

# Youth Engaged in Technology

## *2007 YEAR END REPORT<sup>1</sup>*

By  
Daniel F. Perkins<sup>2</sup>  
Phillip E. Hoy  
Paul Webster  
Carlee DiMarzio  
and  
Teresa Batterson

*December 2007*

Department of Agricultural and Extension Education  
The Pennsylvania State University  
University Park, Pennsylvania



# YOUTH ENGAGED IN TECHNOLOGY



## Y. E. T.

<sup>1</sup>This project is PA New Communities Children, Youth, and Families are Resilient (CYFAR) project support through a grant from United States Department of Agriculture, Cooperative State Research Education and Extension Service's CYFAR National Initiative. For more information about YET please visit: <http://agexted.cas.psu.edu/cyfar/>.

<sup>2</sup>All correspondence for this report should be directed to Daniel F. Perkins, Ph. D., Professor of Family and Youth Resiliency and Policy, The Pennsylvania State University, Department of Agricultural and Extension Education, 114 Ferguson Building, University Park, PA 16802-2601. He can also be reached by phone (814) 865-6988 or email [dfp102@psu.edu](mailto:dfp102@psu.edu).

# 2007 YET State Accomplishments

## **Market Statement:**

"The Youth Engaged in Technology (YET) program is an after-school program for high school youth (in Potter and Washington Counties) that uses technology as a vehicle through which young people are engaged in learning and contributing to their community. YET is designed to enhance young people's skills (especially those related to information sciences and technology), social skills, and prosocial skills."

## **Description:**

The New Communities Project of Penn State University Extension is the Youth Engaged in Technology (YET) after-school program. As noted in the market statement above, YET is designed to enhance young people's marketable skills (especially those related to information sciences and technology), social skills, and prosocial skills. YET employs technology as a vehicle through which young people are engaged in learning and contributing. The primary audience involved in the YET program are high school youth. These students are targeted through referrals from guidance counselors, nurses, teachers, principals, and support staff. In addition, through community service activities, participating youth have contributed to others in their community, such as senior citizens and elementary school children.

The program structure is an after-school club conducted at local high schools. Each club has access to the high school computer lab, as well as to a classroom. The size of the clubs membership is approximately 20 youth. The club meets twice a week (eight times a month) during the school year. The club meetings are facilitated by the site coordinator, and the format for the club includes: snack, team building exercise, business meeting, experiential-technology activity or community-service activity, and debriefing (e.g., journaling or small group discussion). Six of the eight club meetings each month focus on the technology project (e.g., robotics, GPS/GIS, webpage development, and nano-fabrication). Two of the eight club meetings per month will involve a community-service activity related to technology (e.g., Teens Teaching Seniors, computer in a box, creating the school newspaper, and website development for non-profit organizations). Moreover, skill development and learning, relationship building, and opportunities to contribute are embedded in the YET club's curriculum.

## **FY 2007 Accomplishments:**

The YET curriculum focuses on four areas, they include: Website development, Robotics, GPS, and GIS. This year the YET clubs worked on every curriculum area. We have found that shortening the projects keeps the participants actively engaged in the program. Each club updated their club Websites to reflect the projects and activities that they accomplished this year. The updated YET club Websites are located on the Pennsylvania CYFAR site <http://cyfar.cas.psu.edu/> along with other resources developed by the YET team.

The Pennsylvania YET members showed an increase in overall scores for the General Computer Knowledge, and GPS. Although not statistically significant, YET members overall computer knowledge started with a pre-test score of 43 and ended with a post-test score of 49, this

represents an increase of 14% from their baseline score. Likewise their GPS pre-test score of 52 increased to 54 on the post-test, this represents an increase of 4% within GPS knowledge.

### **Curriculum Development:**

The YET team meets face-to-face twice a year. During these meetings we discuss changes and additions needed for the curriculum. Each curriculum has been updated at least two times since the start of the program. The updates focus on new strategies and technologies related to the curriculum as well as eliminating activities that don't fit and add those that engage the participants. We are at the point where we will start disseminating the curriculum throughout the state of Pennsylvania as well as nationally. We presented a workshop on the YET program especially the curriculum at the 2007 NAE4-HA conference in Atlanta.

Throughout the year, YET members conducted community service or "Helping Others" projects, as the youth refer to them. These "Helping Others" projects include community computer workshops led by YET members, graphics and print documents for a personal care home, and GIS workshops for other youth led by YET members to name a few. For instance, one helping other project has been done every year involves youth teaching senior citizens basic computer skills (Teens Teaching Seniors). By teaching computers skills to others, YET members built their sense of mastery and developed a positive perception of seniors. Senior citizens also report that youth are very kind and helpful. YET members have embraced these "Helping Others" projects as evidence by them initiating the majority of this year's projects.

