Meridian Middle School Computer Technologies Journal

Print this Meridian Article

Gen Y Goes to College: Perceptions of Former Middle School Students and the Graduate Students They Mentored

Alice Christie, Valerie Naish, Jayme Kelter, Joey Wycoff, Cory Pearman, Jason Gender

Summer 2005 Issue

View Online
http://www.ncsu.edu/meridian/sum2005/gen_y_college/

Abstract

This paper describes the perceptions and attitudes of former middle school (now high school) students and the graduate students they assisted during university multimedia classes offered over a five-year period. Gen Y focuses on today's youth, enabling them to become contributing partners – and often leaders – in bringing technology into classrooms and communities. This project encouraged authentic participation of former middle school (Gen Y) students as collaborative partners with graduate students who were also practicing teachers. Major objectives of this K-12 – university partnership were to break down traditional educational borders and to provide collaborative learning experiences between former middle school students and university graduate students. Since the Gen Y students were more knowledgeable about the course content than the graduate students, this research focused on reverse mentoring. Using surveys and focus groups, we discovered what Gen Y students and the graduate students they mentored thought about this reverse mentoring model.

Introduction

This paper describes how former middle school students, who are currently high school students, served as mentors in a graduate class that focused on integrating multimedia into teaching and learning in K – 12 classrooms. These former middle school students participated in a multi-year partnership (Christie, et.

al., 2004) between their middle school and a large university in the Southwest. This alliance was based partly on the Gen Y model (Martinez & Harper, 2002) in which K-12 students form partnerships with teachers in a collaborative effort that provides students with project-based learning and teachers with sustainable professional development. Students bring technological expertise to the partnership while teachers bring pedagogical knowledge, thus infusing technology throughout the school. We use the scaffolding metaphor (Vygotsky, 1978) to describe the support offered to learners to help them achieve learning outcomes. The tacit assumption underlying this study is that students can become independent, self-regulated learners when the instructor creates a constructivist classroom environment and when instruction is carefully scaffolded. This study extends both the Gen Y (reverse mentoring) and scaffolding models, and examines collaborative, constructivist learning and role reversals that occur when former middle school students mentor graduate students in the context of a multimedia graduate course.

Literature Review

Martinez and Harper (2002, paragraph 8) summarize the Gen Y model as follows:

> Generation Y is an innovative curriculum and resource solution for grades 3-12 that promotes school wide technology infusion. Gen Y students develop technological fluency while learning how to share their knowledge with others. Each student is paired with a classroom teacher who needs help integrating technology into his or her practice. Each student/teacher team decides on a curriculum component or lesson to enhance with technology. Students learn about pedagogy and lesson plan design while developing their communication, planning and project management skills. The partner teacher receives support for their technology projects when and where they need it - in their classrooms.

The concept of scaffolded instruction has grown out of research on how individuals learn (Vygotsky, 1978). The Zone of Proximal Development (ZPD) is "the distance between the actual developmental level ... and the level of potential development ... under adult guidance or in collaboration with more able peers" (Vygotsky, 1978, p. 86). Such collaboration or scaffolding enables learners to participate in complex tasks that they cannot perform adequately without assistance (Moll, 1990). Herber and Herber (1993) compare the temporary structures that physically support workers while they complete jobs to instructional strategies that support student learning that would be too difficult for them to complete on their own. Hogan and Pressley (1997) have found that there are five different instructional scaffolding techniques: modeling of desired behaviors;

offering explanations; inviting student participation; verifying and clarifying student understandings; and inviting students to contribute clues.

McKenzie (1999) describes eight characteristics of scaffolding. The first six are relevant within the context of the reverse mentoring described in this paper. McKenzie describes scaffolding as:

1. Providing clear direction and reducing students' confusion
2. Clarifying purpose
3. Keeping students on task by providing structure through scaffolded lessons or projects
4. Clarifying expectations and incorporating assessment and feedback
5. Directing students to worthy sources to reduce confusion and frustration
6. Reducing uncertainty and disappointment

This project assumes that learning is facilitated by scaffolded instruction, and that scaffolding and mentoring may be provided by younger - but more knowledgeable – peers, using a modified version of the Gen Y model.

