

## **A Virtual, Globally Dispersed Twenty-First Century Academic Library System**

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*This article presents a new model for virtual global distributed information and research services currently implemented at a completely online university. It outlines online academic library technology innovation through geographically dispersed librarians, information technologies and online course guides, an award winning library alternative to the traditional university print textbook model.*

**KEYWORDS** *online library, virtual teams, online university, online education, online learning, geographically dispersed work models, online libraries*

### ONLINE LIBRARIES IN A VIRTUAL ENVIRONMENT

Although many people think of librarians as working in a physical place where they interact face-to-face with patrons and their library colleagues, the Internet and other communication technologies have changed this traditional paradigm (Duncan, 2008). The ability to provide library services using a remote staff has becoming a reality at American Public University System (APUS) where librarians all work in a virtual work environment (Figure 1). This means they choose their own location to perform their work duties, whether a coffee shop, home office, or the beach. Online librarians can also set a majority of their own working hours, allowing for much flexibility in work schedules, with the exceptions of virtual reference desk shifts and when attendance at a teleconference is needed.

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The screenshot shows the main portal of the American Public University System Online Library. At the top, there is a blue navigation bar with the 'Online Library' logo and the text 'American Public University System'. Below this, there are links for 'Home', 'Article Databases', 'Books/E-Books', 'CampusGuides', 'Tutorial Center', and 'HELP/FAQs'. The main content area is organized into several sections:

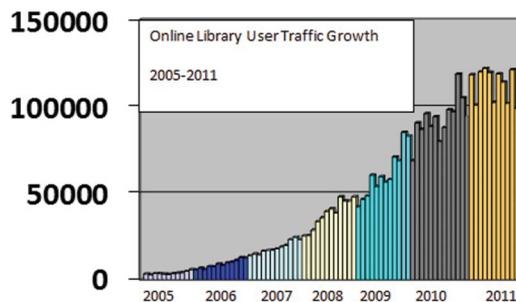
- About Online Library**: A sidebar on the left with links for 'Mobile Tools', 'Welcome Slide Show', 'Starting Research', 'Course Materials & Bookstore', and 'Faculty Support'.
- Articles & Databases**: A section with a magnifying glass icon, titled 'Articles & Databases--Product details', with the subtext 'Find a Journal, Search Multiple Databases: Main Suites--EBSCO, ProQuest'.
- Books & E-Books**: A section with a book icon, titled 'Books & E-Books', with the subtext 'Online Book Catalog, Ebrary Library, ACLS Humanities'.
- Program/School Portals**: A section with a building icon, titled 'Program/School Portals', with the subtext 'Arts/Humanities, Business, Education, Management, Public Safety, Science/Tech, Security/Global Studies'.
- Tutorial & Student Studies Center**: A section with a lightbulb icon, titled 'Tutorial & Student Studies Center', with the subtext 'ADA/508, Information Literacy, Style Manuals, Syllabus Archives, Thesis/Capstone Manual, Web 2.0'.

In the top right corner, there is a search bar labeled 'Search AquaBrowser' and a 'Grid View' button. Below the search bar is a box for 'AquaBrowser' with the text 'Simplified Search Engine covering bulk of the resources on the left'.

**FIGURE 1** American Public University System online libraries main portal, 2012 (color figure available online).

To understand the online information services and online help environment described herein, a brief background on APUS is needed. APUS began as the American Military University, offering graduate-level courses in Military Studies in January 1993 and had a total enrollment of 18 students. The first class graduated in 1996. Growth has continued logarithmically to 2012, when annual enrollment figures topped 120,000 registrations (Figure 2).

The viability of a fully online university is demonstrated by this institution, which now includes 6 schools, 80 undergraduate and graduate degrees, and 69 certificate programs variously regionally and nationally accredited. There are now two institutions under the APUS umbrella: the American Public University and the American Military University. The university employs more than 1,800 geographically dispersed global faculty, as well as a large online professional library staff, including 20 geographically



**FIGURE 2** American Public University System online libraries user traffic: 2005–2012 (color figure available online).

dispersed online librarians. APUS is now also a relatively new paradigm for universities because it is a publically traded corporation (NASDAQ: APED).