We have incorporated team building activities as an element of the YET curriculum because teamwork is an important workforce skill that employers report lacking in their entry level workers (Murnane, & Levy, 1996). The ability to work as a group, to effectively communicate, to collectively solve problems, to foster a sense of empathy and respect for other team members, to provide honest and useful feedback, to resolve conflicts, to effectively manage resources and to share in a group experience builds a sense of community that, when properly accomplished, translates effectively back to the work environment (Cain & Jolliff, 1998). Thus, the YET club provides youth with an opportunity to work as a group learning about new technology and engaging in technology-focused community service projects.

### **Internal Communications:**

Strong internal communications among YET staff are an important part of this New Communities Project's learning and reflective practice efforts, especially since sites are working on the same curriculum at the same pace. In order to ensure uniformity with local adaptation, we continue to have monthly YET staff Adobe Connect meetings along with two face-to-face team meetings (held in June and December). These team Adobe Connect and face-to-face meetings have been critical in improving the team's communications. Along with the team meetings, the state coordinator has bi-weekly telephone meetings with each site coordinator. Using a semi-structured interview format, we have found these calls a critical component of YET's process evaluation by providing specific direction related to technical assistance. These calls consistently identify new and unexpected issues and situations and provide a venue for group problem-solving.

The YET team continues to utilize a SharePoint Website to further improve the YET team's internal communication and cross fertilization of lessons learned. The SharePoint Website acts a virtual commons where the YET staff share documents, pictures, announcements, and engage in planning our agenda's for team meetings. We also continued with our youth team video conference meetings. These youth team meetings are designed to improve our communication and increase youth voice and have addressed needs for the YET program. The meetings have continued to have a significant impact on the YET program. They have increased cross communication between the Galeton and Washington sites. A video conference call was also used to orient the YET members before they attended the Penn State NanoTech camp this past summer. This orientation gave the YET members a clear understanding of our expectation of them while attending the NanoTech. It also gave them an opportunity to ask questions they had concerning NanoTech camp along with all aspects of the YET program.

In year two issues were identified by the site coordinators through the bi-weekly call and team meetings, they were: behavioral issues and parent involvement. In order to address these issue the YET staff divided up into two work groups that developed resource documents addressing each issue. These documents are research-based guides that include best practices to address behavioral issues in youth and parent involvement in the after school program, respectively. The *After-School Programs: Behavioral Issues Toolkit* and the *After-School Programs: Parent Involvement Plan* are available to the public on the PA CYFAR website at <http://cyfar.cas.psu.edu>. In year four as part of our communications plan and our sustainability efforts, the staff have conducted a workshop on the YET Program and Curriculum at the statewide Children, Youth, and Families in-service in March 2007. This was done to increase PA New Communities project visibility within the PSU Extension and to in-state build support for the YET program.

### **Summer Camps:**

In YET this year, we again provided opportunities to attend two summer camps for members to participate in, they were: a statewide 4-H GIS camp and NanoTech camp. The GIS camp was a week-long camp at The Pennsylvania State University that was organized by the state YET coordinator, the Penn State Land Analysis Lab, and county 4-H Youth Development educators. This hands-on camp provided participants an opportunity to use GPS and GIS in a real world situation. Participants were divided into four groups. Each group plotted a different location (i.e., the Penn State test flower garden, the water authority, a historic town, Shaver's Creek Nature Center, and the Penn State Ag Progress Days Site) then developed a map of their project. This year four YET members participated in this statewide 4-H GIS camp. This fact indicates that this CYFAR initiative is being integrated into the PSU Extension system. In addition, the YET project offered the opportunity to participate in NanoTech camp again this year for members. This three-day camp was held at the Nanofabrication Lab on Penn State University's campus. This experiential learning camp provided YET members the opportunity to conduct experiments in the Nanofabrication Lab. For example, members used a scanning electron microscope to examine a human hair, and they used photolithography to etch a silicon wafer to make a nano-circuit. Our relationship with the Penn State Center for Nanotechnology Education and Utilization (CNEU) has reached beyond NanoTech camp. The YET site schools have received a nano-science education toolkit (worth \$200.00) to be used with science classes.

**Summer Activities:**

The Potter YET members, again this year, have presented four GPS/GIS trainings for 4-H members and elementary school students. YET members conducted workshops at a regional 4-H camp, regional 4-H Achievement Day, a Natural Resources Conservation Field Day, and at the school's Red Ribbon Day. The members presented using a PowerPoint presentation, maps, GPS units, and GIS software. This is the third year that the YET members presented at the Potter County Natural Resources Conservation Field Day, and at the school's Red Ribbon Day due to the success from the previous years. Throughout the past three years, the Potter YET members have presented GPS/GIS workshops to over 900 elementary school students in Potter County.

