



Tech Kids Unlimited Research Findings – 2nd Report
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Introduction

Technology education is lacking in American education; most middle schools and high school students receive very little in the way of coding, programming and technology development. This is in part because schools have been pushed to make way for the mandatory Common Core standards. Students with special needs, which make up roughly a fifth of all students in New York City, receive even less technology education.

Tech Kids Unlimited (TKU) is an organization that attempts to bridge this divide, by empowering those students with special needs to create, develop, and explore technology tools. Designed for kids 8 to 18 with special needs, TKU was founded in 2009 by Beth Rosenberg who was inspired by her son Jack, a special needs student. All the students who attend TKU workshops have IEP's. Students are exposed to 21st century technology skills that they have not had in the classroom, such as: HTML, CSS, JavaScript, Python, sound-editing software, video software, 3-D software and more.

In the first research evaluation of TKU (February 2014), we examined basic demographics of the students who attended weeklong workshops. Student and parent feedback was analyzed, mostly in quantitative form. This present evaluation dives deeper into the feedback from parents and students, offering more of a qualitative component to what we know. In addition, counselor feedback is analyzed, to give a more rounded idea of what goes on in the TKU workshops and summer camps. This is the result of a yearlong investigation, from the summer of 2014 to the summer of 2015, including feedback from both summer camp weeklong experiences and one-day weekend workshops throughout the year.

Research Methods

Three different groups are investigated for this report: students, parents, and staff. [Please note that throughout this report, the term "staff" is used as the term to include the Tech Teaching Artists (experts who led the teaching), Social Workers, and high school seniors, undergraduates, and graduate students who acted as counselors to all the

students.] Because they are all vastly different from each other, different methods were used to collect data from each group.

A series of seven focus groups were conducted with TKU students toward the end of their workshops or weeklong camp experiences. For Sunday workshops, the focus group happened toward the end of the day, and for weeklong summer programs these happened on Fridays as things were wrapping up. These discussions were informal in nature, allowing students to talk freely and away from the counselors and technology. (See Appendix A for Focus Group Questions for Students.) Focus groups were conducted by myself, with a counselor in one corner of the room to quietly take notes on a laptop. (The counselor was instructed to make herself inconspicuous, to allow for as free a conversation as possible.)

Many students were seen in focus groups more than once, as the same students often take different workshops at TKU. Focus groups can be difficult for those students who have autism and other communication disorders, so we also offered a survey. However, this survey did not offer the kind of results we wanted in a “deep dive” format; many students write with extreme brevity. There is overlap in participation here; some children who did the written survey may have also participated in a focus group. In the end, we found that focus groups work best for receiving the most information, even though some students remained quiet and reserved.

Parents gave feedback thru two focus groups. Again, these were informal in nature and parents were encouraged to speak their opinions freely, without any TKU staff around. (See Appendix B for Parent Focus Group Questions.) In addition, parents were given an online survey at another interval, which allowed for written responses. (See Appendix C for Parent Survey.) Parents, in general, are more likely to give thorough written responses, with a lot of thought and care. Both the written survey and the focus groups did a lot to inform this report.

Counselors/ Staff did not have a focus group; they were given an online survey to fill out. (See Appendix D for Staff Survey Questions.) The survey was really all that was needed, as many staff members wrote extensive feedback.

This report contains a closer look at the patterns seen in the feedback from each of these groups. There are no statistics reported here; rather there are detailed snapshots of what makes the TKU program special.

Student Feedback

Some common themes emerged from student feedback, even though this particular group is difficult to survey, given their communication disorders or language-based learning disabilities. The focus groups give a somewhat incomplete picture, as the most vocal students dominated the conversation. At the same time, the written surveys produced very little in the way of substantive feedback.

While comments might not be lengthy, they are direct and to the point. In essence, students love TKU for allowing them to explore technology – a learning experience that they cannot experience anywhere else.

