COVID and the Choral Educator: Preparedness, Perceptions, Attitudes, and a Way Forward

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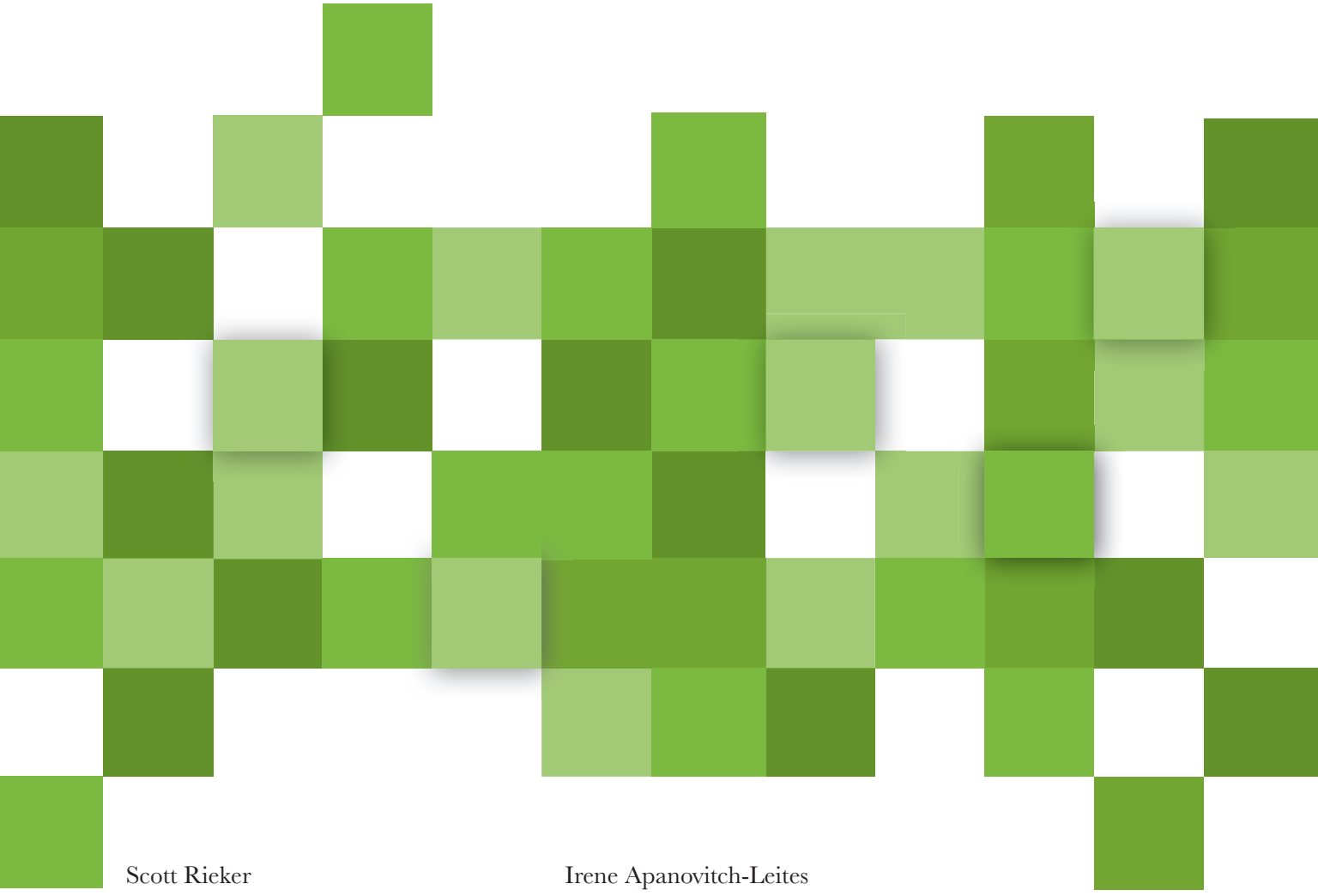

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Until recently, integrating technology into choral education has been—at best—supplemental to day-to-day instruction. Due to the outbreak of the SARS-CoV-2 pandemic in the spring semester of 2020, however, choral education had to move from its traditional, in-person modality, to a form of information and communication technology (ICT)-enabled distance learning. To fully understand the impact of moving from in-person to online instruction in a choral setting, we must consider teachers' feelings of preparedness before the pandemic, the adaptations teachers made during the pandemic, and any shifts in perceptions and attitude regarding their experience. Using the Technological Pedagogical Content Knowledge (TPCK, later TPACK) framework for professional development as a theoretical lens, this mixed-methods study aimed to answer the following research questions:

(1) Given the sudden shift to online learning in the spring semester of 2020, to what extent do choral music educators feel their past training has prepared them for teaching in a post-COVID-19 environment?

(2) In the online or blended instructional environment of COVID-19-impacted education, what skills, abilities, and resources did choral educators employ, and how were these acquired?

(3) How did the experience of instruction during COVID-19 shift the perceptions and attitudes of choral music educators?

(4) What conclusions can be drawn from the data about the professional development needed for choral music educators in online or blended instructional environments?

The purpose of this study was to provide a snapshot of choral educators' attitudes and perceptions at this moment in history, reveal the extent to which music educators feel their current training can serve them in a post-COVID teaching environment, and inform future professional development and teacher training programs on what is needed to prepare educators to adapt, should another pandemic occur.

Existing research on the intersection of technology and music education is already fairly extensive. Consequently, for this study, we limited our review of literature to three main topics: the roles technology plays and could play in choral music education, the impact of digital literacy—of both students and teachers—on effective implementation of technology, and on avenues to professional development that are authentic and effective for choral music educators. Obviously, inquiry into any sort of technology is fast-moving, and we hope our study will be a meaningful contribution. A list of the resources we drew upon is provided at the conclusion of the article.

STUDY OVERVIEW

To better understand the impact of moving from in-person to online instruction in a choral setting, our study sought to explore teachers' feelings of preparedness before the pandemic, the adaptations teachers made during the pandemic, and any shifts in perceptions and attitude regarding their experience through the use of a robust and wide-ranging survey. The first section of the survey explored choral educator perceptions of preparedness in thirty different technological areas, both before the pandemic and on the day participants completed the survey, by asking them to rate the amount of training they had on each item on a scale from 1–5, where

1 indicated "No Training At All" and 5 indicated "All the Training I Needed." Respondents were then asked to classify whether the majority of training for each item was formal or informal. For this study, formal training was considered training that a person received as part of their schooling or employment, and informal training was training that they sought out themselves, delivered in a non-traditional manner. The second section of the survey contained twenty-seven questions gauging choral educators' attitudes and perceptions on a variety of topics related to online education, and that section concluded with respondents being asked to select from a list the two or three items they felt were the biggest challenges to online choral instruction. The third section consisted of two open-ended questions, asking what skills/abilities/etc. they wished that they had gained for online teaching during the COVID-19 pandemic, and for whatever other information they thought we should know. Data derived from this section constituted the qualitative component of our mixed-methods study. The final section consisted of demographics.

