Comparing & Contrasting FREE Platforms and Procedures for Online Music Instruction:
Skype, Zoom, Hangouts Meet, WhereBy, Facetime, Jitsi, etc.

[See Also: Online Teaching Resources / Distance Learning Ideas for Band Directors]

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On 18 March 2020, a group of Minnesota band directors tried several major video conferencing platforms to determine the advantages and disadvantages of each. Read below for general notes, including specific thoughts about the pros and cons of each free platform. Most importantly: use what works best for you and your students. Find meaningful ways to connect, regardless of the platform!

General Notes regarding online music instruction

These reminders are actually more important than anything! Regardless of which platform you use, everything is dependent upon your equipment and the quality of your internet connection. Regardless of which website/app/platform you use, please ensure that you and your students follow these simple instructions:

- **Always close ALL other programs and apps. If you're using a web-based service, your browser should be the only program open.** If using an app like Zoom or Facetime, close EVERYTHING else. This is ESPECIALLY important on simpler machines like Chromebooks and iPad (They just don't have the CPU power to handle video conferencing well)
- **Always use earbuds or headphones instead of a speaker, even if only meeting one-on-one.** If you don't have headphones, just use the built-in speaker. Adding a Bluetooth speaker adds even more to latency issues. We repeat: always use headphones! (Both teacher and student!)
- **Use a WIRED external mic if at all possible** (even a cheap one is way better than the built-in microphone; do NOT use a Bluetooth microphone - even more lag!)
  - A $10 USB mic like this is MUCH better than your built-in one
  - An awesome middle-of-the-road $35 option

- If you're serious, [step up to the $100 level for something nice](#) that you could also use for podcasting, serious recording, etc.
- **Never play directly into (or 'at') the microphone** ("off-axis" setup is very important). Distortion and clipping are already issues with video chat - don't make it worse by playing "at" the mic.
- **For on-board mics, have students back up at least 3-5 feet from the computer or laptop and play off-axis.** This allows a little buffer from overwhelming the on board mic.
- **Lag exists on ALL platforms. Do not try to have a "rehearsal" large groups of students playing at once.** You can meet with a group of students (probably 5 or less) but only one person should be playing at a time, unless you try the technique described below.
  - **Sectional idea to eliminate the "lag" problem:** Mute ALL students. Director plays or conducts with a metronome. Unmute students individually to hear/assess. Students will focus on THEIR sound and staying with the met or conductor. (Conductor could share "share" his/her screen so they can see the metronome) (This is something choir directors are doing - teacher plays piano while students sing their part [muted] to get reps. Unmute individual students to hear their sound)
- **If possible, reduce bandwidth usage on your network.** For students at home, this can actually be quite easy. Turn off the gaming system, stop streaming Netflix, etc. You can free up a ton of bandwidth and improve your video call immensely!
  - TEACHERS: If at school, connect to a hardwired Ethernet connection rather than using WiFi

Zoom
- PRO: The desktop/laptop version of the app allows for "MUSIC MODE" which greatly improves the sound quality for music!!!! [WATCH THIS TUTORIAL](#) (this feature is not available for tablets or mobile phones at this time)
  - *Go to Audio > Advanced*
  - *Check the box entitled, 'Show in-meeting option to "Enable Original Sound" from microphone.'*
  - *Set "Suppress Persistent Background Noise" to "Disabled."*
  - *Set "Suppress Intermittent Background Noise" to "Disabled."*
  - *Ensure "Echo Cancellation" is set to "Auto."*
- PRO: Awesome extra features (easy to record, whiteboard feature, advanced a/v settings, etc.)
- PRO: In most situations, audio was best when set to auto-adjust (dynamics are attenuated, however); the nice thing is that you have control over this either way
- PRO: Free *FOR NOW* but in the past, it has had a fee

- PRO: Integrations with devices (tablets) as second screens makes demonstrating music / content during meetings really easy
- CON: Some districts disallow Zoom (data privacy concerns)
- HELPFUL TIP: Read THIS BLOG ENTRY about how to keep party crashers from infiltrating your Zoom meeting (and making sure your students don't share inappropriate things)
- BOTTOM LINE: This was the best performing platform overall, in terms of quality of audio, least lag, and video clarity. It also offers the most features. RECOMMENDED!
    - But with a caveat: Downloading Zoom for work raises employee privacy concerns

Google Hangouts Meet
- PRO: Closed captioning - VERY accurate and effective.
    - (Although when Heidi tried this later in the day with her fellow staff members, it was not as accurate but that group was not as polite and patient with verbal chatter and background noise. Especially bad captioning with Spanish because it just tried translating to English - badly.)
- PRO: Really good layout for up to five, accommodates up to 100. (Multiple view options. We recommend that you set to "tiled" view, you can see the other four people very clearly and prominently)
    - You can have up to 100 in your meeting with the paid G-Guite.
    - You have to lay down ground rules and make everyone go on mute and "raise their hand" by messaging in the chat window. Don't forget this!
- Audio/Video not quite as good as Zoom but not significantly worse
- PRO: Easy to screen record the session
    - (Note: the person who created/initiated the hangout is the only one who can do this)
    - When Heidi did this with staff later in the day, any of them could start/stop the recording. We are not sure yet if this is open to all staff or all students as well.
    - The meeting recording gets saved in a folder in my Google Drive and it's titled Meet Recordings.
- Better video on computer vs phone
    - Chromebooks have pretty bad sound, so the phone app might be better for some. Or an alternative laptop.
    - However - when Heidi led Google Meet with those outside her district she had to allow non-district accounts to enter. So having students join a Meet on a device that is logged into their school apps account is best.
- More lag than ZOOM but better than Skype

