A QUALITATIVE STUDY OF
SELECTED MARYLAND GENERATION Y PROGRAMS

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GENERATION Y PROGRAM OVERVIEW

The Generation Y(Gen Y) concept of "student-powered technology integration" was originally conceived in 1993 by Dennis Harper. In 1996 the program received a Technology Innovation Challenge Grant from the U. S. Department of Education to develop and implement the program in six schools in the Olympia (Washington) School District and several additional districts. Because of the success of the program, it was expanded to schools in Alabama, Kansas and over the ensuing years to over a thousand schools in the United States and abroad. In 1999 a consortium of nine colleges and 19 K-12 schools was awarded a U. S. Department of Education Catalyst Grant from the "Preparing Tomorrow's Teachers to Use Technology" (PT3) program to expand the Gen Y program to teacher education. This grant focused on building a community of K-12 and teacher education faculty and students in using the Gen Y concept to enhance utilization of technology in both K-12 classrooms and teacher education courses. In 2001 the Gen Y program received an award from the U. S. Department of Education's Educational Technology Expert Panel as an "Exemplary and Promising Educational Technology Program" (one of two such awards made out of a total of 134 programs submitted).

Over the past several years, the Gen Y program has begun the transition from a grant-funded program to an organization charging each school a fee for materials and services provided. This includes a comprehensive 238 page curriculum guide that focuses on developing student technology skills and assisting students in learning how to work with teachers to plan and implement a technology-enhanced lesson or unit. In addition, printable handouts are provided for students and teachers both online and on a CD-ROM. A best-practices videotape describes the first-hand experiences of Gen Y participants. Also, an online Gen Y Collaboration Network offers a moderated and secure site where student/teacher teams from across the nation can collaborate and share information, as well as be mentored in the utilization of the Gen Y model. To assure success of the program, a content/grade level consultant is assigned to provide feedback on the project of each student/teacher team. Typically, Gen Y teachers utilize the Gen Y curriculum with a group of interested students as part of the school's regular instructional program. However, in some schools it has been necessary for Gen Y teachers to offer the program after school because of curricular or time constraints.

After a few weeks of Gen Y curricular activities, students are usually paired with partner teachers who have expressed an interest in enhancing their use of technology in a lesson or unit they teach. Partner teachers determine the curricular content of the lesson/unit that they and the Gen Y student will develop. Drafts of the lesson/unit developed by a student/teacher team are submitted to an online Gen Y consultant for feedback. Once design of the lesson or unit has been completed by the student/teacher team, it is expected that it will be implemented by the Gen Y student, the partner teacher or both. The project team is asked to use the online Project Organizing and Reporting Tool (PORT) to describe the project and its implementation. The information entered in the PORT includes such items as:

- Basic project identifiers (title, school, grade level, brief project summary, etc.);
- Project evaluation, objectives and indicators for both the partner teacher and for students in the partner teacher's class;
- State standards addressed;
- Reflections on project outcomes and procedures; and
- A session-by-session record of consultations between each partner teacher and Gen Y student.

PREVIOUS RESEARCH ON GEN Y OUTCOMES

National Gen Y Survey of Program Outcomes

The Northwest Regional Education Laboratory (NWREL) has conducted an evaluation of Gen Y programs across the nation for each school year during the period from 1997-2004. One source of data utilized for these evaluations has been pre- and post-surveys of perceived program outcomes by Gen Y students. In addition, a post survey is completed after each Gen Y class by the teacher using the Gen Y curriculum with their students. Finally, partner teachers team with Gen Y students to develop a technology-enhanced lesson or unit and complete a post-survey following each class. For this brief review, the most recent available NWREL analysis of Gen Y outcomes--for the 2003-2004 school year--is summarized.

The data analysis for 2003-2004 reveals an approximately equal proportion of girls and boys participating in the Gen Y program, with the distribution of different ethnic groups similar to the overall U.S. average. In 2003-2004 students in the 4th--8th grades made up approximately 78% of all Gen Y students, with a steady increase in participation from 4th through 8th grades. The total percentage of Gen Y students in the 9th-12th grades was approximately 18%, whereas about 4% of Gen Y students were in third grade.

The 2003-2004 NWREL survey revealed that the average number of students who completed each Gen Y class was 11.1, whereas the mean number of projects finished was 9.1. This would seem to imply that 18% of Gen Y projects were either not completed or that student/partner teacher teams included more than one student. The average number of projects developed was 6.4, suggesting that nearly 30% of lessons/units designed in 2003-2004 were not implemented. This pattern was also seen in the data for the 2002-2003 school year. Though the process of designing technology-enhanced lessons/units appeared to contribute to important learning, the reasons for non-implementation need to be better understood.

Finding partner teachers as well as managing and nurturing Gen Y student/partner teacher teams did not appear to be a serious problem. An average of 67.9% of Gen Y teachers also "agreed" or "strongly agreed" that their school's network infrastructure was adequate. Approximately 72% of Gen Y teachers indicated that they "strongly agreed" or "agreed" that students were able to obtain computer and network permissions/privileges. A smaller percentage of Gen Y teachers (55.7%) said they "agreed" or "strongly agreed" that other teachers in their school were enthusiastic about the Gen Y model, with 37.4% of other teachers having a "mixed" reaction. A total of 43.7% of Gen Y teachers "agreed" or "strongly agreed" that other teachers in the school believe that the Gen Y model is a serious professional development model for integrating technology into teaching; they believed that 37.9% of other teachers had a mixed reaction. Though there is significant support for the Gen Y model, especially among Gen Y teachers, exploration of why some other teachers appear to have mixed reactions would provide insights into how more teachers could be interested in becoming Gen Y partner teachers.

Examples of Gen Y program elements that were seen by Gen Y teachers as having the most success and the highest impact are listed below, along with the percentage of combined "agree" and "strongly agree" responses for each component.

• Training to teach and manage the Gen Y curriculum (61.7%)

• Gen Y central office staff was helpful and responsive (88.0%)

• Curriculum guide for the Gen Y program was appropriate (71%)

• Gen Y Web site (83.2%)

• Online registration system (87.3%)

• Online classroom management tools (80.2%)

• Project Proposal, Feedback and Final Report (58.9%)

Though most of the foregoing ratings are in the 70-80% range, two lower percentages stand out: Gen Y training (61.7%) and Project Proposal, Feedback and Final Report (58.9%). Even less favorably rated by Gen Y teachers were the Gen Y CD-ROM (49.8%) and videotape (49.1%). Further understanding is needed about how Gen Y training could be enhanced, along with the proposal/feedback and final report process. In addition, more clarity is needed about how the Gen Y CD-ROM and videotape could be improved.

The 2003-2004 national data clearly shows that Gen Y teachers believe that the program is a highly effective way of integrating technology into instruction (96.6% "strongly agree" or "agree"). Gen Y teachers also indicate that Gen Y makes learning more meaningful and engaging for students (95.8% "strongly agree" or "agree"), is an appropriate approach for helping students learn technology skills (92.8% "strongly agree" or "agree"), and good preparation for real-world problem-solving (92.4% "strongly agree" or "agree").

An average of 46.5% of Gen Y student/partner teacher projects focused primarily on developing an "educational presentation" with PowerPoint, HyperStudio, etc. The next most frequent project involved creating or updating a Web site used in the partner teacher's class. Together, these two types of projects account for two-thirds of all Gen Y projects in 2003-2004 (the same pattern is also seen in the 2002-2003 Gen Y report by NWREL). These data are corroborated by examining the two most frequent types of computer skills that students indicated they practiced or experienced "a lot" in the Gen Y program--searching the internet and learning to use presentation software like PowerPoint. One implication of the foregoing data is that partner teachers may believe that integrating technology into instruction means using Web resources and presentation software to enhance instruction. The issue of what "technology integration" means bears further exploration with Gen Y teachers, Gen Y students and their partner teachers, since this definition and its implementation in the design of lessons/units is key to assuring that goals of the Gen Y program are met.

Two-thirds of Gen Y teachers reported adequate computer and networking infrastructure in their school and that permissions had been obtained for computer use by their students. Yet, a substantial number of Gen Y students reported that computers were never used in their classes. This was especially true for math, science and social studies (a pattern also seen in the 2002-2003 NWREL data). This disparity between available technology resources and effective technology utilization in specific areas of the curriculum needs to be discussed to determine if efforts to recruit teacher-partners could focus on subjects most in need of assistance in integrating technology in instruction.

Approximately two-thirds of partner teachers reported that they will use computers as frequently as before participating in the Gen Y program. However, one-third of partner teachers indicate they will use computers more frequently in their classes. Partner teachers also reported more comfort in using technology in teaching after their involvement in the Gen Y program. The overall evaluation of the Gen Y experience by partner teachers was impressively positive, with most indicating 90% or more agreement that they "strongly agree" or "agree" that their Gen Y experiences will change how they teach future lessons and that they will continue to use and refine the lessons/units developed with their Gen Y students. The foregoing findings indicate that the Gen Y program is seen by partner teachers as a very effective way of enhancing their use of technology in teaching. What now seems imperative to explore is how student/partner teacher teams can be assisted with building on their successes to broaden the ways that computers are used to enhance learning, such as computer-based simulations, using computers to analyze and interpret data, computer-enhanced project-based learning, etc.

Maryland Gen Y Survey of Program Outcomes:

Identical surveys have been used by the Northwest Regional Educational Laboratory (NWREL) to evaluate both the national and Maryland Gen Y program. Consistent with the national outcomes of the Gen Y program, the Maryland results show a very positive response to the program. The focus of this brief review will be on the similarities and differences between the national Gen Y outcomes and the Maryland data for 2003-2004.

In 2003-2004, NWREL reported that Gen Y teachers had an average of 11.1 students in their Gen Y classes, compared with an average of 11.5 students in the national Gen Y sample. The number of collaborative projects begun and completed by student/partner teacher teams in each school was also very similar (9.2 for the Maryland Get Y program and 9.1 for the national sample). However, the average number of projects actually implemented in partner teacher classrooms was higher in Maryland (7.2 in the Maryland sample, vs. 6.4 for the national sample). This means that 78.3% of the Gen Y projects in Maryland were implemented vs. 70.3% of projects in the national sample.

When asked if partner teachers were enthusiastic about the Gen Y model, Maryland Gen Y teachers were somewhat less positive (45.8% "strongly agree" or "agree") than in the national sample (55.7%). In addition, the administrative structure and schedule of schools in the Maryland sample were rated by Gen Y teachers as less conducive to the utilization of the Gen Y program (35.5% rated as "strongly agree" or "agree") vs. 51.5% for the national sample. Likewise,

Maryland Gen Y teachers reported that 33.4% of teachers in their school see Gen Y as a serious model for providing professional development and offering technical support vs. 43.7% in the national sample. The factors that contributed to these lower favorable ratings need to be explored to determine what strategies could be developed to address these challenges.

Gen Y teachers in the 2003-2004 NWREL evaluation of Maryland outcomes reported very positive outcomes of the program (all above 90%), especially in helping teachers integrate technology in the curriculum, making learning more engaging/meaningful for students, and aiding students in developing technology skills. The lowest ratings were obtained for the Gen Y Student Workbook, CD-ROM, and videotape (as occurred for the national sample). An average of approximately three-fourths of Gen Y teachers in Maryland and nationally indicated that their school would continue to offer the program in future years. If this level of sustainability of the program can be maintained after grant funding ends, it will be an exemplary accomplishment.

