Applied Professional Development for Educators and Students

Professional Development is an essential component of any educational program, but is at times regarded as a frustrating experience by educators. Due to budgetary restrictions, some schools are not able to offer the scope of professional development opportunities for instructors that they once could. On other occasions, professional development feels a bit forced and teachers express dissatisfaction that the focus of trainings is not on the elements of teaching they feel would be most beneficial. Even really solid professional development experiences can seem disjointed from actual teaching practice or may have a “one-off” feel, where the training was great, but continued follow-up would make it even more useful for the instructors but that extended training might not be offered.

The effective design of a class or program is profoundly influenced by the instructor implementing the work with children. Continued focus on instructional practices, knowledge acquisition, and technique are crucial for effective instruction. Previously, we have discussed the various models of professional development we utilize here at foundry10. In this paper, we will discuss the idea of applied professional development.

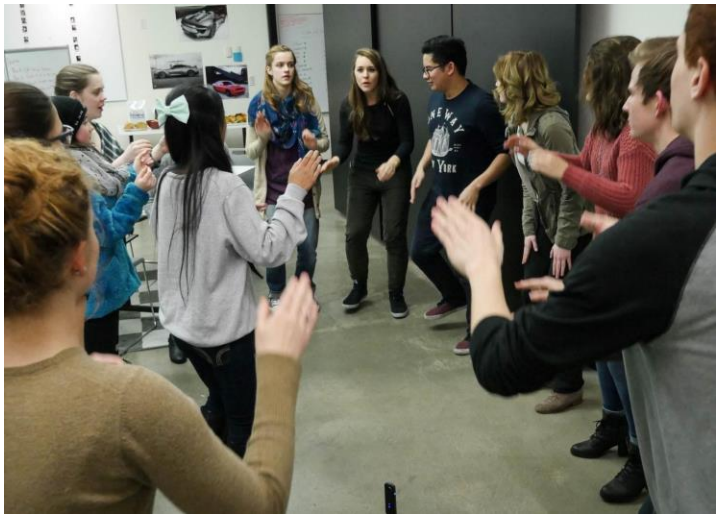
We define “applied professional development” as an iterative training process that extends into the actual classroom and student experience with support, guidance and feedback from experts. The addition of co-teaching opportunities and/or a hands-on, scaffolded practicum with an expert in a field of interest can greatly amplify the professional development experience, and often these pieces are missing in traditional professional development programs. The opportunity to co-teach or even have an expert present during instruction allows for more thorough post-lesson feedback, reflection and direction. This creates a deeper level of understanding for the instructor, which may improve teaching practice. Rather than being just one instructor summarizing what they “think” happened, this approach includes another expert instructor that can directly observe the effects. Students ultimately benefit directly from the overall improvements to the lesson.

In this paper we will highlight and discuss our applications of this type of professional development to show how it might work across different domains including: dramatic arts, digital music, dance (both for coaches and youth peers), robotics and virtual reality.

Dramatic Arts

In dramatic arts, the applied professional development approach of having a teacher co-teaching with an expert in the field of drama-based pedagogy has not only had a positive impact for regular classroom teachers, but we are finding it is also a highly sustainable model. It allows teachers to gradually assimilate a new style of lesson into their routine, over a period of time with an expert, for the implementation of professional development.

Participating classroom teachers, in our program, expressed an interest in using dramatic arts pedagogy with their kindergarten classes. This process began with simply having teaching artists lead and the classroom teachers observe. For the first round, foundry10 provided two teaching artists to model the process of co-teaching a dramatic storytelling classroom curriculum. The classroom teacher was present and supportive, but was not doing the teaching; they engaged more as a participant. In this way, the teacher is observing a teaching artist present the curriculum they co-developed. The classroom teacher would observe the artist and discuss so that they could assimilate the new pedagogical ideas. After observing, the teacher will later be able to apply their learning directly to his or her unique approach to the instruction.



In the second round, we sent one teaching artist to the classroom and asked the teacher there to step in to assist the teaching artist as much as possible based on their prior experience and discussions. The two discussed the plans and goals of the experience. The classroom teacher, having had the opportunity to observe the two teaching artists in action, was asked to gradually assume theco-teacher responsibilities. This role allows for a sharing of ideas between teacher and artist and provides a safe landing place for the teacher when he or she is trying something new and might feel stuck. In this phase, the teaching artist gradually takes on less and less responsibility leading the class and assumes a secondary role to the lead teacher, assisting him or her in the interpretation of the creative curriculum implementation. In this way, the applied piece of our professional development is in action and the teacher is able to receive direct feedback from the artist.

