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Information Literacy Programs at the University of Puerto Campuses: A Review
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Abstract
The University of Puerto Rico (UPR) is the oldest and largest university on the island of Puerto Rico. With 11 campuses distributed along the island the institution has a student population of over 64,000 undergraduate and more than 5,000 graduate students, with close to 20,000 FT & PT faculty. The institution offers a full spectrum of programs throughout its campuses from certificates, associate and bachelor degrees, to Masters and PhD. programs. The article gives a general description of the UPR’s libraries information literacy (IL) programs at eight of its 11 campuses. A search of the resent library literature revealed that nothing has been written about the information literacy programs of the libraries of the University of Puerto Rico library system. This article gives a review on the state of these programs as of the spring of 2007.

Keywords
Information literacy; embedding; Puerto Rico

1. Literature review
With the advent of the new paradigm of information literacy, which has taken over higher education, and the new era of electronic information brought up by the Internet and the World Wide Web’s information explosion, academic libraries and librarians have taken over the task of teaching and training library users in the intricacies of using the new universe of electronic resources where information can be accessed. Training in information literacy, has become part of critical thinking and new life-long learning, and colleges and universities are required to train its students, faculty and staff to master the new paradigm. Information Literacy has become one of the main parameters by which academic institutions are been evaluated when undergoing their accreditation process.

As of today, all academic libraries and almost all public libraries have created their own information literacy programs in order to help their users how to recognize and define their information needs, determine the where to look for the information being sought based on the availability or resources, perform their own searches and determine the usefulness of the information obtained. Library users and patrons are also being trained on how to evaluate web sites, communicate their findings and interpret the information obtained.

Many colleges and universities are making information literacy part of their curriculum requirements for the academic programs and more and more academic faculty and librarians are collaborating in the training and dissemination of information literacy skills. Libraries and librarians are becoming more involved in curriculum planning at academic institutions as part of this new trend. Libraries are becoming partners with academic

departments across the educational spectrum in order to deliver the training and skills necessary to master the world of information seeking.

A review of the current library literature revealed that during the past 20 years very little has been published or researched about the instructional programs of the libraries of the academic institutions in the island of Puerto Rico. Through this article the author will try to bring some light to what has happened with the library instructional programs (better know in the past as bibliographic instruction), at the University of Puerto Rico campuses libraries.

2. The University of Puerto Rico
Founded in 1903 the University of Puerto Rico or UPR is the oldest institution of higher education on the island of Puerto Rico. Although not a state, Puerto Rico has been a US territory since 1898, and UPR is operated and administered like any other university system in the US, (in 1908, the United States government extended federal financial support to the University of Puerto Rico as part of the Morill Act, thus making the UPR a land-grant university). The system undergoes regular accreditation reviews from the Middle States Association of College & Schools. Its 11 campuses are distributed along the island at the cities Aguadilla, Arecibo, Bayamon, Carolina, Cayey, Humacao, Mayaguez, Ponce, Rio Piedras, Utuado and the Medical Sciences Campus also located in Rio Piedras.

The main campus and the biggest of the system, is the Rio Piedras campus (located in the municipality of Rio Piedras, which is part of the San Juan metropolitan area), with a student population of more than 20,500 and a faculty of over 1,000. The Rio Piedras campus also has a law school with its own separate law library. With the exception of the Rio Piedras, Mayaguez, and the Medical Sciences campuses, all other campuses were considered community colleges until the early 21st century when the Board of Trustees of the University granted them full-university campus status and complete campus autonomy.

Each campus has its own library to serve its student and faculty population and operates independently of the other campus libraries. There is a council of library directors where all of the libraries of the different campuses are represented and where common problems and projects are discussed and coordinated. All the libraries at the 11 campuses are completely autonomous in terms of their functions and only have to report to the administrative authorities of their respective campuses. The only exception to this is at the University’s main campus at Rio Piedras, were there are several library branches within the campus serving different schools and academic departments all under the umbrella of the central administration.