**Recruiting and Marketing:**

Recruitment has been a challenge to both YET sites for the past four years. The site coordinators have engaged in an aggressive marketing campaign for the program locally to increase membership and awareness within the community. To encourage youth to join the YET program the site coordinators scheduled recruitment parties at each site. These parties were held after school, during regular YET time, and provide a showcase to present potential members the various technological areas that the YET club addresses. All sites recruited through the 8-11 grade science classes using current YET members as the lead presenters. The YET team is also working on a Recruitment and Retention resource that the site coordinators as well as other youth development professionals can use to improve their recruitment and retention efforts.

The YET team focused much attention to sustainability of the YET program in both the Galeton and Washington sites. This began with the development of a sustainability plan for the YET program. The plan included several strategies to promote the program and show the impact YET is having on the youth and community involved. To this end marketing materials (e.g., PowerPoint presentation, brochures, event displays, talking points) were developed and used by the site coordinators with presentations to school boards, local community organizations (e.g., CTC, United Way, Kiwanis, Rotary Club, Lions Club), local government officials & agencies, and extension advisory boards. The YET staff are aggressively seeking funding from local and other grant sources.

In addition, uniform marketing products continue to be created for the YET site coordinators to adapt and utilize. YET state staff designed and developed: (1) a universal YET brochures for recruitment of youth and for informational purpose to parents and teachers; (2) a YET display that is used at each site, (3) two 10-minute PowerPoint presentations (one targeting youth and one targeting teachers, school administration, and community collaborators), and (4) a youth focused recruitment video. The utilization of uniform marketing ensures that a strong consistent message is being presented to stakeholders across the sites, thereby decreasing the likelihood of misunderstanding about the program. Finally, a state YET website has been kept current with happenings about the YET program state-wide and nationally.

**Evaluation:**

The evaluation utilizes a pre/post design of multiple measures to examine: YET members' grades, knowledge about technology, and life skills. Within each curriculum section, there is a pre and post test to gauge their knowledge gained. To measure life skills we used the "Skills for Everyday Living" (Perkins & Mincemoyer, 2003) survey at the beginning of the program and

towards the end of it. We also use the site coordinators observations and discussions with individual members as a source of evaluation. These anecdotal stories are used through out this report and we feel that they bring the program to life.

### **Outcomes: Statewide Capacity:**

The statewide capacity this year has been focused on disseminating educational resources developed by the Pennsylvania CYFAR team. The team has presented several workshops related to the educational resources that we developed two years ago (Behavioral Issues Toolkit and Parent Involvement Guide). Both materials were accepted into the CYFERNet peer-review educational materials. Presentations on the Behavioral Issues Toolkit and Parent Involvement were made at Penn State Cooperative Extension March in-service, at the Pennsylvania 4-H after-school conference, and the NAE4-HA Conference held in Atlanta, Georgia. Finally, the YET team is providing leadership to a resubmission of a National Science Foundation Informal Science Education proposal focused on nanotechnology and youth development.

### **Outcomes for Children, Youth, Parent/Families, Communities:**

The YET program has continued to keep parents involved as indicated by several parents assisting with chaperoning overnight and local field trips. Parents have also been updated on the progress of their youth in the YET program through several parent informational sessions. Moreover, throughout the year, YET members were engaged in community service, "Helping Others", projects. The "Helping Others" project for this year were again selected and conducted by the YET members. The helping others projects include, computer workshops for senior citizens, website development for local non-profit organizations, teaching GPS and GIS workshops at a Natural Resources Conservation Field Days, teaching GPS and GIS workshops a regional 4-H camp, teaching GPS and GIS workshops at the Galeton Red Ribbon Day, and presenting GPS and robotics workshops at a regional 4-H activities day. These helping others projects have given the YET members a sense of mattering in their community. These projects also increase awareness in the community which is paying off in terms of sustainability initiatives.

### **Personnel Changes:**

The Washington site coordinator, Carlee DiMarzio started at the beginning of this school year (September 2006). She has transitioned well into the YET program. She has recruited new members to the YET program and has brought inventive ideas with her. There was also a personnel change at the Potter YET site. Lesia Mock stepped down as the site coordinator assistant. Teresa Batterson has filled that position and has helped move the program forward. Teresa (Teri) is a long time resident of Potter County and has worked with the Galeton School district in the past on technology related issues. She brings a strong technology background with her along with here connections throughout the community.

