Make This Make Sound

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ABSTRACT

The project “Make This Make Sound” started as a way to explore my relationship with playing violin. The violin was something I loved to play but it still felt separate from me. I wanted to handcraft instruments that had a more intimate relationship with the player. As the instruments were being created, I was interested to see how other players would feel about the instruments together in an ensemble, since playing in an ensemble was something that made me feel more comfortable as a musician. The instruments lend themselves to an experimental music making process as they do not have a history that must adhere to traditional Western music standards. A series of play sessions, some with only practicing musicians, and the rest with only amateur musicians were facilitated to gather feedback on how the instruments could be played. This was done to investigate the question: How can making new instruments facilitate an experimental music making process with musicians of varying skill levels?

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Introduction

I have been playing violin for a long time and have been able to play in many different styles. I was in orchestra in high school. There was a lot of the common Western classical repertoire with the usual set up; the performers all wear black and perform on a proscenium stage, above and separated from the audience. I was also taught fiddle which felt like a contrast from playing the traditional Western violin. A lot of it was taught by ear and I wasn't so focused on the sheet music. When I did learn fiddle from a book, it was interesting to see how one song could have multiple names and disclaimers from the arranger that what's written is approximately what the song is like. It reinforces the idea that this music is taught by ear and maybe wasn't necessarily made to be written down.

I always had some sort of issue with the setting of both of these styles. I wouldn't call myself a natural performer but I felt like in an orchestra the audience is an intense presence even though you can't see them with the lights dimmed. You are supposed to know they are there but the big stage and the bright lights prevent you from seeing them. Fiddle was a more informal performance; it was something I played for family. I always thought it was awkward to play the fiddle in a traditional concert setting with a seated audience when it is something that is made for dancing.

Strings have an intimate relationship with the player and have been a favorite of mine. The feel of the vibrations underneath my fingers and forming calluses from holding them down is a way the instrument physically imprints itself onto the player. I wanted to explore that relationship between the object and the human body. I was looking at instruments like the cello and guitar and how those are held more intimately. I wondered how to bring the instrument closer and how much we should mold ourselves around the instrument.

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I reflected on my violin lessons to look at the start of my relationship with the instrument. The first 2 weeks of playing violin is about learning how to just hold the body of the instrument itself. You have to stand/sit a certain way so that you can optimally squeeze it between your shoulder and chin but make it look in a way that is effortless. It

can’t be too awkward because then you have to add a bow to it and it’s best that the bow stays perpendicular to the strings so you get the best contact. Violins now have a chin rest and shoulder rest that better fit the player, but those are additions forced onto the instrument. The shoulder rest is something I have to take off in order to put it back in the case. The chin rest has metal bars that clamp around the body of the instrument and scratch me while I play. It's significantly more awkward to play without these extras. The violin is uncomfortable to hold, but I accepted it.

The instruments were quiet when this experiment began. There are two perspectives on this. On the one hand, it demonstrates intimacy between the instrument and the musician. Because of the silence, it is difficult for an audience to hear them, so the audience should be closer and smaller, or not present at all. A smaller and more intimate gathering would accentuate the intimacy of the process. In a play session, however, the other performers must also be able to hear each other. Later in my instrument-building process, I grew more interested in having some form of ensemble, therefore the ability to amplify the instruments became more crucial.

I thought it would be beneficial to involve other people to help develop techniques for the instruments through hearing what they thought about the instruments and seeing how they played them. I have preconceived notions about certain instruments and techniques so I wanted a fresh take on the instruments. In the end, I established a practice for them that would be recorded. This was carried out through multiple play sessions involving players with a variety of musical skills and levels of experience. I wanted anyone to be able to play the instruments I built, so there were sessions with practicing musicians and others with classmates who didn’t have a lot of music experience. I thought it would be stressful for the amateur players to have an audience and put on a performance so those sessions were not open to the public and only have documented audio and video recordings. The focus was initially on the players and the instruments to study that relationship, so an audience wasn’t necessary. The practicing musicians were to perform in front of a crowd because I thought they would be better equipped for it, and it would be an opportunity to show the instruments in another context.

Context

In my research for this project, I started by looking at not only my relationship with the violin, but also at other instruments and practices that I thought had interesting relationships with the player.

The practice of gamelan, from Indonesia involves a set of instruments ranging from percussion, to strings, to flutes, and is known for its strong metallic sound (UNESCO). The method for playing can be described as improvisational, but not exactly in the way we know in jazz music (Susilo and Kreig). There are still rules in place that are specific to this kind of music for the players to follow so that they stay together.

Gamelan can be played by anyone for festivals and ceremonies. I was interested in how this practice creates complicated connections between people through instruments as well as what it means to curate a set of instruments together. Players have to work together through music, so they have to be able to listen to what's happening around them and see how they could contribute to the overall sound.

I also looked at the hurdy gurdy for inspiration. Similar to the creations of the sculptor and instrument builder Trimpin, whose work I will address below, it feels like a contraption. It appears and sounds mechanical, although it is entirely acoustic. It has the shape of a viol, but it is held in the lap with a strap so the musician can keep it balanced. It's famous for its drone sound, which is similar to bagpipes but contains strings (Whyte). Modern hurdy gurdies have at least 3 strings, 2 are used for the drone sound with the rosined wood wheel turned with a crank on the end of the instrument. It acts like the bow of a violin but it has a more continuous motion and sound. The other string is for melody. There is a fingerboard looking piece that has piano-like keys sticking out of it that the player presses to create different notes. I was interested in the fact that it has elements of other instruments we now know combined into one. It has keys like a piano, a way of vibrating the strings like a violin, but it is held in the lap like a lute. I thought I could use that idea of taking traditional elements of other instruments and recontextualize them to make something new.

