tells us that, despite recent software and hardware improvements, these conductors are not particularly enthusiastic about continuing to explore novel ways of integrating virtual and traditional settings. Even though they recognized the value of the technological skills they learned during the pandemic, there remained a striking difference between what could be produced using computer-enhanced settings and the performances made with the singers physically present. "Without throwing away anything learned in this lockdown period, I can affirm that a choir is a social organism that needs human contact, body language and people who sing while listening to each other live" (P34).

Although we have reported a number of optimistic statements regarding various dimensions at the heart of the choral experience as it developed during the lockdown, our participants remained somewhat skeptical about present and future attempts to make choral music at a distance. In our final section, we summarize our findings and discuss the impact they may have on future musical activities, thus proposing a way forward that might help choir conductors embrace and integrate more technological elements into their music.

Discussion

The implementation of lockdown periods over the last two years had immediate impacts on a variety of artistic sectors, leaving professionals with little time to adapt to the new reality in which most of their work was carried out remotely. Choir conducting was no exception, and the findings highlighted the professional and personal experiences of some Italian choir conductors.

Our first research question (Which practices did choir conductors adopt to develop forms of music-making during the pandemic?) was addressed by three of the four overarching themes: adapted strategies, the perception of technology for choral music performances, and remote music-making. Several participants stressed the importance of developing new teaching approaches. This aligned with research showing that technology can promote the implementation of different didactic approaches (Nijs et al., 2012; Schiavio et al., 2022). Our participants reported that the switch to online learning affected the management of pedagogical activities, inspiring a series of fascinating considerations on the effectiveness of the tools for carrying out choral activities. Our interviewees were somewhat skeptical when it came to their assessment of the musical results that could be achieved via remote music-making. This was not necessarily a criticism of the technology, but reflected their idea of how a choir should express itself musically. These findings are in agreement with previous studies that highlight the observation that virtual activities may reduce the positive effects of singing (Grebosz-Haring et al., 2022). Research that explicitly addresses how virtual choirs might perform in the future will be vital to their continuous improvement (Daffern et al., 2021).

Our findings revealed problems limiting the positive contributions of technology—for instance, latency and poor internet connections—that reduce the possibility of real-time joint music-making, as has emerged in other studies (Dowson et al., 2021; Hernández, 2020; Riley et al., 2016). These findings have implications for future research and may inspire follow-up studies that investigate ways of improving current approaches to remote music-making more directly (Chang, 2023). The implications for managing virtual choir activities include, among others, elements such as providing constant technical support to students, singers, and conductors, and helping them develop confidence in technology (Shi, 2023). In addition, the development of mobile applications to support vocal education could offer new opportunities for

establishing vocal mastery. Technology could offer important tools for providing constructive feedback and personalized learning (Shi, 2023).

Regarding the conductor's role, it emerged from our findings that participants often take on the role of guide for their singers, necessitating a capacity for empathy and creating human connections to compensate for the lack of physical connection. These findings are in line with similar studies of virtual singing and online music activities during the COVID-19 lockdown (Grebosz-Haring et al., 2022). As for the educational implications of our findings, choir conductors have to be aware that the distance between those who deliver teaching online and remote learners can be disruptive. Professional development activities could be implemented for choir conductors as well as teachers not only to enhance their skills in using new music technologies (Biasutti et al., 2019) but also to help conductors and singers feel more connected to each other.

Our second research question (What were conductors' views about sociality, mental health, and music-making regarding carrying out musical activities remotely?) was addressed by the fourth and perhaps central overarching theme of needs for achieving mental health, which included two sub-themes: a missing social dimension and social recognition. Our participants saw lack of human contact as a traumatic loss to the social dimension. Choral singing is a musical activity that is experienced socially. Human contact cannot be replaced by technology, given its current limitations. From both professional and human perspectives, psychological support could help. In relation to professional activities, research findings have shown the link between the management of artistic and social activities and mental health (McCaffrey & Edwards, 2016). This has implications for everyone who seeks to improve their everyday life holistically; pathways might be proposed aiming to facilitate the emergence of a balance permitting a high-quality performance while protecting the artist from the harmful effects of loneliness.

This finding enables us to take a range of perspectives on several themes that emerged from the data. We refer to their normative and descriptive dimensions, and those related to their antecedents and outcomes.[3]

Many of the participants' insights and reflections concerned both actions that should be undertaken in future and more speculative comments relating to those that had already been taken. From the first normative standpoint, several participants seemed to indicate that a necessary course of action might involve establishing technical support to help them carry out their artistic activities. This plea for such a program of action was underlined by descriptions of rather bleak scenarios in which there was little or no assistance or guidance from competent institutions.

It is fascinating to observe that the dichotomy between normative and descriptive dimensions is relevant to the overarching theme of remote music-making. Here, participants identified positive aspects of their experiences of virtual choirs, and yet expressed skepticism toward the technology used to facilitate them. Reflecting on this, we realized that the choir conductors we interviewed may already have been biased against technology, and that this bias was not mitigated by their experiences of technology during the lockdowns. Perhaps they were exposed to the technology too quickly, so that they were inadequately prepared and could not, fully appreciate its potential from the outset, leading to—or indeed reinforcing—a sense of general pessimism in relation to the potential opportunities offered by the technology.