## **References:**

Cain, J., & Jolliff, B. (1998). *Teamwork and Teamplay*. Dubuque IA: Kendall/Hunt Publishing Company.

Murnane R.J., & Levy, F. (1996). *The first principle: Agree on the problem*. In R.J. Murnane & F. Levy (Eds.), *Teaching the new basic skills: Principles for educating children to thrive in a changing economy*. New York: The Free Press

Perkins, D. F., & Mincemoyer, C. (2003). *Skills for Everyday Living*. University Park, PA: The Pennsylvania State University.

# Potter County Site

**Geographic Type:** Rural/small town

**Number of Collaborating Organizations:** 4

**Number of Sites:** 1

## **Description:**

Potter County's Youth Engaged in Technology (YET) program employs the same curriculum and layout of the Washington site, but the Potter program site is located in a rural remote area in the state with low population density. Thus, recruiting students has been an ongoing challenge for the program.

A total of 33 different students, throughout the 2006-07 school year, participated in YET club meetings, events, field trips, service activities, and student-led workshops to senior citizens and elementary students. Of those students, 69% (23) have a 75% attendance record or better and have been engaged in longer-term projects throughout the year. Of these most active YET members, 72% were boys and 25% were girls. These very active YET members continue to expand their technology knowledge and have shared their knowledge with community members.

This past year the YET members in the Potter site have completed activities and increased technological skills associated with Website development, Robotics, and GPS/GIS. The Website development curriculum for this year is a revised version from year one. The revised curriculum is more comprehensive and user friendly. In addition, the skills learned by the YET members helped them to develop more complex and professional looking Websites with better planning and in less time. The YET members were experimenting with the more advanced Website development software's before this curriculum was revised. They welcome the information and guidance they received about the advanced software through this curriculum.

In addition, to the Website development curriculum, the YET members continued to develop their GPS and GIS skills through GIS Camp and presentations to 4-H members and younger students. The Galeton YET site had three members attended a week-long statewide camp, 4-H GIS Camp, at Penn State University. This camp was organized by the Penn State Land Analysis Lab, and several county 4-H Youth Development educators. This hands-on camp provided participants an opportunity to use GPS and GIS in a real world situation. Participants were taught by university professors on the use of GIS (Geographic Information System) software that they were later able to put to use in the creation of computerized maps. Students also used the latest technology in GPS (Global Positioning System) units to gather geographic information and identify points of interest related to their mapping adventures. While on the campus of Penn State University, they also had the opportunity to experience living in dormitories, eating meals in campus dining halls, enjoying campus recreation options, and touring academic facilities. The participants expressed great pleasure in attending this positive youth development experience which caused many of them to state on the trip back home that college is a strong possibility.

Several field trips were offered to members that attended at least 75% of club meetings and activities. There were local and overnight statewide field trips offered. These field trips included a trip to Pure Carbon, the state-wide 4-H GIS camp, and Nanotech Camp. The field trips focused on technology and were directly linked to the curriculum. Not only do the member learn about technology through the field trips but it is also an incentive for them to fully participate in the YET program.

The members of the Galeton YET program enjoyed a field trip to the Corning Museum of Glass in Corning, NY. They saw first hand how robotics enabled glass engineers/designers to create beautiful and useful glass pieces. By using a robotic arm to place the glass into ovens they are able to use extremely high temperatures to melt and mold the glass. This fieldtrip was also opened to other students from the Galeton High School. Over 20 students attended the trip to the Corning Museum of Glass.

As mentioned previously, three YET members participated in this year's State 4-H GIS camp. Another field trip that Galeton YET members attended was to Nanotech Camp where YET members were introduced to the world of nanofabrication (developing technology on a nanoscale level). The three-day Nanotech camp was conducted over the summer. During the Nanotech camp YET members gained an increased understanding of nanotechnology and potential careers associated with nanotechnology. The YET members spent time in the clean room working with some of the high-tech equipment conducting experiments. Members of the Washington YET site also participated in this camp which give all the YET members a chance to interact with their counterparts.

Community service or "Helping Others" projects, as the youth refer to them, is a major tenet of the YET curriculum. For the third year in a row, members of the Galeton YET club presented introductory teaching sessions to older adults and senior citizens from the Galeton area. Two separate workshops were held on consecutive weeks in the Galeton location of the Potter County Education Council. Members were paired one to one with adults as the youth guided the older learners through a series of activities and tasks related to Microsoft Windows XP operating systems and Computer usage. Laptop computers were used by members to demonstrate opening, closing, and saving file documents, navigating through the operating system, and more. This hands-on opportunity to learn about the Internet, the World Wide Web and E-mail was an enjoyable and positive learning experience for all who attended. Refreshments were shared upon the conclusion of each workshop and YET members and adult participants reported that working together was positive and mutually beneficial.

