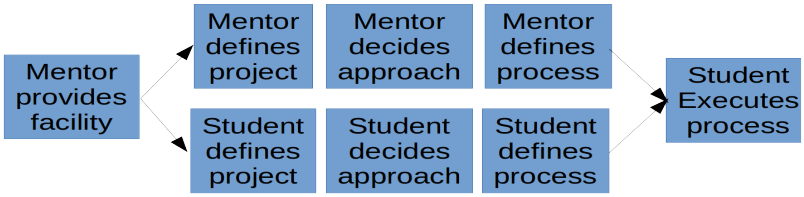
DTO SETI Data Archiving Requirements

The DTO SETI project will archive the data as part of the GAVRT SETI project[1]. GAVRT[2] is a research telescope dedicated to bringing the experience of real science to the K-12 classroom. The intent is that students come away with the experience of "doing science."

A typical SETI spectrometer has hundreds of millions of channels spanning hundreds of MHz of radio spectrum. It produces such spectra at the rate of one every second or so. That works out to several Gb/s! One cannot store such an amount of data on-the-fly for very long so the SETI software filters the data according to some algorithm. One such filter is to report the frequency and power of the strongest signal in a sub-band. The number of sub-bands in the spectrum could be a configurable parameter. Another could be to save the most interesting sub-band(s), each comprising a million channels or more, where interesting is user definable.

Because the users of the DTO SETI data are not able to specify their requirements in advance we have the challenge of deciding in advance what is likely to be the most useful. This touches on pedagogical as well as scientific value of the data.

There is no commonly accepted one way to educate a research scientist. However, it almost always involves a student working on a project. The many ways in which the student acquires experience can be bounded by two extreme cases, illustrated in the diagram.



There are many ways to swap the stages between the upper and lower rows. The GAVRT projects generally follow the upper path model. The best training for a research scientist[3] is the lower path model.

In the upper path model, which may be the only one feasible in a classroom setting, the project leader defines the output data format. The goals of DTO SETI will be met by conforming the output data type and format to that of the GAVRT SETI project.

To enable students to explore the data outside the classroom, there may be other ways to manage the data archiving which give the students more options. Perhaps that can be considered in consultation with the GAVRT SETI project leader (Levin) and staff (Arballo).

1 http://galileo.gavrt.org/seti/
2 GAVRT is jointly operated by JPL and LCER.
3 IMHO. TBHK.