Singing in an Odd Time: Choir Members' Perspectives on Virtual Choir Experience and Live Choir Experience

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Abstract
The lockdown due to COVID-19 pandemic created big challenge to choir rehearsal and performance worldwide. Virtual choir has then emerged as a new global phenomenon where technology is used to reunite the choir members virtually during the lockdown. While virtual choirs had almost become the new standard for choir rehearsals and performances, it remained unknown if virtual choirs can provide an equal effective learning experience to the choir members. This study aimed to gauge the choir members' overall experiences on both virtual rehearsal and performance, this study also aimed to find out the members' self-reflection and satisfaction when redefining effectiveness in choir rehearsals as well as comparing the differences in terms of virtual experience reception between the universities' choirs and the community choirs in Malaysia. A total of 112 participants in Malaysia were recruited through purposive sampling method where 83 (74.1%) were from the universities' choirs and 29 (25.9%) participants came from the community choirs. Data were collected through online questionnaires on Google Form. Results demonstrated that choir members from both university choirs and community choirs faced similar challenges on virtual choir rehearsal and performances, whilst the community choir members are more tolerant and receptive of the virtual choir forms compared to the universities' choir members.
Keywords: COVID-19 Pandemic, Online Learning, Virtual Choir, Community Choir, University Choir

Introduction
The lockdown due to COVID-19 pandemic had prevented choir singers around the world from singing and performing as usual in the normal days. However, this did not decline the chorus members' passion to continue singing. Virtual choir was once a "new" global phenomenon which bonded all chorus members again during the lock through technology.

Through virtual choir rehearsals, choir members were usually encouraged to record and upload their singing videos into making a video collage as an alternative form of choir performance. Even though virtual choir had almost become a new normal to choir rehearsal,

however it is remained unknown if the virtual choir can further substitute a live choir, or the two forms of rehearsal formats can co-exist in the future.

Daffern and Brereton (2021) compared previous experiences of virtual and live choir which then identified themes of the participants' experiences that include participation practicalities incorporating reactions to virtual model logistics; choir continuity which reflects the sense of responsibility for keeping choir activities going under certain manner; the relevance of in-person choirs to many people's feeling of wellbeing has been highlighted by lockdown; social aspects that indicate a sense of belonging and social identity; musical elements in which the importance of musical expertise varied as virtual models became more prevalent and co-creation through singing with a strong sense of loss of the physical experience of singing together in real-time, which is now unavailable through virtual choir models. The authors also reported limitations that were imposed by current virtual choir models which cannot provide the shared experience of singing together with important of in-person group singing for perceived wellbeing, with the connectedness and social capital formed in the process of singing together being central to the benefit of the entire experience.

Fancourt and Steptoe (2019) suggested that although a sense of social presence in a choir is not reduced by engagement in virtual choirs compared to live choirs, there is a lowered use of emotion regulation strategies when engaging in virtual choirs. The authors reported 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. Similarly, other challenges and impact of virtual rehearsals and performances reported by choir members included perceived loss in the social aspect of singing where professional singers reported that they miss the aesthetic experiences, flow, physical training more compared to amateurs (Theorell et al., 2020).

Nonetheless, choir practices are still ongoing during the pandemic where different virtual choir models are being used such as multi-track, live streamed, live tele-conferencing which yielded different results (Daffern et al., 2021). Alternatively, Datta (2020) observed that the process of producing 'virtual choir' content is labor-intensive and heavily mediated by unfamiliar technologies. Ironically, these serve at every stage to emphasize how far from live music-making virtual performances are. The resources and expertise required to produce such content prevents most church-based and amateur choirs from moving forward, as a result, discovering that local research done is extremely limited to investigate the current experiences and feedback of choir members for both music department choirs in university and colleges and studies have yet to confirm if the two forms of rehearsal formats are feasible and if both can coexist in the future.

Research Objectives
The objectives of this study are
1. to gauge participants' virtual choir experiences from overall rehearsals and performances' aspects during the pandemic.
2. to find out if there is a significant difference between virtual choir experience and the live choir experience.
3. to find out if there is significant difference in both virtual and live choir experience comparing the university choirs and community choirs.

Research Questions
The research questions of this study are as follows:
1. What are participants' virtual choir experiences for overall rehearsal and performances' aspects during this pandemic?
2. Is there a significant difference between virtual choir experience and live choir experience in terms of virtual choir rehearsal and live choir rehearsal, as well as virtual choir performance and live choir performance?
3. Is there a significant difference in terms of perceptions to virtual choir experience and live choir experience between university choir and community choir?

Methodology
Design and Sample Characteristics
This exploratory study primarily utilized inferential quantitative approach. Purposive sampling method was determined by relying on our own judgement when choosing member of the population to participate in this study (Tongco, 2007) which eventually consisted of 112 choir members aged 18 and above from both university department and community choirs.

In this context, university choirs are defined as choir as a subject taken by music department's students during their professional study of music, or it is also known as music department choirs, whilst community choirs are defined as the non-professional choirs where the members were recruited from the general community including individuals with and without musical training background where the members usually join the choir group for exposure and interests.

Participants' virtual choir experiences and live choir experiences were gauged. In this study, virtual choir experiences referred to both virtual choir rehearsal (VCR) and virtual choir performance (VCP); whereas live choir experiences referred to both live choir rehearsal (LCR) and virtual choir performance (LCP). Live choir experiences were also noted as face-to-face choir experiences or in-person choir experiences (Daffern et al., 2021).

Inclusion and Exclusion Criteria
This study was conducted during the lockdown period in Malaysia, to be able to gauge both virtual and live choir experience, choir members who were eligible to participate in this study must be those who have pre-lockdown live choir rehearsal and performance experience, who maintained a virtual choir rehearsal and performance activity during the lockdown, where the virtual performance is defined as virtual video making experience in this context. Participants were aged 18 and above, including those from music department choir from university or college and community choirs.

As the data of this study was gained during the lockdown period, participants were invited to give a retrospective view on their live choir experience, hence, choir members who did not have any prior pre-lockdown live choir rehearsal and performance experience were excluded from this study.

Research Instrument
The Google Form Questionnaire was utilized for this study, the questionnaire consists of three main sections, whereby the first section of this form was to gather the participants'

demographic information, including gender, age, music background, the type of choir where they belonged, and their general experiences on virtual choir rehearsal and performance.

The second section of the form was to gather the participants' experiences on both virtual choir rehearsal (VCR) and live choir rehearsal (LCR), where open ended questions were asked to identify their opinion and in-depth experiences on challenges faced as well as how they tried overcoming those challenges. There are also 8 ranking-questions in this section regarding the participants' level of agreement to the virtual choir rehearsal and live choir rehearsal, participants were asked to rank the listed questions by responding how agreed they are to the statements about virtual choir and live choir to them. The responses were noted in a 6-point Likert-scale, with 1=strongly disagree, 2= disagree, 3=slightly disagree, 4=slightly agree, 5=agree and 6=strongly agree.

The third section of this questionnaire was to gather the participants' experiences on both virtual choir performance (VCP) and live choir performance (LCP), whereby VCP is defined as video making experience in this context as a form of substituted choir performance. In this section, the participants were also being asked to elaborate on their opinion and experience including challenges they faced on both virtual and live choir performance, as well as how they cope with the challenges. The participants were then requested to fill another 9 ranking-questions in this section regarding the participants' level of agreement to the virtual choir rehearsal and live choir performance. The responses were noted in the same 6-point Likert-scale.

