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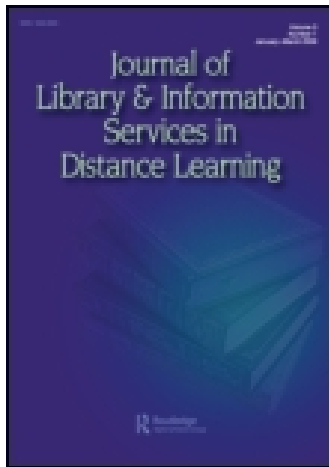
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Enhancing Mobility: Integrating New Services into Your Library's Mobile Platform to Increase Traffic

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Kimbel Library launched its mobile environment and ran it in full production for several months yet usage patterns were quite low and flat. The library only saw a substantial increase in usage when new, value-added services were integrated into this platform. Upon implementing and integrating discovery services, chat and SMS capabilities, and computer availability maps into our mobile environment the library witnessed and continues to see a steady and significant increase in usage. These services, any issues encountered in their integration, and solutions to resolve these issues are identified, and usage trends and overall increases in mobile platform usage are revealed. Web vs. native app usage trends, devices used, and other metrics and statistical information will be assessed. This article will also explore possible future enhancements to our mobile services, such as geolocation and location-based services for enhancing library instruction, tutorials, library tours, and the possible development of an augmented reality environment for bridging the gap between physical and online resources and services.

KEYWORDS *mobile platforms, mobile web apps, mobile native apps, library services, library resources*

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BACKGROUND

Coastal Carolina University (CCU) is a mid-sized public, comprehensive liberal arts institution located in Conway, SC and as of spring 2012 enrolled 9,335 students. The University offers 66 major fields of study toward the baccalaureate degree and seven master's degree programs in accountancy, business administration, education, marine and wetland studies, and writing and is now offering its first doctoral program: the Ph.D. in Coastal and Marine Systems Science. Coastal Carolina University is a part of the South Carolina system of public education and has close ties with its founder, the Horry County Higher Education Commission (Coastal Carolina University, 2013).

The University is formalizing and expanding its online education programs by the recent creation of the Coastal Office of Online Learning (COOL) which will manage all online course offerings and expand the university's technology infrastructure, while managing a marketing plan for the exceptional quality of online learning programs at CCU (Coastal Carolina University, 2013, August 6). To better support these distance and online teaching and learning initiatives Kimbel library added a Distance Services Librarian in April 2012 to serve as the point person to handle any and all online learning-related issues.

LIBRARY SERVICES

As with most academic libraries, Kimbel Library has experienced well over a decade of transformative change in transitioning from serving as a physical repository for print materials into serving as a gateway for the electronic delivery of online resources and services. Over the years, the library implemented remote authentication, enhanced interlibrary loan and document delivery operations, added link resolving and a discovery layer to the library's ever-growing collection of electronic journals and books, and provided synchronous access to librarians via online chat and SMS protocols, etc. As the first decade of the 21st century was coming to a close, mobile phone popularity was increasing at an exponential rate. As early as 2008, mobile phone usage had increased to a 61% worldwide penetration rate and mobile phone subscriptions outnumbered landline subscriptions almost four to one (Bridges, Rempel, & Griggs, 2010). As these mobile phones became Web-enabled and applications for these devices were being developed at a dizzying rate, it became evident that the vast array of services that libraries had developed for the online environment would need to be reconfigured and made functional via these mobile devices.

MOBILE TECHNOLOGIES

By the end of the year 2011 and moving into calendar year 2012, creating access to library resources and services via mobile technologies was not a particularly new endeavor for academic libraries. Since Kimbel Library was actually lagging behind the library industry curve in its mobile environment rollout it was deemed by library administration and the library technology department that there would be no need to perform a feasibility study or any systematic processes to identify need; the proof was in prior research (Paterson & Low, 2011) and more importantly the demonstrated behavior of the university's student population witnessed every day by Kimbel Library faculty and staff. Instead, a preponderance of effort by the library technology team was targeted toward identifying the best mobile environment for creating an optimal user experience and obtaining the highest return on investment for the library. Developing a mobile Web application in-house was considered as was configuring and customizing an open source package. Since the need for both a Web and native application for mobile services would best serve the library's user community the mobile platform development team also strongly considered selecting a hosted, vendor-created solution for providing the variety of library services and access to resources the library envisioned for its user community. Finally, when identifying the needs of the user and weighing this information alongside the general knowledge base of the library technology department and the amount of time and effort it would take to develop an in-house solution, it was decided that the best option for all parties was to select and proceed forward with a base package created by a vendor and leverage the library's skillset into customizing and configuring this environment to include value-added services and mobile-optimized access to resources.