The Galeton YET program acquired updated computers for the Galeton High School. The YET program is held in the computer lab of the Galeton Area High School. The computers in the lab were outdated and/or disabled. Most of the computers were running Windows 98 and we were unable to use the software needed for robotics and other curriculum. The YET curriculum needed to upgrade the computer lab to enable the club members to use our software and to give the rest of the student body access to updated computers. In July 2007, Time Warner awarded 30 Dell Pentium 4 computers (with keyboards, mice and monitors) to the Penn State Galeton YET Club. The computers were delivered with the help of Potter County Human Services. Several YET members, along with the site coordinators, moved the 'newer' computers into the computer

lab and began to install the needed software. There are now 15+ working computers with Windows XP in the lab, as well as 9 computers that replaced outdated/disabled computers in the school Library. The remaining computers were disbursed as needed throughout the school. This award was to the YET club; however, in true partnership fashion the school was co-recipient of them and they have only strengthen the relationship between the school and Penn State Cooperative Extension.

The members of the Galeton YET site have embraced GPS and GIS that they learned over the past couple of years. This year the YET members conducted GPS/GIS workshops at three different events. They presented GPS to Galeton school students during Red Ribbon Day, presented GPS and GIS to students all 5<sup>th</sup> grade students from Potter county schools at the Potter County Conservation Field Day, and presented geocaching to participants of a regional 4-H camp.

The members and the site coordinators from the Galeton YET program provided their classmates an opportunity to learn about GPS (Global Positioning Systems) and geocaching by leading a series of 1.5 hour-long sessions in geocaching around their school grounds. An introductory PowerPoint presentation was first shared, followed by hands-on demonstration and use of Garmin GPS Units. A total of 47 youth from grades 4 through 12 were taught by YET Club members in six separate teaching sessions throughout the day. This event was held as part of Red Ribbon Day, in conjunction with the National Red Ribbon Week movement (of youth experiencing positive, substance-free, healthy choices for activities). YET Club members were able to solidify their knowledge of geospatial concepts and share information about their YET club through this opportunity to teach their peers.

As part of Natural Resources Conservation Field Days, held on two consecutive days in May 2007 at the Potter County Fairgrounds, two teams of youth members from the Galeton YET program taught a beginner *“Introduction to GPS and GIS* to all of the 5<sup>th</sup> graders from the Potter County schools. A total of 12 workshops were conducted for more than 200 students, teachers and chaperones. The YET Club members designed the 25-minute lesson plan that emphasized geospatial education. They gave an overview of Pennsylvania geography using road maps, followed by a PowerPoint presentation on the computerized layering qualities and software capabilities of GIS (computerized) maps. The YET member then demonstrated use of GPS units outdoors with the 5<sup>th</sup> grade youth having a chance to learn GPS through hands-on activities. This learning station was one of six that the students visited for the lesson as they rotated through the various exhibits positioned around the fairgrounds. This is the second consecutive year that YET Club members have been invited by the Potter County 4-H Coordinator to teach area youngsters about geospatial concepts at this event. All YET club members commented on the positive experiences they had in teaching the concepts to others.

Our last example of a helping other project for the Potter site, involves Drakes Personal Care Home needed photos taken of their 28 residents to be used in their records and room IDs. They also needed a way to communicate the reoccurring events at the Home to each resident. The idea – to take the YET members to the home photograph each resident using our digital cameras, edit the photos and bring them back the finished product. The YET members uploaded the photos onto the computers and edited them. As a special treat the members collected the names and

birthdays of each resident and we created a birthday/event calendar for each resident that included a thumbnail of resident on their birth date. Drakes and the residents were both very pleased. The members more than met the expectations of Drakes personnel of interacting with the residents. The photos came out very nicely and they gained experience with digital photography, photo editing, and publishing. The YET club met a need and served their community. They plan to continue this relationship with Drakes Personal Care Home.

**Primary Outcome:** Youth

**Secondary Outcome:** Community

**Primary Outcome Evaluation:**

A pre/post test design was used in the evaluation to measure knowledge and life skill development (i.e., decision-making, critical thinking, communication skills, problem-solving, and goal-setting skills). The knowledge tests were developed for each major area of the curriculum (i.e., GPS, GIS, and Web development). The life skills measure was developed by Perkins and Mincemoyer (2003) and being used throughout the Penn State Extension system. The Galeton YET site showed an increase in overall scores for Life Skills. Although not statistically significant, members showed increases in life skill development. The following are the increases in mastering life skills: Decision making: pre-test 61, post-test 65 a total increase of 5%, Critical Thinking: pre-test 54, post-test 65 a total increase of 16.5%, and Goal Setting: pre-test 67, post-test 69 a total increase of 3%.

