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Teen Power Library and the Scientific Method

Today, I want to say something more about Power Library, and the Scientific Method, or at least one aspect of the Scientific Method, namely identifying informed resources and writing a proper bibliography containing them. This goes to the matter of distinguishing fact from fiction, even from outright falsehoods at the extreme, and expressing oneself in a way that others, joining you in the Scientific Method, can understand and evaluate. I am focusing on science here, and STEM subjects more broadly, because I will be addressing teen science fairs; the use of the Scientific Method should, in a more perfect world, also apply to all matters of Life itself.

Pre-approval, 6th-12th grade projects for the Pittsburgh Regional Science & Engineering Fair (PRSEF) were scheduled to be ready for review by November 20, 2020. Thus began the 82nd year of this highly regarded affiliate fair of the Regeneron International Science & Engineering Fair (ISEF), and the work of Carnegie Science Center staff and its volunteer Science Review Committee, of which I am one member.

Unrelated to COVID-19, the Committee was charged with conducting its student project reviews virtually, from home, last year, rather than convening together on a few Saturdays in January at the Carnegie Science Center, as had been the practice for many years. That was fortuitous planning by the PRSEF, and now a learning experience without other recourse, as COVID-19 has made turning back a non-starter. It is not forgotten that we all struggled in January 2020 with the new and sometimes buggy software, and rules.

It was also the first time that we employed Power Library, a statewide library and WLN resource, for guiding students (and adults too) to critical thinking as they prepared their required five-source-minimum bibliographies. I spoke to this in article #3 of this series on August 19 (<https://www.wlnonline.org>). But, 2021 is the first year that “Teen Power Library,” which is what I am now dubbing this, is in place at the very start of the new fair season, meaning in November 2020.

So, how is that going at this still very early moment in the months-long process leading up to the actual 2021 Fair date, March 24 (which, by the way will be entirely virtual, instead of being conducted inside at Heinz Field or the Carnegie Science Center)?

Well, a new, 2021 Science Review Committee Member User Manual has been written. It identifies these familiar bibliographic transgressions by students: (1) bibliography has less than the required five sources; (2) its source format is unacceptable; (3) it uses URLs only without, even when they are included on-line, author name, publisher, volume, or year of publication; (4) it contains references that are not high quality. In my experience, about 90% or more of initial project proposals suffer in at least one of these respects.

Now, for a first time, the Manual directs students to WLN library services for guidance at the outset of project planning: “To develop your bibliography and your skills for writing

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one, go to PRSEF's approved link www.wlnonline.org/prsef/ - lots of scientifically INFORMED resources, and guidance for properly formatting." That is a big first step in this journey towards the goal of teaching students about the Scientific Method, and it is the WLN that has led this Teen Power Library initiative. In addition is this new option for Committee project reviewers, as student incentive: "Nominate for Literature Review Merit Certificate." The PRSEF tries to encourage with Merit Certificates, and, importantly, has added this one to its others.

About two years ago, one of my granddaughters foolishly said to me about having to learn Calculus, the "Big C" within the "M" or Mathematics of STEM, that she did not need to learn it, as she would never again use Calculus. Her interest is in Art. How wrong that is. She missed learning about a new way of structured thinking, and about the Scientific Method, both applicable to Life itself and the Art in Life. Hopefully, the PSREF kids will get that, even if they do not pursue careers in the sciences, and it may surprise you to know that many say they will not.

Charles B. Greenberg,
WLN Board President