Upon making this decision the library focused on an informal needs assessment that served more as a "wish list" of the features and functionality the library deemed as most advantageous to incorporate for its users. This, in turn, would aid the library in identifying the vendor that could best accommodate this preferred functionality the library hoped to incorporate:

- Integration with the library's catalog.
- Access to patron's "My Library" account.
- General information: hours, location, etc.
- Functionality for real-time access to reference services.
- Cross-platform functionality.
- User access to their preference of a Web application or a native application.

After performing considerable research the library technology team narrowed the list of vendors down to three: Boopsie for Libraries, Innovative

Interfaces, Inc.'s AirPAC, and Library Anywhere by LibraryThing. Based on available functionality, overall look and feel, scalability/extensibility, cost, flexibility for unique customizations, and overall return on investment, the library chose Library Anywhere. Several months of configurations and customizations, alpha and beta testing, and general usability testing occurred, and as the fall semester of 2012 commenced the library had its first iteration of a mobile platform replete with both a Web and native applications able to function in both iOS and Android operating systems ready for production.

PRODUCTION

The library launched a university-wide advertising and promotion effort to communicate to the university community that the library had recently unveiled a new mobile platform from which to access library resources and services. This information was conveyed via all usual and customary avenues of advertising, including email blasts to university students, faculty, and staff, paper bookmarks and table toppers, online points of access and news about this mobile interface were made available, this information along with a visual rendering of the mobile platform were advertised across the university's television system, and strategic points of access to the mobile environment were integrated into the library's existing Web site.

The library technology team felt the first iteration of a mobile platform was a reasonable one. As shown in Figure 1, the standard information that the library's in-house statistics indicated as most asked for by our user community at various service points, such as hours and location, were featured. Also included was access to library-related events, the ability for a user to check their circulation activities, a link to a low-functioning chat interface, and access to a few information resources that had been optimized for mobile devices by their respective vendors. Also notice at the top of Figure 1 that there is a catalog search field available, but it was not clear to users what was being searched, nor was it particularly intuitive that this search functionality was even available.

The library technology mobile development team has a reasonably robust administrative interface at its disposal to analyze usage trends, overall traffic patterns, and actual number of uses and total number of pages the mobile interface has served. Usage trends were monitored over several months and despite the library's best efforts at advertising and marketing through all traditional avenues and via all forms of online advertising and consistent postings to social media, and as word of mouth communication and marketing hopefully increased, a hard truth was becoming very evident: the mobile platform was not being embraced by the library's user community nor was it gaining any noticeable traction in usage with time. To paraphrase an old quote: "We built it and they did not come," and with this reality the



FIGURE 1 The library’s first iteration of its production mobile platform.

obvious ensuing question was quickly forthcoming: “Now what needs to be done?”

Figure 2 demonstrates that after the first month of artificially high traffic due to internal testing, that the mobile environment was just not being utilized as envisioned. There was a slight uptick in usage in the first month of 2013 due to the library’s marketing efforts, word of mouth, and continued internal testing, but the overall usage patterns were not justifying



FIGURE 2 Statistics for the first four months of mobile platform use.

the mobile platform's creation or cost. In informally interfacing with the student user community and obtaining information from the library's instruction librarians and via various reference service points, it was clearly apparent that there was just not enough functionality to generate considerable use. Unintuitive access to the library's catalog and the provision of

