Choir@Home

How to carry out virtual choir rehearsals with the help of digital tools

R5.7.1: Teaching Materials

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UNIVERSITÄT LIECHTENSTEIN

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Target groups and learning goals

Target groups

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- Choir associations
- Choir committees
- Choir managers
- Choral conductors
- Choir members
- Music teachers
- Music schools and Music universities
- Target groups

Learning goals

After reading the teaching materials you will:

- Know the most relevant terms in the context of online group singing and important approaches to online group singing

- Know the steps in planning and preparing an online choir project from a music pedagogical, technical and social point of view

- Be aware of the specifics of conducting choir rehearsals online

- Have an overview of different types of online choir performances

- Be able to plan and conduct an online choir project

- Have an overview of repertoire suitable for online group singing

- Know relevant (digital) skills for conducting online choir projects

Foundations

Hybrid choir rehearsal: A rehearsal mode in which choir singers / conductors can join / lead rehearsals in-person or from a remote location via the Internet (adapted from Mueller et al., 2023). While a proportion of singers meets in-person, others will regularly or sometimes join via the Internet depending on their personal preferences.

Latency: Latency is the term used to measure the amount of time it takes for data to travel from one endpoint to another (Cirelly, 2024). Common video-conferencing apps have a latency of about 150 milliseconds, synchronous music-making requires latency of no more than 20 milliseconds (Morgan-Ellis, 2022).

Low-latency software: Low-latency software supports real-time synchronous music making among geographically distributed musicians by capturing and transmitting audio streams through the Internet (Rottondi et al., 2016). Well-known software includes Soundjack, Jamulus, JamKazam, ELKLive, and JackTrip.

Online choir rehearsal: Online choral practices led by a conductor for the purpose of musical learning and development, often in preparation for a performance.

Online choir performance: Live online performance (such as an online concert) or asynchronous performance (such as a video) for an audience.

Social interaction: Social interaction refers to any process where two or more individuals engage with each other, including both verbal and nonverbal communication. Continued interaction between specific individuals often leads to the formation of social relationships (Social Interaction, 2018).

Social presence: Social presence refers to the extent to which a communication medium allows individuals to perceive each other and establish interpersonal relationships during an interaction. Face-to-face communication provides the highest level of social presence, followed by video and audio (such as videoconferencing), audio-only formats (such as telephone calls), and finally written communication (Fulk et al., 1990).

Technology acceptance: The process of how users come to accept and use a technology, incl. users' willingness, attitude, and perception towards using a technology (Mupaikwa & Bwalya, 2023).

Video-conferencing system: VCS are tools that enable online meetings and collaboration among participants via the internet. Accessible from both desktop and mobile devices, these platforms typically support audio and video calls, messaging, content and screen sharing, and meeting recordings (Fasciani et al., 2019). VCS can be used for one-on-one or group calls, webinars, and webcasts. Microsoft Teams and Zoom are among the most frequently used VCS.

Virtual choir video: A video composed of multiple audio-visual layers created through multi-tracking. In this method, a virtual choir creator either records and merges several of their own performances to simulate a group or collaborates with others to produce a collective piece. This type of virtual choir illustrates asynchronous interaction, as each part is recorded separately at different times (Galván & Clauhs, 2020).

Online group singing approaches: Video-conferencing solutions (1/2)

Requirements:

- Software: e.g. Zoom, Webex, Microsoft Teams

- Hardware: Laptop, mobile phone, tablet

Description:

- Conductor holds rehearsal (e.g. playing the piano or singing); conductor can be heard by rehearsal participants

- Singers are muted because of latency / noise suppression

- Conductor cannot hear singers and singers cannot hear each other

- Singers sing in isolation; singing together in real-time is not possible

- The regular „feedback-loop" between conductor and singers is interrupted

References: e.g. Daffern et al., 2021; Morgan-Ellis, 2021, 2022

Online group singing approaches: Video-conferencing solutions (2/2)

Benefits 👍

- Accessibility
- Features (e.g. video, screen-sharing)
- Possibility to study new material, develop musical skills and grow in independence (focus on own voice)
- Room for musical experimentation (e.g. singing other parts)
- Possibility to connect and socialise with fellow singers
- Less distraction and improved concentration compared to F2F rehearsal

Challenges ❗

- Singing together is not possible, no „real" musical interaction (ie. no feedback from fellow singers)
- No surround sound
- Conductor becomes „solo-entertainer" and singers become „solo-ists"
- Need to manage technology
- Social interaction of F2F cannot be replicated

References: Daffern et al., 2021; Daley, 2022; Lee et al., 2022; Martinec, 2020; Morgan-Ellis, 2021a; Svalina & Ristivojević, 2022; Youngblood et al., 2021

Online group singing approaches: Low-latency solutions (1/2)

Requirements:

- Software: e.g. Soundjack, Jamulus, JamKazam

- Hardware: Laptop, wired headphones and microphone

- Other: Stable high-speed internet connection, wired ethernet connection

Description:

- Conductor holds rehearsal (e.g. playing the piano or singing); conductor can be heard by rehearsal participants

- Singers are not muted, they can hear each other and sing together in real-time

- Conductor can hear singers and give feedback on their performance

- Low-latency solutions are often used in combination with a video-conferencing solution (like Zoom) to have a high-quality video stream; in that case the video stream lags behind the audio stream

- Soundcheck before rehearsal recommended

References: e.g. Daffern et al., 2021; Morgan-Elli, 2021, 2022

Online group singing approaches: Low-latency solutions (2/2)

Benefits 👍

- Affords multidirectional singing experience, improved musical interaction (as compared to rehearsals via video-conferencing solutions)
- More natural interaction
- Second-best alternative to F2F singing

Challenges ❗

- Higher technical requirements, e.g. in terms of equipment and set-up
- Increased effort in organising and hosting rehearsals, e.g. need for soundcheck
- Technology-related problems during rehearsals