We recruited via announcements in music-, choral-, and higher-ed-centric Facebook groups to which we belong, as well as announcements on our personal Facebook pages and personal emails, to create a hybrid convenience and snowball sample.[1] We analyzed the survey data using a combination of descriptive processes and statistical tests to determine trends and the statistical significance of findings.[2] These results are discussed in-depth below.

FINDINGS

In this study, 432 people began the survey, and 115 people completed it, for a 27% completion rate. The final sample was primarily female (77%), white (82%), predominantly working in suburban settings (43%), and employed at only one job (74%) in the realm of K-12 education (71%). It is important to acknowledge that this sample represents a very narrow population of choral educators. Open-ended comments made by survey respondents suggest that educators who work in schools with traditionally underserved demographic profiles faced even greater challenges. However, there were not enough respondents from these demographics to deliver findings that were statistically significant (Table 1).

Changes in Preparedness

To investigate teachers' feelings of preparedness before and during the pandemic, participants were asked to rate the training they had received on thirty technologies and applications used for teaching choir online, and to indicate what type of training they have received in each: Formal, Informal, or No Training. Table 2 summarizes our findings, illustrating substantial changes in teachers' feelings of preparedness since the pandemic.

Interestingly, in this particular subset of data, adaptation of lessons for an online environment was a task that teachers rated as one that they are least prepared to do. Our qualitative data supported this finding, with teachers frequently commenting on a need for "step-by-step" instruction on how lead a rehearsal online. While teachers felt less prepared to adapt their lessons, they felt more comfortable adjusting learning objectives. As mentioned above, since investigating how educators acquired these skills was central to our inquiry, we created composite scores for each training category, which can be seen in Table 3 on page 50. The data illustrated that teachers' formal training increasing by a marginal 1.4% since the pandemic started. This supports our hypothesis that teachers were less likely to receive necessary formal training during the already taxing experience of transitioning to online learning. Meanwhile, teachers' informal training increased by 8.4%, indicating that teachers were proactively searching online to find solutions to the difficulties they encountered. One study participant shared:

> "I have completed over 200 hours of training videos, webinars, online slide share/PowerPoint presentations."

Many others stated that they have spent hours on YouTube and Google, learning how to create multi-track editing and virtual choir videos. Not surprisingly, as teachers sought out more informal training, the numbers in the No Training category decreased by 11.3%. This suggests that all of the study participants engaged in either formal or informal training to some extent. When

Table 1. Employment Categories

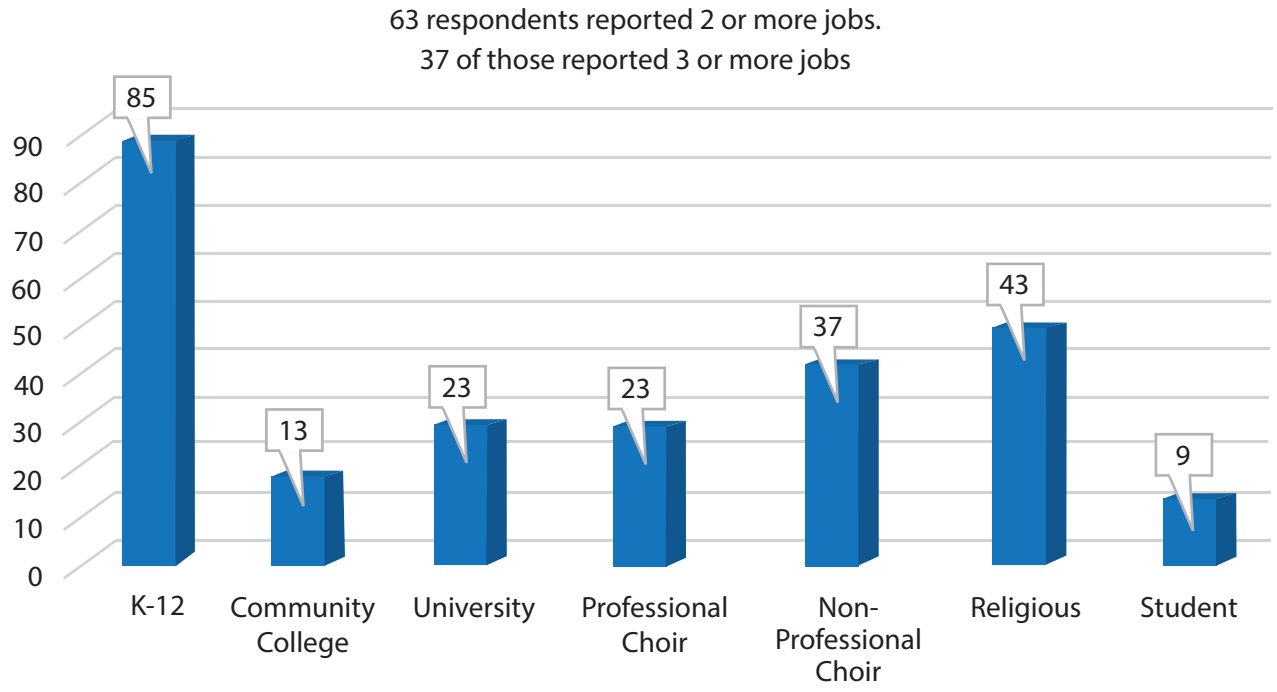
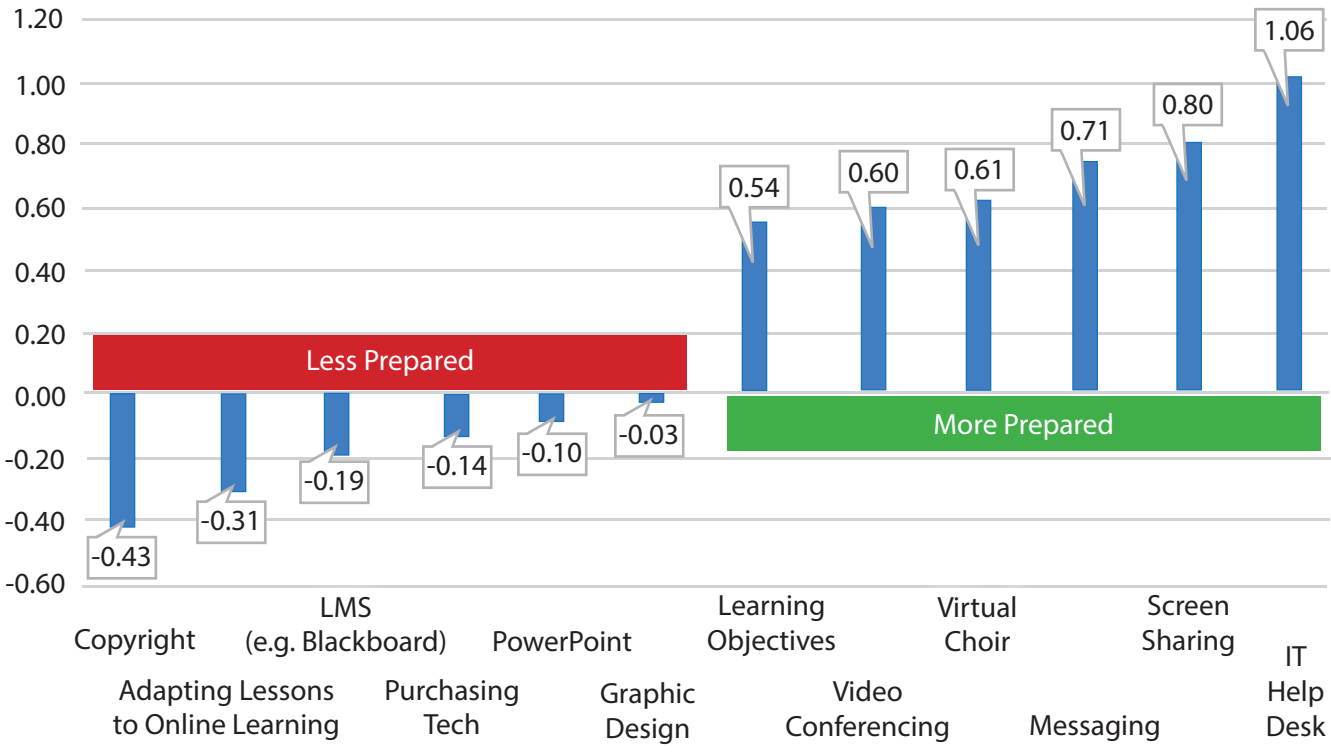


