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Tracking the Elusive Student: Opportunities for Connection and Assessment

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Abstract

At Eastern Michigan University, information about library resources
and services for Extended Programs (off-campus and online) students
was provided in a number of online locations, and was sometimes
inconsistent and difficult to manage. The library formed an internal
task force to evaluate all of the library information and instructional
materials provided to Extended Programs students. The task force
consolidated key information in one location on the library web site and
collaborated with departments within the library and around campus to
provide links from the relevant online locations. This case study
describes how Google Analytics was used to assess the use of the
revised library web site and online instructional materials by Extended
Programs students. The researchers describe examples of techniques
for using Google Analytics and explain how the data collected was
used to identify further enhancements to the information provided to
Extended Programs students.

Background

Off-campus and online students use the same online resources and services as on-campus students
for the majority of their research needs. However, they do have some unique needs. At Eastern Michigan
University, off-campus and online students (known as Extended Programs students at EMU) could find
information about the library in a number of online locations. The library web site included a web page for
Extended Programs students, which described not only special services for these students, but also listed all
library resources and services any student might use. Much of this information was repeated on other parts
of the library web site.

Off-campus and online courses at EMU are organized through a unit called Extended Programs
and Educational Outreach (EPEO). The EPEO web site included a collection of web pages with
descriptions of library resources and services, tutorials, and frequently asked questions. The course
management system for online classes, EMU-Online, included a library course visible to all students and
faculty. This course also included descriptions of library services, links to resources, and additional
tutorials and help documents. These separate silos of information were often maintained by different
people, and it was difficult to keep all sites up-to-date with consistent information and links.

The EMU Library initiated a major revision to the library web site (http://www.emich.edu/library)
during the 2008-2009 academic year. The Web Site Revision team had established a number of principles
to guide the design and continued evolution of the web site, including: avoiding duplicate content and
redundant descriptions of library services, using consistent branding and terminology throughout the site,
and providing help at the point of need. The final web site would meet the needs of a variety of audiences,
including on-campus, off-campus, and online students. The Web Site Revision team envisioned a page for
Extended Programs students that focused on information about services unique to these students.

Communication and Coordination

In March 2009, a separate group – the Integrated Library Services (ILS) Task Force – was formed

to evaluate the services the library provided to Extended Programs and Educational Outreach (EPEO) students and to coordinate information provided to these students. One priority of this task force was to ensure that this information and library instructional materials were presented in a clear and consistent manner to all students. The ILS Task Force agreed with the Web Site Revision team's model of collecting information in one location, and decided that information for Extended Programs students should be organized on the library web site and not on sites that were not under the library's control.

The integration of library resources and information for the entire campus required extensive communication and collaboration with the EPEO department from March through June 2009.   The first step was identifying the unique library needs of off-campus students and the challenges they face obtaining research resources and services needed to ensure academic success. The ILS Task Force, along with EPEO's representative to the library and their IT personnel, selected and organized crucial library information and research resources for Extended Programs students. The information fell into three major categories:

- Service information: information on off-campus access to online resources, delivery of print materials and other materials not owned by the library, and how to get assistance when needed.

- Resources information: basic links to finding materials on the web site (not duplicating lists of databases and resources presented elsewhere).

- Instructional information: links to library guides and tutorials.

Next, the ILS Task Force consolidated the presentation of this information. The task force worked with EPEO to identify library information contained on two different EPEO web pages as well as the EMU-Online course management system (CMS). These links were previously created by the EPEO's library representative and were often inconsistent with the library's web site, causing miscommunication and service difficulties. The task force collaborated with EPEO, the web site revision team, and the interlibrary loan and circulation departments to describe this information in a single location on the library web site. The groups involved agreed that all web links, including those on EPEO and other web sites, would direct students to this location, avoiding duplication of content and effort. Prior to launching the site, the web revision team consulted with sample EMU students to insure that the language used was easy to understand and free from unnecessary library jargon. The revised library web site went live in August 2009, just before the beginning of the fall semester.

Google Analytics

Google Analytics is a free web analytics service. It tracks use of web sites and provides tools for analyzing this data.   Web analytics are most often collected by using one or both of two main types of tools: server log analyzers, which analyze the logs that are automatically collected on a web server, and methods that require scripts to be added to web site, sometimes known as page tagging. Google Analytics uses page tagging; it records web site use through a JavaScript code that must be embedded in each web page or object that is tracked. Using a server log analyzer requires access to the web server logs for the server where a web site is hosted, while use of Google Analytics or similar tools only requires access to the web pages themselves in order to embed the JavaScript code.