To make APUS's virtual library work environment a new model for academic libraries in the twenty-first century, multiple factors work together. APUS provides each librarian with a laptop computer and access to the institutional Content Management System. All librarians have access to the online library and the university classroom learning management system: Sakai. Springshare products, CampusGuides, and LibAnswers are cloud-based, allowing for virtual group collaboration.

Technically, the APUS Library is an academic library supporting faculty, staff, and students in an online, asynchronous, for-profit educational setting. The library's collection consists of licensed e-resources supporting various programs offered by the university. The library offers 150,000 licensed e-books from nine different vendors, 42 online full-text aggregators, multi-media streaming video databases, and more than 35,000 full-text journals with a full suite of information discovery applications including Aquabrowser, Serials Solutions 360 Journal search, and A-G Graphics Online Book Catalog. Accompanying the virtual e-book collection, the library also possesses a physical collection of 3,000 military-related books and a burgeoning archival collection focusing on the universities' specialty of security-related studies. Notably, the archives also houses former Army Inspector General Richard Greenleaf Trefry's complete archives.

The library's virtual presence is global, with an accompanying physical base in Charles Town, West Virginia, but is also technologically disaggregated in the cloud, with an online catalog, information discovery tools journal aggregator, databases, and course guides that are all served from geographically disparate U.S. and global server locations. The primary way APUS's globally dispersed student body accesses and envisions the library is through the libraries' virtual online Web presence and online gateways, available through the universities' learning management system. The library Web site currently sits behind the instructional firewall and institutional gateway available to all students and faculty through a foregrounded link in the online classrooms. Because the digital infrastructure of an online university consists largely of Web pages, library use is uncharacteristically high because the university consists of essentially the online classroom and the online library—the main curricular/online learning components. The Web site makes all traditional library services available virtually, including both an online tutorial center (Figure 3) and various traditional library functions, such as research help and interlibrary loan, completely migrated to virtual arenas.

The smaller physical library and archives in Charles Town house APUS's archival collection. This serves regional and national accreditation purposes, is open to the local community, and is found on the ground floor of the university's constructed academic building. Staffing of the library is reflective

**Online Library** American Public University System

Home | Article Databases | Books/E-Books | CampusGuides | Tutorial Center | HELP/FAQs

**Information Lit & Style Manuals**

- ▷ Research Primer
- ▷ Open Web Searching
- ▷ Deep Web Searching
- ▷ College Research Writing
  - ▷ Writing for the Web
- ▷ Style Manuals/Citations
  - ▷ Approved Manuals
    - ▷ APA
    - ▷ Bluebook
    - ▷ Chicago/Turabian
    - ▷ MLA
  - ▷ RefWorks

**Open Web--Advanced Research**

*Archives & Manuscripts*

*Articles/Journals*

- \* Dir. Open Access Journals
- \* ISN (IR & Security Network)
- \* Scirus (Science, Medicine)
- \* SSRN (Social Science)

*Dissertations*

*E-Books (Open Web)*

*Government Documents*

*Military Libraries*

**Tutorial & Student Study Center**

Returning or new to the university environment? Looking for study help?  
**Welcome to the Tutorial Center--Click for Contents**

Universities are not easy--especially for those returning to school or struggling with the new intricacies of the Web Information Literacy. The Tutorial Center offers tools and support personnel to help acclimatize. It addresses both traditional and emerging skills that are required for success in research and the classroom--as well as setting you apart on the modern job market. (For help with the Online Library--see: **Getting Started**, for specific academic programs--See: **Department/School Portals**)

**Getting Started--Introductory Tools**

**Mini-OWL (Online Writing Lab)**

1. Collegiate-level writing is the single most important skill for most students
2. Review the **College Research Writing** tutorial:
  - ▷ **Book Reviews**
  - ▷ **Briefs--Legal**
  - ▷ **Lab Reports**

**Mini-Math Center**

The University has developed a series of **instructional videos** to illustrate a wide array of mathematical problem solving.