Table 2. Changes in Teacher Preparedness since COVID-19



asked about their perceptions of preparedness, teachers' responses illustrated the lack of formal training and the predominance of informal training, as shown in Table 4 (page 50) and Table 5 (page 51).

Biggest Challenges

In order to better understand teachers' perceptions of their online teaching experience, we asked them to select what they thought were the biggest challenges with online instruction (see Table 6 on page 51). Unlike previous sections, this portion of the survey addressed the societal and environmental factors that affected online teaching. Teachers ranked lack of community, latency (the "lag" between when a person on one end creates a sound and the person on the other end hears and responds), and technological "haves" and "have nots" as the top three challenges in switching to online choral education. These three challenges account for more than half of people's overall perceptions of the biggest challenges. And, when Student Preparation and Faculty Training are added, these concerns constituted over three quarters of the perceived biggest challenges (see Table 7 on page 51).

Attitudes and Perceptions of Online Teaching

As an additional line of inquiry, we wanted to find out how the experience of instruction during COVID-19 shifted our study participants' perceptions and attitudes toward online choral education. Within our investigation into perceptions, we considered two avenues: teachers' perceptions of their students, and teachers' perceptions of their own experience and abilities in an online environment.

Teachers' Perception of Students

Teachers believed that their students had a negative

Table 3. Type of Training

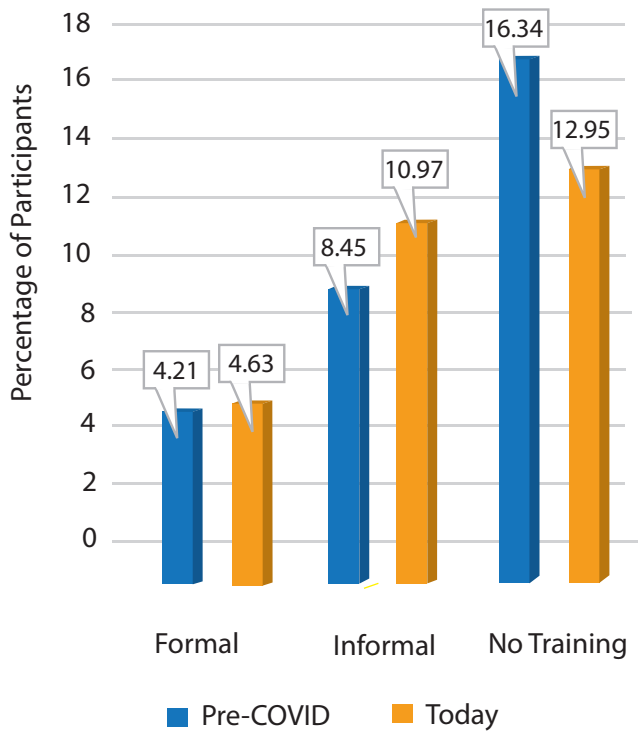


Table 4. Percentage of Respondents Who Believe Their Formal Education Has Prepared Them to Teach Choir Online

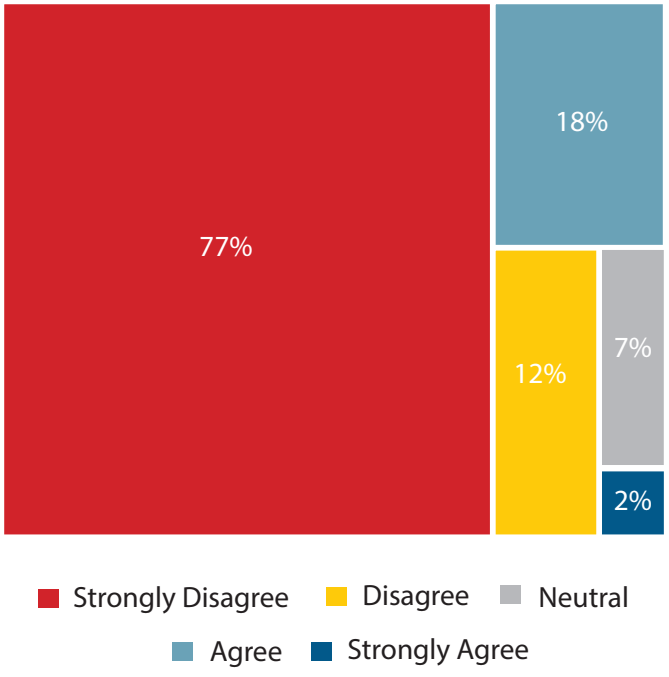


Table 5. Percentage of Respondents Who Believe They Have Learned Most of What They Know About Teaching Choir Online from Informal Sources (e.g., internet)