Students in the Gen Y program in Maryland reported an average of 49.3% of student/partner teacher projects consisted of an "educational presentation" with PowerPoint, HyperStudio, etc. (in comparison with 46.5% for the national sample). An average of 16.1% of student/partner teacher projects involved creating or updating a Web site used in the partner teacher's class. Thus, for both the Maryland and national Gen Y samples, these two types of projects account for two-thirds of all Gen Y projects in 2003-2004. The two most frequent types of computer skills that students indicated they practiced or experienced "a lot" in the Gen Y program—searching the internet and learning to use presentation software like PowerPoint—also can be seen in the Maryland Gen Y data.

Maryland Gen Y partner teachers showed less increase in the use of computers to prepare for school-related tasks (26.2%) in comparison with the national Gen Y sample (37.9%), as well as less increase in the use of email (16.7% vs. 25.7%), the Web (25.0% vs. 35.2%), and having students use computers in class (29.1% vs. 41.8%). The reasons for this lower percentage of increase in computer usage by Maryland partner teachers should be examined.

2004 Maryland Gen Y Qualitative Evaluation

In addition to providing survey data from the Maryland implementation of the Gen Y program, NWREL also conducted a supplementary evaluation of the program during the spring of 2004. A series of brief interviews were conducted with a sample of Gen Y teachers from several schools and with Gen Y state and district coordinators. Among the conclusions of this supplementary evaluation were the following:

- The participants in the brief interviews were very positive about the Gen Y program and felt it functioned well during its second year of operation.

- One interviewee expressed disappointment with parental involvement in the 2003-2004 school year, while another complained that teachers only used technology when the Gen Y student was in the classroom.

- A variety of strategies were used for recruiting and placing Gen Y students with partner teachers. Some Gen Y teachers recruited students first and then matched them with partner teachers later, while others began by recruiting teachers first. In some schools Gen Y teachers required Gen Y students to be in the same class with their partner teacher while others did not.

- Gen Y student/partner teacher teams were reported to perform well and to have engaged in more advanced projects than during the initial program year.

- Two interviewees indicated that the interface was improved for the online Project Organizing and Reporting Tool (PORT).

- Teachers were reported to be more familiar with the Gen Y program, though more "tech-savvy" teachers tend to get involved.

- Positive outcomes for students were reported by interviewees, such as higher self-esteem, poise and leadership. Students derived great satisfaction from helping teachers and reported increased interest in becoming a teacher. Students were surprised that many teachers did not know much about technology tools and that they had to learn how to teach teachers.

Examples of Gen Y Issues Needing to be Explored

Though the foregoing research established the very positive outcomes resulting from participation in the Gen Y program, a number of issues still need to be explored with Gen Y teachers, such as:

1) What factors contribute to whether a lesson/unit is implemented in a Gen Y classroom? How could implementation be increased?

2) How would you describe the view about the Gen Y program of other teachers in your school? How could this opinion be improved?

3) What common problems were experienced in recruiting students or partner teachers and how could these be solved? To what extent would it be feasible to focus recruiting of partner teachers on those subjects that are especially in need of assistance in learning to utilize technology in teaching?

4) Describe the positive aspects of the Gen Y training you received, as well as the challenges you experienced. Discuss problems that you encountered in the training you received in setting up and managing the Gen Y program.

5) What is your opinion of the value of the Gen Y Student Workbook, CD-ROM and videotape? How could these be improved?

6) What changes would you like to see in the project proposal process, as well as project feedback and the final report?

7) How would you define "technology integration"? Describe what an ideal classroom would look like that uses technology to effectively enhance learning. What barriers do student/partner teacher teams face in your school in achieving this ideal and how have these challenges been addressed?

8) This school year what were some examples of technology-enhanced lessons or units developed by Gen Y teams and what were positive and negative aspects of these. Were there any lessons/units that were not implemented in the partner teacher's classroom? If so, why did this occur?

9) If you could re-design the Gen Y program to be better assist teachers in integrating technology in instruction, what would the program look like?

10) What factors will contribute to the continuation of the Gen Y program in your school? Please share any ideas for how the program could be supported in the future.

11) What changes in Gen Y programs do teachers, school administrators, students and parents recommend?

METHODOLOGY FOR THE 2005 QUALITATIVE STUDY

The questions in the foregoing section were subsequently reorganized to improve clarity and revised based on suggestions from the national and Maryland Gen Y project. Focus groups and individual interviews with Gen Y teachers were conducted using the revised questions. Appendix A contains the questions that were utilized for two individual two-hour interviews with Gen Y teachers and a three-hour focus group with seven Gen Y teachers. Copies of these questions were provided for the participants to refer to during the individual and focus group sessions. Six of the Gen Y programs that were discussed by interviewees in the present study were from elementary schools and three were from middle schools.

The responses by interviewees were audio taped and subsequently transcribed. The transcriptions were verbatim except for the following: 1) Irrelevant comments unrelated to the question were not included; 2) any phrase that was subsequently corrected by the interviewee was eliminated from the transcript; and 3) in some instances the spoken words could not be understood and therefore could not be included. In some cases words were included in parentheses in the transcript to clarify meaning. Teacher, student and school names were deleted from the transcript to protect the identity of individuals and schools.

RESULTS

The outcomes of the Gen Y program are presented in this portion of the report. The first section provides representative examples of Gen Y Teacher responses to each of the interview questions (see Appendix A). These excerpts are intended to provide a context for the subsequent major conclusions and recommendations for the Maryland Gen Y program based on an analysis of teacher responses. A final section of the report suggests some potential future directions for the Gen Y program in Maryland and throughout the nation

<u>Illustrative Responses by Gen Y Teachers to Study Questions</u>

1a. Student Interest in Gen Y:

Gen Y teachers reported that students were excited by their participation in the program and proud of what they had learned. The following are excerpts of comments by Gen Y teachers that are illustrative:

- (T)hese kids are so proud of what they have DONE and yal, PowerPoint is pretty basic, but for 9-year-olds kids to have seen it through the whole time, this is really important to them.

- They were like..."(O)h boy--look what I can do now!"--then of course proud that they could do it for the teacher. Most amazing were some of the kids who were very shy...(T)hat was really a neat result because they became self-confident in what they could do and in using the technology and working together.

- We had career day and two of the girls had done a PowerPoint on careers for the kindergarten... They presented it to the other kindergarten class and to the first grade classes. So they felt really special that they were a part of what grown-ups were doing because we had outside resources coming in and talking about their careers and all. So like we can do this. It was powerful for them.

- I watched this little girl give her presentation the other day and she blossomed. And I had her in here and her spelling is terrible...(S)he stood up there in front of that group--we corrected everything--it was all in PowerPoint. We used Palm handhelds--each Gen Y student made a quiz for the class that they were doing the lesson for. So after they did their PowerPoint presentation, they had a larger presenter on the screen and we put the image of the Palm up there and they showed the children how to...(use) it. And I watched her--she just sparkled--she came out of herself. And her mother was there and she said, "Look at her!" So this is what Gen Y does for the children. It really, really does.

- We...got the kids a little blurb in the local newspaper and they went, "Look--we're mentioned in the newspaper!" So again they were feeling on top of the world.

Two Gen Y teachers also remarked about how proficient their Gen Y students became in using technology to develop and implement lessons:

- We had a 6th grade teacher who required a multimedia project done by each of the students. So she was coming to me wanting me to teach the kids. I said..."(Y)ou got Gen Y kids who can do that for you!" And so they did. They came in on their recess time and taught those kids who were interested in how to...take the videos and import 'em into a PowerPoint...

- A visitor came over from a high school...that was going to show a 5th grade class a PowerPoint on bullying that she had made...Two minutes before she had to go upstairs someone brought her down to my room and said, "Do we have a projector and a laptop?" And I said yes we do, but I have my own classes, you know. So I thought, "What can I do." So I thought well she made this PowerPoint--maybe she knows. And I said, "You know how to hook up a PowerPoint to a projector?" And she kind of looked at me. And I said, "OK--there are Gen Y students upstairs on

the fifth grade floor." But the teachers did not know how to set this up...The Gen Y girls did it. Now they ran downstairs and asked me some questions--they came down a couple times--but they went back upstairs. They followed that speaker all throughout the day--unplugging everything and putting it all back together again in five different rooms. And they were so pleased with themselves. So the teachers are confident when the Gen Y students are there--they can help out.

One of the Gen Y teachers commented about a group of special needs students that she worked with during the past year:

- The children we selected this year are all on what we call our "target list" of students who need extra help to do well on our MSA test (Maryland School Assessment--a mandated state test measuring reading and mathematics achievement). I had worked with all of these students--I knew them either because they had been in my Title 1 program or I knew them within the building... They do need that extra support and so I found that unlike other years their attendance at Gen Y after school was spotty. The attendance was the worst that I had of any of the three years. I know part of it (is) in the spring when softball begins--practices and those kinds of things. And they start with me in October and we go through May and it's two days a week after school. So sometimes it's out of the children's hands if the parents are doing something (else) they can't help it. So when they did come to our Gen Y class they really did enjoy it.

1b. Teacher Interest in Gen Y

According to Gen Y teachers, both Gen Y partner teachers and other teachers in Gen Y schools showed support and enthusiasm for the program. However, Gen Y teachers reported frustration with the amount of time that partner teachers had available to work with Gen Y students in developing their projects. For example:

- The first year I think interest was very high. Of course nobody knew what was expected of them the first year--even I didn't know. So you have a gamut--some put in tons of time and some who were little more than a name on a piece of paper who tried to help out but...their schedule is just so busy--so I've seen both. But in general, Gen Y is very respected in the school and our students have really helped out.

- As far as the teachers in the rest of the building, they are aware of Gen Y...and they're very supportive.

- (Our) teachers were openly interested and they were anxious to have students... work with them. I think what happened, too, was that they were in this uninterrupted reading and math block and it kind of stifled the time when the kids could present. The teachers who did not have Gen Y--they said maybe next year I'll work with it.

- There was a lot thrown at...teachers this year--with a new math series, new reading series, new time constraints. So that kind of played a part in the elementary schools...There was very little time for extra stuff so that was a little bit of a burden for our teachers.

- The time constraint for me was finding time for the teacher and the student to sit down and help them review and making sure that the students were staying on task in terms of getting all of the pieces to the curriculum that they needed...

- (My) students tried to meet (with their partner teachers)--they would ..say, "(T)he teacher says they can't meet with me today, they'll meet with me tomorrow during recess." And that wouldn't happen. I found them (the students) coming to me quite often and saying, "Well, we couldn't get together." (T)hey were always being put off, put off, put off--continuously--because of a meeting or they had to leave or they had a parent conference coming in and they were constantly seeming to not meet...That was one of the reasons I kept the group small to work out any kinks...or say just give this kid 10-15 minutes. And then you can meet with him in two weeks--give him some feedback, give him something to do and give him a little time, then meet with him two weeks later.

- One of the things I try to get my students to do is to email them (the partner teachers) their questions and meet with them that way. My 6th graders are either scared or not brave enough to ask a teacher a question. It's really a lose-lose situation. We're trying to get those meetings. They got the teacher's email--I got 'em up to that point. But getting them to collaborate--they work more closely with me than they do with their classroom teacher...

- Well...email works if it's a teacher that really reads their email. That worked with some of my teachers, I had them email them...this is what you need, and this is where you are and can you help out? And the teachers did give them feedback that way but it depends on the teacher--if they only look at their email once a week, it didn't always work.