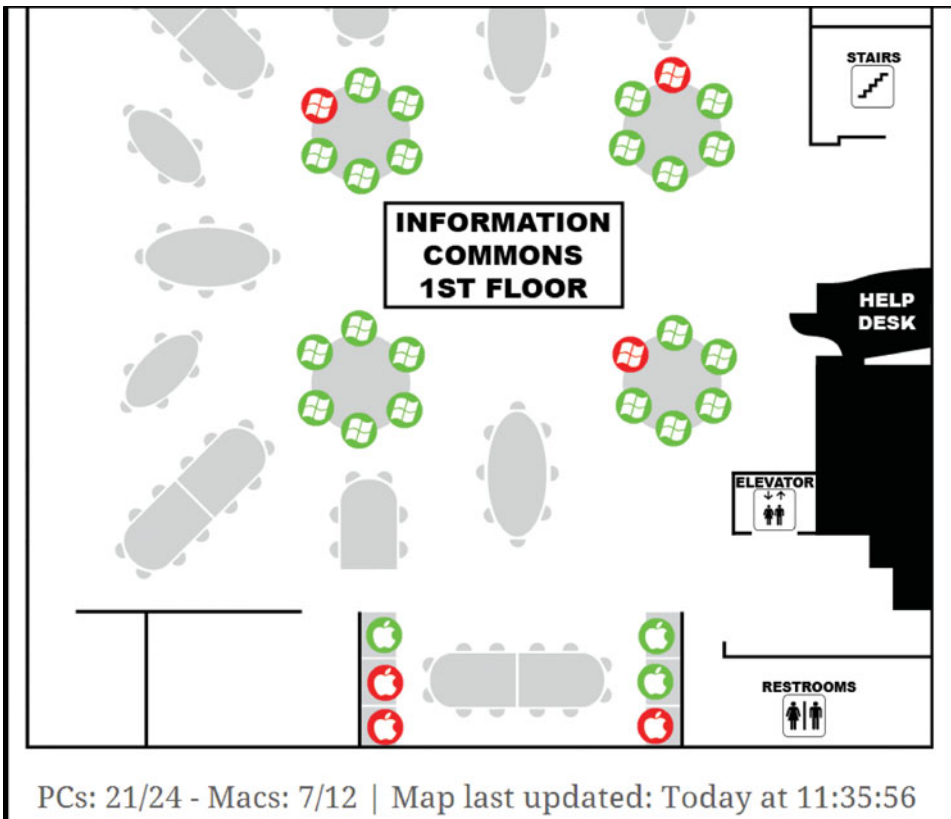


FIGURE 3 Kimbel Library's and Bryan Information Commons computer availability maps.

access to a few services and general library information were just not going to increase use. So, Phase 2 of the mobile platform rollout was to consist of identifying value-added services that were known to be of high importance to our users, providing a better chat environment, and providing more comprehensive access to the library's rich array of information resources (see Figure 3 for one of the library's most popular enhancements; <http://www.coastal.edu/library/maps/availability/index.php>).

ENHANCEMENTS

Through perhaps a bit of serendipity, the library was in the process of implementing a discovery platform independent from any mobile-related activities. Most of Kimbel Library's librarians were not particularly satisfied not only with the way access was being provided to the catalog via the mobile platform, but with the integrated library system's OPAC itself. Over the years it has proven to be cumbersome, unintuitive, doesn't provide excellence

in handling information search and retrieval queries that the library and its users demand, was limited to displaying only what the library owned or provided access to, and had just not been embraced by the library's user community. In various user surveys it was not uncommon to see words like "clunky," "not user-friendly" and "useless" used when describing the catalog's public interface. As a strategic direction the library was integrating a discovery platform into its Web presence, but once the development team realized that the discovery platform featured responsive coding for resizing the interface for any manner of mobile devices, it was obvious that the discovery layer would make an excellent addition to the mobile platform. And what was doubly exciting about adding the discovery platform was that not only was the primary search interface mobile-optimized, but the discovery layer greatly improved mobile usability for access to all of the library's resources included in this discovery service. By virtue of using the discovery platform the library could now provide access to all of its electronic resources in a mobile-optimized fashion, which proved to be an excellent enhancement to the mobile environment.

To serve as an enhancement to the location and hours functionality the development team integrated with Google maps. This not only provided a much richer interface for accessing the library's location, but allowed users to begin using geolocation vis-à-vis the library's Google presence. The inclusion of a map and geolocation was a value-added service in and of itself but it also lays the groundwork for a whole host of possibilities for future development of location-based services. Additionally, the library continued providing access to the user's library account, as it is a modestly used service across all interfaces and platforms.

Another enhancement that has proven to be well-liked by the library's user community was a new, more user-friendly chat interface that was especially popular by users who were using their smart telephones to access the library's mobile site. This new chat service also allowed the development team to include SMS capabilities to create a real-time chat environment; metrics and anecdotal information gained from the librarians working various service points revealed that the ability to text a librarian proved to be very popular as it is already engrained in the majority of mobile device user's daily activities (Kalkbrenner & McCampbell, 2011).

As with the discovery platform, the development of the library's mobile platform also profited from concurrent development of another feature that was occurring outside of any mobile platform-related work. The library had greatly expanded its physical space and in turn increased by 150 the number of computers available to our users with the opening of the Bryan Information Commons (Coastal Carolina University, 2012, August 28). Since the library and commons are the only 24/7 environments on campus, these spaces have consistently high traffic and are heavy utilized by CCU students. Therefore, access to a computer can be difficult to obtain, especially during

peak times. To partially address this issue, Kimbel Library's Technology and Systems team was in the process of developing dynamic computer availability maps to let students know in a real-time environment whether there are available computers in the commons and the library. Another well-liked feature of these maps is the identification of the types of operating systems that are available since some users prefer Macs to PCs.