Learning Technology

When asked what they liked best about TKU, students were always quick to mention the specific technology that they enjoyed. Very often, students were learning things they did not know before. Other students came to the workshop already knowing the program that they used, which allowed them to share their expertise in using the software or using it in a completely different way. Either way, TKU provided them with an outlet to use technology in a meaningful way.

- *“I loved doing Photoshop. That was one of the best parts. I did not know you could actually animate on Photoshop, which was crazy because I did not know that.”*
- *“[The best part of TKU was]...Being able to create a virtual world on my own, using a software program that I know. I always want to keep up my best.”*
- *“Last year when we were learning how to make a viral video, that was my favorite one.”*
- *“I never knew how to use I-stop, Photoshop, or iMovie before this.”*
- *“The best part was playing. It’s fun to code and here you learn something and you learn stuff step by step. I learned you have to take your time step by step. It’s like making a how-to video with all the steps.”*
- *“My favorite part was completing minecraft.edu, and it was challenging! It was super fun.”*

Frustrations While Learning

Despite the fact that the students loved using all the technology, they took time to complain about a number of things during the focus groups. The most common complaints were about technical malfunctions, such as a server crashing or a program not working the way it was supposed to. Other times frustrations arose because the content itself was difficult.

- *“I was kind of frustrated in the beginning because I was just frustrated that it was taking so long. And I’m actually really happy with it now. It’s just really incredible.”*
- *“Sometimes the programming was a tiny bit confusing but I love this program.”*
- *“I learned that servers crash.”*
- *“I had to start all over again because of a mistake. I was telling [a counselor] that I didn’t want to start over but he did a good job helping*

me...at first I thought it was just happening to me, but then [the counselor] explained that it happens to everyone."

- *"I don't like it when something doesn't work. I get frustrated when I need help because sometimes no one notices and I don't like that. I want the teachers to look out for when people are frustrated."*

Supportive Staff

It is evident that the staff played an important role at TKU. In every class, there are a high number of adults in the room - roughly 7 for the 20 students, providing a 3:1 ratio. They get very high marks from the students overall. In focus groups, students were asked what they thought about the "grown-ups" in the room, as way to discuss all staff members in a general way. Positive feedback stood out.

- *"I really liked the grown-ups. They are very nice."*
- *"I like to joke around with the counselors."*
- *"I don't like the grown ups; I LOVE the grown-ups!"*
- *"They are very kind and very nice people. J__ is awesome; he is so cool and he really knows what he is doing."*
- *"All the counselors tried their best. Even if it doesn't work out, at least I know that they are taking me seriously, even if they can't help. They try to help and sometimes I lose focus, and they've been flexible with me losing focus and also given me more chances (than say, in school) with behavior."*
- *"All of the teachers here are very amazing. They're the best! I also like to talk to them about technology outside of TKU stuff, like about computers and operating systems."*

Supervised Independence

In weeklong summer programs, students at TKU are given choices for lunch. Sometimes lunch is ordered in, and sometimes the students go out to purchase lunch on their own. In addition, students are given free time at the end of the day to either catch-up on projects or play video games together. All of this freedom is something not very common in the life of a special needs student. It was noted very positively in the focus groups:

- *"My favorite part was just hanging out during breaks and doing the animation was fun."*
- *"Most of the things we did were fun, and the breaks are a good part."*
- *"I like the break part and the fact that I talked to people."*

To Label or Not To Label

Many different kinds of students attend TKU camps and workshops. All of them have an Individualized Education Plan (IEP), but the similarities end there. Some students attend private special education schools, some go to public schools with specialized programs, and some are simply mainstreamed with extra help. There are students who require high levels

of support from staff, while others need minimal support. That difference can be confusing to the students themselves sometimes, as they try to find their place in this experience.