1c. Administrative Support for Gen Y

There was administrative support for Gen Y in many of the schools where the program was utilized. The following are two positive comments and one negative response:

- Our administrator is very, very technology savvy and he's very much for anything that spreads technology throughout--he encourages it across the board in our building--so I'm very fortunate in that sense.

- I have a wonderful administration that I work with. Absolutely.

- (O)ur principal would not support us. And that became a real issue because the children could not email. She only wanted them to do certain things. They couldn't bother the other teachers and things kept coming up that she needed the teachers to do...You really have to have an administrator that is going to back you and give the children time to strut their stuff.

1d. Parental Support for Gen Y

Parents were overwhelmingly supportive of the Gen Y program and extremely proud of their children's involvement. The following comments are illustrative:

- (W)e invite the parents to come when the students do their presentations and I insist that the parents come into the labs to pick the children up, too...We do have lots of support and they're very pleased with what they see. And many times the parents do come for those presentations. I've got pictures--not printed out here for you--but I do have on the Web. While they're making their presentation...I took a picture of the parents (demonstrates student/parent pictures). Not this year but the year before we did quite a bit with video editing and we made movies and that kind of thing and the parents were just amazed.

- I think my parents are very interested in this program--that's why I think I have a good chance of getting the PTA to support it next year even though we won't be on a grant because they're already approaching me trying to talk me into letting their kid be in the program. They're VERY excited...that it continues through middle school and high school--especially the students who don't have something like chorus or instrumental. They feel like we'll put 'em in a group with kids who are like-minded, who are going to be using technology and that's very interesting for them. And a whole lot of parents talk to me and say, "I was at home and I was trying to blah-blah-blah because I couldn't do it and my kid was able to show me how to do it" because they learned it at school.

- At (school) we have 62 different languages spoken, so we're a mini-United Nations. Many of our parents were at first very apprehensive because they did not understand what the program was. And I don't speak the nine different languages that I needed to communicate with the children who were in the program. Once they found out what the program was and what it was about, they were very supportive. Plus the majority of our families are in survival mode. The parents are not there. This not only gives their children the opportunity to have something--an after-school program. But technology is very important to these parents. Because they know that's where the future is--in technology. So, I think that's why we have so many children who want to be in the program, because the parents are now VERY supportive. Word has really spread through the community that this program is applicable and that their child needs to be there.

- (P)arents have always been very positive and I can tell because if they (students) want to stay after school to work on a project, there's no problem. They're very supportive.

- My parents are very supportive, also. Our kids presented up at MICCA (a major state technology conference). We took our kids up there to present some of the things that they did...The parents sat in the audience and watched their kids present and you could see the parents grinning from ear to ear. They talked about how their kid made a Web page or did a PowerPoint presentation or was able to do a little bit of everything with the technology. Actually, one of the parents spoke up and gave an example of their uncle wasn't able to do something, but the student was able to say, "Just do this and this."

2. Gen Y Training

Gen Y teachers in general indicated that they were very happy about the Gen Y training they received. The following are examples of their comments:

- They showed us everything we needed to know to get started. This is my first year and I didn't have any stumbling blocks other than the timeline.

- I found the emails really helpful. A lot of times there will be a refresher for me, maybe little things I've forgotten near the end of the school year-- an extended checklist, because we have a mountain of other things to do. And I say, "OK, That's right." And then they put everything online for us, too, which helps. So, I think that's what has helped me so far as training and keeping me up-to-date.

- It's the accessibility to resources to help you through that process...The first year we had it, it was all in the manual and then they put that whole manual online..(so)..we can click right in. So we don't have that problem. The other part the email that's sent every month by Dennis is very user-friendly--he's always looking at ways to spark the whole process and to get it continuously charged. And Vicki's always a phone call away, an email away, and she responds to you within 24

hrs. (I'll say,) "I can't remember how to do this..." and she is just so patient...because she knows that you're busy, too. She respects that (as) part of being a formal coordinator herself...they all see this as we're taking on another activity and they really try to work with you.

- I think the first year when we did it we had an all-day training...Then we had a follow-up in mid-year. So I think we had more kicking off the first year. It was brand new.

- Vicki would come to the school and if you had any questions she would walk you through it, so we had a lot of support that first year.

- They did say something about...an online forum for teachers to discuss whatever issues they may have and start helping each other. I haven't taken advantage of it yet.

- Maybe during the summer as we reflect on next year we (can) access those teachers--and say "Hey what did you do this year with Gen Yes and what really worked?" We could pick their brains during the summer--we could start gathering notes and things for next year.

- It (the training) was fine...--I can't remember if it was a whole day or half day. Vicki was there and Dennis from Gen Y...Of course at that time you don't know what you're getting into...I was approached and I said gee--this is something I would really LIKE to do. And so then I went for the training. And I really have enjoyed it.

- The training that took place was actually myself and two elementary people from our system. We got together with Vicki and Vicki came here and gave us an overview. Some of the overview of the Web site and the program itself--it was very open-ended. It was how would it best fit what it is that you see happening. So for me that was very freeing, so we could kind of do anything we wanted to do.

- I would not have wanted to start up without having had the training. Just for the idiosyncrasies of the Web site and once you got used to it, I mean, no problem. But getting in there the first time might have been frustrating if I hadn't had the training.

- (I)t was a lot of information to absorb, but once you come back and take a look at what you could do and what was there to support you, it was freeing. Because you don't have to stick to doing this and this and this. That would have been NOT a good thing.

3. Value of Gen Y Training Materials

Gen Y teachers were asked for their opinion about the Gen Y training materials, such as the CD-ROM of exemplary projects, the introductory videotape and the curriculum manual. The following are samples of comments from Gen Y teachers about these materials:

- I used the CD as an intro. And the students went back to that CD to see the exemplary projects which kind of like gave them an idea of where they were going because to them it was totally new, too. Now, we did try the CD--the student CD with the student projects that are exemplary. We did have one person submit something for that--hoping it will go on next year's CD. And we kind of looked back to see what had been done before so we could sort of model ours on this. It was helpful to see the CD for sure....I didn't have to use the videotape as a promotion, which it could be used for... (or) do any advertising. If I did I would use it...(T)he Web site I used extensively.

- I found that there were several things on the Web site content-wise that really helped guide what I decided to do. And I just did a potpourri--pick and choose--if it fit what I thought I wanted to do. Because I had a group of students who had used computers a lot but not necessarily used them for a purpose like we were going to be using them. So for them it was a toy, to me it was a tool. So we had a little meshing of the minds. (I) found out that you might be able to use it as a tool, but that it could still be fun. So we had several fun projects we did to teach the skills and so from there, OK, you've got these skills, you can contemplate some projects. Let's start thinking about some. And here are some I've been thinking about. I threw the projects out and some grabbed and some didn't grab...so that's how we started.

- I looked at that (the videotape) with the children at the beginning of the year... and they were like ho-hum. When you pull them together for a Gen Y session, they don't want to sit and watch a video. They want to be on the computers...I do show each one of them the CD-ROM because they're sitting at the computer....But the videotape I didn't use after the first year.

- It was a good introduction--the first 5 minutes of it...They were excited about getting into it. I thought of it as an advertisement as to why they're doing it.

- I find that Gen Y was a program written for high school, then came down to the middle school, and then they just tried to fudge it up a little bit and put it in the elementary school. And I had to PLOW through ALL that stuff...They make a lot of materials that are trying to be SO broad they end up missing everybody. ...I don't think I'll use the CD and I don't think I'll use the video because it's too much for my kids. I don't have time to spend on that. I'm spending time on what's really important for my kids.

- For middle schools some of it is too high. So you need something definitely (with) more examples ..(for)..elementary school teachers. I think since they...are now bringing in more elementary schools; they will add more examples to showcase.

- I did not follow the curriculum. In the back of my mind I knew what kind of projects I would like to see come to fruition. So I said what do they need to know how to do...(for)...this project...So I'm going OK, what do we need to learn and work from there...I could go in there and...could see...it was VERY organized. And you could go in and say, well, you know I'm going into video and so this section is going to help me; I'm going into presentations--digital--so I concentrated more on digital photographing, manipulating photographs, movies, that sort of thing.

4. Recruiting Gen Y Students and Partner teachers

Identifying teachers with whom the Gen Y students could work was approached in many different ways. The following are examples:

- I kind of had some difficulty recruiting partner teachers. A lot of them were starting up a new program--they felt a little overwhelmed. And so when I came to them, they just kind of looked, "OK, here she comes!" Because they had so many other responsibilities...Then they wanted to know, "What kid are you assigning to me? Is this a kid I want to deal with? Hold their hand?" So there was so arm-pulling initially. But once the student and teacher got into it, it was OK. Some of my kids wanted to opt out of the class--especially the girls. I have a harder time recruiting females than I do males...I talked to the vice-principal and he let 'em stay. And once they got into it was...."OK, this is going to be alright."

- Usually what I do is I narrow it by the child's team. So I'll try to select a teacher from his team, develop a nice little letter why they want to work with them, and what they can bring to the table. And they'll give that to the teacher. It's kind of a selling point--whatever I can do to sell the child to those teachers.

- I had the kids go out to the teachers. I didn't ask 'em! They can't say no to the kids!

- I did the team thing, too. "OK, you're in this team so you're going to have the math teacher. You're going to have language arts." Actually, I had the kids give me first, second and third choice and then that way in case they picked the same teacher, I had a little leeway there. And it worked out because they all got a teacher and they again wrote the letter that they wanted to invite them to be their partner.

- Trying to get a good mix of students was the most difficult part. Because you didn't want all the kids that are in all the clubs that always get special treatment and you know are going to accelerate. So I tried to take some children that would benefit from the other kids and that was a learning experience in itself. That was the biggest problem.

- I specifically focused on the kids who were NOT in everything else--tried to not get the student council representative, and all the band and the chorus and stuff because I just felt I wanted to pull those kids out who I knew were capable but weren't shining in another area--I wanted to give them a chance to shine and to be the star. Some of them worked out very well and some of them didn't, but you know that's the thing you gamble on.

- (T)he only way I was able to do that (recruiting partner teachers by subject area) was I had the kids...make first, second, third choice(s).

- I...had them pick their teacher. I didn't have anything to do with that at all. But I was lucky enough to have one of my students pick the music teacher and they brought technology into the music classroom. And the music teacher was VERY happy to have that happen. And she had no idea even how to begin and so it was really good for her. And she said, "Now I know how to do it." She was very excited about it.

- (W)e wrote a letter, we had...refreshments in my classroom and invited teachers to come and just gave them kind of an overview of what the program was and just told them what we were going to need--or what the children were going to need. But as I said, things kept coming up and trying to make AYP (Adequate Yearly Progress) kind of put a squelch on what the teachers COULD do after school. Because they have so many responsibilities after school--getting ready for the next day's lesson--it takes so long that it was really very difficult this year. Hopefully, next year it will be a lot easier.

- I just looked through the list of students that I had had before (Title I) and thought that this was a project that they would be interested in and something that may benefit them in the long run. So I just invited them. And you don't know if they're going to be able to or not because of transportation. They have to be able to get a ride home two days of the week. Fortunately, everybody was here except for the two that did eventually drop out. But of the 12 I originally invited, they accepted...I did have some children coming (saying), "Can I, Can I?" But I knew I only had 6 teachers to work with and I had to limit it.