It was obvious that these maps would be a valuable addition to the library's mobile platform. By embedding responsive coding into these maps users have been able to utilize these from any mobile devices to quickly ascertain whether a computer is available, and if so what type of operating systems were available in the library and information commons in a real-time environment.

The inclusion of a discovery service, a more robust chat and text environment, the addition of geolocation for maps and the addition of computer availability maps has transformed the mobile interface from a largely flat environment that provided access to the catalog and a few information resources to a highly-functional, robust environment where users can search the vast array of library-licensed resources, chat or text with a librarian in a real-time environment, and offers users the ability to utilize dynamic computer availability maps to find out if a computer is available, all from the user's smart phones or other mobile devices. The library's mobile development team and librarians in general began noticing a clear and consistent uptick in mobile platform use. But it was the inclusion of a native application to these services that remarkably increased traffic to the mobile environment.

The first iteration of the library's mobile platform, which was in full production approximately four months, consisted of only a Web application and mobile-optimized Web pages to serve as the mobile interface. The mobile platform development team, utilizing gut sense, anecdotal information, and a host of research-based information had every reason to believe that users would embrace mobile-based access to the library's services and resources by using a native application. In January 2013, the library included this native application in addition to its Web application for access to its mobile environment. Remarkably, this native application currently accounts for 83% of mobile platform use. So, the native application, coupled with the provision of these many enhancements as described above was apparently the balance of access, functionality, and aesthetics necessary to create an environment that would be embraced by the library's users.

Metrics and usage statistics have shown a clear and consistent increase in mobile platform use from February 2013, when Phase 2 of this service was launched. Predictably, the only decreases in use were in the summer months, yet use was considerably higher in these months than in Phase 1 of the mobile platform's launch (see Figures 4 and 5). Ironically, the look and feel of the mobile platform's Phase 2 interface is not considerably different from Phase 1 (see Figure 6).

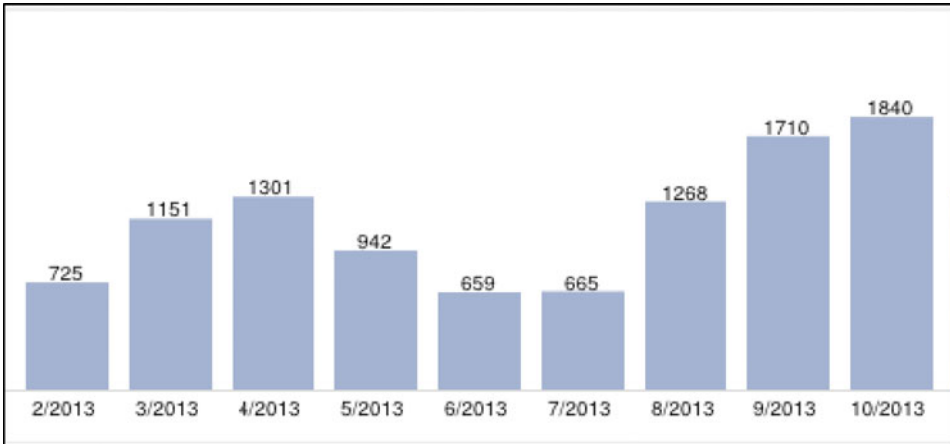


FIGURE 4 Increase in mobile platform use driven by Phase 2 enhancements.

Months					
Date	Pages	Users	Visits	Pages per Visit	Average Visit (seconds)
June 2012	156	14	54	2.89	17.4
July 2012	220	28	91	2.42	16.8
August 2012	47	12	19	2.47	4.8
September 2012	211	22	116	1.82	20
October 2012	671	224	502	1.34	11
November 2012	216	113	132	1.64	3.5
December 2012	171	57	78	2.19	4.1
January 2013	330	119	175	1.89	5.4
February 2013	725	220	323	2.24	8.8
March 2013	1,151	417	539	2.14	5.9
April 2013	1,301	372	569	2.29	7.8
May 2013	942	284	478	1.97	6.6
June 2013	659	283	373	1.77	4.4
July 2013	665	290	386	1.72	2.4
August 2013	1,268	514	635	2	3.6
September 2013	1,710	476	737	2.32	10.2
October 2013	1,840	521	800	2.3	8.4
November 2013	1,357	416	564	2.41	9

FIGURE 5 Raw data display of increase in mobile platform use driven by Phase 2 enhancements.