3. The survey instrument
A survey instrument was devised specifically to carry out the work of compiling quantitative data on each of the library instructional programs at each campus. The results of this survey comprise the bulk of the article. The survey instrument was created by the author using personal experience as a guide for its format and questions

and taking some direction from some of the articles mentioned in the bibliography of this article. The questionnaire was divided into five main sections:

1. **General information about the library and the campus**;
   a. questions included names of the library director and the person(s) in charge of the information literacy (IL) program;
   b. programs offered, certificates and degrees conferred at the campus;
   c. number of staff employed by the library, (faculty, professionals and support);
   d. library’s annual gate count, library holdings (print and electronic, number of databases, etc);
   e. number of students registered at the campus, and size of 1st year class.

2. **Quantitative description of the Information Literacy program**;
   a. questions included how many years the program has been active,
   b. the average number of information literacy classes offered every semester;
   c. average number of students participating in the information literacy program,
   d. number of faculty and other library personnel that participated in the program;
   e. does the library have an instructional designer for the creation and design of the library’s instructional initiatives, and if not were there plans to hire one,
   f. the average number of students per information literacy class;
   g. does the library provide for classroom space in its facilities to conduct the information literacy classes or were classes taught outside the library;
   h. does the library have the appropriate technologies to support its instructional program (i.e., projectors, teaching software, smart boards, broadcasting & monitoring software, etc),
   i. is the Information Literacy program part the university curriculum,
   j. if not were there any ongoing initiatives to this purpose;

3. **Topics and issues covered in the information literacy program**:
   The questions in this section included inquiries on the following topics:
   a. does the institution conduct an assessment of the information literacy, computer and bibliographic skills of 1st year students when they arrive,
      1. if yes was this assessment administered electronically (via web-based technology or via written instruments),
   b. does the library offer information literacy tutorials electronically via its Web page;
   c. does the library maintain statistics on the usage of these electronic tutorials,
   d. as part of the information literacy classes are plagiarism and copyright law covered,
   e. is literature assessment part of the information literacy program,
   f. is the program also designed for bilingual students, etc.

4. **Efforts being made to promote the IL program within the institution**;
   Questions in this section were related to the way the libraries promoted their library instruction programs:

a. how do they advertise their instructional services, do they use flyers, institution-wide e-mails, electronic bulletins,
b. how much interaction do the libraries’ teaching faculty have with academic faculty and are these contacts used to promote the libraries’ instructional programs,
c. are campus-wide publications used as part of the programs’ marketing strategies, if so how often are these used, (monthly, weekly, once-per semester, etc.); campus-wide mailings or library newsletters?
d. what efforts if any are been made to integrate information literacy as an integral part of the institutions’ required curriculum.

5. Evaluation or assessment of the program
The last part of the questionnaire was devoted to inquiring about the efforts been conducted to evaluate the program and to ascertain the type of support that the programs were receiving from users and administration. Questions included:
a. is there a regular assessment of the program,
b. are students and other participants of the program being asked to fill out evaluation questionnaires after the conclusion of the IL classes,
c. are the libraries asking faculty to evaluate the classes, and students that participate in the classes separately;
d. are participants of the program being asked to rate their interest in the program,
e. the amount of support the academic faculty has been giving to their information literacy programs measured by the number of sessions being requested,
f. the amount of support that the libraries have been receiving from the institution’s central administration for their IL programs,

They were also asked to evaluate the technology and physical spaces available in the library and outside the library to support their information literacy programs.

3.1 Campuses not included
The Medical Sciences campus was not included in the study, this campus houses the UPR’s health sciences professional schools of medicine, medical technology and dentistry and they were considered outside of the scope of the survey, which was aimed at the libraries serving the undergraduate and graduate programs of the University of Puerto Rico.

The Library of the Humacao University was not included in the survey because the director of the library’s instructional program was not available at the time when the interviewing process took place; the Utuado campus library program was not included either because every attempt to make contact with the library failed. At the University’s Rio Piedras campus the survey was only administered at the libraries of the Education, General Studies schools and at the main library of the campus the Jose M. Lazaro. Because of IRB permission conflicts it was not, possible to conduct the survey at the
Natural Sciences library, which serves the biology, chemistry physics and health related sciences departments.