A very interesting pattern began to emerge as I did every focus group with the students. It seems that many kids who attend TKU are not aware that this is a program specifically designed for students with special needs; they simply understand that it's a program that teaches kids about technology – and nothing more. One day, at the end of one focus group, a quiet boy pulled me aside and whispered, "Is TKU for special ed kids?" I was surprised by the question. When I told him yes, he nodded and understood. It appeared that no one had told him that.

TKU is a program for "kids who learn differently" and the students are never labeled with "special needs" or disability terms. Throughout focus groups, there were occasional comments about other students' behaviors. Some expressed a frustration of having students with more severe disabilities in their classroom.

- *"Some people here have something wrong with their minds. I don't like all the other kids. A lot of them seem that they have to stutter a lot. Maybe you should put some of the kids in a separate room."*
- *"Some students are noisy."*

None of these observations seemed to diminish their enjoyment of the program; I mention this simply as an interesting side note that not all the students at TKU are aware that this is a program for kids with special needs. This points to family's different opinions in terms of parenting styles and opinions around labeling.

Parents' Feedback

While TKU is a program that focuses on teaching technology to students with special needs, most parents praise the program for completely different reasons. Feedback from surveys and focus groups yielded a few distinct areas that the program benefits: the supportive staff, socialization and teamwork opportunities, and positive self-esteem and happiness of their child. In most feedback from parents, the technology the students are learning seems almost secondary; they are simply happy to have a program that understands the uniqueness of their child.

Praise for the staff

The TKU staff gets the highest praise from the parents. In many surveys, parents mentioned the high staff-to-student ratio as a reason why they felt comfortable sending their child to workshops or camp.

- *"The absolute best part is that ___ felt comfortable because the staff there understands him."*
- *"I really like how staff calms him down and works with him when he's upset."*

- *"[The staff] ...email us about what has happened when there are issues. I like the way there is communication when they need to communicate, which is nice. It feels like the right amount of communication; it's nice that they can call or handle situations over email so meetings don't have to be set up. They know what they're doing."*

In a focus group attended by 6 parents, they were asked to rate the staff on a scale from 1 to 10, with 1 being the worst and 10 being the best. Out of those six, five of them gave the staff a rating of 10, and one gave the staff a rating of 9. This high praise is reflected in comments that parents have made about the program.

Socialization and Teamwork

Parents of the students who attend TKU workshops and camp often have a hard time finding activities that work out socially. The fact that they socialize around a common interest of technology is part of what makes the TKU special for parents.

- *"I cannot even remember how many activities for which he has attended the first day and never went back. We have been disappointed so many times. However, hearing his rave review after the first day was such a joy, and he was already asking me to sign him up for more!"*
- *"I love the social aspect. At school he gets teased and kids do things which are rude and inconsiderate but it's been a good fit for him here."*

During one focus group, one parent noted that she did not like the fact that students could bring their Nintendo DS to camp; she thought this would just encourage playing solo. This comment was quickly met by rebuttals from other parents, who said that other kids cluster around each other to comment on the game play. Parents are appreciative of this co-viewing and co-playing. One parent explained how she saw this happening:

- *"I just witnessed this exact scenario in the elevator on the way up here. J___ had a couple other kids around him talking that he had never mentioned before and they were laughing, having a great time."*

Student Positive Self-Esteem and Happiness

Overall, the most powerful aspect of TKU workshops and camps for parents is not learning about the technology; parents are happiest when their children are feeling happy. Parents report a big boost in self-esteem from their children when they are in classes run by TKU. While we cannot qualify how long this lasts, parents have made it clear that the program provides at least some increase in positive attitude towards themselves.

- *"My child is understood and feels good about himself. Also learning technology is great."*
- *"Love the fact that the kids feel comfortable learning and expressing themselves since they are with others that have similar challenges."*

- *“E__ is really, really proud of the work he has done. He feels really good about it and has good self-esteem about his videos and projects. It’s really cool.”*

Certainly, while TKU strives to teach about today’s technology, it is not the only thing being learned. Administrators at TKU are fully aware that the program allows students to work on social and emotional learning while being fully engaged in tech.

