No Gifted Student Left Behind:

Building a High School Library Media Center for the Gifted Student

by Alanna S. Graboyes

We won't recognize the library of the future. Information will be available in formats unfamiliar to us now.

Liz came into the media center breathless, running from one class to the next, and asked me how to find a copy of the primary document entitled the "Treaty of Limits between Costa Rica and Nicaragua." She desperately needed this for her We the People study group. She had spent hours searching for this information but somehow she seemed to feel I could make this information materialize within 2 minutes while she waited to go from one class to the next.

Ida needed to find information about an incident at No Gun Ri. She needed specific information on a memo written by a colonel in the air force in Korea at that time. She said she tried every possible way to find that memo. It just doesn't exist. It's probably declassified, she said, and she'll settle for articles written about the accusations by the colonel.

Nathan and Eric were gravely checking sites on one computer and watching the president's speech on another computer. They were earnestly discussing the recent election, analyzing its outcome as if the life of the country depended on their commentary, all from .com sites.

Nisha was working on the research portion of her science experiment when she came across the perfect article that substantiated her hypothesis. But, she explained, the article wasn't made available to the public. It was written by a professor at a private college in England.

Maggie L. Walker Governor's School for Government and International Studies
Richmond, VA
(Established 1991)

The mission of the Governor's School is to:
". . . provide broad-based educational opportunities that develop gifted students' understanding of world cultures and languages as well as the ability to lead, participate and contribute in a rapidly changing global society."

In order to be able to implement that mission, the school recognizes that:
"Effective citizenship requires new skills, knowledge and understanding. This global society will look to gifted students to become leaders, creative contributors and critical consumers in the 21st century."

- Offers a comprehensive college preparatory program for students in grades 9–12.
- The model used to design its mission, goals, and curricula was designed by staff from various schools, the Department of Education, and by representatives from business and industry.

As of the 2005–2006 school year:
- MLWGS had 647 students, all of whom had been tested and assessed to be gifted and talented by the State of Virginia.
- Upon graduation, the average SAT score was 1350.
- There were 33 dual-enrollment classes (students enrolled in both high school and college courses at the same time) and 20 Advanced Placement (AP) classes.
- The school's We the People team, representing Virginia, placed in the top 10 nationally for 8 years.
- The Math Modeling Team won highest honors in international competition against a field of 500 teams, most of which were fielded by universities.
- MLWGS was awarded the distinction of being one of the best high schools in America (*Newsweek*, 2006, May 8).

MLWGS originally shared the school building space with a local high school. The collection in that school library did not meet the research needs of Governor's School students, nor was it designed to do so. To fill the gap, partnerships were formed with area colleges, universities, organizations, and clubs to expand the learning environment beyond the classroom. In Fall 2001, the school moved into its current quarters and for the first time had its own library and media specialist.

Figure 1. Governor's school history and student accomplishments

Welcome to a typical day at the Library Media Center (LMC) of the Maggie L. Walker Governor's School (MLWGS), a high school specializing in Government and International Studies, located in Richmond, VA, and serving close to 650 gifted students in grades 9–12. In Figure 1, you can catch a glimpse of the history of the governor's school and student accomplishments. On any day, you will hear a multitude of reasons why the students at the governor's school visit the media center. They could be involved with an independent study project, working on their senior seminar or mentorship presentation, designing a student-generated curriculum, or working on a classroom assignment. Their skills range from the neophyte ninth-grade researcher to experienced faculty members embarking on their doctoral studies.

Before school, between classes, during lunch, and after school, the LMC is filled with an intense flurry of movement. Within a short span of time, the students wake the computers, begin assignments, complete assignments, meet with their presentation groups, ask questions, check out books, and send e-mails. No bells ring in this school to herald the change of classes. But, the students innately sense when to move on. Within seconds quiet falls on the LMC. It shifts to a space devoid of teenage energy, a room filled with undergraduate-level books, world music, videos, DVDs, and primary sources all sitting quietly in their places, and computers peacefully waiting to be reawakened from their hibernation.

