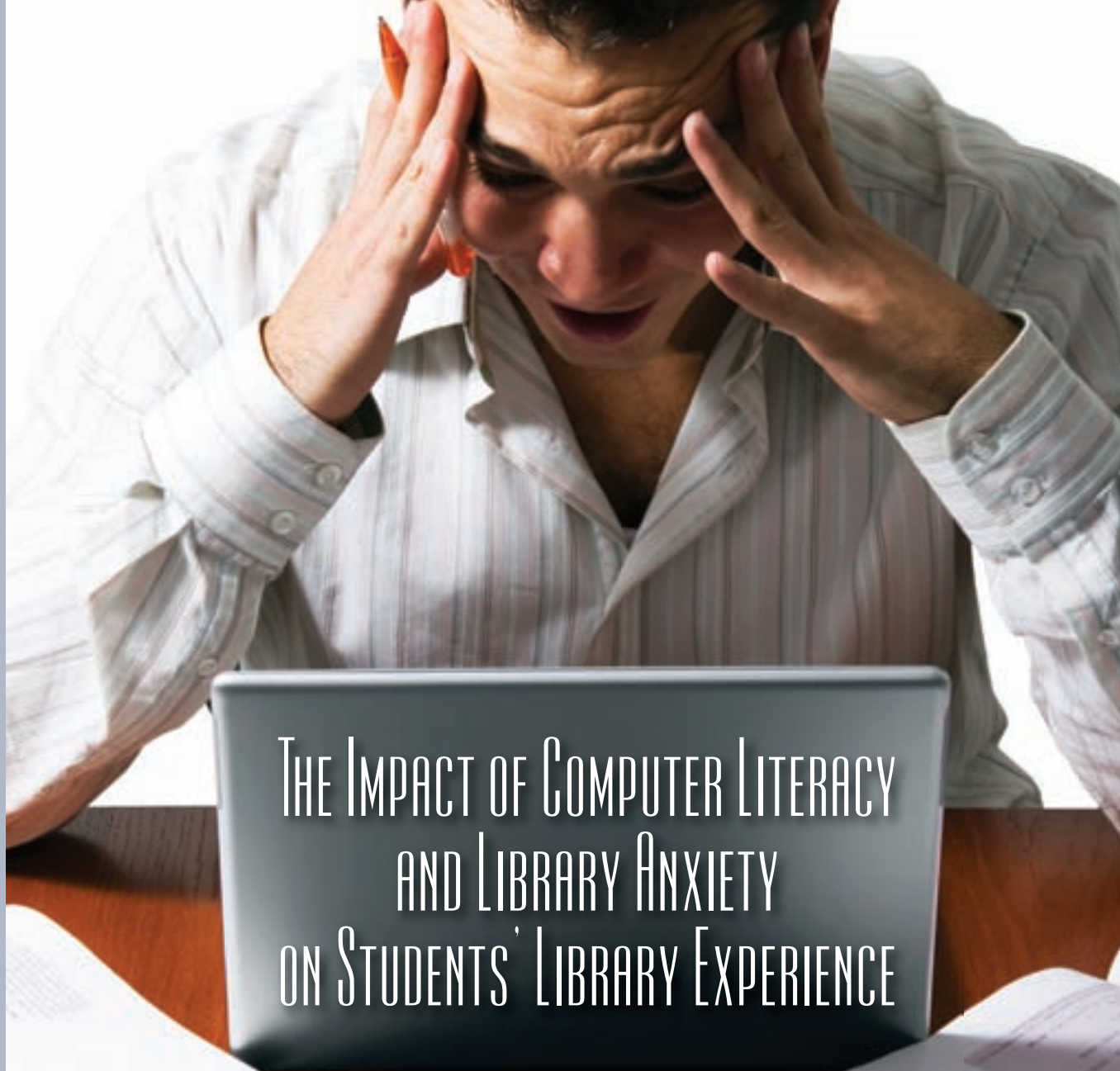Summer 2011

The Impact of Computer Literacy and Library Anxiety on Students' Library Experience

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E ven though they have grown up with technology, are college freshmen well prepared for library research, or does their computer savvy actually put them at a disadvantage? Do other factors such as library anxiety affect students' research experience? How can secondary educators better prepare their students for the leap from a small school library to a large college or university library? How can college librarians make new students' first library experience a positive one?