Research Procedure

Participants were first accessed for eligibility, followed by inquiring informal consent to participate in this study and subsequently followed by the distribution of the Questionnaire Google Form link while waiting for completion survey. Three different types of data analysis were conducted along with the data gathered, including the demographic and background analysis, statistical analysis, and inductive thematic analysis for open-ended questions.
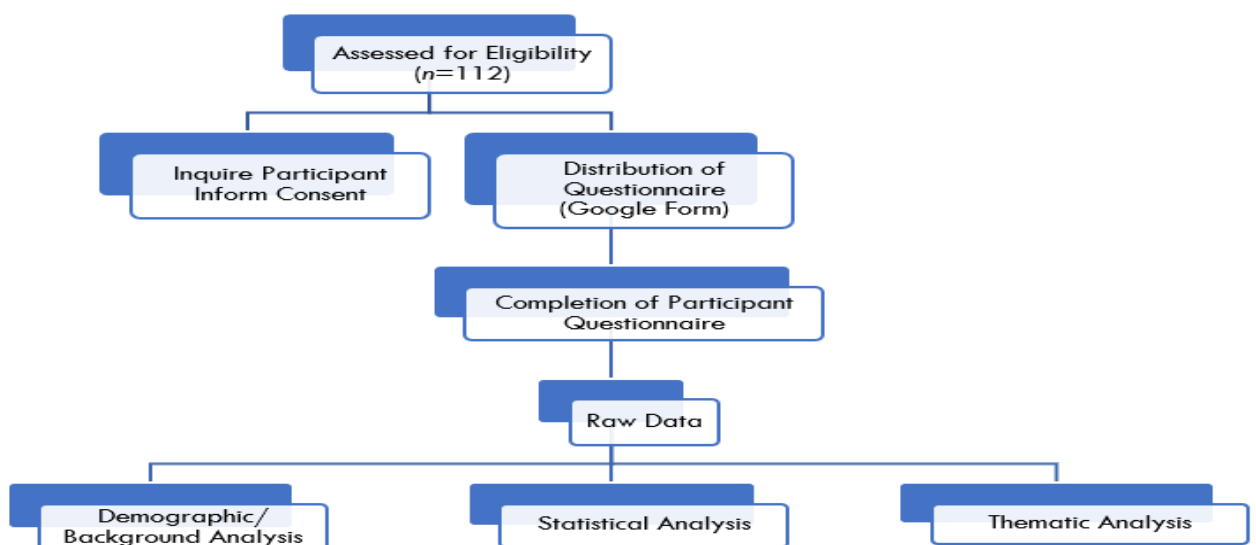

Figure 1. The research framework and procedure of which data is obtained and analyzed.

Data Analysis Methods

Statistical analysis was performed in IBM SPSS Statistics 26.0 while descriptive statistics of data were gathered including frequencies, percentage, means, standard deviation, median, minimum and maximum values. The Shapiro-Wilk normality test was used to determine whether the data showed normal distribution. Since the data did not show normal distribution, the Mann-Whitney U test was used for independent group comparisons and the Wilcoxon signed-rank test was used for the two dependent groups comparison. The statistical significance level was accepted as $p < .05$. Open ended questions were then being analyzed with an inductive approach where thematic analysis was conducted through examination of text to recognize recurring patterns which will be refined into themes (Braun et al., 2017; Thomas, 2006)

Participants

Table 1 shows the basic demographic details of the participants. There was a total of 112 participants who took part in this study, with 42 males (37.5%) and 70 females (62.5%). As this study looks at universities' choirs and community choirs' perceptions, the age range of the participants weighted heavily in the range of 18-29 years old, with 87 (77.7%) participants aged within this age range, followed by 11 persons (9.8%) in the age range of 30-39 years old, 6 persons (5.4%) in the age range of 40-49 years old, 7 persons (6.2%) in the age range of 50-59 years old, and 1 person (0.9%) in the age group of 60-69 years old.

77 participants (68.8%) who took part in this study received music training from university music department, 15 (13.4%) participants were self-taught or learn music without taking music examinations, and 13 (11.5%) participants learn music elsewhere however taking the graded music examination, and 7 (6.3%) participants had no musical background apart from singing in a choir. Among these participants, 83 (74.1%) were the choir members from the universities' choirs, and 29 (25.9%) were coming from the community choirs.

Table 1
Participants' demographic data

Variable	Category	n	%	x̄	Med	SD	Max	Min	Range
Gender	Male	42	37.5						
	Female	70	62.5	56	56	.486	70	42	28
Age Range	18-29	87	77.7						
	30-39	11	9.8						
	40-49	6	5.4						
	50-59	7	6.2						
	60-69	1	0.9	22.4	7	10.320	87	1	86
Musical Background	Trained under University Music Department	77	68.8						
	Self-taught or learning music without taking examination	15	13.4						
	Taking graded examination (beginner grade to diploma)	13	11.5						
	No music training at all	7	6.3	28	14	.946	77	7	70
Types of Choirs	Music department choir (University/College)	83	74.1						
	Non-music department choir (Community)	29	25.9	56	56	.440	83	29	54

Results and Findings
Demographic and Background Analysis
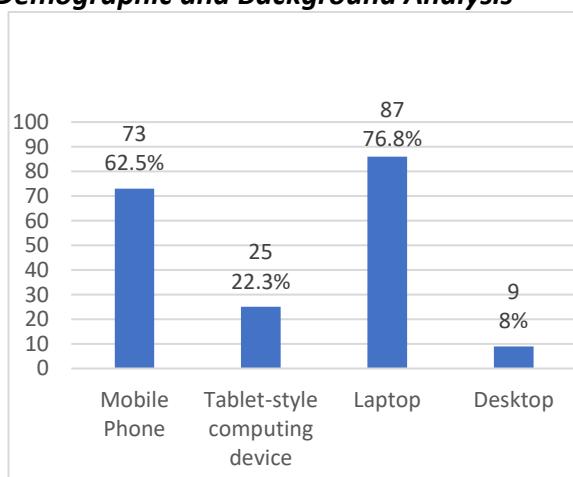
Figure 2. Types of gadgets used during VCR
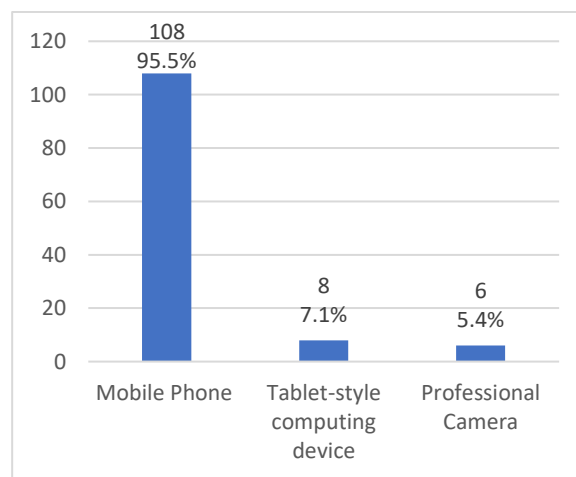
Figure 3. Types of gadgets used during VCP

Figure 2 to Figure 11 showed the descriptive statistics of self-reported experiences of choir rehearsal and performance. Based on Figure 2, it showed that majority of the participants used laptop for VCR (N=87, 76.8%), followed with 73 (65.2%) who used mobile phone, 25 (22.3%) used tablet-style computing device, and 9 (8%) used desktop. As participants were allowed to give more than 1 response, the total number that showed in Figure 2 did not reflect the total number of participants. This results indicated participants used more than 1 gadget during a VCR session. On the other hand, Figure 3 showed that majority of the participants

used mobile handphone for VCP (N=108, 95.5%), followed with 8 (7.1%) who used tablet-style computing device, 6 (5.4%) used professional camera during a virtual performance session.