Ledford's *Google Analytics 2.0* (2007) provides a good introduction to web site analysis and Google Analytics, although it does not include some of Google Analytics' newer features. A few studies discuss the use of Google Analytics in library settings.   Fang (2007) provides a case study example of setting up and using Google Analytics in a library web site. Kilzer (2008) demonstrates the use of Google Analytics in an OPAC, with examples of the kinds of data that can provide insights into how patrons are using the catalog. Khoo et al (2008) offer useful definitions of web metrics tools and terminology and offer insight into the use of a particular metric, session length, for analyzing the use of digital libraries. Betty (2009) describes an innovative process for using Google Analytics to track use of Flash objects, specifically

Flash-based library tutorials. Breeding (2008) uses Google Analytics as an example in his discussion of the importance of the analysis of web site use data. He recommends setting benchmarks for the successful use of a site, and using empirical evidence to guide the development of library web sites.

Eastern Michigan University Library Case Study

This case study examines the use of Google Analytics to assess how EPEO students used the newly revised library web site and online instructional materials. The library web site coordinator chose Google Analytics as a web analysis tool because the library web site is hosted on a university server, and the university web department does not allow access to log files or detailed statistics on use of the site. Google Analytics could be set up and used independently by the library.   Google Analytics was added to the library web site at the time that the new web site went live in late August 2009. This study examines data for the library web site that was collected from September 1 through November 30, 2009.

Adding the Google Analytics JavaScript code to the pages in a web site is a simple and quick process, particularly if the web site uses a content management system or templates. However, tracking objects other than web pages is more complex. Betty (2009) provides a detailed discussion of using Google Analytics to track use of Flash files, frequently used in library tutorials. JavaScript can't be inserted in certain other objects, such as pdf, video, and audio files. It is possible to use Google Analytics to track downloads of these file; steps required include correct placement of the Google Analytics code on the page and adding a JavaScript call to each link to the file (Google, n.d.a). Similarly, outbound links to pages or files on another web site can be tracked by inserting a JavaScript call to each outbound link (Google, n.d.b). The researchers used these methods to track downloads of pdf help guides and outbound links to externally hosted video tutorials.

Another drawback of Google Analytics is that analysis can only be done on data collected after the Google Analytics code has been added to a web site. Unlike a log file analyzer, it cannot analyze a preexisting log file. Due to this limitation and some inconsistencies in setting up the library's Google Analytics accounts, some components of the library web site were not tracked for the entire three month period. Tracking of pdf help guides and externally hosted videos began at the beginning of November 2009. Library research guides are hosted on a separate server from the library web site, and Google Analytics was added to these guides at the beginning of October 2009.

Once a significant amount of data had been collected in Google Anayltics, the researchers needed to determine which segments of the data would provide useful information, and decide how to analyze this data. Tracking Extended Programs students' use of a web site is not straightforward. Identifying individual Extended Programs students and examining their use of the site through Google Analytics was not possible, nor would it have been desirable for privacy reasons. Identifying these users as a group was also challenging. The researchers chose to focus on three dimensions of web analytics that could help assess use of the web site relevant to online and off-campus students: site visitors, traffic sources, and selected content.

1. Site Visitors

Identifying Extended Programs students among the site's visitors was complicated. A student might take only online courses, or only off-campus courses, but many enroll in some combination of on-campus, off-campus, and online courses. Identifying off-campus use of the web site is still a useful metric. Whether a student using the library web site from off-campus is enrolled an online course, or enrolled in an on-campus course and conducting research from home, at that moment, these students are likely to have similar needs.

Analyzing web use by I.P. address would allow for a comparison of on-campus and off-campus use of the library web site. For privacy reasons, Google Analytics does not allow browsing of its data by I.P. address.   It is possible to compile data that includes or excludes an I.P. address or I.P. range by setting

up a filter for a particular Google Analytics profile. However, the filter must be in place before data is collected; it cannot be used retroactively on data that has already been recorded.