LOW-LATENCY

References: Carlson & Hanna-Weir, 2021; Morgan-Ellis 2021a, 2021b

Exemplary technical setup for online group singing using a low-latency solution

Hardware:
- Fastmusic box (FMB)
- Headphones and microphone
- Cables

Software:
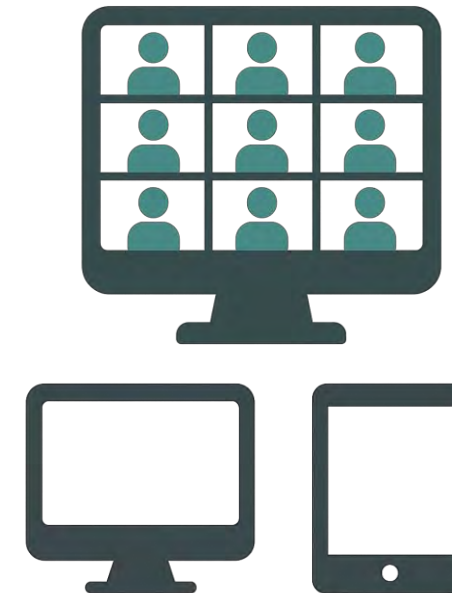- Soundjack
- Low-latency p2p and server streaming application

Source: FMB instructions

Exemplary technical setup for online group singing using a low-latency solution

Hearing each other via FMB & Soundjack
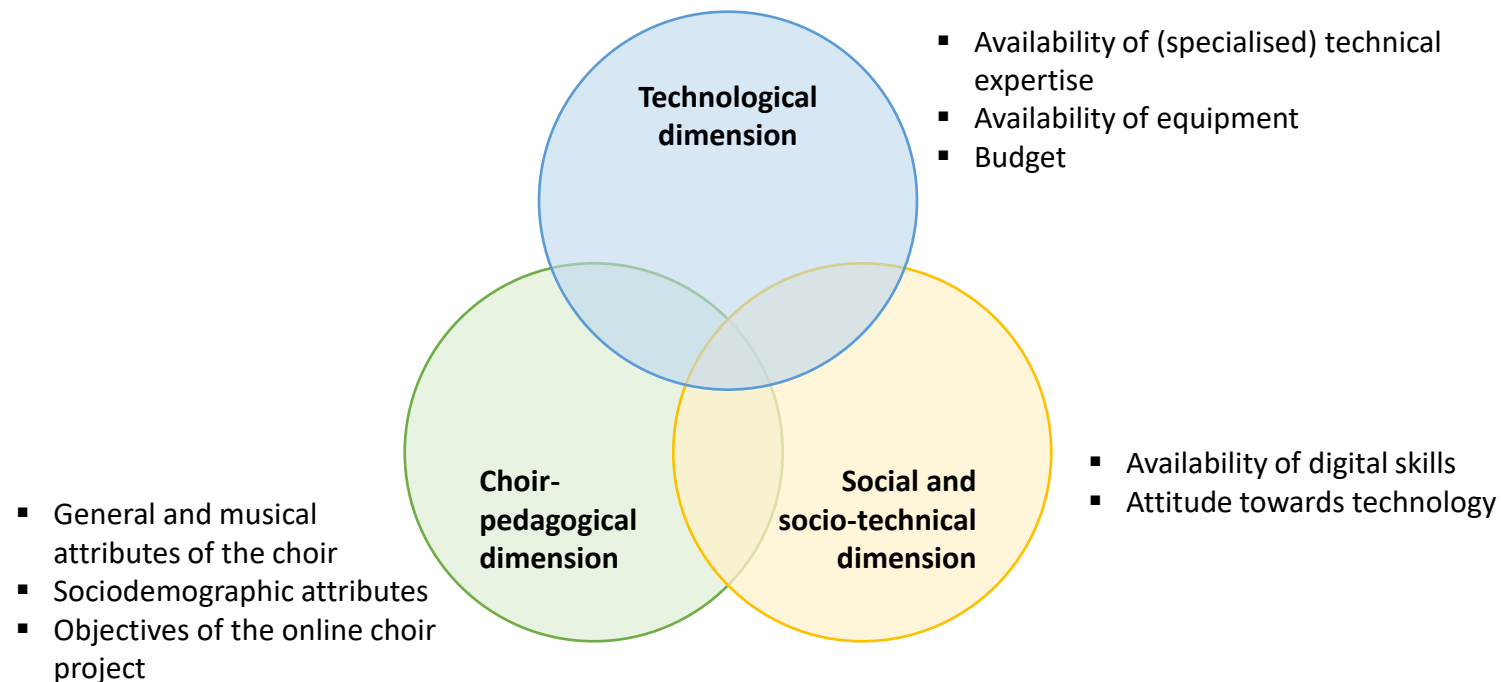
Seeing each other via PC/Laptop & Zoom

Planning and preparing an online choir project

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	Define requirements	Research and evaluate technology solutions	Design the online choir project	Design the online choir performance	Execute preparatory steps
TASK	Determine your choir's needs from a musical / choir-pedagogical, technological, and social perspective	Identify, analyse, evaluate different technology solutions; select technology solution	Plan details about the musical / choir-pedagogical, technological, and social aspects of your online choir project	Select type and plan details of the online choir performance (e.g. virtual choir video, live streaming concert)	Purchase equipment, set up technology solution, inform choir members about details of the online choir project
OUTPUT	Choir profile	Selected technology solution	(e.g.) rehearsal dates planned, repertoire selected, didactic concept planned, details of technical solution clarified, technical training sessions planned, social activities planned	Online choir performance selected	Choir ready for the start of rehearsals

Define requirements

Technological dimension

- Availability of (specialised) technical expertise
- Availability of equipment
- Budget

Choir-pedagogical dimension

Social and socio-technical dimension

- Availability of digital skills
- Attitude towards technology

- General and musical attributes of the choir
- Sociodemographic attributes
- Objectives of the online choir project

Define requirements:
Choir-pedagogical dimension

Who are the members of your choir and what are your goals?