Criticisms from Parents

Parents did have some criticisms of the program, but most of them were minor in nature. For example, one parent complained that the registration and payment process online was difficult, while another noted that she didn’t like that Dominos pizza was being offered (as the program takes place in New York City, where much better pizza is to be found and since the time of the survey a different pizza place has been engaged). These minor criticisms can be remedied without discussion. However, some parents did make a few good suggestions to consider for the future.

- Grouping kids by age and/or by ability-level was suggested.
 - *“Perhaps the kids could be grouped more with kids close to the own age, rather than having a wide age-range all together.”*
- While some parents praised the communication with social workers when something did not go well, another parent mentioned more communication would be helpful. From this we can infer that perhaps parents are not getting the same level of feedback if their child is not a behavioral problem.
 - *“Communicate more with parents about how the child is doing.”*
- Parents from Sunday workshop want to see the same sharing that happens over the weeklong summer workshops.
 - *“It would be nice to come up at the end of the day and see the kids share their work like they did in the summer.”*
- Parents appreciate teamwork! They want to see kids work together in groups more often.
 - *“I think it’s fabulous to work on a team together. I’d like to see [child’s name] work on a long-term project, and I’m even willing to pay more money for that.”*

Staff Feedback

At TKU, the student-to-staff ratio is roughly 3-to-1 for all workshops. The combination of Tech Teaching Artists (who know the content), Social Workers (who understand special needs issues) and Counselors (who are energetic, tech-loving young adults) is what makes up the range of staff. All staff are given training before workshops begin, so they have a better understanding of major challenges presented (such as autism, ADHD, dyslexia, anxiety issues, etc.)

The staff survey involved allowed this group of diverse people to reflect on their experiences. The following are the most prevalent themes that emerged.

Students Have Fun

The staff felt rewarded from watching TKU students experience sheer enjoyment of accomplishing their projects.

- *“TKU does not feel like school. The value of this cannot be overstated. When it comes to after-school programs and summer camps it's hard to be considered "fun" when you're working with tech because at the end of the day it requires a fair amount of learning new concepts. This is where the program shines. Even while the kids are learning they're having fun. They are constantly tinkering, tweaking, and thinking up new ideas for how to make each activity their own.”*
- *“A specific child is very eager to work with me during the day. His face is gleaming with anticipation of the day's activities. Witnessing such excitement is very gratifying, especially when the demand of working with special needs kids is very different.”*

Teamwork

Like the parents' feedback, staff praised TKU for encouraging students to work together. Many staff members reported moments where students worked together on projects or formed friendships about the technology.

- *“[I enjoyed] watching one older kid work with a younger kid and guide them with their projects. I love to see other kids be role models and inspire other kids to complete their work.”*
- *“J__ (age 11) and B__ (age 16) created a short film together during a stop motion class. A lot of these kids don't like to work together so seeing them willingly want to work together even though they weren't assigned to was amazing. They fed off each other's ideas and ended up with an amazing short film together.”*

Philosophy of TKU

Most comments from staff seemed to feel that it was the overall philosophy of TKU that felt unique and important. The program includes a differentiated curriculum that breaks down hard concepts into simple parts. It is repetitive in nature to make things easier to pick up. There is a structure with written and visual materials and cheat-sheets that help those with special needs learn; but TKU workshops also give students a lot of breaks to socialize and absorb the material. A social worker is always there to help kids along the way. The combination of special needs teaching practice, independence to socialize, and tech instruction is what makes TKU unique.

- *“We don't answer the students' questions with a "no." Meaning, when students have a different way of solving a problem or want to do*

something differently, we let them. It allows the student to be more creative and challenges them to work harder.”

