



foundry10

Audio Program Overview
2016

Executive Summary

Overview

Foundry10 is a research organization whose mission is to provide students opportunities to create, design, and express their voices through expanded / non-traditional learning experiences. Since 2014, we have been running programs in digital audio. We have developed a robust program with many different types of offerings including classes, clubs, workshops, teacher professional development, intensive projects, and experiments.

We are fascinated by the learning potential that emerges from digital audio in education. After our initial work in the field, we found that this type of music-making appealed to a specific group of students, while still maintaining the excitement of music for a broader audience. Furthermore, there is extensive literature on the cognitive benefits of composing and performing music, but this literature is almost entirely focused on more traditional structures like band or orchestra.

Throughout this program, we have and will continue to explore a number of interesting themes using qualitative and quantitative measures to evaluate:

- What it looks like to create and implement a successful digital audio production program in school settings and beyond
- What sorts of experiences are most valuable to the learners participating in these programs
- How youth approach creative expression and sharing in a highly technical environment
- The skills, technical and creative, that grow as a result of participating in audio production

Ableton and Push have been fantastic tools for investigating these areas of interest. Push has been instrumental in easing the transition for students from early learning phases to more advanced skills due to the physical nature of the device. Furthermore, the power of the software enables students to explore in a way that aligns with their creative vision.

Going forward, we plan to continue to expand the program. Starting in the 2016-2017 school year, we will have digital audio as regular class offerings in two local schools, serving over 50 students per semester. This will be in addition to our growing in-house programs, expert workshops, after-school clubs and more. Finally, we plan to expand into new formats of instruction and interaction that, to our knowledge, have not been tried before with digital audio.

This report will go over, in depth, what we have learned so far about digital audio, what has worked, what could be improved, how we plan to grow the program, and the new directions we are taking.

Vital Stats

Students served - ~170

Total cost - ~\$60,000 (includes hardware, software, instructors, researchers and accessories)

Programs run – 16

Partner locations – 7 (includes schools, rec centers, interest groups, and library systems)

Story

We are approaching our third year of studying Ableton with Push with high school students. This work has taken a variety of shapes as we began to examine how to introduce people to the realm of digital music. Through after school programs at both rec centers and schools, in-house programs over the summer and on weekends, credited elective classes, classes with other community music organizations like The Vera Project, paid and credit student internships, and experimental one-off workshops focused around specific skills, tools, and artists we have explored an array of options and have learned a great deal in the process.

Each format comes with its own set of strengths and challenges. For example, in the open format of after school clubs and rec center classes, students are engaged in a structure that steers away from a traditional lecture approach. This format seems to work very well for students who already have some skill or natural drive toward digital music. On the other hand, students who are just getting started, or want to feel out the space, can feel alienated by the intensity of the Ableton interface, especially in an instruction-minimal environment. Melodics has been a tool that we have found useful in helping to bridge this gap, as it provides layout examples and encourages students to push buttons fearlessly.

Throughout these programs, we have gathered survey data, conducted interviews, and had informal conversations, all while monitoring student progress. We have learned about the situational power of each format, new directions to pursue, what to avoid and how to help students ease the transition from newbie to skilled audio producer.

Universally, we see a lot of student interest in digital music. They see it as an opportunity to explore the musical styles they enjoy and hone their skills for future careers, while others just enjoy it as a hobby. Many students have a passion for music, and the willingness to dig into the technical side of digital audio to grow their skills. Whether they want to stand in front of a crowd and perform, or just share their music with a few friends, students are finding interesting avenues to learn and express themselves through the experience of making music.

This quote from a student in an after-school club sums it up quite well:

“What inspires me the most about anything in life is music... I get so much energy from it, whether I am dancing, in the gym, whatever. I want to be able to create the energy I feel” – High school student

Approaches

“Music is my main form of therapy and expression, I can say and do whatever I want through music partly because it has always been a part of my life but also because it NEEDS to be a part of my life and will always continue to make me happy.” - High School Student

We broke down the formats in which we have offered programs into three categories: classes, workshops, and projects. This list not exhaustive, there are other formats that we would like study. This section outlines the formats we used and the following section will address what we learned from the experiences (Conclusions).