Figure 4. Self-perceived challenges during VCR

Figure 4 reported self-perceived challenges during VCR. Majority (N=63, 56.3%) of the participants felt they faced challenges during VCR session, while 40 (35.7%) felt they face challenges sometimes, and 9 (8%) felt that there were no challenges.
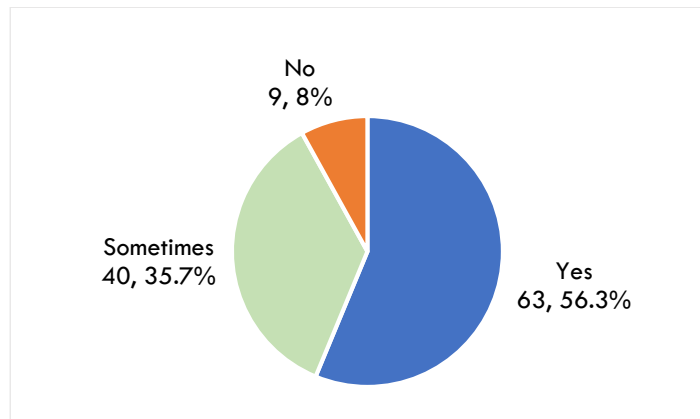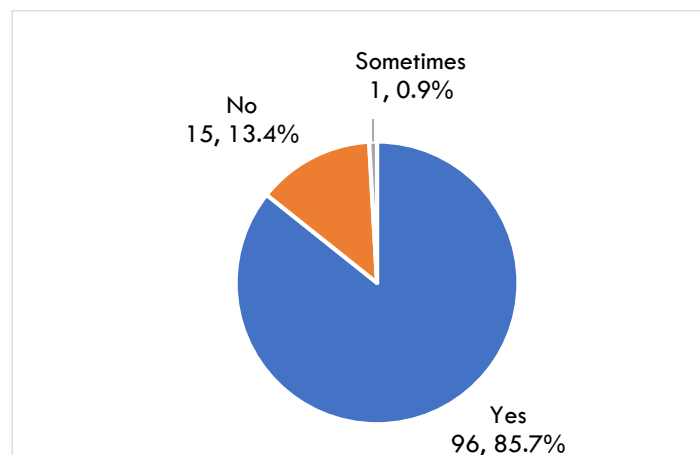

Figure 5. Self-perceived challenges during VCP

Figure 5 reported self-perceived challenges during VCP. Majority (N=96, 85.7%) of the participants felt they faced challenges during VCP session, while 1 (0.9%) felt the challenges emerged sometimes, and 15 (13.4%) felt that there were no challenges during a virtual performance session.
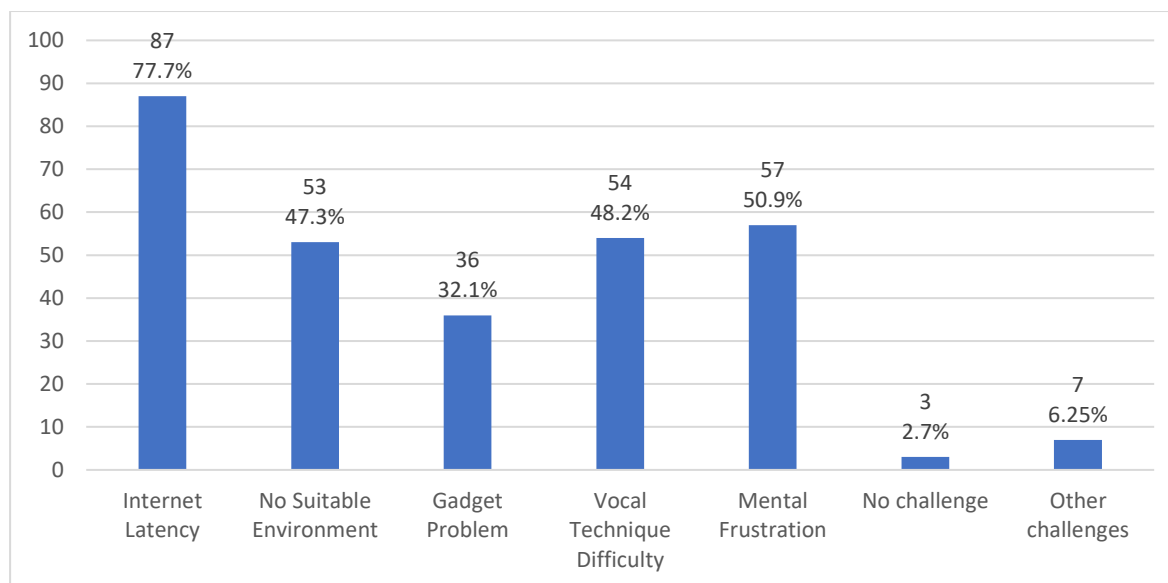
Figure 6. Self-perceived types of VCR challenges

Figure 6 reported self-perceived types of challenges during VCR where the participants are allowed to choose more than two responses. Majority (N=87, 77.7%) of the participants reported internet latency, 57 (50.9%) expressed mental frustration, 54 (48.2%) mentioned about facing vocal techniques difficulty during VCR, 53 (47.3%) expressed that not having a suitable environment for VCR was a challenge, 36 (32.1%) shared that gadget problems were a challenge. However, there were also 3 (2.7%) reported no challenge at all, whilst 7 (6.25%) reported other types of challenges.
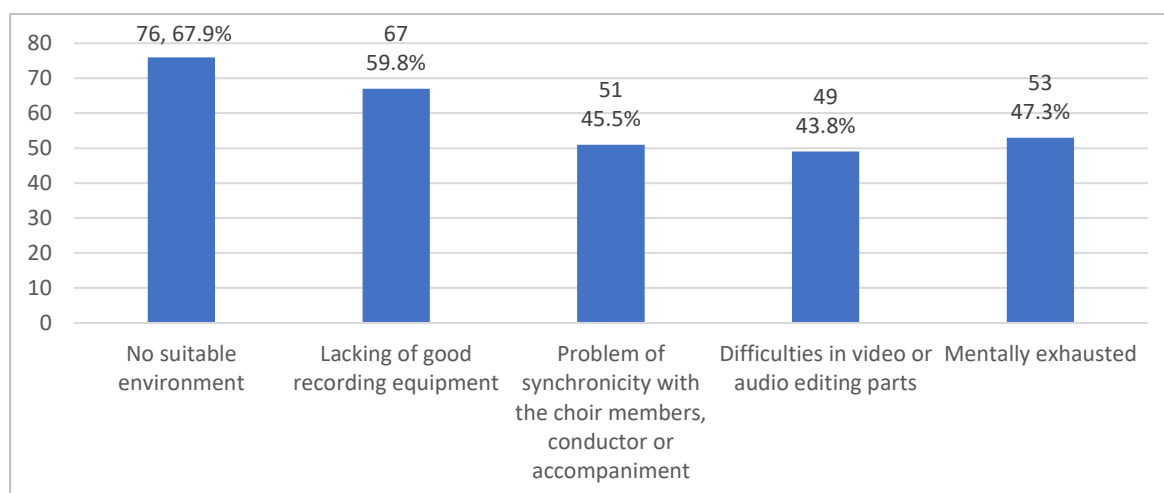
Figure 7. Self-perceived types of VCP challenges