- I kind of had projects in the back of my mind (for partner teacher-student pairs) that I would like to do...because that's part of my job as the computer teacher because we're totally integrated. We totally team together. It's not that you drop kids off in the lab and you know the teachers come-- will you do my staff development--spread it out. So there were several projects in the back of my mind that I wanted to run but never got a chance to do on my own. So the student pairing with the teacher let us get more projects in, which was really a good aspect.

- It's like any other technology integration--the way it's worked here anyway. You start with your omnivores--the people who are really going to get in there and...it kind of spreads: "Ah, you got to do that--well that was really good--I think I might want to do that next year."--so it's kind of grown by word of mouth. That's the way it's worked here...You have to understand that at this point our curriculum doesn't demand that the technology be there. It's not curricularly driven. It's sort of meshing the two together as we go.

5. Project Proposal and Reporting

Gen Y teachers discussed their experiences in helping students develop their Gen Y project proposal and revise it based on comments from Gen Y consultants:

- (T)he children work with me in the beginning of the year. They don't even contact their partner teacher right in the beginning. I tell my partner teachers, "Hang on, end of December, beginning of January--that's when I'm really going to involve you but I need to teach the children first." And so I have them the first half of the year--teaching them what's in here (holding up the curriculum)...--doing projects, doing email, searching on the Internet...a little bit of digital media...(W)hen they meet with their partner teacher...the student has to feel comfortable saying, "I can do that for you." But if they go at the beginning of the year and try to talk about a project, the child doesn't know how to do any of it. So, I teach them first. They meet their teacher in about January and the partner teacher usually...gives them a topic and I have to get them to be more specific because the children need specifics...(O)ne teacher wanted Jupiter (as a topic of a student-partner teacher lesson)...Well, we have to go to the content standards. And in the PORT--the Project Organizing and Reporting Tool--we must list the content standards. So it all hinges on the content standards and the topic the teacher wants. And then the student and the teacher have to talk about what kind of a project will it be....

- I made it a point this particular semester to finish our project proposals a lot earlier. Because before, I kind of took it close to the end and it was time for them to submit their projects. When they got the feedback...they had already gone on to the next semester. So they didn't...get the opportunity to have their projects in the archives. So I just made it a point for myself and I told the children we're going to cut these lessons at a certain date and they ALL have to be sent in....So that made a big difference for me this semester--it just gave me that cutoff date. And four got in the archives.

- This is my first time working with this process...I think a lot of us have talked about this timing thing. When you first get into it, you're not really sure how to do the timing....(H)ere we are in the last six days (of school) and I have some kids who have adjustments to make and how am I going to fit that all in and will they be gone by the time I get that feedback to them?....I think that was more my fault for not quite knowing how to pace it. And I'm hoping to do better next year.

- I started second semester and next year we will start the first week of school. Because it is just--at the end of the year--MSA--we gave MSA again last week and it's just crazy. And we have just 6 days of school left, so we will definitely start earlier next year.

- Our kids meet an hour a week on Fridays. We start in the fall and just try to pace ourselves from that point. And then we start after school in the last couple of months.

- I actually met with Vicki...the first week in November and actually started at the end of December/January. I think we met for 2 hrs. Everything was like "crunch time." But I...met with my children during lunch--every day--because I wanted to get the time in with them. But it was only for a half hour. If I was not on duty, I met with them. And I just gave up my lunch or my recess or whatever it was to make up for starting in January....

- Gen Y teachers expressed great satisfaction with the feedback that Gen students got from the national Gen program about their proposed project:

- As they (students) are writing...(the PORT) throughout the year...there's a button they can click on the Web site where you send it off to the consultant for feedback. And the consultant sends it back and says, "You're off to a great start, here's some suggestions." So one of the consultants wrote back and said, "Oh, Jupiter, here's a good site to go to if you want to find something on Jupiter." One consultant wrote back and said, "You've got a great start, it's looking good; be careful of your spelling." Or, "I've put some suggestions for you within brackets on your proposal." So yes the children write back and forth to the consultant. The first two years it was 30 minutes--a strict 30 minutes of consultant time...When the children got their first answer and they saw the screen on the Web page--"20 minutes left"--they all thought that the clock was ticking as they sat there and watched the screen and they said, "O-o-o-we only have 20 minutes to write this!!" And I said, "No, honey, that's consultant time. She spent 10 minutes answering your first letter; she still has 20 minutes more to respond to you." Two years in a row I saw that happen...

- I was pleased with the feedback. I felt that they were right on the money with the comments to the children. And they were fairly quick with their responses. I sent something off one Thursday and they responded back later that afternoon. And one was the next day. They were very prompt and dead-on-the-money with the response to the children.

- My students enjoyed reading the comments that were forwarded to them. I got a lot of, "Oh, wow, someone actually answered!" They were impressed with that.

- They worked very diligently on the recommendations (by the consultant)....I didn't even have to tell them. They were on it. They said, "Yal, I'm fixing this, I'm fixing that."

- (M)y students...got their initial feedback from their consultant and that excited them....They found it was very encouraging to know there was somebody that actually looked at their work and it made them think twice about...(using) "success" that's spelled wrong. Two of my students did Web pages and once they realized that page could be viewed by anyone, they started looking a little more closely at how they did stuff. It was very different. The audience made a huge difference....I'm sure some parents gave some great hints when they started looking at them because when they first were posted it was like a secret because there was no link, you just had to know the address. So they would go there and proofread and....they'd come back and (say), "I've got to go change that."

- The last year, as soon as you filled out the first part of the PORT...it automatically generated a letter to the consultant and then they wrote back. And it was minutes gone. And I wrote to Vicki and I said, "Vicki, I don't want my minutes gone!"...And they wrote back from national (Gen Y) saying, o-h-h they just wanted the children to feel comfortable--that they (students) know there's a person there....(T)his year they've really relaxed it...they really didn't worry about it (the 30 minutes).

6. Examples of High Quality and Low Quality Technology-enhanced Lessons

Among the high and low quality projects described by Gen Y teachers were the following:

- Three of my students actually used streaming video and imported them into PowerPoint. One got exemplary status and archived, so I was really happy about that...(T)hree kids did similar (projects)--one did one on white light, one did heat transfer, and the other one did it on electricity. They would put up the PowerPoint slides and the vocabulary that was going to be in the little video clip that came up...then taught them the vocabulary that was going to be in there and had them watch the clip on the next slide... And then they...sat down and would play this Jeopardy game--either by team tables or (they) divided the class into boys and girls. One class did boys and girls, one class did team tables. And...(that) was how they judged if kids learned from the video. I thought those were all exemplary. Only one got (exemplary) status, but...it was just a standard PowerPoint. I mean it's not that they didn't do a nice job, but...I would have liked her to pull more multimedia in. I think now kids are really expecting the multimedia piece to go with it.

- We had one of our 5th grade boys did one (lesson) for social studies on the three branches of government and it was super! He...(used)...live videos--so that was really good. The one that was not so good was one on "Goldilocks and the three Bears"--just a story map. Well, she had a really hard time figuring out the problem and the solution and the setting...And it really was very boring...(It was the) same class, same grade level, but it was like night and day between the two projects.

- * Our best project was probably a project done by the whole class and...three partner teachers...(T)he students did a documentary based on a newspaper article by Courtland Malloy on Bill Cosby and then they tied it into social studies with W. D. Dubois. They talked about the talented 10--and they tied all that in and interviewed teachers and got their comments on Bill Cosby and whether he was right on the money, etc. And we got into...video, so that was a really good thing we did...(For) the project that didn't go so well, I had two students team up with a math teacher. They proposed to do a Web page tutorial. But they just put several steps about how to solve a problem. They had two graphics on there. It was pretty boring. There just wasn't anything to it--just some words up on a Web page. They waited 'til the last minute, too.

- (One) project was "Personification Poetry." (T)he (partner) teacher went, "I've never used Photoshop in my life; this is crazy. How can I possibly do this?" So she (the student) learned about the layers in Photoshop and how really simple in (Photoshop) Elements you could do what we did. The students wrote a personification poem, where they personified an inanimate object....And then she (Jenna) taught them...to make a background color layer to layer on a picture of their object, put on another layer which was like a conversation bubble, then put on a text layer that was their poetry. So it became an art piece as well as a poetry piece. At the end when it was done the students presented it while it was projected...(S)he (Jenna) took it a step farther...and said, "I'm going to put the best of the best together." So...the students that she and the teacher agreed were the best of the best and...and had their particular graphic up on the screen spoke their poetry...(T)hen she added that to her project. She did a great job and she entered it in the local media festival and she took first place. She was very proud of herself.

- I'm going to (give) two (that were disappointing)....The first project was a Diversity Day PowerPoint that students prepared for the whole school to see...And what they did was....you know there are these restaurants that flash up a clue, flash up a clue, flash up a clue--and you see them all and you try to guess which person it is. Then they take all the clues away and you know which one it was. Well, they (the students) made their PowerPoint do all this stuff in preparation for the Diversity Day. It was going to be shown at lunch time so students could see it on famous African

Americans...Their goal was to then have a contest and the contest (winner) would be who could remember the whole thing fully would get something from the school store. Well unfortunately, it (the PowerPoint) didn't run... They got it perfect...their part was done. It was the partner teacher that didn't hold up their end of the project. I think the problem was that this person was not a classroom teacher...She was the one who wanted something for Diversity Day that was very different and we came up with the idea but it just never got together.

The other project was that the student didn't hold up his end, which was very disappointing. They completed it to the minimal and absolutely didn't follow the steps that would lead it to fruition. And that was just preparing a newsletter--a template that you could use as a newsletter and that could be just easily popped in to show her how to save it as a pdf file so she could post it easily from her home. So, he never coordinated (with her). She was ready to roll ...it was not her....

- It was the teacher feedback, really. If the teacher really helped to give the content that the kids needed to build the project on and provided feedback, "So, OK, I did this phase--is this what you were looking for, what direction to you want me to go now?" Those became...stronger projects than those where the teacher never really gave that...and you...had to assume...what they wanted.

- I spent a lot of time on the topics drugs and alcohol...(T)his particular boy did a tremendous brochure...about marijuana...with his partner teacher and the brochure is phenomenal. But what he did was he (combined) some vocabulary words with street vocabulary words and matched them up with some words that are in the health book. Which I didn't think of and I thought that was really good because he spent a lot of time talking about drugs and alcohol based on the curriculum. And he took it to his community...and incorporated that issue in his brochure...(H)e brought that (brochure) into Gen Y class and it extended the discussion...I was really trying to focus in on what's going on in the book because of time. And he really wanted to talk about what was going on in his real-life situation. And I said, "Ok, let's just do it." And I think that really contributed because it added a lot of real-life experiences into what he ended up turning in (for his project).

7. Implementing Lessons/Projects in the Classroom

Gen Y teachers described some of the factors they felt contributed to whether a Gen Y lesson was implemented in their classrooms:

- Our goal is to build up an archive of projects that the teacher can use with other students. What we had our students do is...share (their lessons) with all the grades. Like the 3rd grade music (lesson) she taught to all three third grades...I think if you had a strong partner teacher-student relationship the project got done. If you didn't have that strong relationship, it didn't. That what I saw in my school.

- I think part of our problem was that the teachers wanted the technology--the PowerPoint presentation, they wanted united streaming or they want the digital pictures or whatever. But they don't want to sit down with the child and write an objective, they don't want to go through the voluntary state curriculum, they don't want to be bothered by all that. What they want is the final product, but without all that goes with it. Yes, the children can do the project, but whether or not it will fit the teacher's curriculum is a different thing. We have to make sure that the partner teachers are willing to take the extra time with the child to make sure the process gets done all the way through.