Finally, constructivism is a process that occurs among a community of learners that uses authentic tasks, experiences and assessments, and emphasizes problem solving and hands-on or real-life experiences (Jonassen, et. al., 2003). In such an environment, learners actively create their own knowledge, piecing together their prior knowledge with their new understandings to make sense of the world around them. Such engagement can lead to "deeper cognitive processing" (Tobias, 1994, p.37) that in turn leads to new, often creative ways of thinking and problem solving. When constructivist learning is applied to a multimedia environment, learners are interconnected in a community of inquiry where learning is relevant, concrete, and challenging (Goldman-Segall, 1998). In environments where students and teachers are co-learners, the learning is more personal, connected, and immediate (Papert, 1996). Such learners actually become part of the world they study (Hammersley & Atkinson, 1983).

Description of the Study

This reverse mentoring project took place during five consecutive summer sessions between 2001 and 2005. It facilitated learning for graduate students (who were also practicing teachers) enrolled in a graduate program at a metropolitan university in the Southwest. The course goals included learning to effectively use a number of multimedia tools in K-12 classrooms. The final project was the creation of an electronic portfolio that showcased graduate students' skills and abilities to integrate multimedia into the teaching and learning that

occurred in their classrooms. Since the enrollment was high, the university professor enlisted the help of graduate student interns who had completed the course earlier in their M. Ed. programs. She also enlisted the help of former middle school students who had extensive multimedia skills and had participated in multi-year (1999 – 2001) partnership (Christie, et. al., 2004) between their middle school and a large university in the Southwest. Using a variation of Dennis Harper's Gen Y Model, the university professor harnessed former middle school students' multimedia expertise to assist graduate students during their intensive and demanding course on using multimedia to enhance teaching and learning in K-12 classrooms.

The former middle school students, referred to as Gen Y students throughout this paper, needed training in two key areas before they were comfortable serving as mentors to practicing teachers. First, they needed training and extensive and varied experiences using technology and multimedia tools. This technology training included both formal instruction and time to experiment with the tools, use the tools to complete assignments, to make mistakes, and to solve problems.

The middle school students also needed training in ways to mentor and scaffold learning for graduate students. Gen Y students received their technology training through a multi-year K-12 and university partnership in which students spent one day per month at a university computer lab as part of their language arts curriculum. During the first year, they learned to create web pages, and during the second year they learned to use a number of multimedia tools, including *iMovie*™, to create monthly newsmagazines, and short digital essays that fulfilled their eighth grade language arts requirements (Christie, et. al., 2004). The university professor invited approximately eight of these middle school students to assist her in her multimedia course for graduate students. Four chose to become part of the project; they have participated for the last five summers and are co-authors of this paper. These four students received their mentoring training through informal workshops with their language arts teacher (the second author of this paper) and the university professor (the first author of this paper). Equipped with the multimedia skills learned and honed during their seventh and eighth grade language arts classes, these Gen Y students became mentors to graduate students learning to use multimedia in their teaching and learning.

Graduate classes were held in a computer lab for four hours per day for twelve days during the summer session. In addition to large enrollment, the skill and confidence levels of graduate students varied considerably. Therefore, the university professor wished to facilitate teaching and learning at a variety of levels and for a variety of learning styles. Having a number of interns available to graduate students made this goal attainable.

Methodology

This five-year qualitative study used observations, surveys (Appendix A), and focus groups (Appendices B and C) to get at perceptions and attitudes of both groups of participants: Gen Y students and graduate students. It also examined the documented changes in these areas over time. Focus groups took place at the conclusion of the first year (2001) of the project. Surveys were administered after the second through fifth years (2002 – 2005) of the project. A total of 135 graduate students and four Gen Y students participated in focus groups or completed surveys. During the focus groups, we asked specific questions on the use of the modified Gen Y Model in a graduate course. Gen Y students formed the first focus group and graduate students the second. Both sessions were audio- and video-taped, and then transcribed. Graduate students also responded to a survey on the ways Gen Y students facilitated their learning and the likelihood of them using a similar model in their K-12 classrooms. A social-constructivist stance formed the theoretical framework for this study.

Using the constant comparative method of Glaser and Strauss (1967), all data were analyzed by recursively comparing incidents applicable to each emerging category. Analysis continued, expanding or collapsing categories, until all data were accounted for. This analysis enabled us to propose ten themed assertions that we discuss below. Each assertion in based on data gathered through observation, focus groups or surveys. The primary data source(s) is identified in parentheses with each assertion.

Findings/Assertions

Assertion 1 (observation): *A constructivist classroom environment invited critical thinking, creative solutions, and collaboration among all participants.* Working collaboratively with all participants helped make all of us better learners and better teachers. Because assignments were created to be individually meaningful for students, each student needed to approach assignments critically and creatively, so as to best meet personal goals. The five classroom practices or learning principles that most helped build a viable, interactive, and critically thoughtful learning community included:

- peer review of all assignments;
- broad audiences of all assignments, as most assignments are posted on students' Web sites;
- celebration of mistakes as learning opportunities;
- the belief that collaboration builds community; and
- the notion that the whole is greater than the sum of its parts (i.e. each

person's contribution adds to the richness and depth of classroom discussions, interactions, and thought).