Because an I.P. filter was not created at the beginning of the time period studied, the researchers instead used Google Analytics' Advanced Segments feature to create segments based on geographic location. Unlike filters, Advanced Segments can be used on preexisting data, and they also can be applied to multiple profiles. A "Local" segment was established that included any data from Ypsilanti, the city where Eastern Michigan University is located, and a "Non-local" segment included all other data. The Non-local segment was used to represent use of the web site related to Extended Programs. Additional geographic segments could easily be created. For example, a segment for a city or region where an international program is located could help identify use of the library web site by students in that program. Gillis (2008) offers a useful introduction to using Advanced Segments in Google Analytics.

Examining the data for the Non-local and Local segments provided information on overall use of the web site by these groups of visitors. From September 1 through November 30, 2009, the library web site received 153,353 total visits: 57% were Local and 43% were Non-local. Examining weekly patterns of use showed that Local traffic varied considerably during the week, with traffic on a Monday, the highest traffic day, often two or three times higher than on the Saturday of the same week. Non-local traffic was more consistent throughout the week. Non-local visits became slightly higher than Local visits on weekends. This pattern could be used to demonstrate the importance of making online research assistance available throughout the week, including weekends, in order to best serve Extended Programs students.
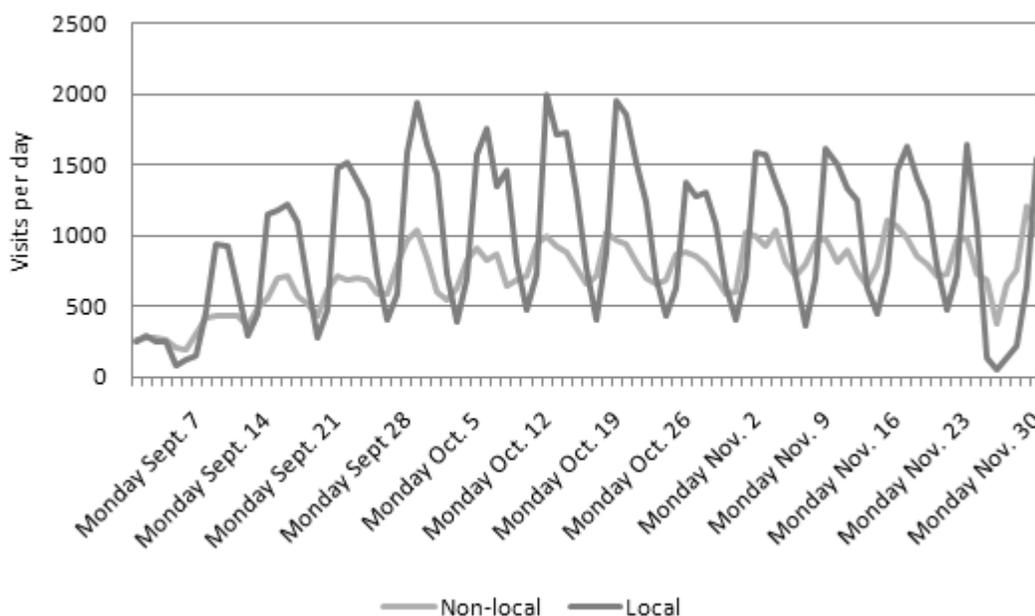

Figure 1. Web Site Visits by Day of the Week. This figure shows the weekly pattern of Non-local (off-campus) and Local (on-campus) visits to the library web site.

2. Traffic Sources

Sources of traffic to a web site show how site visitors discover or link to that site. Advanced Segments can be created to simplify analysis by particular traffic sources or a group of sources. For this segment of the web site analysis, the researchers focused on traffic from particular domains, not traffic that resulted from web searches. Traffic from two categories of sites was examined: external sites thought to be relevant to Extended Programs students, and sites that brought the highest number of visits to the library web site. The campus EPEO web site was found to be a small source of traffic to the library web site: there

were 578 visits from this source from September 1 through November 30, 2009. Only 21% of these visits were Non-local. Since the EPEO web site's mission is primarily marketing of the programs, increasing the number of visitors from this source was determined to be a low priority.

