

United States CIEA Report

I just returned from the annual National Science Teachers Association (NSTA) conference in Indianapolis, Indiana, and I came away with some strong impressions about the state of aerospace education in our country. Because there is no up-to-date clearinghouse for aerospace programs, I am not in a position to comment on everything that is going on around in the U.S. in the name of aerospace education. However, I can offer some personal observations that I hope others may find useful for further discussion.

Simply put, the state of aerospace education is limited by the scope and experience of the person you are talking to. It's the old story of blind men with hands on different parts of the elephant: Some believe that all future education programs will have to be on-line "virtual" video games; others hope that the U.S. government's Science, Technology, Engineering and Math (STEM) initiative will provide the needed impetus for growth in career education programs. All worry about the effect that federal and state mastery tests have in their focus solely on math and language arts. Currently science is not tested, severely limiting the role that aerospace can play in the regular education classroom.

Let's assume all of the above are true. Video games are currently one of the fastest growing, world-wide businesses, and some believe that the only way to reach young people is through this medium. The U.S. government's STEM initiative is having an impact; virtually every exhibit there mentioned that their program was directly connected to careers in science, technology, engineering and math.

And the emphasis on mastery testing is definitely having a powerful effect on instructional time in the regular education classroom. Teachers who are under severe public scrutiny to produce better test scores cannot be blamed for making student achievement their first priority, and time for "hands-on" activities in aerospace education is at a premium.

The most encouraging lesson concerning aerospace education I learned in talking with fellow presenters and exhibitors at the NSTA conference concerns the success many programs are now having with technical schools. Those who seem to be making the biggest impact have placed the emphasis of their work on high-achieving public schools that offer advanced-placement courses in pre-engineering programs, as well as on charter and magnet schools based on science and technology themes. They have not altogether abandoned working with comprehensive public elementary, middle and high schools, but their emphasis in these formal education venues is more on *inspiring* students to consider STEM careers, rather than high-tech *training*.

To be certain, there still are a significant number of programs focused on raising awareness about the opportunities in aerospace careers but, given the pressures of time in a normal teacher's day and current testing emphasis on math and language arts, the impact of many of the programs is extremely limited. However, four bright spots that I wish to share are as follows:

Whitebox kits are part of a relatively new program with flight as one of four on-line activities. The uniqueness of the program is that after following the on-line engineering process of design and testing, students can virtually test-fly the model in a computer game format and then actually build the model as a proof-of-concept experience. There is a charge to participate in the program and information about costs can be found at their site: <http://www.whiteboxlearning.com>

The next three programs and activities are free! *The Real World Design Challenge* is also relatively new. It is an on-line nation-wide contest featuring actual design challenges. This year's challenge focuses on designing a light sport aircraft. All of the details about the competition and how to become involved in future challenges can be found at <http://www.realworlddesignchallenge.org/>

The next two sites are also free and are connected to our education work at the Academy of Model Aeronautics. The first is *CSI: Flight Adventures*, a NASA-funded project that the Academy obtained in partnership with the Children's Museum of Indianapolis, Indiana. I will have copies of the curriculum guide for each of you. More information about this unit for children for grades 3 through 5 as well as other activities may be found at <http://www.childrensmuseum.org/node/35260>

Finally, the Academy of Model Aeronautics now offers *AMA Flight School*, a new activity that features a great learning experience for younger children in a video game format. Check it out at <http://www.modelaircraft.org/education/amaflightschool.aspx>

In conclusion, I wish to make a very important point: In spite of my rather sober assessment of the state of aerospace education in the *formal* education program, I believe there are some very exciting opportunities to come in the *non-formal* sector, e.g., after-school, weekend and summer programs, camps, existing youth groups, and museum programs. I am hopeful that there will be a huge shift in aviation opportunities because of the growth in aero-modeling options, as the increasing sophistication of the new micro technology now makes it possible for young aviators to fly in their own backyard - even inside the house! If this early interest in aviation can be channeled to nearby glider-ports and to local light sport aircraft clubs with strong commitments to training young people, the long-term impact on general aviation and technical careers could be enormous.

I hope that there will be an opportunity during our CIEA meeting to further discuss the potential of these partnerships – a much-needed and long-overdue collaboration among model and full-scale aviation clubs to leverage the strengths of each, for the benefit of all.

Gordon Schmmel, Ed.D
Academy of Model Aeronautics
1st Vice President
CIEA/FAI