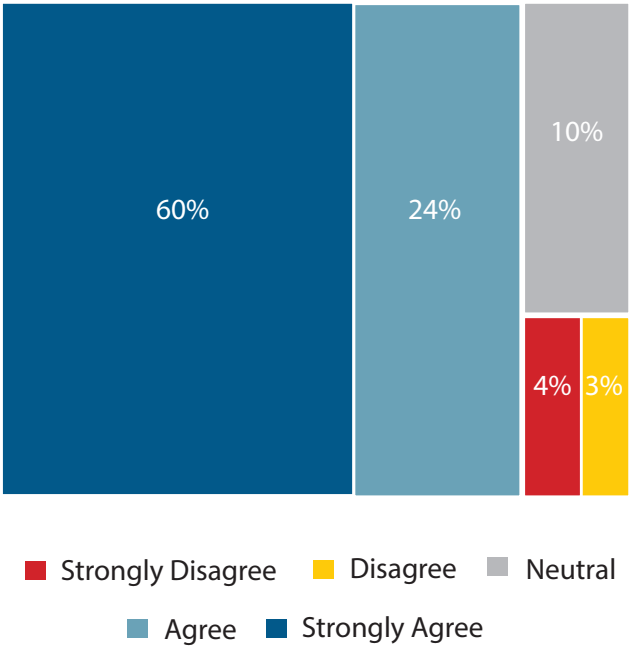


Table 7. Biggest Challenges to Online Choral Instruction

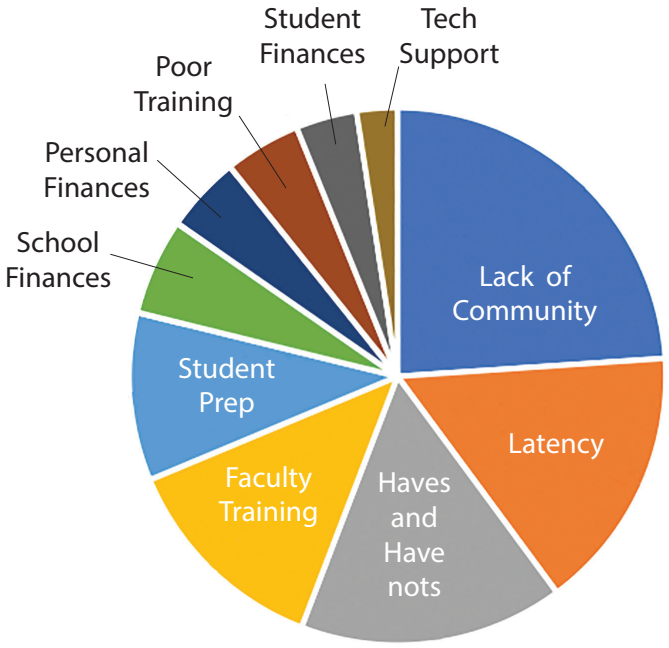
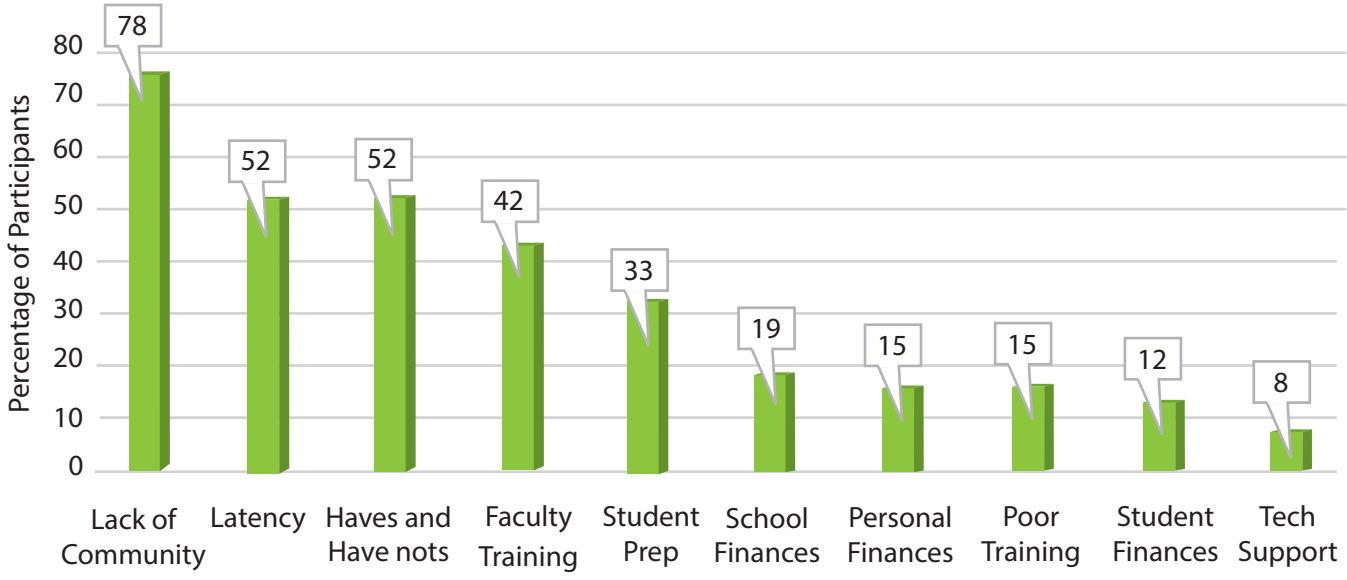