- Some of the teachers...(were) excited about the project idea, but when I said, "OK you know just like you have to do a lesson plan, they have to do one." Then it was kind of like, "Oh.." Some of the kids had to go back and forth--you know, "I didn't get the curriculum standards," "I'll send them right back," "I'm in a team meeting." So there was a lot of back and forth, trying to pull that information that only the teacher could provide for them.

- We say that whatever you're doing by May/April, you want the kids to target on a project that...you're going to cover...then....(I)f you give them that then they can showcase it for you on that topic....But if you didn't get that kind of feedback, or the teacher never made it to that topic or theme, then that's what happened (the lesson was not implemented).

- One of my kids finished their project and the teacher had already finished that whole lesson. So, it didn't get implemented. She was able to show it to the teacher and she showed it for the benefit of the class. And the kids went, "Oh, I remember that..."

8. Project Organizing and Reporting Tool (PORT)

The PORT received mixed reviews from the Gen Y teachers. The following quotes provide a sample of teacher comments about using this instrument in developing lessons:

- It's still a challenge--it's an eye-opener for them. "Teachers have to do all of this to plan a lesson?" I mean it really brings it to the surface for them. They realize that it requires a lot of thinking and processing of information. It's a struggle, because depending on their comfort level and their literacy development level, many struggle with that. The kids who were strong writers coming in--they could do it and if they were focused students. But even...they got tired of this--the part of having to write all that information down.

- Kids wanted to focus on the project and the PORT was all this writing. They wanted the technology--the fun, that was the hook--to get them in there and then they had all this writing. They didn't put as much into the PORT as they put into the project.

- Honestly, it was hard for me to really get across to the kids what they're writing. It wasn't narrative--you know what I mean.... I mean it was a good experience for the kids...

- (The PORT) is an organization tool but I think what they (students) never realized is that teachers have to think about all this stuff before they do a project. They (the students) had no idea--like you go into the Toys R Us and you pull up a game and you do it; they had no idea that there are standards that you have to meet--there are goals you have to meet...Although I'm sure they've seen them posted in the classroom--you know that "today we're going to do..." but they didn't realize what was behind it. ..I must say it was not the most enjoyable part of their Gen Y experience completing the PORT.

- One of my students...when I showed the kids her PORT, I said, "(She) took her time, the grammar, structure, she did what she had to do." Those who still had time got right back into it and they were putting in extra time and they saw the difference.

Another issue raised by Gen Y teachers was the appropriateness of the PORT for elementary students and students with special learning needs. Examples of their comments include:

- You know ...the PORTs are fine for middle school but I really feel that they're a little taxing for my elementary school kids, my 4th and 5th graders. And in fact I had a couple of kids if they knew they were going to have to write on the PORT, they didn't come that day. Because they just spent seven hours in school. They didn't want to have to write anymore. So they avoided it at all costs. Now if they were working on their projects or whatever, they were there, they were willing to stay extra time, whatever. But to have to do that writing, huh-uh.

- I think it's too much for 3rd-4th graders. Oh absolutely. My 4th grader struggled and tried to do the same thing--duck out! He decided he wasn't going to show up if we were going to be doing that....I only had one 4th grader but it took a lot of coaching. He was funny when he wrote his reflection he said, "One of the hardest things is writing the PORT because I had to make sense!"

- I would like to see a PORT--this whole process of the lesson plan--I tell the children it is a lesson plan--that they think of the PORT...I like to see it for the elementary students more on their level...My first two years--it was OK.

- This year it was just so over their heads... (b)ecause you have students from 3 to 12 doing the PORT. How can you have one PORT that's going to speak to 8-year-olds and 17-year-olds. I would just like to see (an elementary PORT)...

- (W)ith this particular group (of Title 1 students) the PORT was lost on them They didn't care about it and when I would mention PORT they would groan. They really did. They just didn't want to do it.

- But this group--they didn't want to write. (They said),"You mean I have to write this? I wanna do fun stuff." I think the important thing is that the student realize that teachers don't just stand up there and talk off the cuff. We do plan what we do and this is part of the planning and how we plan to make sure the students learn what we said they were going to learn. And if they don't, what we're going to do next...

- (I)t (the PORT) was GOOD!...I'm thankful they had the experience, but now...they know. So when I told them, "I think if you get to finish the first one (project), the second one you don't have to do the PORT, you can just do the project." It was like, "Whew... we don't have to do that again!" But they had gone through many of the trials and tribulations that a teacher goes through.

- (M)aybe in middle school we can convince them because they do more of the writing and they see the connection between that and moving on to high school and adulthood, too.

9. Factors Determining the Continuation of Gen Y

Several Gen Y teachers shared their impressions of the implications for their school when Gen Y grant funding ends:

- I think that one thing that's going to drive more teachers to want to participate is when the technology shows up and it's demanded in the curriculum. When that happens, and you have an administrator that is looking for it to be included, I think that will drive a lot of teacher interest in having students partner with you.

- (N)ot having enough computers, enough digital cameras, enough technology for multimedia.

- Just convincing your principal that it's worthwhile.

- I may not do Gen Y next year, but I can have a technology club where I could train students. It won't be Gen Y but I can have students then go and still train teachers...They can just write the objective and write the steps and just make it simpler for them. You still have the basic outline and it'll be no stipend.

- (T)his is the last year of the grant...and there is no funding (for next year). Our school's going to have to pay $300 to join it next year and that's (as) an affiliate--you don't get the consultant stuff and there's nothing for you to do the training and so forth.

10. Technology Integration: Vision and Barriers

The following are examples of comments by Gen Y teachers about their vision of the meaning of technology integration:

- Children...can't be taught the way they used to be taught--the old traditional way--because that's not their lifestyle at home or wherever they may be on vacation. Therefore, it's important that we use the technology we have to enhance learning, whether it be to utilize technology in centers to allow the teachers to conference with one or two children while some children may be working on their math skills at the computer or in science doing research. But it's difficult to teach children the old, traditional classroom concepts when you have all of this fun stuff, that is, multimedia, kinesthetic learning, all of the different kinds of learning styles that we're supposed to implement in the classroom. So, it's sort of like the preacher is preachin' and you're thinking, "Did I leave that pot home burning or something? I should have brought my video game here." Even cell phones in middle school and high schools...you can use...to text message each other...So, technology is everywhere and I strongly believe that in...middle and elementary school we seem to get kind of left out when it comes to really believing in your heart in integrating...technology in the classroom to enhance student learning. Gen Y to me does a really good job. My students loved the blog because they're able to connect with other children. And read what others kids are saying-- there are no faces but they are communicating with these kids.

- There's how it (technology integration) runs and how it should run. The way we're doing it is that there's existing curriculum and you're plugging stuff in. And you're trying to find a mesh between what is needed technology-wise and what you have to do in terms of content. Someday I would hope that it's like dictionary use, but that will require access, which isn't there. So until the access is there you can't have it the way it should be. You can't expect everyone to use the dictionary as a tool if you don't have any dictionaries. So the way I view it is this is the bandaid stuff--we are in the bandaid stuff. Until...access is there that's the way it is. And to me that's what integration is at this point--it's placing the technology into existing curriculum.

- We have not gotten that far...(J)ust last year robotics came in, which was fantastic. So we integrated that into our tech ed., which was a perfect spot for it. However, it could easily go into science classes.

- I'm thinking of one classroom in particular that used our Palm handhelds. When the Palms are delivered to the classroom...children are very comfortable. They know what they have to do. And they get...right on task--the children are actively involved...(I)t's second nature to everyone...The Palms are on the desk, and when it's time to write something they go ahead and write it...

- One of the first things...I got from teachers after the kids presented in the room was that even those kids that have a hard time paying attention were paying attention. And because of the lessons being taught with multimedia--with a lot of light and sound instead of just standing in front and talking and the kid is passive--they are actually involved and that has a lot to do with it.

- I know they (students say to a teacher), "Well, (teacher's name) uses the LCD projector, why don't you use it?" Or when their language arts teacher assigned a project a lot of them (said), "Could we use video?" So it forces...the teachers to say, "OK, well, that means...I could reserve equipment next (time)"...(T)eachers who were very reluctant before are being reluctantly pulled into this technology. It IS good.

- I think the hardest part is they're not understanding...how to use the kids because they're thinking I have to do all of this. I don't have time to do PowerPoints...They don't realize if they use the...Gen Y kids--they can do this for them, and all they have to do is come back and say, "This is exactly what I wanted." So, they're missing out on a resource...

- You have to learn how to facilitate. We're taught to stand in front of the classroom instead of letting go and just being a facilitator. Step back and let them do it.

- In my school we have a SmartBoard and we (use) the PowerPoint Jeopardy Game (made by students)... It was for a social studies review...One kid will come up and touch the SmartBoard--the question will come up. And then all groups sit there and flip their pages, get into the book, find the question, they write the answer down...And another person comes up and the answer comes up and (then) "Oh, yeh we got it right, we got it right." Then the next, "Let's see, I want lesson 5 for $300...It's the best review--they're engaged.

- It was exciting at the end when we hand the teachers...a ready-to-go CD. And I said, "If you want to open up that CD...you can modify it...for your next unit on China. You can use that same infrastructure because...you usually teach the same aspect about China--so they do China, they do Japan, they do another Asian country...(W)e made up a Jeopardy Game which one student did for the Asian unit. That can be transferred very easily to the other Asian countries that they're going to cover--with the same infrastructure. It's funny--...their light bulbs go off and they go, "A-h-h!" Because they're thinking so deep...and this is complicated.

When asked what the ideal technology-enriched classroom would look like, the focus group immediately erupted in a spontaneous stream of ideas, examples of which include:

- We're all wireless, honey (much laughter).

- We need to re-wire our building so we can have more than one network...at a time. And you're right about those (wired) drops because that's the problem when teachers need to re-arrange their classrooms.

- (Y)ou have to make the room user-friendly for the technology.

- Classroom set of laptops, wireless, video visualizer...

- The...teacher needs the... technical support...she knows that if she runs into troubleshooting issues that she has readily available feedback....

- They need a template (for lessons).

- They need a bank of lessons...

- Technology integrated into the lessons that are already done--in their math book. Go here to get some extra practice for fractions or whatever.

- Online games...But you have to find it, you have to search for it.

- They can search for...Web sites--or create the PowerPoints, or...WebQuests...

- I knew when the teacher says, "Let's look at the Web sites that Steve found." And Susan says, "Well, can't I do this next time?" So you eventually pull in the whole class into looking for whatever it is that you want. I know they have this week/day thing, but we had an instructional audit, and if you had your students at your centers and all were involved in some kind of technology and learning, that is powerful, that is very powerful...

- My wish would be...that no child is left behind...(I)f we have these kids do really good PowerPoint presentations or united streaming or whatever,...if I could...have like 10 CD's of the same thing so I could send them to 10 computers...they're going to learn a whole lot faster using the technology,

Gen Y teachers were then asked to discuss the barriers to attaining the ideal technology-enhanced classroom. Some examples of their comments are:

- Money. Time. Not having a server--the dependability of the equipment.

- Teachers can't really depend on the technology in the building to be there and be dependable. I think that's just it and...always having to have a lesson and a backup plan. That's asking an awful lot of teachers who are already being asked to do too much. So I think that's a big barrier.