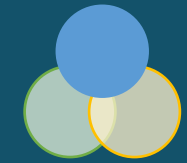| General and musical attributes	Question	Example	Relevancy for choosing a technology solution and designing an online choir project
Founding year	Is your choir a newly founded (online) choir or an established (in-person) choir?	(New) online choir, in-person choir	A newly founded (online) choir comes with more uncertainty concerning its members and their attitude, while in an established choir it may be more difficult to adapt existing rituals and routines to an online setting.
Type of choir	Which vocal parts are represented in your choir?	Mixed choir, women's choir, men's choir, children's choir	Relevant e.g. for selecting a repertoire, planning sectional rehearsals.
Group size	How many members does your choir have?	Chamber choir, vocal ensemble, oratorio choir	The larger the choir, the greater the effort required for technical support during rehearsals and the greater the need for financial resources.
Function and purpose	Is your choir associated with an institution?	School choir, church choir, opera choir, gospel choir	Relevant e.g. for choice of repertoire, availability of funds to purchase equipment.
Repertoire	What music does the choir's repertoire include?	Church choir, a cappella choir, oratorio choir, folklore choir	Relevant e.g. for planning exercises that focus on specific musical skills (e.g. rhythm, intonation) in rehearsals.
Focus of the choir	How does your choir prioritise different objectives of choral singing?	Musical goals, social goals	Achieving more ambitious musical goals requires low-latency software, while video conferencing systems may be sufficient for singing practice and achieving social goals.

Define requirements: Choir-pedagogical dimension

Who are the members of your choir and what are your goals?

Sociodemographic attributes	Question	Example	Relevancy for choosing a technology solution and designing an online choir project
Age structure	Which age groups are represented in your choir?	e.g. school choir, children's choir, senior choir	Relevant for e.g. selecting a repertoire, planning social activities. Age structure may impact members' digital skills and attitude towards technology.
Diversity	How do the members of your choir vary across sociodemographic attributes?	All singers are of similar age; all singers have the same mother tongue	A heterogeneous group is likely to require a higher level of communication and effort in terms of technical onboarding.
Objectives of the online choir project	Question	Example	
Desired rehearsal mode	Which rehearsal mode would you like to run?	Only online rehearsals, synchronous hybrid rehearsals, alternating rehearsals in presence or online	Relevant for selection of a technology solution (Low-latency software and videoconferencing system; videoconferencing system only).
Desired performance format	How and where is your choir going to perform the result of the rehearsal phase?	Virtual choir video, hybrid concert	Virtual choir videos require more effort in the production phase, while hybrid (live) concerts bring more uncertainty and complexity. Different performance formats may require buying / renting additional software / hardware and services.

Define requirements: Technological dimension

What factors influence the selection of an online group singing approach?

Attributes	Question	Example	Relevancy for choosing a technology solution and designing an online choir project
Availability of (specialised) technical expertise	Does a member of the choir or a relative of a member have technical expertise or an IT background?	Software knowledge, problem-solving skills, server administration	The use of low-latency software requires more technical expertise for the initial implementation / support than the use of video conferencing systems.
Availability of equipment	To what extent do members of the choir have equipment for online group singing?	Headphone, microphone, laptop (→ slide 13)	Compared to video conferencing systems, the use of low-latency software requires more and higher quality equipment.
Budget	To what extent does the choir / choir members have the financial means to pay for equipment and, if necessary, services for online choir rehearsals?	→ slide 21	The acquisition costs for the equipment are higher when using low-latency software, and additional costs are incurred for conducting the choir rehearsals (e.g. for a server).

Cost estimate* for buying a technology solution

Hardware component	Combination of low-latency software and videoconferencing system: Costs per participant in €	Videoconferencing system: Costs per participant in €
Headset	300 €	50 €
Sound interface – or -->	100 €	Not required
Hardware device (FMB) incl. sound interface	400 €	Not required
Cabling	20 €	Not required
TOTAL	420 € (Sound interface) or 720 € (FMB)	50 € (+ possible software license)

Please note that this is a rough estimate based on normal prices in April 2025. Exact costs will depend on, among other things, the actual components and quality requirements.

Define requirements:
Social and socio-technical dimension

Are the choir members and the conductor able and willing to use technology?

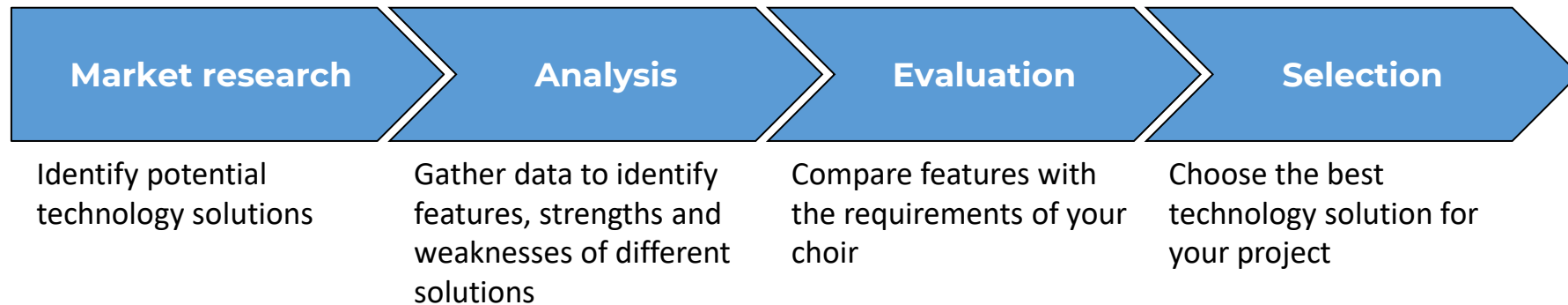| Attributes	Question	Example	Relevancy for choosing a technology solution and designing an online choir project
Availability of digital skills	To what extent do the conductor and members of the choir have digital competence?	Communication and collaboration using digital media, content creation	Availability of digital skills influences the extent of support necessary to initiate and administer online rehearsals.
Attitude towards technology	How do the members and the conductor of your choir feel about using and learning technology?	Openness toward using technology, technology aversion	Attitude towards technology influences whether choir members are / the conductor is willing to engage in online rehearsals.