When the university professor was stumped by a student question, she never hesitated to call on the collective expertise of everyone in the room – graduate students, graduate interns, and Gen Y students - as she considered everyone co-learners working together to make sense of how multimedia allowed each of us to communicate with others in novel, creative, and unique ways.

Assertion 2 (observation): *Technology was the tool that enhanced teaching and learning in this constructivist classroom, not the focus of the learning.* Technology was used extensively in the middle school language arts curriculum of the Gen Y students, who continue to be motivated learners and continue to incorporate technology into their learning. Technology was used extensively in the graduate course, and graduate students became motivated and engaged in the learning process because they saw the potential of technology to:

- alter the teacher-learning relationship;
- create a collaborative and learner-centered environment;
- engage students more actively, personally, and purposefully in the learning process;
- engage learners in authentic tasks, experiences, and assessments;
- engage students in problem-based, hands-on, and real-world learning; and
- move students from the role of information consumers to information producers.

Not only did technology change the nature of learning in both middle school and graduate classrooms, but students also chose their own tools of discovery and the media with which they wanted to share their learning.

Assertion 3 (observation and Gen Y focus group): *Gen Y students were capable of mentoring practicing teachers, and most practicing teachers responded positively to such mentoring.* Although hesitant at first to offer help to graduate students significantly older than themselves, Gen Y students soon realized they had the skills to help and that most graduate students often needed and wanted help. K-12 teachers acknowledged that kids often know more about using technology than they do.

Assertion 4: *Gen Y students felt that using technology comes naturally to them, and practicing teachers generally felt either intimidated by technology or that learning to use technology was a long and difficult process.* Since the Gen Y students had been using technology both at home and at school for most of their

lives, they not only considered using technology as an integral part of their lives, but they also often experimented with how to use technology tools in novel and creative ways. Most K-12 teachers, on the other hand, felt the need for direct instruction and support when learning to use technology.

Assertion 5: *Gen Y students learned by exploring and playing and making mistakes, and K-12 teachers generally preferred to learn using concrete, step-by-step directions.* Gen Y students preferred "messing around" and learning by doing. They believed mistakes helped them learn and were excited when a mistake resulted in a new discovery. Conversely, the K-12 teachers, tried to avoid making mistakes and were often terrified that their mistakes would have dire consequences. Generally, they preferred step-by-step instruction and had little interest in learning the multiple ways to perform any specific computer operation. The following Gen Y student comments support and illustrate this assertion:

- [Practicing teachers] think that things with *iMovie*™ or other technology can be done in only **one way**.
- The grad students think differently than we do. They don't like to make mistakes. They want it perfect the first time. They should see the cool stuff we've done that started as a mistake.

Assertion 6: *Gen Y students and practicing teachers were respectful of each other, individually and collectively.* Gen Y students and practicing teachers were initially polite to each other, but soon came to respect each other because of the expertise that each group brought to the learning situation. The following focus group comments support and illustrate this assertion:

- Graduate Student: I didn't think for a moment that [the high school students] would treat me like I didn't know anything, although I didn't really know much. They were truly there to help out and be supportive.
- Gen Y Student: I basically helped [a graduate student] make her *iMovie*™ exactly how she wanted it.

Assertion 7: *Gen Y students learned to give help in meaningful ways, and practicing teachers learned to ask for the specific type of help they needed.* Practicing teachers often didn't know how to ask for the specific kind of help they needed. Many would just cry "*Help"* or say something like "*I'm stuck, you fix it"!* Over time, Gen Y students learned to interpret non-specific cries for help, and practicing teachers learned to provide context and identify more specifically what the problem was and the type of help graduate students sought. The following Gen Y student comments support and illustrate this assertion:

- I got to know which teachers really needed a helping hand and which ones just had technical questions.
- After a while I learned how the teachers thought, and I could sense when they needed help.

Assertion 8: *The graduate students/K-12 teachers grew appreciative of and valued the Gen Y students and the scaffolding they were able to provide.* K-12 teachers commented that the "kids" were patient, accessible, friendly, refreshing to work with, positive, receptive, and enjoyable. The following graduate student comments support and illustrate this assertion:

- [The Gen Y students] felt very valued and worthwhile because they could help us; I definitely valued them.
- I was impressed with how much of their knowledge they were willing to share. Nothing was protected; they were just there for us.
- We grew to trust them.
- We learned that the kids could help us even though they're younger, much younger, than we are.
- I loved the one-on-one instruction and problem-solving strategies I learned from [a Gen Y student].