It is necessary to further identify the types of challenges during a VCP session, and if the self-reported challenges of VCP are like those of VCR. Figure 7 reported self-perceived types of challenges during VCP. Majority (N=76, 67.9%) of the participants reported the lack of suitable environment, followed by 67 (59.8%) that reported lack of good recording equipment, 53 (47.3%) reported mental exhaustion, 51 (45.5%) reported problem of synchronicity with the choir members, conductor, or accompaniment, and 49 (43.8%) reported difficulties in video editing parts.
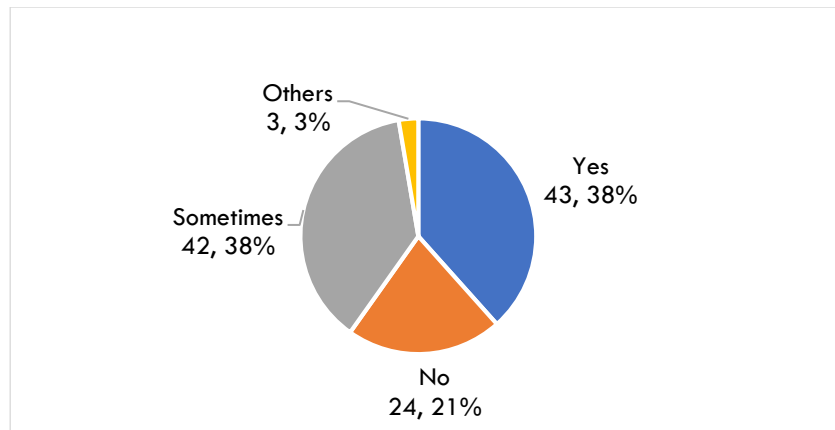
Figure 8. Participants' willingness and initiatives to try to resolve the challenges

Figure 8 reported the participants' initiatives to try to resolve the reported challenges. 43 (38%) of the participants reported that they tried to seek help, 42(38%) reported that they sometimes seek help, 24 (21%) reported that they did not try to seek help, whereas 3 (3%) reported not necessary or not needed.
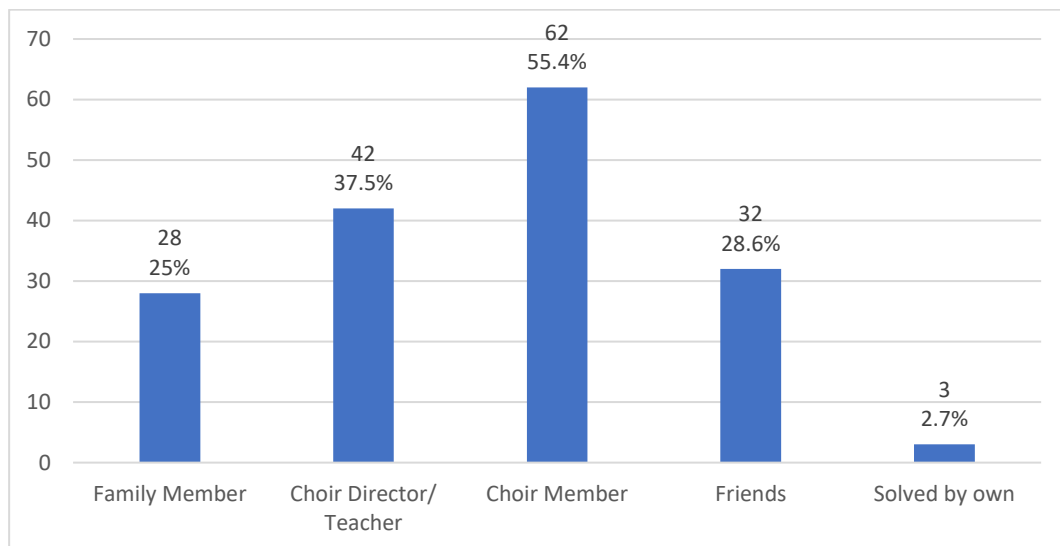
Figure 9. Problem-solving mechanism

Figure 9 reported the participants' own problem-solving mechanism when challenges emerged. It is shown that choir members usually go to their peers for problem-solving where there were 62 (55.4%) mentions on this, followed by 42 (37.5%) mentions that they went to the choir director or teachers to help them with their problems, 32 (28.6%) went to friends, 28 (25%) seek help from family member, and 3 (2.7%) tried to solve the problems by themselves.
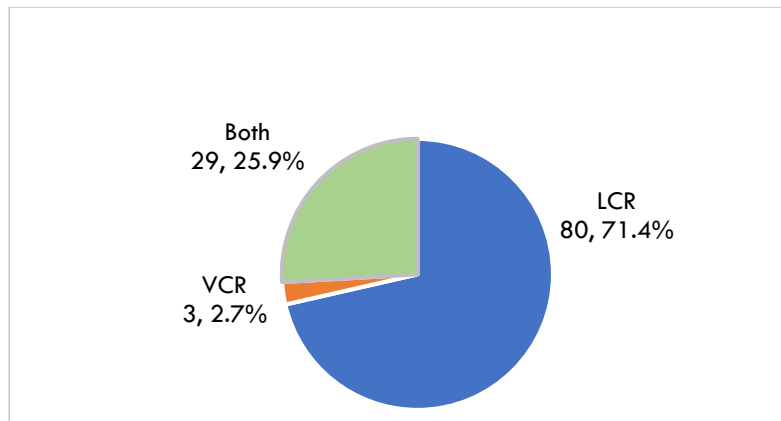
Figure 10. Self-reported preference of future choir rehearsal

Figure 10 showed the self-reported preference of the participants for future choir rehearsal. It is shown that 80 (71.4%) preferred live choir rehearsal, 3 (2.7%) preferred virtual choir rehearsal, and 29 (25.9%) thought both choir rehearsal can coexist.
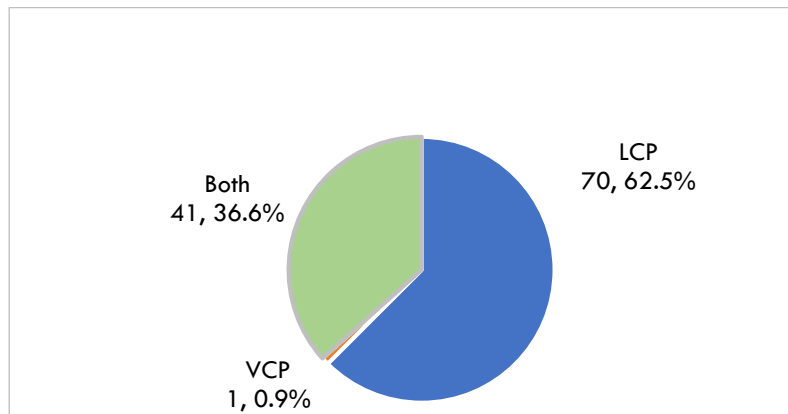
Figure 11. Self-reported preference of future choir performance

Figure 11 showed the self-reported preference of the participants for future choir performance. It is shown that 70 (62.5%) preferred live choir performance, 1 (0.9%) preferred virtual choir performance, and 41 (36.6%) preferred both types of performance.

Statistical Analysis
Table 2 reports the descriptive statistics on the level of agreement to the statements related to virtual choir rehearsal (VCR) and live choir rehearsal (LCR), whereas Table 3 reports the descriptive statistics on the level of agreement to the statements related to virtual choir performance (VCP) and live choir performance (LCP).