4. IL programs of the University of Puerto campus libraries: findings
Information Literacy programs (“Programs de Instruccion al Usuario” or PIU in Spanish), are aimed at training students, faculty, and other library users throughout all campuses on how to make the best and most efficient use of all information technology services available through the libraries. The fundamental or main objective of the different PIU programs is to develop and reinforce the informational skills necessary to use effectively the bibliographic resources available to library users throughout the different libraries and for the users to become self-sufficient in the search for information during their academic careers and throughout their lives.

The Information Literacy programs of each library covered topics from basic OPAC searching (the entire University of Puerto Rico libraries share the same OPAC system, a Horizon Information Portal 3.06 by DYNIX), basic and advanced database searching, Internet searching, basic and advanced bibliographic instruction, writing style seminars, etc. At most, campus libraries classes are scheduled in coordination with faculty in order to support the informational needs of each class. A few of the libraries surveyed, like the libraries of the Cayey and the Mayaguez campuses, have been able to advance their Information Literacy programs to the point that information literacy is now part of the university’s curriculum. At both campuses, several credit-courses on information literacy have been created and integrated to the institutions’ curricula. By the spring of 2007, the Cayey campus library were teaching (4) 3-credit full-semester courses which are part of the requirements for graduation for the students of the chemistry and biology academic bachelor programs.

At the Mayaguez campus the library offers (3) 3-credit full semester courses in information literacy. These courses unlike the ones at Cayey are only elective courses but demand for registration on them is very high. In addition, the Carolina campus library has been successful in integrating information literacy as part of the requirements for graduation in the institution’s curriculum and students are required to take information literacy classes taught by the library as part of their graduation requirements.

At the other campuses, the Information Literacy Programs are very active with an average of 74 classes per year per campus. The Rio Piedras campus libraries teach the highest total of Information Literacy classes reported with an average of 179 sessions per year, while the Aguadilla campus teaches an average of 20 Information Literacy sessions each year. The average number of students attending information literacy individual sessions for all campuses is 17, and on the average, the information literacy program of the each library has been active or in existence for the last 9 years.

The average number of librarians who are actively involved in the information literacy programs in each campus library is six, with the Rio Piedras campus having the highest
number of librarians at 18; and the Carolina campus library at the other end of the spectrum with only one librarian serving their Information Literacy program.

5. Instruction literacy programs by campus

5.1 University of Puerto Rico Mayaguez Campus (RUM)
The Mayaguez Campus or RUM (Recinto Universitario de Mayaguez) offers the full spectrum of college programs from certificates and associate degrees to bachelors’ degrees in all academic disciplines, Masters and PhD programs. There are more than 12,000 students, with each 1st year class of approximately 3,000 students. The library employs 75 full-time employees of which 21 are librarians with faculty status. The Information Literacy program at the Mayaguez campus library is headed by Professor Wanda W. Perez. Under the name of Center for the Development of Research and Bibliographic Information Skills (“Centro para el Desarrollo de Destrezas de Investigacion Bibliografica e Informatica”, CEDIBI in Spanish), the Center was created in 2004 and offers an average of 106 information literacy classes annually, taught by 6 faculty librarians to the academic departments of Arts and Sciences, Agriculture, Engineering and Business Administration. The number of students per class fluctuates between 15 and 25 per class with an average of 17.5 students. Aside from the “on-demand”, IL classes specifically requested by the academic faculty to supplement and support their class syllabi, the Center offers three 3-credit elective IL courses that are part of the institution’s curriculum. Topics covered in each IL class include copyright law compliance, plagiarism, assessment of the literature and research results, search strategies, how to choose the appropriate databases according to the information being sought, database-specific search engine features, web site evaluation, etc. The Center has two classrooms in the library building equipped with the latest technology in teaching hardware and software, including state of the art projectors, smart boards and teaching and broadcasting monitoring software. The Center also offers the option of going to regular classrooms to offer the information literacy classes.

