Making Music Together

Team Musicians #7
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Who are we?
The Problem:

How do we make music together during class and perform in our respective fine arts classes during COVID-19?

“Band is the best thing to ever happen to me. It has taught me so many life lessons and has helped me navigate the real world. It helps me make new friends who I make amazing experiences with and the activity is one of the main things I look forward to when coming to school” - Sarah W., RUHS Band and Guard Member

Were you impacted by the virus in terms of the lack of fine arts?

“... as a result of the virus, unlike any other of my classes, it was very hard to virtually continue with band. To me, this was very disappointing and disheartening because band was honestly one of the highlights of my day. It served as my happiness, motivation and escape. However, because of the virus and virtual learning, not only was the cheerful atmosphere taken away, but a piece of my happiness and well being.” - Musiq, RUHS Band Member

Do you think playing together would work virtually?

“No, because orchestra is about playing together, but we can’t really do that over calls.” - Rose, RUHS Orchestra Member

“I do not. Working with an ensemble can’t be recreated online.” - Jordan, RUHS Band Member
COVID-19 Impact on Fine Arts Student Survey

Which of these did you experience during COVID-19 due to the lack of fine arts activities?  
14 responses

- Negative impacts on mental health: 9 (64.3%)
- Lack of motivation: 13 (92.9%)
- Lack of focus in classes: 8 (57.1%)
- Lack of emotional support: 7 (50%)
- Everything kind of just felt like a loo...: 1 (7.1%)

Learning is “social and emotional” (Dr. Byrn Hempel)
SYSTEMATIC POSSIBILITIES OF RISK REDUCTION IN THE FIELD OF MUSIC

**Entrance Screening**
- Belonging to risk group
- Contact analysis with infected
- Symptom query

**Fever measurement** (exclusion >37.5°C)

**Room / air / duration parameters**
- Playing music/Singing outdoors

**In Buildings:**
- sufficiently large rooms
- regular ventilation
- reduce rehearsal length

**Individual protective measures**
- Distance between people
- Mouth-nose-protection
- Plastic protection/partitions
- Instrument-specific aspects

C. Spahn, 2020
Defining the Solution and the Process

Solving the problem of having a large group of musicians playing together in one space by addressing issues which are unique to band and orchestra:

- Creative design process
- Changes to the location
- Process of implementing the solution
- Engineers needed to make the solution a reality
- Our innovative solution
The Band Room and the Orchestra Room

Photo credit: Yulia Savine, Google Earth
Performance Shields Original Design

Photo credit: Sarah Malkin
Performance Shields Original Design

- Blocking spread of virus while allowing spread of sound
- Based on design of sound barriers used at schools and designs of auditoriums
- Allowing a large group to play together safely
Performance Shields Original Design
Materials

- Sheeting: plastic vinyl sheeting
- Framing/Support: thin PVC pipes vs. sturdy metal wire (can test varying gauges)
- PVC Glue or any other plastic vinyl adhesive can be tested (Many options!)
- Mounting on chair: Velcro mounting strips
Benefits and Costs

**Benefits:**
- Sneeze-proof
- Easy to clean
- Relatively sturdy
- Possible to store (design can be stacked!)
- Affordable compared to the common option, plexiglass.
- Easy to wipe down as part of regular cleaning due to plastic vinyl sheeting material

**Final Cost per Sneeze Shield (range):** $26.71 ($33.84 with full frame if extra support is needed on all sides)

**Estimated Total Cost per RUHS band and orchestra programs (range):** Cost of providing shields for RUHS band and orchestra students (130 students) - $3472.30 ($4399.20 for full frame)

*does not include labor costs*
Audio engineering major, Mechanical engineering major, Materials science and engineering major

These engineers would help with designing the chair sneeze shield.

All of the other solutions are quick wins (low effort, major impact) and do not require engineers.
Players can unzip their mask when they it is their time to play, and then zip their mask up afterward.

A poly chiffon fabric covering over all instruments with bells to shield the biggest opening in the instruments (limits saliva leakage and some aerosols)
Mask Design for Percussion and Orchestra

- Standard masks worn at all times
Full Group Procedure
● Seating one section at a time
● Once a week/regular full group practice outside while social distancing
● Outdoor practices in the morning or evening to avoid heat
● Open doors/anything to increase ventilation
● Marking social distancing
● This can also apply to performances!

*Need to keep in mind room ventilation times, good reasons to alternate small group and full group practices during class periods*
Performance

- Recorded during rehearsal times
- Outdoor concerts in open areas (ex. field) with band distanced

Photo credit: ruhs orchestra instagram
Small Group Procedure
● Sectionals practices are a format students are familiar with
● Smaller groups are easier to social distance

Something that has been done before, easy to do.
Spit Control

- Before Covid-19 Brass players would dispose of saliva from their instruments by emptying it on the floor
- This was never the most sanitary practice but now it proposes a large hazard
Neutral Q-64 already in a bucket to disinfect the saliva as soon as it leaves the instrument valves.

“Neutral Q 64 meets the EPA criteria for use against SARS-CoV-2 that causes COVID-19 when used in accordance with the directions and preparation for use against Human Coronavirus.*”
Stand Accessibility

- Student who have stands at home will bring them to school
- Students without stands will use a school issued stand
- This ensures everyone can have an individual stand
Sheet Music Accessibility
Alternative Options

*Primarily for people who cannot participate in in-person classes due to being high risk or having other major health concerns regarding COVID-19

- Playing tests/weekly challenges for students to record and submit
  - Instructor feedback
- Feedback through zoom on playing progress with band/orchestra section leaders

This video was made by compiling multiple recordings, made to the same tempo(s) and pitch.
How Our Solution will Change the Space

○ Who uses the space?
  ■ Band/orch students
  ■ Band/orch staff

○ Changes for stakeholders
  ■ Positive and negative

○ Changing the function of the space

*Photo credit: Mikaila Hishaw
Barriers to Design Implementation

- Cost?
  - 130 shields -- ~$3,500 (min cost for partial frame, excluding labor)
  - Individual shields -- ~$27 (7 more dollars if the shields have a full frame, instead of skeleton)
  - Labor
  - Home cost, providing extra materials for those who may not have access

- Equipment?
  - 130 sneeze shields/chairs -- ~50 for orchestra, ~80 for band
  - Specific masks for groups – regular for percussion/orchestra, alternative for wind instruments

- Size of space? Etc.
  - Band room -- about 50 by 25 feet (minus 5 feet from 50 for lockers/stuff on walls)
  - Stage (where orchestra practicing usually happens) -- about 30 ft by 80 ft

Photo credit: ruhs orchestra instagram
Impact

Photo credit: ruhs orchestra

instagram
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Thank you!