Maywa Denki is a company from Japan that is made up of musicians, artists, and toymakers. The leaders are two brothers, Masamichi Tosa and Nobumichi Tosa, who are often referred to as "parallel world electricians" (Williams). This design group also puts on performances with their instruments and are often seen wearing blue jumpsuits and have exaggerated and absurd mannerisms. They call their instruments "nonsense machines" where their designs are incorporated with humor. The nonsensicalness of their work makes the instruments have a mind of their own, or they are from another world.

I looked at several projects from Maywa Denki. The Otamatone is a popular one. It was produced in conjunction with the CUBE toy company. It's an electronic instrument that looks like an eighth note and kinda sounds like a theremin. The instrument uses both hands, where one moves up and down on the stem to tap or slide to create pitch, and the other opens and closes the tadpole mouth. I appreciate the whimsicalness of this instrument, and I believe the mouth is an interesting incentive to interact with the instrument. It makes the player feel like the object is singing, and that you're playing with someone.

Seamoons is based on human voices. a motor that drives the bellows like the air from your lungs that gets pressed over rubber bands like artificial vocal cords. They describe it as having a brain that controls all its parts (Maywa Denki). This language makes a connection between the human form and the mechanical representation in their instrument. There is something wonderfully scary about this instrument. From the way it's crafted, to the person-like figure, the sound, to the metronome movement of the

bellows, it gives it sentience. It is a skeleton of a person, or something trying to imitate a person. I'm also drawn to the openness of the mechanics and material quality. I enjoy seeing how it works and how it's put together. It's "engineered" but it has the care of an artist.

I was worried about being a facilitator and leading a group where I didn't have a specific desired outcome. The idea was to create a curriculum or standard of teaching that is flexible enough to accommodate any number of people. Composer Cornelius Cardew taught a course on experimental music at Morley College where the class had a mix of musicians and non-musicians. Students described it as having no curriculum, and that common vocabulary like "music" and musicians were challenged and broadened to fit the different people involved (Barry). I was interested in the more collaborative aspects of a group dynamic. The group included people with a variety of skills who had to participate and make decisions in an unfamiliar situation, so I was curious how you made people feel comfortable enough to do things like this. To me it seemed like his class operated in a way where the goal was to level the playing field. I wanted to see if creating new instruments that didn't have a history could achieve a similar outcome.

For the project, I wanted to include people who had little to no music experience. Trimpin believed in involving non-musicians and making it simpler for them to become interested in instruments. I was looking into installation and passive instruments and the dynamics between sculpture and instrument. He calls a lot of his works "contraptions" (Focke). Changing the word from instrument to contraption alleviates some of the pressures around the experience. The contraptions are more like installations than something you would pick up and hold. The interaction is usually a small one. Some pieces just have a button to press, which then starts the instrument. It is an easy and less intimidating interaction for people who don't want to be too involved.

One of the ways to facilitate an ensemble was to introduce a score. John Zorn's "Cobra" has an index for notation and he held up those different signs on pieces of paper during a live performance of it to tell the players how to play (New England Conservatory). This could have as many players and as much time as wanted. He is very animated as a leader. He doesn't just hold up the cards, he gestures with them or points at certain people. The players are improvising as well as the conductor. I didn't end up doing this method because as I learned from the first play session, I think it would be too much. There are a lot of new elements being introduced all at once, like the instruments, making sound, and playing with other people, so I thought having them also pay attention to what I'm doing in the moment may be too stressful.

Crafting

Most of the crafting took place at the same time as the play sessions. I started with what I knew from violin making and my experience with violins so the first 3 instruments are stringed instruments. I moved into making instruments out of found objects to force

myself in a new direction. These involved using a speaker as an instrument and an accordion. At this point, as the play sessions were happening, I thought the ensemble could use a percussive instrument. While the drum was being created, I experimented with electronics to create an instrument that is separate from the body.

Stringed Instruments

The idea for the first 3 instruments was finding a shape that could be embraced by the player. This change in form relative to traditional stringed instruments like the violin, cello, or guitar, meant changing how the instrument will be played as well. Crafting the instruments was also an experiment in material. Wood is familiar and traditionally associated with many stringed instruments. But the types of wood I wanted to try, plywood and poplar, are uncommon for instrument building. I wanted to see if they could still produce sound. For some instruments I also used steel. This is relatively common for instruments, like steel guitars, but I was hoping to slightly change how they would be held. The question became how to make this metal feel comfortable.

Given these changes, I was worried about keeping tension in the strings. I thought string tension was necessary because from what I knew, it's difficult for the strings to make an audible sound from bowing or plucking if they are not tight enough. There basically needs to be 4 main parts: the tuning pegs, something that aligns them for the fingerboard, a bridge, and then the tailpiece which holds the ends of the string (Hopkin). All three of the stringed instruments I created have these features in common with a traditional stringed instrument.