Impact of the Internet/Information Technology on School and Library Transactions

The Internet has affected nearly everything in education. Students need to be adept at online communication even before they arrive at college. Not only do students register online, but class readings, assignments, and communication with teachers are often managed through a class Website. The library also communicates electronically with students, sending overdue notices and interlibrary loan articles by e-mail. Students can renew library materials, read articles and books, ask reference questions, and watch library tutorials using the library's Website.

Information technologies have transitioned education from pencil and paper to computers using tools such as word processors, spreadsheets, and presentation software. Laptops have become standard equipment for students, and the few who do not own one can use the computers in the library. Keyboarding is now required for college success.

Most of today's incoming freshmen

BY LAUREN MATACIO and TERRY D. ROBERTSON

are experienced users of the Internet and other information technologies, but they have logged in primarily for social and entertainment purposes rather than to search for scholarly resources such as article and book databases. However, some international students may not have had the online experience that technologically adept peers take for granted.

Characteristics of Millennials

Students of the Millennial Generation (born between 1980 and 2000) present some unique challenges in con-

• They are team-oriented and enjoy the social aspect of working collaboratively, but may hide behind others to take the pressure off themselves;

• They are multi-taskers, but have trouble synthesizing information from many sources;

• They are quick to find information, but impatient with time-consuming tasks such as evaluating sources and distinguishing popular sources from scholarly ones.

Millennials have become dependent on Internet search engines such as Google. A Wellesley College survey found that only two percent of stu-

use the "hidden Web" of high-quality scholarly information that is available only through the library's subscriptions to scholarly literature databases.[7]

In a recent discussion on the IN-FOLIT listserv, college librarians submitted their "wish list" of incoming freshmen's library skills. The skills most often mentioned were: (1) Knowing how to find "reliable" sources rather than using Google or Wikipedia; (2) Knowing the basics of using an article database; and (3) Using advanced search techniques such as Boolean operators, selecting good subject search terms, and narrowing a topic. One of the unique problems in Seventh-day Adventist education is that there are very few Master's-level librarians in elementary and secondary schools, which places a huge burden on lower-level classroom teachers and secondary English teachers to teach research skills.

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trast with students of earlier generations. Following the Millennials, the iGeneration (born after the mid-1990s)[1] is redefining Internet use by relying on apps for entertainment and communication rather than information. Rosen suggests that this has ramifications for motivating students and may necessitate new teaching methods.[2]

According to Malvasi, Rudowsky, and Valencia,[3] some of the paradoxes that characterize Millennials are as follows:

• They are confident, but sheltered by adults, leaving them underprepared for the self-direction that college requires;

• They are achievement-focused, but expect rewards even if they haven't achieved the academic standards required at the college level; they like structure, but have depended on parents and teachers to provide it;

dents used non-Internet sources for information.[4] Though one can find a glut of information online, sorting through it, evaluating it, and selecting good Web sources is difficult for most beginning college students. In *The Chronicle of Higher Education*, Foster reported on the results of the Information and Communication Technology (ICT) Literacy Test published by the Educational Testing Service, which was given to about 1,000 college students and 1,000 high school students. The survey found that only 48 percent could not identify the objectivity of a Website.[5]

Graham and Metaxas found that students experienced difficulty recognizing trustworthy Web sources and could not distinguish between an advertiser's bias and objective fact, possibly due to their "lack of understanding of the Internet as an unmonitored source of information."[6] Wilder pointed out that students often fail to

Discovering a New World: Affective Dimensions

The transition between high school and college is difficult for many students. First, college freshmen must learn to take responsibility for themselves. Just as no one checks to see when they went to bed or what they ate for dinner, no one reminds them to go to the library or to schedule adequate time to complete their assignments. Second, they've moved into a much larger physical environment and must commute between dormitories, classroom buildings, the library, the student union, etc. The library may seem like just one small part of this new world, but it is an important one and a key part of their college success. Additionally, because many college freshmen were considered leaders in their secondary school, some may be over-confident about their knowledge and skills—particularly computer skills. Others feel overwhelmed and afraid to ask for help.