The following are several anecdotal stories that bring to life the “real people” impacts this project is having on the YET members, the school, and the community:

Site Coordinators Paul Webster and Teri Batterson took five of the club members to Drakes Personal Care Home. Drakes Personal Care Home needed photos taken of their 28 residents to be used in their records and room IDs. They also needed a way to communicate the reoccurring events at the Home to each resident. The idea – to take the YET Club members to the Home photograph each resident using our digital cameras, edit the photos and bring them back the finished product. The residents were groomed and ready for their photo shoot. The photographing went smoothly and the evening was finished off with the Club serving and sharing pizza with the residents

The Club uploaded the photos onto the computers and edited them. As a special treat the children collected the names and birthdays of each resident and we created a birthday/event calendar for each resident that included a thumbnail of resident on their birth date. Drakes and the residents were both very pleased. The children more than met our expectations of interacting with the residents. The photos came out very nicely and they gained experience with digital photography, photo editing, and publishing. The Club met a need and served their community. We plan to continue this relationship with Drakes Personal Care Home.

Another example took place in June 2007 with the help of Dr. Perkins and Ellen Shinn, we were able to apply to Time Warner for 30 computers (with keyboards, mice and monitors) from the Coudersport warehouse. Youth Engaged In Technologies (YET Club) is held in the computer lab of the Galeton Area High School. The computers in the lab were outdated and/or disabled. Most of the computers were running Windows 98 and we were unable to use the software needed for

robotics and other curriculum. We wanted to be able to upgrade the computer lab to enable the club members to use our software and to give the rest of the student body access to updated computers.

In July 2007 Time Warner awarded 30 Dell Pentium 4 computers (with keyboards, mice and monitors) to the Penn State Galeton YET Club. The computers were delivered with the help of Potter County Human Services and in August Paul Webster, Teri Batterson and several of the YET Club student members moved the 'new' computers into the computer lab and began to install the needed software

These experiences have provide opportunities for members to use the skills they have learned in the YET program in real world situations. These opportunities have been a positive experience for both the YET members and the collaborating organizations. YET members have worked hard this summer with the GIS project and has given them confidence in their GPS/GIS abilities.

### **Secondary Outcome Evaluation:**

Galeton YET members of the Galeton High School YET Club presented information to Cooperative Extension community stakeholders about their experiences with "cutting edge" technology concepts through the YET After School Program. The presentation was conducted to draw attention to the "Changing Face of Cooperative Extension." The two students (both high school seniors) who presented had been members of the program for two years. They shared their experiences regarding the use of Robotics, GPS, Geocaching, and GIS, as well as web page development and Nanofabrication. They demonstrated use of small robots that they had designed, programmed and built with LEGO Mindstorms Robotics kits. In addition, they described further learning opportunities that they had as a result of intensive field trips with the club. The youth members also stressed that they have gained much in terms of leadership, public speaking and teaching skills as a result of YET club experiences. Attending this meeting was a Pennsylvania State Senator, a Pennsylvania State Representative, County Commissioners from three counties (Potter, McKean and Cameron Counties), a staff person from the office of two United States Senators from Pennsylvania, as well as other community representatives. Everyone in attendance (about 30 persons) responded enthusiastically to the presentation about the experiences with the YET Club. The site coordinator is following up with these important decision-makers to discuss sustainability funding.

### **Sustainability:**

As part of the sustainability plan, the Potter YET site coordinator, along with YET members, made presentations to community organizations and the Potter County Extension Advisory Board. Some of these presentations included local government officials and extension advisory boards. Not only have they presented about the YET program but also a GIS project that YET members were hired to conduct. As mentioned earlier, two YET members were hired during the summer to collect and compile data into a GIS system to create important maps of the area. Presentation about this project has made the community aware of the YET program and demonstrates the strength of the curriculum.

# Washington County Site

**Geographic Type:** Town/City

**Number of collaborating Organizations:** 2

**Number of Sites:** 1

## **Description:**

The Washington Youth Engaged in Technology (YET) program started this year with a new site coordinator, Carlee DiMarzio. This has been a rebuilding year for the program with only one former participant returning. Despite those facts the Washington program had thirty-four students, throughout the 2006-07 school year, participated in the YET club meetings, events, field trips, service activities, and student-led workshops for senior citizens. Of those students, 41% (14) have a 75% attendance record or better and have been engaged in longer-term projects throughout the year. Of these most active YET members, 68% were boys and 32% were girls. These very active YET members continue to expand their technology knowledge and have shared their knowledge with community members.