- *“TKU understands the kids... I like to think of the first day as the teachers and the counselors really evaluating and seeing the types of kids that are in the new group and then they are able to tailor the class (the speed, difficulty, etc.) based on the kids. TKU is able to work with the kids instead of making the kids work to understand the lessons.”*
- *“I loved the atmosphere and the students strive to learn. I thought the program was organized and was created with such passion. I loved working with everyone on the TKU staff.”*

Suggestions from Staff

While the staff was overwhelmingly quite positive about TKU, they did have several suggestions for improving the program. Feedback was varied, but it did center on several themes.

- Several staff members emphasized smaller group sizes.
 - *“I think making sure we keep the class sizes small is extremely beneficial. The weeks that worked best were when the class sizes were small.”*
- Many staff members mentioned that there needs to be a way for students to access their work online as soon as possible.
 - *“Making sure that any projects the students complete can be accessed (or at least viewed) remotely from home is something I feel strongly about. Not only does this give the parents something to look at (and stick on their “cyber-fridge”) but it also puts the ownership of the student-created content right in their hands. I think that’s pivotal to getting kids legitimately interested in tech.”*
- Communication among staff was mentioned a few times. Some suggested creating a “best practices” document for dealing with both equipment and student breakdowns, among other things. Others suggested simply communicating in the middle of the day somehow.
 - *“Have the teachers in the afternoon and morning communicate with each other-- so everyone is on the same page.”*

Conclusion

The purpose of this evaluation was to serve as a continuation of the first evaluation (from February 2014); the idea was to take a deeper dive into what students, parents, and staff at TKU think about the program. While the affinity of technology brings students to TKU, what seems most paramount is that the program offers a socialization program that builds self-esteem and happiness for students. The feedback from all three groups reflects this idea.

For students, it's clear that TKU provides them with learning experiences that they are not getting in school. They enjoy not just the intensive computer skills being taught, but also the freedom they get with choices and free time, and the respect they receive from the staff. While they might get frustrated with the content or malfunctions of tech at times, they learn to work through that frustration and end up enjoying the program. This is very different from prior experiences with other extra-curricular programs for many of these special needs kids.

Parents, for the most part, are simply happy that their children are happy. The technology content itself does not come up in focus groups with the parents; they are interested in the socialization that TKU can provide for their "quirky" kids. Parents also have high praise for the staff and the way the program is flexible enough to accommodate each student.

The staff took great joy in watching TKU students learn new tech skills. Staff members had great stories to tell of watching students learn and share their final projects. They appreciated the pedagogical style of combining tech teaching artists, social workers, and counselors to support all the students. Many staff members had never worked with special needs students before and came out of the experience with great impressions.

Recommendations for the Future

While TKU remains a program that many parents adore, there is always room for improvement. Based on the feedback from all three groups (students, parents, and staff), there are a few recommendations:

- **Consider having students grouped by age and/or ability-level.**

All children learn better in smaller groups, but it's especially true for those with learning differences. Creating smaller groups of students within each class gives administrators the chance to group students by similar age and ability levels. Students who are more advanced can create projects that are more complicated, while students who struggle with the basics won't feel left out or alone.

TKU just did a Fall pilot of T3 (Tech.Teen.Team) program for students ages 15-19 so perhaps this will fill the void.

- **Increase the opportunities for teamwork.**

Many students who attend TKU have difficulty socializing with others. This program is special because it allows for friendships to form based on a common interest. The parents emphasized their desire to increase more teamwork opportunities, and many students said that their favorite part of TKU is "hanging out" with other kids. Having more opportunities to work in teams -- even if students work separately and then come together to collaborate in the end -- could increase the social nature of TKU even more. Big groups are often difficult to navigate, but by being assigned a "team," students can be less anxious about socializing, as they create an instant sense of belonging.

- **Include parents -- in communication and in workshops.**

Parents of children with disabilities are used to getting a lot of feedback about their children. Parents need and want more feedback, and not just about behavioral problems when they arise. This can be done in several ways, including: giving access to a page on the TKU website as students are working on their projects to parents so they can see what is happening; and allowing parents to see their children present work as much as possible. Simple notes or emails can be constructed so parents know what is going on with their child. Parents must also be informed more of signing onto the TKU Facebook and Instagram pages where photos and updates are posted daily. A staff member also mentioned a good idea in his survey: to create parent-student workshops, where parents work alongside their children.