Traditional Formats (classes and clubs)

The most obvious format for any instruction is a traditional class. This more standard approach involves some lecture, although we try to keep the focus on student-work when possible. We have run classes at rec centers, in high schools, with partners, and in-house on weekends or during the summer. We have designed these with respect to the three distinct phases of learning: 1. Initial Development, 2. Project based - Bringing ideas to life, and 3. Continued expansion. Direct instruction is a key component in moving students through the developmental phase.

Classes that we have run are typically between 5 and 10 students, we have run over 10 sessions of varying size and format. Most of our classes are available exclusively to students under 18 years old, but we have run a few all-ages classes.

What worked

By far the most successful class we ran was during the school day was at Nova High School. Students came to Digital Audio ready to engage in a traditional class, and this subject was more interesting to them than the other elective options they had during the day. Because of the consistency of a bi-weekly class in this format, and the attendance requirement, the students were able to make it through the most difficult parts of the introductory phase and get to a point where they could express themselves, at which point they begin to show much more personal satisfaction. For reference, the classes at Nova are about eighty-five minutes. After roughly thirty hours of classroom instruction, they are able to use their technical skill to bring their imaginations to life in daily projects effectively. Since reaching this point, students have become significantly more excited to share, often times competing to get in front of the class and play some of their music.

An interesting side-note on Nova is that we have been training a future teacher there to sustain the program without constant foundry10 support. This will be an interesting opportunity for us to look at what it means to create a program that can continue on its own via the route of professional development.

During interviews with students, they mentioned that ample time for exploration was very important to their experience. We have built this into all stages of our program, and it has been successful as an approach to allowing creativity while still building skill. One student said “I liked the interactive structure, where we'd learn some concept or workflow and then immediately get to try it before we had a chance to forget about it. I walked out of class already feeling more comfortable with Live, as opposed to just having something to go try at home.”

We have offered a few classes alongside partners like The Vera Project. These classes have pulled mostly adults, who are more consistent in their attendance than adolescents. They also

seemed to enjoy lecture-style instruction, though this may be due to many of them having prior experience and the beat-focused nature of the course.

Finally, we are using the finger-drumming application Melodics as an introduction to both Push and rhythm. It's a great daily warm-up and really resonates well with the students. The level-based software has been effective, particularly among younger students, in introducing them to the concepts of playing out drum beats on Push to a timing.

What did not work

While our classes have been largely successful at engaging the attending students, they have struggled with pulling substantial numbers of participants. Generally speaking, we have open seats in our class-format programs that take place outside of normal school hours. This includes after-school clubs, in-house classes at foundry10, and our partner classes (like The Vera Project). Even within classes during the school day, attrition is also a major issue. While we have some students, those who seem to gravitate naturally towards DAWs, who are consistent attendees, many students join us for one or two classes and then do not return. We believe that something inherent in the traditional class structure may have something to do with this challenge.

One of the biggest challenges we have encountered with the class structure is how to enable students to make music outside of class hours. This is a big part of music, and something that is more easily obtained with traditional music making as instruments can go home with students where they can experiment and play on their own. We heard this type of comment from a few students: "I needed more hands on time and to practice between classes. I didn't get a chance to get each step before going on to the next thing."

There are two reasons we believe this challenge has come up: first, due to the cost of Ableton, we cannot have students taking the DAW home to continue to learn, get ahead, or even just play around. One adult in our program stated: "I practice 'music' 5 days a week, but for Ableton, I need to actually purchase it, then create when I have more time in the summer." The initial burst of creativity is limited to our joint presence together. We encourage students install the demo, but not all have that opportunity since some have used the demo before, and others do not have a computer that can run the software (this one is not really solvable on our end).

Second, the complexity of the interface means both that students need a mentor present to help them overcome large hurdles, and that they struggle to express their creative ideas in early stages of their learning. This makes it difficult for us to maintain engagement, particularly with larger groups.

Class structures also, somewhat surprisingly, seem to not easily lend themselves to student sharing of work. The classes we offered during the summer for 2015 culminated in two shows, one per class. Neither of these pulled more than 10% of the overall class attendees. While some of this was due to scheduling, there also appears to be hesitation by the students to stand in front of a group individually and perform live digital music.