Throughout the day, these very motivated, energetic, inquisitive, and independent high school students ask challenging questions on a wide variety of topics. I guide them through information-seeking strategies, teach them to be persistent in their searches, prepare them to expect that finding pertinent information is not always easy, warn them to beware of media bias, and encourage them to enjoy the mysterious qualities of research. We tour books, articles, Internet portals,

audio/video sources, and virtual telescopes together and talk, via e-mail, to experts across the world.

Retrieving and Processing Information in the Gifted World

Characteristics of Gifted Digital Students

Ian Jukes states

> (Kids are different) in the way they think, in the way they access, absorb, interpret, process and use information, and especially in the way they view, interact and communicate in the modern world because of their experiences with digital technologies. (Tarica, 2006, p. 2)

Over the past 5 or so years, students have changed in their approaches and attitudes toward research, especially when compared to the student of the early 1990s. The current students are known as the "digital generation," because they live in a multimedia world—a world of computers, television, and video games, with multiple means of communication, such as land phones, cell phones, beepers, mp3 players, e-mail, and instant messaging. Plus, they tend to use the various mediums available to them all at the same time. Figure 2 shows a student using various forms of media simultaneously.

These gifted digital students have different characteristics than most digital students. Their accelerators are high speed (they think faster); their bandwidth is wide (they have the ability to absorb lots of data at the same time); their baud rate is large (lots of data can be sent to them at the same time); and a majority have asynchronous development (growth and development in one area stops so another area can grow).

What many of the faculty call "new" technology is not new for these students. They've grown up with this technology. It has become an integral part of their lives, not something separate from their daily existence. Technology enables them to get the information they want. They don't see the tool as important. It's always been there for them, and to them, it will always be there. They aren't awed by what technology can do. They've come to expect technology to change rapidly, and they want to move with the changes. Using multimedia constantly is the norm. It's where they work and play. They have fun. They enjoy the search. They get pleasure from the interconnectivity of the various formats of information, and they don't even think of retrieving information any other way.

The wealth of information at the fingertips of students is far greater today than it ever was, and it is increasing at an exponential rate. Because these gifted digital seekers have great intellectual curiosity and inquisitiveness, they tend to gather more information than they need by digging deeper and broader into subjects in order to get as much material as they can find. What has become very apparent is they become overwhelmed with all the information they gather. They don't know when to stop searching, and many aren't aware of whether any of the information they have retrieved is credible. They'll go on Google, retrieve more than a million hits, and then look only at the first 10 that pop up.

Figure 2. Student multitasking

Formats of Information Used

Students use every format available, but books are not their first choice. They often have to be coaxed into looking at those volumes. As soon as it is suggested, I'll hear a number of excuses of why suddenly they must leave the media center. We are fortunate to have an excellent book collection, which has been

further embellished by several large gifts donated by current students, faculty, alumni, and friends. The collection consists of undergraduate- and graduate-level books, as well as CDs, videos, and DVDs. We also provide them with an assortment of academic-level electronic resources covering all disciplines: Gale Resources (magazines, newspapers, reference material) including the *Making of Modern Law* and *Declassified Documents* databases; *Lexis-Nexis* (legal, legislative information, magazines, newspapers, foreign language magazines, transcripts, wire services); the *Encyclopedia Britannica* (broad topical summaries with links to Web sites and multimedia samples); and the *Facts on File News Service*. Plus, students have access privileges to the Virginia Commonwealth University Library. Nonfiction eBooks are the newest and fastest growing section of the LMC.

Library Media Center Usage

Most of the research in the ninth grade is assignment-driven, and students are introduced to the research process through their English classes. They are led slowly through the six stages of research: define the task, develop information seeking strategies, locate information, use the information, synthesize the information, and evaluate the information. It's the process of research that is important during the ninth grade—not the end-product of a two- or three-page paper. I meet with the students during each of the stages to make sure the process is reinforced. One recent graduate told me she used the skills she learned in that class throughout her 4 years at the Governor's School. She is now at Harvard, with a full scholarship, and when she started Governor's School she had only recently arrived from China.