The Washington YET program completed curriculum in Website development, robotics, and GPS/GIS. Their main focus this year was to update their club website and continue to maintain their geocache. The YET members completely updated their club website to reflect what the current members are working on. Using the updated Website development curriculum, members spent more time on initial planning before they built their site. This advanced planning save them time in the long run since they had a clear plan of what the Website would look like. Each member used their best skills to contribute to the final product.

The members of the YET program established their own geocache that they posted on [www.geocaching.com](http://www.geocaching.com) two years ago. They planted a “bug” in their cache which has traveled nearly 1,500 miles through five different states and is currently in Connecticut. They recently moved the geocache to a better site. Meanwhile, the YET members continue to track and maintain the geocache.

This year only one previous Washington YET member returned. However the Washington High School group has shown a major turn-around in the way they view the YET program. In the beginning of the year it was very difficult to get students involved in club activities and keep them involved. After Nanotechnology Camp, the Washington High School members are now taking ownership of the club. They are very enthusiastic about getting more students involved in club activities and contributing their thoughts on issues such as how they think the club sessions could run more efficiently. The members are extremely clear on what they would like to see happen with the club in the new school year that will help gain more of an attendance at regular club meetings. These students have really found a place where they feel like their voices are heard and they belong.

As stated in pervious year-end reports, community service or “helping others” projects, as the youth refer to them, is a major tenet of the YET curriculum. For the fourth year in a row, YET

members, in collaboration with the Washington School District, conducted two free PC training and re-employment workshops at the high school computer labs. Over 15 residents of Washington County attended and nearly all returned for a second advanced workshop in MSWord, email, and the Internet. WQED, the PBS television station for Pittsburgh, taped the sessions for their show "Teens On Q" [http://www.wqed.org/tv/teens\\_onq/index.shtml](http://www.wqed.org/tv/teens_onq/index.shtml). The episode has aired two times since July. Our collaborator, Washington School District, provided the computer lab, advertised the workshop in the local newspaper at the cost of \$700, and coordinated the registration. YET members taught the session and provided one-on-one training. This "helping others" project is a huge success in terms of enhancing the relationship with the school district and the community.

The Washington YET members have also worked on three other "helping others" projects this year: (1) karate school brochure, (2) Operation Christmas Child, and (3) the development of the Canton township Website. A local karate school needed help in developing a brochure to promote the school. The YET members used their skills with graphics and layout design to develop the karate school brochure. They used Microsoft Publisher as well as Fireworks software for the brochure. The karate school appreciated the YET members focus on details and the professionalism they showed. They were very happy with the final product.

Operation Christmas Child sends boxes of gifts to needy children throughout the world. The Washington YET members decided to participate this year. They shopped for the gifts as well as packed the boxes. The YET members plan to make this a yearly "Helping Others" project.

The YET program is designed to foster technology skills that can be later utilized for personal gain. One member, now embarking in his fourth year of the YET Program, has had the opportunity to use his YET-acquired Website development skills in order to complete a local township Website. This project provided him with firsthand experience of what it is like to work with a client in the real-world. He worked on creating a Website based on the information given to him from his client. The site was to be built around the idea that it would be accessed by not only the public, but by people viewing the site for information on the township redevelopment plan. He received approval on the completed site, but was asked repeatedly to change the design, the content, the colors, and the layout. For months, he worked at meeting the needs of his indecisive client as best he could. The client wanted the site to look more professional, which cannot be achieved by using Microsoft FrontPage alone. The YET member decided that if he was going to complete this site he would have to learn more skills. He taught himself how to use Adobe Photoshop, without any previous background, and finished the site. His client is now extremely pleased with the final product. The YET program has helped this member find the motivation and confidence that he needed to persist in completing this Website. The YET program has aided in supplying the resources and skills necessary to complete this type of task and opened him up to a possible future career path.

The Washington YET program provided the YET members with opportunities for local and statewide field trips. This year they participated in a local field trip to the Carnegie Science Center in Pittsburgh. Not only did YET members attend but they also invited other students from the Washington High School. The field trip introduced the students to all kinds of science experiences. In addition, the Washington YET club attended a statewide field trip to Penn State for the Nanotech Camp. The YET members had the opportunity to learn about nanotechnology

as well as socialize with members from the Galeton YET program. Local and statewide educational field trips introduced the YET members to other technologies and provided them with an opportunity to experience their community in a new way.

