Real Voices, Virtual Ensemble 2.0: Perceptions of Participation in Eric Whitacre's Virtual Choirs

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Abstract

The purpose of this study was to examine perceptions of participation in Eric Whitacre's virtual choirs among mostly amateur singers (N = 312) from 31 countries and answer four research questions: (a) What did participants gain from their participation? (b) What did they learn about their voices and themselves as performers? (c) What were their perceptions of the similarities and differences between in-person choirs and virtual choirs? and (d) How did virtual choir participation influence their current and future choral music participation? Data were collected via a researcher-designed, anonymous online survey. Results indicate that respondents gained a sense of personal satisfaction and global connection. The virtual choir afforded opportunities for those who were unable to participate in in-person choirs due to geographic isolation, schedule conflicts, personal disability, and audition barriers. For many, viewing their performance on video was a new experience and resulted in mostly negative critiques of their own voices. Respondents identified the lack of musical and social interaction between themselves, the conductor, and fellow singers as well as an absence of the embodied experience of being a part of the ensemble. In general, virtual choir participation seemed to encourage future choral singing participation. A discussion of access, assessment, connection, and post-production in virtual choirs as well as recommendations for integrating in-person and virtual music-making to enhance choral participation are provided.

Keywords: choral singing, Eric Whitacre, online survey, virtual choir

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In just over a decade, thousands of singers have participated in Eric Whitacre's Virtual Choirs, a digitally-mediated form of choral singing that has caught the attention of choral enthusiasts around the world. A virtual choir (VC) is composed of audio-video recordings submitted by individual singers that are compiled into a single, digital performance, evocative of an in-person choir (Paparo, in press). American conductor and composer Whitacre released his first VC in 2009 and unveiled his sixth in 2020. In a recent interview, he described the VC as "this gorgeous, delicate, ephemeral artwork . . . that will exist for all time" (CBS Sunday Morning, 2020). For each project, he recruited singers via social media (e.g., the Eric Whitacre Facebook page) and provided downloadable copies of his music, instructional videos, and a conductor track for singers to follow while recording their performances. A production team complied the audio recordings using a technique called multi-tracking and then created a music video presentation using the video recordings (Cayari, 2016). The resulting VC performance was released on YouTube for viewing and publicized through Whitacre's social media. Participation for each VC grew steadily, but it more than quadrupled in 2020, likely due to the pandemic as a result of the novel coronavirus COVID-19 that prevented singers around the world from rehearsing and performing together in person. Whitacre composed "Sing Gently" specifically for VC6 that attracted 17,572 singers from 129 countries and broke previous records for participation (Eric Whitacre Inc., n.d.). Table 1 lists the composition, publication date, and number of singers and countries for each of Whitacre's VCs.

Table 1

Eric Whitacre's Virtual Choirs

Virtual Choir	Whitacre Composition	Publication Date	Number of Singers	Number of Countries
1	Lux Aurumque	March 21, 2010	185	12
2	Sleep	April 6, 2011	1,999	58
3	Water Night	April 2, 2012	2,945	73
4	Fly to Paradise	July 11, 2013	5,905	101
5	Deep Field	November 12, 2018	3,939	120
6	Sing Gently	July 19, 2020	17,562	129

Despite growing interest in online music participation, few researchers have explored this relatively new phenomenon. To date, researchers have examined aspects of online collaboration and community in a VC (Armstrong, 2012), Whitacre's impact on the choral world (Konewko, 2013), social presence and emotional regulation in live versus virtual singing experiences (Fancourt & Steptoe, 2019), and the nature and meaning of VC participation

(Paparo, in press). The present study focused on singers' perceptions of what they learned and the impact of their participation. A broader understanding of VC participation is relevant perhaps now more than ever, as the coronavirus curtailed in-person singing for over a year. Though the data for this study were collected before the pandemic and VC6, this research serves to document singers' experiences of virtual participation and offers valuable insights for choral music educators that will extend beyond the current COVID-19 crisis.

The Virtual Choir

Studies exploring the phenomenon of the VC are part of a larger body of research on social media and music learning[1] that falls outside the scope of the current investigation. Specific research concerning Whitacre's VC was limited, comprising one thesis (Armstrong, 2012), one dissertation (Konewko, 2013), and two peer-reviewed research studies (Fancourt & Steptoe, 2019; Paparo, in press); though other authors have examined aspects of VCs in general. The following review of literature highlights criticisms and praise for VCs, reasons for participation, community and collaboration in a VC, and the nature and meaning of participation.

The overwhelming critique of the VC is that it is a poor attempt to replicate live choral music experiences. Datta (2020), for example, argued that

> 'Virtual choir' is, effectively, a misnomer. Technologically simulated 'performances' during isolation cannot synthesise [*sic*] place, time, affect and emotion, which are not contexts for music-making, but are revealed as integral textures in the fabric of crafting musical sound. (p. 2)

In an examination of participatory online classical music projects, Helms (2015) highlighted similar concerns, noting an obvious difference between VC and in-person choirs is that everyone rehearses separately and cannot see or hear the other performers until the final product is assembled and thus cannot blend and react in the moment to others. Though both require the body in performing and recording, Helms emphasized that "so much of the experience of live musical group performance is multisensorial and reactive" (p. 30). Whitacre himself emphasized the importance of live music-making, stating ". . . Singing together–taking that first breath together and then singing together–nothing beats that, and nothing ever will." (CBS Sunday Morning, 2020).