Field Experiences Within the Mentorship Program (Includes Research Paper and Presentation)

Education
Elementary-Age Students; Special Needs

Science
Anesthesiologist
Cancer research
Dentist
Department of Epidemiology and Community Health
Department of Surgery
Director of Horticulture
Emergency Department—Hospital
Engineer
Equine Clinic
General Practitioner—Family Medicine
Geneticist
Medial Informatics
Neonatal Unit
Ophthalmologist
Pediatric Neurosurgeon
Sports Medicine
Thoroughbred Breeder
University Professor
Veterinarian
Zoologist

Government/International Studies/ Business
Government, Politician
Historical Museum
International Travel (Economics, Finance, Gastronomy, Tourism)
Investment Banker
Journalism
Judge and Attorney
Missionary Team
Police Academy

Arts
Advertising/Marketing Firm
Architectural Firm
Ballet Company
Fashion Designer
Interior Designer
Museum Management
Publishing Company
Symphony Orchestra Management
Theater

Figure 3. Mentorship program field experiences

By the 10th grade, students are ready to move to the next level of research. During this grade, they not only write a social studies paper but they also begin to explore scientific methodology. Students pick their own topics, within guidelines. It is more important for them to develop their analytical and problem-solving skills. During the 11th grade, students write an in-depth literary analysis drawing conclusions and providing original thoughts.

By the time the students reach the 12th grade, they are expected to be able to do independent research, are required to write a comprehensive research paper, and present their findings before an audience of peers, other students, parents, and a panel of judges. They are encouraged to begin their research in the Media Center to get guidance on their research plan. Figure 3 shows a sample list of field experiences within the Mentorship Program.

About 20 seniors a year participate in a constitutional competition as part of the We the People class. Many of the students use the LMC to research their topics and discuss constitutional issues. They also use the Special Collections Room, devoted to government and international studies. One of our former students who participated in the We the People compe-

tition attended West Point, where she graduated first in her class.

Library Media Specialist's Role in This Environment

> We need to teach information fluency, not just information literacy. Information fluency involves learning an unconscious process, allows information seekers to ask good questions, access a wide range of resources, analyze and authenticate data and turn it into knowledge, then apply that knowledge within the context of real-time, real-life experience. (Tarica, 2006, p. 2)

> [The] concept of literacy has evolved from basic abilities to read and write to include computer literacy to the broader idea of information literacy. ("Changing Role of School Librarians," n.d., section C, ¶ 1)

> If we think of information as a sea, the job of the librarian in the future will no longer be to provide the water, but to navigate the ship. (Lesk, 1995, last sentence)

> Library Media Specialists look at curriculum, assignments, and learning in terms of the information resources, processes, and technologies required for student success. (Lowe, 2000, ¶ 4)

The quotes above summarize the varied roles of the library media specialist—teaching information fluency, facilitating instruction, and selecting information resources and technologies. No one method of teaching information fluency works in all situations. As courses change, technology changes, and as the digital students change, instructional methods must adjust accordingly. In order to ensure that students obtain the best data, I teach them how to think critically about their research and ask themselves what it is they are really looking for. No matter how foreign research methodology is to many of our new students, I try to meet their individual needs with the appropriate level of instruction. Hopefully, by the time they graduate they will be able to walk away from the school with retrieval skills that will take them through their college years and into the future, the unimaginable world of information. Some of our students have been designated as highly gifted and thus come better equipped to handle research at a more advanced level. For example, one of our students, as a freshman, worked with a geneticist; as a junior, she was asked to present her work at several worldwide professional conferences. Another one of our students, this time in the math field, went on to win one of the major Intel Science Talent Search awards for her mathematical work, also in her junior year.

Figure 4. Web Basics class in the Media Center

When I differentiate the collection, I am also exceptionally selective when adding fiction titles to the collection. The gifted student may be reading on advanced levels and capable of reading adult fiction, but their maturity level is still at the 12–17-year-old range, so subject matter must be examined closely. In this way, I pay special attention to the asynchronous development of gifted students where their emotional level is at a different stage than their intellectual level (Bainbridge, n.d.; Silverman, n.d.).