Given all the positive feedback from parents, staff, and students, TKU is certainly doing a lot of things right already. Allowing students with disabilities to experience technology creation in such a supportive environment makes this organization unique, and parents will continue to seek out opportunities like this for years to come.

For further information, visit: <http://www.techkidsunlimited.org/>

Appendix A: Student Focus Group Questions

1. How did you like TKU this week?
2. Who came here not knowing anyone before?
3. What were the best parts of the week?
 - Pick a few items to get elaborations on
4. What did you like about the program?
5. What did you not like about the program?
6. What did you think about the grown-ups in the program?
7. Would you do another workshop with TKU?
8. If you could have TKU run any kind of tech workshop, what would you want to do the most?
9. Is there anything else you'd like to say about TKU?

Appendix B: Parent Focus Group Questions

1. How did you learn about TKU, and why did you think it would be a good fit for your child?
2. What did you like about Sunday workshop or TKU in general?
3. What did you not like about the program?
4. What did you think about the staff?
5. LIGHTNING ROUND: Scale of 1-10, with 1 being the BEST and 10 being the WORST, how would you rate:
 - The workshop this week?
 - The offerings by TKU?
 - The staff this week?
6. If you could have TKU run any kind of tech workshop, what would you want to do the most?
7. Will your child do another workshop with TKU?
8. Anything else to add?

Appendix C: Parent Survey Questions

1. Which week(s) or workshop(s) did your child attend TKU?
(Check as many that apply)

- Module A: July 6-10 @NYU-POLY - video editing
- Module B: July 13-17 @NYU-POLY - Code with MinecraftEDU
- Module C: July 13-17 @PACE - Website + Work Bootcamp
- Module D: July 20-24 @NYU-POLY - website design
- Module E: July 27-31 @NYU-POLY - 3D Printing
- Module F: Aug 3-7 @NYU-POLY - Sound mixing
- Module G: Aug 10-14 @JCC MANHATTAN - animation
- Other:

2. How old is your child?

3. Your child's gender:

- Boy
- Girl

4. Where will your child attend school for the 2014-15 school year?

5. What are your child's challenges?

(Check all that apply)

- ADD/ ADHD
- Autism Spectrum Disorder
- Asperger's Syndrome
- Sensory Integration Disorder
- Auditory Processing Disorder
- Dyslexia
- Dysgraphia

- Non-verbal learning disability
- Speech/ Language challenges
- Anxiety
- Other: _____

6. We know that there are potentially many reasons to sign your child up for TKU workshops. Please select the BIGGEST REASON why your child attended this workshop. (Note: Select only one reason - the biggest/ most prominent.)

- I wanted my child to learn more tech skills
- I wanted my child to interact socially
- High instructor-to-student ratio
- Presence of a social worker
- Something for my child to do that s/he enjoys
- A place for my child to go where s/he is understood
- My child asked to attend

7. What were the best parts about this week's TKU experience? * (Check all that apply.)

- S/He learned to work on a team
- S/He got to use creativity
- S/He gained some knowledge of technology
- S/He had gains in expressive language
- S/He learned how to advocate for her/himself or others
- S/He made a friend
- S/He learned something new

8. What are the best parts about TKU?

9. How could TKU improve?

Appendix D: Staff Survey Questions

1. Your name:
2. Your job title/ description at TKU?
3. Regarding curriculum, what have you seen work best for TKU?
4. Give specific examples of how teaching material worked in the past.
5. What does TKU do best?
6. Give an example of a specific experience you had with a child that is memorable.
(Add child's age, if known.)
7. What is your favorite moment in a day of working with TKU?
8. What have you gained as an individual by working at TKU?
9. How can we improve TKU experiences - for kids, staff, and families?