It can be argued that the bias against technology that could be used for the development of a new, virtual, artistic expression in choir settings has emerged from our data because human beings are generally predisposed for bodily-based social interactions (Gallagher, 2008, 2020). From the perspective of the embodied approach to cognition (Moran, 2017; van der Schyff et al., 2022), supported by the findings of recent literature in the cognitive sciences of music

and music psychology in particular, our primary mode of interaction with others involves social presence, highlighting the importance of bodily experience in the sharing and construction of meaning with others (De Jaegher et al., 2017; Ryan & Schiavio, 2019; Schiavio & De Jaegher, 2017). Specifically, social interaction involves a strong sense of corporeality that can be hindered by technology. In other words, current technology has yet to be capable of recreating the type of bodily interaction that we may regard as truly meaningful, which poses particular challenges for the use of technology in the attempt to facilitate the experience of remote choral singing.

To summarize our findings, we identified both positive and negative outcomes associated with remote music-making by choirs. On the positive side, participants reported an increased motivation to learn about technology and a stronger focus on achieving specific goals that might have been difficult to attain without technological support. Some participants noted that remote working allowed them to connect with their choir members more effectively, highlighting the crucial social aspects of music-making. However, we reported negative feedback regarding assessment techniques and the lack of opportunities to meet in person, which was not surprising given skepticism toward virtual choirs. It is important to consider the context in which these negative statements were made. Italian artists faced a lack of funding and support that may have influenced their perception of what is possible with a virtual choir. In addition, as reported above, some participants expressed resistance to changing their perspectives, viewing choirs as entities that are inherently based on social presence and corporeal interaction.

The limitations of this study include the nature of the methodology adopted, lack of feedback from singers, and participants' nationalities. The qualitative methodology used in this study does not allow the findings to be generalized, restricting their interpretation to the specific context in which they were collected. Feedback from singers in the form of their responses to the questionnaire would have been valuable for contextualizing many of the conductors' statements, and we look forward to further research that specifically addresses their views. A crucial implication is to use all these data to improve practice and educational activities, which of course are connected with research. Interpretation of the findings is restricted to Italy's musical landscape. It would be beneficial to explore how the outcomes of this study align with existing research on vocal performers, particularly singers. It would be worth examining the potential differences between the findings of this study and those of studies of conductors from other regions or cultures. We hope that future contributions will offer varied perspectives on this topic, for example, by recruiting choral ensembles from other countries and cultures.

Conclusion and practical implications

The aim of this study was to analyze the impact of using video telecommunication technologies to replace some components of typical pedagogical practice in the context of choral singing. The findings suggest that there is ample opportunity for further research in this area. It is worth noting, however, that the study did not distinguish between virtual choirs and singing and/or rehearsing online. While these two areas overlap to a considerable extent, they represent distinct domains of experience, with different objectives and associated pleasures and frustrations. For instance, one may dislike virtual choirs but enjoy rehearsing online for a short period when preparing to give a real-life concert. It would, therefore, be worth making a more detailed analysis of the distinction between virtual choirs and singing and/or rehearsing online in future studies. Furthermore, it would be fascinating to investigate how choirs and music-making might evolve with improvements in technology. On the basis of our results, we agree with the statement that

a virtual choir has potential to become a reality soon, but only if the technology is developed hand-in-hand with a better understanding, afforded by this and similar research, of what makes singing together so unique, highly valued, and ultimately "magic." (Daffern et al., 2021, p. 14)

It could be helpful to look at different types of choirs to verify whether the incentives and impact of technology create a change for conductors depending on the type of choir they are running. Other questions are related to the ways in which the kind of choir (e.g., professional or amateur) could affect the perceptions and habits when it comes to practicing and rehearsing. Depending on their purposes, conductors may have different methods and priorities for rehearsal. One practical implication of our findings is that conductors should be given information about the resources available to support them as soon as possible and encouraged to engage in healthy behaviors enabling them to enjoy fruitful careers long into the post-pandemic period. These resources could include a mental preparation program that would teach conductors to use techniques and strategies to develop coping resources and manage difficulties related to practising music and indeed other areas of life that might have a negative impact on their practice and mental health.

ORCID iD

Michele Biasutti https://orcid.org/0000-0002-7784-4258

Notes

1. In both teaching and performing music, it is important to have no delays in signal reception that might cause synchronization problems and the inability to play correctly.
2. That is, the choristers of a children's choir conducted by the participant.
3. We are grateful to one of our reviewers for suggesting that we explore this avenue.

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Appendix 1

The questionnaire

Age: _____ Gender: M □ F □ Other □
Main instrument played: _____
Conservatory degree: _____
How many years have you been conducting a choir? _____
Do you have any previous e-learning experience? _____

1. COVID-19 lockdown measures have turned most musical activities into online activities. Please describe your experience.
2. Please describe your interactive, multimedia choral experiences.
3. What activities did you carry out as an alternative to face-to-face choral practice?
4. What technological features are needed to carry out choral activities online?
5. Which technological aspects need improvement?
6. What types of psychological and emotional support might choir conductors and choristers need?
7. What support can institutions provide to choir conductors?
8. How could collaboration between choir conductors be improved?
9. What are the weaknesses that choir conductors faced when working online during the COVID-19 lockdown measures?
10. What are the strengths that choir conductors experienced when working online during the COVID-19 lockdown measures?
11. Any other comments?