There are number of other barriers that limit potential VC participation. These include access to technology and the internet, ability to read directions in English, knowledge of how to record and upload, ability to read music or learn from a recording, not knowing that VCs exist, and being philosophically opposed to the fundamental concept (Armstrong,

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[1] See Waldron, J. L., Horsley, S., & Veblen, K. K. (Eds.) (2020). The Oxford handbook of social media and music learning. Oxford University Press.

2012; Helms, 2015; Konewko, 2013). Helms (2015) argued that many of these factors mitigate claims of virtual performing ensembles as ways to increase participation and accessibility to classical music. Regarding the creation of virtual choirs, Galván and Clauhs (2020) identified technical challenges such as digital audio latency (delay in hearing the sound of one's voice in their headphones when recording) and variable quality of recordings (related to recording equipment). They shared that students found it difficult to record by themselves without hearing others and struggled to align their recordings with others in their section. Datta (2020) suggested that singers may have felt stressed by the rehearsal process, pressure to record a perfect take, and dissatisfaction with lag time between recording, presentation, and audience response.

In contrast to these concerns, several authors have identified a number of positive aspects that have emerged as a result of this new form of musical participation through digital media. Blackburn and McGrath (2014), for example, posited that traditional musical experiences infused with technology, such as the virtual choir, provided new opportunities for online music education in which students of diverse backgrounds engage in knowledge construction. They suggested that singers in a VC, though working independently, "still practice the same collaborative skills, listening for pitch and timing as well as discussing interpretive ideas, providing feedback within the ensemble and self/peer-evaluation" (p. 225). On the flipside of critique mentioned above, Helms (2015) also noted that, for those who had access, a VC may be a means to overcome certain participation barriers in a traditional, in-person choir, such as disability, geographic isolation or displacement, time-consuming personal issues, and feelings of exclusion based on lack of training or ability. Galván and Clauhs (2020) reported that students bonded during sectional rehearsals and appreciated the opportunity to work collaboratively toward a performance goal during the time of pandemic.

Singers have been motivated to participate in a VC for a number of reasons. Konewko (2013) and Armstrong (2012) argued that participants were primarily drawn to work with Whitacre and sing his music. In a phenomenological study, Konewko (2013) described how Whitacre had enlivened and energized the choral world with his charismatic persona and music in both live and virtual contexts. Other reasons included the innovativeness of the endeavor, the desire to express oneself musically, and the desire to perform after illness or in spite of disability (Armstrong, 2012). In a subsequent study, Paparo (in press) used factor analysis to examine self-reported data from singers from around the world and found that VC participation was a multidimensional construct. The six underlying dimensions that explained meanings of participation were as follows: (a) Whitacre, relating to Eric Whitacre as conductor and composer; (b) musical achievement, pertaining to singing and musicianship skills; (c) inspirational, encompassing being inspired to sing or inspiring others; (d) individual, relating to convenience of participating virtually and experiencing singing that would otherwise be unavailable; (e) recognition, encompassing positive feedback and recognition; and (f) communal, pertaining to connections with others (Paparo, in press).

Additional evidence suggests that VC singers experience a sense of *communitas,* connec-

tion and collaboration with others. Armstrong (2012) examined collaborative music-making and online community among singers from Whitacre's VC2. Though it was unclear as to how many participants were involved or how the data were analyzed, the author provided evidence from online artifacts and virtual interviews that documented participants' online and offline connection with others through social media and in-person meetings. Armstrong explained, "This project might refute, or at least reframe, perceptions of cyberspace as a lonely and impersonal place and support the notion that social capital and a global orientation can, indeed be fostered through networked collaborative cultural production" (p. 87). In a quantitative study using survey data, Fancourt and Steptoe (2019) compared social presence and emotional regulation in live versus virtual singing experiences in two paired cohorts, totaling 2,316 singers. They found a slightly greater sense of presence, reduced social isolation, and increased connection to others among VC singers. They concluded that VC participation could provide similar emotional and social benefits as in-person singing.

Research on VCs also provides information about how participants prepared their submissions. Paparo (in press) found that participants spent between less than an hour and more than 10 hours preparing and recording their submissions, with amateurs spending more time than professionals. While preparing, they learned their parts rehearsing individually and with others, focused on musical aspects beyond the notes and rhythms, and some even sought vocal and technical assistance from teachers, colleagues, friends, and significant others when needed.

Though the literature offers clarity on certain aspects of participation, questions that are perhaps of most interest to choral music educators related to pedagogy, namely, the nature and value of learning experiences of those who participate in VCs, remain largely unexamined. Therefore, the purpose of this study was to examine singers' perceptions of what they learned and the impact of their participation. The research questions were as follows:

(1) What did participants gain from their experience?

(2) What did they learn about their voices and themselves as performers?

(3) What were their perceptions of the similarities and differences between in-person choirs and virtual choirs?

(4) How did virtual choir participation influence their current and future choral music participation?

Method

Survey

Data were collected via a researcher-designed, anonymous online survey (see Appendix 1). The first of two sections gathered demographic information—age, gender, country of

residence, level of music experience, voice part, and virtual choir. The second included descriptive, Likert-type scale, and open-ended questions that asked respondents to describe their experiences and perceptions of in-person and virtual choir participation. In order to establish validity and reliability of the survey instrument, two experienced music education researchers and two known VC singers reviewed the survey prior to its distribution. The researchers provided feedback on the survey's structure and content. The VC singers provided responses to the questions as well as made suggestions for improvement. Based on the collective feedback, all definitions and two questions were rewritten for greater clarity. This review process was helpful in confirming the appropriateness and effectiveness of the survey to obtain useful data for this study.