The final round shifted the demands even further onto the classroom teacher, as they were creating their own dramatic arts based curriculum and had switched roles with the teaching artist. In this approach, the teaching artist assisted the classroom teacher in implementation while the classroom teacher took the primary role.

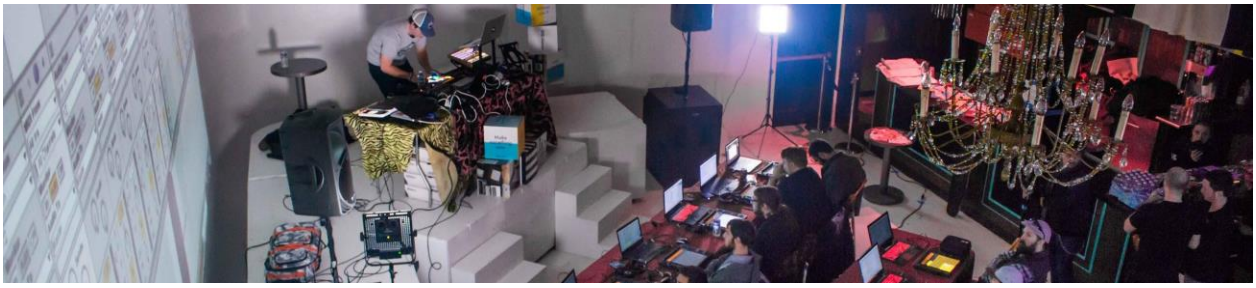
"*It's so sustainable this way. Even when the teaching artist isn't here, I keep up using the things we've learned with her.*" *- Classroom Teacher*

Teachers from the elementary school are now creating their own curriculum and the teaching artist is called upon occasionally in a support role. This model allows the classroom teachers to design and tweak lessons to best suit their students. Applied professional development is in this way a sustainable approach to enriching the classroom for both the teacher and the students.

To continue to develop this method, at a local preschool we are implementing a similar model where we ask teachers to work together to bring dramatic storytelling to life through a series of six week sessions. In dramatic storytelling we use dramatic arts based pedagogy, including creative drama, to help students generate an imagined story that, when guided by the teaching artist, parallels the given story of the text. The teachers assist the teaching artist in the narrative-driven, creative play at their comfort level with the material. Some teachers will act out select characters in the story or participate alongside the students and try taking on the responsibilities of leading students at moments directed by the teaching artist. We have seen teachers take on more responsibility in and out of role-play, driving the story forward and leading the students in more integrated movement with the book.

Comfort level appears to increase gradually over a series of iterations of the program and we tailor this to the needs of the teachers we're working alongside. In reflective surveys, we've found many teachers are able to see which books are well suited for this dramatic storytelling approach to language arts. They've been able to mold their discoveries from the drama intervention to not only language arts but also to math and science class. This applied professional development has given teachers an opportunity to refresh their lesson plans and give them immediate feedback on their growth so that the learning curve is not only effective, but a sustainable model for future use in their regular teaching practice.

Digital Music



Digital music software can be daunting, and for some of the programs there is a steep learning curve. In a creative endeavor, such as making music, it is important that teachers are able to help students to express their ideas without too much hindrance from the digital interface itself.

The best way to learn these programs is through exploration, so we used a workshop as a foundational approach, followed by additional coaching and support, to teach music instructors

how to use popular and powerful digital audio workstations (DAWs). Each initial workshop runs about two hours and covers either a piece of music theory, as it relates to digital audio, or a primary function of DAWs and how it can interact with creative expression. The critical element of this model is to have teachers able to explore the content covered in the class on their own. For teachers that count music among their passions, finding the time for the "homework" has been easy as they are creating music and having fun with the software.

In general, it takes roughly 4-5 of these workshops to reach a point of confidence in teaching a beginner-level class, according to feedback we have received from the participants. While more instruction is obviously helpful, digital audio requires a greater amount of commitment from participating teachers to explore the software and functions on their own. So in addition to the structured time, there is a fair amount of independent work time for the teachers as well.

What really makes this offering shine, however, is the check-backs with the teachers. There are generally two types of check-ins we utilize for digital music. The first, and most fun, is the occasional jam-session with the teaching artist and the classroom teacher. When it comes to digital music, a teacher having songs made to play for students establishes a lot of credibility and rapport. The jam sessions are a chance for teachers to work with musicians to create those songs. These wind up being a great time for both the teacher and the musician, and creates fun materials for use in class.

