

Terrascope Youth Radio: A University-Community Partnership Engaging Urban Teens and Undergraduate Engineering Students

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Abstract

Terrascope Youth Radio is an NSF-funded partnership between MIT and the City of Cambridge Youth Programs, in which undergraduate engineering students mentor local urban teens as the teens produce radio/audio programming on environmental topics. The interaction has been remarkably fruitful, both for the teens and for the undergraduates. The undergraduates play strong roles in shaping the program, developing curriculum, and day-to-day operations, along with their mentoring work. They acquire teaching experience in an intensive but collegial setting, and they have the opportunity to relate their own developing skills and outlook to high-school students who may come from very different backgrounds. The teens relate easily to the MIT students, and through them develop a sense of comfort working regularly in the technically-oriented MIT setting. They also develop strong skills in understanding and reporting scientific/technical stories, and in relating those stories to their own lives.



Program Structure and Overview

Terrascope is a learning community for first-year students at MIT; the community is described in detail in Epstein et al. (2006) and Lipson et al. (2007). Terrascope Youth Radio was begun in 2008 as an outreach program to local teens that would create opportunities for Terrascope students to gain experience as mentors and teachers while building on skills acquired in one of the Terrascope classes.

In Terrascope Youth Radio (TYR), urban teens create radio and other audio programming on environmental topics, under the mentorship and guidance of professional staff and MIT undergraduates. The program includes summer intensive sessions that meet for 20 hours per week for six weeks, and academic-year sessions that meet for six hours per week during afternoons and evenings. Over time, interns who remain in the program develop leadership and teaching skills of their own, as they help to bring more junior interns up to speed. The teens are responsible for all aspects of production, from story development and script writing, through interviewing and sound gathering,

to final audio editing. Undergraduate mentors take on a variety of responsibilities, from day-to-day work with interns on specific stories, to longer timescale project organization, to curriculum development and planning.

TYR is a collaboration between the MIT Terrascope Program and the City of Cambridge Youth Programs, and it operates with some support from the Mayor's Summer Youth Employment Program; independent evaluation is provided by Goodman Research Group. Its development has required close collaboration between two institutions that normally operate in very different ways, with different constituencies and institutional objectives.

The major partners in Terrascope Youth Radio bring complementary skill sets and resources to the program:

MIT provides:

- Overall program management and coordination
- Staff with expertise in environmental topics and audio production
- Undergraduate mentors, also with expertise in environmental topics and audio production

- Program facilities and equipment, libraries, Internet connectivity, etc.
- A radio broadcast outlet (WMBR-FM).



Outcomes for Mentors

Most mentors have not worked with teens before, so they are surprised by what it takes to be effective with this age group. As one of them put it:

"I think one of the most rewarding (and frustrating, but in a good way) parts of TYR for me is feeling like you can inspire the interns and earn their respect, since you aren't inherently given it."

Mentors are often surprised at how difficult it can be to help interns get set and stay on task. In their normal work at MIT, the mentors are surrounded by peers who are already motivated and task-driven. The teen interns, on the other hand, may be coming to the program from a hard day at school and looking ahead to a lot of homework (or, in the summer, coming to work at TYR while friends are on vacation), and even the most motivated and excited of them sometimes needs an extra push or pull:

"I learned how to work with high-school students. Working with high-school students is very different from working with MIT students. High-school students need more guidance and don't do as well with 'open-ended' questions and assignments. They need explicit instructions."

For many of the mentors, one of the great rewards of the work is related to one of its great challenges: The opportunity to help the interns mature intellectually. As two of the mentors write:

"I have been able to watch the interns develop and mature as they take on the responsibility of producing a radio show that they know will be aired publicly. By working with TYR, I'm able to help shape and improve their lives. I really enjoy watching the interns"

Outcomes for Teen Interns

The external evaluation effort for TYR includes pre- and post-program surveys and focus groups of teen interns; data are also collected from staff, including the MIT undergraduate mentors. (Current evaluation efforts continue to monitor teen interns' experiences, but have expanded to include the reach and impact on listeners of the work produced in TYR, and the influence TYR is having on the rest of the youth-media landscape.) Among gains experienced by teen interns are:

- Broader, more detailed and subtler understanding of what constitutes an "environmental" topic or story.
- Change in attitudes about science and scientists. For example, in post-surveys participants from the summer 2008 program were significantly more likely than in pre-surveys to agree that "scientists make people's lives better." Participants

Cambridge Youth Programs provides:

- Staff with expertise in youth work and youth development
- Knowledge of the local teen community
- Organizational integration with city infrastructure and programs
- Knowledge of, and existing relationships with, local government and community-service personnel and facilities
- Opportunities for outreach within the city and beyond.

Goodman Research Group provides:

- Evaluation expertise (including expertise in formative evaluation to assist in the development of the program)
- Outside perspective on program operations, priorities and products.

In addition, Terrascope Youth Radio has strong working relationships with the Public Radio Exchange (PRX), a Cambridge-based organization that facilitates the production and distribution of independently-created audio content; Generation PRX, PRX's initiative to catalyze and connect youth-radio programs nationwide; and the Blunt Youth Radio Project, an award-winning youth-radio organization in Portland, Maine.



Selected Accomplishments

- In collaboration with New Hampshire Public Radio and the Public Radio Exchange, created "Fresh Greens: Teens and the Environment," an hour-long, youth-produced special that included work from youth-radio groups around the country. Interns helped select pieces, edited them as necessary, created interstitial VoxPop (person-on-the-street) segments, collaborated on scriptwriting, hosted the show, arranged and mixed all segments to create the final production and created on-air promos. The special has so far been broadcast by 10 stations across the U.S in cities such as Seattle,

Austin, Louisville and Albuquerque. Listen at <http://nhpr.org/special/freshgreens>.

- Produced a "green audio tour" of the green features of Boston Children's Museum's newly renovated building.

Interns interviewed experts involved in the renovation, gathered sound at the museum, wrote scripts and produced all of the tour other than the introductory segment. The tour is now the museum's official audio tour and available for download on the museum's website or preloaded on .mp3 players at the information desk. Listen at http://bostonchildrensmuseum.org/about/audio_tour.html.



are focusing on researching and presenting their findings more independently than in other youth programs I've worked with. As a TYR staff member, I've been able to guide the interns and direct them to appropriate resources, rather than outright lecturing or more traditional teaching methods. I'm really interested in pursuing further research or experience involving alternative learning and teaching methods, and TYR has been a terrific experience to participate in one of these types of programs."

And of course one of the rewards inherent in teaching is the degree to which it sharpens the teacher's own skills and knowledge. As a few mentors write:

"Being able to do something is a lot different from being able to explain something to someone else so that they can do it. It requires a greater understanding of what you are teaching and the ability to communicate well."

"I think I have really honed my technical skills in listening to radio, offering feedback and debugging technical issues with the software."

"I am responsible for choosing radio listening samples for many of the group listening sessions, and from the interns' criticism of the pieces I play, I've had a hands-on reinforcement of effective and ineffective strategies in radio production."



- Increased skills in a number of communication and radio-production areas, including the use of computers, both in audio editing and in word-processing and similar tasks.

• Ability to train incoming interns in use of equipment and software. This requires technical expertise, but it also requires a certain level of maturity, task-oriented work and patience.

• Comfort with being on the MIT campus and feeling like part of the MIT community.

- Comfort participating in interviews with experts and authority figures.

- Produced a regular series of "Clearwater Moments," short pieces about the environment broadcast during the afternoon news on WAMC-Northeast Public Radio. The series lasted roughly two months, with one episode per week, and were heard by tens of thousands of listeners in seven states. Listen at <http://web.mit.edu/tyr/Archive/AY2008-9/ClearwaterMoments/>.



- Created a half-hour special on Cambridge and the Environment, including segments on: grass vs. artificial turf on local playing fields; the city's new, LEED-certified library building; and locally-produced biodiesel. The special was broadcast as a special edition of WMBR's regular "Terravoice" show. Listen at http://web.mit.edu/tyr/Archive/AY2009-10/Terravoice_12-28-09.mp3.

