Drawing Under-represented Youth into Amateur Radio

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ABSTRACT

ARDC's existing outreach efforts have yielded substantial distributions of scholarship money to deserving recipients, especially young amateur radio operators. However, the useful filter requirement of having an amateur radio license to be eligible for a *scholarship* inadvertantly excludes young people who are not yet licensed.

This suggests that investment in outreach and advocacy to get young people licensed may be useful to furthering ARDC's goals, and this document argues that ARDC should be directly involved in such efforts to encourage young people, particularly from under-represented groups, to become licensed amateur radio operators.

Problem Statement

Amateur Radio has a long history of being a gateway into STEM fields, but with the rise of ubiquitous access to the Internet, cellular technology, and the end of long-distance telephone charges in the US and other countries, much of the initial motivation to get licensed has disappeared. In an era where most young people have access to the Internet either at home or via a smartphone, the magic of radio purely as a communications mechanism is lost in the purely ordinary.

Further, while a modest station adequate for FM phone communication on a local repeater *is* accessible to many people, the initial capital outlay required to build a more capable station is often out of reach of young peole, particularly those from under-represented groups that often face economic challenges. This is ironic as in its early days, a ham could build a station cheaply, often from discarded components.

This gives rise to a negative feedback cycle, in which young people are *de* facto excluded from the hobby: it neither offers them anything that they want, nor is it financially accessible, particularly for young people from under-represented and/or disadvantaged backgrounds.

Specific Suggestions

The following are all rough ideas; they may or may not be workable. This is not set up in the specific format of a grant request, but rather as a set of suggestions and requests for advice on how to proceed (that may itself result in grant proposals being made).

1. ADRC Hosts An Outreach Committee

Lots of members of the 44net/ARDC/adjacent community have good ideas for encouraging licensing and working directly with young people. Michelle Thompson (W5NYV), Phil Karn (KA9Q), Bob McGwier (N4HY) and Marius Petrescu (YO2LOJ) and others offered concrete suggestions during the Febrary 6, 2021 ARDC Community Meeting.

Perhaps the ARDC could provide a dedicated committee for motivated individuals to coordinate and create specific proposals for direct outreach efforts?

Perhaps the answer here is that this kind of direct effort should be handled through ARRL and similar organizations. It seems that has been the focus of such efforts so far.

2. Survey Youth: Ask Them What They Want?

The recent ARRL petition to expand technician privileges on the HF bands was primarily intended to create an incentive for technican-class hams to upgrade. Following the tradition set by the historical "Novice" class license of making radio both easy to access and provide meaningful privileges, the logic is that allowing new hams some access to HF would generate the requisite encouragement to upgrade. One may similarly assume that such logic would extend to the desire to get an initial license: if a new radio amateur could use the coveted HF bands right away, surely motiviation to get licensed would increase?

However, this petition did not address a fundamental question: *are* new What *are* they interested in, specifically?

The suggestion here is fund a grant for a wide-scale survey of youth to assess level of knowledge about and interest in amateur radio. The goal would be to provide hard data on which to base decision making around advocacy efforts.

- Have they heard of amateur radio?
- Do they know what they can *do* with amateur radio?
- Would access to radio spectrum interest them?
- How might *they* use amateur radio?

A professionally designed survey that gives statistically useful data could be used to target activities tailored to bringing underpresented youth into the hobby.

3. Focus on and Promote STEM and "making" Through Open Designs

An anecdote: The author works at a large technology company with many talented engineers and scientists: some of them have gone so far as to fabricate their own transistors from silicon wafers, to understand semicondocutors from first principles. Several years ago, we opened a "maker space" in our office. There was a site-wide opening with interested community members in attendence, and the author proposed coordination of an amateur radio licensing session. The response was silence; finally someone asked, "...isn't that just talking and morse code?" The author responded, "no: it is about legal access to radio spectrum and the privilege to build your own equipment."

The lesson here is that the amateur radio community at large has done a poor job of communicating what we are and what we offer to non-hams. It's true that in many ways, hams are the forebears of the maker movement, but if technical people like the above don't know or care about us, we cannot expect young people from disadvantaged communities to, either.

Specific suggestions include the production of simple, low-cost homebrew kits that can be used for beaconing or low-bandwidth data acquisition: for example, suppose ARDC funded design and publication of a kit for a low-power sensor device built on the arduino platform (or similar), then aggressively marketed this to educators. One could imagine a motivated middle- or high-school student getting a technician license and then building and deploying a network of temperature, pressure and air-quality sensors, collecting data on something like a Raspberry Pi for a school science project.

This is predicated that motivated students are interested in sensors, science, engineering and building devices connected to the "Internet of Things" (IoT) rather than purely communication. If those students could be shown the affinity between amateur radio and such things, that would be a powerful incentive.

4. Fund An Educator's Summit

Focusing on STEM educators from schools predominately located in communities of color and economically disadvantaged communities, invite educators, administrators, and community leaders for a summit to discuss how amateur radio might be used in their communities and how it might be useful to their students. Compile information about existing efforts in this space, and provide access to materials and information focusing on amateur radio as a technical activity. Describe useful models and give examples of similar programs that they might emulate to bring amateur radio to their schools†.

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† Such as "The Radio Club of Junior High School 22" in New York City? There seems to be some question about the veracity of this particular organization, but the idea seems sound.

Consider colocating the summit with a "HamCram" session to get the educators themselves licensed.

5. Fund Work Citizen Schools and Similar Organizations

Citizen Schools (https://citizenschools.org) is an organization that promotes equity and tries to close the "education gap" by pairing skilled adults with schools and educators to provide targetted mentorship directly to students. Citizen Schools volunteers work directly with students to teach skills; typically for several months at a time.

ARDC could provide funding to Citizen Schools or similar organizations specifically earmarked to promote amateur radio with students. This could take the form of a combined licensing and kit-building course.