- (W)e don't have enough Palms...for 1000 children (in the school). The other piece of it is I find teachers need someone in the building who can hold their hand in the beginning.

- I think attitude is the most important. Because the teachers that are using the technology are the ones that go out and ask the questions and go to the people and find what they need... But 9 times out of 10 the teachers that have that as a barrier are the ones that throw their hands up and worry about the lights going out, so why bother.

- We have a lot of very young teachers and we have some experienced teachers. The experienced teachers are not as willing to use technology...in their lessons because...(t)hey've been teaching like that for 25 years so why change? They're struggling with the reading series that's importing the technology piece...(A)nd you're going to give them one more thing and say, "Here's a CD-ROM that you can use to teach fractions," and they just say, "Oh, no, no, we're not getting into that." Another problem is that the experienced teachers--they may want to use the technology, but they don't know what questions to ask and they don't want to look stupid. So they just don't ask... (T)hey would just rather not use (technology) rather than look foolish.

- You know what's puzzling to me is...from the national level...all the way down to the courts (and) schools, technology is supposed to be a driving factor for American schools. And when teachers come up for re-certification, experienced teachers are asked to take reading classes or math classes. That's what they're good in.... (B)ecause now we have these state...technology standards...why don't we just...think outside of the box and say, "Rather than taking a special education class or a reading class...take a technology class for 3 credits...

- Or combine technology IN reading, technology in special education. Because technology alone doesn't do anything. You have to combine it, you have to put it where it belongs.

- (S)ome of the things I expect new teachers to know they don't know...They need training in how to integrate technology INTO the lesson. Not, "Oh, here's a great PowerPoint on the butterfly!" Congratulations, you made a PowerPoint, where does it fit? How does it fit? How are you engaging Johnny back there who's taking a snooze? You gotta get 'em all.

- I think training is key. But they have to go to training.

- They have to have materials sitting there in their classroom...(I)f they've got to check it out first, it isn't going to happen....Until the visualizer is sitting in the room and the computer and the Smartboard, everything else that they need sitting in their room, it isn't going to get used.

11. Workshops for Technology Professional Development

Gen Y teachers were asked to discuss whether Gen Y might be a more effective way of helping teachers learn to use technology in teaching than traditional workshops. Examples of their comments are included below:

- Probably a combination of both (Gen Y + workshops). But when you're in your own building and your own classroom and someone is helping you--that's when you need it right then and there. You can fit in a workshop and get this information and your head is just spinning and spinning and then you come back to your classroom and you go about your regular business. If I get the time to do it and if I have the nerve to do it, maybe I'll try.

- (Y)ou only have x number of days of workshops...(F)ollow-up from workshops is not always there and follow-up is here with Gen Y. The student IS here and the student can help. It's known up front that if you're a Gen Y student you could very well be called from...classes--the hardest for you to keep up with--but that's the way life goes and you have to be willing to make up what you need to make up...What I have now is 13 mini-me's that run around trying to do what I did with teachers, so that's what the powerful part has been.

- The problem with workshops its usually when it's done. You go to the workshop, you're done. At our school we did a tech Thursday--we monitored the teachers... (I)f they wanted to learn about PowerPoint we'd teach them... and then at the end say, "OK, make me a PowerPoint slide show next time."

- (W)hen you're in the building, you can walk around or they can come to you...."I'm trying to do this and I can't get this animation right or I can't get the right sound in it." They need somebody to hold their hand until they feel comfortable with what they're doing. Which means that you need to have someone in-house that doesn't have classes who can...(help them).

- (T)he faculty voted to keep our tech person. (W)e need a tech person more than we need some other services...(Y)ou're getting new computers, you're getting the visualizers, you're getting digital cameras. All of the stuff doesn't need to collect dust and it does not need to stay in there for one or two teachers. So you need someone on your side to push it and get you to do it. We have two Smartboards in our building...We had a training (on the Smartboard) for about a half an hour. (Y)ou know how many people were interested in having the Smartboard in their room? ONE! They came because they had to come.

- But now the tech person is released from having seven classes a day. Then we can walk around and say, "OK, look, we're going to use the Smartboard and let me show you how to do it."

- I think that's a HUGE key...That's basically what Gen Y wants to do, but it relies so much on the teacher being willing to take that leader role..(but) sometimes that doesn't happen.

- (A)t my school we're pushing for two tech people--one person to just take care of all the technical problems--like fixing the computers or fixing the visualizers, or hooking up something...because that's a full-time job in itself. And then a second person to go into the classroom and use the computers to teach in the classroom or teach in the computer lab...With technology you really need two people in a school--and I'm talking about from elementary all the way up.

12. Strengths and Challenges Faced by the Gen Y Program

Among the strengths and challenges of the Gen Y program that Gen Y teachers described were the comments below:

- I think for me it (Gen Y) was another way to reach out and put technology integration on the forefront...I did far more projects this year and than I've done years in the past because I had 13 little side projects going on... (I)t is definite work for the person who is (leader) of Gen Y...The biggest challenge was--time. And now the biggest challenge is going to be if we want to run it the way we did this year it will be a money challenge.

- (Gen Y) gives the kids confidence. They feel so good about themselves. And it's not the high-achieving kids--whatever kids that are in the program. Even if their project wasn't the greatest, it was the best they could do. And they still feel great about themselves...It empowers them.

- Using the technology...makes learning relevant. If it isn't relevant, if it can't be applied to their real-life experiences--..."So why do we need to know what a right angle is?"

- Gen Y is...taking the kids out of that bubble of a classroom no matter where their teacher is or who is making annoying noises and gives them the opportunity to communicate in every possible way which is authentic and real-life. They use email, they write, they go from teacher to teacher to student. They're communicating in every possible way that (is) going to prepare them for life.

- I would like to add...that it's relationship-building: dealing with Vicki, to student-teacher relationship, to the national level--emailing them, hearing from them, their responses, and the students responding back to that, the clarity, the fact that we're all here right now--building relationships.

- It's...exposed my kids to career choices that they had never thought of for themselves. Now that they've created a movie, one kid was talking, "I'm (going) to write my own movie and I'm going to get an Oscar now!" He was the boy that did the Web page. He said, "I can do this." I've also point out that they can use these skills to make money for themselves in high school and beyond...One of the things I wish Gen Y would do (is) more tutorials, some of this technology that's coming out, the blogs are great. It also exposed my children to Podcasting, for instance. Boy, I sure would have like to have found some kind of tutorial or something to teach them how to create their own Podcast....I wish I could find a really good tutorial on using Dreamweaver, for instance...I have to learn this myself and there's no one training me.

- The thing that I think I've noticed about..Gen Y was the long-term project aspect of it. The kids like to come in, it's done, they want to be over with it. ..(T)he Gen Y project...evolves from the conception of the idea, the storyboard, actually putting it together...I had them show..(their projects) to each other and then they peer-edited each other's work...There's been this long journey--for us it doesn't seem so long--but for them it seems like forever...I really like that, because they're going to be facing more and more long-term projects as they head to middle school and high school...The rest of his life now he'll look back and say, "If I can do that, then maybe I can finish this other thing that's hard for me."

- The presentation skills they've learned. That's important for my elementary kids. Standing in front of an audience at a state conference they were shy at first, but the audience encouraged them and they said, "Come on, come on; we're teachers, tell us." And like I told them they got back (they were) ear-to-ear.

- I really would have liked to have a day where I could see what other kids did--not just the PORT, but their actual projects. I thought everybody was bringing their projects here and that we were going to look at everybody's project. I have mine on CD. I would really like to see them. I would be inspired by watching what others do.

- I think for me it was another way to reach out and put technology integration on the forefront...I did far more projects this year...than I've done..in the past because I had 13 little side projects going on...It was a very busy year...I think it's not quite as much work if you use the consulting the way you're supposed to...

- (Consulting) helped a lot--that somebody else was out there looking at what you did. I wish I had used it more. (I)t may have freed me up...so I could pursue a little deeper what they needed to know.

- It's been a very good year. But when you've been teaching since 1971 you need a spark every now and then and Gen Y was a definite spark for me. It was great for me, not just for the kids, because it made me stretch.

- The biggest challenge was--time. We could have done a lot more with time...I think, also, coming up with...high quality projects...And now the biggest challenge is going to be if we want to run it the way we did this year it will be a money challenge.

13. Support from Gen Y Facilitators at the National and State Levels

The following are several comments about the support that participants received in implementing the Gen Y program:

- I do get correspondence from national Gen Y...(M)ost of my questions were around the CD and video because I didn't want (to) go through all the effort and have something silly keep us from even having a chance to do it. And we did have a silly thing because our (proposal) length was too long and we had to seriously edit. If I had a question it was answered immediately. They were very good about that. And...if I had a question for Vicki, Vicki did come visit during the year and she saw how we were running things and actually interviewed some of my students. We happened to be working on the PORT when Vicki was there and she (one of the students) also showed her morph--she was the one that did the morph into an endangered animal project. And she (the student) was very honest about her opinion about doing the PORT.. Vicki took it in stride.

- Oh, they're wonderful, oh yes, very, very good. They really, really are. I can't say enough about them. Vicki, too!

- The national Gen Y team is very supportive, their materials are supportive, Vicki is supportive, they all are. And I've had the pleasure of meeting some of them out in Seattle at the NECC conference. So they have a quality program, they have quality materials to support us. The idea--the philosophy behind it--I think is wonderful to start with the children...That lack of funding is a serious challenge.

CONCLUSIONS AND RECOMMENDATIONS

1a. Student Interest in Gen Y:

Conclusions: Gen Y teachers reported that the program engages and excites students, as well as enhances pride and feelings of competence in helping teachers and fellow students learn to use technology to enhance learning. Student interest in learning to use technology was very high. Most students who were invited to take part in the program did participate and most stayed involved throughout. The one exception to this was a group of "target list" students who showed spotty Gen Y attendance and needed extra academic support to pass the state-mandated achievement tests.

Typically, Gen Y students appear to be involved in many different school activities, resulting in difficulty in scheduling Gen Y classes during the school day. Therefore, some Gen Y programs had to be operated as after-school programs. One Gen Y teacher interviewed in this study offered both an in-school and after-school program. Because many students in after-school programs had to arrange transportation home, they sometimes had difficulty attending on a regular basis and several had to drop out of the program.

Recommendations: Maryland Gen Y students who face academic challenges (particularly difficulties in oral and written language) may need more individual help in developing technology-enhanced projects. This may require Gen Y teachers of academically-challenged students to work with smaller groups of such students so as to provide them with the additional individual assistance usually needed.

Given the requirements of the No Child Left Behind (NCLB) Act for Adequate Yearly Progress (AYP) of students, Maryland Gen Y teachers may also want to consider including more students experiencing academic challenges in their Gen Y groups. Individual Gen Y teachers may also want to research the impact of the Gen Y program in meeting AYP in order to justify continued involvement in the program.

1b. Teacher Interest in Gen Y

Conclusions: Gen Y teachers reported that Gen Y partner teachers were very enthusiastic about the program and eager to have students work with them to integrate technology in instruction. Gen Y was reported to be very respected and teachers not involved in Gen Y were very supportive and interested in working with Gen Y students in subsequent years.