Workshops

Our workshops are typically focused on a learning a single skill or tool. They are open to all ages and give us a chance to explore new topics in digital audio, understand how and what to deploy in our programs, and to gain a better sense of what would be interesting to students.

The workshops run intermittently and often draw in around 3-6 students of all ages.

What worked

Our workshops have seen big success with adult learners. In almost all of the workshops we have offered, there have been at least 50% adults.

We offered a course with KJ Sawka and iLL.Gates that was a roaring success among the local digital audio community. Their celebrity drew a large crowd and they led an excellent workshop. Feedback we received from participants was overwhelmingly positive.

A specific sub-section of our workshops are targeted at teaching music teachers how to use this software. We have been refining this approach, but have had success with a limited number of test teachers. Music teachers seem to be very receptive to this format of building skills and growing expertise as they can see the potential for expanding their students' understanding and linking music to technology in a more formalized setting.

What did not work

While the workshops are successful with adults, they struggle to draw in adolescents despite seemingly exciting topics like Beatboxing.

Publicity for the workshops, among both adults and youth, is difficult to get without serious celebrity endorsement. The KJ and iLL show was shared using their substantial networks, but without that, it is challenging to get the word out about these offerings. We think they would be hugely beneficial to the Seattle music scene, and offer us a chance to test out new tech, but getting people to show up is one of our biggest hurdles across all programs. While we ran some advertising, the more organic sharing from the artists seemed to be the biggest help.

Projects

The final format we have explored is connected to our student-led internship program. In this program we ask students to pitch us ideas, and if we can feasibly support them, we help set them up so they can pursue their project of interest. As another part of the internship, we try to bring in specialized industry experts to provide students with a broad view of the field their project is in.

Since students pitch their own projects, we have only had a few choose this path. So far, three students have worked on internship projects strictly focused on audio, with another two doing audio for video games, and one creating music for a movie.

What worked

Students with previous audio experience show substantial interest in the art form, and are also able acknowledge the technical difficulty of producing digital music. Coming into it with an idea of what they hope to create and some initial level of skill does seem to ease the learning curve and has produced a level of commitment that surpasses what we see in the other programs.

The ability to commit themselves to the creative aspects of a project has been very impactful for the interns. During our interview at the midpoint of the project with one, they said "The creativity aspect is my favorite part because there is free reign on the types of sound we use, we can make any sound we can think of. Putting that together with the drums, bass, chorus, it is creativity from start to finish."

For the projects, external sharing is a goal that is established from the beginning. Because of this, the students are always looking for opportunities to get their music in front of listeners. Since the students themselves pitch these projects, the sharing portion of it is almost always what they are working towards. Having this goal in mind does appear to make the challenges less daunting and ensure that students will press through harder times in an effort to express

their creativity. In particular, students show excitement about having a voice on Soundcloud and Youtube, and sharing their work on those media. The extrinsic motivation that comes from knowing how and where to share appears to be critical for students. So, showing them other areas where digital music is prevalent, like video games, virtual reality, and film, has been pretty effective.

Audio has many opportunities for exciting and unique experiences. Getting a visit to an audio recording studio is a great example of this. While we have not had the opportunity to bring audio-specific interns to one, we have brought video game development and film interns to studios to record and mix alongside sound engineers. Those students specifically mentioned this as being a highlight of their internship, and we believe the experience would be even more impactful for students focused on creating music.

What did not work

Students often underestimate the amount of work that goes into building skills and knowledge to achieve a level of proficient expression. This can lead to frustration, particularly during independent work time. While having a mentor present definitely helps, oftentimes these challenges are creative in nature and therefore solutions need to come from the students. It seems to be a lot like “writer’s block”.

Providing the exciting experiences can be really hard for all the project students. Studio time is in high demand and can be expensive. Reliable musically and technically proficient experts are tricky to schedule to come in at a time when students will be present.

Conclusions

“I’m motivated simply by the joy and fun of writing music. This course helped me get more familiar with writing music using Live, so that I can focus on the music and work faster.” - Participant

What can we take away from the programs we have run?