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Example profile of a choir

Define requirements: Choir profile

Musical attributes	
Founding year	1975
Type of choir	Mixed choir
Group size	> 40 members
Function and purpose	Church choir
Repertoire	Sacred music
Focus of the choir	Balanced musical and social goals

Sociodemographic attributes	
Age structure	Mixed (aged between 30-80)
Diversity	Group of singers is heterogeneous (e.g. in terms of musical skills)

Objectives of the online choir project	
Desired rehearsal mode	Hybrid with a group of singers on-site and allowing others to participate online
Desired performance format	Virtual choir video

Technology-related attributes	
Availability of (specialised) technical expertise	One singer with profound IT background
Availability of equipment	Most singers own a tablet or PC
Budget	Limited financial resources available

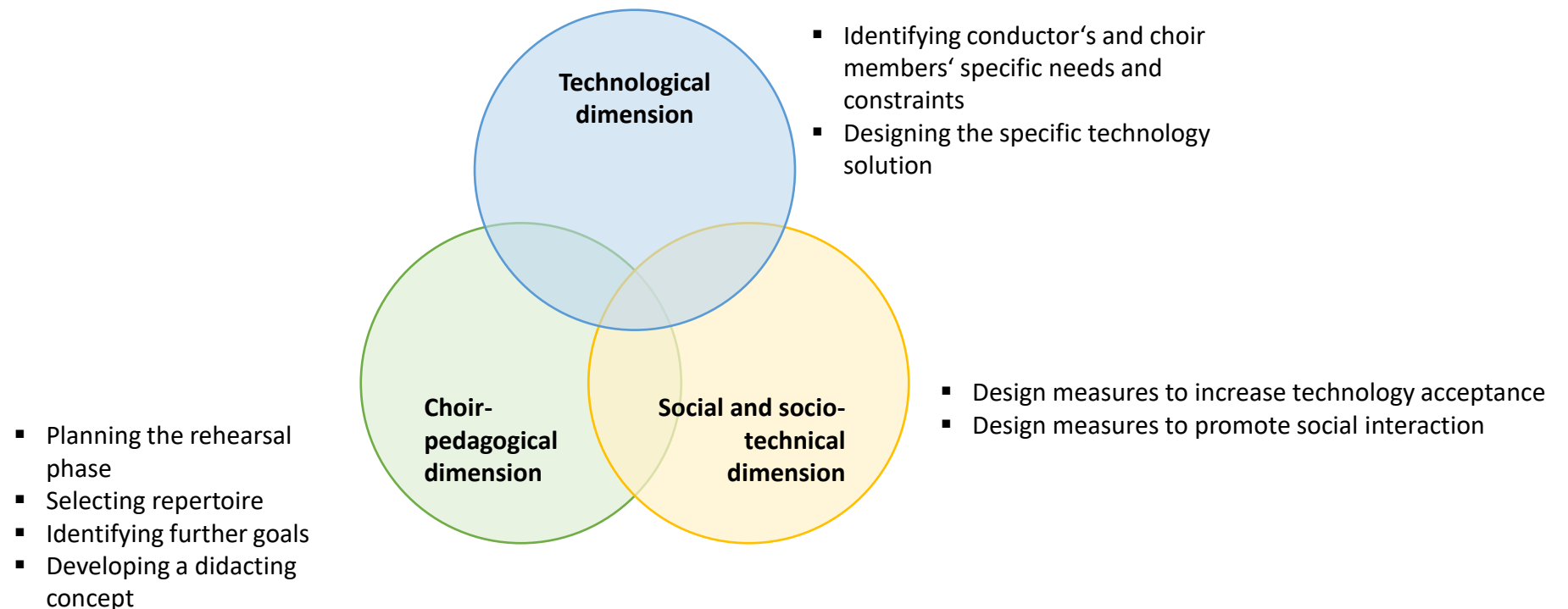| Socio-technical attributes	
Availability of digital skills	Digital competence varies strongly across members
Attitude towards technology	Attitude towards technology varies strongly across members

Research and evaluate technology solutions

Which solutions for online choir rehearsals are available and meet your requirements?

Market research	Analysis	Evaluation	Selection
Identify potential technology solutions	Gather data to identify features, strengths and weaknesses of different solutions	Compare features with the requirements of your choir	Choose the best technology solution for your project

- Commonly used **videoconferencing systems**: Zoom, Microsoft Teams, Skype, Webex, Jitsi Meet, Google Meet

- Commonly used **low-latency software**: Jamulus, Soundjack, JamKazam, ELK Live, Jacktrip

- More information about technology solutions for online group singing can be found [here](#)

Design the online choir project

Technological dimension

- Identifying conductor's and choir members' specific needs and constraints
- Designing the specific technology solution

Choir-pedagogical dimension

Social and socio-technical dimension

- Design measures to increase technology acceptance
- Design measures to promote social interaction

- Planning the rehearsal phase
- Selecting repertoire
- Identifying further goals
- Developing a didacting concept

Design the online choir project: Choir-pedagogical dimension (1/2)

1. Planning the rehearsal phase (4-6 weeks before start)

▪ Length of rehearsal period and rehearsal dates

▪ Details regarding rehearsal mode (Online only? Hybrid? Alternating?)

  → Influence on methods

2. Repertoire selection (at the very beginning, at the latest 1-2 weeks before the start)

▪ Amount of repertoire, kind of repertoire

  → level of difficulty

▪ Criteria for online suitability (see slide ff.)

3. Determine further musical, social and pedagogical goals (can vary, but ideally before the start)

▪ Which musical goals are in the foreground? (e.g. improving intonation, practising polyphonic singing, rhythmic precision)

▪ Which additional goals apart from musical goals does the choir have? (e.g. social goals)

▪ Make the formulation of objectives concrete and verifiable (e.g. "By week 4, all voices confident in chorus X")

Design the online choir project: Choir-pedagogical dimension (2/2)

4. Develop a didactic concept for online rehearsals (at the latest before the first rehearsal)

- Section rehearsals: e.g. small groups via breakout rooms / individual coaching

- Self-study phases

- Choose musical/warm-up exercises that help the singers for specific challenges of online singing

- Incorporate reflection phases: e.g. online diary, questionnaire, voice messages for self-assessment

- Asynchronous exercises can always improve learning regardless of the technical solution chosen:
Audio examples, singing videos, music PDFs, audio guides

Design the online choir project: Technological dimension

Example technology solutions based on budget of a choir

	Limited budget	Medium budget	High budget
Software	Free or low-cost platforms such as Zoom for video communication	Use of low-latency software to improve real-time audio quality in combination with video conferencing system	Professional low latency software with video conferencing system and professional digital audio workstations for post-production if required
Hardware	USB microphones: Affordable and sufficient for entry-level use. Over-ear headphones: Good sound isolation at moderate prices. Use of existing computers or laptops with minimal technical upgrades.	XLR microphones with basic audio interfaces: Improve audio quality. Over-ear headphones: Good sound isolation at moderate prices. Sound interface if necessary.	High-quality condenser microphones and advanced audio interfaces: for maximum sound fidelity and professional recordings. High-end headphones: precise audio monitoring.