The second form of follow-up that we do with digital music is having the expert musician visit the class to share his or her own music as well as teach a specific advanced concept to both the instructor and the students. We have seen, across many programs, that the occasional inclusion of an industry expert, either to teach something or share their knowledge about "the business", is a big source of value for students and teachers alike. It highlights a different side of the music industry and bridges the gap between the in-class content and the real world.

Dance

While our focus is primarily on APD for classroom teachers, we are also exploring similar practices with students. At a local high school, foundry10 is currently helping implement a mentor track with high students where high schoolers visit and help teach middle schoolers in dance. One of the highlights of the program is that the student instructors team up with professional dance teachers to learn how to run a dance club and work on exercises and

activities. This gives them a chance to not only further their dance skills but also to better understand how to communicate and inspire others. One high school student mentioned that the learning activities and exercises were helpful, but implementing them in the middle school level was of equally large value to their overall learning. The high schoolers felt that being taught as a “teacher” rather than as traditional student of dance, as they were used to, helped them to think about implementation and time management more mindfully when working with both the middle schoolers and their own club.

During the first practice each week at the middle school, the expert instructor leads the club with the high school students. The instructor models, debriefs, and gives feedback to the high school students. During the second practice of the week, the high schoolers teach the middle school students with an advisor or instructor observing. When the high school students meet back up for the own practice, they discuss the experience with the expert instructor. This model of professional development reframes the student view of learning from a traditional role to that of both a student and instructor. We have seen that the experience of learning as both roles give the high school students a layered, more complex look at dance and dance instruction which, they feel, helps their performance on their own high school team.

For middle school students, seeing high school students take on leadership roles brings the context of the class out of the typical model where it is an adult “leading” kids. Particularly in expressive subjects, this is a good chance for students to establish relatable and positive role models, and relationships that cross age lines. Additionally, the younger students get a glimpse as where their skills as dancers will lead in the coming school years. Their goals become more tangible as they see the next steps for them as dancers.

For the high schoolers, the experience they gain by co-teaching the middle schoolers transfers to their club at the high school. They take the learning and new perspectives on teaching back to their dance club, applying new approaches to familiar challenges. For example, one of the mentors reflected that they were able to understand exactly what they need to work on to be a better leader. Where originally they had thought their weakness was indecision, through practice and discussion, they realized that their biggest issues were surrounding preparation and attentiveness. One student said, “It takes me ten minutes to figure out what song to play for the middle school kids. I lose their attention right away because I don’t know what song to pick.” After talking about this, the student came to the conclusion that she was coming in to courses unprepared to teach. The lesson at the middle school has taught her to make sure that she has music picked out, choreography to teach, and an agenda to follow for any class she teaches.

Currently we are running two high school programs, one that involves the added layer of student mentoring/teaching and one that does not. We are interested to explore, with regard to the student instructors’ teaching level, if working with younger peers truly does help older students develop a wider skill-set than simply practicing within their own age-group team. Our expectation is that this will be the case. As anyone who has ever had to explain something to someone else knows, doing and teaching are very different things.

Robotics

Working with staff at a local elementary school, we co-developed a curriculum to introduce Lego Mindstorms to their students. Lego Mindstorms is a great tool to teach robotics, as it involves the familiar format of building with Legos and is paired with a simple computer software that young students can use to program a robot. Looking at this program from a professional development standpoint, we involved a scaffolded, three-stage process. The staff that we worked with had little background in technical skills, but by the end of the program they were confident in their ability to teach the Lego Mindstorms curriculum independently.

The first stage was developing and introducing the curriculum in collaboration between foundry10 staff and the elementary school staff. We utilized pre-existing Lego curriculum and worked together to modify the it. Through this collaborative curriculum process, foundry10 staff and the classroom teachers explored Mindstorms more thoroughly and prepare for the first time class.

At the beginning, and in a similar fashion to the drama program, foundry10 staff were the primary teachers alongside school staff as support for the first stage. Again, this observation was the first step towards a the eventual phasing-out of the teaching expert, and allowed for the teacher to explore some of the challenges of the curriculum in a more comfortable capacity.

The second stage of this program saw the roles reversed. School staff led a majority of the curriculum while foundry10 staff acted as a support and led a few of the classes. We were present for every class session and worked with the school staff after each to prepare for the upcoming class. The two teams of teachers worked with the lesson plan and created notes within the Mindstorms software on some of the basic programs that would be presented to the students. This was a helpful guideline for both the students and staff as they worked through creating software. It was important for the school staff to be familiar with the lesson plan for the upcoming session so that they felt confident and prepared to lead.