Procedure

After receiving Institutional Review Board approval, the survey was distributed using a link to a Google Form and posted with permission on the Eric Whitacre VC Facebook page. Using Facebook was a logical way to reach a large number of potential respondents given that social media was a primary means of communication between Whitacre and singers. This was also a limitation of the study as there was no guarantee who may have seen or had access to the link. It should also be noted that the Facebook page was open to anyone and likely attracted fans of Whitacre's VCs; this may have resulted in overly positive responses. In order to ensure that respondents did not take the survey more than once, they were required to provide their Internet Protocol (IP) address as part of the Consent and Verification process before starting the survey. Information on where to find the IP address was provided. There were no duplicate IP addresses giving some measure of assurance of the uniqueness of each response. Given these limitations, the survey sought to gather data from a purposive, non-probability sample of singers who had participated in one or more of Whitacre's VCs (Palys, 2008). There was a total of 312 responses over the week of January 7, 2019, after which there were no additional responses.

Demographic and descriptive data were analyzed by calculating frequency and percentages. Likert-item responses were analyzed by calculating averages and standard deviations. Open-ended responses yielded over 2840 statements (phrases or complete sentences) that were analyzed using a combination of in vivo and structural coding, which are appropriate for survey responses (Saldaña, 2015). In vivo coding involved selecting a word or short phrase directly from the written responses as a code (e.g., inspiration, community). Due to the wide range of responses in each open-ended question, this process yielded an unusually large number of initial codes. Redundant codes were then eliminated, such as when two or more codes were very similar (e.g., "love singing," "love to sing," and "love choral singing" were coded with "love singing"). Structural coding involved grouping codes into categories related to each research question (e.g., similarities of in-person and virtual choirs). The complete analysis generated 2,723 initial codes, which were refined to 1,556 unique codes, grouped into 74 categories, and counted for frequency in order to capture the most prev-

alent and compelling responses (Saldaña, 2015). An independent researcher reviewed and verified the coding process in an effort to ensure reliability of the analysis.

Tables 2-7 provide examples of codes, categories, frequencies, and percentages of responses for each open-ended question. In Table 2, for example, which shows answers to the question, "What did you gain from your virtual choir participation?", codes such as "fun," "joy/happiness," "moved to tears," "fantastically overwhelmed," and "grateful" captured respondents' *satisfaction*. This category contained 96 coded statements, approximately 22% of the responses for this question. Because survey respondents could share as much or as little as they wanted in each open-ended response, the total number of coded statements was different for each question. Therefore, percentages of code counts are provided for consistency in reporting the results.

Table 2

Coded responses to question 1, "What did you gain from your virtual choir participation?"

Sample Codes	Category	Frequency	Percent
Fun, inspired, joy, happiness, "moved to tears," proud, grateful	Satisfaction	96	22%
Unity, community, sing with people from all over the world, global community, worldwide, belonging, shared experience	Communitas	90	21%
Music, singing, familiar with song, musical aspirations, "musical servant"	Music	54	12%
Whitacre as conductor, composer	Whitacre	48	11%
Special opportunity, groundbreaking, "musical history in the making," "21st century musician"	Significant opportunity	36	8%
Novelty, new, curiosity, experiment, "next best thing"	Novelty	36	8%
Access, audition barrier, schedule, isolation, remote, overcome disability, depression, stage fright	Access	30	7%
Challenge, accomplishment, self-confidence, aspiration, brag, "bucket list," validating	Achievement	26	6%
Related to technology as medium for participation, blending performance and technology	Technology	22	5%
	Totals:	438	100%

Participants

Survey respondents ($N = 312$) were from 31 different countries on six continents; the majority (65%) were from the US. They identified as female (67%) and male (33%). Respondents identified as amateurs (63%), professionals-in-training (23%), and professionals (14%). They indicated their voice parts as sopranos (46%), altos (21%), tenors (12%), and basses (21%). Their ages ranged from 18-69 years old. The majority of respondents (59%) had more than 10 years of in-person choir participation. The majority of respondents (71%) participated in only one virtual choir. Approximately 27% participated in two virtual choirs and less than 2% participated in more than two virtual choirs. The distribution of survey respondents among the VCs was as follows: VC1 ($n = 0$); VC2 ($n = 2$); VC3 ($n = 7$); VC4 ($n = 126$); VC5 ($n = 273$).

Findings

Research Question One: What Did Participants Gain?

The most common response (22%) indicated that participants gained a sense of personal satisfaction as a result of their VC participation. Participants expressed their joy and enthusiasm, such as in the following quote:

> It's such an inspiration to be able to sing with people of all ages, from all walks of life, and to be brought together by music. When I saw the final product of this beautiful piece we've brought to life, the feeling was fantastically overwhelming. (Professional-in-training mezzo-soprano)

The second most common response (21%) indicated that participants experienced a sense of connection with other singers as part of a global community, expressed as follows:

> I loved the feeling of being connected to thousands of other human beings across the globe, the vast majority of whom I will never meet but with whom I now have a sort of connection. We created something amazing together that will last for much longer than we could ever have influenced the world alone. (Amateur soprano)

The next two most common responses indicated that participants gained an opportunity to further their love of choral music (12%) and interest in Whitacre as conductor and composer (11%). Other responses suggested that VC participation was significant/historic (8%), novel (8%), achievement-oriented (6%), and intriguing with the combination of music-making and technology (5%). Responses in the access category (7%) revealed that VC participation was an opportunity for those who were unable to participate in in-person

choirs for a variety of reasons. Two respondents explained how they were able to participate in spite of schedule difficulties and conflicts:

> As a music teacher, being able to rehearse myself (late at night, etc.) and knowing that I can still contribute without having to juggle tons of people's schedules for rehearsals makes this an experience that I can readily participate in. (Professional bass)