**Primary Outcome:** Youth

**Secondary Outcome:** Community

**Primary Outcome Evaluation:**

A pre/post test design was used in the evaluation to measure knowledge (i.e., GPS, GIS, and Web development) and life skill development (i.e., decision-making, critical thinking, communication skills, problem-solving, and goal-setting skills). The knowledge tests were developed for each major area of the curriculum. The life skills measure was developed by Perkins and Mincemoyer (2003) and is being used throughout our system. The members at the Washington YET site showed an increase in overall scores for the General Computer Knowledge, GPS, and Life Skills. Although not statistically significant, YET members overall computer knowledge started with a pre-test score of 43 and ended with a post-test score of 61, this represents an increase of 42% from their baseline score. Likewise their GPS pre-test score of 51 increased to 71 on the post-test, this represents an increase of 39% within GPS knowledge. We also measure life skill increases. The following are the increases in mastering life skills: Decision making: pre-test 75, post-test 80 a total increase of 6%, Communication: pre-test 79, post-test 82 a total increase of 3%, Goal Setting: pre-test 77, post-test 79 a total increase of 2.5%, and Problem Solving: pre-test 76, post-test 78 a total increase of 2.5%.

In addition to the quantitative data, several anecdotal stories about YET members are presented next to bring to life the other impacts that the project is having. We believe these stories present the difficult to measure “real people” impacts that YET is having on the youth participants, their families, their school, and their community. Thus, these stories are meant to present the faces behind the numbers.

For instance, one YET member consistently demonstrated high interest and proficiency in website development. The skills he acquired through the YET program enabled him to design and maintain websites for several community organizations in Washington County. The YET member not only enhanced his website development skills through these experiences, but he gained insight into the professionalism involved in dealing with clients. He has since graduated Washington High School and is now attending Penn State’s University Park campus while majoring in Computer Engineering.

The second example highlights five skeptical YET members that attended the 2007 NanoTech Camp at Penn State University. These members were all quite different from one another; however, they attended club sessions more often than most, but still, inconsistently. While at Nanotech Camp, they participated in a variety of nanotechnology-based activities that were very hands-on and that allowed them to find their own meaning in the content. This exposure was very positive in providing the YET members with an increased awareness of possible future career options. One of the most impacting experiences for this group was the tour of Penn State’s University Park Campus. Tour guides explained to the group the many advantages of attending Penn State and the endless opportunities that students have in focusing their energies in multiple

venues. As stated by one YET first year member, and agreed by another, “I never considered going to college before this. It’s like the tour guide said, ‘the opportunities are endless.’ I can major in music and graphic design!” These students can’t wait to return to Nanotechnology Camp next year!

The final example focuses on the YET program’s significant amount of media coverage during the programs four-year span. Possibly one of the most noteworthy of these events was YET’s participation in a piece by WQED, the Pittsburgh PBS station. Washington YET participants conducted two successful CyberSenior sessions, in which the Site Coordinator and student members taught basic computer skills to senior citizens in the community. WQED filmed the first of these sessions and included the footage in a collaborative piece on teen interactions with adults. The piece has aired several times on the WQED show “Teens On Q”.

### **Secondary Outcome Evaluation:**

In the secondary outcome area of Community, the YET program has made significant in-roads. The site coordinator has made many contacts with local community decision-making people and community-based organizations that are interested in helping youth utilize new knowledge and skills to make the town of Washington a better community. She is also actively involved in the group called Youth Places. Youth Places is a collaborative network of youth organizations in the Washington area. Their purpose is to partner with each other to create stronger youth programs. They are also working on finding financial support for all youth programs in the area.

The local college, Washington and Jefferson College (W & J), has partnered with the YET program for the past four years. Each year a W & J student, whose major is information technology leadership, has worked with the site coordinator to help facilitate the YET program. This year the W & J student focused his presentations on graphics and gaming. The YET members are very interested in graphics and developing computer games. Faculty and students from W & J have also conducted several workshops at the college including robotics and GPS.

### **Sustainability:**

As part of the sustainability plan, the Washington YET site coordinator made presentations to community organizations. In addition, the YET members, along with the site coordinator, made presentations to school boards, local community organizations (e.g., CTC, United Way, Rotary Club). Some of these presentations included local government officials and extension advisory boards

# PENNSSTATE

---



**This publication is available in alternative media on request.**

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation, or veteran status. Discrimination or harassment against faculty, staff, or students will not be tolerated at The Pennsylvania State University. Direct all inquiries regarding the nondiscrimination policy to the Affirmative Action Director, The Pennsylvania State University, 328 Boucke Building, University Park, PA 16802-5901, Tel 814-865-4700/V, 814-863-1150/TTY.

© The Pennsylvania State University 2007