Assertion 9: *Gen Y students gained self-confidence.* Gen Y students were, at first, shy and reticent to approach a teacher unless asked. Over time, they became more confident in their abilities to help with the wide variety of questions graduate students asked. Even more importantly, they soon learned to provide unsolicited guidance and help to those graduate students who needed scaffolding. The following Gen Y student comments illustrate this assertion:

- I learned adults were willing to listen to what I had to say.
- My attitude toward adults is now more open, more confident.
- My self-confidence has improved because of this experience.

Assertion 10: *Scaffolding graduate students' learning through collaboration with Gen Y students benefits all participants.* The modified Gen Y model used within the graduate multimedia class provided a win-win-win situation. The Gen Y students, the graduate students who were practicing teachers, and the university professor all benefited from this project.

Helping others learn and grow has motivated the Gen Y students to volunteer in a graduate classroom for five successive summers. Additionally, they have increased their self-confidence; felt valued for their expertise; felt valued for their willingness to help; become more comfortable around teachers; are more willing

to offer help to their high school teachers; are much more familiar with university life; and have had a five-year experience interning in a university classroom. Finally, they have honed their technology skills; kept current with emerging multimedia software and hardware; and experimented with numerous ways of using technology to reach personal goals. Through these experiences, they have learned a great deal about themselves and their interpersonal skills; widened their future career options; and become published authors and presenters at international conferences. The Gen Y students conclude that without the opportunities they experienced during their middle and high school years participating in this multi-year project, many of the things they enjoy doing today would be dreams rather than realities. They characterize their total experience as "a chance in a lifetime."

Graduate students enrolled in an intensive multimedia class felt their individual needs were met despite the large class size; received help when and as they considered necessary; experienced the Gen Y Model; and are now willing to use the Gen Y Model in their classrooms, as the following quotes attest:

- I'm going to ask my own students to assist me in redesigning lessons using technology.
- I'm going to use technology mentors in my classroom in the fall.
- I am now more willing to think of my students as content experts and technology experts.

Graduate students also experienced the Zone of Proximal Development and the joy of learning from a "more experienced *junior* peer." Several typical comments are listed below:

- They coached instead of doing the work for me.
- They asked questions that deepened my own understanding of what I was doing.
- They checked back with me to see that I was advancing on my own.
- We brainstormed and solved problems together, working collaboratively on solving the problems.
- [The Gen Y students] were attentive, creative, hard working, personable, and a lot of fun to interact with.
- [The Gen Y students] enabled me to be successful and reduced my frustration level.
- They were not condescending in any way, which made me feel comfortable in asking them for help.
- They knew little tricks that helped make things easier.
- Their enthusiasm was motivating for me.

In addition, graduate students expressed very high satisfaction with the nurturing, supportive classroom environment; the sense of community that developed during the course; their interactions with the professor; and especially their interactions with Gen Y students.

Finally, the university professor received assistance with a popular, over-enrolled graduate class; could accommodate a variety of learning styles; offered an improved quality of learning and classroom environment; offered a constructivist classroom featuring personalized and contextualized learning; and had the opportunity to use and study a modified Gen Y or reverse mentoring model at the graduate level.

Implications for Classroom Practice

Teachers can use a number of classroom strategies to encourage the opportunities for growth and types of academic and personal growth described in this study. These include, but are not limited to:

- Using a reverse mentoring model within the school by training middle school students and having them team with teachers to assist students in Grades K – 6. (Note: this reverse mentoring may or may not involve technology. Non-technology examples include literature studies, field-based or problem-based learning in any content area, or any cross-aged projects.) Creating and fostering an environment that recognizes the strengths of each student, and using students' expertise to help teachers develop technology skills, problem-based learning skills, and skills working with multi-aged groups. Reinforcing the concept that there is often more than one way to solve problems, and encouraging problem solving in all aspects of the curriculum. Teaching students that mistakes can lead to new discoveries, sharing examples from history as well as from student experiences. Recognizing that students bring their own expertise to many learning situations and allowing them to share that expertise with other students and teachers to develop a "community of learners" that will develop self-confidence in students and teachers. Recognizing that students "learn by doing" and providing as many "doing" (hands-on, field-based, or problem-based) opportunities as possible.
- Assessing student learning through a variety of modalities, with an emphasis on the use of technology for non-traditional, more holistic assessment.