The Center advertises its Information Literacy program with an aggressive marketing campaign on campus via electronic bulletin boards, distribution of fliers, and campus-wide e-mail outreach efforts. At the moment, the Center does not offer any online tutorials but it is in the process of developing these.

5.2 University of Puerto Rico Cayey Campus

The Cayey University has a student population of approximately 3,400 students with an average 1st year class of 750 students and the academic programs offered include associate and bachelors’ degrees. The campus library has a staff of 29 full-time employees of which nine are full-time faculty librarians. The information literacy program is run by two librarians although all librarians participate in the program. The program is under the direction of Professor Magda Perez Vargas and it has been active since 2003. As of the spring of 2007, the instructional program of the library had succeeded in integrating information literacy into the curricula of the academic programs of chemistry and biology. Students graduating with a BS in biology are required to take a 3-credit information literacy course developed in cooperation between the chemistry

and library faculty, and designed and taught by the library faculty. Students enrolled in the chemistry department are required to take (3) 3-credit information literacy courses during the first three years of their 4-year program in order to complete the requirements for graduation from the BS in chemistry program. Other departments taking advantage of the library’s instructional programs are the Humanities, English Spanish and Hispanic Studies departments. The library’s instructional program offers other IL classes, which are taught when requested by the academic faculty as a supplement to their course’s curricula.

On average, over 700 students participate every year in all classes and courses offered by the instructional programs of the library. Class sizes average 25 students per session. Librarians usually go to the classrooms to teach their information literacy sessions. Sessions cover a range of topics including database selection to plagiarism and copyright law compliance, results assessment, database-specific features and searches and search strategies.

The library’s instructional services department has developed, under Ms. Vargas’ guidance, a very aggressive marketing program to reach all academic departments in order to promote its instructional services by using flyers, university bulletin boards, campus-wide emails, electronic bulletins and campus-wide publications. The library offers an assessment test to new students to evaluate and assess their bibliographic and computer skills when they enter their programs during their 1st year. This test is taken by more than 600 students each year. Results are used as part of the information used to prepare the information literacy classes of the library.

5.3 University of Puerto Rico Ponce Campus
The Ponce campus library headed by library director Professor Roberto Colon PhD underwent a major renovation during 2007. Information literacy classes were offered on-site at the classrooms or in a temporary Internet lab set-up by the library in a separate campus building. Two librarians out of a professional staff of nine run the Information Literacy program. At the time that the survey was conducted, the information literacy program of the library was in a transitional stage due to the renovation project so information about the program was scattered and incomplete.

5.4 University of Puerto Rico Aguadilla Campus
The Aguadilla Campus located in the old US. Air Force base of Ramey Filed in the city of Aguadilla offers only Associate and Baccalaureate degrees to a student population of approximately 2,900 students. The Information Literacy program of the Aguadilla campus library is a small one with an average of 52 sessions taught per year. The average number of students attending information literacy classes is approximately 18 resulting in approximately 1000 students participating in the program campus-wide. Classes cover all aspects of plagiarism, copyright law compliance, assessment of literature, web site assessment and evaluation, database searching, searching strategies, etc.

The library’s Information Literacy program is run by four professional librarians and most of the classes are held in the regular classrooms since the library lacks the facilities to conduct training sessions. Classes are offered on an “on-request” basis. The librarians running the program have designed an aggressive marketing strategy to promote the program through the use of campus-wide publications, monthly e-mails, and the use of the library’s web page to announce classes and workshops. Class evaluations of the program are conducted at the end of each session or workshop and the librarians of the program meet on a regular basis with academic instructors and professors to retool their classes to respond to the students’ needs and professor’s requirements.

5.6 University of Puerto Rico Arecibo Campus
The library of the University of Puerto Rico Arecibo campus is a modern facility run by a staff of 22 FTE employees of which 10 are professional librarians with faculty status. The Information Literacy program is run by one professional librarian, Professor Nilda Fuentes, who acts as instructor and course designer. The library’s instructional program has been active for 9 years, as of the spring 2007 semester. The University of Puerto Rico Arecibo campus has a student population of approximately 4,000, with 1st year classes averaging around 1,000 students.