Relationship Between Cognitive Skills and Affective Experience

Although it is reasonable to generalize that the Millennials have good computer and technology skills and feel comfortable in cyberspace, the next

question is how they feel about the library. Recent research has explored *library anxiety*, described by Jiao, Onwuegbuzie, and Lichtenstein as "an uncomfortable feeling or emotional disposition experienced in a library setting, which has cognitive, affective, physiological, and behavioral ramifications."[8] Students experiencing these feelings struggle with a continuum of avoidance behaviors that eventually threatens their academic success. Studies of graduate students have linked library anxiety to poor research skills and assignment procrastination, among other problems.[9]

ICT LITERACY PERCENTILES

LIBRARY COMFORT SCALE PERCENTILES

Research Conducted at Andrews University

The impact of computer technology literacy on library anxiety was studied by the authors of this article in 2008 and 2009. One hundred Andrews University students at the First Time In Any College (FTIAC), senior, and graduate levels were given the "Information and Communication Technology (ICT) Literacy Test" published by the Educational Testing Service (ETS) and a modified Library Anxiety Scale,[10] which we relabeled the "Library Comfort Scale" (LCS). The I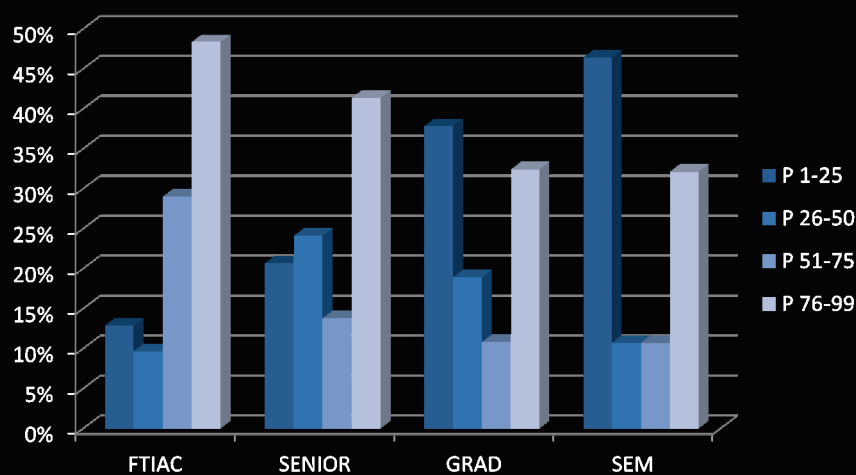CT Literacy Test, which was taken online, measured the ability of the student, within designated time limits, to evaluate and use information for typical academic purposes, utilizing standard computer tools. The ICT Literacy Test is a cognitive measure, while the LCS is an affective measure that assesses feelings about four categories: basic library procedures and policies, library staff, the physical space, and familiarity with resources and materials.