Traditional Formats (classes and clubs)

Teaching digital audio in a traditional classroom format functions well when it is included during the school day. This is likely due to a combination of factors:

1. Digital music is an exciting topic that compares well to other elective choices to which students have access. Digital music can often be credited as music composition, recording arts, computing, or humanities in public high schools.
2. Required attendance by schools ensures that students will be at enough classes to pass the early hurdles and get to a point where they are able to actually use the software in a creative way.
3. It draws in groups of students that are interested in music but have not engaged in any kind of traditional performance.
4. There are many collaborative elements that can be brought into a digital audio class so students can make music with friends.

5. Digital music creates the opportunity for lots of exciting, results oriented outcomes. The prospect of students sharing their music via social media, and also collaborating with visual mediums is high. Students show strong excitement towards sharing their music with video, animation, games, and VR.

Outside of the school day, the classroom format does not perform as well. The technical nature of the subject seems to work against extracurricular settings. Students may encounter frustrations early, disengage and not come back. The interface can be overwhelming, particularly for newcomers, and low attendance makes it difficult to have a successful club as there are many other choices that students can select.

How can students engage with the DAW outside of the school? Time in the DAW making music appears to be the biggest limiting factor in learning. Students know of the vast amounts of resources online for digital music.

Melodics offers a great way to start students on the concept of beat making, and laying the groundwork for future lessons. There is a satisfaction that comes for students from completing levels and learning a variety of rhythms and styles., Our research at SPACE, a local recreation center, showed younger students having a lot of fun with Melodics. This kept them interesting and coming back while we transitioned them from just playing the beats to designing drum racks and performing them. We believe that this is because it allows for students to see how the technology in front of them directly connects with the music they want to make. It also drives the physicality of playing Push as an instrument.

Another reason attendance and attrition are both unfavorable is a disconnect for students between the music they listen to and the idea of how it is made. Students, and in particular older high schoolers, can get discouraged by advanced technical challenge when they encounter it early on in the developmental phase. We would like to find more ways to connect the dream of being a professional producer (or “rock star”) to the work that the students are doing in the classroom.

Frequency of interaction is also very important in a classroom environment. In the classes we have run that are once a week, for two hours, the students do not retain much information, and often are frustrated by having to backtrack. This is especially evident in students who do not have the software at home. Again, if it were easier for them to explore the software at home, we could handle less frequent classes, which would make it easier to run these programs more often and to a wider audience.

Helping students overcome creative blocks is a definite area of opportunity for us. If instructors can provide short, accomplishable exercises that provide results daily, this can help students build assets and learn through hands on experimentation. Often idea expansion is the toughest part in the developmental phase.

Sustainability is a major point of interest for foundry10. Teachers, generally speaking, seem to be quite new to the idea of digital music. Some sort of professional development in digital music geared towards music teachers is essential. This is definitely an area we are excited to expand.

Adults appear to be more tolerant of the technical side of digital music. The consistency in attendance that we get from adults suggests that they are aware of the challenges inherent in digital audio, and therefore might be less likely to get discouraged.

In the developmental phase, getting students to share with the class is a difficult task. The Nova class is the first setting where students are excited about playing what they’ve made in the daily

exercise for everyone. We believe that this is likely due to the fact that students have invested 30+ hours and developed proficiency they can be proud of.

Yet, even with a venue, technology, and professional quality accompaniment, it is very challenging to get students to feel comfortable sharing. We want to find ways to give their music purpose and accompaniment through things like video games, movies, or other content that would utilize their creations.

Workshops

The one-off format of workshops does not seem to appeal as much to young people. This seems like it could be due to the focus on a specific skill that requires some sort of proficiency. It could also be due to transportation, as students are less likely to be able to travel. We have success bringing open format workshops directly to student communities would improve youth attendance. The lecture format has not proven effective.

Drawing on networks has been essential for getting the word out about these workshops. These networks are primarily adults, and we want to find ways to locate students who have audio skills and are looking to add more tools to their kits.

Workshops are an opportunity to focus on exciting and specific types of music making or other skills. Tapping into the Seattle music culture to find people who can teach specific skills, and having a lineup of upcoming workshops, seems like it would be a great offering for youth and adults alike.

Projects

The small group format of the projects is a major factor in its success. Students get a large amount of one-on-one time with an instructor, which makes a big difference in getting them to a point of proficiency. They can create as much as they want, and when they encounter difficulties, they have an immediate resource to which can ask their unique questions and get fast answers. This model is the most successful at getting youth involved and creating quickly.