> I don't have choirs in my area that fit with my schedule and are accessible to me. This is my chance to take part in a choir again, to sing choral music again, and to be a part of something beautiful, all of which I miss. (Amateur alto)

One respondent explained how the VC was a way to overcome geographical isolation:

> Because of our current position, I have not been able to participate in a local choir for a number of years and have missed the experience. Finding the Virtual Choir afforded me an opportunity to be a part of a choir again without having to travel or be away from my current responsibilities. (Amateur soprano)

Another shared that they were able to contribute in spite of personal disability:

> [By participating in this choir, I was able] to prove to myself that a person can be a positive contributor in a project despite hearing and vision disability. I hope to inspire others who have a disability to participate in life. (Amateur mezzo-soprano)

Finally, another commented that the VCs had no audition and on audition barriers in general:

> There are too many vocal groups that instill too much pressure on the audition process, in my opinion. The Virtual Choir allows everyone to sing regardless of how good you are and for those who may not have been accepted into audition-only groups. This gives them a sense of pride, accomplishment, and inspiration. (Amateur bass)

Though these responses were few in comparison to the total number of responses, they are worth noting when considering how VCs may broaden access to choral music participation for those who may not be able to participate in a traditional, in-person choir for a variety of reasons.

Research Question Two: What Did Participants Learn About Their Voices and Themselves As Performers?

The most common response (30%) indicated that viewing their performance on video resulted in mostly negative critiques of their singing, facial expression, or voice in general, as represented by the following quotes, respectively:

> It was very strange to hear my own voice without being surrounded by others. I knew I was on key, but I was disappointed in my lack of breath control. I have quite a bit of confidence when I'm performing with my chorus, but I got very self-conscious during this experience. (Amateur soprano)

> Most of what I learned was regarding my facial expressions and body language, especially things like needing to relax my jaw more and not use my eyebrows to support the sound when I go to the top of my range! (Professional-in-training tenor)

> I learned that I am incredibly critical of my own voice and of my own abilities. I got incredibly stressed out because I heard the mistakes and the things that didn't go well. (Professional-in-training bass)

As a whole, responses suggested that participants formulated their self-critiques as a result of viewing their recordings, as one amateur bass wrote, "The submission process forced me to listen to my recording not in a 'oh, I sound so bad' sense, but more of in a 'so what I can do better' sense, a.k.a. more critically constructive." However, this was not the case for an amateur alto in particular who explained: "I really don't like the sound of my own unaccompanied voice. I didn't even watch my own video past the first few seconds."

The next most common response (24%) pertained to participants' skills in terms of learning parts, vocal technique, and musicianship. An amateur soprano wrote: "I am able to sing with dynamics and minimal vibrato and still keep energy and emotion of the composition." A professional-in-training soprano shared: "High notes aren't that scary, and with the right amount of preparation I am capable of more than I thought." Another amateur soprano wrote: "I generally had a very low opinion of my voice and myself as a performer, but while recording, I learned that I was capable of singing well."

Other responses captured participants' reactions about their performance, which ranged from proud to self-conscious (15%), and the challenges they experienced singing alone in front of the camera and using technology (6%). Other responses (5%) indicated that participants' confidence ranged from very confident to very self-conscious. Responses in the recording category (5%) suggested that some participants needed better recording equipment while others were satisfied with their equipment, and, as a result, some felt the technicalities distracted from singing while others were pleased. Fewer responses (4%) indicated that VC participation affirmed participants' love of choral singing. Other responses (3%) revealed

that participants spent "lots of time practicing" independently or with learning tracks. Responses also indicated that they loved being part of the group, offering and receiving support and help (3%), and that, though they were striving for perfection, their recordings were imperfect (3%). Finally, a handful of responses (1%) suggested that participants learned nothing at all.

Table 3
Coded responses to question 2, "What did you learn about your voice and yourself as a performer?"

Sample Codes	Category	Frequency	Percent
Critique of breathing, breath control, facial expression, vowels, jaw movement, intervals, tone quality, "I don't like hearing my own voice"	Critique	130	30%
"better singers than I thought," capable of learning, developed my range/voice, improved flexibility/sight reading/stamina, technique, etc.	Skills	103	24%
Fun, humbling, inspired, intimidating, nervous, proud, self-conscious	Reactions	65	15%
Difficult to blend, difficult to sing alone, hard to listen and watch myself	Challenges	27	6%
Affirmed confidence, lacked confidence, more confidence in a group, "need to be secure"	Confidence	20	5%
"first take is most likely the best," un/happy with recording, "used an external microphone when recording"	Recording	20	5%
"I love choral singing," "I love singing great choral music," "affinity for choral music"	Love choral singing	18	4%
"Spent hours rehearsing and listening to the song," learning tracks were helpful, "opportunity to find what I could improve," "practiced sustaining notes"	Learning process	15	3%
Being part of a group, encouraged others, enjoy people, connection to others	Connection	14	3%
"Can't hide mistakes," "not worry about being perfect all the time," perfectionist, vocal imperfections	Imperfection	13	3%
Nothing about my voice, "nothing/not sure what I learned"	Nothing	5	1%
	Totals:	430	100%

Research Question 3: What Were Their Perceptions Of The Similarities And Differences Between In-Person Choirs And Virtual Choirs?