The final stage consisted of the school staff teaching the program solo with foundry10 acting in a minimal support role. Support was provided via phone calls and emails as well as a few drop-in visits at the beginning and end of the series. This was not as necessary for the confidence of the school staff because previous notes that had been created in the second stage were still readily available. Lesson plans were only slightly modified, thus the staff did not have to learn anything new to lead the class on their own. From here, the staff was able to continue the program on their own and could potentially use this three stage process to train other staff.

Looking back, we can see that this strategy could be implemented in many subject areas. For robotics, this was particularly successful because software programs could be annotated. The annotations created a structured curriculum that would be easily repeatable in absence of experienced staff, especially if the staff had created the curriculum together. Furthermore, this format of applied professional development allowed the staff to work with the program hands-on, co-develop the curriculum, and further develop their own style of teaching robotics.

Virtual Reality

Our work in over 20 schools looking at the use of virtual reality (VR) in classrooms has also been an interesting applied professional development experience. Due to the newness of commercially available virtual reality headsets, the vast majority of teachers who expressed interest in using VR in schools for our study had not yet developed any sort of competence in the use of the equipment or best practices for implementing VR into the classroom. This project is an interesting example of an applied, distance-learning type VR experience for educators.

Through our own research with teachers we were able to put together some basic guidelines for how they can effectively set-up and interact with the technology. We helped them with simple troubleshooting, provided links and access to resources, and then asked the teachers to define their own paths for learning based on the objectives and curriculum they were exploring. This professional development was much more of an ongoing conversation with educators where they used us as a “jumping-off point”, but their own experiences with their curriculum and their students provided the driving force for continued learning and development. In fact, in this particular model, the students played a critical role in the ongoing development of the teachers. Together with students, teachers made it very clear that they were not experts in the use of VR and called upon their students as co-learners so that classes could achieve their desired VR outcomes as a whole. In some cases, these outcomes focused on effectively using professionally created VR content to enhance existing curriculum. In others, the outcomes involved teachers and students producing their own VR content, largely from scratch.

Initially we received a bit of push back from some teachers who would rather we tell them how to best use and teach VR. We felt it was important for teachers to examine their own processes and objective, although if they became stuck, we would help them to get unstuck. In essence, we wanted the teachers to model the type of learning they expected their students to do.

Foundry10 has been a constant presence for the instructors and always provide feedback and a level of support when needed so that any frustration does not become a barrier to teacher success. Through interviews and discussions with teachers we found that we were able to help them process ideas they were currently struggling with. We could utilize the power of having multiple teachers tackling similar ideas to help strengthen the effectiveness of the overall group. Furthermore, the ongoing communication with instructors helped us to focus on their objectives, assessments and student observations. It also allowed them to verbally process the successes and challenges they are facing, in real-time, while they are still working directly with students. Though the primary objective of the research study was to learn from the teachers, we quickly discovered that the process of verbally recounting their own experiences, and those of their students, was a useful tool in the teachers' ongoing development.

Additionally, we used the digital connections we had with other teachers to connect educators with similar goals and challenges to one another. In our first attempts, we tried to do this through the formation of a subpage of Reddit.com, a popular online image and discussion board. This posed interesting challenges as some teachers were not familiar with or comfortable with the Reddit format. In addition, the site was blocked for several schools and teachers would have to access it off-hours and not when they were in front of their computers at school. Mid-year, we decided to modify this arrangement and switched to a Facebook group. We wanted the teachers to be empowered to connect with one another versus passing through us.

It was difficult to capture the shared experience and challenges of VR, even in an applied setting, and teachers spoke about feeling siloed from other educators. As we continue to evolve our professional development work in applied settings, learning how to better navigate digital groups and spaces for support will be very important. We have frequently added on to our web pages and resources. During our conversations with teachers, we made a point of checking in and redirecting them to resources that would be helpful foundational pieces for their work with VR. It doesn't serve teachers to have them "reinvent the wheel", but we do believe that providing scaffolded amounts of information can help them navigate in their own creative directions, with their students, in the ways they find most meaningful. As noted by the National Research Council, "When teachers learn to use a new technology in their classrooms, they model the learning process for students; at the same time, they gain new insights on teaching by watching their students learn." (2000)

Concluding Thoughts

Professional development, in classroom settings combined with extended support and scaffolding is an effective way to structure learning for teachers. We've given a variety examples from different programs for how this applied professional development might look. From co-teaching models, to coaching models, and even more technology based online workgroup models, we believe the extended time to reflect and the connections with experts, both in-classroom and out, is one of the key benefits of this framework. Seeing applied professional

development as an ongoing process with opportunities for iterative refinements brings teacher learning to a new level and creates a real asset for course design.