Design the online choir project:
Social and socio-technical dimension

Choir management

- Establish a team with clearly defined roles for musical, technical, and administrative tasks

- Choose communication channels (e.g. email for comprehensive information and an app like the Konzertmeister app for scheduling rehearsals and managing attendance)

- Consider how singers can give feedback (e.g. through short surveys)

- Prepare a netiquette

Measures to develop / strengthen a group feeling and foster a sense of belonging

- Develop ideas for pre-rehearsal introductions (especially for a newly formed online choir)

- Design icebreaker activities (e.g. games that involve sharing personal facts in breakout rooms)

Activities to encourage social interaction

- Balance musical and social goals

- Plan dedicated social activities (e.g. games and quizzes)

- Identify innovative technology solutions and features to achieve social goals (e.g. virtual worlds, virtual backgrounds)

Design the online choir performance (1/2)

→ Including a performance is recommended because a performance gives choir members a goal to work toward

The following performances are common for online choirs:

Virtual choir videos

- Compilation of individually sung videos into a synchronised choir video
- Ideal for larger choir projects with complex post-production
- Presentation on YouTube, social media or at digital events

Live streaming concerts

- Transmission of live singing using low-latency software (e.g. Soundjack) combined with Zoom
- Sometimes with an audience via live stream platforms (e.g. Twitch, YouTube Live)
- High technical requirements but direct musical interaction possible

Hybrid concerts

- Combination of live performances on site with online singers
- Particularly exciting for inclusive choir work with members in different locations
- Requires audiovisual coordination (e.g. via large screens on stage)
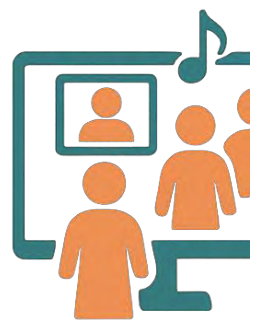
Design the online choir performance (2/2)

The following performances are common for online choirs (*continued*):

Interactive formats with the audience

- 'Open Choir Sessions' via Zoom, in which the audience can sing along
- Use of surveys, chat questions, live comments to increase interactivity

Musical-digital projects (cross-media)

- Connection with visual art, dance or animations
- Choir parts become part of multimedia installations or digital exhibitions

Social media challenges

- e.g. 'Duet with the choir' on TikTok or Instagram reels
- High reach factor, especially for younger audiences

Exemplary performance: Virtual choir video
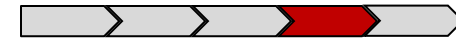
Choir@Home Online Laboratory Choir: Bell Carol

Choir@Home Online Laboratory Choir: Jouluhymni

https://youtu.be/zOAHHX6A8p0?si=G5HsMOVViSyvKsBH

https://youtu.be/Psh6P_cL5I4?si=Q0xRdHdqJ7s0lAba

Exemplary performance: Hybrid live concert

Choir@Home Online Laboratory Choir and Ohm-Choir giving a joint hybrid live concert at the InKontakt Conference in Munich (March 2024)

Execute preparatory steps (1/2)

4-6 weeks

Start of the rehearsal period

1-2 weeks
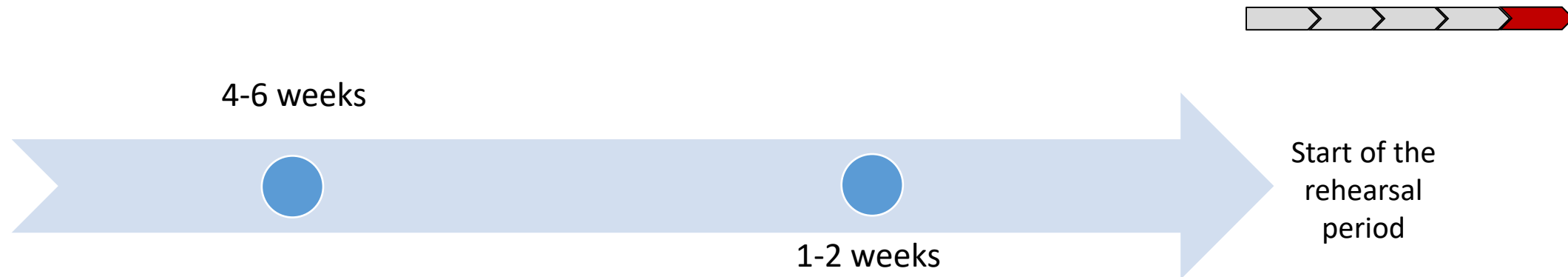
- Purchase or support choir members and conductor in purchasing the necessary hardware and equipment
- It is advisable to get the same equipment for all users to simplify technical support and avoid sound differences

- Provide clear and detailed instructions on how to set up and use the technology
- Support choir members and conductor in setting up the technology solution
- Hold a session to test the technology, offer individual onboarding sessions if necessary
- Empower participants to help themselves by explaining the technical setup and discussing frequent (sources of) error
- Communicate openly about the limitations of the technology and manage expectations for problem resolution

Provide choir members with comprehensive information about rehearsal period (1-2 weeks before the start of the rehearsal period)

✓ Inform choir members about the dates and structure of rehearsals

✓ Share sheet music with choir members (e.g. via Konzertmeister)

✓ Share recordings of songs with choir members so that they can listen to them before the start of the rehearsals (e.g. YouTube videos)

✓ Share information about the first rehearsal with the choir members (e.g. Zoom link)