Perceptions of the similarities between in-person and VCs ranged considerably. The most common responses were as follows: a conductor (14%), learning a choral piece (13%), a shared goal of music-making (11%), being a part of a community (9%). The following quotes provide a feel for the aforementioned responses. A profession-in-training bass wrote: "You have a score. You have a conductor. You need to do your best in performance to interpret and present the conductor's vision." A professional-in-training mezzo-soprano wrote: "Choir is all about bringing individuals together and turning parts into a whole, beautiful, musical experience; both virtual and in-person choirs do that." Fewer responses pertained to rehearsing (7%), the feeling/reaction from the performance (7%), singing (6%), musicianship (6%), responsibility to learn your part (6%), the music (6%), and the final product (5%). Even fewer responses included the following: nothing at all (3%), the importance of blending (2%), performing (2%), challenge and inspiration (2%), and helping others (1%).

Table 4

Coded responses to question 3A, "How is participating in an in-person choir similar to participating in a virtual choir?"

Sample Codes	Category	Frequency	Percent
Conductor, follow conductor, conductor's direction, interact with conductor, sing for a conductor	Conductor	75	14%
Learn/master/memorize your part, learn how your part fits with the rest, "train the ear"	Learn	66	13%
Common focus and purpose, common sound, contributing to a group effort/musical whole, collaboration	Shared goal	58	11%
"Community coming together to perform a piece," team work, connecting to others through song, develop relationships with fellow singers, feel part of a group	Community	49	9%
Practice with conductor/recording, prepare/rehearse	Preparation	39	7%
Be proud of the performance, feeling achievement, gratifying, satisfying, pride	Reaction	38	7%
Sing choral music, sing with others, sing together in harmony, singing your part, sing	Singing	33	6%
Express the text, sing in tune, convey expression, develop vocal skills/vocal technique	Musicianship	31	6%

"Do my best," responsibility to perform well, responsible for learning your own part	Responsibility	30	6%
Choral music, score, specific song, the music itself, great/good music	Music	29	6%
End result/product, finished product, "it's about the whole in the end," same result	Product	26	5%
Nothing, none, not very similar, very different	Nothing	16	3%
Blend, blend together, "focus on clean sound that will blend," "voice has to bend & not stand out"	Blend	12	2%
Perform/share choral music for an audience, perform same piece	Perform	9	2%
Seek/ask for help, help and encourage others, "virtual help"	Help	7	1%
Challenging music, "chance to perform beautiful, challenging music"	Challenge	3	<1%
Inspire listeners, "inspiration and emotional support from others"	Inspiration	3	<1%
	Totals:	524	100%

Regarding differences, perceptions between in-person and VCs ranged even more than perceptions of similarities. Responses in the musical interaction category, however, were most common (33%) and pertained to the lack of musical interaction between themselves, the conductor, other singers in a VC, and the audience in a VC. A professional-in-training soprano wrote: "It's harder to feel part of an overall sound, and you don't have the same feedback from the director or other singers about whether you're producing the desired sound or the right amount of expressiveness." A professional-in-training mezzo-soprano succinctly explained that "[in a VC,] the sound has been scrubbed and sound mixed by someone else; in an in-person choir, the choristers scrub it themselves by working on blend during practice." These quotes highlight differences in how musical interaction occurs in both types of choirs.

The next most common responses included the need to be more independent (12%), as an amateur mezzo-soprano wrote: "You have to be much more secure in your part in a virtual choir environment. You don't have the benefit of having that 'strong person' in the choir, singing right beside you." Other responses included the lack of social interaction (10%), mixed feelings about the performing experience (7%), lack of conductor feedback (5%), the ability to re-record and submit multiple parts (5%), the solitary nature of VC participation (5%), and the different products of the two types of choirs (5%).

Responses also highlighted the lack of feedback from listening to other singers (4%), embodied response in being surrounded by the group sound (4%), and connection with other choir members during rehearsal (3%). Fewer responses indicated that VC participation is more like solo singing (3%) and pointed out other differences such as the ability to participate anonymously (2%), practice at one's convenience (2%), and critique one's own performance (1%), and the necessity of dealing with technical challenges (1%).

Table 5
Coded responses to question 3B, "How is participating in an in-person choir different than participating in a virtual choir?"

Sample Codes	Category	Frequency	Percent
Alignment of cutoffs/entrances/vowels/consonants, balance, blend, group sound, dynamics, hear other parts, intonation, staggered breathing, tuning	Ensemble	226	33%
Individual preparation, learn on your own, make musical decisions, practice alone, self-directed	Independent	85	12%
Communication with conductor and singers, distanced from experience, "no celebratory beer afterward," lacked bonding	Social interaction	68	10%
Anticipation, excitement, immediate/delayed reaction, intangible, exposed, vulnerable	Reaction	47	7%
Conductor interaction, follow conductor, guided rehearsals, immediate feedback	Conductor feedback	34	5%
Final product, "show day," watch performance	Product	32	5%
Ability to re-record and make multiple recordings	Re-record	32	5%
Alone, singing at home, "alone together," isolated	Solitary	31	5%
Connection with audience and other singers	Connection	27	4%
Audience/singer/conductor feedback	Feedback	26	4%
Embodied feeling, surrounded by the sound	Embodied	21	3%
Solo singing	Solo	18	3%
Rehearsal time, logistics, pacing, experience	Rehearsal	14	2%

Participate anonymously	Anonymous	12	2%
Self-critique/improvement	Self-critique	4	1%
Technical challenges/obstacles, internet connectivity issues	Technology challenges	4	1%
	Totals:	684	100%

Research Question 4: How Did Virtual Choir Participation Influence Their Current And Future Choral Music Participation?