Prior to completing the research, we assumed that a correlation existed between cognitive and affective library experience. Students with low information-technology skills would be the least comfortable in the library, and those with higher information-technology skills would be the most comfortable with library use. However, the findings suggested something different. As a group, the FTIAC students scored in the highest percentiles on the ICT Literacy Test, but lowest on the LCS. In contrast, graduate students as a group had the lowest ICT Literacy test scores, but the highest LCS scores. There did not appear to be any correlation between the cognitive and affective domains as measured by these two instruments.
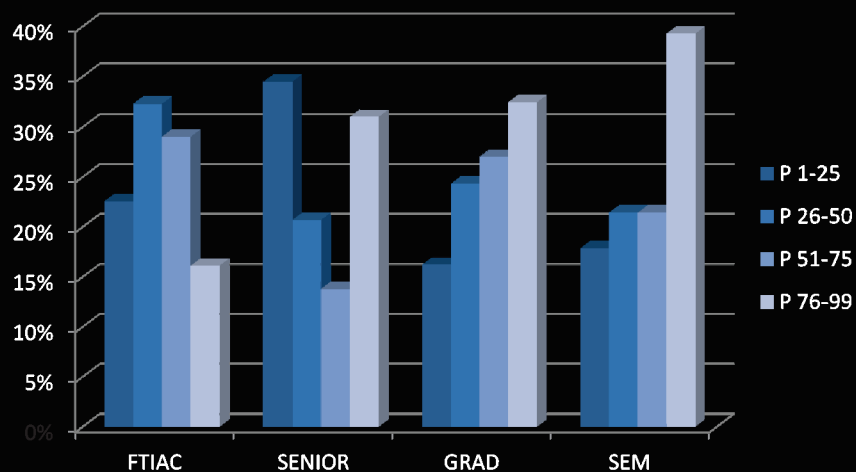
Two factors predicted success in the ICT Literacy Test—*age* and *nationality*. Students from outside North America and students older than 25 years of age did not fare as well as North American citizens and the younger Millennials. The survey results suggest that FTIAC students coming through North American education possess adequate computer skills, but that older and international students may need additional training and mentoring in computer research skills. This is more evident on the graduate level than on the college level.

One significant LCS trend was identified by our study: Educational level *alone* predicted the outcomes. Seniors were more comfortable than FTIAC students, and graduate students were even more comfortable than seniors. This finding suggests that FTIAC orientations need to address both the affective and cognitive aspects of computer use, and educators need to think in terms of what can be done to ensure a positive library experience for these new students, be-

yond simply delivering the skills/knowledge package they need.

Some Ways to Improve the Current Situation

As noted earlier in this article, the typical incoming FTIAC has had experience with computers, but mostly for social and entertainment purposes. He or she also has not spent time at a large academic library and thus feels uncomfortable there. What can elementary classroom and secondary English teachers do to teach research skills and prepare students more effectively for this important educational transition to higher education?

Suggestion 1: Collaborate

Collaboration between secondary schools and college librarians can help reduce the gap in students' cognitive skills and help allay their anxiety. After Cahoy transitioned from a school library media center to a college library, she compared the standards of the American Association of School Librarians (AASL) with those of the Association of College and Research Libraries (ACRL). She concluded that school librarians should (a) teach with an eye toward the competencies outlined in the ACRL standards and (b) reach out to other libraries in the area, collaborating at both the higher education level as well as the middle school and elementary levels.

If academic librarians forge relationships with K-12 librarians, they will learn more about their students and how to best help them "bridge the gap."[11] A field trip to a college library can introduce secondary students to the hidden Web of scholarly literature, contrasts between the physical layout and policies of a college library and the one at their school, and make them feel more comfortable about transitioning to a college or university library.

On an international level, the International Federation of Library Associations (IFLA) is an excellent resource. Presentations in their 2010 conference discussed collaboration between schools and public libraries, and in-

Article authors Terry Robertson and Lauren Matacio collaborate in a library instruction session at the James White Library Instruction Classroom.

cluded reports from Denmark, the United States, Sweden, and Jamaica.[12]

What We Do: Partnering With St. Joseph (Michigan) High School

Since 2006, James White Library, on the Andrews University campus, has partnered with a librarian and an English teacher at nearby St. Joseph High School to introduce seniors to college-level English sources. Each year, several St. Joseph classes come to the university library for two hours of instruction and a guided tour. While there, they work on research projects and look for sources not available to them in their small media center.