✓ Share netiquette with choir members

Conducting an online choir project

The rehearsal should be divided into an arrival phase and three main phases:
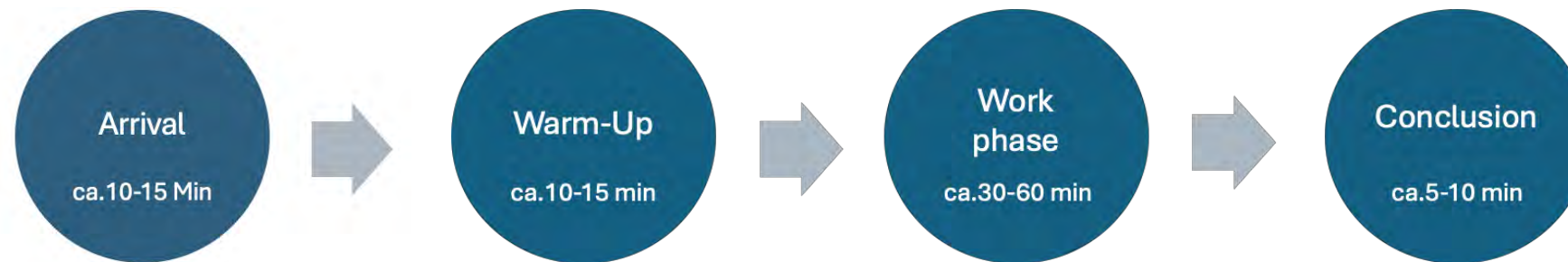
- A short arrival time is recommended to allow for a sound check, resolve any technical issues and allow time for informal interaction.

- The working phase should be varied overall:
    - Digital tools such as playbacks, screen sharing, and recordings offer additional possibilities for online rehearsals alongside the familiar musical setting (singing, piano accompaniment, announcements)
    - Alternating between whole group and small group work (breakout rooms, if Zoom is used as a platform) promotes concentration and individualisation.

- The final phase can be rounded off with rituals such as emoji rounds or a short closing piece.

Singing posture

- It is important to adopt an upright, active sitting position (edge of the seat, feet flat on the floor, back stretched out).

- The camera and screen should ideally be positioned at eye level.

- For children's choirs, visual comparisons (such as 'growing like a tree') can be used to train posture.

- Regular relaxation exercises (such as shoulder circles or humming to relax the jaw) are beneficial.

- It is recommended that you consciously use breaks to reflect on your posture. It is helpful to stand up and shake out your body from time to time to avoid sitting too long and to get energized.

- If available, height-adjustable desks and ergonomic stools are ideal for achieving an optimal singing posture and allowing for variation between sitting and standing.

Voice training

- Vocal training should be consistent, structured, and varied.

- The use of figurative language and mental imagery is recommended (e.g., "What does the tone feel like?").

- Exercises for breathing, articulation, and resonance can be effectively supported with visual cues or symbols.

- Self-awareness of the singers is key – direct feedback is only possible to a limited extent.

- An individual follow-up session can optionally take place based on submitted audio recordings.

Promoting musical skills

- The use of digital tools is recommended to promote:
    - A sense of rhythm (e.g. use of metronome, percussion units during the rehearsal)
    - Intonation (e.g. checking with reference notes, scale exercise with reference notes, use of tuning apps)
    - A sense of ensemble (e.g. exercises with click or single counting, looking into the camera)

- Individual voice work can be structured through the additional provision of playbacks or practice tracks

- Methods should also be chosen that enable asynchronous practice units (e.g. specific practice tasks, possibly control via annotated audio files)
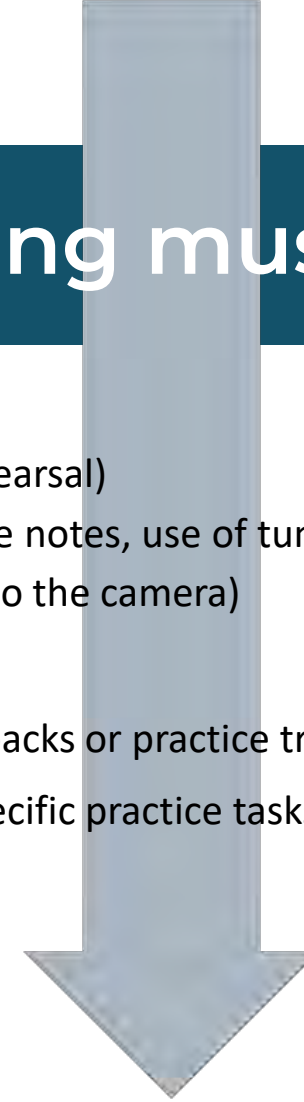
Repertoire and interpretative aspects (1/2)

- When choosing repertoire, pieces with a clear structure and homophonic movements are easier to realise in an online setting, while more complex literature also demands higher musical skills/level and more musical independence from the singers

- Pieces with parameters such as rubato, transitions, and character changes have proven to be more difficult to implement

- Instead of real-time conducting gestures, conductors can use the following:
  - Verbal instructions
  - Use of metronome or click track
  - Piano accompaniment or audio files
  - Asynchronous non verbal gestures

Repertoire and interpretative aspects (2/2)

- Interpretative aspects such as dynamics and phrasing should be encouraged through specific work assignments.
  (For example: "Listen to the recording from bars 17 to 32." [and/or:] "Sing this section with the goal of creating a clear arc of tension – starting from piano at the beginning and building up to forte in bar 30, followed by a gentle decrease in volume. Pay special attention to the breathing points and phrase the line so that it flows naturally.")

- A combination of synchronous and asynchronous work (e.g. recording and feedback) is recommended.

Repertoire recommendations (1/2):
Tips for choirs new to digital singing formats

- **Choose repertoire that is familiar.**
  If you usually sing pop songs, choose something from that genre.
  Leave experimenting for that moment when you already feel comfortable with the online environment.

- **Choose repertoire that is one level lower than what you would usually do**.
  Singing online will pose unexpected challenges anyways. Therefore, it helps when the musical challenge is a bit lower than usual to still be able to reach your musical goals.

- **Analyse the repertoire thoroughly**.
  Identify all the musical challenges in it while also thinking of the strengths and weaknesses of your singers and how they could be affected in a digital singing format.