The most common response (36%) indicated that VC participation had no impact on respondents' current choral music participation. For those who were currently participating in an in-person choir (n = 212), the VC helped them to develop skills (10%), confidence (9%), and motivation (6%). Their participation affirmed their love of singing (4%) and made them appreciate in-person singing even more (4%). It was a chance to inspire themselves and others (4%), sing music by Whitacre (3%), and expand their notions of what a choir could be with the use of technology (3%). For those who were not currently singing in an in-person choir (n=100), it provided an opportunity to be a part of a choir (10%), engage with choral music (4%), connect with fellow choral music lovers (3%), and revive their desire to sing (3%). A handful of responses (1%) suggested that participants were not sure of any impact.

Table 6

Coded responses to question 4A, "How did virtual choir participation influence your current choral music participation?"

Sample Codes	Category	Frequency	Percent
"It didn't," "Not at all," none, not applicable	Not at all	104	36%
Attention to sound/pitch/tone, improved singing/breathing, more independent, more focused, "want more Whitacre music in choir"	Skills	30	10%
Motivated to participate, seek more opportunities to sing, study music as hobby/career	Opportunity	29	10%
More confident, increased self-confidence, "pitch confidence"	Confidence	26	9%
Motivated to develop my voice/learn conducting/study choral music/improve my singing/organize my own choral group	Motivated	17	6%

Affirmed love of choral singing, increased enthusiasm, reinforced love of singing	Love of singing	11	4%
Appreciate singing together so much more, pleasure of harmony in-person, greater overall appreciation	Appreciate in-person	11	4%
Inspire others, inspired to sing, inspired to volunteer/ mentor young singers	Inspire	11	4%
More connection to choral music, increased desire to sing choral music, more interested/stronger respect for choral music	Choral music	11	4%
Want to audition/perform/attend workshop with Whitacre, "bigger Whitacre fan"	Whitacre	9	3%
Adapt to new technologically-focused world, use technology for accessibility, combination of choral music and technology	Technology	9	3%
"music can be a powerful connector," stay connected, "universal language"	Connect	9	3%
Want to sing in a choir again, want to sing more	Desire to sing	9	3%
"I don't know," not sure	Not sure	3	1%
	Totals:	289	100%

Responses on a five-point Likert-scale (*strongly agree* = 5, *agree* = 4, *neither* = 3, *disagree* = 2, *strongly disagree* = 1) suggest high agreement with statements regarding future VC (M = 4.57; SD = 1.05) and in-person choral participation (M = 4.08; SD = 1.30). Open-ended responses further clarified participants' perspectives. The most common response (25%) revealed that participants planned on participating in future VCs when available. Almost the same number of responses (24%) indicated that VC participation had no influence on future choral participation because participants planned to sing in in-person choirs regardless. Fewer responses revealed participants' desire and affirmation to continue singing (18%), pursue new challenges (17%), such as join a more advanced ensemble, and seek out other music opportunities (11%), such as composition lessons or other opportunities to sing with Whitacre. Even fewer responses (4%) indicated that participants were not sure of any impact. Finally, the fewest number of responses (1%) expressed uncertainty or unlikeliness of future choral participation without further explanation.

Table 7

Coded responses to question 4B, "How did virtual choir participation influence your future choral music participation?"

Sample Codes	Category	Frequency	Percent
Future Whitacre virtual choir, next virtual choir, participate again, eager for next virtual choir	Future virtual choir	64	25%
No influence	No influence	60	24%
Continue singing as long as possible, sing in both in-person and virtual choirs, join choir, more singing	Continued singing	46	18%
Aspirations such as learn more challenging repertoire, desire to conduct, pursue music as a career, "hungry for more"	Aspire	44	17%
Seek out new opportunities/music/experiences	Opportunities	29	11%
Not sure	Not sure	9	4%
No opportunity/local outlet, no future participation, only solo roles	No future participation	3	1%
	Totals:	255	100%

Discussion

The purpose of the study was to examine perceptions of participation in Eric Whitacre's VCs. When considering the findings, it is important to keep in mind that survey respondents (N=312) were recruited on Whitacre's VC Facebook page and likely had favorable views of their experiences. The findings are unique to these participants and are not generalizable to the larger VC population or to other VC experiences. In this section, I discuss the findings in relation to prior research on Whitacre's VCs and related literature.

Results indicate overwhelmingly that respondents gained a sense of satisfaction, which is congruent with previous research (Paparo, in press). It is worth noting that satisfaction includes musical fulfillment, which is the overwhelming reason for participation as shown in prior research on in-person singing among adults (e.g., Gridley et al., 2010; Kennedy, 2009). Though not the case for everyone, respondents reported a sense of connection to others through their participation; this has also been documented in studies by Paparo (in press) and Fancourt and Steptoe (2019). Virtual participation allowed more than a handful of singers to overcome some common barriers identified by Helms (2015) that can prevent in-person participation, such as geographical isolation, schedule conflicts, personal disability, and audition barriers. This finding also provides support for Fancourt and Steptoe's

assertion that "virtual musical experiences may still have a role to play in supporting those who cannot engage in live experiences such as people who are socially isolated" (p. 1).

Given that the majority of respondents were amateur singers, it is not surprising that watching themselves on video was a new experience that yielded mixed reactions. Armstrong (2012) described her own VC experience as humbling even as an experienced singer. The fact that singers received no feedback from a conductor meant that they had to rely on their own musical and technical skills or, as some did, take the initiative to seek additional assistance. The specificity of self-critiques suggests that they viewed and listened to their recordings in order to analyze their performances and reflect on their strengths and weaknesses. However, there is no guarantee if they did or to what extent they may have done so. The use of video recordings as a means of self-assessment may have been new to singers as it is not usually part of in-person choral singing. Though some respondents offered their assessment of their performance, it is not possible to determine the overall quality of their singing or recordings.