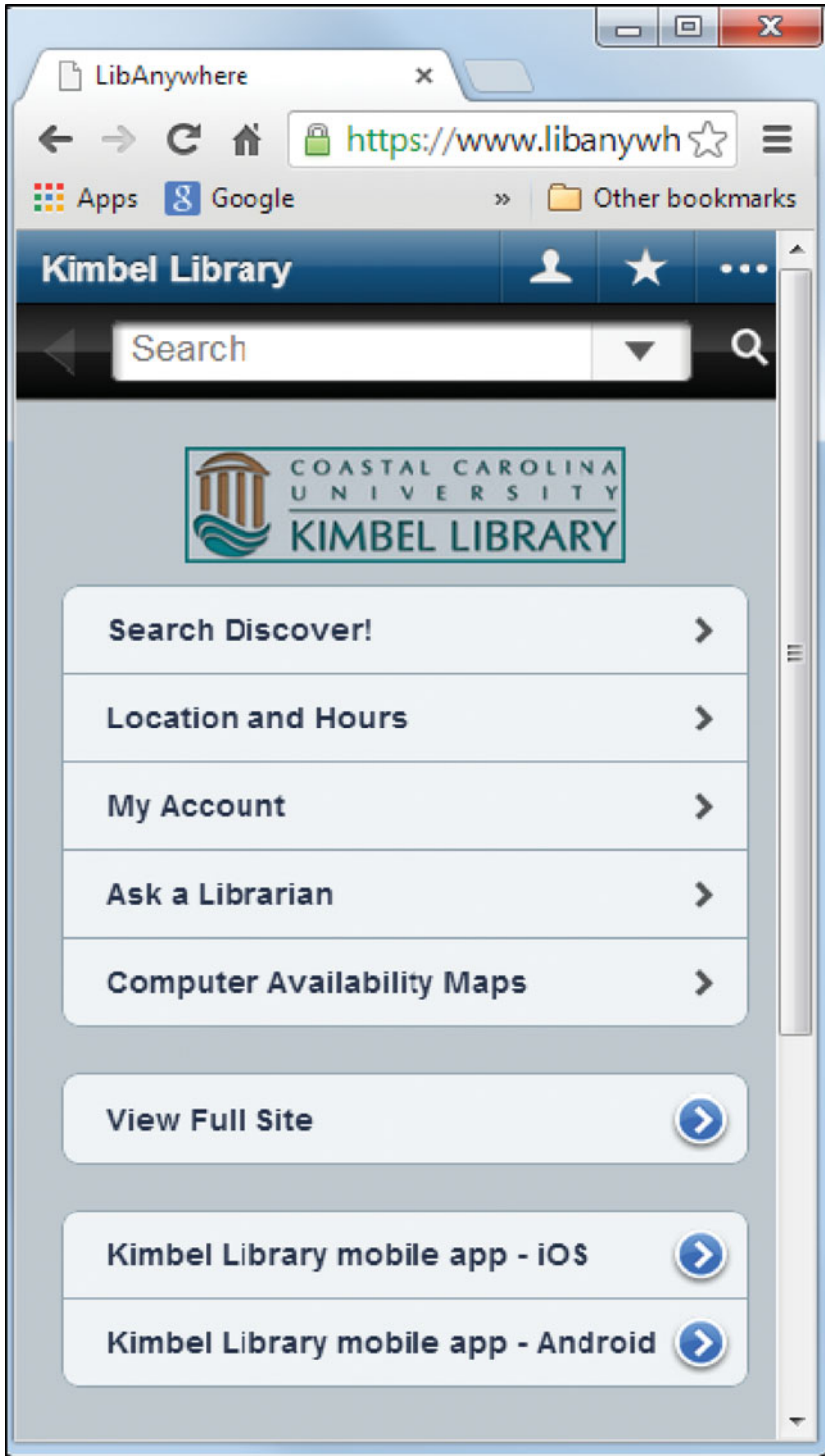


FIGURE 6 Current mobile platform interface in production.

THE FUTURE

With the introduction of geolocation by virtue of including Google maps into the library's mobile platform, along with ongoing advances in mobile technologies, the library's mobile environment will only continue to transform and offer more robust, highly functional access to resources and services. The continued growth of mobile applications that provide myriad gadgetry and functionality, using location-based services via the mobile platform for library tours and potentially enhanced access to the library's collections, using augmented reality to begin bridging the gap between physical and virtual information resources, and continued extensibility and functionality into all manner of social media are just a few of the near-future enhancements the mobile platform development team envisions (Johnson, Adams, & Cummins, 2012). As technology continues to grow smaller and faster, there will be limitless opportunities for future enhancements for making the library's mobile platform highly functional while featuring as much utility and access to library resources and services as conceivable.

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