Although not considered a teaching strategy, teachers also need to recognize and to embrace new roles in their classrooms, and view themselves as actively

creating (a) student-centered learning environments and (b) creative opportunities for their students' academic and personal growth. The model described in this study provides a framework for school-wide restructuring and a means of changing traditional rules, roles and relationships to create true learner-centered environments. The chart below summarizes the various terms used to characterize teacher roles (in terms of teacher-student interactions) in teacher-centered and learner-centered environments.

Teacher Roles in Teacher-centered Environments	***Teacher Roles in Learner-centered Environments***
Teacher	Co-learner or Collaborator
Sage-on-the-Stage	Coach
Chalk-and-Talk	Mentor
Banker	Midwife
Dispenser of Knowledge	Facilitator
Script Reader	Curriculum Developer
Information Consumer	Information Producer
Isolationist	Team Member and Community Builder

When teachers think of themselves as co-learners and facilitators, as curriculum developers and community builders, as facilitators and coaches, they will have many opportunities to create unique programs/projects that use the reverse mentoring model in their classrooms, their schools, and their communities.

Conclusion

Reverse mentoring, coupled with scaffolded learning in a constructivist, technology-rich learning environment was a winning combination for all participants of this study: graduate students, Gen Y students, and the university professor. Such a model encourages authentic participation of students as collaborative partners with teachers. Gen Y students crossed long-established educational borders, and graduate students became comfortable learning from Gen Y students. Each group gained immeasurably because of their in-depth, contextualized, and extended interactions with each other. Finally, the university

professor had the opportunity to study reverse mentoring as Gen Y students ventured into a graduate level university course to assist practicing teachers. In addition, she was able to create a learner-centered environment in which she was not the only teacher in the classroom. Graduate students were overwhelmingly satisfied with their learning experiences and their overall success in meeting both course objectives and their personal and professional goals.

About the Authors

Alice A. Christie , Ph.D.is an Associate Professor of Technology and Education and Graduate Studies Department Chair at Arizona State University West. Email alice.christie@asu.edu , http://www.west.asu.edu/achristie/

References

Christie, A., Naish, V., Kelter, J., Pearman, C., Wycoff, W., and Gender, J. (2004). Language arts comes alive as middle school learners become information producers. *Meridian: A Middle School Computer Technologies Journal, 7* (1).

Glaser, B. G., & Strauss, A. L. (1967). The discovery of grounded theory: Strategies for qualitative research. New York: Aldine De Gruyter.

Goldman-Segall, R. (1998). Gender and digital media in the context of a middle school science project. *Meridian, Winter 1998.* [available at http://www.ncsu.edu/meridian/jan98/feat_3/gender.html]

Hammersley, M. & Atkinson, P. (1983). *Ethnography: Principles in practice.* London and New York: Routledge Publishers.

Herber, H., & Herber, J. (1993). *Teaching in Content Areas With Reading, Writing, and Reasoning.* Allyn & Bacon: Needham Heights, MA.

Hogan, K., & Pressley, M. (1997). *Scaffolding Student Learning: Instructional Approaches & Issues.* Brookline Books, Inc.: Cambridge, MA.

Jonassen D.H., Howland, J., Moore, J, & Marra, R.M. (2003). *Learning to solve problems with technology: A constructivist perspective*, 2nd Edition. Columbus, OH: Merrill/Prentice-Hall.

Martinez , S. and Harper, D. (2002, December). *Student Inclusion = Technology Infusion.* Retrieved from http://www.newhorizons.org/strategies/technology/

martinez.htm

McKenzie, J. (2000*). Scaffolding for Success. [Electronic version] Beyond Technology, Questioning, Research and the Information Literate School Community.* Retrieved October 12, 2002, from http://fno.org/dec99/scaffold.html

Moll, L.C. (1990). *Vygotsky and Education: Instructional Instructions and Applications of Socio-historical Psychology.* Cambridge University Press.

Papert, S. (1996). *The connected family.* New York: Longstreet Publishers.

Tobias, S. (1994). Interest, prior knowledge, and learning. *Review of Educational Research, 64,* 37-54.

Vygotsky, L.S. (1978). *Mind in society.* Cambridge, MA: Harvard University Press.

Meridian: A Middle School Computer Technologies Journal
a service of NC State University, Raleigh, NC
www.ncsu.edu/meridian/
Volume 8, Issue 2, Summer 2005
ISSN 1097 9778 Email Meridian at meridian_mail@ncsu.edu