The collaboration between St. Joseph High School Library and James White Library has been a success. Students, librarians, and teachers have learned and grown. Here are a few comments made by the high school students: "I thought it was a good learning environment, and also we got to see how helpful the library people are. I'm not so nervous to go to college next year"; and "The most beneficial thing was just learning a new environment. I had no idea how a college library was organized."

Suggestion 2: Explore Local and Regional Resources

In the United States, official state libraries provide services such as a statewide book catalog and article databases that are free to residents. These databases can be accessed through the state library's Website. For example, in Michigan, all residents can go to http://Mel.org and enter a valid driver's license number to find books and articles. The books can be ordered through the local public library, and articles are available online through full-text databases. These services can be accessed by any teacher, no matter how small or remote his or her school or town.

Many nations have national library programs similar to Mel. For example, in Kenya, the Kenya Library and Information Services Consortium, http://klisc.org, provides a broad range of electronic journal databases for their member libraries. Their international partners include the International Network for the Availability of Scientific Publications, http://www.inasp.info/, Electronic Information for Libraries, http://www.eifl.net/cps/sections/home, and the International Federation of

Library Associations and Institutions, http://www.ifla.org/. Each of these organizations supports libraries in developing nations. UNESCO also provides excellent resources through its "Libraries Portal," http://www.unescoci.org/cgibin/portals/libraries/page.cgi.

Schools should also introduce their students to key Internet resources. For example, Google Scholar is a cyber universe where users can search for specific academic articles and book previews.

Addressing Library Anxiety in the College Library

Malvasi, Rudowsky, and Valencia studied three traditional types of instruction as interventions for freshmen suffering from library anxiety: one-on-one instruction, online tutorial, and group instruction. The intervention groups were compared with a control group, which did not participate in any type of instruction during the test period. Among students with high anxiety levels, group instruction reduced their anxiety by the greatest amount. For students with lower anxiety levels, the online tutorial was most effective and group instruction second. One-on-one instruction had mixed results.[13]

These researchers also suggest other interventions: librarian mentoring or advising; special social events such as refreshments during test week, instructional game or contest nights; outreach to elementary and secondary students; a library fair or festival/open house; classes in library research; and "student ambassadors" who serve as liaisons with new students, representing the library at orientation functions, encouraging students to use the library, and referring students to the correct person at the library when they need assistance.[14]

What We Do

Making Students Feel Comfortable in the Library. James White Library participates in several activities throughout the school year to help students feel welcome in the library. During the pre-school orientation week, incoming freshmen and new students participate in a 30-minute library tour and introduction to the library's Web page and online catalog. They meet several library employees and are entered in a drawing for prizes or coupons/vouchers to local eateries. Special activities are held in the library every spring during the campus Creative Arts Festival, and treats are distributed in the evenings during test week. Students are invited to display their artwork in the library gallery.

Increasing Computer and Information Technology Literacy. Class instruction, workshops, and special support services help students improve their technology-literacy skills. Currently, James White Library partners with the teachers of the class, Introduction to Computer Tools, which is required of most new university students. Librarians instruct 110-minute lab sessions, during which students are taught to search the library catalog, statewide catalog, two article databases, and Google Scholar, and to evaluate Websites for academic use. Group instruction is offered at the request of teaching faculty. Online and video tutorials are available from the library's Website. Consultation services provide individual help to students.

Final Thoughts

In today's higher education environment, access to information is no longer a challenge. The technology to accomplish this is ubiquitous and readily available. However, today's student is challenged more by information naiveté and information overload; thus, the library plays an invaluable role as an information mediator, mentor, and educator for the novice information seeker.

College libraries must also address the affective needs of students and find ways to lessen their anxiety. This can be accomplished both by librarians collaborating with educators at lower levels and by campus-based social activities for incoming students, so that students will feel comfortable in the library and empowered to become engaged citizens in the world of knowledge. The personal touch provided by the helpful librarian can make a real difference in ensuring a student's success. ✒

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