The most effective instructional strategy is the class visit, *after* the teacher has introduced the research topic and has incorporated informational retrieval topics into his or her lesson plan. When the students visit the LMC, after their assignment is explained in class, they are more receptive to the information instruction I offer. They are now ready to navigate

Table 1
Building an Effective Media Center: Guidelines

1. Develop goals and objectives.
2. Demonstrate the benefits of library usage.
3. Create a fun learning environment.
4. Inspire students to want to find quality information and teach them to see how research can be a challenging experience rather than a frustrating one.
5. Collaborate with faculty and students.
6. Design a collection.
7. Write a collection development manual.
8. Hire a collection vendor who understands the level of your students and allow time to locate a vendor who understands the level of material your students need.
9. Differentiate your collection to meet the needs of the various levels of student giftedness.
10. Design an information literacy/fluency program for both faculty and students.
11. Integrate the LMC into subject matter classes to develop higher quality information-literacy skills (Hartzell, 2002).
12. Publicize your collection and the instruction you offer to let the faculty, staff, and students know how much they need you.

available sources, question the validity of their findings, and learn to evaluate, interpret, and select pertinent data because they now need to use these skills. In Figure 4, you can see a *Web Basics* class offered to students in the Media Center as they begin their research projects.

In addition to class visits, I offer workshops such as:

- Libraries;
- The Governor's School Media Center;
- World Wide Web;
- Electronic Resources;
- Primary Resources;
- Research Cycle;
- Ethical and Responsible Use of Information;
- Secrets of Google;
- Information Fluency—The Digital Landscape: A Five-Lesson Class for Faculty and Parents;
- Science Fiction and the Future of Information;
- Visual Literacy: Looking at Film Adaptations and the Written Word.

These workshops help students gain confidence in using the research process and help teachers feel confident in reviewing students' work.

One-on-one instruction, although time-consuming, is particularly effective for the seniors. By the senior year, students become either overwhelmed with the amount of information they find for their senior research paper, or they can't find enough and feel lost. This type of instruction is the most personal and often makes the most memorable impact. Because seniors want to be prepared for college, they're extremely receptive to advice.

I also collaborate with students and faculty in building an effective media center. Governor's School students have been major contributors of books, both with suggestions for purchase and gifts. The first student who came through the library doors wandered around the room for a while. He then walked over to me and smiled, but looked quite serious. He announced that I was missing a book. He was a drama student and was quite theatrical when he said, "You have *Purgatorio* and *Inferno,* but no *Paradiso*." Since that day, numerous students have come to me and told me what my collection lacks. Faculty involvement with the LMC program serves to support student involvement with the LMC. In turn, faculty-taught information fluency skills serve to support their technological-savvy students. In summary, the guidelines in Table 1 should help the library media specialist build an effective center (see Table 1).

Real-Life Applications

Throughout my career as a library media specialist, I have needed to solve a variety of problems. The sets of individual student challenges below are followed by solutions that have worked in the governor's school. Hopefully, some of these ideas will work for you also.

Problem 1

Challenge. Students prefer to do research online and to use Internet sources instead of printed sources, because:

- they don't need to *go* to a library,
- it's easier to copy and paste information (and easier to unwittingly plagiarize),
- it's faster,
- they don't know how or where to look for information in a traditional library or book, and

- oftentimes the information is more current.

Solution. You can:
- provide them with quality electronic subscription databases and eBooks,
- make the sources available from home, and
- teach them how to avoid innocent plagiarism and the dangers of plagiarizing.

Problem 2

Challenge. Students have become lazy book readers, because:
- workloads are heavy,
- reading is too slow, and
- books selected in class are not what they want to read.

Solution. You can:
- design book discussion groups around books of their choosing,
- have informal book discussions,
- teach them to be discerning readers and to discuss ideas with other people who've read the same book in a relaxed environment, and
- remove the concern of grades with reading a book.