"Peanut"

The first instrument was made by laser cutting plywood into slices and glued together. I had a 4 foot by 8 foot sheet of 3/16in plywood that was cut down into smaller pieces to fit into the laser bed. The model for the instrument was made in Fusion 360 which I then sliced in Slicer for Fusion 360. In this software you can tell it how thick your material is, how big the sheet is, and it will slice the model in any direction you want in 3/16in increments. Then it will place those layers on the sheet as vector drawings, so that I can put them on the laser to cut. 127 pieces were glued and clamped into 3 main sections, then those 3 sections were glued together. I liked the lines and the profile of the object before I sanded it but since I was focused on touch I felt the edges were pretty sharp so I did end up using an orbital sander to smooth it all down. I still like the lines of plywood. I think it has an interesting visual rhythm and gives it motion.

I didn't have a clear plan going into it about how to attach strings. In my first iterationI drilled holes in the top of the instrument for the tuning pegs, a bridge, and a piece of wood with dowels in it that I could stick into holes in the body. In this set up the tailpiece was tilting a lot and at one point broke the dowels that held the tailpiece in. I moved the tuning pegs to go in the backside instead so that the strings wrap around the

ends of the tuning pegs so there is one more point of contact that stretches the strings more. I also ended up changing the tailpiece to a metal one that is held by looping around a plug at the bottom.

This instrument is held vertically in the lap. The bow is played perpendicularly against the strings with one hand while the other can press on the strings to create different notes. The instrument sits close to the body, and doesn't have any way of standing upright on its own so it has to lean on you. It is a playful experience because of the weight, the finish on the wood making it almost slippery, and the fact that there's no one way to hold it.

Former CT MFA student playing Peanut

"Poppy"

I used poplar wood for the second instrument because it is used as a tonewood for guitars. I knew that the instrument would probably be pretty quiet but I didn't think that was a bad thing. The boards of poplar were cut on the bandsaw and glued and pin nailed together. This instrument is the heaviest one. But the weight isn't necessarily bad and could be interesting because it changes the nature of the player's physical relationship to the object. I have tried both a wood and metal bridge for this instrument; It doesn't make a difference. I discovered it doesn't need a bridge at all. The metal tailpiece has dowels that slide into the face of the instrument and it acts like a tailpiece and bridge.

Myself with Poppy

“Goro”

For the third instrument, I thought using steel would probably ring the most. I was also interested in making sheet metal feel comfortable and making this flat material round enough to fit the body. The main process for this one was using the CNC plasma cutter and welding. The 3D model was made in Fusion 360. To fit comfortably against the body, the metal pieces needed to be bent. So, there were 13 parts to make each part small enough to fit in the bender. The instrument was split in half height wise and then 6 sections up. Each part was flattened or unwrapped in Meshmixer, which saved it as an svg file. Then that file was opened in Illustrator and exported as a dxf from there for the plasma cutter. All the parts were cut out of 22ga sheet steel. Each part was then bent roughly to the correct angle then welded together piece by piece. After all the parts for the back were welded together it was then used as a guide to cut out the face using the hand plasma cutter which was welded on. The tail piece was made with ⅜ square stock that was cut then welded together.

5 holes were drilled into the neck to account for the tuning pegs, which are threaded eye bolts and nuts that I drilled a hole into to secure a string. This instrument has a few different types of strings. It has two guitar E strings, two bass ukulele strings, and a brass guitar string as the lowest. it resonates well with any range of frequencies, but it is difficult to tighten the thicker strings. Sometimes they even break around the tuning pegs. I had to add a fingerboard because the strings became too far away to be comfortable.

The instrument reminds players of a lute, so they often hold it like a lute. It's held slightly tilted in the lap or held up with your arms while standing. The steel body allows the strings to ring a lot, but then the body dampens the sound of the instrument. The more contact points the body has with the steel, the less the material is able to vibrate with the strings. The closer you want to be with the instrument, the more it impacts the sound.

SOVA student with Goro

Found Object Instruments

Found objects were used to push the project in a slightly different direction. I felt stuck with the previous forms so I thought using found objects could open up more variety in shape and sound.

"Sage"

The "horn" instrument was made using a found object called a salt crock. It is a ceramic piece that has a cavity big enough for a hand and originally holds salt. I thought the hollow cavity could be useful. I tried making something that wraps around the opening using ¼ steel rod to hold a string, but that didn't create a compelling or enjoyable sound. But I noticed something did happen when people sang or spoke into it. I

tried attaching 3 pipes with metal cones to the ends so 3 people could use it at the same time. It became awkward to arrange that many people around the small object so I cut off two of the pipes.

I wanted to keep it off a table so I made a stand for it. I wanted it to have more of a presence, like you are playing with someone. It was made with ¼” round steel rods and started as 3 legs and a little wobbly at first but more legs were added to stabilize it. The speaker is hidden in the crock so there's a little more mystery to it. There is a difference in sound from the speaker being outside the piece to inside. There's also a change in sound if you cover up the opening with your hand or put your hand inside it. It could be a passive player or an active instrument.

Myself with Sage

“Dilli”

The final instrument began as a toy accordion which I found and replaced the outside parts in order to change its context. I thought that dropping some of the visual cues that the instrument normally has could make it more inviting. The toy accordion was taken apart and fitted to an old pudding mold tin. The reed boxes and flap openings were attached to two pieces of wood that nestle inside the metal mold. It originally had laser cut chipboard pieces that were folded and reinforced with paper, but those were very stiff and broke easily. I then tried just using a 24” x 19” sheet of paper that was folded in a

way that could still make the motion like a real accordion and have an oval shape like the tin. The paper bellows were taped to wooden insides of the accordion and then the metal parts were fitted around it. When the two ends of the accordion are pushed together, the bellows naturally push them back out, as if it is breathing. you can hear the paper crinkle as you play. I would be interested in seeing if different kinds of paper would make different sounds.