First year students are required to take an assessment instrument to evaluate their computer and library skills, which is administered electronically via the library’s web page. The number of students participating in each Information Literacy class or workshop averages 25 students per session. Classes are typically taught in the library’s computer lab, which is equipped with the latest instructional technology (smart board, projectors broadcasting instructional software, etc.). Classes and workshops cover every aspect of Information Literacy from creating the appropriate search strategies, selecting the appropriate databases, specific database features, web site evaluation, literature assessment to plagiarism and copyright law compliance. The library does not offer on-line tutorials for those who are not able to attend IL classes and workshops, but it is currently working on creating such an instrument as an addition to its Information Literacy program.

The program is advertised primarily through the use of campus-wide e-mail, which is sent monthly to the students and faculty of the institution. The library also conducts regular formal and informal evaluations of the program by contacting the campus faculty and administering surveys to students.

5.7 University of Puerto Rico Carolina Campus
The University of Puerto Rico at Carolina offers only Associate and Baccalaureate degrees. Its library, the Jose P. Fernandez Miranda Library has a full-time staff of 20 employees of which eight are faculty librarians. The library’s Information Literacy program is run in its entirety by Professor Marisol Gutierrez Rodriguez, the library’s instructional librarian. Professor Gutierrez is responsible for the contact with academic faculty and the development, planning, coordination and implementation of the Information Literacy program including the content of classes and class materials.

The program has been in existence since 2005 and the average number of IL classes and workshops taught per year is approximately 180 sessions, with more than half of them been taught during the fall semester. With a total campus student population of 3,000 students, and an average 1st year class of 1,200 students, the average number of students that participate in each information literacy class is approximately 15 students per class.

At the time of the survey, the institution did not provide any type of assessment instruments to measure the computer and bibliographic skills of new students; however, the instructional librarian was working with the academic faculty to design such an instrument. The target day to start the administration of this instrument had been set for September 2007.

The English and Business Administration departments require that their students participate in the Information Literacy program in order to graduate. Students in the English program have to take an Information Literacy class during their 1st and 2nd years in the program. The Business Administration department requires its students to take an information literacy class during their third or fourth year of the program in order to complete their graduation requirements. Other departments that take advantage of the library’s Information Literacy program are the departments of Psychology, Spanish, Humanities, Sociology and Education. Information Literacy program classes cover searching strategies, selection of appropriate databases for research, copyright compliance, plagiarism, web site evaluation and assessment of the literature. Classes are hands-on and most of them are taught at the library’s computer lab facilities.

The program uses campus-wide publications, e-mail and the library’s Web page for marketing and is regularly in contact with the academic faculty that takes advantage of the program in order to evaluate and adjust the program to the needs of the faculty and students.

5.8 University of Puerto Rico Bayamon Campus
The University of Puerto Rico Bayamon campus library is staffed by 34 full-time employees, of whom 10 are faculty librarians. The campus has a total student population of approximately 4,600 students enrolled in Associate or Baccalaureate degrees. Under the direction of Professor Ivette Maldonado, the director of the bibliographic instruction program, the Information Literacy program of the library has been active for the last 9 years and all faculty librarians participate in it. Each 1st year class is approximately 1,200 students and roughly, 900 of them participate in the information literacy program. Although currently the institution does not provide an instrument to assess the computer and library skills of 1st year students when they begin their studies, one is in the planning stages for the Fall of 2008. In addition, the library is in the process of developing on-line tutorials to be administered via the library’s web page.

On average 1,400 students participate in the Information Literacy program every year, with an average of 77 classes taught during the academic year and a class size

average of 18 students per session. Classes cover topics on Web site evaluation, selection of the appropriate database for each specific research topics, plagiarism, copyright compliance, literature assessment, and database features. Classes are taught on-site either in the classroom or in the library’s computer labs, depending on the academic faculty request. The library uses campus-wide publications and e-mails (monthly) as part of its marketing program for the information literacy program. Regular evaluations of the program are conducted with the teaching faculty in order to customize the classes to the needs of the faculty.