Though several authors have discussed strengths and weaknesses of VC in general, this study serves to document perceptions from those who have participated in Whitacre's VCs firsthand. While both involve singing choral music with the intention of contributing to a conductor-led performance as a choral community, respondents identified important differences that highlight defining aspects of each. In an in-person choir, for example, singers listen to each other to tune, blend, and match expression. They respond to the conductor and their performance is informed by the embodied sensations of the ensemble and environment. In a VC, in contrast, singers listen to a pre-recorded accompaniment track. They respond to a conductor video and must rely on their own musicianship to maintain tempo, tuning, and expression. In an in-person choir, there is a finite number of rehearsals, but usually only one performance (or a small number of performances), whereas in a VC, singers theoretically have unlimited opportunities to record in order to get a performance with which they are satisfied. Prior research revealed that the amount of time spent learning and recording can range considerably based on musical training (Paparo, in press). Singing in an in-person choir is fundamentally a social activity; though it is possible to participate in a choir without interacting socially with others (Jacob et al., 2009). Singing in a VC is fundamentally a solitary activity and requires the individual singer to learn and perform with minimal support. Though they share some common elements, the findings from this study confirm that VC participation is, in fact, very different than in-person choral participation.

Participation in Whitacre's VCs seems to have had no impact on respondents' current choral music participation. VC participation may have had a favorable influence on future VC choral participation for some, while having had no influence on others because of their enthusiasm for choral singing in general. Nonetheless, it is noteworthy that Whitacre was able to attract a considerable number of singers to participate in his VC projects, which confirms Konewko's (2013) assertions about the impact of Whitacre on the choral world. The appeal of Whitacre, his music, and the uniqueness of the VC endeavor were the primary

factors to attract participation (prior to the pandemic) and allowed singers to engage with arguably one of the most popular choral composers of our time (Paparo, in press; Konewko, 2013). Furthermore, the VC experience for those in this study may have reinforced their love and appreciation for in-person choral singing as a unique form of music-making that cannot be replicated in a virtual environment. This should also assuage any concerns about the VC replacing in-person choirs when singing together in-person is again possible (i.e., post-pandemic) or in the more distant future.

Implications and Recommendations

Though the singers' perceptions and the impact of their participation in Whitacre's VC in this study are not generalizable, there are several issues that warrant further consideration. Although the data for this study were collected and analyzed prior to the start of the pandemic, it is worth examining the findings in light of the current reality that many choirs are creating VCs since they are not yet able to sing in person. In this section, I discuss access, assessment, connection, and post-production, and then offer recommendations for choral music educators who may want to incorporate VCs as a part of their curricula.

Regarding access, Armstrong (2012) noted the importance of computer and Internet technology in relation to inclusivity for any virtual project such as a VC. Helms (2015) also pointed out the need for "video and audio recording equipment and the ability to use this equipment in a space appropriate to recording oneself singing" (p. 26). VC participants in prior research used a variety of audio-video devices to which they had access, and when faced with technological difficulties, they sought information and technical assistance from others as well as problem-solved by experimenting (Paparo, in press). Though some participants in this study identified their frustration with recording and the need for better equipment, they presumably navigated these issues successfully in order to submit their recorded performances.

Technology notwithstanding, VCs can overcome certain barriers that limit in-person choral participation. First, because participation is asynchronous, it is possible to transcend time and space constraints of schedule conflicts and geographical isolation associated with in-person rehearsing and performing. Because the final product is a synthesis of recordings that could not be replicated as a live performance, it exemplifies how individuals can interact with music in a postperformance world (Thibeault, 2012). Second, VCs may enable singers with special needs, including physical disabilities as identified in this study, to participate by eliminating the challenges associated with travel or navigating rehearsal and performance spaces. Finally, though participation requires a minimum level of choral experience, VCs without an audition barrier associated with select choirs may provide an opportunity for singers of all levels and abilities.

Regarding assessment, VCs can potentially offer a unique opportunity for self-assessment and personal accountability that is not typically part of in-person choirs. Though

participants in this study did not receive feedback on their submissions, they were able to evaluate and re-record their performances as desired. Previous research has suggested that some singers shared their recordings with others and sought feedback or assistance when necessary (Paparo, in press). It may please choral music educators and voice teachers to know that, as with the participants in the current study, VC participants in prior research reported that they listened critically to musical and technical aspects of their performances (Paparo, in press).

Regarding connection, singers are drawn to in-person choral music participation for social reasons (e.g., Fryling, 2015; Kennedy, 2009). Though it may seem counterintuitive given the limitations of making music alone or in isolation, this study adds to the evidence that the VC can help facilitate real connection among participants. As previously mentioned, VC participation can provide similar emotional and social benefits as in-person singing (Fancourt & Steptoe, 2019), perhaps simply through the intentional act of creating a video knowing that one is part of a larger community of singers. However, with the use of social media, these connections can be more fully realized and strengthened, and have previously led to subsequent virtual and in-person collaboration among participants (Armstrong, 2012; Cayari, 2016; Konewko, 2013). In short, VCs can be a means to create community during times of social isolation, such as the COVID-19 pandemic, and a way to "find togetherness through our online connections" (Armstrong, 2012, p. 125).

Regarding post-production, it is important to recognize that participants may have been musically and artistically satisfied because of the high-quality production value of the final VC performances. Though participants presumably submitted their best possible recordings, singing and recording quality may have varied considerably. This is an important consideration because the overall quality of their singing relative to the conductors' musical vision and the quality of the recording itself ultimately impact the outcome of VC. Participants were aware to some extent that their performances would be altered and mixed for blend and balance as a part of the post-production process, which was beyond their control. The final product was at the creative discretion of Whitacre and his team of professionals.