Myself with Dilli

Percussion

I wanted to incorporate fabric somewhere in the lineup of instruments/contraptions and contrasting materials like metal and fabric. This happened in two parts. One with fabric covering the metal and the other with the metal covering the fabric.

"Fera"

The first has a drum-like metal shape with 1/4in dowels attached to create a dome shape. Square stock with threaded holes were added to secure material to the top of the drum. I thought the drum could be filled with something to create extra noise when the player interacts with it. It is also possible to exchange the material that is on top since the head is easily removed. The drum head for the sessions was steel and it does sound like metal when struck. The drum does work as a percussion instrument. I made drumsticks to

go with it as well and those could be changed and be different materials to change the sound it makes when it makes contact with the drum head.

It feels soft from the felt but it has a hard interior from the steel. Players often put it in their lap, put one hand on each side to shake it, or wrap one arm around it to hold it against their hip to hit it with their hand or a drumstick. It is a low-stakes instrument. There is not as much to think about or focus on like the stringed instruments. The stringed instruments have a wide sound variety from the different techniques players can use on the strings, while the drum has one area to hit with a drumstick or shake.

CT MFA student with Fera

Electronics

This instrument is part two of contrasting materials and has metal covering the fabric.

"Pippa"

I wanted to explore an instrument that makes sound without being touched by the player. Touch is important to other instruments, but this instrument is something that is not made to be touched. The sensors detect anything that passes in front of it so it could be a hand, your full body, another object etc. so it is less intimate in interaction. It's a buzzer sound rather than a material sound from the stringed instruments. The ensemble needed more variance of sound and this is a break from everything else.

The instrument is made with aluminum because I wanted the lightness in weight that it has, and I thought using rivets would get things built faster than welding and grinding. It was modeled in Fusion and flattened like the metal stringed instrument, then cut on the cnc plasma cutter machine. It was then bent roughly to the correct angles, holes were drilled for the rivets, then riveted.

I wanted it to feel like there is something hiding in there, and getting close to it alarms it. So I found a simple Arduino project using ultrasonic sensors where the buzzer makes a sound using the “pitches.h” library (Arduino). Every 10 centimeters it plays a different short phrase, and the closer you get, the lower the pitches are.

I initially wanted to hide the sensors better and didn't want them to interfere with the form. But that was because I had finished the form before I had decided what sound I wanted it to make so it was difficult for me to think about incorporating them after the fact. It seemed like it would be more difficult to hide them so I needed to arrange them in a way that complimented the form . The sensors are little rectangles with two cylinders extruding from it, which are the actual sensor parts, so I drilled two holes in the bottom sections of the panels so the electronics are hidden inside the dome but the sensors can still be used.

Pippa outside

Play Sessions

As I was making the instruments, I wanted to experiment with them in an ensemble context. I was interested in hearing how the instruments would sound together,

how people would interact with them, and how to facilitate an experimental music making process. I looked at Cornelius Cardew's "Scratch Orchestra" to see what it's like to facilitate an experimental ensemble that involves many people of different skills, and to make them all feel equal in the music making process. I tried methods with and without structure to try to get an understanding of how these instruments work in an ensemble setting.

Pulling from my own experience practicing experimental music, I decided to include some improvisational work as well as some graphic scores. I have played "scores" that are a painting, video, poem, or something where the composer has made their own new notation for sound. Drawing and making short animations is something I do as part of my thought process or artistic expression so I wanted to integrate those elements into most of the play sessions.

There were two different groups of players for the play sessions. One group was mostly current or past Virginia Tech Creative Technologies MFA students, while the other group was the Virginia Tech New Music Ensemble (NME) led by Dr. Hutchins in the Music department. NME had myself, two undergraduate music students, and Dr. Hutchins. I had a group with amateur musicians, and a group of trained musicians. Some of the creation and editing of these instruments happened at the same time as the play session as I took feedback from the players and the results of the sessions.

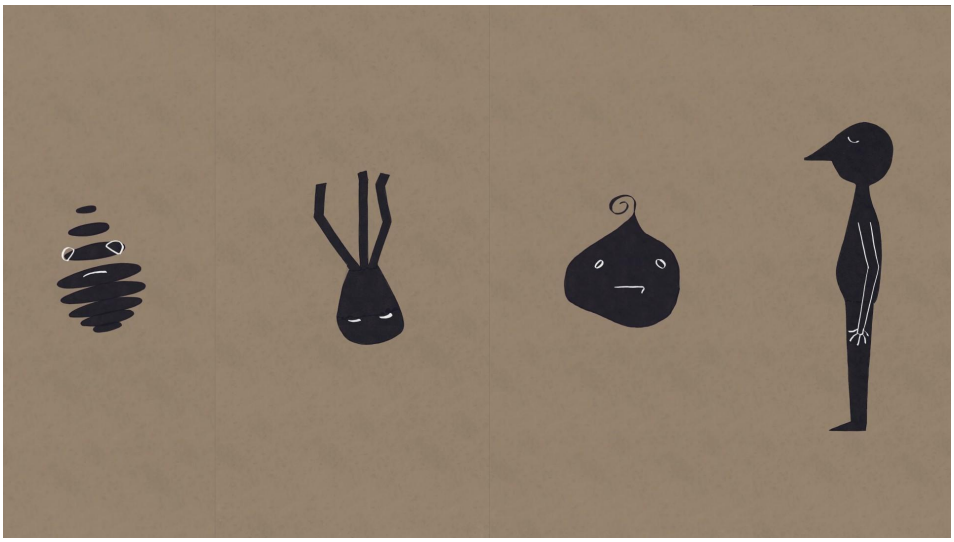
<u>Session 1</u>

Date: February 5th
Time: 30 Minutes
Instruments: Peanut, Goro, Poppy, Sage
Players: CT MFA students