Table 2
Descriptive statistics of the level of agreement to VCR and LCR

Variables		N (%)					
		strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
Effectiveness in learning the choir vocal techniques	VCR	-	9(8%)	20(17.9%)	29(25.9%)	37(33%)	17(15.2%)
	LCR	-	-	-	14(12.5%)	31(27.7%)	67(59.8%)
Effectiveness in receiving the information about the choir songs	VCR	2(1.8%)	5(4.5%)	16(14.3%)	30(26.8%)	33(29.5%)	26(23.1%)
	LCR	-	-	3(2.7%)	13(11.6%)	35(31.2%)	61(54.5%)
Feeling fun and enjoyable	VCR	8(7.1%)	15(13.4%)	26(23.2%)	34(30.4%)	18(16.1%)	11(9.8%)
	LCR	-	-	3(2.7%)	11(9.8%)	33(29.5%)	65(58%)
Providing everyone the opportunity to participate.	VCR	4(3.6%)	13(11.6%)	18(16.1%)	25(22.3%)	27(24.1%)	25(22.3%)
	LCR	-	1(0.9%)	9(8%)	13(11.6%)	40(35.7%)	49(43.8%)
Improving individual's focus and learning progress.	VCR	8(7.1%)	16(14.3%)	22(19.6%)	36(32.1%)	19(17%)	11(9.8%)
	LCR	-	2(1.8%)	5(4.5%)	21(18.8%)	39(34.7%)	45(40.2%)
Instil self-improvement through self-evaluation.	VCR	8(7.1%)	10(9%)	13(11.6%)	35(31.2%)	31(27.7%)	15(13.4%)
	LCR	2(1.8%)	2(1.8%)	9(8%)	28(25%)	32(28.6%)	39(34.8%)
Chances to show one's personality	VCR	8(7.1%)	16(14.3%)	18(16.1%)	38(33.9%)	15(13.4%)	17(15.2%)
	LCR	11(0.9%)	2(1.8%)	5(4.5%)	18(16.1%)	39(34.8%)	47(41.9%)
Easy access of rehearsal participation	VCR	3(2.7%)	9(8%)	21(18.7%)	30(26.8%)	22(19.6%)	27(24.1%)
	LCR	-	7(6.3%)	3(2.7%)	30(26.8%)	37(33%)	35(31.2%)

Table 3
Descriptive statistics of the level of agreement to VCP and LCP

Variables		N (%)					
		strongly disagree	disagree	slightly disagree	slightly agree	agree	strongly agree
Feeling fun and enjoyable	VCP	6(5.4%)	16(14.3%)	25(22.3%)	34(30.4%)	21(18.8%)	10(8.8%)
	LCP	-	2(1.7%)	6(5.4%)	9(8%)	35(31.3%)	60(53.6%)
Preparation for the performance is interesting	VCP	10(8.9%)	17(15.2%)	28(25%)	29(25.9%)	20(17.9%)	8(7.1%)
	LCP	-	-	5(4.5%)	12(10.7%)	31(27.7%)	64(57.1%)
	VCP	6(5.4%)	18(16.1%)	19(16.9%)	28(25%)	25(22.3%)	16(14.3%)

Greater individual confidence	LCP	-	3(2.7%)	9(8%)	13(11.6%)	38(33.9%)	49(43.8%)
Improved self-esteem	VCP	5(4.5%)	17(15.1%)	18(16.1%)	34(30.4%)	25(22.3%)	13(11.6%)
	LCP	-	2(1.7%)	3(2.7%)	21(18.8%)	33(29.5%)	53(47.3%)
Help combat feelings of social isolation	VCP	13(11.6%)	24(21.5%)	22(19.6%)	24(21.4%)	22(19.6%)	7(6.3%)
	LCP	-	-	5(4.5%)	18(16.1%)	25(22.3%)	64(57.1%)
Promote a sense of connection to others	VCP	16(14.3%)	16(14.3%)	26(23.1%)	35(31.3%)	12(10.7%)	7(6.3%)
	LCP	-	-	4(3.6%)	12(10.7%)	27(24.1%)	69(61.6%)
An escape from emotional pressure	VCP	13(11.6%)	17(15.1%)	18(16.1%)	31(27.7%)	21(18.8%)	12(10.7%)
	LCP	1(0.8%)	3(2.7%)	6(5.4%)	27(24.1%)	34(30.4%)	41(36.6%)
Added more values to one's musical experience	VCP	6(5.4%)	12(10.7%)	22(19.6%)	33(29.5%)	17(15.2%)	22(19.6%)
	LCP	-	1(0.9%)	3(2.7%)	15(13.5%)	29(25.9%)	64(57.1%)
The preparation to the performance is simple	VCP	20(17.9%)	26(23.1%)	20(17.9%)	19(17%)	18(16.1%)	9(8%)
	LCP	7(6.3%)	10(8.9%)	16(14.3%)	30(26.8%)	27(24.1%)	22(19.6%)

While higher level of agreement was seen in the descriptive data in both LCR and LCP, statistical test was conducted to confirm whether there is a significant different between the virtual choir experience and the live choir experience. As these are ordinal data, Wilcoxon Signed-Rank Test was conducted to compare the difference of VCR and LCR as well as the differences of VCP and LCP in each group (university choir and community choir); whilst Mann-Whitney U Test was conducted to compare the differences between the two groups university choirs and community choirs on their level of agreement of virtual choir experience and live choir experience.

Table 4

Test Statistics of Wilcoxon Signed-Rank Test comparing University Choir Members' Level of Agreement on the statements related to Virtual Choir Experiences and Live Choir Experiences

	Effectiveness in learning the choir vocal techniques (F) - Effectiveness in learning the choir vocal techniques (V)	Effectiveness in receiving the information about the choir songs (F) - Effectiveness in receiving the information about the choir songs (V)	Feeling fun and enjoyable (F) - Feeling fun and enjoyable (V)	Providing everyone the opportunity to participate (F) - Providing everyone the opportunity to participate (V)	Improving individual's focus and learning progress (F) - Improving individual's focus and learning progress (V)	Instill self-improvement through self-evaluation (F) - Instill self-improvement through self-evaluation (V)	Chances to show one's personality (F) - Chances to show one's personality (V)	Easy access of rehearsal participation (F) - Easy access of rehearsal participation (V)
Z	-7.813[b]	-6.080[b]	-6.954[b]	-5.832[b]	-6.929[b]	-4.855[b]	-6.655[b]	-4.242[b]
Asymp. Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Feeling fun and enjoyable (LIVE) - Feeling fun and enjoyable (V)	Preparation for the performance is interesting (LIVE) - Preparation for the performance is interesting (V)	Greater individual confidence (LIVE) - Greater individual confidence (V)	Improved self-esteem (LIVE) - Improved self-esteem (V)	Help combat feelings of social isolation (LIVE) - Help combat feelings of social isolation (V)	Promote a sense of connection to others (LIVE) - Promote a sense of connection to others (V)	An escape from emotional pressure (LIVE) - An escape from emotional pressure (V)	Added more values to one's musical experience (LIVE) - Added more values to one's musical experience (V)	The preparation to the performance is simple (LIVE) - The preparation to the performance is simple (V)
-6.889[b]	-7.270[b]	-6.097[b]	-6.455[b]	-7.068[b]	-7.468[b]	-6.223[b]	-6.571[b]	-4.640[b]
.000	.000	.000	.000	.000	.000	.000	.000	.000

Table 4 reported the test statistics of Wilcoxon Signed-Rank Test when comparing University Choir Members' level of agreement on the statements related to virtual choir experiences and live choir experiences in a total of 17 items.