Our internships are an intensive experience with almost 20 hours of work per week. Spending this much time in a consistent way on digital audio has been very helpful for the students in the program. Since there is so much time throughout the week spent on their project, they are able to interact with the software frequently, which ensures that they do not lose the skills they gain while working.

Approach Going Forward

“I can't live without music! I just love writing and making music, sharing it with friends, and maybe eventually performing for some more people.” - Adult Participant

Based on the information that we have gathered, we have begun to redefine our approach to digital audio.

The Next Format

We are inspired by the tech community here in Seattle to try a new format for audio production that we are calling, for the moment, Jams. These are similar in form to a game jam, which is an event wherein a group of people split into teams and work for a set period of time (usually 48 hours) to get as far in developing a video game as possible. It is often paired with some

competitive aspects where the games are judged at the end. This model seems like it would be a great fit for creating music for a few reasons.

Jams are an intensive experience with an end goal. Participants in the jam would know what they were striving for, have a concrete deadline, and need to overcome whatever hurdles were in front of them. Experts are present to resolve problems and hurdles.

The competitive nature of jams serves as a further motivation for creativity. Having students in competition would encourage them to solve problems, reach creative compromise, seek expert advice, and learn new skills.

Third, it integrates easily with all sorts of different interests from other industries. For example, having audio components at a game or virtual-reality jam would be easy and give students a chance to see other ways their music can be utilized, and other careers they could go into that are music-centric.

Finally, it is just an exciting atmosphere. Being a part of a jam is an electric experience, and is great fun. Many students would probably be energized just to be in the jam, nevermind the fact that they would be creating music.

We believe that this new format would serve as a great way to build interest in digital music, overcome initial hurdles of digital audio quickly, and get students interested and set up for a more traditional class structure where they can dig into specific skills. It answers the “what now” question that students often ask after they learn a few of the DAW skills by showing them where their music can be applied.

Focus on In-School Classes and Curriculum

In the 2016-2017 school year, we will have audio programs as part of the regular day in two schools in the greater Seattle area. This is another opportunity for us to see how the program works during the standard school lineup, and we will be monitoring it closely.

The initial reception to these courses has been quite exciting. One high school already has 46 students signed up across two sessions next year. We plan to talk frequently with the teacher, survey and interview the students, and hear from the administration to find out more about what has been successful, and what could be improved.

In addition to those, moving towards a formalized curriculum would be very helpful in expanding this program into more schools. We will be working with the teachers who are running both the classes and the existing after-school clubs to create a curriculum that works for many students.

Monthly Workshops

In keeping with what we are already doing, we would like to continue to offer monthly workshops. To do this, we need to expand our audio network in Seattle to find experts who have unique skills that they can teach. Keeping a fresh lineup of workshops is very important to the success of this aspect of the program.

Workshops give us the possibility to engage musical thought leaders in the community and explore new techniques in presenting new technology and learning experiences.

Continuing Projects

Finally, we will continue to support students who come to us pitching audio projects for their internships. Since this is on a case-by-case basis, we cannot plan too heavily for expansion in this area.

foundry10 Team

Andrew Luck - Andrew's career in music spans projects in software, music electronics, producing, performing, and composing. As Community Manager and former competitor in Seattle music competition Laptop Battle, Andrew is deeply committed to creating community around learning and music and is fascinated by instructional design. He believes strongly in the value of digital music in all people's lives and actively evangelizes it. Andrew joined the foundry10 team in the summer of 2015.

Jeff Kashiwa - Seattle native, Jeff Kashiwa knew he was destined to be a musician following his junior high introduction to woodwinds. His instincts were correct. He became known as one of the most compelling young saxophonists in contemporary jazz during his first year with The Rippingtons. Kashiwa performed hundreds of shows all over the world and appeared on many of the band's classic recordings. Jeff joined the foundry10 team in the summer of 2014 to help instruct, and has since been instrumental in developing the program.

Tom Swanson - Tom works in organizational development at foundry10. He has been involved in many of the technology programs that the organization runs. Since 2014, Tom has been organizing and developing the Audio Production program at foundry10. Tom has had music of some form or another in his life since he was very little, and developed a love for digital music during high school.