Problem 3

Challenge. Students have a weak understanding of how a simple nonfiction book is organized and how to browse a book, because:
- they were never really taught how to glance through a book without reading it from cover to cover, and
- they were never taught the structure of a nonfiction book.

Solution. You can:
- have them compare how a book is structured, versus how the Internet is structured;
- teach them about search strategies, various search engines, and put them in control of finding information in formats they are comfortable with; and
- teach them how to browse a book and how to browse the Web.

Problem 4

Challenge. Students go directly to Google when they start their research—and that's the extent of their search strategies, because:
- thousands of hits will appear in a matter of seconds,
- it is easy to copy the text and paste it into a report,
- they don't know where else to look for information, and
- they don't know what quality research is.

Solution. You can:
- teach them to look at that information and evaluate it,
- give them simple evaluation guidelines,
- teach them advanced search techniques,
- teach them about the steps involved in doing professional research, and
- teach them a lifelong learning skill.

Problem 5

Challenge. Students multitask instead of focusing on one sequential path, because:
- they've grown up in a world where various forms of multimedia come at them all the time,
- moving and processing information gained from multiple multimedia sources comes easily for them, and
- they jump from one site to another quickly.

Solution. You can:
- teach them how to lasso all of the information they've gathered into a logical format;
- allow them to jump from idea to idea—link after link;
- allow them to incorporate various mediums into their presentations—TV, Internet, music, e-mail, games; and
- let them use sights and sounds—multisensory input—in their presentations.

Problem 6

Challenge. Students prefer to process images and sounds rather than the printed word, because:
- that's a comfortable environment to them, and
- it's exciting and stimulating to them.

Solution. You can:
- instruct them how to look at these images and listen to these sounds with a critical eye and ear, and
- give them the analytical equipment to question and evaluate what they see and hear.

Problem 7

Challenge. Students seem to learn better when the information is needed, because:
- it means something to them, and
- they have applied what they learned to a real-world project.

Solution. You can:
- bring them to the LMC when the class is in the middle of a project rather than teach them the theory weeks or months before they need to apply it.

It's imperative to hone our students' ability to solve problems creatively and to apply critical-thinking skills in order to pull information together.

Where Do We Go From Here? High-Quality Media Resources: The Universal Library

Students are Internet-savvy. But, as the amount of information available online increases students' ability to retrieve, the quality of information decreases. The amount of information available on the Internet will increase at an exponential rate, but will students be able to increase their grasp of this information at a similar speed?

According to a recent Intel ad:

> Three million new Web pages have been uploaded. Conservatively, in terms of pages, it's estimated that the Web is doubling in size every 120 days—if this is the case, it means that the Web is doubling in size 3 times per year! If this were to continue for just one more year, that would mean that more than 80% of the sites that will exist a year from now don't exist today. (Jukes, 2006, p. 13)

Google has embarked on a project entitled the Library Project ("Google Library Project," n.d.). The company plans on creating the largest virtual card catalog of books in all languages. Portions of each book will be available for viewing and information on how to locate the book will be included. Brewster Kahle, founder of the Internet Archive and the Open Content Alliance, is scanning entire books that are in the public domain. His ambitious goal is to make it easy for everyone with a computer to read a book (Mills, 2006).

Bengtson (2006, ¶ 12) states that,

> Early in our history, the transition from an oral to a written culture developed over many centuries. During this slow evolution, our way of thinking fundamentally changed, from repetitive, oral, memory-based knowledge to visual and spatial memory based on the physical object of the book. For centuries books were simply the most efficient and usable technology for the transmission of culture and ideas. We need only reflect on the past few years to sense how quickly and radically the ways that we write and communicate have been and will be altered.

The universal library dream of having all books online reminds me of Jorge Luis Borges' short story "The Library of Babel," where the author describes a world where having access to all the information in the universe is useless unless you are able to retrieve it in a systematic manner. As we get closer to the concept of the universal library, information (books, movies, music, audio, photographs) will all be digitized, linked, and tagged so they interrelate with each other.