Each player was given a looped animated score. There were 4 different videos that were 30 seconds long, and the players were instructed to use the animation as inspiration for playing as well as a timer for how long to play. So each player was playing at the same time while watching their animation and stopped playing when their animation was over. The players did this in rounds. After they did it the first time, they switched instruments and animations, so they passed each instrument and associated animation in a circle. By the end, there were 4 audio recordings of this play session.

The recordings sound a bit timid, as though the players were hesitant to make noise. I think that could be just the situation they were put in, also there was not a lot of information in the score since the animations are pretty simple. One performer remarked that since Goro is louder than the rest they felt like they couldn't use its full dynamic range because they didn't want to drown out the other players. I thought that it was very considerate to be thinking of others while in an unfamiliar process. If I was to give them

another graphic score, it would be important to consider how people translate dynamics from a drawing or animation.



Screenshot of all 4 animations

Session 2

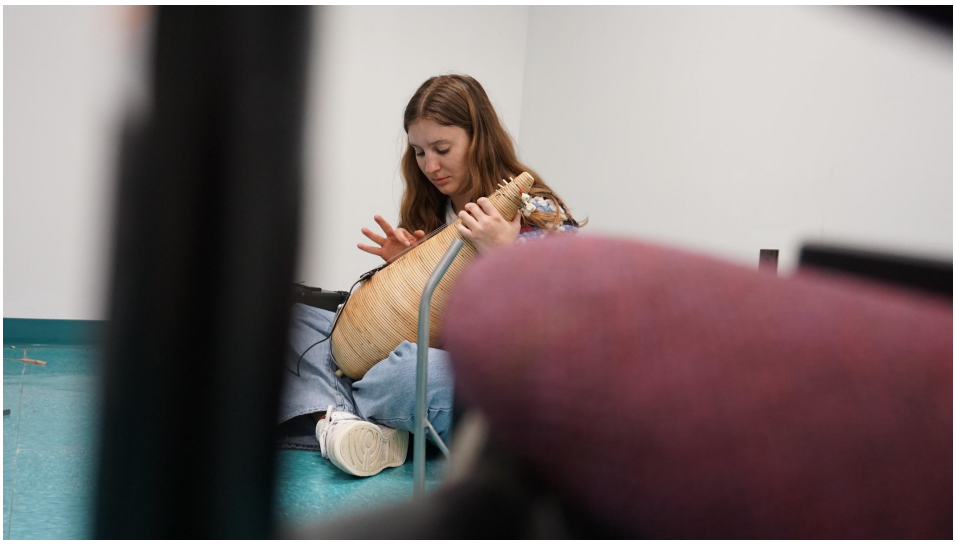
Date: March 3rd
Time: 30 Minutes
Instruments: Peanut, Goro, Poppy, and Sage
Players: CT MFA Students, CT Undergraduate Student, Music PhD Student

The stringed instruments were hooked up to amps. In the previous session, it was mentioned that the players were very aware of the fact that Goro is louder than the rest of the instruments. Whoever had Goro made an effort to stay at the same volume as the rest of the instruments. I thought it would be helpful if all the stringed instruments were amplified so that there was more control over the volume of the instruments so the players could hear each other better. Peanut had a guitar pick up, the others had contact mics. The contact mic wasn't really working with Peanut; the bridge was too small to fit it and the tailpiece was touching the body so it wasn't vibrating enough either. But the pick up worked. The other 2 stringed instruments had contact mics attached to their tailpiece, which seemed to be the only place where the amp could pick up the vibration from the strings. One of the amps sounded like it had too much of a filter. It made any of the stringed instruments sound like an electric guitar, while the other two amps seemed like they picked up more of the raw sound of the instrument.

I gave everyone an overview of the project as well as brief demonstrations of how each of the instruments work/sounded, with and without the amps on the stringed ones. Through observing the players during the session, I determined that these demos were too brief and I should get better at showing the whole sound world of each instrument.

I told them to have at it, and that they get at least 10 minutes of free time, after which I would give them further instructions to facilitate their music making in case they weren't sure what to do. However, that 10 minutes turned out to be 30 minutes. It naturally happened. They all played each instrument for a while before switching with another person and even exchanged techniques and sounds that they liked. In the end, they weren't given any instruction, and ended up just free playing for 30 minutes. They seemed to like the free time. They mentioned that they weren't that stressed out or worried about having to perform.

There was audio recording for the whole session, as well as some video and pictures taken of players while they were playing. I liked seeing the concentration in their faces, like they were really focused or trying to figure out something. I had been worried about performers becoming bored with the instruments, so I think watching them play for so long without any push was reassuring.