EMU-Online is the course management system used by online courses and by some hybrid courses (on-campus courses with an online component.) There were 596 visits to the library web site from EMU-Online from September 1 through November 30, 2009. This source also directed some traffic to the library research guides: 290 visits from October 1 through November 30, 2009. This represents less than 1% of all library web site traffic, and 3.5% of traffic to library research guides. The number of visits was most likely affected by the ongoing updating of the library course in EMU-Online throughout the Fall 2009 semester. Only a few links to the library were visible on the EMU-Online home page for most of the semester. Currently, links to the library are not automatically included in the standard course shell. Working with the Extended Programs office to make a library link an opt-out feature rather than a link that must be added by course faculty would likely help students to connect to the library from EMU-Online. While EMU-Online was not one of the largest sources of traffic to the library web site, 76% of the visits from EMU-Online were Non-local, indicating that the library links were of more interest to off-campus users of this site.   EMU-Online has the potential to provide an important link library resources and services for Extended Programs students.

The researchers found that a significant source of traffic to the library web site was my.emich, Eastern Michigan University's campus portal.   My.emich was the source of 17% of all visits to the library web site, and 55% of these visits were Non-local. Basic links to the library web site appear to be easy to find on my.emich. Learning that this is such a significant source of traffic to the library web site indicates that efforts to enhance the library's presence on this site could help guide Extended Programs students to library resources and services.
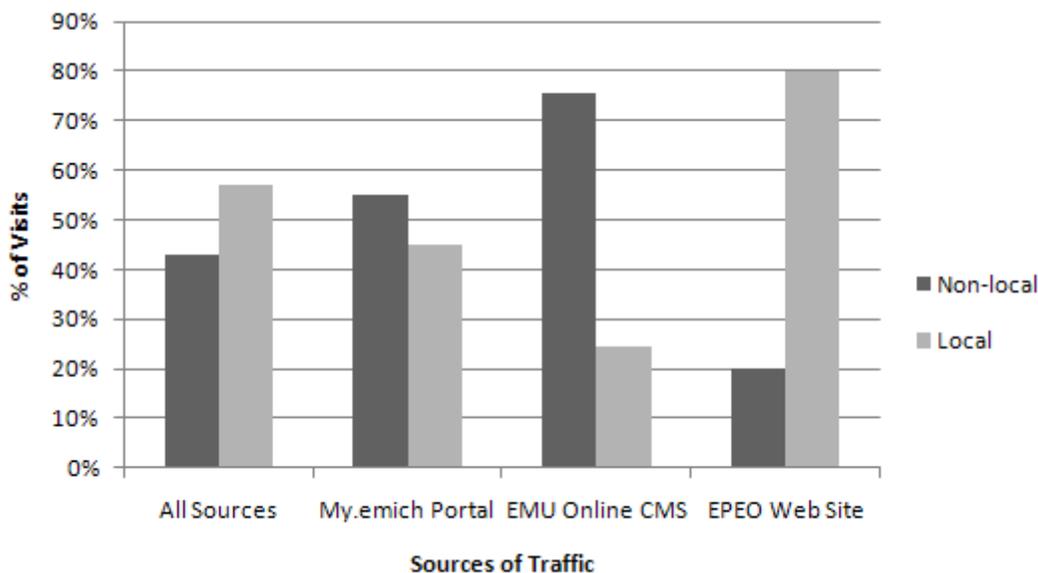

Figure 2. Non-local and Local Web Site Visits by Source. This figure shows the proportion of Non-local (off-campus) and Local (on-campus) visits from all traffic sources and selected sources relevant to Extended Programs.

3. Selected Content

The third dimension examined was selected content relevant to Extended Programs students. Analytics for any any library web site content could be examined using the Non-local and Local segments.

There were no significant differences in the content most frequently viewed by Local and Non-local visitors. For both groups, the web site home page accounted for about 54% of all page views. The library databases were the next most frequently viewed pages, at about 28% of all page views. Generally, pages categorized under "Help" on the library web site (guides and instruction) received similar use from Local and Non-local visitors. Exceptions were the research guides and pdf guides to databases. These received proportionally more Non-local than Local use. By contrast, links to externally hosted videos instead showed less Non-local use and more Local use.

Information on the library web site specifically for Extended Programs students is contained on two pages: "Extended Programs Services" which provides an overview of all services, and "Delivery of Library Materials" which details the procedures for requesting home delivery. Analytics showed 71% of all views of these pages resulted in the viewer staying on the library web site to go to another page, perhaps an indication that links to library information presented here were useful. These pages were viewed a total of 630 times from September 1 – November 30, 2009; only 21% of these views were Non-local. The total number of page views, and the low level of Non-local use indicates that more effort should be made to direct Extended Programs students to this information. Steps that could be taken within the library could include creating a direct link from the home page, and increasing the visibility of links from other pages about library services. Communication with EPEO staff about adding library links as a default on course shells on EMU-Online would be another important step.