Conclusion

> Despite the developing virtual library, students learn how to research best when they can communicate with an expert who can model the mental processes of information retrieval. As resource experts, we understand how to integrate digital information tools into the research process and we can model how and when they might be relevant to learning. ("Changing Role of School Librarians," n.d., Section 4, ¶ 2)

Students arrive at the governor's school very bright, enthusiastic, and motivated. They already have an incredible expanse of knowledge. I want to provide them with the skills that will enable them to develop their information retrieval skills even further so they will be able to harness huge quantities of information in the future and be equipped to move on beyond even their own expectations. Future teachers hired must be able to gather, process, filter, and present data efficiently and be willing and able to adapt to the various mediums where information can be found.

Students need to be inspired by far-out dreams and goals. Students can be inspired by experiences such as:

- tapping into data that were only available in previous generations by taking a trip to a distant location,
- flying over a remote landscape virtually without getting on a plane to see it,
- using a multimillion-dollar telescope via a home computer to

access real-time NASA views of space or observe volcanic activity in Russia,
- corresponding with a scholar across the world via e-mail and get an answer back in minutes, and
- accessing facilities located in extreme environments such as Antarctica or outer space.

We won't recognize the library of the future. The children of our current students will use information in ways and formats we cannot imagine now. Linking ideas and concepts automatically by the search machine rather than just term searching is being explored now through artificial-intelligence-designed software.

It's imperative to hone our students' ability to solve problems creatively and to apply critical-thinking skills in order to pull information together. Those are the traits that will be a basic requirement to approach the future world of information—a lifelong skill. As the governor's school vision statement states, "Students of the Governor's School for Government and International Studies will be analytical learners who construct meaning from ideas and concepts and who apply these principles to changing situations in their own lives." GCT

References

Bainbridge, Carol. (n.d.). *Asynchronous development*. Retrieved November 12, 2006, from http://giftedkids.about.com/od/glossary/g/asynchronous.htm

Bengtson, J. (2006, April). The birth of the universal library. *Library Journal, 15*. Retrieved July 28, 2006, from http://www.libraryjournal.com/article/CA6322017.html

Changing role of school librarians. (n.d.). Retrieved January 26, 2005, from http://library.queensu.ca/inforef/tutorials/role.htm

Google library project. (n.d.). Retrieved July 27, 2006, from http://books.google.com/googlebooks/common.html

Hartzell, G. (2002, October). *Capitalizing on the school library's potential to positively affect student achievement: A sampling of resources for administrators.* White House Conference on School Libraries. Retrieved July 20, 2006, from http://www.laurabushfoundation.org/Handout.pdf

Jukes, I. (2006). *From Gutenberg to Gates to Google (and beyond . . .). Education for the On-line world.* Retrieved September 3, 2006, from http://ianjukes.com/infosavvy/education/handouts/fgtg.pdf

Lesk, M. (1995) *The seven ages of information retrieval. IFLANET Occasional Paper #5.* Retrieved November 13, 2006, from http://www.ifla.org/VI/5/op/udtop5/udtop5.htm

Lowe, C. A. (2000). *The role of the school library media specialist in the 21st century.* Syracuse, NY: ERIC Clearinghouse on Information and Technology. (ERIC Document Reproduction Service No. ED 446769). Retrieved January 12, 2004, from http://www.ericdigests.org/2001-3/21st.htm

Mills, E. (2006). *Brewster Kahle's modest mission: Archiving everything.* Retrieved July 29, 2006, from http://news.com.com/2102-1025_3-6087167.html?tag=st.util.print

Silverman, L. (n.d.). *Asynchronous development.* Retrieved November 12, 2006, from http://giftedkids.about.com/od/gifted101/a/definitions.htm

Tarica, E. (2006). *Schools failing dot-com kids. The age.* Retrieved July 29, 2006, from http://www.theage.com.au/news/education-news/schools-failing-dotcom-kids/2006/07/01/1151174437537.html