Wilcoxon signed-rank test showed statistically significant difference in the university choir members' perspectives on all the items, signifying live choir rehearsal is significantly more agreed by the university choir members as the more effective way to learn choir vocal techniques, and to learn about choir songs' information; it is also more agreed by the university choir members to feel fun and enjoyable in live choir rehearsal, that it provides everyone opportunity to participate, improves individual's focus and learning progress, instil self-improvement through self-evaluation, gives chances to show one's personality; the university choir members also think live choir rehearsals is easier to gain access to rehearsal participation.

Wilcoxon signed-rank test results also showed statistically significant differences in the university choir members' perspectives on live choir performance, that they feel a live choir performance is more fun and enjoyable, also live performance is more interesting an easier in its preparation, where the members feel greater individual confidence, greater improved self-esteem, and live concert can help combat feelings of social isolation, promote sense of

connection to others, help them escape from emotional pressure, and give additional values to one's musical experience.

Table 5
Test Statistics of Wilcoxon Signed-Rank Test comparing Community Choir Members' Level of Agreement on the statements related to Virtual Choir Experiences and Live Choir Experiences

	Effectiveness in learning the choir vocal techniques (F) - Effectiveness in learning the choir vocal techniques (V)	Effectiveness in receiving the information about the choir songs (F) - Effectiveness in receiving the information about the choir songs (V)	Feeling fun and enjoyable (F) - Feeling fun and enjoyable (V)	Providing everyone the opportunity to participate (F) - Providing everyone the opportunity to participate (V)	Improving individual's focus and learning progress (F) - Improving individual's focus and learning progress (V)	Instill self-improvement through self-evaluation (F) - Instill self-improvement through self-evaluation (V)	Chances to show one's personality (F) - Chances to show one's personality (V)	Easy access of rehearsal participation (F) - Easy access of rehearsal participation (V)
Z	-4.224[b]	-2.145[b]	-4.053[b]	-.513[c]	-1.866[b]	-.127[b]	-.810[b]	-2.185[c]
Asymp. Sig. (2-tailed)	.000	.032	.000	.608	.062	.899	.418	.029

a. Wilcoxon Signed Ranks Test
b. Based on negative ranks.
c. Based on positive ranks.

	Feeling fun and enjoyable (LIVE) - Feeling fun and enjoyable (V)	Preparation for the performance is interesting (LIVE) - Preparation for the performance is interesting (V)	Greater individual confidence (LIVE) - Greater individual confidence (V)	Improved self-esteem (LIVE) - Improved self-esteem (V)	Help combat feelings of social isolation (LIVE) - Help combat feelings of social isolation (V)	Promote a sense of connection to others (LIVE) - Promote a sense of connection to others (V)	An escape from emotional pressure (LIVE) - An escape from emotional pressure (V)	Added more values to one's musical experience (LIVE) - Added more values to one's musical experience (V)	The preparation to the performance is simple (LIVE) - The preparation to the performance is simple (V)
	-3.744[b]	-3.289[b]	-1.973[b]	-2.215[b]	-3.560[b]	-4.334[b]	-.955[b]	-2.436[b]	-1.466[b]
	.000	.001	.048	.027	.000	.000	.340	.015	.143

Table 5 reported the test statistics of Wilcoxon Signed-Rank Test when comparing Community Choir Members' level of agreement on the statements related to virtual choir experiences and live choir experiences in a total of 17 items.

Wilcoxon signed-rank test showed statistically significant difference in most items in the community choir members' perspectives on both virtual choir experience and live choir experience.

The results signified community choir members agreed live choir rehearsal is the more effective way to learn choir vocal techniques and to learn about choir songs' information, it is also more agreed by the community choir members to feel fun and enjoyable in live choir rehearsal and it is easier to gain access to rehearsal participation; however, community choir members don't seem to agree only live choir rehearsal can provide everyone opportunity to participate, improves individual's focus and learning progress, instil self-improvement through self-evaluation, gives chances to show one's personality. Reasons lead to these differences in perspectives are unknown and should solicit further investigation.

The test results also showed further significant differences in the community choir members' perspectives on live choir performance where they feel live choir performance is more fun and enjoyable, also it is more interesting an easier in its preparation, where the members feel greater individual confidence, greater improved self-esteem, and live concert can help combat feelings of social isolation, promote sense of connection to others, and give additional values to one's musical experience; However, the finding revealed an interesting contradicted opinion on emotional pressure where no statistical significant difference was found in this item, signified community choir members think virtual choir performance might equally help them combat emotional pressure.

Table 6
Test Statistics of Mann-Whitney U Test comparing differences between the perspectives of University Choir and Community Choir Members' Level of Agreement on the statements related to Virtual Choir Experiences and Live Choir Experiences

	Effectiveness in learning the choir vocal techniques (V)	Effectiveness in learning the choir vocal techniques (F)	Effectiveness in receiving the information about the choir songs (V)	Effectiveness in receiving the information about the choir songs (F)	Feeling fun and enjoyable (V)	Feeling fun and enjoyable (F)	Providing everyone the opportunity to participate (V)	Providing everyone the opportunity to participate (F)	Improving individual's focus and learning progress (V)	Improving individual's focus and learning progress (F)
Mann-Whitney U	1117.000	1129.000	859.000	1143.000	1140.500	1201.500	770.000	873.000	960.000	937.500
Wilcoxon W	1552.000	1564.000	4345.000	1578.000	4626.500	1636.500	4256.000	1308.000	4446.000	1372.500
Z	-.594	-.567	-2.360	-.447	-.429	-.015	-2.942	-2.355	-1.659	-1.877
Asymp. Sig. (2-tailed)	.553	.571	.018	.655	.668	.988	.003	.019	.097	.061

a. Grouping Variable: 1= music uni choir; 2= community choir

Instill self-improvement through self-evaluation (V)	Instill self-improvement through self-evaluation (F)	Chances to show one's personality (V)	Chances to show one's personality (F)	Easy access of rehearsal participation (V)	Easy access of rehearsal participation (F)	Feeling fun and enjoyable (V)	Feeling fun and enjoyable (LIVE)	Preparation for the performance is interesting (V)	Preparation for the performance is interesting (LIVE)	Greater individual confidence (V)	Greater individual confidence (LIVE)
980.000	958.000	798.500	858.000	798.500	805.500	1090.000	1112.500	929.500	1032.500	1026.000	932.500
4466.000	1393.000	4284.500	1293.000	4284.500	1240.500	4576.000	1547.500	4415.500	1467.500	4512.000	1367.500
-1.528	-1.702	-2.763	-2.447	-2.758	-2.765	-.773	-.669	-1.861	-1.277	-1.203	-1.924
.126	.089	.006	.014	.006	.006	.439	.503	.063	.202	.229	.054

Improved self-esteem (V)	Improved self-esteem (LIVE)	Help combat feelings of social isolation (V)	Help combat feelings of social isolation (LIVE)	Promote a sense of connection to others (V)	Promote a sense of connection to others (LIVE)	An escape from emotional pressure (V)	An escape from emotional pressure (LIVE)	Added more values to one's musical experience (V)	Added more values to one's musical experience (LIVE)	The preparation to the performance is simple (V)	The preparation to the performance is simple (LIVE)
899.000	958.000	852.500	1068.500	1088.000	1089.500	812.000	814.500	1041.500	981.500	1194.000	960.500
4385.000	1393.000	4338.500	1503.500	4574.000	1524.500	4298.000	1249.500	4527.500	1416.500	1629.000	1395.500
-2.075	-1.756	-2.375	-1.004	-.787	-.874	-2.654	-2.710	-1.101	-1.655	-.064	-1.652
.038	.079	.018	.316	.431	.382	.008	.007	.271	.098	.949	.099