5.9 University of Puerto Rico Rio Piedras Campus
The Rio Piedras campus of the University of Puerto Rico is the main campus of the UPR system. With a student population of a little over 20,500 students and an average 1st year class of close to 3,000 students, the Rio Piedras campus is the biggest campus of all universities on the island, including private and public higher educational institutions. The Rio Piedras campus confers all types of degrees from Associate and Baccalaureate degrees to Masters and PhD programs in most academic disciplines. The campus also houses the School of Law of the University of Puerto Rico, which has its own library, which falls beyond the spectrum of this study.

The Rio Piedras campus is served by one central library, the Jose M. Lazaro Library, and several smaller branches located across the campus to serve various departments and colleges. Known as the Libraries Systems of the University of Puerto Rico Rio Piedras campus the system employs a staff of 80 full-time employees including 31 professional librarians.

The library’s instructional program is coordinated from the central library by Jose M. Lazaro. Eighteen librarians participate in the information literacy program and classes have been active since 1992. The instructional program offers an average of 179 information literacy classes per year with close to 5,300 students participating in the program (with an average of 30 students per information literacy session). Classes are customized to the requirements of the faculty requesting the class and sessions are taught either in the requestor’s classroom or in teaching labs available at the Central Lazaro library and several of the other campus libraries. The branches with the most active instructional programs are the ones serving the departments of Education, General Studies and Natural Sciences.

Information literacy classes cover topics including: how to create appropriate search strategies, selection of the appropriate database according to the topic(s) being researched, database features and best search strategies, copyright law compliance, plagiarism, literature assessment, and web site assessment, etc. The central library conducts regular evaluations and assessments studies of the program. Marketing of the program is conducted by both the central library and by the branches, which cater to their specific target populations. Campus-wide e-mails are sent to the faculty and the student population promoting class offerings on a regular basis. The central library also uses campus-wide publications to market the information literacy program. The central
library is in the process of developing a more visible presence for its instructional program on the library’s web page, which will include on-line tutorials and tests.

6. Conclusion
Information Literacy programs at the University of Puerto Rico Libraries are active and working throughout the system but vary from campus to campus in size and scope. The Mayaguez, Cayey and Carolina libraries have the most successful programs with each program having been able to introduce credit courses into their institution’s curricula. The Cayey program is the most successful in this aspect by having been able to create required for-credit-courses for the Chemistry and Biology departments. The library’s instructional program at Mayaguez has been able to develop and implement three information literacy credit courses in the campus curriculum. Currently these are elective courses; however, they are very popular with the student population.

Although at the time of the interviews most programs were not utilizing on-line tutorials and web-based resources as part of their instructional programs, most of them are in the process of developing such services. None of the libraries had an instructional designer librarian on staff, only the Mayaguez and Arecibo campus libraries were in the process of hiring one.

The one aspect of this survey that was a surprise to the author was the fact that none of the programs offered the choice of classes in English. Given the fact that Puerto Rico is a territory of the United States with a largely fluent bilingual population, the author was surprised by the fact that only the Mayaguez campus library offered the choice of having Information literacy classes in English, and this was only if requested by the class professor. All other campus libraries, including the main campus library system at Rio Piedras, did not provide this alternative. When the Heads of the library instructional programs where questioned on this matter they responded uniformly that they saw no need or that there had never been a demand for it.

In general all programs reported that they were being fairly well supported by campus administration and that the academic faculty and students were in general taking advantage of their’ instructional programs. In terms of using the libraries’ web sites as an additional vehicle for the dissemination and implementation of the Information Literacy programs through the used of online tutorials, workshops and assessment instruments, most libraries were not using the medium at the time the survey was conducted but, most of them were in the process of creating and implementing the programs or in the planning stages of doing so. There was, in the opinion of the author, a lack of interest in hiring or creating instructional designer librarian positions in most campuses, with the exception of Mayaguez, and Arecibo campuses. Most campuses expressed general satisfaction with their classroom facilities and with their teaching technology available.

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