Many Gen Y teachers reported that they had great difficulty in getting Gen Y partner teachers to collaborate with Gen Y students to plan lessons/projects. This was attributed to such factors as busy schedules of partner teachers and the time required for learning to utilize new curricula. One of the strategies Gen Y Teachers utilized to encourage these collaborations was to ask students to email their partner teachers to schedule meetings to discuss ideas for their Gen Y project. This worked to some extent, but it required that teachers answer their email on a regular basis. Other teachers suggested that Gen Y students talk with their partner teachers in person about a time to plan their project. However, one Gen Y teacher reported that some Gen Y teachers repeatedly cancelled such meetings because of another commitment.

Recommendations: Strategies for encouraging Gen Y partner teachers to meet with Gen Y students need to be explored. One possible way of enhancing this collaboration might be to require Gen Y students and their partner teachers to complete a brief online form describing how much time they spent working together during the previous two weeks and what they accomplished during this time period. Another approach could be to engage Gen Y students and partner teachers in biweekly discussion boards or online chats where they could exchange ideas about their lesson/project, then obtain feedback from their Gen Y teacher and national Gen Y consultant.

1c. Administrative Support for Gen Y

Conclusions: Gen Y teachers reported in two instances that support by administrators in their schools was very strong. However, one Gen Y teacher indicated that their principal was not supportive, since teachers were constantly being asked to do other things that precluded their participation in Gen Y.

Recommendations: Gen Y teachers may need to develop plans for systematically educating school administrators about the program, to encourage them to visit program events and make a greater effort to obtain financial buy-in for the Gen Y program.

1d. Parental Support for Gen Y

Conclusions: Once parents learn about the Gen Y program, they are very supportive of it and excited about their child's participation. Gen Y teachers reported that parents who observed their children implement their Gen Y projects in classrooms and present at a state technology conference were proud and enthusiastic about what their children had accomplished. Parents feel that their child is participating with students who have similar goals and are learning important skills. In addition, parents have discovered that their children sometimes have been able to help them solve a technology problem at home.

Recommendations: Involving parents in the Gen Y program appears to have been a priority of many Gen Y teachers. Further support for Gen Y may be encouraged through the development of parent support groups which could organize such projects as transportation pools for children whose parents cannot pick them up following after-school Gen Y programs, fund-raising to pay for Gen Y in their school, etc.

2. Gen Y Training

Conclusions: Gen Y training was viewed very positively by Gen Y teachers. Training during the first year of the Maryland Gen Y program involved a one-day workshop, with half-day sessions in subsequent years. In a few instances training occurred through small group sessions and individual meetings with the Project Coordinator. Gen Y teachers appreciated the access to program materials on the Web and with the flexibility in implementing the program. Also, emails from the Project Director (Dennis Harper) and Project Coordinator (Vicki Williams) were seen as user-friendly, motivating, and an effective vehicle for communicating about program components. Several teachers mentioned that they hope to participate in a Gen Y online forum where teachers can share lessons learned.

Recommendations: Gen Y teachers want more opportunities to share their Gen Y experiences and learn from one another. One way this could be done would be through online technology conferences developed and sponsored by Gen Y. Also, Gen Y teachers could gather at special workshops at local and regional technology conferences, such as the "Powering Up with Technology Conference" sponsored by the Prince George's County Public Schools or the MICCA state technology conference in Maryland.

3. Value of Gen Y Training Materials

<u>Conclusions</u>: Gen Y teachers saw the Gen Y videotape as an introduction to the program for students and parents. However, what most students wanted to do was get onto the computers and begin developing their projects. The CD-ROM of exemplary projects was more helpful, particularly if students could review these CD's on their own computer. Gen Y teachers found the Gen Y Web site was very valuable in planning for student projects. The Gen Y curriculum was seen as very organized and helpful as a resource, but most teachers picked and chose from it in building student technology skills. A common refrain by the Gen Y teachers was that the curriculum seemed to have been written for high schools. Middle school teachers said it was sometimes too difficult for their students to understand and elementary teachers felt it was clearly over the heads of their students.

<u>Recommendations</u>: The Gen Y videotape was viewed as a valuable general introduction to the program for students and parents. The CD-ROM of exemplary projects was seen as extremely important component of the program. Many Maryland Gen Y teachers felt that the Gen Y curriculum may need to be revised for use with middle school students, but definitely needs revisions for elementary school students. Therefore, it is recommended that consideration be given to developing a combined middle school/elementary school version of the Gen Y curriculum and to field-test it with a group of these students to make certain that it is appropriate for these levels.

4. Recruiting Gen Y Students and Partner teachers

<u>Conclusions</u>: Gen Y teachers commonly appeared to recruit students through recommendations from fellow teachers. One Gen Y teacher noted that the most difficult challenge in recruiting was getting a balance between high-achieving students who were involved in many activities (sports, music, etc.) and students who were less active. Another Gen Y teacher focused on inviting students who were <u>not</u> involved in many other school programs, while another Gen Y teacher recruited students in the Title 1 program. One teacher reported that a number of girls wanted to opt out of the Gen Y program, but once involved they were happy they had participated.

Recruiting partner teachers with whom Gen Y students could work was often facilitated by the relationships that Gen Y teachers had with other teachers in the school. However, one Gen Y teacher wrote a letter with her Gen Y students to teachers in the school inviting them to attend a meeting to learn more about Gen Y (complete with refreshments). Another Gen Y teacher simply had students pick a teacher with whom they wanted to do a project and then have them ask the teacher if they would work with them--with the assumption that these teachers couldn't say no if asked in this way.

Generally, Gen Y teachers chose the partner teacher that Gen Y students would work with, though sometimes Gen Y teachers had students pick the teacher with whom they wanted to develop a project--sometimes requiring them to list a first, second and third choice to provide more flexibility in student assignment. One Gen Y teacher said that she assigned teachers whom she described as "omnivores," who are willing to try new ideas such as technology integration. In another instance the Gen Y teacher said that (s)he had ideas in mind for Gen Y projects when she paired individual students with partner teachers. One Gen Y teacher noted that teachers who had served as partner teachers were sometimes unable to continue beyond one year because of additional school responsibilities.

Recommendations: The requirements of the No Child Left Behind legislation appear to be decreasing the number of partner teachers that have time to take part in Gen Y. This results from such factors as additional after-school meetings and more required planning time. Gen Y materials and processes may need to be modified to focus on addressing specific curricular outcomes and indicators. This seems to be an opportunity to develop a Gen Y program for integrating technology into instruction in order to meet AYP standards (Adequate Yearly Progress), especially since states are apparently beginning to require K-12 teachers to pass performance tests measuring whether teachers can integrate technology in teaching.

5. Project Proposal and Reporting

Conclusions: Timing of various Gen Y components seems to be crucial to success. Most Gen Y teachers interviewed indicated that it was best to start the program at the beginning of the school year in order to have time to finish the program. Most often, Gen Y teachers start the program by teaching students how to use various hardware and software. However, other teachers mentioned that it is important to begin planning the project lesson plan early in the year in order to have time

to implement it before the end of the school year. In instances when projects have to be rushed at the end of the year, Gen Y teachers appear to feel overwhelmed with the time required to assist students.

Gen Y teachers reported that the feedback about project proposals provided by the national Gen Y consultants was excellent. Gen Y students took these comments seriously and were usually eager to make the recommended changes. They responded to this external feedback with wonderment that there was someone out there reacting to what they had written. This, in turn, resulted in their taking the task of revising the project proposal very seriously.

Recommendations: As previously noted, the development of the project proposal was a challenging experience for Gen Y students and partner teachers and required considerable time to complete. Perhaps the importance of starting the proposal as early as possible in the school year should receive more emphasis during Gen Y training, since some Gen Y teachers reported frustration when they started mid-year. Because feedback about the Gen Y lesson proposal was so important to Gen Y students, the feedback may need to be offered more frequently for smaller portions of the proposal. Also, it may be helpful for Gen Y consultants to provide their feedback using an online chat format.

6. Examples of High Quality and Low Quality Technology-enhanced Lessons

Conclusions: Gen Y teachers considered high quality lessons as including such qualities as: 1) multimedia elements, such as video; 2) instructional games that engaged students; 3) analyses by students of original sources, such as an article by Washington Post columnist, Courtland Malloy; 4) fusion of the visual arts and poetry in a lesson; and 5) a computer-designed brochure about drugs and alcohol utilized it as a resource for a Gen Y lesson on the topic.

Lessons that were of low quality showed such problems as: 1) presentations which used a few PowerPoint slides which the student read; 2) a story map that was boring for students; 3) projects with few graphics; 4) presentations that would not run properly; and 5) projects that were developed by the Gen Y student with little input from the partner teacher.

Recommendations: Gen Y teachers can identify some key features of high and low quality technology-enhanced lessons produced by their students and partner teacher teams. Descriptions of these lessons make clear that although PowerPoint is a common denominator for many, the best of these use this software as a foundation on which to build engaging learning experiences for students. Perhaps it would be appropriate to include in Gen Y materials a rubric for high

quality technology-enhanced lessons so that students could evaluate their lessons and then revise them based on this feedback. This would also serve the purpose of providing a consistent standard for evaluating exemplary lessons.

7. Implementing Lessons/Projects in the Classroom

Conclusions: Earlier in this report it was noted that Gen Y students had great difficulty finding a convenient time to meet with their partner teachers. However, the problem seems to be more than a matter of time. It appears from the comments of Gen Y teachers that partner teachers were either unclear about the expectations of the Gen Y program that they design a technology-enhanced lesson with the Gen Y student assigned to them or unwilling to do so. One theme running throughout the responses by Gen Y teachers is that partner teachers wanted technology to be used in their classrooms but were unwilling or unable to collaborate with Gen Y students in developing the technology-enhanced lessons.

Recommendations: The issue of Gen Y student-partner teachers collaborating in designing lessons enriched with technology is a serious concern. It seems apparent that Gen Y teachers often found it necessary to work with the Gen Y students in developing the lessons, rather than the partner teachers. This placed an extra burden on the Gen Y teachers and sometimes made the implementation of the lesson difficult or impossible. In addition it means that some teachers are not learning to integrate technology in their teaching, but instead are using lessons developed by someone else--namely the Gen Y student and Gen Y teacher. It is recommended that the expectations for partner teachers to collaborate with Gen Y students in lesson development be made clearer. Also, some way to certify both collaborative design of the lesson and implementation should be developed, perhaps through a form on the Gen Y Web site or as a prerequisite for awarding exemplary status.

8. Project Organizing and Reporting Tool (PORT):

Conclusions: Though the PORT was seen as contributing to a better understanding of what teachers experience in designing instruction, many elementary school Gen Y students found it very taxing. Some even avoided attending those Gen Y classes when they were developing their PORT. Many Gen Y students (especially the elementary students) appeared to prefer using the technology rather than developing a description of the lesson they would do.

However, most Gen Y teachers still found the experience of developing a lesson using the PORT to be a worthwhile experience for their students.

Recommendations: Revisions may need to be made which simplify and shorten the PORT-- especially for elementary students and students who will increasingly be the focus of schools struggling to achieve AYP. Based on the comments of Gen Y teachers interviewed, it appears that students found that the PORT did help them organize their thinking and writing, and as one student said, in learning "to make sense."

9. **Factors Determining the Continuation of Gen Y:**

Conclusions: Gen Y teachers emphasized the importance of administrator support in determining whether Gen Y continues in a particular school, along with having sufficient hardware and software resources to utilize. In addition, the importance of technology integration being required in the curriculum was mentioned. Though Gen Y teachers noted that some components of the Gen Y program can be offered next year via an after-school computer club or something similar, some way of paying for at least affiliate membership in the Gen Y program would still be important.