Table 6. Biggest Challenges to Online Choral Instruction



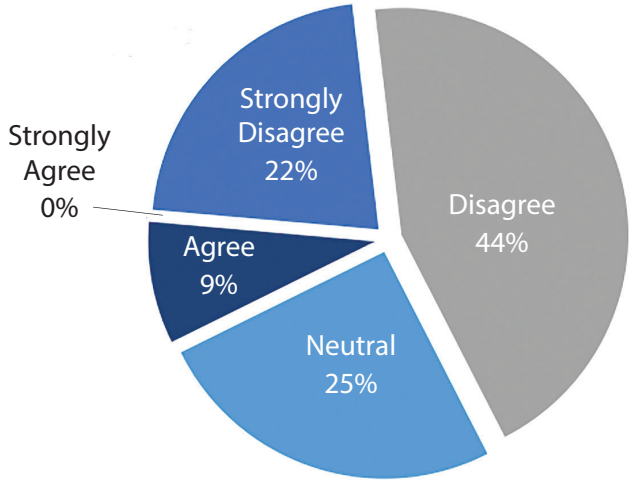
experience (3.62 on a 1–5 scale) with online learning during the pandemic and were unsuccessful transitioning to online learning (see Table 8). While reflecting on conducting a virtual choir with students, one teacher shared:

> "I find that whole virtual choir experience to be extremely unsatisfactory. My choristers are not getting a proper session, and I am not getting the feedback from my choir that lets me know how well the session is going. I would rather not do virtual sessions."

Students who were not able to switch to online learning were 'left behind' in the learning process. One educator's remarks reflected the views of many:

> "My biggest challenge was the number of students who never enrolled in eLearning in order to participate. Approximately 20-30% of my students never participated in any of the eLearning opportunities for choir."

Table 8. Percentage of Respondents Who Believed Their Students Were Highly Successful in the Transition to Online Learning



Teachers' Perceptions of Themselves

Similar to their perceptions of their students, teachers did not feel that they themselves were effective in the online environment (see Table 9). One key factor in predicting a teacher's perception of success teaching online was their confidence in using technology. We used the IBM SPSS software to perform a linear regression statistical test to understand the effect of confidence using technology on effectiveness teaching online. We found that teachers' sense of confidence with using technology had a direct link to their perceptions of themselves as effective instructors online (see Table 10 on page 53).[3]

We also wanted to uncover whether teachers felt connected to a support network of colleagues during the pandemic. In our inquiry, we used an ANOVA statistical test to determine if a respondent's employment category was correlated to their connection to a support network of colleagues.[4] Our analysis revealed a statistically significant difference for feeling connected to a support network of colleagues between different employment categories.[5] Interestingly, those employed in the Full Time, One Job category were the least likely to be able to access a support network of other colleagues (see Table 11 on page 53). This lack of connectedness would seem to have

Table 9. Percentage of Respondents Who Believed They Teach as Effectively Online as in Person

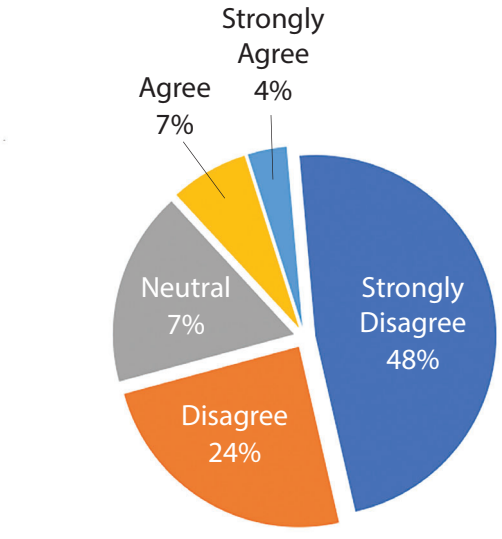


Table 10. Online Effectiveness and Confidence with Technology

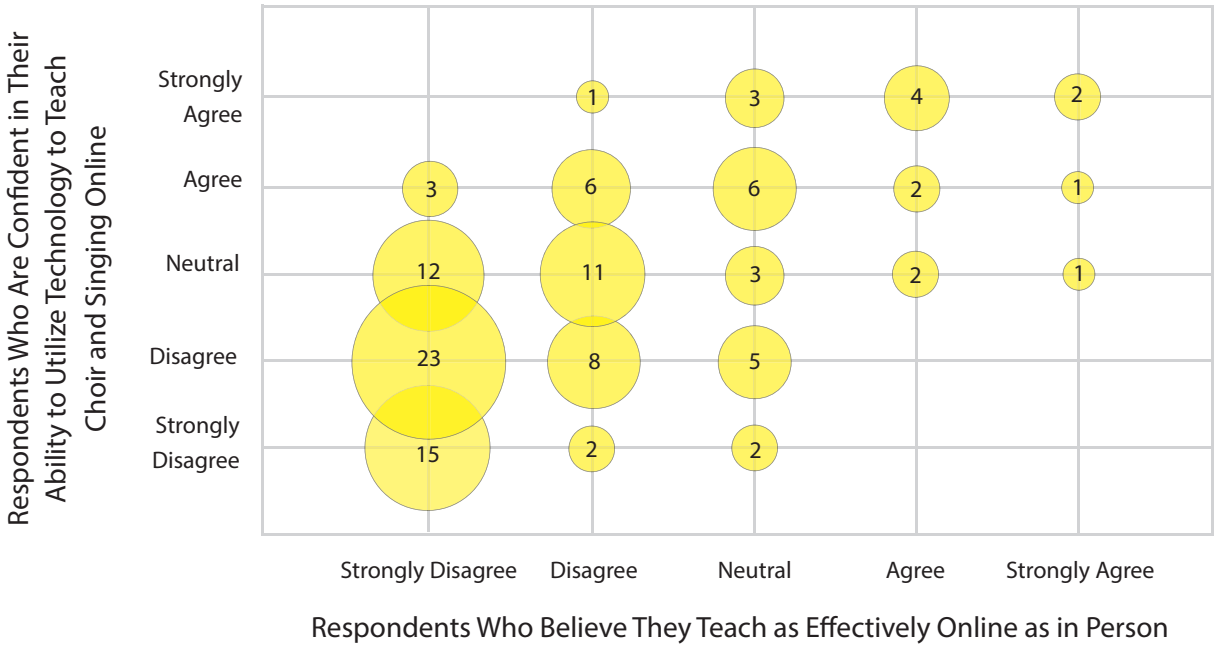
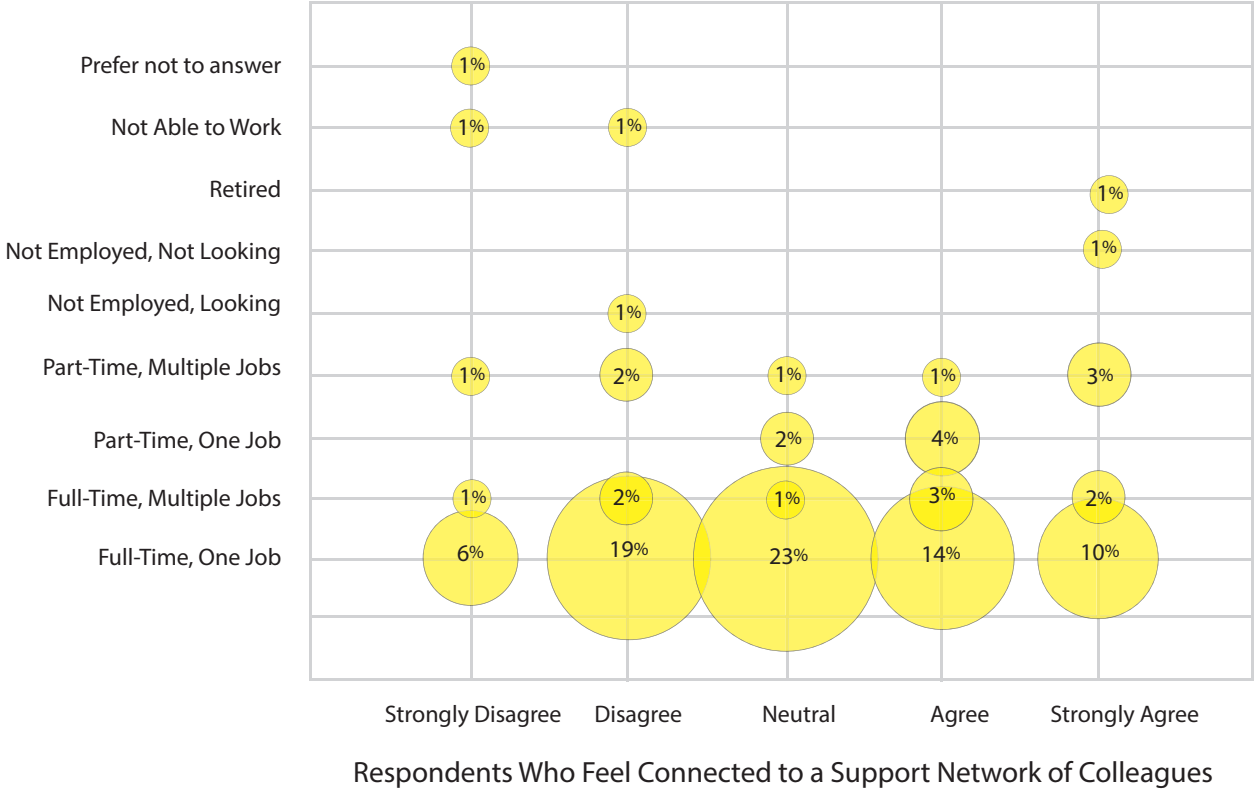