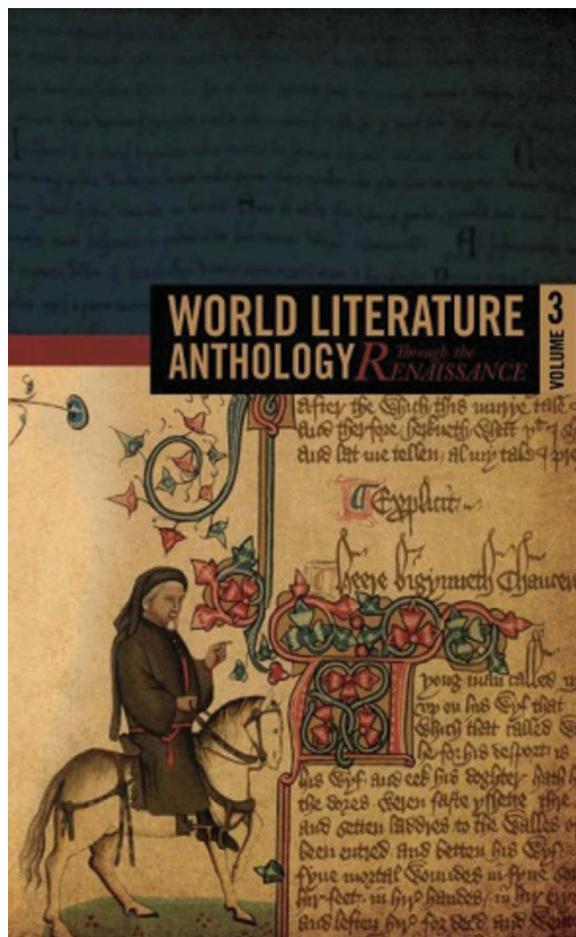
- ▷ **Algebra**
- ▷ **Calculus**

**FIGURE 3** American Public University System online library tutorial center (color figure available online).

of the nature of our library and university. There are 20 part-time librarians who work remotely, approximately 15 to 25 hours each week, staffing the library for help approximately 18 hours per day, seven days per week. Librarians act as subject specialists and program liaisons and cover the extent of virtual reference services, including inter-library loan, basic online classroom questions, or routing other questions to appropriate university parties. All of the librarians report to the on-site library director who oversees operations, human resources, and coordination with the wider online university and programmatic needs. This heterodox allocation and synthesis of traditionally separate university divisions allows for synergies and collaborations otherwise not possible in a more traditional environment, including making use of the library resources as direct curriculum replacement, creating both a cost-saving measure and a return of the academic library to historical foundations (Figure 4). The current potential for library, university e-press, and e-textbook synergies is enormous (Uzwysyn, 2012).

## APUS ONLINE LIBRARIAN DUTIES

The part-time online librarians share responsibility for virtual reference desk services and a host of other duties. To provide virtual reference duties to a globally diverse student and faculty body, geographically dispersed librarians are scheduled with overlapping e-mail addresses. This provides wider



**FIGURE 4** American Public University System e-press/library-created electronic course materials (color figure available online).

synergies and coverage for APUS faculty, staff, and students. When scheduled for the virtual desk, the librarians are responsible for covering several library service points, including e-mail, a Semantic question and answer knowledge database (LibAnswers) with the option of question submissions, and an array of social media including Facebook and Twitter.

Another shared responsibility consists of program liaison duties. Like more traditional university libraries, this includes advisement on collection development issues, advanced research assistance for graduate students, and accreditation programmatic resources reviews. The liaison duties include the creation of virtual pathfinders and direct course curriculum textbook replacement, using Springshare's CampusGuides product, at the course and program levels. Creating guides is a key component of each part-time librarian's responsibilities, and the guides have become a cornerstone in the

universities' innovative online multimedia curricular replacement focus. The guides' uses range from secondary bibliography to research resources to direct curriculum textbook replacement.

In addition to these shared duties, the online part-time librarians have additional individualized responsibilities, depending on the needs of the library and the various skill sets of the librarians. Specialized cybrarians become the de facto point of contact for the various library applications that reside in the cloud (e.g., online catalog, course guides, semantic reference engine). Virtually, librarian subject specialists, in tandem with library administration, also offer school, program, and faculty education workshops through Adobe Connect and Faculty Online Meeting Forums. The system is geographically dispersed and global. The system operates efficiently through various Web 2.0 methodologies native to the online Internet environment, with social networking ancillary sites maintained by librarians such as Facebook, YouTube, LinkedIn, and Twitter.