Recommendations: As mentioned earlier in the report, it would appear that a suggested plan for fund-raising for the Gen Y program should be included in the Gen Y materials. This might take the form of a Gen Y booster club which would do fund raising to pay for the Gen Y membership for the school. Or a Gen Y program in a particular school might be adopted by a business or service club in the community that is willing to pay for a Gen Y membership because of the importance of enriching teaching with technology.

10. **Technology Integration: Vision and Barriers**

Conclusions: When Gen Y teachers were asked to discuss their vision of a technology integrated classroom one comment was that students can no longer be taught using the traditional "stand and deliver" approach. There was agreement that teachers need to be facilitators of learning with technology, incorporate multimedia resources (video, audio, etc.), use technology to engage students in meaningful activities, and employ technology to expand learning rather than fitting it into the existing curriculum.

The ideal technology-enriched classroom that Gen Y teachers described included such components as: 1) ubiquitous wireless and wired connections to the Web and school network; 2) video visualizers and laptop sets for each classroom; 3) technical support and trouble-shooting assistance for hardware and software; 4) templates for building technology-enhanced lessons; 5) banks of technology integrated lessons, including lessons incorporated in school textbooks; 6) appropriate online games that have been identified for teachers to use in instruction; 7) opportunities for teachers and students to identify relevant Web sites useful in their teaching.

Some of the barriers to effective use of technology in instruction mentioned by Gen Y teachers were: 1) money; 2) time; 3) not enough hardware, software or other technology resources; 4) unreliable technology; 5) poor teacher attitudes about teaching with technology; 6) insufficient opportunities to learn how to use relevant hardware and software; 7) not enough emphasis on learning to integrate technology INTO lessons; and 8) teachers that do not attend the technology professional development that is offered.

Recommendations: Gen Y teachers in this study were aware of the changing expectations of students for how learning should occur and the implications for how teachers adapt their instruction. They have obviously thought about what an ideal technology-enriched classroom would look like and the barriers that would need to be removed for such a learning environment to develop. Though they are aware that the current expectation is that technology will be infused into the existing curriculum, they also seem to understand that technology may also shape the future of the curriculum. In the meantime, Maryland and other states are focusing on meeting the requirements of the No Child Left Behind Act for all subgroups of children in each school. This mandate has led many schools in Maryland to focus on teaching several specific reading and mathematics objectives and indicators each week of the school year. Because of these NCLB requirements and the setting of state technology standards that K-12 teachers and students must achieve, it will likely be imperative that teachers develop activity-based, technology-enhanced lessons which focus on specific objectives and indicators in the curriculum.

11.   Gen Y/Traditional Workshops for Technology Professional Development

Conclusions: Gen Y teachers in Maryland are well aware of the problems with technology workshops--such as teachers attending workshops, but not integrating technology into their instruction. One Gen Y teacher felt that the best technology professional development may be a combination of the Gen Y model and traditional technology workshops. What is clear from the analysis of teacher responses to this question is that there should be at least one technology support person to help trouble-shoot hardware and software problems in each school. Teachers also need someone who can demonstrate and aid them in learning how to design and implement technology-enhanced lessons.

Recommendations: No self-respecting business utilizing a large number of computers to enhance company productivity would consider going without technical support personnel to solve computer malfunctions, nor should schools. Likewise, businesses would not invest huge amounts in hardware and software and not provide ongoing assistance in learning to use the technology to enhance performance, nor should schools. Given the budget challenges that schools face, it makes perfect economic sense for schools to invest a few thousand dollars to establish a minimum of one Gen Y program in each school. The Gen Y teacher could then provide some basic trouble-shooting expertise or refer the problem to a Gen Y student in the school (if available), or request assistance from a technical assistant employed by the school system. However, the Gen Y teacher should primarily be responsible for engaging teams of students and partner teachers in learning to develop and implement technology-enriched lessons. If schools are not willing to spend a few thousand dollars for establishing a cadre of Gen Y teacher(s) and students in each school to help teachers learn to implement technology in teaching, the hundreds of thousands of dollars of taxpayers dollars for purchasing hardware and software will likely be wasted. This point needs to be made clearly and often to school systems in marketing the Gen Y program to schools in Maryland and elsewhere.

12. Strengths and Challenges Faced by the Gen Y Program

Conclusions: Among the strengths of the Gen Y program that Gen Y teachers mentioned were: 1) integrating technology-enhanced lessons throughout the school; 2) making learning motivating and a real-life experience; 3) empowering students and enhancing their self-confidence; 4) building relationships; 5) enhancing technology skills and ability to work in a team that will be useful in future careers; 6) involving students in long-term projects that help them in developing persistence and commitment; 7) learning how to present material effectively; and 8) providing a spark for Gen Y teachers that encouraged them to stretch their knowledge and skills. Some of the major challenges mentioned by Gen Y teachers in answering this question were: having enough time to complete the projects; helping student-partner teacher teams develop high-quality lessons; and figuring out how to do Gen Y next year after the grant funding ends.

Recommendations: The Gen Y program in Maryland has clearly been a win-win-win-win for teachers, students, administrators and parents. Hopefully, it will be an important model for leading schools into the technology-enriched learning environments of the future.

13. Support from Gen Y Facilitators at the National and State Levels

Conclusions: Maryland Gen Y teachers reported that Maryland and national Gen Y personnel have provided outstanding support to teachers engaged in implementing the Gen Y initiative. Vicki Williams offered patient and insightful support to teachers and encouraged an open, honest, flexible approach to program implementation. She was always there for the Gen Y teachers--by phone, email or in person. The national Gen Y program provided such supports as consultants who gave students timely feedback on their projects, a very helpful Gen Y Web site and a system for encouraging and reporting project progress. Also, appreciated were the encouragement and stimulating ideas about technology integration that Dennis Harper provided to participants in the project.

Recommendation: As Gen Y continues to evolve, the strong support system built by the program will be an important resource for students and teachers in reaching the potential of technology to enrich and ultimately re-form the curriculum.

POTENTIAL FUTURE DIRECTIONS FOR THE GEN Y PROGRAM

This 2005 qualitative study of the Maryland Gen Y program has helped bring into focus the opportunities for the Gen Y initiative, both in the near-term and in the more distant future. There can be no doubt that in Maryland and throughout the nation there is an urgent need to assure that students in all subgroups can meet the performance standards mandated by the No Child Left Behind legislation. In order to achieve the required AYP performance goals, a coordinated effort by students, teachers, administrators, and parents will be needed. Coincidentally, these are precisely the participants in Gen Y programs which have been operating in Maryland and in over 1000 schools throughout the nation/world. A new Gen Y initiative could focus on helping students, teachers, administrators and parents to collaborate in developing technology-enriched lessons that meet specific AYP goals in each of the academic subjects being tested.

Consider the strong foundation that has been built by Gen Y over the past 10 years that could serve as a framework for constructing a major new initiative. For example, the Gen Y program has:

1) Developed extensive experience and success in providing professional development for Gen Y teachers to work with students and partner teachers in learning to use technology to enhance achievement;

2) Created a Gen Y Web site containing highly-rated resource materials, an online instrument for student-partner teacher teams to report progress in developing technology-enhanced lessons, and many other resources;

3) Collected a bank of field-tested, technology-enriched lessons created by student-partner teacher teams keyed to specific curricular objectives and indicators;

4) Created the Tech Yes and Generation Tech programs focused on assisting students in learning to provide technical assistance with hardware/software issues in schools;

5) Shown through evaluation of program outcomes that Gen Y is a very effective approach for enhancing technology integration in schools.

6) Been identified as an "Exemplary and Promising" program by the Educational Technology Expert Panel of the U. S. Department of Education.

To build on the outstanding work that has already been accomplished, the National Gen Y program might want to consider forming a not-for-profit corporation called something like, "Gen Y Partners." This could be formed in collaboration with Gen Y programs in school systems across the nation/world and operated by a board of directors made up of and invested in by former and current Gen Y teachers, students, administrators and parents. This company would consist of an online network of people, resources and materials dedicated to enhancing technology integration and assuring achievement of AYP goals in schools throughout the nation. The following are examples of products and services that Gen Y Partners might offer:

1) Enhanced professional development materials and opportunities for teachers, students, administrators and parents in learning how to enhance learning with technology;

2) Consultations with student/teacher teams in designing technology-integrated lessons, perhaps through the use of online chats and/or discussion boards.

3) An expanded Gen Y web site including resources such as: separate online PORT's for high school and middle/elementary school; reviews of new technologies potentially useful in classroom instruction; and resources for developing proposals for technology grants.

4) A bank of technology-enhanced lessons, tutorials and other educational products keyed to specific state/national content and technology standards;

5) Online technical support for schools in solving hardware and software problems that Gen Y teachers and students in local schools or school systems are not able to answer;

6) Consultations with Gen Y teams in evaluating the quality and outcomes of the products, resources, materials, consultations and technical support.

Many of the foregoing products and services could hopefully be offered for a small fee for each specific product/service. An example might be a 99¢ fee for a Gen Y technology-integrated lesson (similar to the charge for each song on iTunes). Start-up public/private funding would need to be sought, as well as technology sector contributions. In addition, funds from venture capital sources could be explored. To assure that Gen Y Partners is ultimately self-sustaining, the goal should be to gradually increase the percentage of project funds obtained through self-support activities, with the eventual expectation that 100% of operating funds will be generated from the products and services offered by Gen Y Partners.

APPENDIX A

INTERVIEW QUESTIONS PROVIDED FOR GEN Y
INDIVIDUAL AND FOCUS GROUP TEACHERS

My name is Stan Bennett from the College of Education at the University of Maryland, College Park. I've been asked by the Maryland Gen Y program to study the outcomes of the project through a series of interviews and focus groups. These are intended to give participants an opportunity to think about the underlying philosophy of Gen Y, its real-life implementation in schools and to explore how the program can be sustained and expanded after funding ends.

1) How would you describe the interest of students in the Gen Y program? By teachers in your school (both partner teachers and other teachers not involved in Gen Y)? By school administrators? By parents?

2) Describe your opinions about the training you received in setting up and managing the Gen Y program in your school.

3) What is your opinion of the value of the Gen Y CD-ROM and videotape? How could these be improved?

4) What problems did you experience in recruiting students and partner teachers and how did you solve these? To what extent would it be feasible to recruit partner teachers primarily from subject areas where teachers are most in need of assistance in integrating technology in teaching?

5) What changes would you like to see in the project proposal process, as well as project feedback and the final report?

6) During this school year what is an example of a very high quality technology-enhanced lesson or unit and one that was of lower quality? What do you think contributed to the quality of the lesson/unit created?

7) What determined whether a lesson/unit was implemented in a partner teacher's classroom?

8) To what extent do you think the reporting of partner teacher/student teams via the PORT contributed to the success of the Gen Y program?

9) What will determine whether the Gen Y program continues in your school? Please share any ideas for how the program could be supported in the future.

The following are some questions that might have implications for future development of the Gen Y concept.

10) How would you define "technology integration"? Describe what an ideal classroom would look like that uses technology to effectively enhance learning. What barriers do student/partner teacher teams face in your school in achieving this ideal and how have these challenges been addressed?

11) To what extent do to you think the Gen Y program is a more effective way of helping teachers in your school learn to use technology in teaching in comparison with attending technology workshops?

12) What do you see as the greatest strengths of the Gen Y program? What are its most serious challenges?

13) Describe your interactions with the facilitators of the Maryland Gen Y program at the national and state levels.