Table 11. Employment and Support Network



the potential for serious reduction in teacher effectiveness as online and hybrid instruction continues.

DISCUSSION

It seems to us like we are in the middle of an inflection point in choral music education. When we look back upon this moment, it will be important to have a record of what choral educators were thinking and feeling during this time, which we have provided above. When we look ahead from the midst of this pandemic, it is equally as important to suggest paths forward, so that all of this experience can be transformed into constructive activity. Hopefully by the time of printing, the promise we see today of widespread vaccination curbing COVID-19 will be coming to fruition. Nevertheless, experts believe that the reality of pandemic is unavoidable, and we consider our findings as applicable today as to any future pandemic.

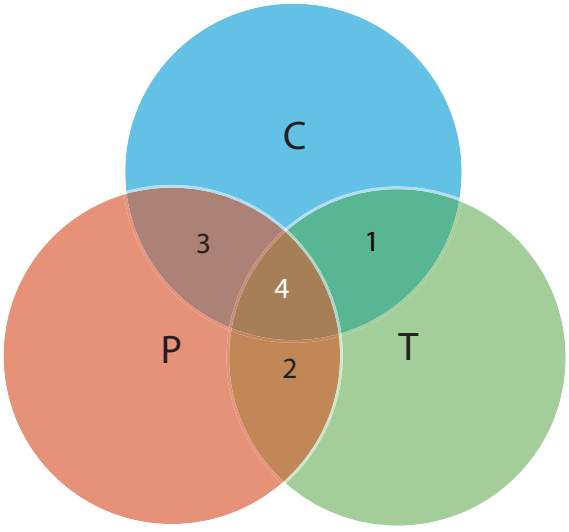
Professional Development

One of the overwhelming themes that our participants reported was feeling unprepared for the shift to online choral education. We believe that one crucial way to address this is to provide quality professional development that supplies choral educators with what they need for them and their students to be successful. The TPACK model (Technology, Pedagogy, And Content Knowledge) proposed by Mishra and Koehler, among others, provides an effective lens to guide our discussion.

First, it is important to understand that TPACK focuses on the creation of individualized knowledge and understandings at the intersection of technological, pedagogical, and content knowledge (see Table 12). In this way, training in technology is authentically situated within the content and pedagogy of a given discipline, rather than being an "add-on." For this study, we assumed that working choral directors already possess the content knowledge required to do their job and would not need much professional development in this arena. However, our data shows that teachers perceive that they are somewhat unready to engage in online pedagogy. When we asked teachers how prepared they were for online pedagogy today, the average score was 2.06 on a 1–5 scale, though this perception was slightly higher (8%) than their self-perception before COVID-19, which was at 1.67. Similarly, teachers perceive themselves as somewhat unready to employ the technology necessary to engage in online choral music education. When we asked about their readiness surrounding technology, teachers averaged 2.09 on a 1–5 scale, which is only a 4% increase from their perception before the pandemic (1.91). Both of these findings indicate that the professional development choral music educators need will focus on concepts of online music education pedagogy and the implementation of technology in music education.

Regarding TPACK's consideration of "pedagogy," our data found that choral educators have profound concerns about the legitimacy of online choral education, and a self-perception that they are ineffective at adapting lessons for online teaching and creating learning objectives that are appropriate for an online learning modality. We believe that professional development must help

Table 12. The TPACK Model[6]



1. Technological Content Knowledge
2. Technological Pedagogical Knowledge
3. Pedagogical Content Knowledge
4. TPACK

teachers adapt lessons and learning objectives to online learning, and that it must do so by helping choral educators explore options for effective technology-enabled choral education. These could range from building a greater understanding of the benefits of asynchronous vs. synchronous teaching to the implementation of technologies that support online music-making.