## FOCUSING ON HELP IN AN ONLINE ENVIRONMENT

Taking advantage of the library team's distribution across multiple time zones, librarian subject specialists are able to offer prompt assistance in shifting time spans. The library uses Springshare's semantic reference engine, LibAnswers, to answer student-submitted questions and to build a searchable public knowledgebase of frequently asked research questions. As of June 2012, APUS's current installation of the Libanswers (Figure 5)

The screenshot displays the LibAnswers interface for the American Public University System. At the top, the navigation bar includes 'Home | Article Databases | Books/E-Books | CampusGuides | Tutorial Center | HELP/FAQs'. The main heading reads 'Ask a Librarian - Got questions? Find answers.' Below this is a search input field with the placeholder text 'Slowly type your question (e.g. "How do I find a book?"). Librarians are standing by to help!' and an 'Ask Us' button. A 'Useful Tip' states: 'As you type, suggested Q&As will be displayed. If none match your question, click on the "Ask Us" button and submit it.' The page shows 319 Answered Questions and includes a 'Topics' section with links like 'Books & E-Books', 'Course Materials', and 'Sakai - Searching'. There is also a 'Have a question?' section with a photo of a group of people and a call to action: 'Use the "Ask Us" button above to submit your library research and course materials questions!'.

**FIGURE 5** LibAnswers: American Public University System semantic reference engine and Sakai knowledgebase (color figure available online).

public knowledgebase featured more than 90,000 views. Libanswers has also become the primary automated resource for students wishing instant technical answers with regard to Sakai.

The libraries also broadcast LibAnswers' Q&As via social networking sites and embedded them inside the university's classrooms and in library course guides. The steady growth of followers on each site indicates that users appreciate our presence on the social web. The opportunity to reach large numbers of students at once is invaluable.

## ONLINE HELP AND REFERENCE DUTIES: QUESTIONS AND NEEDS IN A GLOBALLY DISPERSED ONLINE ENVIRONMENT

APUS librarians answer several hundred general reference questions each month. High enrollment courses, with research assignments from a large adult learner population, generate much of the traffic. For example, Foundations of Online Learning (COLL100), is a course required of all APUS students; in 2011, approximately 39,500 students took the course. To help with the flood of student questions that arrive as these assignments near, the librarians established a COLL100 set of topics in LibAnswers semantic reference engine. Each of the frequently asked questions is represented, with research tips intended to give students a solid start on their class assignment, as well as information literacy instruction that serves the students well in later courses. Because the library's Web site traffic consistently indicates that students are doing their research during the evening and non-traditional hours, this automated source of help is an important part of reference service.

In addition to the expected questions related to classroom research assignments, APUS online librarians encounter a wider variety of non-research questions than do many of their brick-and-mortar colleagues. For example, the libraries field a large number of textbook and course materials queries (e.g., "Where is my textbook located? I can't find it in my classroom!" or "My course e-book won't open. Help!"). Technology-related, troubleshooting questions are also common. To answer these questions successfully, it is imperative that librarians maintain a close working relationship with the university's electronic course materials and classroom support teams, which all work closely together.

## GEOGRAPHICALLY DISPERSED FACULTY AND LIBRARIANS

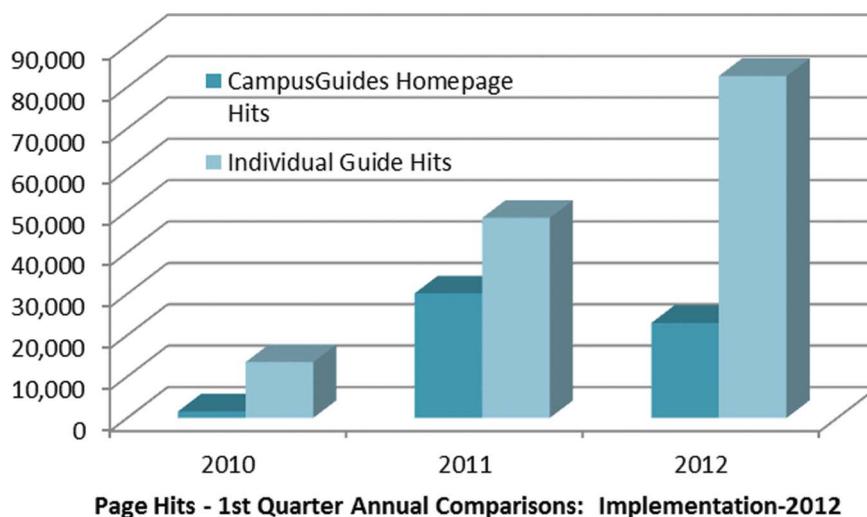
The virtual library environment has not only untethered librarians from a physical library, but also enabled the library to better manage material and human resources. One such enhancement is a geographically dispersed team model, which are comprised of members who are "dispersed across