The issues that emerged from this investigation give rise to a number of recommendations. Though they are perhaps intuitive and may resonate with choral music educators who have ventured into the virtual realm, it is worth pondering how what we have learned (both from this study and our collective experience of teaching during the pandemic) can strength choral music-making opportunities moving forward. These recommendations may help choral music educators in determining how to best incorporate VCs into their curricula both now and in the future.

First, music educators must determine whether students have access to appropriate technology. At a minimum, they should have a computer or other device (e.g., iPad/tablet, smartphone), reliable Internet connection, and an appropriate space to record. In cases where students do not have what they need, music educators should help students seek resources and support from school or other sources. If students are unable to get access,

pursuing a VC may not be the most appropriate option.

Second, music educators may consider creating hybrid experiences that combine both in-person and virtual aspects to include more students, accommodate students with special needs, and extend learning beyond the rehearsal. Virtual rehearsals, for example, may alleviate some conflicts that prevent students from joining choir and provide flexibility during busy times of the year or when rehearsing in person is not possible (such as due to inclement weather). Virtual sectional rehearsals could be an efficient means to introduce new material, reinforce notes and rhythms, or work on particular concepts that pertain to certain singers/sections. It might also be an appropriate opportunity to give beginning singers additional instruction as well as enrichment to more advanced singers. Digital resources such as practice tracks and conductor video, as well as other resources, may provide additional support for those who need it.

Third, music educators may consider the use of recorded performances as part of the learning process for self-assessment, peer assessment and/or conductor assessment. Opportunity for self-assessment that is inherently part of the VC rarely occurs in in-person choir. Far too often singers "fly under the radar" of conductors and rely on stronger leaders in their section. The addition of video recordings with guided prompts may help singers to identify their strengths and weaknesses. The use of individual feedback, though time-consuming, can provide additional guidance and also be helpful for planning future rehearsals.

Fourth, music educators may use digital technology to create dynamic presentations of their performances, such as a music video that could accompany live concerts as well as be shared digitally. This could involve students in creating a musically-appropriate audio-visual presentation and move beyond replication of an already-composed choral work (Cayari, 2016). It could also be structured as an interdisciplinary collaboration with other classes or curricular areas (Galván & Clauhs, 2020). Though potentially time-consuming to create a high-quality product musically and technically, this could add an exciting new dimension to choral music performance for students and audience members.

Fifth, the use of VCs may expand possibilities to create performances that are potentially beyond the scope of the forces or number of singers. One example would be to use digital technology to achieve more complex musical performances, such as 16th-century polychoral works, where a single choir can record performances of multiple parts (Payen, 2015). In a similar vein, music educators may consider using a VC format to create arrangements that showcase the singers in their ensemble. They may invite strong singers to record multiple parts in order to cover sections that have fewer singers.

In closing, it is impossible to know whether VCs will remain as relevant as they currently are out of necessity. Once it is safe to sing together again, it is likely that the pendulum will swing in the other direction and VCs will wan in popularity in favor of in-person choral singing. Nonetheless, it is my hope that this research, which examined perceptions of online music participation in the early 21st century, will help spur new directions for integrating performance and postperformance worlds to help create and sustain rich choral experiences for as many and as long as possible.

Appendix 1. Survey

Time: Completion of the survey should take 15-20 minutes.

Purpose: To examine perceptions of participation in Eric Whitacre's virtual choirs

Definitions:

In-person choir–consists of singers who meet regularly in a physical location to rehearse and perform together.

Virtual choir–consists of singers in different geographic locations who participate by submitting recordings of their singing in a virtual space online.

Professionals–those who make their livings either in part or entirely for singing (e.g., paid performers).

Professionals-in-training–those who are currently training with the intention of pursuing a career in music (e.g., college music majors).

Amateurs–non-paid music participants (e.g., community chorus members).

Part I: Demographic information

I am: (1) 18-22; (2) 23-29; (3) 30-39; (4) 40-49; (5) 50-59; (6) 60-69; (7) 70+ years old.

I identify as: (1) female; (2) male; (3) non-binary; (4) transgender; (5) other

I live in: (select country from dropdown menu)

I am a(n): (1) amateur; (2) professional-in-training; (3) professional

I am a(n): (1) soprano; (2) mezzo; (3) alto; (4) tenor; (5) baritone; (6) bass

I have participated in the following virtual choirs (check all that apply):
(1) VC 1: 'Lux Aurumque'; (2) VC 2: 'Sleep'; (3) VC 3: 'Water Night'; (4) VC 4: 'Fly to Paradise'; (5) Deep Field

Part 2: Virtual choir experience and perceptions

What did you gain from your virtual choir participation?

Describe what you learned about your voice and yourself as a performer during your recording experience?

Are you currently participating in an IN-PERSON choir? (1) Yes; (2) No

How is participating in an in-person choir SIMILAR to participating in a virtual choir?

How is participating in an in-person choir DIFFERENT than participating in a virtual choir?

As a result of participating in a virtual choir:

> I am likely to participate in future VIRTUAL choirs.
> (1) Strongly Disagree, (2) Disagree, (3) Neither, (4) Agree, (5) Strongly Agree
>
> I am likely to participate in future IN-PERSON choirs.
> (1) Strongly Disagree, (2) Disagree, (3) Neither, (4) Agree, (5) Strongly Agree

How has singing in a virtual choir influenced your CURRENT participation in choral music?

How has singing in a virtual choir influenced your FUTURE participation in choral music?

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