Repertoire recommendations (2/2): Do and Don'ts

Do: Repertoire that works well	Don'ts: Repertoire that is not recommended
▪ **Choose choir pieces with instrumental accompaniment**. With accompaniment, it is much easier to create a steady pulse among the singers, which helps with ensemble timing and coordination. In addition, singing with accompaniment often boosts the confidence of the singers. *Example: Skyfall , "Jesus bleibet meine Freude" von Johann Sebastian Bach (BWV 147)* https://www.youtube.com/watch?v=eZP9WncfL8c ▪ **Choose pieces that are rather homophonic than polyphonic, have a clear structure and a stable tempo without too many rubati**. *Example: "Can't help falling in love with you"* https://www.youtube.com/watch?v=v-8ymwXSO_g / *"Abend wird es wieder" Arr. von Oliver Gies* ▪ **If you want to sing acappella repertoire, choose easier and shorter pieces**. Slower pieces are more manageable in terms of latency and ensemble coordination. Practice with a metronome during rehearsal and guide the singers step by step towards keeping the tempo and pulse independently. *Example: Jouluhymni;* https://www.youtube.com/watch?v=Psh6P_cL5I4 / *"Abschied vom Walde" von Felix Mendelssohn Bartholdy; "Sommarpsalm" von Waldemar Åhlén*	▪ **Acappella repertoire full of tempo changes, rubati and delicate phrasing**. To make such repertoire work, choral singers rely on real-time conducting gestures. Without them, it is extremely difficult to achieve a satisfactory result online. *Example: Death on the hills (Elgar)* https://www.youtube.com/watch?v=Za9e0CRaKIk / *"When I fall in love" von Kirby Shaw* ▪ **Repertoire with very complex rhythms, meter changes or pieces with very difficult text passages.** These factors make it even more difficult to achieve good ensemble timing and precise coordination, which is already challenging enough in an online environment. *Example: "Nonsense" (Petrassi)* https://www.youtube.com/watch?v=Za9e0CRaKIk / *"Cantus gloriosus" von Jósef Świder* ▪ **Highly polyphonic (acappella) pieces, such as complex renaissance polyphony of fugues**. Without a conductor or accompaniment to hold the singers together, it is easy for all the individual voices to get lost and lose their common pulse. *Example: "Sicut ovis ad occisionem" (Gesualdo)* https://www.youtube.com/watch?v=E-gP1Cb4S_o / *"Memento salutis auctor" von William Byrd*

Choir management and leadership

- The methodological and technical organisation of rehearsals should be adapted to the respective choir type:
  - e.g. children's choir: short units, playful methods
  - e.g. youth/adult choir: structured rehearsals with technical support
  - e.g. senior choir: clear language, slower processes, help with setup
- Recommended rehearsal duration, feedback formats and use of technology should be defined for each format.
- Social components should be consciously planned in:
  - Warm-ups with humorous, loosening-up elements
  - Breakout chats, breakout rooms for small talk or group work
  - Virtual rituals such as a common canon, closing words, emoji feedback
- Joint projects (e.g. video recordings, online concerts) strengthen the group character.

Troubleshooting

- A technical checklist should be provided in advance.

- A 'plan B' for technical failures (e.g. asynchronous material) should be available.

- Temporarily switching off the camera can be communicated as a relief strategy in the event of excessive demands.

- A symbolic representation ('first aid kit') with tips and tools supports self-regulation. It should contain technical tips, spontaneous didactic alternatives and brief impulses for coping with stress.

Managing an online choir and promoting social interaction

Managing an online choir

- **Send regular emails**: For example, weekly emails that include summaries, reflections, instructions, and reminders can help participants better understand the current status of a choir project and direct their self-study efforts.

- **Collect, review, and incorporate feedback from participants**: Allow participants to express their opinions and discuss / incorporate feedback to show that their voices are heard.

- **Use a friendly and respectful communication style**: A friendly, positive, and respectful tone should be maintained in all communications to create a positive and supportive atmosphere.

Managing an online choir and promoting social interaction

Managing an online rehearsal

- **Instruct participants how to avoid disruptions**: Explain to participants that background noise and unwanted comments can disrupt the rehearsal and inform them how to mute themselves.

- **Open the "rehearsal room" early**: Open the online meeting 15 minutes before the rehearsal starts to allow for sound checks and informal interaction among choir members.

- **Strive to create a warm and personal atmosphere**: Use features of the technology solution being used (such as a customized waiting room with the online choir's logo or image) and greet choir members by name as they enter the session to create a welcoming environment.

- **Ensure effective choir leadership**: The conductor should communicate with clear and supportive instructions and provide honest and friendly feedback to the choir members.

- **Ensure language inclusiveness**: Conduct rehearsals in the primary language of most participants, but translate key points into English for international members (e.g. using captioning for real-time translation).

Managing an online choir and promoting social interaction

Developing a group feeling and fostering a sense of belonging

- **Organize pre-rehearsal introductions**: Share information with descriptive information (e.g., nationality, age, gender, choral experience) to introduce choir members, e.g. during the technical pretest.

- **Organize icebreaker activities**: Play interactive games to help choir members get to know each other (e.g., sharing personal facts) and encourage casual conversations.

- **Develop and promote team spirit**: Organize section rehearsals with smaller groups to encourage and facilitate better interaction and develop group spirit within sections.

- **Make sure new members feel included**:
Pay special attention to integrating new members,
especially in projects with a mix of existing and new participants,
so that they feel socially connected.

Managing an online choir and promoting social interaction

Establishing and promoting social interaction

▪ Be aware of the different (social) needs of participants and be inclusive: Participants should be allowed to engage in social interaction according to their preferences (e.g., turn off the camera for those who prefer less interaction).

▪ Encourage use of the camera: Being able to interact visually with fellow participants can help to enhance social presence and interpersonal connections.

▪ Allow time for informal conversation before, during, and after rehearsals: An arrival time, breaks, and social activities after rehearsals allows members to chat and socialize.

▪ Plan dedicated social activities: Social activities such as quizzes and games encourage interaction and engagement.

▪ Use innovative technology solutions and features to achieve social goals: Innovative platforms (e.g., virtual worlds) for social activities allow participants to move around and engage in one-on-one or small-group conversations.

▪ Celebrate successes: At the end of the rehearsal period, hold a release party to celebrate the group's accomplishments.
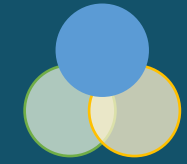
Technology and admistration

Before the rehearsal	During the rehearsal

Before the rehearsal

- A short sound check should be made before each rehearsal.