Table 7

Ranks of Mann-Whitney U Test comparing differences between the perspectives of University Choir and Community Choir Members' Level of Agreement on the statements related to Virtual Choir Experiences and Live Choir Experiences

Ranks

	1= music uni choir; 2= community choir	N	Mean Rank	Sum of Ranks
Effectiveness in learning the choir vocal techniques (V)	Music department choir	83	57.54	4776.00
	Community choir	29	53.52	1552.00
	Total	112		
Effectiveness in learning the choir vocal techniques (F)	Music department choir	83	57.40	4764.00
	Community choir	29	53.93	1564.00
	Total	112		
Effectiveness in receiving the information about the choir songs (V)	Music department choir	83	52.35	4345.00
	Community choir	29	68.38	1983.00
	Total	112		
Effectiveness in receiving the information about the choir songs (F)	Music department choir	83	57.23	4750.00
	Community choir	29	54.41	1578.00
	Total	112		
Feeling fun and enjoyable (V)	Music department choir	83	55.74	4626.50
	Community choir	29	58.67	1701.50
	Total	112		
Feeling fun and enjoyable (F)	Music department choir	83	56.52	4691.50
	Community choir	29	56.43	1636.50
	Total	112		
Providing everyone the opportunity to participate (V)	Music department choir	83	51.28	4256.00
	Community choir	29	71.45	2072.00
	Total	112		
Providing everyone the opportunity to participate (F)	Music department choir	83	60.48	5020.00
	Community choir	29	45.10	1308.00
	Total	112		
Improving individual's focus and learning progress (V)	Music department choir	83	53.57	4446.00
	Community choir	29	64.90	1882.00
	Total	112		
Improving individual's focus and learning progress (F)	Music department choir	83	59.70	4955.50
	Community choir	29	47.33	1372.50
	Total	112		
Instill self-improvement through self-evaluation (V)	Music department choir	83	53.81	4466.00
	Community choir	29	64.21	1862.00
	Total	112		
Instill self-improvement through self-evaluation (F)	Music department choir	83	59.46	4935.00
	Community choir	29	48.03	1393.00
	Total	112		
Chances to show one's personality (V)	Music department choir	83	51.62	4284.50
	Community choir	29	70.47	2043.50
	Total	112		
Chances to show one's personality (F)	Music department choir	83	60.66	5035.00
	Community choir	29	44.59	1293.00
	Total	112		
Easy access of rehearsal participation (V)	Music department choir	83	51.62	4284.50
	Community choir	29	70.47	2043.50
	Total	112		
Easy access of rehearsal participation (F)	Music department choir	83	61.30	5087.50
	Community choir	29	42.78	1240.50
	Total	112		
Feeling fun and enjoyable (V)	Music department choir	83	55.13	4576.00
	Community choir	29	60.41	1752.00
	Total	112		
Feeling fun and enjoyable (LIVE)	Music department choir	83	57.60	4780.50
	Community choir	29	53.36	1547.50
	Total	112		
Preparation for the performance is interesting (V)	Music department choir	83	53.20	4415.50
	Community choir	29	65.95	1912.50
	Total	112		
Preparation for the performance is interesting (LIVE)	Music department choir	83	58.56	4860.50
	Community choir	29	50.60	1467.50
	Total	112		
Greater individual confidence (V)	Music department choir	83	54.36	4512.00
	Community choir	29	62.62	1816.00
	Total	112		
Greater individual confidence (LIVE)	Music department choir	83	59.77	4960.50
	Community choir	29	47.16	1367.50
	Total	112		
Improved self-esteem (V)	Music department choir	83	52.83	4385.00
	Community choir	29	67.00	1943.00
	Total	112		
Improved self-esteem (LIVE)	Music department choir	83	59.46	4935.00
	Community choir	29	48.03	1393.00
	Total	112		
Help combat feelings of social isolation (V)	Music department choir	83	52.27	4338.50
	Community choir	29	68.60	1989.50
	Total	112		
Help combat feelings of social isolation (LIVE)	Music department choir	83	58.13	4824.50
	Community choir	29	51.84	1503.50
	Total	112		
Promote a sense of connection to others (V)	Music department choir	83	55.11	4574.00
	Community choir	29	60.48	1754.00
	Total	112		
Promote a sense of connection to others (LIVE)	Music department choir	83	57.87	4803.50
	Community choir	29	52.57	1524.50
	Total	112		
An escape from emotional pressure (V)	Music department choir	83	51.78	4298.00
	Community choir	29	70.00	2030.00
	Total	112		
An escape from emotional pressure (LIVE)	Music department choir	83	61.19	5078.50
	Community choir	29	43.09	1249.50
	Total	112		
Added more values to one's musical experience (V)	Music department choir	83	54.55	4527.50
	Community choir	29	62.09	1800.50
	Total	112		
Added more values to one's musical experience (LIVE)	Music department choir	83	59.17	4911.50
	Community choir	29	48.84	1416.50
	Total	112		
The preparation to the performance is simple (V)	Music department choir	83	56.61	4699.00
	Community choir	29	56.17	1629.00
	Total	112		
The preparation to the performance is simple (LIVE)	Music department choir	83	59.43	4932.50
	Community choir	29	48.12	1395.50
	Total	112		

Mann-Whitney U Test was then conducted to determine whether there are differences between the university choirs and community choirs on their level of agreement of their perspectives on the ranked-questions in both virtual choir experiences and live choir experiences.

Statistical results showed in table 6 indicated no significant differences between university choirs and community choirs in terms of their perspectives on majority of the rank-questions, except community choirs generally agreed better that VCR provided effectiveness in receiving information about songs, provides everyone opportunity to participate, provides everyone chances to show one's personality, provides easy access of rehearsal participation when comparing to the university choirs.

The result tallies when it showed university choirs agreed better that LCR provides everyone opportunity to participate, chances to show one's personality, also LCR is easier to access than VCR, when comparing to the community choirs.

Whereas for performance experience, test results signified community choirs generally agreed better that VCP can improve self-esteem, help combat feelings of social isolation, help escape from emotional pressure when comparing to the university choirs.

The results above showed consistency in the level of agreement between groups on the rank-questions. It can be concluded although differences in perspectives between groups were shown in not many items, however university choir members generally ranked higher for the items concerning live choir formats, whilst community choirs are more receptive and tolerant of the online virtual choir format.

Thematic Analysis
To further understand about virtual choir reception, open ended questions were asked to find out the challenges of VCR and VCP and the problem-solving mechanism. Inductive thematic analysis was conducted to code and theme the responses.

Table 8 reported the themes related to the problem-solving mechanism by both the university choir and community choir members during the virtual choir rehearsal. The open-ended question revealed the challenges during a virtual rehearsal and the responses could be categorized into four main themes: communication with others, music practice, refinement of technology for better VCR, and to stay positive.

From the responses, it is understood that choir members needed assistance from their peers and choir instructors, they also need their family members to cooperate while a VCR is ongoing, showing that a VCR setting may require communication skills. It was also being mentioned that VCR requested musical practice and constant re-listening back to the provided demo music track.

Technological refinement is another theme being mentioned, although the responses focused on the problem-solving mechanism, however it also revealed the challenges and problems during a VCR, that include internet problems and stability, hardware problems, background and lighting issues, and environmental suitability. Lastly, the choir members mentioned the

need to be staying positive throughout, including to accepting facts that cannot be changed, adapting to the new situation, keep the mindset positive and be resilience.