CT MFA Student playing Peanut

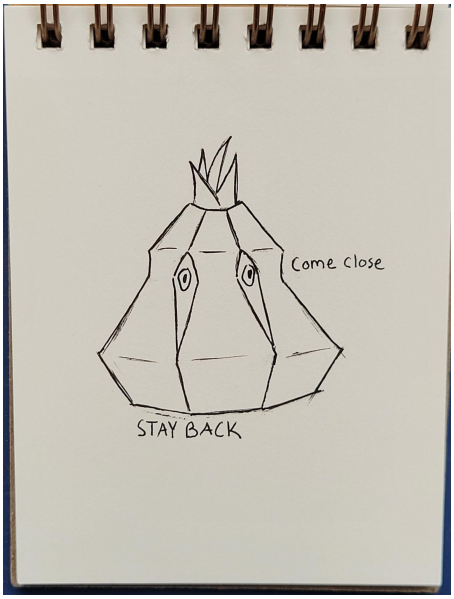
<u>Session 3</u>

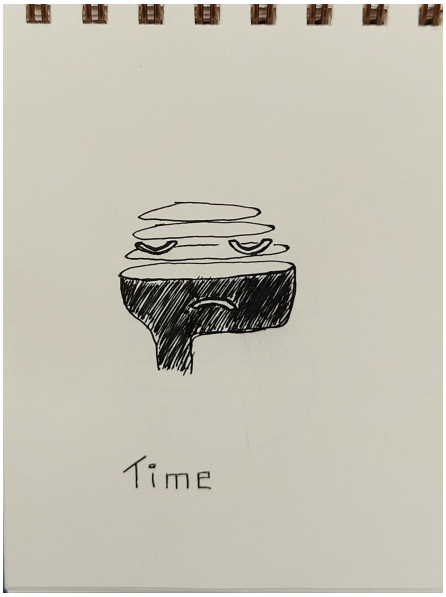
Date: March 14th
Time: 1 Hour
Instruments: Peanut, Goro, Fera, and Boxes
Players: New Music Ensemble

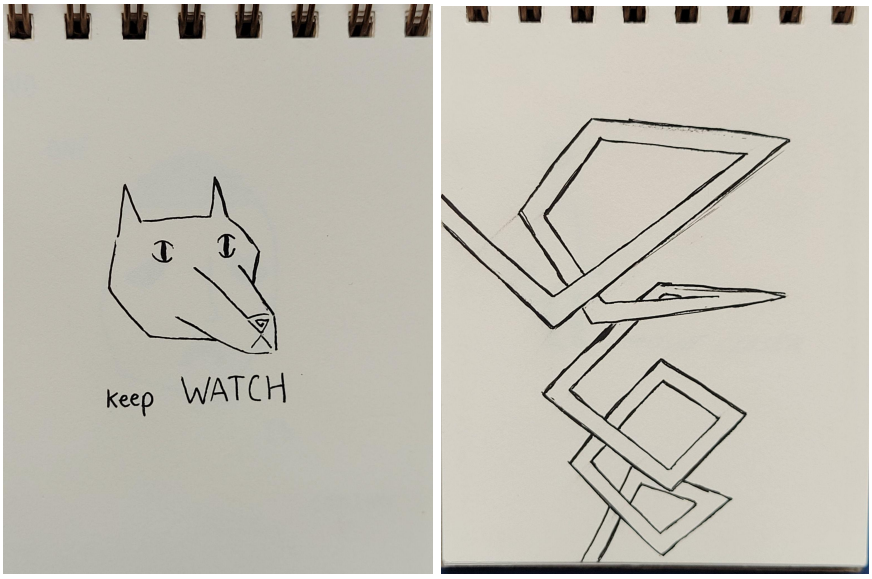
This session was the first time the instruments were used by the musicians that were going to perform on May 1st. The method was free improv as I wanted to see if it was possible to listen to each other while also experimenting with these new instruments. Each performer had one of the instruments. We played for a few minutes, then we passed the instrument to the next person. Each player tried to experiment with their new instrument so unfortunately there wasn't much "togetherness." So it was suggested by Dr.

Hutchins that maybe to make it easier and sort of unify the group I should make some sort of score.

At this time, I thought for the score I would use little drawings I had made throughout the last few months. The drawings are inspired by the form and sound of the instruments.







Sketchbook Drawings

Session 4

Date: March 19th
Time: 30 Minutes
Instruments: Peanut, Goro, Fera
Players: 2 former CT MFA students, 1 current CT MFA student

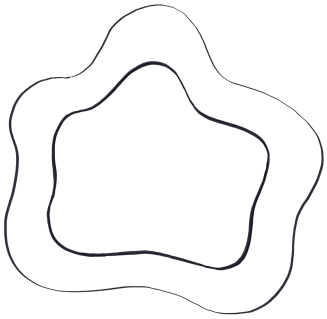
I wanted to redo the process of familiarizing players with the instruments and start with something very simple. I remembered reading about Bouba and Kiki, which is part of several studies about how we associate speech sounds with images (Ramachandran 28-29). I drew two simple drawings, a Bouba and Kiki, double lined, on separate pages.

I first showed them Bouba and said it would be their source of information for how they should play. They were all playing together looking at the one drawing. I told them to think about how to play round, bubbly, smooth, continuous, and that they had to play for a full minute. They were encouraged to play the first thing that came to their head. They were asked afterwards how they thought they did/what they were thinking about when playing. The player with Fera was trying to move the drum in the motion of the drawing. They were moving it around in the air and twisting and turning it like how it looked in the drawing so the acrylic in the drum was tapping around. The person that had Goro mentioned that they thought the drawing was made more for Peanut that had the bow. They were unsure on how to pluck an instrument in a round way.