- In collaboration with Blunt Youth Radio, regularly host and appear as guests in live broadcasts on WMPG in Portland, ME. Create pre-produced segments to air on these broadcasts.

- Have conducted outreach activities reaching roughly 900 Cambridge/Boston-area residents, most of them youth from underserved groups. At outreach events, interns play their work, discuss the production process and give attendees a chance to use audio-recording gear.

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Lessons Learned

- **Location:** Began at local youth center, now conduct program on MIT campus. Advantages: Better access to undergraduate mentors; interns are drawn into MIT community; there are fewer distractions; it is a more "professional" working environment. Disadvantages: More difficult to maintain connection to Cambridge Youth Programs staff; not directly connected to local neighborhoods.

- **Recruiting:** Originally drew new summer participants from general pool of Mayor's Program applicants. Now work with Mayor's program staff to identify youth most likely to benefit from program. (NOTE: Roughly 50% of interns return, so less new recruiting is necessary.) School-year recruiting conducted via word of mouth and Cambridge Youth Programs staff.



- **Deadlines:** Interns are much more productive with real, tight deadline structure in place, ideally set by external client.

- **Content:** Teens are more creative and more likely to produce pieces that are interesting to other youth when covering unusual topics or creating pieces with a humorous approach. Teens are now assigned to produce work that "makes the program director a little uncomfortable" because of its edginess.

- **Tutorials:** Better to introduce equipment and techniques on a learn-as-you-go basis, rather than in introductory learning/practice sessions. Without these sessions, new interns require closer supervision and assistance.

- **Organization of data:** Interns are given their own USB thumbdrives and required to store all data/files on those, in a specific file structure. This reduces instances of lost work and enables easier backing up of interns' working files.

- **Pay:** Need to integrate carefully with city departments in order to ensure that interns submit proper applications and are paid regularly.

- **Meeting space:** It is difficult to find regular suitable meeting space on MIT campus; the process requires flexibility and mobility session-to-session.

- **Mentors' time:** Mentors have irregular schedules and will not always be available. It is important to have enough mentors involved in the program, well distributed among seniors, juniors and sophomores, to ensure that some mentors are always likely to be available.

Undergraduate Mentors

Undergraduate mentors are key to the operation of TYR. They are all sophomores or older, and all have taken a freshman-year class called Terrascope Radio (described in Epstein et al., 2010). Most major in some form of engineering, but some are science majors and some have double majors that combine science and engineering or combine social sciences with science or engineering. All of them have interest and some expertise in environmental topics of various kinds. Their roles in the program include:

- Planning and conducting listening sessions, in which teen interns listen analytically to a variety of radio pieces and discuss in detail what makes those pieces effective
- Helping interns develop story ideas, conduct research and record sound in the field
- Providing instruction in sound-gathering and radio-production techniques

- Critiquing script drafts
- Coaching interns as they record voice tracks in the studio
- Listening to and providing detailed, constructive criticism of draft pieces
- Helping staff develop strategies to address various issues (motivation, teamwork, etc.) as they apply to specific interns
- Helping staff develop learning/curriculum plans
- Maintaining equipment, backing up files and folders of interns' work, overseeing the organization of stored sound files and data

Beyond all of this, and perhaps equally importantly, the mentors serve as friends and role models for the interns, and they provide a generational link between interns and more senior staff. Interns come to trust and like the mentors, and to rely on their judgment and advice. The mentors are chosen to be very detail-oriented radio producers and listeners, and they help the teens to establish high standards for their own work. The mentors are clearly hard and committed workers, and so they help to set a tone of dedication and diligence among the teens. The teens come to see the mentors as people like themselves who have chosen to attend college and to pursue engineering or scientific studies. Interns occasionally stay after hours or come early to talk casually with mentors about such topics as colleges, applications, career choices and living away from home. Some interns also become comfortable and trusting enough to discuss their personal and family lives, often touching on very difficult subjects. The mentors help the teens to see themselves as part of a learning community, and to feel an attachment to that community.