Table 8
Themes Describing Problem-Solving Mechanism of the Choir Members during VCR

Themes	Codes	Responses	Reference by participants	Total reference in themes
Communication with others	Finding assistance	- Seeking help from friends to solve the problem regarding the internet	2	4
		- Seeking guidance from the choir director to solve the problem regarding the matter of singing	2	
	Cooperation from family members	- Requesting a quiet environment at home	2	2
Music Practice	Frequent Practice	- Doing a lot of practices	2	4
		- Always listen to or refer to the demo songs or recording	2	
Refinement of technology for better Virtual Choir Rehearsals	Alternative Technological Improvements	- Switching or alternating different WIFI channel depends on the bandwidth	2	3
		- Upgrading devices such as headset	1	
	Trial and Error	- Adjusting the setting of background such as lighting until get the satisfied set up	1	3
		- Re-record the recording until achieve the satisfied version	1	
		- Rebooting the router until reach the stable condition	1	
	Finding Appropriate Time and setting	- Modifying bedroom to the appropriate platform to join rehearsal and do practices	1	2
		- Searching and deciding the suitable place with a better internet connection to join the rehearsal	1	
Stay Positive	Psychological-positive mindset	- Keeping the mindset of "moving on" even facing the difficulty	2	3
		- Accepting the faced problems	1	

| | Patience and Perseverance | - Adapting the challenges slowly | 1 | 2 |
| | | - Waiting for the opportunities to overcome the challenges faced (waiting for the stable internet) | 1 | |

Table 9

Themes Describing Problem-Solving Mechanism of the Choir Members during VCP

Themes	Codes	Responses	Reference by participants	Total reference in themes
Communication with others	Finding assistance	- Seeking help from friends to solve the problem regarding video editing matters such as editing software, professional recording equipment and others	2	3
		- Seeking guidance from choir director to solve the problem regarding song recording	1	
	Cooperation from family members	- Requesting a quiet environment at home to do the recording	2	3
		- Minimise the background sound from family members	1	
Music Practice	Frequent Practice	- Doing a lot of practice before the recording to get the favourable recording	2	2
Refinement of technology for better Virtual Choir Rehearsals	Alternative Technological Improvements	- Purchasing the better recording equipment	2	4
		- Borrowing the professional devices to enhance video quality or edit the video	2	
	Trial and Error	- Re-record the recording and video until achieving the satisfied version	2	2
	Finding Appropriate	- Modifying the bedroom to the appropriate platform to	1	2

Time and setting	record the recording such as putting some blankets to reduce the noise and putting more lighting devices	
	- Searching and deciding the suitable timing to record the recording such as midnight or early in the morning	1

Table 9 reported the themes related to the problem-solving mechanism by both the university choir and community choir members during the virtual choir performance. Interestingly, the open-ended question revealed similar challenges and problem-solving mechanism during a virtual choir performance where similar responses were being mentioned in the VCR prior to this. The responses could be categorized into only three main themes: communication with others, music practice, refinement of technology for better VCR.

Conclusion and Discussion

The COVID-19 pandemic has brought unprecedented changes to the implementation of music activities especially on group music activities that usually gather people. Choir activity is profoundly affected by the COVID-19 preventive measures as choir singing can cause higher risks of disease infection as singing can produce relatively higher air bourn particles (Charlotte, 2020; Stockman et al., 2021).

The implementation of virtual choir as an alternative form to choir rehearsal had been vastly introduced to many choirs during the lockdown, it remained unknown if choir members find virtual choir experience as helpful as the live choir experience, it is also unknown if the virtual choir format is receptive among the university students and whether there are any differences in terms of reception between the university choirs and the community choirs. Understanding the reception and its challenges among the choir members can help choral directors make better plan for future choral activities. While the world is slowly paving its way to get back to the "normal" practice, virtual choir might either go into history or it might also coexist with live choir activities in the future. Choir members' perspectives on virtual choir experience can further inform the future choir plans.

The study concluded that the participants mainly utilized a laptop for the virtual choir rehearsal, however mobile phone was mainly used for virtual choir performance's recording purpose. The results also indicated participants used more than 1 gadget during a VCR. Self-perceived challenges during both VCR and VCP were identified, and peers were the ones they go to when challenges emerged, signifying peers' support is particularly important in virtual setting. During VCR, most reported challenge was internet latency, followed by mental frustration, vocal technique difficulty, gadgets related problems, and a lack of suitable environment for VCR.

Whereas in a VCP, lack of suitable environment for VCP was mostly reported, followed by the lack of good recording equipment, mental exhaustions, the problem of synchronicity with the

choir members, conductor or accompaniment, and challenges related to recorded-video editing. In VCP, it is also reported that the participants seek help from their available resources, it is shown that usually the participants seek assistance from their own peers, followed by choir directors or teachers, family members and friends. Some participants reported trying to solve the problems by themselves. These study findings echoed to those by Datta (2020) where virtual choirs are much more labor-intensive and highly mediated by technologies in which the choir members are not well-versed in.

The participants reported a higher preference to live choir rehearsal and live choir performance in the future, however, the findings from this study also revealed there was an agreement on opinion in terms of coexistence of both virtual choir and live choir in the future.

When comparing the level of agreement of all the rank-questions in the university choirs, this study confirmed that the university choir members agreed live choir experiences brought more benefits than the virtual choir experiences, including those of choral technical experiences and psychosocial wellbeing. This study also further confirmed the community choir members level of agreement on the rank-questions to both virtual and live choir experiences were a mixture, although community choir members are more receptive to virtual setting, there are more agreed items on the live settings than the virtual settings.

These findings echoed to those denoted in Daffern and Brereton (2021) where the relevance of in-person choirs in terms of choir members' feelings on well-being had been highlighted during the lock-down. As Fancourt and Steptoe (2019) suggested, although virtual choir can instil a sense of social presence, however emotion regulation strategies in virtual choir is relatively lower where members felt perceived loss in the social aspect of singing (Fancourt & Steptoe, 2019; Theorell et al., 2020).

When comparing the differences between university choir members and community choir members, this study also concluded that in general there were no difference between university and community choir members' perspectives in terms of their level of agreement on majority of the rank-questions, however, it was found that there were several differences in terms of perspectives as statistical significance was found in these items: that community choirs generally agreed better that VCR provided effectiveness in receiving information about songs, provided everyone chances to show one's personality, provided easy access of rehearsal participation, help improve self-esteem when comparing to the university choirs. Whereas the university choirs generally agreed better that LCR provided everyone opportunity to participate, provided everyone chances to show one's personality and LCR provided easy access of rehearsal, compared to the community choirs.

The findings showed homogeneity in opinion that community choir members are receptive to virtual choir rehearsal whereas the university choir members are more inclined to live choir rehearsal. These findings might imply community choir members were more tolerant to the consequences of lockdown where they were receptive to virtual choir activities and were able to better cope with the new situation, it might also imply there were certain benefits of music to these working adults where musical activities became a de-stressor for these non-music-professional working adults (Hendry et al., 2022; Lamont et al., 2017); or it might have revealed that university choir members were facing different stresses due to the lockdown,

especially when the university students were forced to redefining their professional works while they were facing financial problems during lockdown and their academic performance and future professional prospects were put to question (Sundarasen et al., 2020; Villani et al., 2021; Werner et al., 2021).

However, reasons on why university students are more reluctant towards virtual choir settings, and factors leading to the differences of thoughts and opinion between the university choirs and community choirs were also not being able to confirm through this research, further investigation on these are needed to confirm the cause and reasons.

This research provided a detailed insights on both the university and community choir members' perspectives on their virtual choir experiences that can inform a better plan for future choir rehearsals and performance in the post-pandemic era. This study also laid a foundation for further scholarly investigation on virtual choir practice.

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