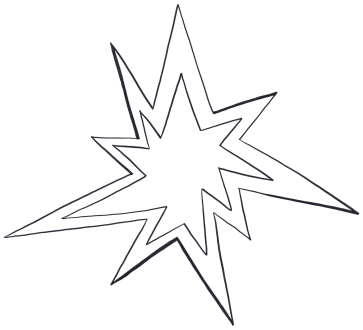
Then they were shown Kiki. I said to think about how to play sharp, pointy, and piercing. They played again for one minute, and were asked afterwards how they thought they did. They felt this drawing was more “active” and “chaotic.” The player who had Fera felt like they could really contribute to the soundmaking and remarked that the unpredictability of the acrylic jingling inside of the instrument complements the drawing.

They were then given variations on Bouba and Kiki. These were drawings that I had thought about putting in the score for the other session players. I wanted to see if they could use what they did earlier, but change it slightly when they are given some new information. The performers mentioned that they struggled with these two, because they felt like they had to do something grander than last time.

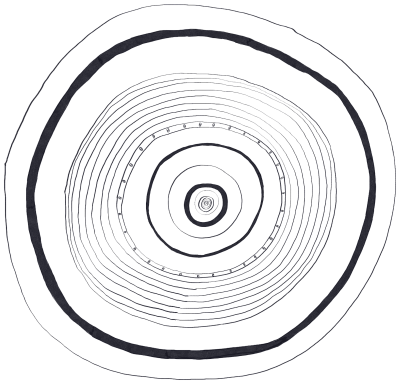
I liked hearing how they interpreted the drawings, and this session informed some of the visuals in the video for the final performance. This was also the first time this set of players used a violin bow with Peanut. In the recording I thought it was amusing to hear the bow player continue to play even while others were talking through the reflection sections. I'm glad it seemed entertaining enough to keep experimenting even when not necessary.



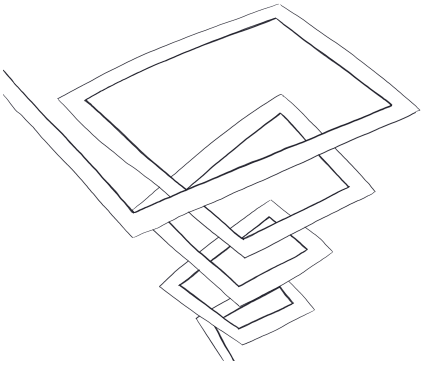
"Bouba"



"Kiki"



"Bouba" variation



"Kiki" variation

<u>Session 5</u>

Date: March 24th
Time: 30 Minutes
Instruments: Peanut, Goro, and Fera
Players: SOVA Faculty

This was a faculty critique that I ran like the workshop on March 19th. I wanted to see how this process would go with a new group of people that haven't been part of the previous workshops. I used 3 of the instruments, so there were 3 people playing at one time. Some of the attendees had not played or seen the instruments before. This meant there were a lot of new elements all at once which resulted in a few of them saying that the experience was pretty over-stimulating. There were a lot of things to pay attention to, like the drawing, the instrument, and then the other 2 people playing instruments. They also mentioned that the Kiki drawing was a "stressful" drawing.

I understood that it was a lot of information all at once. I wonder if you really have to bond with the instruments before playing it with any sort of score, and how long building that relationship would take. Thinking back on when I first learned violin, I mostly had to practice holding it for the first week. So it started very slow and techniques were gradually added. I'm not sure if there is a way to speed up that process.

Session 6

Date: April 4th
Time: 30 Minutes
Instruments: Peanut, Goro, Fera, Boxes, Pippa, and Sage
Players: New Music Ensemble

This was the first practice with the score for that would be used at the May 1st performance. There was Peanut, Goro, Fera, boxes, Pippa, and Sage. At this point, Sage had a speaker inside it and I made an audio track to be played from it. The audio track was made from distorting the sound of crinkling clothes and other distorted vocal noises. The performers watched the video that was the score first with the audio track, without playing. Then we played with the video and audio track. Pippa was a little quiet in this situation. It sparked a conversation about if you should be playing for every second of the video/performance or should there be times where the louder instruments (Peanut and Goro) don't play or are very minimal so that quieter instruments could be heard. Ultimately Pippa would be electronically amplified because it was still possible to control the volume. It was helpful to have a score of some sort to focus on and I felt like there was some more togetherness than Session 3. At this point, I think it would just take more practice just like anything else. There was mention of making a clear connection between all the instruments and score through color. Pippa and Fera have a green felt so painting other things that are the same green and using that green in the video might make a better visual connection and make it feel like more an ensemble or collection.

There is a question of whether the score is to have a more direct connection, like a "play what you see," or it is there to give the performers a sense of aesthetics and tone for improvisation. After hearing this session, I thought it could be a bit of both. I liked hearing the players create sound that compliments the video, as well as reference specific

actions in the video. The interaction between player and video is a reactionary one because the players can't see what will happen next like in a traditional score.

Session 7

Date: April 11th
Time: 15 Minutes
Instruments: Peanut, Goro, Fera, Boxes, Pippa, and Sage
Players: New Music Ensemble

This was another practice for the final performance, similar to Session 6. There were points where it was just a big cacophony of sound, which I think was appropriate for certain points of the video. We discussed again about how often we should be joining in on the playing and instances where we thought there could be minimal sound.