distance and time and linked by electronic communication technology” (Sessa, Hansen, Prestridge, & Kossler, 1999, p. 1). APUS Libraries have been a vanguard in the implementation of the geographically dispersed team model in the library environment, with members dispersed around the country and world. The geographically dispersed team model has proven beneficial to the APUS Library in several ways because it provides the library with a human resources advantage, allowing the recruitment of a high level of library of subject area and technological expertise, regardless of geographic restrictions. Librarians are dispersed across the country and world and complete their work for APUS from various universities and government agencies, including the National Library of Medicine and libraries in the Middle East.

The part-time status of most APUS librarian positions also enables the library to hire talented librarians who have full-time jobs at various academic and government institutional libraries. APUS students and faculty benefit from the advanced subject matter knowledge and technological expertise, and the use of the geographically dispersed teams and virtual model has a variety of implications for libraries shaping organizational communication and ways the libraries accomplish help in the twenty-first century. Because APUS librarians and students are geographically dispersed around the globe, the majority of research questions are answered via e-mail. Librarians must learn to translate the social cues they were able to use and read in a face-to-face environment (e.g., tone and facial expressions) into their e-mails, not only answering patrons’ questions but also making them feel at ease, which is also a virtual craft more art than science and developed through long-standing experience. As new librarians are hired, they shadow more experienced online librarians, who act as mentors and guides. Research suggests that geographically dispersed team communication is often more task-oriented and that “geographically dispersed team members are less socially inhibited and less hierarchical” than members of co-located teams (Sessa et al., 1999, pp. 5–6). Less hierarchy and inhibition are positive outcomes of the model because organizations that promote innovation tend to be participatory and non-hierarchical (Ahmed, 1998).

## ONLINE COURSE GUIDES AS DIRECT TEXTBOOK REPLACEMENT

For corresponding academic programs, librarians are tasked to create related online course guides (<http://apus.campusguides.com/>). Each course guide is created in cooperation with the lead instructor for the course, guided by the course syllabus, and increasingly used as a low-cost multimedia curriculum replacement. The course guide itself links to licensed library resources at the article level and database level, as well as open access and multimedia content that serves the organization and students well as a major cost-saving measure. The Springshare Campus Guides platform allows the



**FIGURE 6** American Public University System online course guides year-over-year usage, growth, and adoption (color figure available online).

libraries to incorporate extensive video and Web 2.0 elements into APUS course guides, which fits both student preferences and the adult learner population. The platform also enables the modular use of data elements, furthering the scalability of a project of this size.

The course guides can be accessed by users through multiple points. The most important access point is directly from each APUS Sakai classroom. Teaching faculty are encouraged to link directly to the corresponding course guide from within their virtual classrooms. A secondary point of access is from the library Web site and the open Web through a Google search.

The course guides have become a key library resource for our faculty and students (Figure 6). Students use the course guides for research. Faculty use the course guides to facilitate course assignments and, increasingly, as a more effective textbook replacement (Stielow & Uzwyshyn, 2011).

## THE FUTURE OF ACADEMIC LIBRARY SERVICES: ONLINE

APUS Online libraries and librarians present a new generation and model for the academic library. The libraries have set a forward-thinking vision of academic libraries in the twenty-first century through innovative virtual teams, major use of the cloud for the library infrastructure, and increasingly online course guide adoption such as traditional text book replacement. IMS Global awarded APUS libraries its gold medal in May 2012 for best new innovative learning technology at an international learning technology competition and subsequent awards ceremony in Toronto, Ontario, Canada. In June 2012,

APUS Online libraries received an honorable mention award by the U.S. National University Technology Network for best new distance learning technology application for its online course guides initiative and forward-thinking vision for the future possibilities for libraries in a twenty-first century networked environment. Although APUS libraries exist in a for-profit online environment, the bottom line focus has allowed the libraries to move with agility, quickly develop new academic library/university synergies, and thrive on technological potential in the New Millennium that would not be possible in old guard brick and mortar environments. As the phenomenon of the online university grows, from the vanguard to wider acceptance by the established academy, online libraries expect to do the same.

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