- BOTTOM LINE: Overall, this is probably the best option for schools for a couple of reasons.
    - First, most educational institutions already have G-Suite (which makes it free, but also your district/school has accepted the user agreement)
    - This is important because Hangouts MEET is far superior to Google Duo and regular Google Hangouts in terms of the A/V quality as well as the features within the video chat itself.
    - Lastly, if you record every session, you have a record if a student is inappropriate.

WhereBy
- PRO: Super simple to join a 'room'. This was the easiest, simplest platform of the whole test.
- PRO: Web-based. No app/software to download.
- PRO: Nice layout - fun features like emojis!
- CON: Pretty serious latency issues. We found ourselves talking over each other and having to pause a lot.
    - Screen freezing is common.
- CON: Chromebook was NOT super compatible
- CON: Free account only allows 4 in a 'room' at a time.
- BOTTOM LINE: A really easy, simple alternative. But when it comes to audio/video, there are much better options. (Maybe better for a 'chat' than for a band lesson, but if other options don't work, this is a possibility.)

Skype
- PRO: Low notes sounded good
- PRO: Emojis!
- PRO: Most people already have accounts
- PRO: There is now a web-based option, in addition to the app.
- CON: Pretty significant lag issues. Below average.
- CON: Distortion on highest notes
- Con: Must have an account. The whole "logging in" thing was pretty awkward.
- Con: On school devices for 1:1 districts, students might be blocked from using Skype.
- BOTTOM LINE: Do not recommend. The benefits do not outweigh the negatives. It was just a hassle.

Facetime
- PRO: If both users have a good Internet connection and newer/more recent devices, the video quality is quite good since there is much less "translating"

- ○ For example, if you and your video partner both have the newest generation iPhone and/or iPad, you will actually get a pretty solid A/V connection!
- PRO: Very simple to use and connect on an iPhone, but….
- CON: Facetime is quite clunky on a computer
- CON: Latency test was quite 'average'. No better than other platforms. Not as good as Zoom.
- CON: Only available to Apple users
- CON: Really just for 'chatting' - not a lot of extra features for teaching.
- BOTTOM LINE: Do not recommend unless you're both Apple users with newer devices on fast internet connection and you don't need any extra features.

FreeConferenceCall.com

- PRO: Web-based OR app-based.
- PRO: Latency test: not bad for audio! Almost as good as ZOOM!
  - ○ HOWEVER (CON) No support external audio devices (mics) available. So there might not be significant lag, but the audio quality is relatively poor.
- CON: Video quality not as good
- PRO: You can literally have 100 people (or more!) on a "call"
  - ○ This might be a great option for a lecture, student/parent meeting, etc. If you need to gather a LARGE group of people together in a "live" setting, this would work very nicely.
- CON: Pretty basic in terms of features. Nothing fancy.
- CON: We had some issues connecting. The process for joining the 'call' is simple, but we got several error messages before getting everyone into the video chat.
- BOTTOM LINE: Great for big meetings, pretty strong when it came to the 'lag test', but video quality was poor. Lacked the additional features of other apps/platforms.

Jitsi.org

"Jitsi is a set of open-source projects that allows you to easily build and deploy secure video conferencing solutions. At the heart of Jitsi are Jitsi Videobridge and Jitsi Meet, which let you have conferences on the internet, while other projects in the community enable other features such as audio, dial-in, recording, and simulcasting." …from
https://jitsi.org/what-is-jitsi/

- PRO: Open source, anonymous, and free.
- PRO: No accounts required or needed.
- PRO: Password protect meetings for privacy.
- PRO: *For the nerds:* spin up a server, install, configure, and you have a deployable service for your community/company.
- PRO: *For the non-nerds:* they offer a free service for instant meetings:

- ○ https://meet.jit.si/
- PRO: Allows connections to online calendars (Google and Microsoft) where you can schedule and add meeting information to events.
- PRO: Allows for instant recording to Dropbox.
- PRO: Allows for instant live streaming via Youtube (can also be used to record).
- PRO: Audio only option available.
- PRO: Android and iOS apps available.
- PRO: Phone numbers for call in options (they call a number and enter a PIN).
- PRO: Offers classroom features like "raise your hand", screen sharing, and chat.
- CON: Doesn't allow saving for other online storage such as Google Drive or One Drive but using the YouTube option can work (streaming to a private stream, for example).

Because we had previously heard very mixed results, we did NOT test **Facebook Messenger Video** *or* **WhatsApp**. *We also did not test paid services like* **Cisco/Webex** *and* **BrainCert**.