I wonder what makes some of the players feel like they have to be playing all the time. I also was playing pretty often and thought I could lessen the amount of interjections. Along with the video is an audio track that is playing from a speaker inside one of the instruments. I wonder if there is something about it that makes you feel like you need to contribute to the sound already happening.

Session 8

Date: April 23rd
Time: 30 Minutes
Instruments: Peanut, Goro, Fera, Boxes, and Pippa
Players: Former and current CT MFA students, undergraduate CT student

We had another free play session which took place outside with battery powered amps. I wanted to use this opportunity to see how the experience would differ if the setting was changed. All the other sessions were done inside. The players mentioned they liked that there wasn't a plan for the session. They just played whatever they wanted for about 10 minutes, and expressed that they liked this method because there was "less pressure" on them. It was also the first time Pippa was used in a session. It was interesting that they tried to play with it, like it was leading the session. They tried to copy the sounds it was making or compliment them in some way.

I really enjoyed how the players handled the new instrument. I didn't think of it as a "leader" as the user doesn't have as much control over the sound as the stringed instruments. They treated the instrument like a 5th player and I think the idea of playing alongside a computer is an interesting relationship. The change in setting meant that sometimes we had an audience. The area we played in has a moderate amount of foot traffic so there were people passing by us as we played. It didn't seem to bother the

performers. I wonder, if this was the first play session, if they still would have felt this comfortable.

SOVA Students playing outside

Reflection of Play Sessions

There are many combinations of players to instruments and methods of workshopping that have not been tried, giving the project potential to continue. I remember reading that in Cardew's Scratch Orchestra students had to make compositions themselves. The compositions could be anything; it wasn't necessary to use traditional Western music notation. This could be a possibility after players have familiarized themselves more with the instruments and know what sort of sounds they make to get inspiration for their compositions. Another method that I haven't tried is doing "improvisation with rules." Players can discuss what sort of soundscape they want to create before playing and create techniques that they think fit. These two methods require more work of the players but I think it's one of the next steps in developing more techniques for the instruments.

I'm surprised that they expressed that they were more comfortable with the free play sessions. I was worried that they would become bored or wouldn't know what to do with the instruments, but I think the design of the instruments themselves helps them experiment. While there are indicators that remind them of instruments they know, like the guitar strings on Goro, the forms of the instruments are playful, which makes it easier for the players to accept non-traditional musical sounds and not try to copy traditional Western playing.

It was mentioned earlier in the paper that I liked how the violin physically imprinted on myself. I reflected if the instruments I crafted work the same way. Players

adjust their instruments to fit their body and are taken aback by some instruments' weight or lightness. I appreciate how cautious people are with Goro and how they hold Peanut like a baby. They are surprised by Poppy's and get tired from shaking Fera around. Similar to the violin, the strings still create impressions on the fingertips, and the difference in weights between the instruments adds a new physical component. Dilli is referred to as a roly poly, Fera as a cabbage, and Pippa as an onion or ufo. The players anthropomorphize the instruments by asking things like, "Can I hold him?" and "How is he doing?" The fact that the players ask for the names of the instruments and refer to them as having feelings indicates that it is also an emotional imprint.

Going into the play sessions, I thought if the players made sound with the instruments I would consider it a success. The process for the play sessions was an intuitive one. I would take what I learned from the previous one and try to apply it to the next. Although a pattern has formed from the play sessions with the other CT MFA students. The first session had instruction (animation), then a free play, another session with instruction (Bouba and Kiki), then another free session outside. The free play sessions had a new component added to them. The first free play session the amps were added, the second free play session the players were outside and Pippa was added. The free play sessions give the players a break from the instruction, sometimes they would mention being nervous about being given instruction. The free play also lets them familiarize themselves with the instruments better so they can feel more confident about the instruction. The players gradually became more comfortable with the process. I liked hearing things like "I want a stringed one this time" or "can we trade instruments." It makes me feel like they are engaged during the play sessions.

Reflection on Performance

I wanted to try to make visuals that players would use as the source to make music. I started with using the drawings from my sketchbook that were made during this project that were about the instruments themselves or images that I thought fit the aesthetics of the instruments. The drawings are a mixture of abstract work and characters. The purpose of the video was for the players to use it as inspiration for playing. They can reference any of the movements happening in the video or play anything they think would compliment the video. I tried using similar shapes to the Bouba and Kiki sessions because I liked the variety of sound that came from it.

On May 1st, as part of the New Music and Technology Festival at Virginia Tech, NME performed with the instruments. The performance was set up so that the audience was facing a projection of the video. The performers and I were off to the side, also watching the video with the audience. I was told from a viewer that the instruments looked like they were part of a set, like they all looked like they went together. I also received feedback that at some points during the performance that they could see and hear the connection between the visuals and the sound, other times the connection wasn't

clear. I feel that the connection does not need to be clear at all times. The instruments themselves have some mystery to a crowd who hasn’t seen them before, as to what they are and how they are made.

Conclusion

The process was rewarding. I had a wonderful experience seeing and listening to my friends play the instruments, and I am happy for the discoveries we made together. The players appeared to like engaging with instruments that had something physical to interact with that had an electronic output, like an amp. I'd like to continue a practice in which these instruments are played on a regular basis in order to better enhance their techniques. In the future, I hope to continue making instruments that are both acoustic and electronic.

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