Library web site content that has a higher than average proportion of Non-local use may indicate that this content is easier for Extended Programs students to find on their own. Research guides and databases guides, which exhibit more Non-local use, are linked at point-of-need locations, such as the database list and the home page of the web site. Video tutorials have a low percentage of Non-local use. Most of these video tutorials are not currently linked at point-of-need, but are collected on a single web page. Linking video tutorials from point-of-need locations whenever possible could help direct Extended Programs students to these instructional tools.
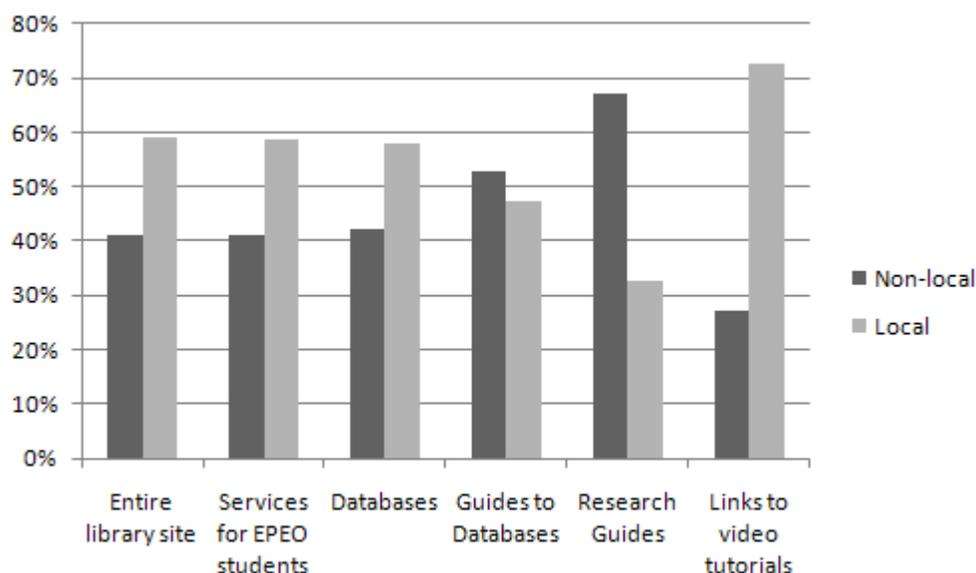

Figure 3. Non-local and Local Page Views of Web Site Content. This figure shows the proportion of Non-local (off-campus) and Local (on-campus) page views of selected web site content relevant to Extended Programs students.

For certain content, other analytics tools can provide a useful complement to Google Analytics. For example, the use of library tutorial videos hosted on YouTube was evaluated more thoroughly by using YouTube's Insights feature. Overall, the researchers found that Google Analytics presents numerous

opportunities for analysis of the use of library web site content. Advanced Segments provides a powerful tool for analyzing content by any categories relevant to a particular need, such as categories of site visitors, sources of traffic, or search keywords used to find the content.

Conclusion

Through extensive communication and collaboration with the Extended Programs and Educational Outreach (EPEO) department, the library's ILS Task Force was able to identify Extended Program students' unique needs and consolidate this information on the library web site. Consolidating the information allowed for current, accurate, and consistent information and by extension, improved service to library users. Departments across campus are now able to link students to this web page from any online location.

Google Analytics provided estimates of the use of the revised web site by Extended Program students. It showed that in general, their use of the site was very similar to that of on-campus students. Tracking these elusive off-campus and online students and identifying areas where their use of the web site differed from other students allowed the researchers to identify possible improvements to the site. These included adding more point-of-need links to library instructional materials and making links to the information for Extended Programs students more prominent.   Information gathered showed a low use of the library web site from the EMU-Online course management system. This data could be brought to the attention of the EPEO department to emphasize the need for default links to the library in individual course shells. Google Analytics also alerted the researchers to the significance of the my.emich campus portal as a source of off-campus use of the library web site. The departments that coordinate information on this portal should be targeted as future collaboration partners.

This case study demonstrated the importance of assessing use of the library web site, and the necessity of connecting with other campus departments that support Extended Programs students. Future efforts to assess use of library resources and services by these students could include conducting a usability study, adding a qualitative component to the data provided by Google Analytics.

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