During the rehearsal

- The contact person for the technical setup should be available throughout the rehearsal.

- An alternative means of communication (e.g. messenger chat or video conferencing) should be available to facilitate direct contact with the support team and to allow for a quiet rehearsal.

- Other setting options should be centrally configured by the support team - for example, the volume of individual voices or instruments can sometimes be configured separately by the administrator.

- Foster a collaborative environment where participants help each other by sharing tips and experiences.

- Make the support process transparent (e.g. by implementing a ticket system for larger groups) to track problems and their solutions.

Conducting online performances

Bringing the online choir to the virtual stage

- Carefully organize and manage performances: Provide choir members with comprehensive and timely information about technical, musical, and other performance requirements. For live performances, include technical tests, warm-ups, and dress rehearsals to ensure smooth performances.

- Prefer live group performances: It is recommended that choir members be able to perform together as a group to avoid feelings of isolation when singing alone at home and to foster a group spirit.

- Create a unified look: Ask choir members to wear coordinated outfits (e.g., black with red, green, or gold accessories) and use themed virtual backgrounds to create a group spirit and protect privacy.

- Allow room for individual contributions: Brainstorm ideas with choir members to create a performance and invite them to make individual contributions to encourage individual expression and group identity.

- Pay attention to the specific requirements of hybrid events: Manage the complexity of hybrid events by ensuring clear communication and prompt resolution of technical issues. Provide opportunities for participants to feel part of the event, even if they are performing remotely.

- Organise a concert tour: Touring online is much easier than touring in the physical world. Organise live concerts and virtual "concert tours" to provide performance opportunities and build group cohesion.

Recommendations for specific types of choirs

Exemplary comparison of chamber choir vs. children's choir (in an online setting)

Aspect	Chamber Choir	Children's Choir
Target Group	Adults, experienced singers, often with musical experience and predominantly high musical standards	Children with little choral experience in some cases, limited attention span; primary school age; focus is more on playful approaches
Use of technology	Low-latency software (Soundjack), focus on real-time sound work	High-latency (e.g. Zoom), lots of playback, videos, games
Rehearsal duration	60-90 minutes, intensive work on details	max. 30-45 minutes, frequent changes between activities
Warm-Up	Technically demanding (intonation, resonance, breath control)	Playful (animal voices, movements, fantasy stories)
Methodology	Precise, analytical, with a lot of personal responsibility	Playful, pictorial, with clear sequences and rituals
Repertoire	Sophisticated, often polyphonic works, polyphony, complex harmony	Monophonic or simple polyphonic songs, movement songs

Exemplary comparison of chamber choir vs. children's choir (in an online setting)

Aspect	Chamber Choir	Children's Choir
Focus in rehearsal	Sound balance, intonation, blending, interpretation; including aspects relating to dealing with latency	Enjoyment of singing, sense of rhythm, understanding of text, simple means of expression
Feedback culture	Constructive, direct feedback, also with audio recordings for follow-up	Lots of praise, motivation through positive reinforcement, playful feedback
Independence	High level of personal responsibility for practising between rehearsals	Help or guidance from parents may be necessary, tasks more playful and optional
Social aspect	Common goal (e.g. recording project, exchange on a musical level) Fun, group feeling, playful interaction, small online games. Recording project), exchange on a musical level	Fun, group feeling, playful interaction, small online games
Leadership	Clear, precise, demanding, motivating, high communicative clarity	Pedagogically sensitive, creative, demanding, motivating, with clear processes
Postural work	Focus on fine postural corrections, conscious use of voice	Movement games to loosen up, playful posture training

Competences for conducting and participating in online choir projects

How to use the skill map

- The skills listed on the following slides are **not mandatory**, but have proven to be **useful** in the project and have contributed to the success of the choir rehearsals. For example, independent study and preparation by choir members is useful when there is little or no support from fellow singers during rehearsals and the conductor's time is needed for other tasks.

- Skills are assigned to the **roles for which they are most relevant**. This does not mean that they are not relevant to other roles.

- The specific **roles may vary from choir to choir**. Roles may also be omitted, e.g. more sophisticated technical support for rehearsals via video conferencing solution may not be necessary.

- The **skills listed are not exhaustive**. The focus is on skills that seem particularly relevant to the online environment.

Relevant competences: Choir-pedagogical perspective

Skill	Choir member	Conductor	Choir management	Technical support
Independent learning and preparation	●			
Self-discipline and self-motivation	●			
Empathy and patience	●	●	●	●
Self-monitoring and self-awareness	●			
Self-responsibility	●			
Self-confidence and autonomy	●			
Communication skills	●	●	●	●
Flexibility and spontaneity	●	●	●	
Musical skills	●			
Vocal technique	●			

Relevant competences: Technological perspective

Skill	Choir member	Conductor	Choir management	Technical support
Software knowledge	●	●	●	●
Server administration				●
Hardware/Equipment knowledge	●	●	●	●
Basic audio engineering knowledge				●

Relevant competences: Socio-technical perspective

Skill	Choir member	Conductor	Choir management	Technical support
Communication and collaboration through digital technology	●	●	●	●
Digital content creation		●	●	●
Problem solving	●	●	●	●
Safety (privacy)	●	●	●	●
Language skills (e.g. English)	●	●	●	●

The competences listed under the socio-technical dimension and their descriptions are adapted from the European Union's DigComp framework (Vuorikari et al., 2022).

About the Choir@Home project

Project overview and goals

| 1) State-of-the-art analysis | 2) Design of solutions and principles | 3) Demonstration and evaluation |

1) Identification of the **state-of-the-art** of online choir rehearsals: Current state, opportunities, challenges, best practices

2) Design of **technology solutions and principles** for carrying out online choir rehearsals: Development of guidelines for online choir rehearsals in terms of technology setups, choir pedagogy, and technology acceptance and interaction

3) Application and **evaluation** of the designed technology solutions and principles: Creation of an online laboratory choir to test, gain feedback on, and improve the developed guidelines in at least 25 online rehearsals

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Technological dimension

Choir-pedagogical dimension

Social and socio-technical dimension

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Choir@Home

How to carry out virtual choir rehearsals with the help of digital tools

R5.7.1: Teaching Materials

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