With regard to professional development in the "technology" arena, we sought to uncover what choral educators were already doing well and what they were struggling with. Our data bears out prior research that music teachers primarily use technology for administrative tasks and largely do not use music-specific technology. However, our data also showed some increase in choral educators using other kinds of technology, such as Zoom, to teach music. Professional development that focuses on non-music-specific technologies, like Zoom, PowerPoint, or a learning management system (e.g. Canvas or Blackboard), should be offered to those educators who indicate a need for greater skills in these areas, but—in general—these seem to be strengths our community already possesses to some degree.

We believe that our data indicates that professional development should focus on using music-specific technologies in online music education, particularly selecting appropriate technology for a given learning objective. Other music-specific training could focus on skills such as learning audio mixing programs, creating resources for asynchronous learning, and understanding copyright issues online. Of particular concern among choral educators was the impact of latency on the online choral education experience. Prior research has shown that real-time online music-making is currently virtually impossible without substantial investments in specific technologies, and—even then—the results are less than satisfying. However, programs like Jamulus (http://llcon.sourceforge.net) show promise in addressing the issue of latency. Professional development in the authentic deployment of technology that minimizes latency for teachers and students should be priority.

Digital Literacy

The other pillar of implementing technology is digital literacy, which encompasses every aspect of effectively communicating, creating meaning and knowledge, understanding complex systems of graphics, videos, speech, gesture, text, and sound, and then combining these understandings in the multifaceted contexts of a well-rounded education. Our data showed that choral educators do not feel that their students are digitally literate (2.80 on a 1–5 scale) and are concerned about their own digital literacy. For teachers, a key distinction to make in professional development lies between teaching choir online (e.g. rehearsing) and some sort of public product (e.g. virtual choir). This strikes at that fundamental conundrum: how important is the performance in the overall picture of choral education. We will not enter this fracas, but rather share the results of our research.

Choral educators do not feel digitally literate, either in terms of teaching choir online or producing a public product. They feel that they are lacking the understanding of ways to authentically use technology in choral education, and they express real reservations about the role virtual choirs are playing and will play in the future. One study participant shared:

> "I firmly believe that the greatest strengths, positives, musical and learning outcomes of choral music education cannot (yet) be met by available technologies. I think many people are settling for 'positive outcomes,' which are not truly central to the authentic ensemble experience. Furthermore, the positive social and spiritual outcomes of choral singing are negated by current forms of online instruction."

This sentiment was reflected in several open responses, with the common theme being:

> "There is no effective way to teach and rehearse choral music through technology."

The majority of choral educators felt that virtual choirs were unavoidable in the future (3.31 on a 1–5 scale) but expressed a stunning lack of training on how to create

them (1.58 on a 1–5 scale), as this was something that many were being asked to do. We feel that these data indicate that professional development needs to focus on both teaching choir online and on putting together a virtual choir or other type of "performance."

Equity

Digital literacy for students, combined with concepts of student engagement and the issue of technological "haves" and "have nots" were of major concern for the participants in our study, and these concerns lie at the intersection of TPACK's consideration of technology and pedagogy. Professional development to help teachers train their students to be more digitally literate is of great importance. Professional development to help teachers keep their students engaged online is also of great importance. While these definitely resonate in terms of pedagogy, we believe that there is an underlying, more fundamental, issue of equity here.

Latency, student engagement, and digital literacy all trace back in some way to the simple fact that some students' families are sufficiently affluent to provide high-speed internet, times and spaces conducive to online learning, and the time and resources for their students to gain digital literacy, and some are not. No amount of a teacher's professional development can provide a household where a student is not afraid to sing for fear of waking up a parent who works nights, or of being mocked by family or neighbors. One educator wrote that their students' "singing online was hampered by technology and [their] environments; some did not feel comfortable singing in their situations with their families nearby." Several responders indicated that they are seeking "strategies to engage students who lack the confidence in to sing alone at home," and that they would benefit from "knowing what would be practical and yet useful [strategies] for students who are at greatly varying abilities and access to online instruction."

Working with younger, less experienced singers presented an additional layer of complexity. As one participant wrote:

> "Most of my middle school students were too scared to submit a recording of themselves for the virtual choir. Many of those who did had major pitch issues. They were not able to sing along with just an accompaniment track. This surprised me. They developmentally need the support of the group singing."

Professional development must focus on ways teachers can make allowances for equity issues in ways that do not further disadvantage those who lack the fundamental supports needed for effective online learning, especially with younger and less-trained singers. It must help choral educators address students' confidence and environmental factors in constructive ways. And it must support a pedagogy that creates a sense of community and belonging for everyone involved.

Creating a Sense of Community

Educators identified "lack of a sense of community and in-person connection" as the "number one" challenge to online instruction during the pandemic. Analysis of qualitative data revealed that learning to foster a sense of community in online teaching was very important to educators. As one participant shared:

> "I'm trying to be positive about COVID by learning as much as I can about various applications. The process is slow, but I've learned that the most important thing for my ensemble is maintaining the sense of community, and I've succeeded in doing that—thank goodness. When the time for us to sing in the same room happens, we'll be ready to learn how to sing again, because we will have grown closer together through the pandemic."

Another participant expressed that:

> "Yes, singing is important, but it is also about the relationships and connections that we were able to continue with our students in this environment. These students were going through many different homelife situations on any given day, and our class was the ONLY good

> thing they had to look forward to. We laughed together and cried together. We were there for each other when they were feeling alone."

In theory, effective use of technology can yield the platform for communities to emerge. Yet as prior research has shown, it is empathy and the ability to retain human-ness that is needed in any environment—online or in-person.

Advocacy

Perhaps controversially, we believe that there is an advocacy component to legitimate professional development growing out of the COVID-19 pandemic. Our data indicates that choral music educators felt largely connected to a support network of colleagues, but qualitative data suggests that they did not perceive this same level of support from administrators. Three themes emerged from the analysis of qualitative data: restrictions on what can be taught, lack of financial support, and shortage of subject-specific professional development. Participants employed in the K-12 system indicated that they were limited in the type of technologies that they were permitted to use, or restricted to district-approved resources only. One participant shared:

> "I already had an educational technology endorsement completed well before this virus occurred, so I was very confident in my abilities to work online. I had already incorporated many things into my previous classes and had written an online course for a district. This new district [I had recently joined] had such restrictions on what we could do and use it was defeating for everyone, even students."

Teachers experienced additional layers of restriction when districts mandated that students attend to tested curricular areas, or "core subjects," before fine arts classes. This often meant that choral educators were instructed to give very little work to their students in order to accommodate the added workload students experienced with their other, "core" classes online. One participant shared:

> "In my district, a lot of arts educators were told to do less, and that we did not matter. I was one of those teachers, and I am still struggling with how I feel about it all."

Coupled with feelings of futility and discouragement, educators expressed anxiety surrounding the topic of financial support from their district. At the time when educators switched to online teaching, many had to pay out of pocket for technology that was required to do their job. Although several companies offered free services during the peak of the pandemic, one educator noted:

> "I utilized [a] free trial on my own, but when the 90-day trial is over, I don't know if our county will pay for this resource. It was vital to me, so [I] may have to pay out of pocket to continue."

The issue of financial support emerged in rural settings, where educators expressed additional anxiety due to having a smaller budget. Upgrading technology that one currently owns at home added to the financial burden and the overall confusion of who pays for the expense.

Finally, choral educators noted that while their districts have offered professional development training in technology applications, it is not subject-specific and thus does not benefit them as much as it could. Currently, choral educators must seek out subject-specific training, resulting in the spike in informal training during COVID-19 that emerged in our quantitative analysis. For professional development to be successful, during the training process, teachers need to first see experts modeling and then be involved with the technology in a learner-centered, interactive way. This yields a specific approach to addressing subject-specific professional development for choral educators, and the results of this research can demonstrate to administrators that subject-specific professional development is essential.

Autonomy

Prior research has highlighted the importance of risk-taking and a certain playfulness in effective learning, as well as the crucial requirement of educator autonomy in selecting professional development that is relevant

to their situation. Empowering choral educators to take risks as they explore the professional development that they perceive they need will lead to new, individualized knowledge that can be more powerful than a standardized, top-down model. We believe that our data supports this. Participants in our study spent enormous amounts of their own personal time seeking out informal training to accomplish the transition to online music education as well as possible. For many, this was required by administrators, though it was also required to be done outside of school time (i.e. unpaid), and often required in spite of the fact that much or most of the administrators' focus was on tested curricular areas rather than music. To the degree that choral educators were largely successful, we believe that this legitimizes informal training. We advocate for a formal model that has sufficient breadth to allow individual teachers to seek out their own informal training and receive due credit. We also believe that our data demonstrates that informal training is legitimate professional development, and that teachers must be compensated appropriately.

Conclusion

The COVID-19 pandemic highlighted complex, and often painful, issues in many facets of society. We sought to capture how choral educators were perceiving the pandemic and choral education during this time. We also hope to provide pathways for progress as choral education adapts to the ever-changing reality of pandemic. Consequently, we discovered a complex ecosystem of perceptions and attitudes among the participants in our study. Teachers perceive themselves as unprepared in terms of online music education pedagogy and implementing technology to teach music online, yet they also feel that the experience of teaching during the pandemic has value, and that they are part of a supportive network of colleagues. Teachers perceive themselves as much less effective teaching online than in person, yet they are steadily gaining confidence in their abilities. Teachers perceive that their students are not digitally literate, did not transition to online learning well, and have an unfavorable opinion of online learning. Yet, teachers believe that teaching choir online is far superior than not teaching choir at all. Teachers are being asked to do an extraordinary amount of learning and adapting, yet they are also willing to spend tremendous amounts of their own, unpaid time to benefit their students. Teachers were essentially unprepared by their formal training (both their own education and training they might have received through their employer), yet they successfully employed informal training at an astounding rate.

All of these factors lead us to conclude that professional development must focus on pedagogy, technology, and equity. It must legitimize informal avenues of training and have educator autonomy as its bedrock principle. It must focus on music-specific pedagogy and music-specific technology with opportunities to remediate skills of a non-musical nature. And, teachers must be compensated fairly for their time.

Just as with anything related to the choral classroom, this research cannot be applied as a "one-size-fits-all" approach to best practice amidst the COVID-19 pandemic. Our study addressed many areas of potential concern for choral educators, and individual educators are encouraged to borrow the findings that apply in their situation. Teachers searching for strategies could consider connecting with colleagues through Zoom, advocating for subject-specific professional development, seeking out relevant information from professional organizations, and more. By recognizing the importance of this moment, seeking to understand choral educators' perceptions and attitudes, and implementing these suggestions as fully as possible, choral music education could well be on a sustainable path into a post-COVID-19 reality. CJ

RELATED RESOURCES

Irene Apanovitch-Leites, "Through Their Song: A Case Study in Social Perspective Taking with a Community College Choir," (DMA diss., University of Southern California, 2019)

William Bauer, "Gender Differences and the Computer Self-Efficacy of Pre-Service Music Teachers," *Journal of Technology in Music Learning* 2, no. 1 (2003): 9–15

William Bauer, "Music Educators and the Internet," *Contributions to Music Education* 26 (1999): 51–63

William Bauer, Sam Reese, and Peter McAllister, "Transforming Music Teaching via Technology: The Role of Professional Development," *Journal of Research in Music Education* 51, no. 4 (2003): 289–301

Richard Dammers, "Utilizing Internet-Based Videoconferencing for Instrumental Music Lessons" *Update: Applications of Research in Music Education* 28, no. 1 (2009): 17–24

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NOTES

[1] Snowball sampling recruits survey participants through current participants inviting their friends and acquaintances, so that the sample grows like a rolling snowball.

[2] As a refresher, results of a given question that achieve statistical significance are mathematically unlikely to be due to random chance, and therefore could be more generalizable.

[3] We found that confidence using technology statistically significantly predicted perceived effectiveness teaching online, $F(1, 105) = 27.24$, $p < .0005$, which accounted for 45.4% of the variation in online effectiveness with adjusted $R2 = 19.8\%$, a medium size effect according to Cohen (1988).

[4] Our findings indicated that the feeling of being able to connect to a support network of colleagues increased from the Full Time, One Job ($n = 79$, 3.0 ± 1.2), to Full Time, Multiple Jobs ($n = 9$, 3.3 ± 1.4), to Part Time, Multiple Jobs ($n = 8$, 3.4 ± 1.6) to Part Time, One Job ($n = 6$, 3.7 ± 0.5) employment categories, in that order. We omitted categories of Not Employed, Looking; Not Employed, Not Looking; Retired; Not Able To Work; and Prefer Not To Answer; as the sample sizes were too small.

[5] $F(8, 100) = 2.210$, $p = .033$.

[6] Punya Mishra and Matthew Koehler, "Technological Pedagogical Content Knowledge: A Framework for Integrating Technology in Teacher Knowledge" *Teachers College Record* 108, no. 6 (2006), 1025.